PacT Series

Master**PacT** MTZ IEC Switch Disconnectors and Circuit Breakers with MicroLogic X Control Unit

End-User Maintenance Procedures

PacT Series offers world-class breakers and switches

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Table of Contents

Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book

Document Scope

The aim of this document is to provide trained and qualified maintenance personnel with the technical information needed to perform Routine and Intermediate end-user preventive maintenance on the following devices:

- MasterPacT™ MTZ1 IEC circuit breakers with MicroLogic™ X control unit and switch-disconnectors
- MasterPacT™ MTZ2/MTZ3 IEC circuit breakers with MicroLogic™ X control unit and switch-disconnectors

For general information about Schneider Electric maintenance policies and expertise and tools, contact your Schneider Electric representative.

Validity Note

This document applies to the following IEC devices:

- MasterPacT MTZ1/MTZ2/MTZ3 switch-disconnectors
- MasterPacT MTZ1/MTZ2/MTZ3 circuit breakers with a MicroLogic or MicroLogicXi control unit

  NOTE: A MicroLogic Xi control unit is a MicroLogic X control unit without wireless communication capability.

  All the information related to the MicroLogic X control units presented in this guide applies to MicroLogic Xi control units except information about wireless communication.

  The specific features of the MicroLogic Xi control units are described in the appendix in DOCA0102•• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide*, page 6.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.

The technical characteristics of the devices described in this guide also appear online. To access the information online, go to the Schneider Electric home page at www.se.com.

Convention

In this document, the term *MasterPacT MTZ device* covers circuit breakers and switch-disconnectors.

Related Documents

Title of documentation	Reference number
MasterPacT MTZ with MicroLogic X Control Unit - Catalog	LVPED216026EN
MasterPacT MTZ with MicroLogic X Control Unit - Catalog numbers and spare parts	COM-POWER-LVMKT215EN

Title of documentation	Reference number
MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide	DOCA0099EN DOCA0099ES DOCA0099FR DOCA0099ZH
MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide	DOCA0100EN DOCA0100ES DOCA0100FR DOCA0100ZH
MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide	DOCA0101EN DOCA0101ES DOCA0101FR DOCA0101ZH
MasterPacT MTZ - MicroLogic X Control Unit - User Guide	DOCA0102EN DOCA0102ES DOCA0102FR DOCA0102ZH
Enerlin'X IO - Input/Output Application Module for One Circuit Breaker - User Guide	DOCA0055EN DOCA0055ES DOCA0055FR DOCA0055ZH
Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - User Guide	DOCA0106EN DOCA0106ES DOCA0106FR DOCA0106ZH
Enerlin'X IFE - Ethernet Switchboard Server - User Guide	DOCA0084EN DOCA0084ES DOCA0084FR DOCA0084ZH
Enerlin'X IFE - Ethernet Interface for One Circuit Breaker - User Guide	DOCA0142EN DOCA0142ES DOCA0142FR DOCA0142ZH
Enerlin'X FDM128 - Ethernet Display for Eight Devices - User Guide	DOCA0037EN DOCA0037ES DOCA0037FR DOCA0037ZH
MasterPacT MTZ1 - Fixed IEC Switch-Disconnector or Circuit Breaker with MicroLogic X Control Unit - Instruction Sheet	NVE35505
MasterPacT MTZ1 - Drawout IEC Switch-Disconnector or Circuit Breaker with MicroLogic X Control Unit - Instruction Sheet	NVE35506
MasterPacT MTZ2/MTZ3 - Fixed IEC Switch-Disconnector or Circuit Breaker with MicroLogic X Control Unit - Instruction Sheet	NVE35469
MasterPacT MTZ2/MTZ3 - Drawout IEC Switch-Disconnector or Circuit Breaker with MicroLogic X Control Unit - Instruction Sheet	NVE35470
Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - Instruction Sheet	NVE23550
MasterPacT MTZ1 3P/4P - Front Cover - Instruction Sheet	NVE56771
MasterPacT MTZ2 3P/4P - Front Cover - Instruction Sheet	NVE16117
MasterPacT MTZ1/MTZ2/MTZ3 - MicroLogic Transparent Cover - Instruction Sheet	NVE16151
MicroLogic X - Spare Battery - Instruction Sheet	NHA57283
MicroLogic X - Embedded Display - Instruction Sheet	NHA49910

Title of documentation	Reference number
MicroLogic Xi - Embedded Display - Instruction Sheet	GDE66729
MasterPacT MTZ1 - CDM Operation Counter - Instruction Sheet	NVE35516
MasterPacT MTZ2/MTZ3 - CDM Operation Counter - Instruction Sheet	NVE35485
MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet	NVE35463
MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet	NVE40749
MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet	NVE40766
MasterPacT MTZ1 - MCH Gear Motor - Instruction Sheet	NVE35514
MasterPacT MTZ2/MTZ3 - MCH Gear Motor - Instruction Sheet	NVE35483
MasterPacT MTZ1 - Arc Chute - Instruction Sheet	NVE35511
MasterPacT MTZ2/MTZ3 - Arc Chute - Instruction Sheet	NVE35479
MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet	NVE35503
MasterPacT MTZ1 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet	NVE56770
MasterPacT MTZ2/MTZ3 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet	NVE16146
MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet	NVE16135
MasterPacT MTZ2/MTZ3 - EF Combined Connected/Closed Contact - Instruction Sheet	NVE35482
MasterPacT MTZ1 - Safety Shutters - Instruction Sheet	NVE35509
MasterPacT MTZ2/MTZ3 - Safety Shutters - Instruction Sheet	NVE35476
MasterPacT MTZ2/MTZ3 - VIVC Front Face Shutter Position Indication and Locking - Instruction Sheet	NVE35478
MasterPacT MTZ1 - VSPD Disconnected Position Locking - Instruction Sheet	NVE56768
MasterPacT MTZ2/MTZ3 - VSPD Disconnected Position Locking - Instruction Sheet	NVE16142
MasterPacT MTZ1 - VBP Lockable Pushbutton Cover - Instruction Sheet	NVE56769
MasterPacT MTZ1 - Mechanical Interlocking for Source Changeover (2 Sources / Cable) - Instruction Sheet	NVE35522
MasterPacT MTZ1 - Mechanical Interlocking for Source Changeover (2 Sources / Rods) - Instruction Sheet	NVE35523
MasterPacT MTZ1 - IPA Cable-Type Door Interlock - Instruction Sheet	NVE35521
MasterPacT MTZ2/MTZ3 - VBP Lockable Pushbutton Cover - Instruction Sheet	NVE16147
MasterPacT MTZ2/MTZ3 - IPA Cable-Type Door Interlock - Instruction Sheet	NVE35495
MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for Source Changeover (2 Sources / Cable) - Instruction Sheet	NVE35496
MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for Source Changeover (2 Sources / Rods) - Instruction Sheet	NVE35497
MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 3 Sources - Instruction Sheet	NVE35498
MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 2 Sources and 1 Replacement - Instruction Sheet	NVE35499
MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 2 Sources and 1 Coupling - Instruction Sheet	NVE35500
MasterPacT MTZ1/MTZ2/MTZ3 - Set of 2 Cables for Interlocking 2.5 m (8.2 ft) - Instruction Sheet	NVE61729

Title of documentation	Reference number
MasterPacT MTZ1/MTZ2/MTZ3 - Set of 2 Rods for Interlocking - Instruction Sheet	NVE61744
MasterPacT MTZ1 - OF ON/OFF Indication Contacts - Instruction Sheet	NVE35513
MasterPacT MTZ2/MTZ3 - OF ON/OFF Indication Contacts - Instruction Sheet	NVE35481
MasterPacT MTZ1/MTZ2/MTZ3 - PF Ready-To-Close Contact - Instruction Sheet	NVE35466
MasterPacT MTZ1 - Connectors - Instruction Sheet	NVE35507
MasterPacT MTZ2/MTZ3 - Connectors - Instruction Sheet	NVE35472
MasterPacT MTZ1 - Microswitches OF/SDE/PF/CH - Instruction Sheet	NVE56767
MasterPacT MTZ2/MTZ3 - Microswitches OF/SDE/PF/CH - Instruction Sheet	NVE56766

Introduction

What’s in This Part

PacT Series Master Range

Future-proof your installation with Schneider Electric’s low-voltage and medium-voltage PacT Series. Built on legendary Schneider Electric innovation, the PacT Series comprises world-class circuit breakers, switches, residual current devices and fuses, for all standard and specific applications. Experience robust performance with PacT Series within the EcoStruxure-ready switchgear, from 16 to 6300 A in low-voltage and up to 40.5 kV in medium-voltage.

Introduction

Preventive maintenance tasks on MasterPacT MTZ circuit breakers with MicroLogic X control units, and on MasterPacT MTZ switch-disconnectors, are to be carried out following the Schneider Electric maintenance strategy.

Preventive maintenance tasks are organized into three programs depending on complexity and maintenance frequency, page 13:

- Routine end-user maintenance
- Intermediate end-user maintenance
- Manufacturer maintenance

For more information on the Schneider Electric maintenance strategy, refer to *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* in **Related Documents** at the beginning of this guide.

Instruction Sheets

When a corrective action in a maintenance procedure references an instruction sheet, refer to the Related documents section at the top of the procedure to find the relevant instruction sheet for the product.

For example, a reference to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet* means using:

- *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* or
- *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*.

Instruction sheets are available on TIPI, the internal website for Schneider Electric Services representatives.

Illustrations

The pictures and drawings in this document are for illustration only.

Tools

Performing the procedures of the maintenance program requires the following:

- A standard toolbox with electrical tools and equipment for an electrician.
- Specific tools, detailed in the maintenance procedures.

Preventive Maintenance Frequency

Preventive Maintenance Safety Instructions

Maintenance recommendations for each device are intended to maintain the equipment or subassemblies in a satisfactory operational state for their useful service life.

Preventive maintenance schedule is calculated by the MicroLogic X control unit from:

- The operating conditions of the MasterPacT MTZ device.
- The criticality of the user application.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Follow the recommendations for the maintenance given in the different chapters of this document, for each part of the device which is maintainable.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

If the recommended maintenance plan is not done as required, the service life of electrical distribution equipment is reduced.

Maintenance Programs

The following table summarizes maintenance operations for the three preventive maintenance programs:

Maintenance program	Maintenance description	Performed by
Routine end-user maintenance	Visual inspection and functional testing, replacement of inoperative accessories.	• Trained and qualified end-user personnel • Trained and qualified maintenance services provider personnel • Schneider Electric Services representatives
Intermediate end-user maintenance	Routine end-user maintenance, plus operational servicing and subassembly tests.	• Trained and qualified maintenance services provider personnel • Schneider Electric Services representatives
Manufacturer maintenance	Intermediate end-user maintenance, plus diagnostics and part replacements by Schneider Electric Services.	Schneider Electric Services representatives

Favorable Environmental Conditions and Device Operating Conditions

Environmental conditions and device operating conditions are considered to be favorable **when all of the following conditions** are met:

Favorable environmental conditions and device operating conditions	
Temperature	Annual average ambient temperature outside the switchboard Ta < 25 °C (77 °F) (IEC 61439-1). Device installed in an air-conditioned room or in a ventilated switchboard.
Percent load	< 50 % of In (daily process 8/24 h or continuous process 24/24 h)
Relative humidity	< 50 %
Corrosive atmosphere	Device installed in category 3C1 environment or in a closed room that creates favorable operating conditions (air is conditioned and purified).
Salt environment	None
Dust	Negligible. Device installed in a switchboard equipped with filters or a ventilated IP54 enclosure.
Vibration	None

Normal Environmental Conditions and Device Operating Conditions

Environmental conditions and device operating conditions are considered to be normal **when all of the following conditions** are met:

Normal environmental conditions and device operating conditions	
Temperature	Annual average ambient temperature outside the switchboard Ta < 25 °C (77 °F) (IEC 61439-1)
Percent load	< 80 % of In (daily process 8/24 h or continuous process 24/24 h)
Harmonics	Harmonic current per phase < 30 % of In
Relative humidity	< 70 %
Corrosive atmosphere	Device installed in environment category 3C2 or 3C3 (IEC 60721-3-3)
Salt environment	No salt mist
Dust	Low level. Device installed in a switchboard equipped with filters or a ventilated IP54 enclosure.
Vibration	Permanent vibration < 0.2 g

Severe Environmental Conditions and Device Operating Conditions

Environmental conditions and device operating conditions are considered to be severe **if any of the following conditions** are present:

Severe environmental conditions and device operating conditions	
Temperature	Annual average ambient temperature outside the switchboard Ta between 35 °C (95 °F) and 45 °C (113 °F) (IEC 61439-1)
Percent load	> 80 % of In (daily process 8/24 h or continuous process 24/24 h)
Relative humidity	> 80 %
Corrosive atmosphere	Device installed in category 3C4 environment without any particular protection
Salt environment	Device installed less than 10 kilometers from the coast without any particular protection
Dust	High level. Device not installed inside an enclosure equipped with filters or a ventilated IP54 enclosure.
Vibration	Continuous vibrations between 0.2 g and 0.5 g

For example, severe environmental conditions and device operating conditions prevail in marine and wind power applications.

Criticality of User Application

The following table describes the three criticality levels of user application.

Criticality level	**Description**
Low	The loss of function will cause minimal curtailment of operations or may require minimal monetary investment to restore full operations. Normal contingency planning would cover the loss.
Moderate	The loss of function will have noticeable impact on the facility. It may have to suspend some operations briefly. Some monetary investments may be necessary to restore full operations. It may cause minor personal injury.
High	The loss of function will cause personal injury or substantial economic damage. Loss would not be disastrous, but the facility would have to suspend at least part of its operations immediately and temporarily. Reopening the facility would require significant monetary investments.

Recommended Frequency for the Routine End-User Maintenance Program

The following table indicates the recommended frequency to perform the Routine end-user maintenance program according to operating conditions and criticality of the user application.

Operating conditions	**Criticality of user application**		
	Low	**Moderate**	**High**
Favorable	2 years	2 years	2 years
Normal	1 year	1 year	1 year
Severe	1 year	1 year	1 year

Recommended Frequency for the Intermediate End-User Maintenance Program

The following table indicates the recommended frequency to perform the Intermediate end-user maintenance program according to operating conditions and criticality of the user application.

Operating conditions	Criticality of user application		
	Low	Moderate	High
Favorable	4 years	4 years	4 years
Normal	2 years	2 years	2 years
Severe	2 years	2 years	2 years

Recommended Frequency for the Manufacturer Maintenance Program

The following table indicates the recommended frequency to perform the Manufacturer maintenance program according to operating conditions and criticality of the user application.

Operating conditions	Criticality of user application		
	Low	Moderate	High
Favorable	6 years	5 years	4 years
Normal	5 years	4 years	3 years
Severe	4 years	3 years	2 years

A complete check-up is recommended when tripping occurs due to a short-time or instantaneous short-circuit.

Process of Preventive Maintenance

Process of Routine End-User Maintenance Program

The Routine end-user preventive maintenance includes the following stages:

Stage	Description
1	Take note of the notification (on MicroLogic X HMI, EcoStruxure Power Device app, or EcoStruxure Power Commission software) that the Routine end-user maintenance program is required.
2	Schedule the Routine end-user maintenance program.
3	Perform the Routine end-user maintenance program, page 21.
4	In EcoStruxure Power Commission software, fill in the date, maintenance operator and company names in the screen about the Routine end-user maintenance program, page 50.

Process of Intermediate End-User Maintenance Program

The Intermediate end-user preventive maintenance includes the following stages:

Stage	Description
1	Take note of the notification (on MicroLogic X HMI, EcoStruxure Power Device app, or EcoStruxure Power Commission software) that the Intermediate end-user maintenance program is required.
2	Schedule the Intermediate end-user maintenance program.
4	Perform the Intermediate end-user maintenance program, page 92.
5	In EcoStruxure Power Commission software, fill in the date, maintenance operator and company names in the screen about the Intermediate end-user maintenance program, page 50.

Process of Manufacturer Maintenance Program

The Manufacturer preventive maintenance includes the following stages:

Stage	Description
1	Take note of the notification (on MicroLogic X HMI, EcoStruxure Power Device app, or EcoStruxure Power Commission software) that the Manufacturer maintenance program is required.
2	Schedule the Manufacturer maintenance program with your Schneider Electric Services representative.
3	The Schneider Electric Services representative performs the Manufacturer maintenance program and fills in the date in the screen about the Manufacturer maintenance program in EcoStruxure Power Commission software, page 50.

Maintenance Schedule

Overview

The MicroLogic X control unit provides information to help with scheduling preventive maintenance operations. It monitors maintenance programs performed and generates events to indicate that maintenance is due.

For more information about the maintenance schedule function, refer to *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* in the **Related Documents** at the beginning of this guide.

Operating Principle

The MicroLogic X control unit generates events to indicate that maintenance is due.

The schedule for maintenance operations depends on:

- The operating and environmental conditions of the MasterPacT MTZ circuit breaker.
- The criticality of the user application.
- The date of the last maintenance program performed and declared by using EcoStruxure Power Commission software.

Basic and Standard end-user maintenance schedule events and Manufacturer maintenance schedule events are calculated:

- For the first event:
  - From the commissioning date of the circuit breaker, if this date is declared by using EcoStruxure Power Commission software.
  - Otherwise from the assembly date of the circuit breaker.
- For subsequent events, from the date of the previous maintenance program (Routine, Intermediate, or Manufacturer) performed, if the date is declared by using EcoStruxure Power Commission software.

  NOTE: Subsequent Manufacturer maintenance schedule events are calculated from the previous Manufacturer maintenance program performed and declared by using EcoStruxure Power Commission software.

If the date of the maintenance program performed is not declared by using EcoStruxure Power Commission software, the MicroLogic X control unit continues to use the commissioning date or assembly date to calculate the maintenance schedule events.

NOTE: Basic maintenance events correspond to Routine end-user maintenance detailed in this guide. Standard maintenance events correspond to Intermediate end-user maintenance detailed in this guide.

Maintenance Schedule Settings

The maintenance schedule is determined from the following recorded parameters and declared settings.

The following parameters for environmental conditions are recorded by the MicroLogic X control unit:

- Temperature
- Percent load
- Harmonics

- Relative humidity
- Vibration

The following parameters for environmental conditions and user application criticality are declared by using EcoStruxure Power Commission software (password-protected).

Setting		Value	Factory setting
Environmental conditions	Corrosive atmosphere	• 3C1 (Rural area) • 3C2 (Urban area) • 3C3 (Immediate vicinity of industrial pollution) • 3C4 (Inside polluting industrial premises)	3C2
	Salt environment	• None (No salt mist) • Moderate (Salt mist < 10 km from seaside) • Significant (Salt mist < 1 km from seaside)	None
	Dust	• Low level • Moderate level • High level	Low level
User application criticality		• Low • Moderate • High	Low

Data Availability

Maintenance schedule data is as follows:

- Data of the last maintenance program performed, if the data is declared by using EcoStruxure Power Commission software:
  - Program performed: Routine, Intermediate, or Manufacturer
  - Date of maintenance operation
  - Name of service provider
  - Name of maintenance personnel
- Data of the next maintenance program to be performed:
  - Program to be performed: Routine, Intermediate, or Manufacturer
  - Either the number of months before the program is due or the number of months it is overdue

Maintenance schedule data is available as follows:

- On the MicroLogic X display screen at: **Home > Maintenance > Assistance > Maint.schedule**
- With EcoStruxure Power Commission software
- With EcoStruxure Power Device app through Bluetooth or USB OTG connection
- On a remote controller using the communication network

Predefined Events

The maintenance schedule function generates the following events:

Event	History	Severity
Schedule Basic maintenance within one month	Diagnostic	Medium(1)
Schedule Standard maintenance within one month	Diagnostic	Medium(2)

Event	History	Severity
Schedule manufacturer maintenance within three months	Diagnostic	Medium(2)

(1) Disabled by default. Customizable with EcoStruxure Power Commission software.

(2) Enabled by default, with pop-up messages.

For information about recommended action on events, refer to the relevant document in the **Related Documents** at the beginning of this guide:

- *MasterPacT MTZ1 - Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Units - User Guide*
- *MasterPacT MTZ2/MTZ3 - Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Units - User Guide*

NOTE: Global service plans delivered by Schneider Electric may include maintenance plans for your equipment, with a different wording for maintenance levels:

- Basic maintenance in MicroLogic X events corresponds to Routine maintenance in service plans and in maintenance guides for MasterPacT MTZ circuit breakers with MicroLogic X control unit.
- Standard maintenance in MicroLogic X events corresponds to Intermediate maintenance in service plans and in maintenance guides for MasterPacT MTZ circuit breakers with MicroLogic X control unit.
- Manufacturer maintenance remains the same.

Routine End-User Maintenance Procedures

What's in This Part

Device NII_Z_1: Check the General Condition of the Device

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Visually check that there are no visible signs of aging or damage on the different parts of the device.
Goal	Verify the general condition of the device in operation or following long storage.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–

Procedure characteristics	Description
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 3P/4P - Front Cover - Instruction Sheet* • *MasterPacT MTZ2 3P/4P - Front Cover - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MicroLogic Transparent Cover - Instruction Sheet* • *MicroLogic X - Spare Battery - Instruction Sheet* • *MicroLogic X - Embedded Display - Instruction Sheet* • *MicroLogic Xi - Embedded Display - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected

Checking the Front Cover of the Device

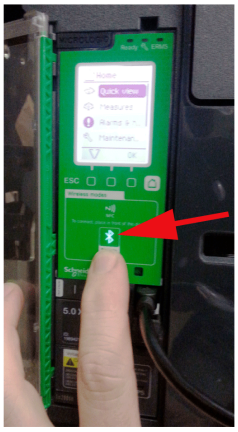
Step	Action	Corrective action
1	Check presence of all screws on the front cover: • For MasterPacT MTZ1: four screws. • For MasterPacT MTZ2/MTZ3: five screws.	If any screws are missing, replace the front cover (refer to *MasterPacT MTZ 3P/4P - Front Cover - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Check that the front cover is not cracked, split open, or deformed.	If the front cover is damaged, replace it (refer to *MasterPacT MTZ 3P/4P - Front Cover - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.

Step	Action	Corrective action
3	Check that the identification labels are present on the device and the chassis, including: • Identification labels (bar code)  • Rating plate 	To replace the rating plate, contact your Schneider Electric Services representative.
4	If available, check the label indicating the date of the last maintenance operation.	

Checking the MicroLogic X Control Unit

Step	Action	Corrective action
1	Check that the transparent cover is in place.	• If the transparent cover is not correctly mounted, remove it then mount it again (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - MicroLogic Transparent Cover - Instruction Sheet*). • If the transparent cover is missing or damaged, replace it. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	To open the transparent cover, pull its upper right-hand side corner. 	

Step	Action	Corrective action
	NOTE: The transparent cover must be opened to modify the protection settings locally or to access the mini USB port on the front of the MicroLogic X control unit. At the end of each check when using the mini USB port: 1. Remove the cable from the mini USB port. 2. Close the transparent cover completely. The cover does not need to be opened when modifying the protection settings remotely.	
3	Briefly press (<1 s) the Test/Reset button and check that the four trip cause LEDs and the red Service LED are on. 	• If one LED does not light up, contact your Schneider Electric Services representative. • If the four LEDs light up in sequence or the four trip cause LEDs and the red Service LED do not light up: 1. Replace the MicroLogic X internal battery (refer to *MicroLogic X - Spare Battery - Instruction Sheet*). 2. Do the procedure again. **NOTE:** If the LEDs light up in sequence, the red Service LED remains lit until the battery is changed or empty. If the problem persists, contact your Schneider Electric Services representative.
4	Connect the MicroLogic X control unit to a power supply. For example, connect the Mobile Power Pack external battery to the MicroLogic X USB port. 	
5	Check that the **Ready** LED is flashing, meaning that the fault detection chain is working correctly. 	If the LED does not flash and no event message is displayed on the control unit, contact your Schneider Electric Services representative to replace the MicroLogic X control unit.

Step	Action	Corrective action
6	Press the Bluetooth button and check that the Bluetooth LED is on. 	If the LED does not light up, replace the MicroLogic X display screen (refer to *MicroLogic X - Embedded Display - Instruction Sheet*).
7	Check the legibility of the data and settings displayed on the MicroLogic X display screen.  **NOTE:** The protection functions remain operational when the MicroLogic X display screen is not operating correctly. Settings and data can be viewed on other interfaces, for example, EcoStruxure Power Commission software.	If the display is not legible, or if the contextual buttons are not operating correctly, replace the MicroLogic X display screen (refer to *MicroLogic X - Embedded Display - Instruction Sheet*).

Cleaning the Device

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Do not use pressurized cleaning products or products containing solvents (trichloroethane or trichloroethylene) such as WD40.

Failure to follow these instructions can result in equipment damage.

Pressurized cleaning products can cause the following damages:

- Removal of grease from inaccessible lubrication points. These areas are greased for the life of the device and cannot be regreased.
- Corrosion of points that are not regreased.
- Damage caused by the pressure applied by the cleaning product.
- Temperature rise due to the presence of an insulating solvent in the contact zones.
- Elimination of special protection.
- Deterioration of plastic materials.

Step	Action	Comment
1	Clean the device using a clean, dry cloth or a brush.	If there is excessive dust, contact your Schneider Electric Services representative.

Checking the Case of the Device and Chassis for Drawout Device

Step	Action	Corrective action
1	Check for cracks and change in color.	If there are cracks or change in color, contact your Schneider Electric Services representative.
2	Check for traces of black smoke (indicating tripping due to a short-circuit) around the arc chutes and on the sides.  **NOTE:** For a fixed device, remove the additional support brackets, if necessary.	If there are traces of black smoke, contact your Schneider Electric Services representative.

Checking Connections

Step	Action	Corrective action
1	Visually check the device terminals for a change in color indicating abnormal temperature rise. • For fixed devices: customer terminals • For drawout devices: ◦ Customer terminals  ◦ Internal terminals  ◦ Disconnecting contact clusters 	If there is a change in color on device terminals and you are qualified, follow procedure Power Connections NIII_Z_1, page 171. Otherwise, contact your Schneider Electric Services representative.
2	Visually check the condition of cable insulation (for example, change in color, cracks, or cable shrinkage).	If the cables show signs of damage to insulation and you are qualified, follow procedure Power Connections NIII_Z_1, page 171. Otherwise, contact your Schneider Electric Services representative.

Checking Connections in Corrosive Environments

In the case of corrosive environments, contact your Schneider Electric Services representative.

For example, devices may be used in places where sulfur dioxide (SO_2) or hydrogen sulphide (H_2S) are present, such as, steel works, paper mills, synthetic fibers, refineries, and sulfur chemical plants. Corrosive chemicals can have an impact on the integrity of the device:

- Excessive temperature rise causes sulfurization (oxidation) of silver and results in destructionof contacts.
- Contact with SO_2 and H_2S blackens solid silver and silver-plated contacts which increases contact resistance and temperature.

Mechanism NII_Z_1: Operate the Device Manually and Electrically

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the operation of: • Charging mechanism using the spring charging handle. • Device opening and closing mechanism by using: ◦ The pushbuttons. ◦ The XF/MX/MN voltage releases. ◦ EcoStruxure Power Commission software when communicating voltage releases are installed. • The position indicators. • The CDM operation counter, if present.
Goal	Verify that the device can be opened/closed manually and electrically.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	Connect the XF/MX/MN voltage releases to the power supply.

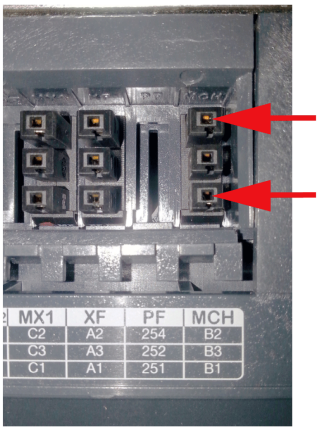
Procedure characteristics	Description
Necessary tools	• Adjustable external power supply • Voltmeter • LV847074SP terminal block • A PC running EcoStruxure Power Commission software • A USB cable (standard to mini USB port)
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - CDM Operation Counter - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - CDM Operation Counter - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*

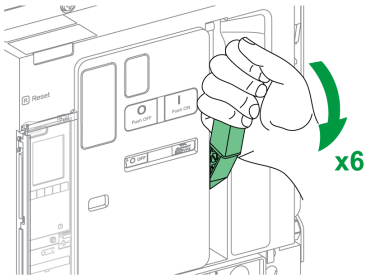
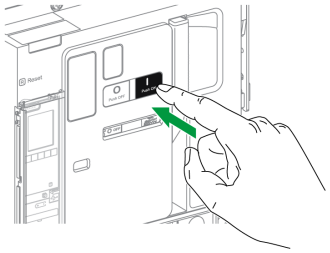
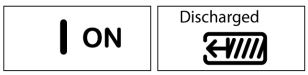
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

Checking Manual Opening/Closing of the Device

Step	Action	Corrective action
1	For fixed devices equipped with the MCH gear motor, disconnect the auxiliary circuit for the MCH gear motor (terminals B1 and B2). 	
2	Manually charge the mechanism by pulling the spring charging handle down six times.	

Step	Action	Corrective action
	When the spring charging handle no longer resists, the mechanism is charged. 	
3	Press the closing pushbutton to close the device.  The device closes.	If the device does not close, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
4	Check that the indicators show that the device is closed, and the mechanism is discharged. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
5	Check that the CDM operation counter increments. 	If the CDM operation counter does not increment, check it is correctly installed (refer to *MasterPacT MTZ - CDM Operation Counter - Instruction Sheet*). If the CDM operation counter does not increment and is correctly installed, replace it.
6	Charge the mechanism again. Check that the indicators show that the device is closed, and the mechanism is charged and not ready-to-close. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
7	Press the opening pushbutton to open the device. The device opens.	If the device does not open, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
8	Check that the indicators show that the device is open, and the mechanism is charged and ready-to-close. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.

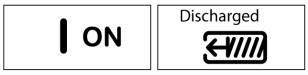
Checking Electrical Closing with the XF Closing Voltage Release

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective action
1	Reconnect the auxiliary circuit for the MCH gear motor (terminals B1 and B2).	
2	Press the external pushbutton to close the device. The device closes.	If the device does not close, it can be due to external conditions. Refer to troubleshooting in the appendix, page 177. If the external conditions are correct: • For a fixed device: replace the XF closing voltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*) and do the procedure again. • For a drawout device, check that the XF closing voltage release operates correctly as follows: **1.** Put the device in the withdrawn position. **2.** Insert a replacement LV847074SP terminal block in the appropriate location on the device.  **3.** Connect the XF closing voltage release to the adjustable external power supply set to Un. ◦ If the device closes, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the device does not close, replace the XF closing voltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*) and do the procedure again. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
3	Check that the indicators show that the device is closed and check the mechanism status: • Without MCH gear motor, the mechanism is discharged.  • With MCH gear motor, the mechanism is charged. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
4	Check that the CDM operation counter increments.	If the CDM operation counter does not increment, check it is correctly installed (refer to *MasterPacT MTZ - CDM Operation Counter - Instruction Sheet*). If the CDM operation counter is correctly installed, replace it.

Checking Electrical Opening with the MX Opening Voltage Release

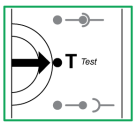
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

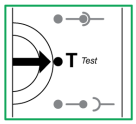
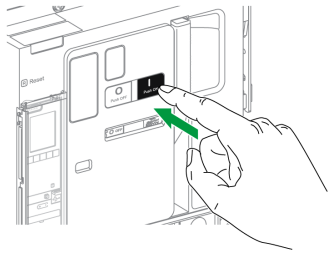
When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Execute the following procedure for MX1 then MX2, if connected.

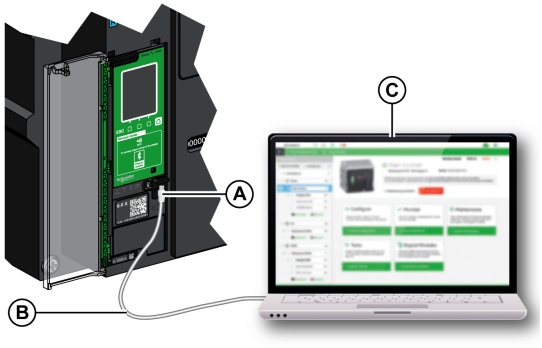
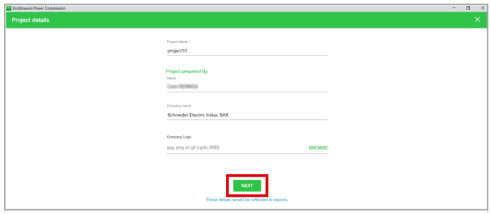
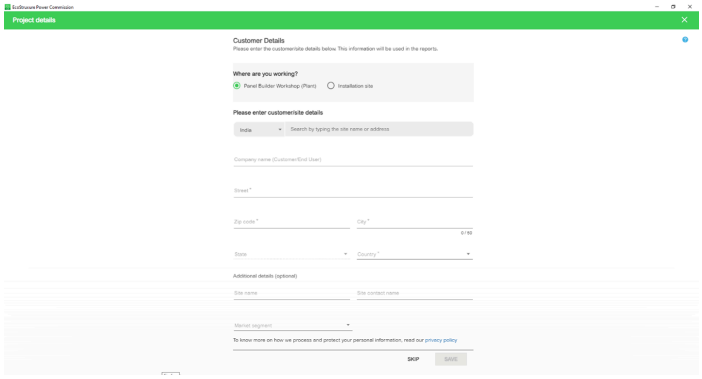
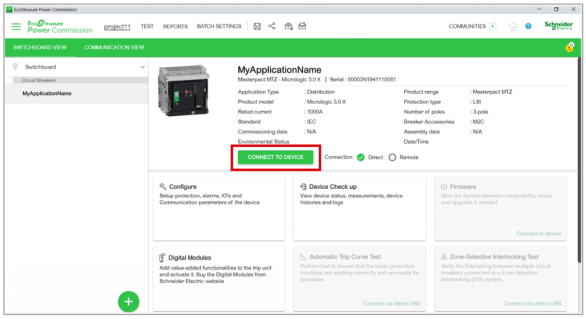
Step	Action	Corrective action
1	For drawout devices, check that the device is in the test position. 	
2	Press the external pushbutton to open the device. The device opens.	If the device does not open, it can be due to external conditions. Refer to troubleshooting in the appendix, page 177. If the external conditions are correct: • For a fixed device: replace the MX opening voltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*) and do the procedure again. • For a drawout device, check that the MX closing voltage release operates correctly as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block in the appropriate location on the device.  **3.** Connect the MX opening voltage release to the adjustable external power supply set to Un. ◦ If the device opens, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the device does not open, replace the MX opening voltage release and do the procedure again with the device in the test position. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
3	Check that the indicators show that the device is open and check the mechanism status: • Without MCH gear motor, the mechanism is discharged.  • With MCH gear motor, the mechanism is charged. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.

Checking Electrical Opening with the MN Undervoltage Release

Step	Action	Corrective action
1	For drawout devices, check that the device is in the test position. 	
2	• Without MCH gear motor: manually charge the mechanism by pulling the spring charging handle down six times. When the spring charging handle no longer resists, the mechanism is charged. • With MCH gear motor: the mechanism is automatically charged.	
3	Press the external pushbutton to close the device.  The device closes.	If the device does not close, check the MN undervoltage release wiring and power supply, and refer to troubleshooting in the appendix, page 177.
4	• For fixed devices: ◦ Remove the fixed auxiliary terminal block. ◦ Then, the device opens. • For drawout devices: ◦ Rack-out the device to the disconnected position. ◦ Then, the device opens.	If the device does not open, replace the MN undervoltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
5	Check that the indicators show that the device is open and check the mechanism status: • Without MCH gear motor, the mechanism is discharged.  • With MCH gear motor, the mechanism is charged and not ready-to-close. 	If the indicators show different information, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.

Checking Opening/Closing of the Device in a Communication Network

If XF/MX communicating voltage releases are installed in the device, do the following procedure to test the close and open controls of the device by using EcoStruxure Power Commission software.

Step	Action	Corrective action
1	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
2	Launch EcoStruxure Power Commission software.	
3	Click **Connect Device Directly.** **Result**: A window displays to indicate that the device discovery is in progress. It disappears automatically when the device is discovered.	
4	Click **NEXT** to close the **Project Information** window. 	
5	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**. 	
6	Click the **Connect to device** button. 	
7	In the **Device Check up** section, click the **Device** tab.	
8	Click **CLOSE** to close the device.	

Step	Action	Corrective action
9	Read carefully the safety message that displays then click **Accept**.	
10	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **OK**.	
11	A message displays when the close operation of the device has completed successfully. Click **OK**.	If the device does not close, refer to troubleshooting in the appendix, page 186.
12	In **Device Status** data, check that **Breaker position** is **Close**.	If the device status is not correct, contact your Schneider Electric Services representative.
13	In the **SWITCHBOARD VIEW** window, click **OPEN** to open the device.	
14	Read carefully the safety message that displays then click **Accept**.	
15	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **OK**.	
16	A message displays when the open operation of the device has completed successfully. Click **OK**.	If the device does not open, refer to troubleshooting in the appendix, page 186.
17	In **Device Status** data, check that **Breaker position** is **Open**.	If the device status is not correct, contact your Schneider Electric Services representative.
18	Click the **Disconnect** button to disconnect the device from EcoStruxure Power Commission software.	
19	Exit EcoStruxure Power Commission software.	

Mechanism NII_Z_2: Charge the Device Electrically with MCH Gear Motor

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check the operation of the MCH gear motor and its charging time. • Check the operation of the CH contact of the MCH gear motor. • Check the number of charging operations of MCH gear motor from a mobile device.
Goal	Verify that the device charges electrically.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	Connect the MCH gear motor to the power supply.

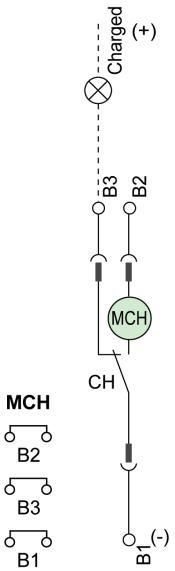
Procedure characteristics	Description
Necessary tools	• Stopwatch • Ohmmeter • LV847074SP terminal block
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* • *MasterPacT MTZ1 - MCH Gear Motor - Instruction Sheet* for operating limits • *MasterPacT MTZ2/MTZ3 - MCH Gear Motor - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

MCH Gear Motor Wiring Diagram

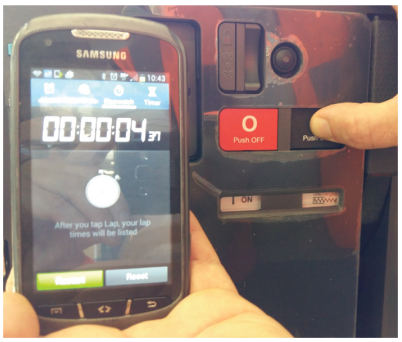


MCH Gear Motor Charging Time Definition

The charging time is the time elapsed between the closing order and the moment when the mechanism is fully charged.

The charging time during the closing operation does not exceed 6 seconds.

Checking Operation of MCH Gear Motor and CH Contact

Step	Action	Corrective action
1	Remove the MCH gear motor power supply.	
2	Do an opening/closing/opening cycle to discharge the mechanism.	
3	With the device in the open position and the mechanism discharged, check electrical continuity between terminals B1-B2, and electrical non-continuity between terminals B1-B3.	In case of electrical non-continuity between terminals B1-B2, or electrical continuity between terminals B1-B3: • For a fixed device: replace the MCH gear motor (refer to *MasterPacT MTZ - MCH Gear Motor - Instruction Sheet*) and do the procedure again. • For a drawout device, check that the MCH gear motor operates correctly as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block at the appropriate location on the device.  **3.** Check the electrical continuity between terminals B1-B2 and non-continuity between terminals B1-B3 directly on the LV847074SP terminal block. ◦ If the check is correct, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the check is not correct, replace the MCH gear motor and do the procedure again with the device in the test position. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
4	Manually charge the mechanism.	
5	Reconnect the MCH gear motor power supply.	
6	Start the stopwatch while pressing the closing pushbutton.  The device closes and the mechanism is automatically charged.	If the device does not close, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
7	Stop the stopwatch when the mechanism is totally charged.	

Step	Action	Corrective action
8	Check the mechanism charging time: it must not exceed 6 seconds.	If the charging time exceeds 6 seconds, do the procedure three more times from the beginning. If the charging time does not improve, follow the procedure Mechanism NIII_Z_1 to check the voltage supply of the MCH gear motor, page 93. If there is still no improvement, replace the MCH gear motor and measure the charging time again. If the problem persists, contact your Schneider Electric Services representative.
9	Check electrical continuity between terminals B1-B3.	In case of electrical non-continuity between terminals B1-B3, see the corrective action concerning electrical continuity above.

Checking Number of Charging Operations of MCH Gear Motor From EcoStruxure Power Device App on a Smartphone

You can read the charging motor counter remotely from EcoStruxure Power Device app with Bluetooth Low Energy connection.

Step	Action	Corrective action
1	Read the value on the mobile application. For information about EcoStruxure Power Device app, refer to *MasterPacT MTZ - MicroLogic X Control Unit - User Guide*.	
2	Compare the value with the maximum number of charging operations indicated in *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* .	• If the limit has been reached, replace the MCH gear motor (refer to *MasterPacT MTZ - MCH Gear Motor - Instruction Sheet*). • If the limit is close, preventively replace the MCH gear motor (refer to *MasterPacT MTZ - MCH Gear Motor - Instruction Sheet*).

Mechanism NII_Z_3: Check the Complete Closing of Device Poles

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

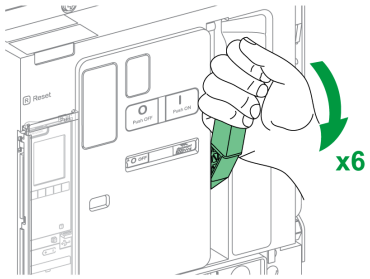
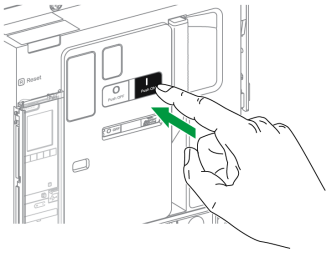
Procedure characteristics	Description
Action	Check that when the spring charging handle is pulled down with the device in the closed position and the mechanism charged, the device does not open.
Goal	Verify that the poles are closed and mechanically latched after closing the device manually.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	This check must be carried out manually. On fixed devices equipped with the MCH gear motor, disconnect the auxiliary circuit for the MCH gear motor (terminals B1 and B2).
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected

Checking Device Pole Complete Closing

Step	Action	Corrective action
1	Manually charge the mechanism by pulling the spring charging handle down six times. When the spring charging handle no longer resists, the mechanism is charged. 	
2	Press the closing pushbutton to close the device.  The device closes.	If the device does not close, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.
3	Pull the spring charging handle down. The device must remain closed. The indicator shows  .	If the device opens (the indicator shows ), the poles are not mechanically latched. Contact your Schneider Electric Services representative.

Auxiliaries NII_Z_1: Check Auxiliary Wiring and Insulation

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Visually check external and internal wiring and insulation of control and indication auxiliaries.
Goal	Verify electrical continuity of auxiliary circuits and contact robustness.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	Flat screwdriver, 3 mm
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected

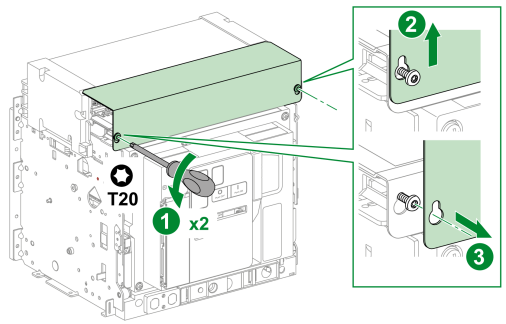
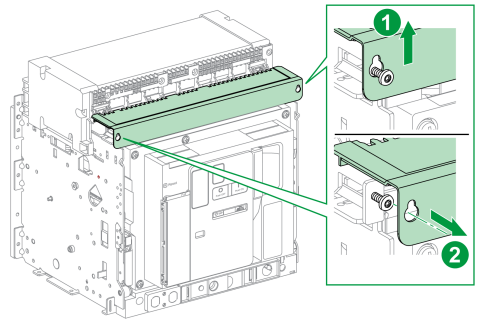
Checking Terminal Block and Connector Wiring

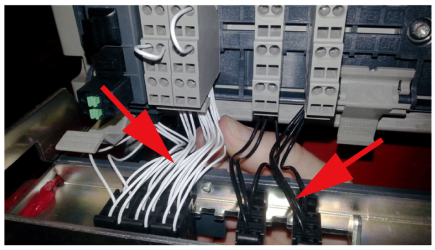
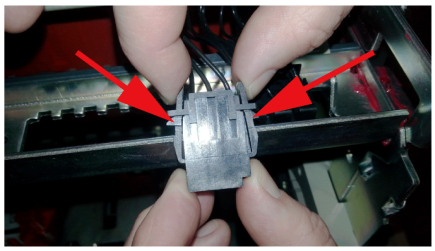
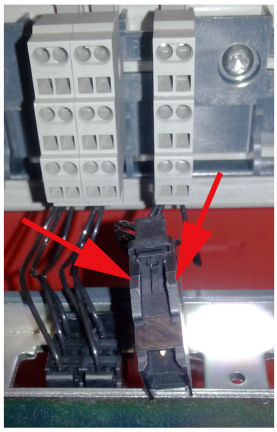
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

Use a properly rated voltage sensing device to confirm that the PTE voltage measurement input is de-energized (V1, V2, V3 on UC4 terminal block, VN on UC3 terminal block).

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective action
1	Remove the auxiliary terminal shield from a drawout device, if present. 	
2	Check that the external wiring is connected securely in the terminals.	If the connection is loose, replace the terminal blocks (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Visually check the insulation of the external wiring.	If the wire insulation is cracked or damaged, replace the wires.
4	Check the terminal blocks for warping, damage, or change in color indicating abnormal temperature rise.	If there is a change in color, replace the terminal blocks (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*).
5	For a MasterPacT MTZ2/MTZ3 drawout device, remove the terminal block identification plate. 	

Step	Action	Corrective action
6	Check the connection and wire insulation between the two parts of the terminal blocks.  	If the connection is loose or the wire insulation is cracked or damaged, replace the terminal blocks (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*).
7	Check the mounting of connectors on the auxiliary crossbar. 	• If a connector is damaged, replace the terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*). • If the crossbar is damaged, contact your Schneider Electric Services representative.
8	For a device with ULP port module, refer to Checking Connection on the Optional ULP Port Module, page 46. For a device with EIFE interface, refer to Checking Connection on the Optional EIFE Interface, page 46.	
9	Put the terminal block identification plate and the auxiliary terminal shield back in place.	

Checking Connections on the Optional ULP Port Module

Step	Action	Corrective action
1	Check the connection of the 24 Vdc power supply on the ULP port module.	• If the cable is loose, tighten it. • If the cable insulation is cracked or damaged, replace the cable. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Check the connection of the ULP cords on the ULP port module.	If a plug clip on an RJ45 connector is damaged, replace the ULP cord. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Check the ULP cord insulation.	If the insulation is cracked or damaged, replace the ULP cord. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.

Checking Connections on the Optional EIFE Interface

Step	Action	Corrective action
1	Check the connection of the ULP cord on the EIFE interface.	• If the cable is loose, tighten it. • If the cable insulation is cracked or damaged, replace the cable. • If the plug clip on the connector is damaged, replace the cable. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Check the connections of the Ethernet cables on the EIFE interface.	If a plug clip on an RJ45 connector is damaged, replace the Ethernet cable.
3	Check the Ethernet cable insulation.	If the insulation is cracked or damaged, replace the Ethernet cable.

Control Unit NII_Z_1: Check Device Tripping and Operation of SDE Fault-Trip Indication Contacts

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check that the device trips. • Check that the fault-trip indication contacts, SDE1 (standard) and SDE2 (optional), operate correctly. • Check that the device resets mechanically (standard) and electrically (with optional RES remote reset).
Goal	Verify that the device operates fully (tripping mechanism, indication, and reset) when an electrical fault occurs.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–

Procedure characteristics	Description
Necessary tools	• A PC running EcoStruxure Power Commission software • A USB cable (standard to mini USB port) • LV847074SP terminal block • Ohmmeter
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help* • *MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*

Preliminary Conditions

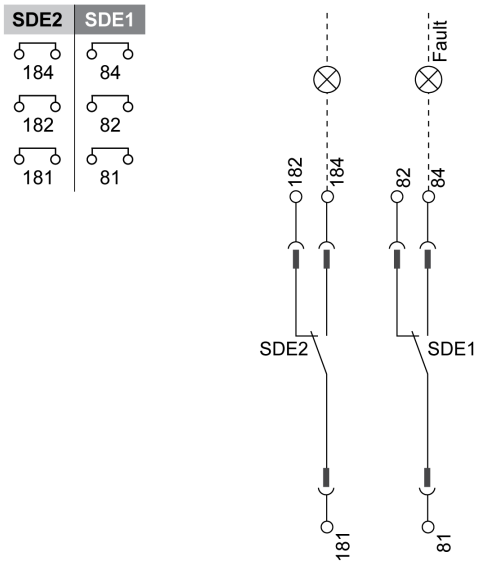
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Closed	Discharged	Test

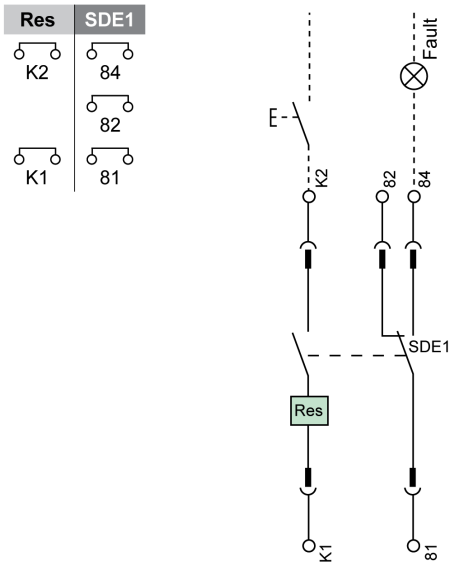
SDE Fault-Trip Indication Contact and RES Remote Reset Wiring Diagram

The optional RES electrical remote reset is not compatible with the optional SDE2 additional fault-trip indication contact because they are installed in the same physical place.

SDE1 and SDE2 fault-trip indication contacts



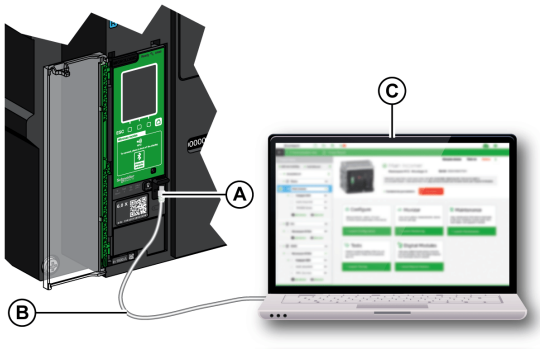
SDE1 fault-trip indication contact and RES remote reset



Checking the MicroLogic X Trip Cause LEDs

Step	Action	Corrective action
1	Briefly press (<1 s) the Test/Reset button and check that the four trip cause LEDs and the red Service LED are on. 	• If one LED does not light up, contact your Schneider Electric Services representative. • If the four LEDs light up in sequence or the four trip cause LEDs and the red Service LED do not light up, refer to Step 3 when checking the MicroLogic X control unit in procedure Device NII_Z_1, page 24. **NOTE:** If the LEDs light up in sequence, the red Service LED remains lit until the battery is changed or empty.

Do a Force Trip Test

Step	Action	Corrective action
1	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
2	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
3	On EcoStruxure Power Commission software, select the device.	
4	Force the device to trip by clicking the **Force trip** button on the EcoStruxure Power Commission screen.	

Step	Action	Corrective action
5	Check that the device trips and that the blue fault-trip reset button on the front cover pops out.	• If the blue fault-trip reset button does not pop out, contact your Schneider Electric Services representative. • If the device does not trip: 1. Check that the device is closed. 2. Check that the blue fault-trip reset button is pushed-in. Refer to troubleshooting in the appendix, page 177. 3. Do the procedure again. • If the problem persists, contact your Schneider Electric Services representative.
6	Check that the LED Isd/Ii is on and that the MicroLogic X screen display turns to red with the corresponding message. 	

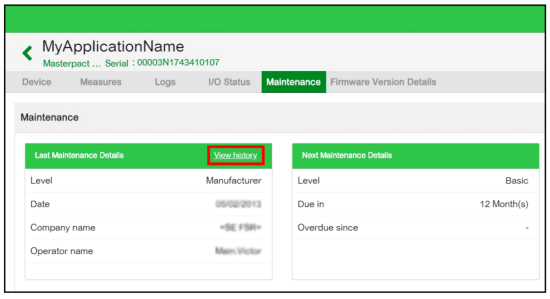
Declaring the Maintenance Date in EcoStruxure Power Commission Software

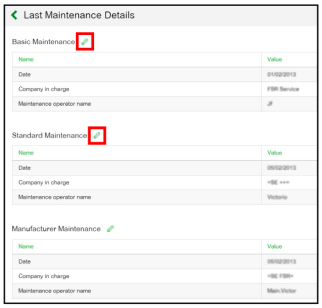
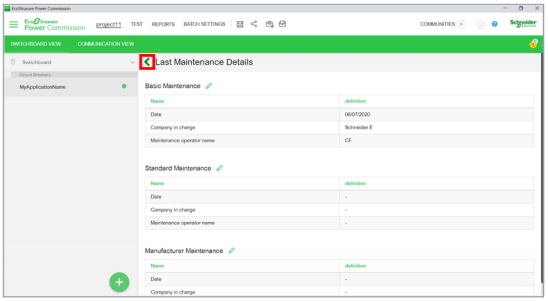
NOTICE

INCORRECT MAINTENANCE SCHEDULE

The date of the maintenance program performed must be declared by using EcoStruxure Power Commission software.

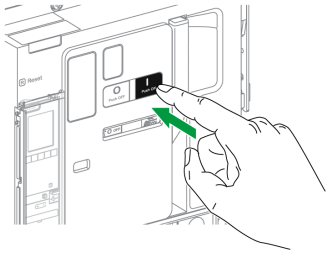
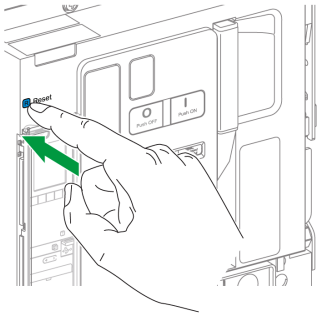
Failure to follow these instructions will result in invalid maintenance schedule.

Step	Action	Corrective action
1	On EcoStruxure Power Commission software, display the **SWITCHBOARD VIEW**.	
2	Click **Device Check up** section. **Result:** The product switchboard displays.	
3	Click the **Maintenance** tab.	
4	In the **Last Maintenance Details** section, click **View history**. 	
5	Click the pen icon next to the maintenance program you perform.	

Step	Action	Corrective action
		
6	In the window that opens: 1. Enter the day's date. **NOTE:** When the maintenance program is performed, the date must be defined in EcoStruxure Power Commission software to synchronize the next maintenance date. 2. Enter your company name in **Company name**. 3. Enter your name in **Maintenance operator name**. 4. Click **APPLY** to validate changes and close the window.	
7	The maintenance program definition is protected by a password. You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **CONTINUE**. **Result:** The maintenance program definition is updated.	
8	Click the green arrow on the left side of **Last Maintenance Details**. 	
9	In the **Maintenance** screen: • Check that **Last Maintenance Details** have been correctly updated. • Take note of information in **Next Maintenance Details**: ◦ **Level**: Maintenance program defined by the maintenance frequency regarding the device maintenance plan. ◦ **Due in**: Time interval (in months) in which the next maintenance program indicated must be performed. ◦ **Overdue since**: If applicable, time interval (in months) since the scheduled date of the indicated maintenance program. **NOTE:** In due course, a maintenance program reminder displays the time interval in which the next maintenance program must be performed.	If **Last Maintenance Details** are incorrect, change data in EcoStruxure Power Commission software again.
10	Exit EcoStruxure Power Commission software.	

Checking Operation of SDE Fault-Trip Indication Contact

Step	Action	Corrective action
1	With the device in tripped position, check electrical continuity between terminals 81-84 on SDE1 contact.	In case of electrical non-continuity between terminals: • For a fixed device, contact your Schneider Electric Services representative. • For a drawout device, check that the SDE1 contact operates correctly, as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block at the appropriate location on the device.  **3.** Check the electrical continuity directly on the LV847074SP terminal block: ◦ If the SDE1 contact operates correctly, replace the auxiliary terminal block installed on the chassis (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the SDE1 contact does not operate correctly, contact your Schneider Electric Services representative.
2	With the device in tripped position, check electrical continuity between terminals 181-184 on SDE2 contact, if installed.	In case of electrical non-continuity between terminals: • For a fixed MasterPacT MTZ1 device, contact your Schneider Electric Services representative. • For a fixed MasterPacT MTZ2/MTZ3 device: replace the SDE2 contact (refer to *MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet*) and do the procedure again. • For a drawout device, check that the SDE2 contact operates correctly, as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block in the appropriate location on the device.  **3.** Check the electrical continuity directly on the LV847074SP terminal block: ◦ If the SDE2 contact operates correctly, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the SDE2 contact does not operate correctly: – For MasterPacT MTZ1, contact your Schneider Electric Services representative. – For MasterPacT MTZ2/MTZ3, replace the SDE2 contact (refer to *MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet*).
3	Press the closing pushbutton.	If the device does not operate as expected, contact your Schneider Electric Services representative.

Step	Action	Corrective action
	 • If the device is configured with the RAR automatic reset option, the device closes. • If the device is not configured with the RAR automatic reset option, the device must not close.	
4	Press the blue fault-trip reset button on the front cover to reset. 	If the blue fault-trip reset button does not reset, contact your Schneider Electric Services representative.
5	Check electrical continuity between terminals 81-82 on SDE1 contact.	In case of electrical non-continuity between terminals, refer to corrective action in step 1.
6	Check electrical continuity between terminals 181-182 on SDE2 contact, if installed.	In case of electrical non-continuity between terminals, refer to corrective action in step 2.
7	Check that the log and the trip/test counter are recorded in control unit log by using display screen or EcoStruxure Power Commission software.	
8	Press and hold the Test/Reset on the control unit for 3 seconds to reset the trip cause LEDs.	

Checking Operation of Optional RES Remote Reset

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Take all measures necessary to avoid the risk of electrocution when the external power supply voltage is greater than 30 Vac or 40 Vdc.

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective Action
1	With the device in tripped position, press the **Remote Reset** pushbutton connected to the RES Remote Reset option. **Result**: The blue fault trip button on the front cover must return to the reset position, pushed in the device.	If the blue fault trip button remains in the trip position, it can be due to external conditions. Refer to troubleshooting, page 177. If the external conditions are correct: • For a MasterPacT MTZ1 device: contact your Schneider Electric Services representative. • For a MasterPacT MTZ2/MTZ3 fixed device: replace the RES contact (refer to *MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet*) and do the procedure again. • For a MasterPacT MTZ2/MTZ3 drawout device, check that the RES contact operates correctly, as follows: 1. Put the device in the withdrawn position. 2. Insert an LV847074SP terminal block at the appropriate location on the device.  3. Apply the RES voltage supply on the LV847074SP terminal block. 4. Close the device. 5. Trip the device by launching an automatic trip curve test , page 142 in EcoStruxure Power Commission software: ◦ If the RES remote reset option resets the device, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the RES remote reset option does not reset the device, replace the RES contact (refer to *MasterPacT MTZ2/MTZ3 - SDE2 Fault-Trip Indication Contact / RES Remote Reset - Instruction Sheet*) and do the procedure again.

Control Unit NII_Z_2: Check Ground-Fault (MicroLogic 6.0 X) or Earth-Leakage (MicroLogic 7.0 X) Protection Function

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

This procedure is valid for circuit breakers equipped with a MicroLogic 6.0 X or MicroLogic 7.0 X control unit.

Procedure characteristics	Description
Action	Check that the device trips on ground-fault (MicroLogic 6.0 X) or earth-leakage (MicroLogic 7.0 X) by using the test button on the control unit.
Goal	Verify that the ground-fault or earth-leakage protection functions operate.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	Connect the MicroLogic X control unit to a power supply. For example, connect the Mobile Power Pack external battery to the MicroLogic USB port.

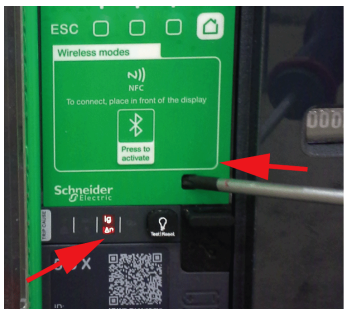
Procedure characteristics	Description
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide*

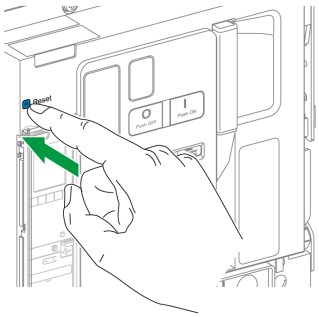
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Closed	Discharged	Test

Checking MicroLogic X Control Unit Trip Cause LED

Step	Action	Corrective action
1	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
2	To open the transparent cover, pull its upper right-hand side corner. 	
3	Use a thin screwdriver to briefly push-in (<1 s) the test button, and then check that the Ig/IΔn LED is on and the screen display turns to red with the corresponding message. 	If the Ig/IΔn LED does not light up, contact your Schneider Electric Services representative.
4	Check that the device trips and that the blue fault-trip reset button on the front cover pops out.	• If the blue fault-trip reset button does not pop out, contact your Schneider Electric Services representative.

Step	Action	Corrective action
		• If the device does not trip: 1. Check that the device is closed. 2. Check that the blue fault-trip reset button is pushed-in. Refer to troubleshooting in the appendix, page 177. 3. Do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
5	Press and hold the Test/Reset button for 3 seconds to reset the trip cause LEDs.	
6	Manually charge the mechanism by pulling the spring charging handle down six times. When the spring charging handle no longer resists, the mechanism is charged.	
7	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
8	Press the closing pushbutton. The device must not close.	If the device closes, check with customer order form: • With RAR automatic reset option ordered by customer: operation is normal. • Without RAR automatic reset option ordered by customer: contact your Schneider Electric Services representative.
9	Press the blue fault-trip reset button on the front cover to reset. 	If the blue fault-trip reset button does not reset, contact your Schneider Electric Services representative.
10	Press the closing pushbutton. The device closes.	If the device does not close, refer to troubleshooting in the appendix, page 177. If the problem persists, contact your Schneider Electric Services representative.

Control Unit NII_Z_3: Check Operation of Energy Reduction Maintenance Settings (ERMS)

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check engagement of the ERMS function by smartphone. • Test the ERMS tripping curve. • Check engagement of the ERMS function by external selector switch.
Goal	Verify that the ERMS function is operational when engaged.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	• A PC running EcoStruxure Power Commission software. • A USB cable (standard to mini USB port). • A smartphone running the EcoStruxure Power Device app.
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help*

Preliminary Conditions

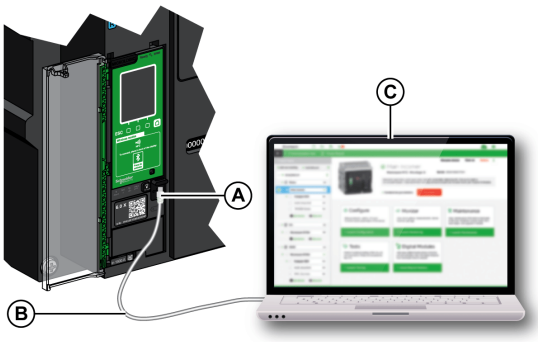
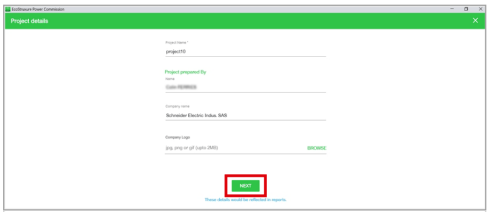
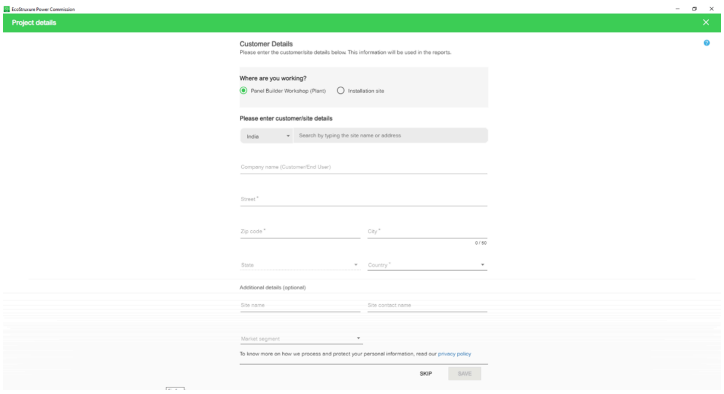
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

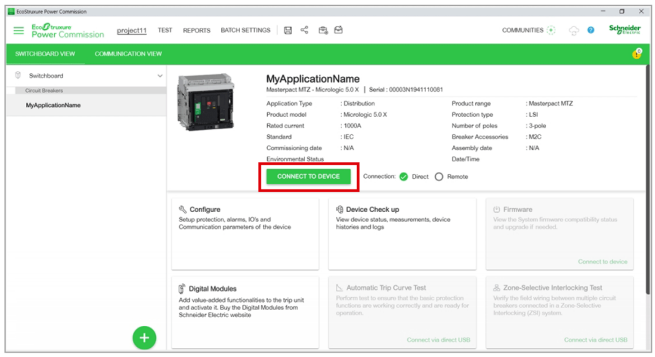
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Closed	Discharged	Test

Checking Engagement of ERMS by Smartphone

Step	Action	Corrective action
1	Connect a smartphone to the control unit through a Bluetooth Low Energy connection and open the EcoStruxure Power Device app.	
2	Engage the ERMS function from the smartphone.	
3	On the MicroLogic X control unit, check that: 1. The ERMS LED is lit blue. 2. The screen is lit with a blue backlight. 3. The message **ERMS engaged: Smartphone** is displayed in **Quick View > Trip Curve**. **NOTE:** An active medium or high severity event message overrides the blue backlight and is displayed with an orange or a red backlight. Click **OK** to acknowledge. The screen is once again lit with a blue backlight while ERMS is engaged.	• If the backlight is not lit blue: 1. Check the power supply connections to the control unit. 2. If the connection if OK, replace the MicroLogic X display screen (refer to *MicroLogic X - Embedded Display - Instruction Sheet*) • If the ERMS LED is not lit blue, contact your Schneider Electric Services representative. • If the message **ERMS engaged: Smartphone** is not displayed in **Quick View > Trip Curve**, contact your Schneider Electric Services representative.

Testing the ERMS Tripping Curve

Step	Action	Corrective action
1	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
2	Launch EcoStruxure Power Commission software.	
3	Click **Connect Device Directly**. **Result**: A window displays to indicate that the device discovery is in progress. It disappears automatically when the device is discovered.	
4	Click **NEXT** to close the **Project Information** window. 	
5	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**. 	
6	Click the **Connect to device** button.	

Step	Action	Corrective action
		
7	Click **View trip curve**.	
8	In EcoStruxure Power Commission software, check that the active trip curve is ERMS.	If the active trip curve does not refresh automatically, close the **Active trip curve** window with the cross on the right and reopen it.
9	Launch a trip test sequence on the ERMS settings. **Result**: The protection trips on the ERMS settings.	If the trip test fails, contact your Schneider Electric Services representative.
10	Disengage ERMS from the smartphone.	
11	In EcoStruxure Power Commission software, check that the active trip curve is **Set A** or **Set B**.	If the active trip curve does not refresh automatically, close the **Active trip curve** window with the cross on the right and reopen it.
12	On the MicroLogic X control unit, check that: 1. The ERMS LED is off. 2. The blue backlight is off. 3. The message **ERMS engaged: Smartphone** is not displayed in **Quick View > Trip Curve**.	

Checking Engagement of ERMS by External Selector Switch

Step	Action	Corrective Action
1	Engage ERMS by turning the external selector switch.	
2	On the MicroLogic X control unit, check that: 1. The ERMS LED is lit blue. 2. The screen is lit with a blue backlight. 3. The message **ERMS engaged: Switch (ERMS)** is displayed in **Quick View > Trip Curve**.	• If the backlight is not lit blue: 1. Check the power supply connections to the control unit. 2. If the connection if OK, replace the MicroLogic X display screen (refer to *MicroLogic X - Embedded Display - Instruction Sheet*) • If the ERMS LED is not lit blue, contact your Schneider Electric Services representative. • If the message **ERMS engaged: Switch (ERMS)** is not displayed in **Quick View > Trip Curve**, contact your Schneider Electric Services representative. If the switch does not engage the ERMS function, contact your Schneider Electric Services representative.
3	Disengage ERMS by turning the external selector switch.	
4	In EcoStruxure Power Commission software, check that the active trip curve is **Set A** or **Set B** in **View trip curve > Active trip curve**.	
5	Exit EcoStruxure Power Commission software.	

Device Locking NII_Z_1: Operate Device Keylocks

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the locking and unlocking of the device with keylocks.
Goal	Verify the operation of keylocks with the optional VSPO OFF-position locking accessory.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*

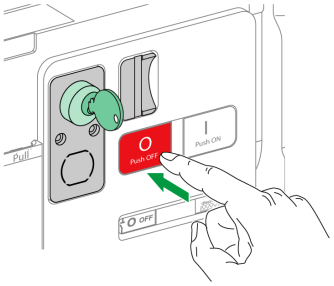
Preliminary Conditions

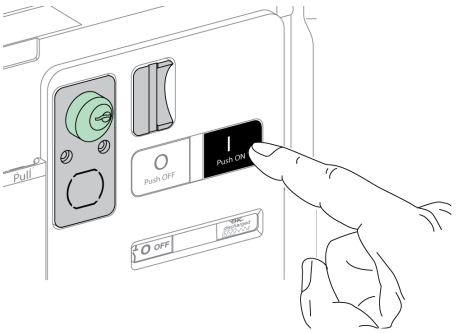
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Open	Discharged	Disconnected

Checking Locking the Device in the Open Position

For devices with two keylocks, execute the following procedure for each keylock. Locking with one key is sufficient to lock the device in the open position.

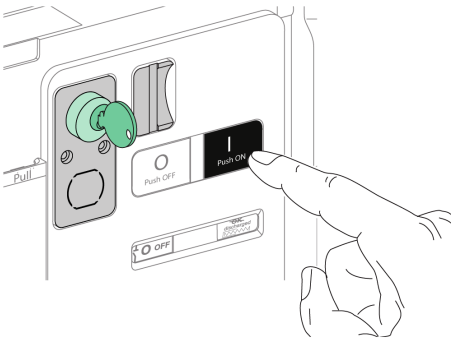
Step	Action	Corrective action
1	With the key captive in the keylock, check that the device is not locked.	If the key is missing or broken, replace the keylock. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Press the opening pushbutton to open the device. 	
3	• For MasterPacT MTZ1: Press and hold down the opening pushbutton, and simultaneously turn the key counterclockwise. • For MasterPacT MTZ2/MTZ3: Turn the key counterclockwise.	If the key does not turn, replace the keylock.
4	Remove the key and release the opening pushbutton. **NOTE:** For MasterPacT MTZ1, the pushbutton remains pushed-in.	
5	Charge the mechanism to be able to give a closing order.	
6	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	

Step	Action	Corrective action
7	Press the closing pushbutton.  The device must not close.	• If the device closes, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*). Then do the procedure again. • If the lock support is damaged, replace it. • If the keylock is corroded, replace it. If the problem persists, contact your Schneider Electric Services representative.
8	If there is a second key, unlock the device and do the procedure with the second key.	

Checking Device Unlocking

Before starting this check, verify that the device is locked in the open position.

For devices with two keylocks, execute the following procedure for each keylock. Both keys must be inserted in the keylocks to unlock the device.

Step	Action	Corrective action
1	Put the key in the keylock.	
2	Turn the key clockwise and check that the key cannot be removed from the lock.	If the key does not turn or can be removed, replace the keylock. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Press the closing pushbutton to close the device.  The device closes.	If the device does not close, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*). Then do the procedure again. If the lock support is damaged, replace it. If the keylock is corroded, replace it. If the problem persists, contact your Schneider Electric Services representative.
4	With the device closed, check that the key remains captive unless the opening pushbutton is pressed.	

Device Locking NII_Z_2: Operate Device Padlocks

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

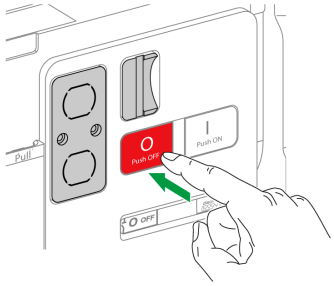
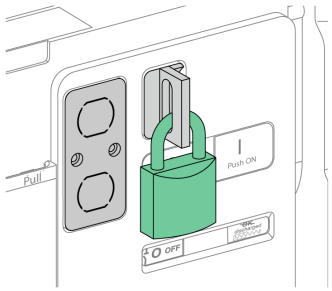
Procedure characteristics	Description
Action	Check the locking and unlocking of the device with padlocks.
Goal	Verify the operation of padlocks with the optional VCPO OFF-position locking accessory.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	Padlock with shackle diameter 5–8 mm
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*

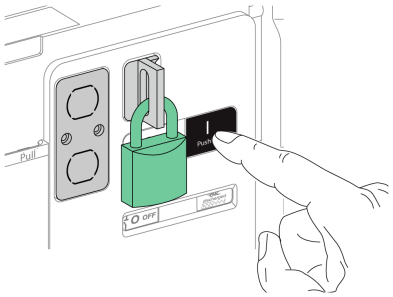
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected

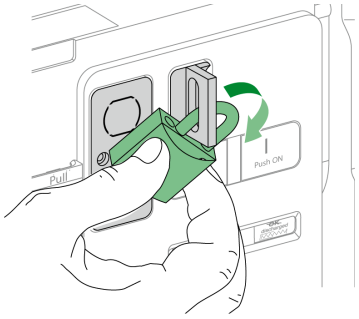
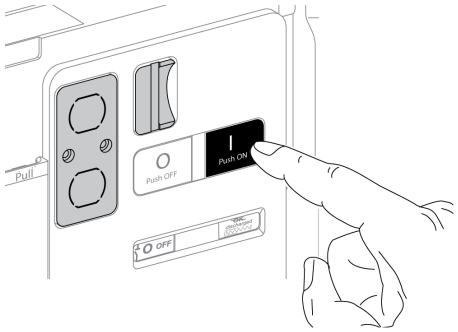
Checking Locking the Device in the Open Position

Step	Action	Corrective action
1	Press the opening pushbutton to open the device. 	
2	Pull out the tab of the OFF-position locking accessory.	If the padlocking tab cannot be pulled out, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*). Then do the procedure again. If the lock support is damaged, replace it. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Install the padlock. 	
4	Charge the mechanism to be able to give a closing order.	

Step	Action	Corrective action
5	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
6	Press the closing pushbutton.  The device must not close.	If the device closes, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*). Then do the procedure again. If the lock support is damaged, replace it. If the problem persists, contact your Schneider Electric Services representative.

Checking Device Unlocking

Before starting this check, verify that the device is padlocked in the open position.

Step	Action	Corrective action
1	Remove the padlock from the padlocking tab.  • For MasterPacT MTZ1: push in the tab. • For MasterPacT MTZ2/MTZ3: the tab retracts automatically.	If the tab does not retract fully, replace the lock support.
2	Press the closing pushbutton to close the device.  The device closes.	If the device does not close, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VCPO OFF-Position Locking and BPFE Support - Instruction Sheet*). Then do the procedure again. If the lock support is damaged, replace it. If the problem persists, contact your Schneider Electric Services representative.
3	With the device closed, check that the padlocking tab cannot be pulled out.	If the tab can be pulled out, replace the lock support.

Chassis NII_Z_1: Check Device Racking Operation

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check the racking operations of the device. • Check the device pre-tripping. • Check the chassis position indicator.
Goal	Verify that the device operates correctly in its chassis.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	Before the check, the device must be de-energized (no current flowing through the device and no voltage present on busbar).
Necessary tools	Racking handle
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

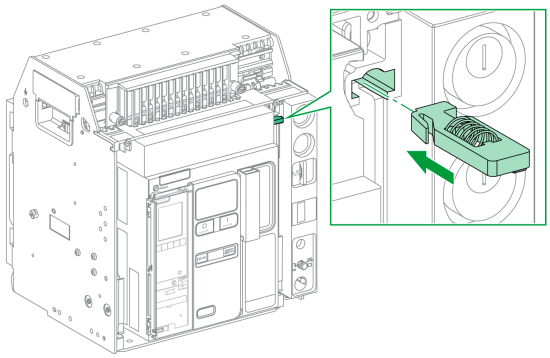
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Closed	Charged	Connected

Racking Handle Insertion Possibilities

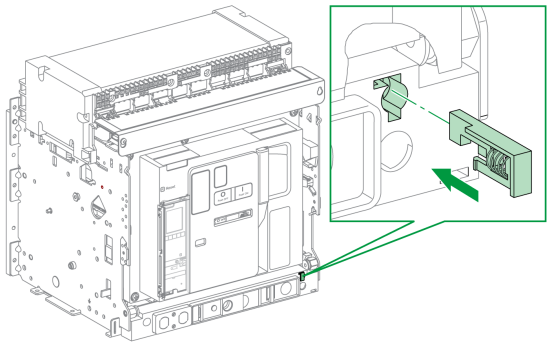
Before starting the check, verify that the racking handle can be inserted into its socket:

- The device is not locked with keylocks or padlocks.
- If the IBPO racking interlock between the racking handle and the opening pushbutton is installed (MasterPacT MTZ2/MTZ3), press the opening pushbutton to allow insertion of the racking handle, page 73.
- With VPOC racking interlock option installed, the switchboard door must be closed.

MasterPacT MTZ1



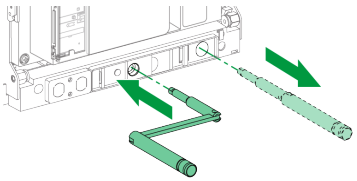
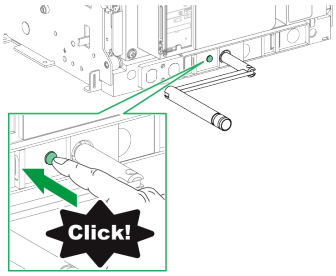
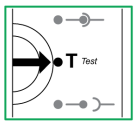
MasterPacT MTZ2/MTZ3

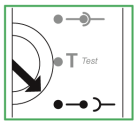


The following table shows the possible ways that the racking handle can be inserted.

Switchboard door	VPOC option	Racking handle insertion
Closed	Absent	Possible
	Present	Possible
Open	Absent	Possible
	Present	Not possible(1)
(1) Press and hold the racking interlock to insert the racking handle into the racking handle socket.		

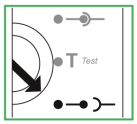
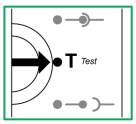
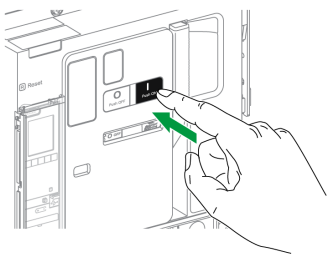
Racking-out the Device from Connected to Disconnected Position

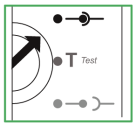
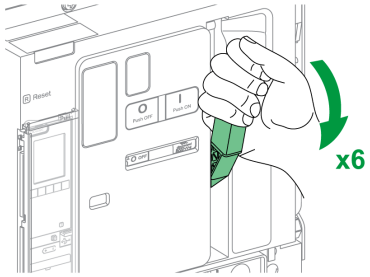
Step	Action	Corrective action
1	With the drawout device in the chassis, check that the indicators located on the front of the chassis show that the device is closed and in the connected position. 	If the position indicator is incorrect, contact your Schneider Electric Services representative.
2	Remove the racking handle from its storage space, and then insert it into the racking handle socket. 	If the racking handle cannot be inserted into the racking handle socket, check the insertion possibilities above. If the problem persists, contact your Schneider Electric Services representative.
3	Push in the position release button. 	
4	Turn the racking handle counterclockwise: • MasterPacT MTZ1: one turn. • MasterPacT MTZ2/MTZ3: three to four turns. **NOTE:** The racking handle cannot be turned if the position release button is not pushed in.	If the racking handle cannot be turned, contact your Schneider Electric Services representative.
5	The device opens automatically. Check that the position indicator indicates that the device is in open position. 	If the device does not open or the position indicator is incorrect, contact your Schneider Electric Services representative.
6	Continue turning the racking handle counterclockwise until the test position is reached. When the test position is reached, the mechanism blocks the racking handle and the position release button pops out.	If the mechanism is not blocked in the test position or the button does not pop out, contact your Schneider Electric Services representative.
7	Check that the position indicator indicates the test position. 	If the indicator is incorrect, contact your Schneider Electric Services representative.
8	Push in the position release button again.	
9	Turn the racking handle counterclockwise until the disconnected position is reached. **NOTE:** The racking handle cannot be turned if the position release button is not pushed in.	If the racking handle cannot be turned, contact your Schneider Electric Services representative.
10	When the disconnected position is reached, the mechanism blocks the racking handle and the position release button pops out.	If the mechanism is not blocked in the disconnected position or the button does not pop

Step	Action	Corrective action
		out again, contact your Schneider Electric Services representative
11	Check that the position indicator indicates the disconnected position. 	If the indicator is incorrect, contact your Schneider Electric Services representative.
12	Remove the racking handle from the racking socket, and then put it back into its storage space.	
13	Open the door of the switchboard.	

Racking-in the Device from Disconnected to Connected Position

Before starting this check, verify that the device is open and the mechanism is charged.

Step	Action	Corrective action
1	Check that the position indicator located on the front of the chassis indicates the disconnected position. 	If the position indicator is incorrect, contact your Schneider Electric Services representative.
2	Remove the racking handle from its storage space, and then insert it into the racking handle socket. **NOTE:** If the IBPO racking interlock between the racking handle and the opening pushbutton is installed (MasterPacT MTZ2/MTZ3), press the opening pushbutton to allow insertion of the racking handle.	If the racking handle cannot be inserted into the racking handle socket, check the insertion possibilities above. If the problem persists, contact your Schneider Electric Services representative.
3	Push in the position release button.	
4	Turn the racking handle clockwise until the test position is reached. **NOTE:** The racking handle cannot be turned if the position release button is not pushed in.	
5	When the test position is reached, the mechanism blocks the racking handle and the position release button pops out.	If the mechanism is not blocked in the test position or the button does not pop out, contact your Schneider Electric Services representative.
6	Check that the position indicator indicates the test position. 	If the position indicator is incorrect, contact your Schneider Electric Services representative.
7	Press the closing pushbutton to close the device.  The device closes.	If the device does not close, check that: • MN undervoltage release is connected to a power supply. • The device is charged. If the problem persists, contact your Schneider Electric Services representative.

Step	Action	Corrective action
8	Push in the position release button again.	
9	Turn the racking handle clockwise: • MasterPacT MTZ1: one turn. • MasterPacT MTZ2/MTZ3: six to seven turns. **NOTE:** The racking handle cannot be turned if the position release button is not pushed in.	
10	The device opens automatically.	If the device does not open, contact your Schneider Electric Services representative.
11	Continue turning the racking handle clockwise until the connected position is reached. When the connected position is reached, the mechanism blocks the racking handle and the position release button pops out.	If the mechanism is not blocked in the connected position or the button does not pop out, contact your Schneider Electric Services representative.
12	Check that the position indicator indicates the connected position. 	If the position indicator is incorrect, contact your Schneider Electric Services representative.
13	Remove the racking handle from the racking socket, and then put it back into its storage space.	
14	Charge the spring mechanism. 	
15	Close the device.	If the device does not close, check that: • MN undervoltage release is connected to a power supply. • The device is charged. If the problem persists, contact your Schneider Electric Services representative.

Chassis NII_Z_2: Check IBPO Racking Interlock (MasterPacT MTZ2/MTZ3)

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check IBPO racking interlock between racking handle and opening pushbutton. Check disconnection and connection of a drawout MasterPacT MTZ2/MTZ3 device when the IBPO racking interlock is installed.
Goal	Verify that the IBPO racking interlock operates correctly and does not allow connection and disconnection of the device without additional action.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	Racking handle
Related documents, page 6	*MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Charged	Connected

Checking Device Disconnection with IBPO Racking Interlock Accessory (MasterPacT MTZ2/MTZ3)

Step	Action	Corrective action
1	Check that the equipment door is closed.	
2	Check that the racking handle cannot be inserted into the racking handle socket.	
3	Press and hold the opening pushbutton to allow insertion of the racking handle into the racking handle socket.	If the racking handle cannot be inserted into the racking handle socket: 1. Open the equipment door. 2. Check if the VPOC racking interlock option is present. 3. Remove the VPOC racking interlock, if necessary. If the problem persists, contact your Schneider Electric Services representative.
4	Rack-out the device from connected to test position. When the test position is reached, the mechanism blocks the racking handle and the position release button pops out. **NOTE:** If needed, refer to device racking operations as per procedure Chassis NII_Z_1, page 68.	
5	Remove the racking handle from the racking handle socket.	

Checking Device Connection with IBPO Racking Interlock Accessory (MasterPacT MTZ2/MTZ3)

Step	Action	Corrective action
1	Check that the racking handle cannot be inserted into the racking handle socket.	
2	Press and hold the opening pushbutton to allow insertion of the racking handle into the racking handle socket.	
3	Rack-in the device from test to connected position. When the connected position is reached, the mechanism blocks the racking handle and the position release button pops out. **NOTE:** If needed, refer to device racking operations as per procedure Chassis NII_Z_1, page 68.	
4	Remove the racking handle from the racking handle socket, and then put it back into its storage space.	
5	Reinstall the VPOC racking interlock if removed previously.	

Chassis NII_Z_3: Check EIFE Chassis Position Limit Switches

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Operate the chassis position limit switches of the EIFE interface on a drawout device. • Check that the chassis position is displayed correctly in EcoStruxure Power Commission software.
Goal	Verify consistency between actual position of the device in the chassis and the indications given by the chassis position limit switches of the EIFE interface.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–

Procedure characteristics	Description
Necessary tools	• A PC running EcoStruxure Power Commission software • A USB cable (standard to mini USB port) • LV847074SP terminal block
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - User Guide* • *EcoStruxure Power Commission Online Help* • *Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - Instruction Sheet*

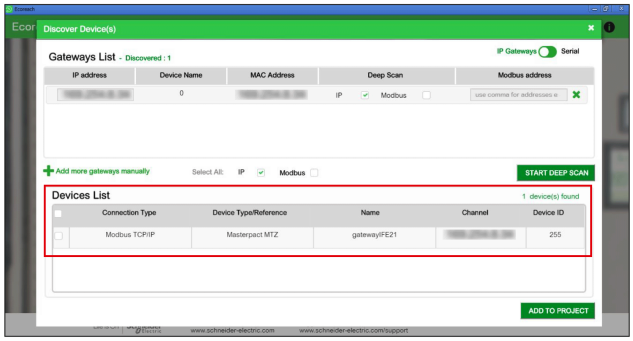
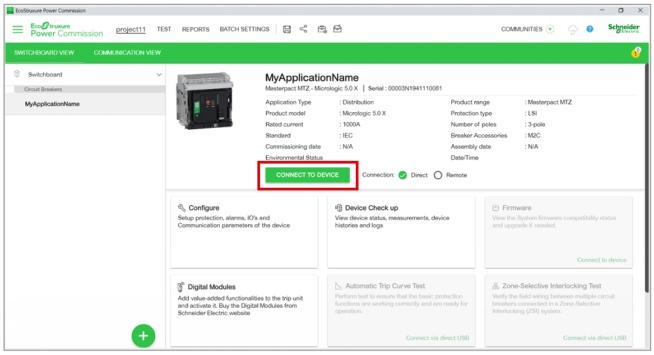
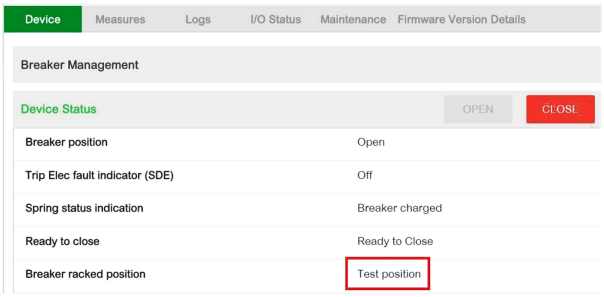
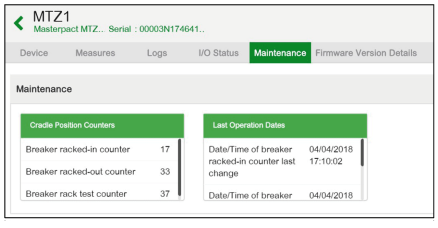
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Test

Checking that the EIFE Interface Communicates Correctly

Step	Action	Corrective action
1	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
2	Connect a PC running EcoStruxure Power Commission software to one of the Ethernet communication ports on the EIFE interface by using a standard Ethernet cable.	
3	Launch EcoStruxure Power Commission software.	
4	Click **Launch Device Discovery**.	
5	In the **Discover Device(s)** window, check that the IP address of the EIFE interface is indicated.	If the IP address of the EIFE interface does not display: 1. Check that the LED of the **ETH** port connected to the PC is green and blinking. 2. If the LED is not blinking green, check that the EIFE interface is powered and the link is connected. 3. Check that the connection to the local network is activated on your PC. 4. Click **Launch Device Discovery** again.
6	Click **START DEEP SCAN**. **Result:** The device that you want to communicate with appears in **Devices List**.	

Step	Action	Corrective action
		
7	Select the device and click **ADD TO PROJECT**.	
8	In the **SWITCHBOARD VIEW** window, click **Connect to device** (green button). 	
9	Click the **Device Check up** section. **Result:** The product switchboard displays.	
10	In the **Device** tab, check that **Device Status > Breaker racked position** is **Test position**. 	If the device position is not correctly displayed in EcoStruxure Power Commission software, follow the procedure to check manually the operation of the chassis position limit switches of the EIFE interface, page 78.
11	Rack in the device to the connected position.	
12	Check that **Device Status > Breaker racked position** is **Connected position**.	
13	Rack out the device to the disconnected position. **Result:** A message is displayed: **Error: Device is disconnected**.	
14	Click **OK** to acknowledge the message.	
15	Click the **Maintenance** tab.	
16	Rack in the device to the test position.	
17	In **Cradle Position Counters** check that **Breaker rack test counter** increments. 	If the counters do not increment correctly in EcoStruxure Power Commission software, replace the EIFE interface and do the procedure again.

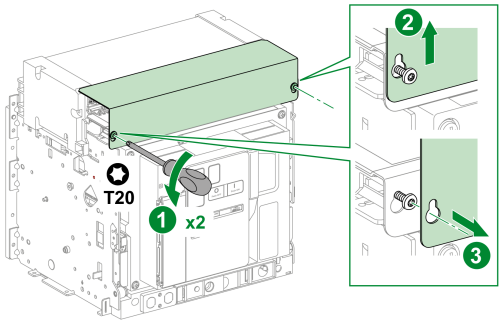
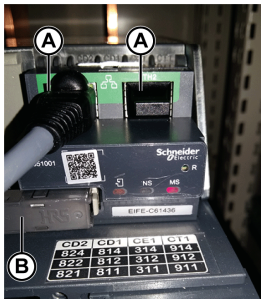
Step	Action	Corrective action
18	Rack in the device to the connected position.	
19	In **Cradle Position Counters** check that **Breaker racked-in counter** increments and in **Last Operation Dates** check that the date and time are correct.	If the counters do not increment correctly in EcoStruxure Power Commission software, replace the EIFE interface and do the procedure again.

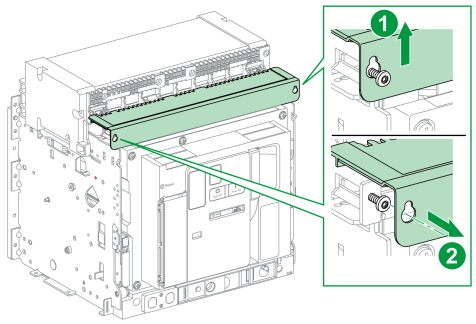
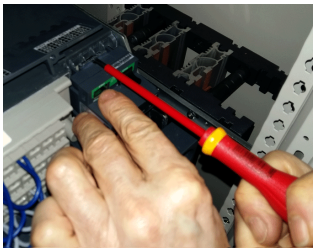
Manually Checking Operation of EIFE Chassis Position Limit Switches

If the chassis position is not correctly indicated in EcoStruxure Power Commission software, check the operation of the chassis position limit switches manually, by following the three stages described below:

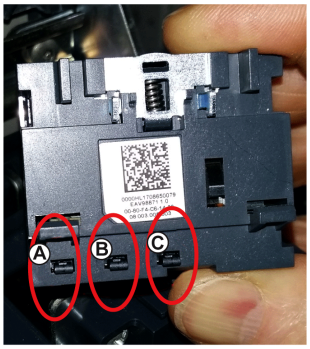
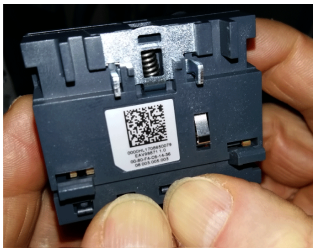
Stage	Description
1	Remove the EIFE interface.
2	Check the limit switches by operating them manually.
3	Reinstall the EIFE interface.

Follow this procedure to remove the EIFE interface:

Step	Action
1	Remove the auxiliary terminal shield. 
2	Remove the Ethernet cable (**A**) from the EIFE interface.  **A** Ethernet connection **B** ULP cord connection
3	Disconnect the ULP port module cord from the ULP port module and the EIFE interface (**B**).
4	Remove the terminal block identification plate.

Step	Action
	
5	Remove the EIFE interface by using a thin screwdriver inserted into the slot in the metal plate at the top of the EIFE interface, and releasing the clips holding the top of the EIFE interface in place. 
6	Remove the screwdriver and press down on the EIFE interface to unclip the bottom clips and pull out the EIFE interface.
7	Reconnect the Ethernet cables to the EIFE interface to perform the test.

Follow this procedure to check the actuators and operation of the EIFE chassis position limit switches:

Step	Action	Corrective action
1	Check that the actuators move freely.	If the actuators do not operate correctly: • For MasterPacT MTZ1 manipulate the actuators so that they are moving freely • For MasterPacT MTZ2/MTZ3 put the actuators into the correct position. If the actuators are damaged, replace them.
2	Locate the three limit switches on the back of the EIFE interface. 	
3	When no limit switch is pressed, check that **Breaker racked position** in EcoStruxure Power Commission software is **Disconnected**.	• If the device positions are not displayed correctly in EcoStruxure Power Commission software, replace the EIFE interface and do the procedure again. • If the positions are displayed correctly in EcoStruxure Power Commission software, operate the actuators manually to check that they are not stuck. ◦ For MasterPacT MTZ1: If the problem persists, contact your Schneider Electric Services representative. ◦ For MasterPacT MTZ2/MTZ3: If the problem persists, change the actuators. Do the procedure again.
4	Press and hold the two outside limit switches. 	
5	Check that **Breaker racked position** in EcoStruxure Power Commission software changes to **Test**.	
6	Press and hold the two limit switches on the right. 	
7	Check that **Breaker racked position** in EcoStruxure Power Commission software changes to **Connected**.	
8	Exit EcoStruxure Power Commission software.	

Follow this procedure to reinstall the EIFE interface:

Step	Action
1	Remove the Ethernet cables from the EIFE interface.
2	Reinstall the EIFE interface. Refer to *Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - Instruction Sheet*.
3	Reinstall the terminal block identification plate.
4	Reconnect the Ethernet cables and ULP cord to the EIFE interface.
5	Reconnect the ULP cord to the ULP port module.

Step	Action
6	Reinstall the auxiliary terminal shield.
7	Close the equipment door.
8	Continue the procedure to check the operation of the EIFE interface from step 15, page 76.

Chassis Locking NII_Z_1: Operate Chassis Keylocking System

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the locking and unlocking of the chassis with keylocks in the disconnected position or in any position, according to the chassis locking configuration.
Goal	Verify the chassis keylocking system with the optional VSPD chassis locking accessory correctly operates.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	Racking handle
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - VSPD Disconnected Position Locking - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - VSPD Disconnected Position Locking - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Disconnected

Determining the Chassis Locking Configuration

The MasterPacT MTZ drawout devices offer two chassis locking possibilities with keylocks:

- In the disconnected position.
- In any position (disconnected, test, or connected).

To determine the chassis locking possibility, move the device to the connected or test position:

- If you cannot pull out the padlocking tab, the chassis can be locked in the disconnected position only. Execute the locking procedure then the unlocking procedure.
- If you can pull out the padlocking tab, the chassis can be locked in the disconnected, test, or connected position. The locking and unlocking procedures are the same as with chassis in the disconnected position. Execute these procedures in each position: connected, test, disconnected.

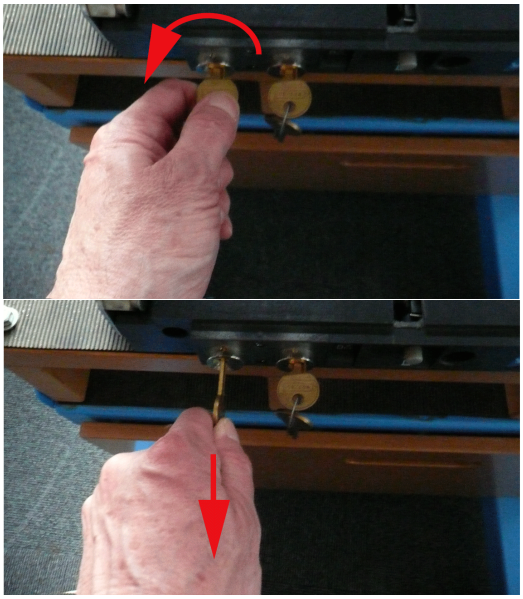
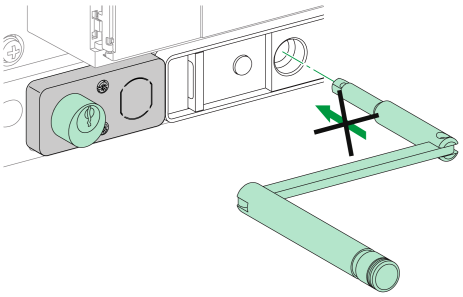
The following table shows the chassis locking configurations.

Chassis locking system	Device position in the chassis	Padlocking tab	Racking handle insertion with chassis locked
Chassis locking in the disconnected position	Connected	Cannot be pulled out	Possible
	Test	Cannot be pulled out	Possible
	Disconnected	Can be pulled out	Not possible
Chassis locking in any position	Connected	Can be pulled out	Not possible
	Test	Can be pulled out	Not possible
	Disconnected	Can be pulled out	Not possible

Checking Chassis Locking with Device in the Disconnected Position

For chassis with two keylocks, execute the following procedure for each keylock. Locking with one key is sufficient to lock racking operations.

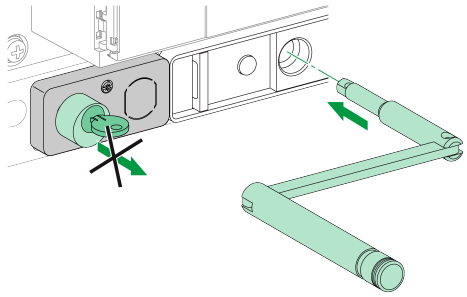
Step	Action	Corrective action
1	With the key captive in the keylock, check that the chassis is not locked.	If the key is missing or broken, replace the keylock. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Verify that the racking handle is not inserted in the racking handle socket.	
3	Turn the key counterclockwise, and then remove it.	If the key does not turn, replace the keylock.

Step	Action	Corrective action
		
4	Check that the racking handle cannot be inserted into the racking handle socket. 	If the racking handle can be inserted, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VSPD Disconnected Position Locking - Instruction Sheet*). If the lock support is damaged, replace it. If the keylock is corroded, replace it. Then do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
5	Unlock the chassis and remove the key. Then do the procedure with the second key, if any.	

Checking Chassis Unlocking with Device in the Disconnected Position

Before starting this check, verify that the chassis is locked in the disconnected position.

For chassis with two keylocks, execute the following procedure for each keylock. Both keys must be inserted in the keylocks to unlock the chassis.

Step	Action	Corrective action
1	Put the key in the lock.	
2	Turn the key clockwise and check that the key remains captive.	If the key does not turn, replace the keylock. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Check that the racking handle can be inserted into the racking handle socket so that racking operations can be carried out. 	If the racking handle cannot be inserted, check that the lock support is correctly installed (refer to *MasterPacT MTZ - VSPD Disconnected Position Locking - Instruction Sheet*). If the lock support is damaged, replace it. If the keylock is corroded, replace it. Then do the procedure again. If the problem persists, contact your Schneider Electric Services representative.

Chassis Locking NII_Z_2: Operate Chassis Padlocking System

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the locking and unlocking of the chassis with padlocks in disconnected position or in any position, according to the chassis locking configuration.
Goal	Verify that the chassis padlocking system correctly operates.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	• Padlock with shackle diameter 5–8 mm • Racking handle
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Disconnected

Determining the Chassis Locking Configuration

The MasterPacT MTZ drawout devices offer two chassis locking possibilities with padlocks:

- In disconnected position.
- In any position (disconnected, test, or connected).

To determine the chassis locking possibility, move the device to the connected or test position:

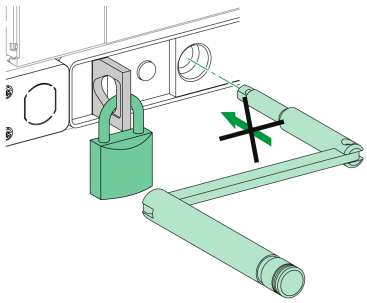
- If you cannot pull out the padlocking tab, the chassis can be locked in disconnected position only. Execute the locking procedure then the unlocking procedure.
- If you can pull out the padlocking tab, the chassis can be locked in disconnected, test, or connected position. The locking and unlocking procedures are the same as with chassis in disconnected position. Execute these procedures in each position: connected, test, disconnected.

The following table shows the chassis locking configurations.

Chassis locking system	Device position in the chassis	Padlocking tab	Racking handle insertion with chassis locked
Chassis locking in disconnected position	Connected	Cannot be pulled out	Possible
	Test	Cannot be pulled out	Possible
	Disconnected	Can be pulled out	Not possible
Chassis locking in any position	Connected	Can be pulled out	Not possible
	Test	Can be pulled out	Not possible
	Disconnected	Can be pulled out	Not possible

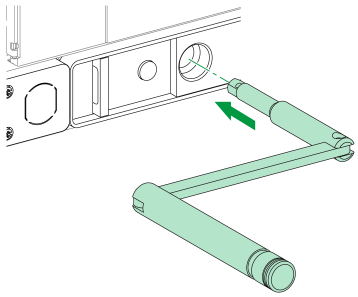
Checking Chassis Padlocking With Device in Disconnected Position

Step	Action	Corrective action
1	Verify that the racking handle is not inserted in the racking handle socket.	
2	Pull out the padlocking tab.	If the padlocking tab cannot be pulled out, contact your Schneider Electric Services representative.

Step	Action	Corrective action
3	Insert the padlock in this tab.	
4	Check that the racking handle cannot be inserted into the racking handle socket. 	If the racking handle can be inserted, contact your Schneider Electric Services representative.

Checking Chassis Unlocking With Device in Disconnected Position

Before starting this check, verify that the chassis is locked in disconnected position.

Step	Action	Corrective action
1	Remove the padlock from the tab. • With MasterPacT MTZ1: push in the tab. • With MasterPacT MTZ2/MTZ3: the tab retracts automatically.	If the tab does not retract fully, contact your Schneider Electric Services representative.
2	Check that the racking handle can be inserted into the racking handle socket so that racking operations can be carried out. 	If the racking handle cannot be inserted, contact your Schneider Electric Services representative.

Mechanical Interlocking NII_Z_1: Operate Interlocking Systems

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the locking and unlocking of the interlocked devices.
Goal	Verify the operation of the interlocking system between interlocked devices.
Frequency	Refer to Recommended Frequency for the Routine End-User Maintenance Program, page 15.
Special indications	–

Procedure characteristics	Description
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - VBP Lockable Pushbutton Cover - Instruction Sheet* • *MasterPacT MTZ1 - Mechanical Interlocking for Source Changeover (2 Sources / Cable) - Instruction Sheet* • *MasterPacT MTZ1 - Mechanical Interlocking for Source Changeover (2 Sources / Rods) - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - VBP Lockable Pushbutton Cover - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for Source Changeover (2 Sources / Cable) - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for Source Changeover (2 Sources / Rods) - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 3 Sources - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 2 Sources and 1 Replacement - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Mechanical Interlocking for 2 Sources and 1 Coupling - Instruction Sheet*

Preliminary Conditions

The devices must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the devices.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

Checking the Locking and Unlocking of Interlocked Devices

Follow the procedure to check the locking and unlocking of the following interlocking systems:

- Cable interlocking system:
  - Two sources
  - Three sources
  - Two sources and one replacement
  - Two sources and one coupling
  - Cable-type door interlock
- Rod interlocking system
- Electrical interlocking system
  - IVE electrical interlocking system
  - Custom electrical interlocking system

Step	Action	Corrective action
1	Perform at least one manual operating sequence without power to check that the interlocking system operates correctly in all situations. Refer to the relevant instruction sheet for the interlocking system installed on the device.	If an interlocking system is not operating correctly, contact your Schneider Electric Services representative.
2	Lock the closing pushbuttons of all interlocked devices with padlocks sharing the same key.	The VBP pushbutton locking accessory is mandatory to provide redundancy in addition to the mechanical interlocking system. Install a VBP pushbutton locking accessory on each interlocked device, if not already installed. Refer to the relevant instruction sheet for accessory installation.

Intermediate End-User Maintenance Procedures

What's in This Part

Mechanism NIII_Z_1: Check the MCH Gear Motor Charging Time at 0.85 Un

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check the MCH gear motor charging time at 0.85 Un. • Check the continuity of electrical wiring for a drawout device.
Goal	Verify the correct operation of the MCH gear motor.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	Connect the MCH gear motor to a power supply.
Necessary tools	• Adjustable external power supply • Voltmeter • Stopwatch
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - MCH Gear Motor - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - MCH Gear Motor - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

MCH Gear Motor Charging Time Definition

The charging time is the time elapsed between the closing order and the moment when the mechanism is fully charged.

The charging time during closing operation and opening/closing operation does not exceed 6 seconds.

Checking the MCH Gear Motor Charging Time During Device Closing

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Before starting this check, it is advisable to verify that the device charges electrically with MCH gear motor as per procedure Mechanism NII_Z_2, page 37.

Step	Action	Corrective action
1	Disconnect supply wires B1 and B2 (and B3 if connected) so that the MCH gear motor is not connected to a power supply.	
2	Connect terminals B1 and B2 to the adjustable external power supply.	
3	Set the voltage to 0.85 Un (minimum Un if the setting is for a range of voltages). The MCH gear motor charges the mechanism. The indicators show that the device is open and the mechanism is charged and ready-to-close. 	

Step	Action	Corrective action
4	Press the closing pushbutton and start the stopwatch. The device closes and the mechanism is automatically charged.	
5	Stop the stopwatch when the mechanism is charged and not ready-to-close. The charging time should be less than 6 seconds. 	If the charging time exceeds 6 seconds: 1. Check that the MCH supply voltage remains at 0.85 Un while the MCH gear motor is charging the mechanism. 2. Do the procedure with another external source connected to terminals B1 and B2. 3. If the time is still too long, replace the MCH gear motor. If the problem persists, contact your Schneider Electric Services representative to replace the breaking unit.

Checking the MCH Gear Motor Charging Time During Device Closing/Opening Sequence

Step	Action	Corrective action
1	Open the device.	
2	Press the closing pushbutton and immediately the opening pushbutton, and then start the stopwatch.	
3	Stop the stopwatch when the indicators show that the device is open and the mechanism is charged and ready-to-close. The charging time should be less than 6 seconds. 	If the charging time exceeds 6 seconds: 1. Check that the MCH supply voltage remains at 0.85 Un while the MCH gear motor is charging the mechanism. 2. Do the procedure with another external source connected to terminals B1 and B2. 3. If the time is still too long, replace the MCH gear motor. If the problem persists, contact your Schneider Electric Services representative to replace the breaking unit.

Reconnecting the MCH Gear Motor

Step	Action	Corrective action
1	Reconnect the supply wires (B1, B2, and B3 if present) as they were before executing the procedure.	
2	Open and close the device to check that the MCH gear motor operates properly.	

Mechanism NIII_Z_2: Check the General Condition of the Mechanism

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the general condition of the mechanism: • Positioning of XF/MX/MN voltage releases on the fixing plate. • Positioning of springs in the groove on the axle. • Condition of springs.
Goal	Verify that the mechanism correctly opens and closes the device.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.

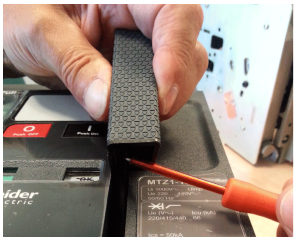
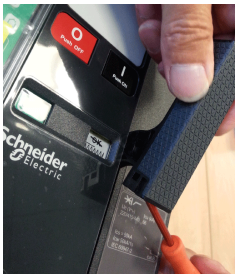
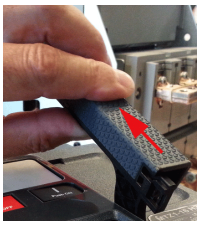
Procedure characteristics	Description
Special indications	–
Necessary tools	Torx screwdriver
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Removed from chassis

Removing Front Cover

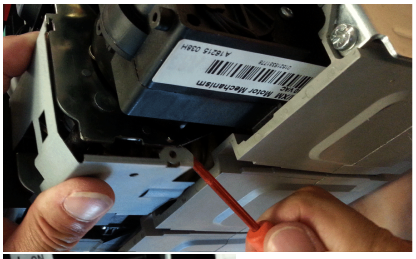
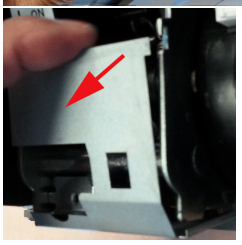
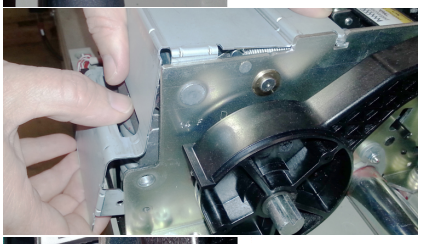
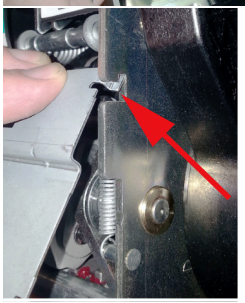
Step	Action	Corrective action
1	For MasterPacT MTZ1: Remove the spring charging handle. 1. Insert a thin screwdriver under the bottom left-hand corner of the spring charging handle.  2. Push the screwdriver to unclip the rubber cover of the spring charging handle.  3. Slide the rubber cover to the top and remove it from the spring charging handle. 	
2	Remove the front cover of the device.	

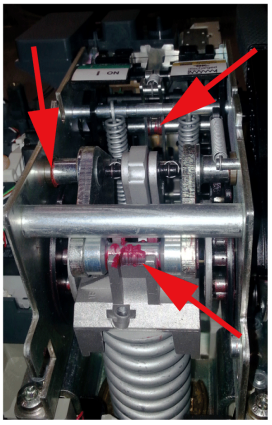
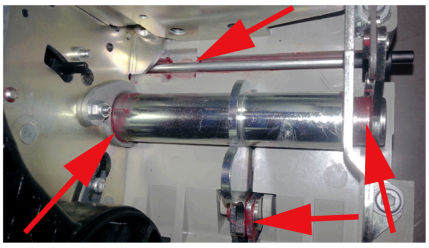
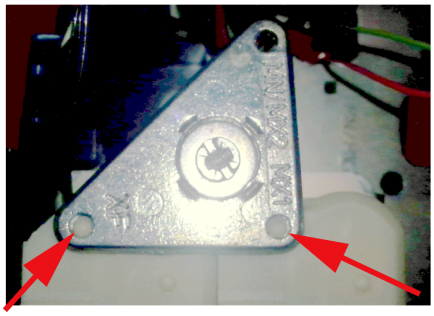
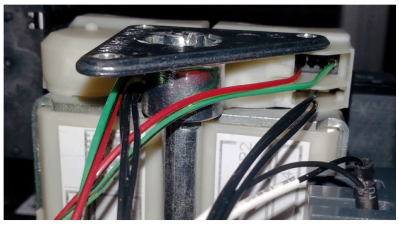
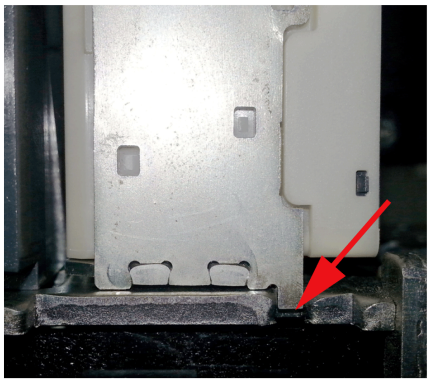
Checking Cable Between the ULP Port Module and MicroLogic X Control Unit

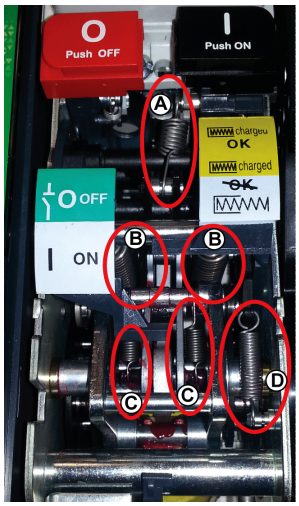
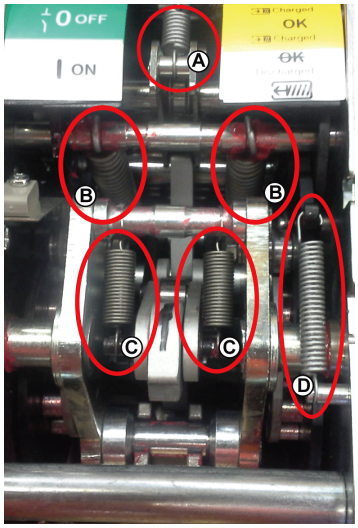
If you have installed the ULP port module, follow the procedure described below:

Step	Action	Corrective action
1	Check that the wire is not damaged and is correctly positioned so that it does not interfere with the reset mechanism.	If the wire is damaged, replace it. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
2	Check the cable connection to the MicroLogic X control unit.	If the connection is loose, reinsert the cable, making sure that the connector is fully inserted.

Checking Mechanism

Step	Action	Corrective action
1	Remove the mechanism cover: • For MasterPacT MTZ1: using a thin screwdriver, release the tab on the left-hand side that holds the mechanism cover in place (do not break or bend the tab) and then free the right-hand side.   • For MasterPacT MTZ2/MTZ3: unscrew the screw that holds the mechanism cover in place then pull off the front cover.   	If the mechanism cover is damaged, contact your Schneider Electric Services representative.
2	Check the general condition of the mechanism: • Sufficient grease. • No dust.	If there is dust on the mechanism, or the consistency or color of the grease has changed, contact your Schneider Electric Services representative.

Step	Action	Corrective action
	 	
3	Check that the XF/MX/MN voltage releases are correctly positioned on the fixing plate.   	If necessary, reposition the voltage releases (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*).
4	Check that the springs are present, in good condition, and correctly positioned in the groove on the axle. • For MasterPacT MTZ1:	If a spring is damaged or missing, contact your Schneider Electric Services representative.

Step	Action	Corrective action
	 **A** Opening latch **B** Pole opening springs **C** Connecting-rod springs **D** Closing latch • For MasterPacT MTZ2/MTZ3:  **A** Opening latch **B** Pole opening springs **C** Connecting-rod springs **D** Closing latch	
5	Manually charge the mechanism.	
6	Check that the springs are correctly positioned.	If a spring is not correctly positioned, carefully put it back into place. If the problem persists, contact your Schneider Electric Services representative.
7	Close the device.	
8	Check that the springs are still correctly positioned.	If a spring is not correctly positioned, carefully put it back into place. If the problem persists, contact your Schneider Electric Services representative.

Step	Action	Corrective action
9	Check the number of operating cycles and compare it with the maximum allowed for the connecting-rod springs as indicated in *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* .	If the maximum number has been reached, contact your Schneider Electric Services representative.
10	Put the mechanism cover back in place.	

Reinstalling the Front Cover

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Put the circuit breaker front cover back in place before energizing the circuit breaker to prevent access to live terminals.
- Do not pinch the wires with the front cover.

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective action
1	Put the front cover back in place.	
2	For MasterPacT MTZ1: Put the rubber cover back in place on the spring charging handle.	

Mechanism NIII_Z_3: Check the Number of Device Operating Cycles

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the number of device operating cycles on the CDM operation counter, if present.
Goal	Verify that the maximum recommended number of operating cycles has not been exceeded.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - CDM Operation Counter - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - CDM Operation Counter - Instruction Sheet* • *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* for operating limits

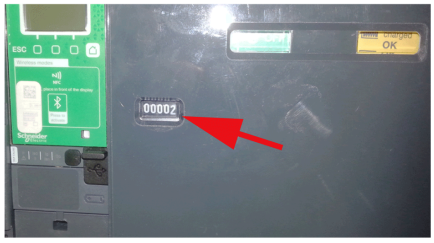
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

Checking Operating Cycle with the Optional CDM Operation Counter

The CDM operation counter increments each time the device performs an open/close cycle.

Step	Action	Corrective action
1	Read the value on the CDM operation counter. 	
2	Compare the value with the maximum number of mechanical operations indicated in *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* .	• If the limit has been reached, contact your Schneider Electric Services representative to replace the breaking unit. • If the limit is close, contact your Schneider Electric Services representative to schedule the breaking unit replacement.

Breaking Unit NIII_Z_1: Check the Condition of the Breaking Unit

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the condition of the elements of the breaking unit: • Separator plates and sides of arc chute assembly. • Fixed and moving contact tips. • Arcing contacts which protect the contact tips.
Goal	Verify that all subassemblies participating in arc extinction for rated and short-circuit currents correctly operate.

Procedure characteristics	Description
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	This procedure is not applicable to the MasterPacT MTZ1 H3 devices because arc chutes are not removable on MasterPacT MTZ1 H3 devices.
Necessary tools	Torque wrench
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* • *MasterPacT MTZ1 - Arc Chute - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Arc Chute - Instruction Sheet*

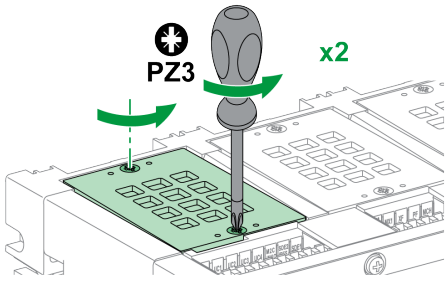
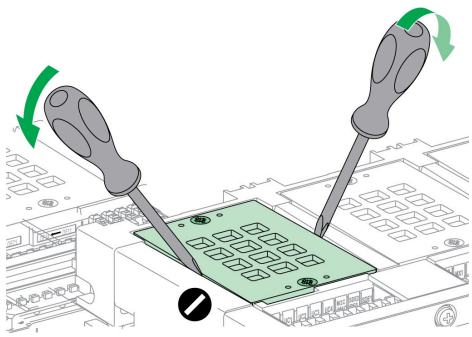
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Removed from chassis

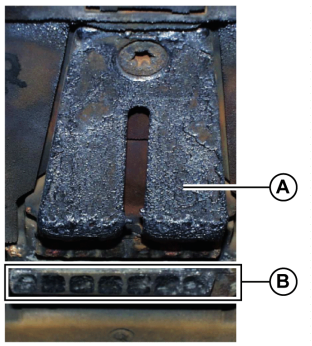
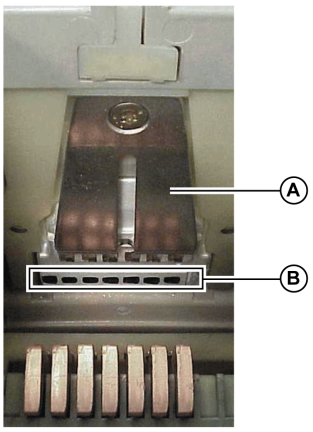
Checking Separator Plates

Execute the following procedure for each arc chute and one arc chute at a time.

Step	Action	Corrective action
1	Remove the fixing screws on one arc chute.  **NOTE:** Do not remove the other arc chutes.	
2	Remove the arc chute. 	

Step	Action	Corrective action
	NOTE: Do not turn the arc chute upside down when removing it so that the fixing screws do not fall in the arc chamber.	
3	Check the separator plates: the separator plates must not be corroded, they may be blackened but must not be significantly damaged. **Example:** MasterPacT MTZ2 16 H1 with separator plates OK after 7,500 cycles at In. 	If damage is extensive, replace the arc chute (refer to *MasterPacT MTZ - Arc Chute - Instruction Sheet*). **Example:** MasterPacT MTZ2 16 H1 with new separator plates. 
4	Compare the number of electrical operating cycles with the maximum values indicated in *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* .	Depending on the number of electrical operating cycles and state of separator plates, replace the arc chute (refer to *MasterPacT MTZ - Arc Chute - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.

Checking Surface of Arcing Contact and Fixed and Moving Contact Tips

Step	Action	Corrective action
1	With the arc chute removed, check the surface of the arcing contact and fixed contact tips. **Example:** MasterPacT MTZ2 16 H1 with arcing contact and fixed contact tips OK after 7,500 operating cycles at In.  **A** Arcing contact **B** Fixed contact tips	If the arcing contact or fixed contact tips are extensively damaged, contact your Schneider Electric Services representative to replace the breaking unit. **Example:** MasterPacT MTZ2 16 H1 with new contact tips and arcing contact.  **A** Arcing contact **B** Fixed contact tips
2	Check the surface of the moving contact tips. **Example:** MasterPacT MTZ1 with moving contact tips OK after 7,500 operating cycles at In. 	If the moving contact tips are extensively damaged, contact your Schneider Electric Services representative to replace the breaking unit. **Example:** MasterPacT MTZ1 16 H1 with new contact tips. 
3	Compare the number of operating cycles at In with the maximum values indicated in *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* .	If the limit has been reached, contact your Schneider Electric Services representative to replace the breaking unit. **Example:** For MasterPacT MTZ2 16 H1, the breaking unit must be changed when 1,000 cycles are reached.

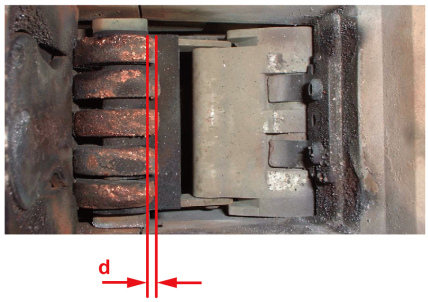
Checking Contact-Wear Indicator On MasterPacT MTZ1

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The fixed device must be de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device and the auxiliary circuits are de-energized.

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective action
1	Close the device	
2	Check that the distance between the edge of the plastic and the arcing horn is at least 1 mm as shown below:  • If 1 mm ≤ d < 3 mm, contact tips are OK. • If d < 1 mm, contact tips are worn.	If d < 1 mm, the contact tips are worn. Contact your Schneider Electric Services representative to replace the breaking unit.

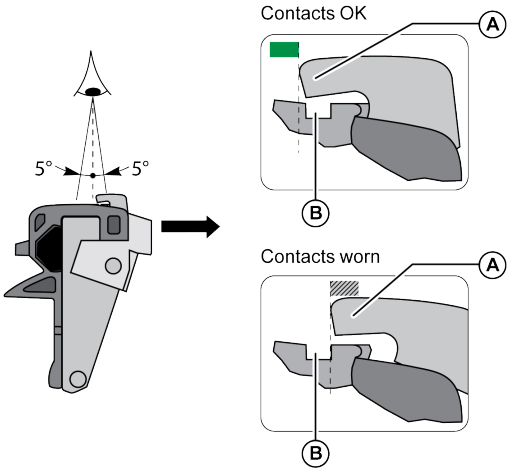
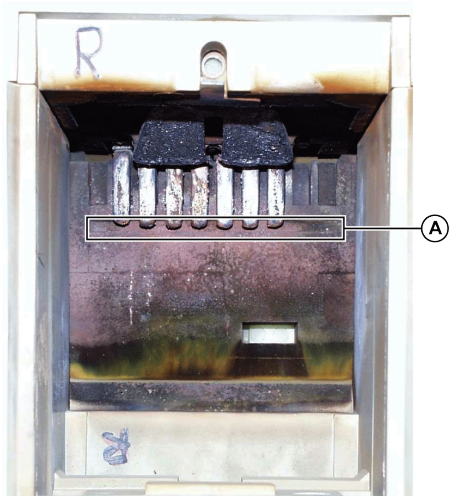
Checking Contact-Wear Indicator On MasterPacT MTZ2/ MTZ3

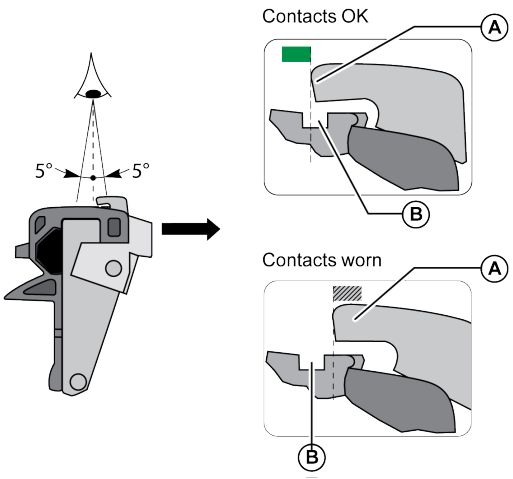
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

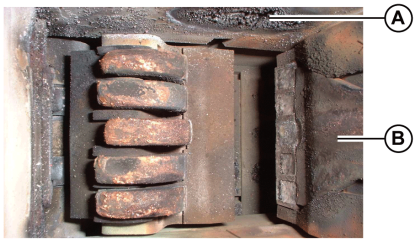
- The fixed device must be de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device and the auxiliary circuits are de-energized.

Failure to follow these instructions will result in death or serious injury.

Step	Action	Corrective action
1	Close the device.	
2	Check that the channel is covered by the arcing horn for **Type A** devices: • MTZ2 08–40 NA, HA, H1, H2, HA10 • MTZ2 08–20 N1 • MTZ2 20–40 H3  **A** Arcing horn **B** Channel **Example:** Contact-wear indicator on a MasterPacT MTZ2 device OK after 7,500 operating cycles at In. 	If the channel is no longer covered, the contact tips are worn. Contact your Schneider Electric Services representative to replace the breaking unit. **Example:** Original state of contact-wear indicator on a MasterPacT MTZ2 device.  **A** Channel
3	Check that the channel is covered by the arcing horn for **Type B** devices: • MTZ2 08-20 L1 • MTZ3 40-63 H1, H2, HA	If the channel is no longer covered, the contact tips are worn. Contact your Schneider Electric Services representative to replace the breaking unit. **Example:** Original state of contact-wear indicator on a MasterPacT MTZ2 device.  **A** Channel

Step	Action	Corrective action
	 **A** Arcing horn **B** Channel	

Checking Sides of Arc Chamber

Step	Action	Corrective action
1	Check the sides of the arc chamber. The sides of the arc chamber must not be cracked, they may be blackened but must show no traces of burns or holes.  **A** Traces of burns **B** Blackened parts	If the sides are burned or punctured, contact your Schneider Electric Services representative to replace the breaking unit.
2	Put the arc chute back in place. **NOTE:** For MasterPacT MTZ1: Make sure that the arrow on the top of the arc chute points towards the mechanism.	
3	Tighten the arc chute fixing screws to the recommended value using a torque wrench: • For MasterPacT MTZ1: 1.5 N•m • For MasterPacT MTZ2/MTZ3: 7 N•m	If a screw cannot be tightened at the recommended value, contact your Schneider Electric Services representative.
4	Do the procedure from the beginning for another arc chute on the device.	

Breaking Unit NIII_Z_2: Check Mounting of Arc Chutes and Filter Cleanliness

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check that the arc chutes are properly tightened. • Check that the filters are clean.
Goal	Verify the breaking performance of the device during a short-circuit.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	This procedure is not applicable to the MasterPacT MTZ1 H3 devices because arc chutes are not removable on MasterPacT MTZ1 H3 devices.

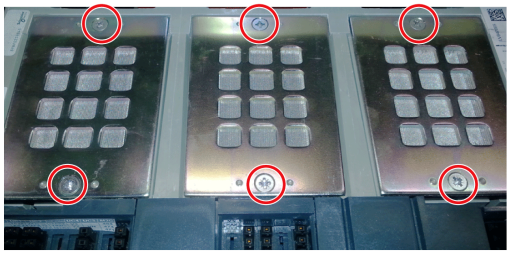
Procedure characteristics	Description
Necessary tools	• Torque wrench • Vacuum cleaner
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - Arc Chute - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Arc Chute - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected and Removed from chassis

Checking Mounting of Arc Chutes and Filter Cleanliness

Step	Action	Corrective action
1	Check the presence of all screws on the arc chutes (except for MasterPacT MTZ1 H3).  **NOTE:** The presence of all screws is mandatory to help to prevent the ionized gas from leaking through the edges of the arc chute.	If screws are damaged or missing, contact your Schneider Electric Services representative.
2	Unscrew the screws on the arc chutes (except for MasterPacT MTZ1 H3), then tighten them to the recommended value using a torque wrench: • For MasterPacT MTZ1: 1.5 N•m • For MasterPacT MTZ2/MTZ3: 7 N•m	If a screw cannot be tightened at the recommended value, contact your Schneider Electric Services representative.
3	Use a vacuum cleaner to remove the dust deposited on the filters. **NOTE:** To avoid soiling the filters: • Do not blow air on the filter. • Do not use a cloth, particularly if there is dust and grease.	If the filters are still dirty (for example, greasy compound), replace the arc chutes (refer to *MasterPacT MTZ - Arc Chute - Instruction Sheet*). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.

Auxiliaries NIII_Z_1: Check Operation of Indication Contacts (OF, PF)

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the operation of indication contacts OF and PF.
Goal	Verify electrical continuity of the installed contacts and contact robustness.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	–
Necessary tools	• Ohmmeter • LV847074SP terminal block
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - OF ON/OFF Indication Contacts - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - OF ON/OFF Indication Contacts - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - PF Ready-To-Close Contact - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*

Preliminary Conditions

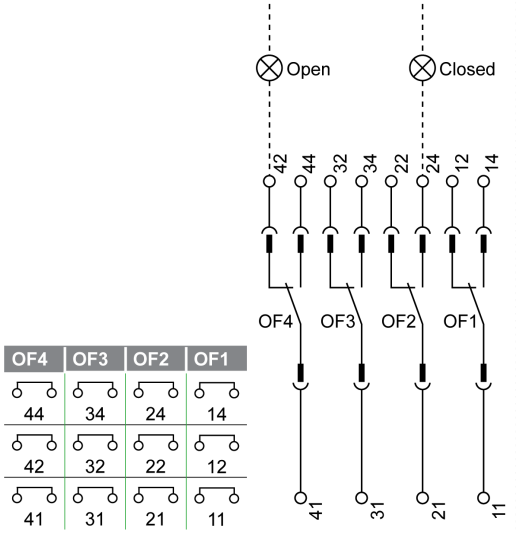
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

OF Indication Contact Wiring Diagram

The number of OF indication contacts depends on the device type:

- A block of four OF indication contacts is supplied as standard on MasterPacT MTZ1 and MasterPacT MTZ2/MTZ3 devices.



OF4	OF3	OF2	OF1
44	34	24	14
42	32	22	12
41	31	21	11

- Two additional blocks of four OF indication contacts (OF11–OF14, OF21–OF24) are optional on MasterPacT MTZ2/MTZ3 devices.

OF24	OF23	OF22	OF21	OF14	OF13	OF12	OF11
244	234	224	214	144	134	124	114
242	232	222	212	142	132	122	112
241	231	221	211	141	131	121	111

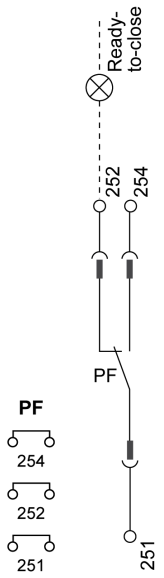
Checking Operation of OF Indication Contacts

Do this procedure for each OF indication contact of the device.

Step	Action	Corrective action
1	Check that the device is in the open position.	
2	Check electrical continuity between terminals: • 41-42 • 31-32 • 21-22 • 11-12 If additional OF blocks are installed, check all terminals.	In case of electrical non-continuity between terminals: • For a fixed device: replace the OF contact (refer to *MasterPacT MTZ - OF ON/OFF Indication Contacts - Instruction Sheet*) and do the procedure again.

Step	Action	Corrective action
		• For a drawout device, check that the OF contact operates correctly, as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block at the appropriate location on the device.  **3.** Check the electrical continuity directly on the LV847074SP terminal block: ◦ If the OF contact operates correctly, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the OF contact does not operate correctly, replace the OF contact and do the procedure again with the device in the test position. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
3	Close the device.	
4	Check electrical continuity between terminals: • 41-44 • 31-34 • 21-24 • 11-14 If additional OF blocks are installed, check all terminals.	In case of electrical non-continuity between terminals, see the corrective action concerning electrical continuity above.

PF Ready-To-Close Contact Wiring Diagram



Checking Operation of PF Ready-To-Close Contact

Step	Action	Corrective action
1	Close the device.	
2	Verify that the PF contact indicates that the device is not ready-to-close: • Check electrical continuity between terminals 251-254. • Check electrical non-continuity between terminals 251-252.	In case of electrical non-continuity between terminals 251-254, or electrical continuity between terminals 251-252: • For a fixed device: replace the PF contact (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - PF Ready-To-Close Contact - Instruction Sheet*) and do the procedure again. • For a drawout device, check that the PF contact operates correctly, as follows: **1.** Put the device in the withdrawn position. **2.** Insert an LV847074SP terminal block at the appropriate location on the device.  **3.** Check the electrical continuity and non-continuity directly on the LV847074SP terminal block: ◦ If the PF contact operates correctly, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Auxiliary Terminals - Instruction Sheet*) and do the procedure again with the device in the test position. ◦ If the PF contact does not operate correctly, replace the PF contact and do the procedure again with the device in the test position. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
3	Open the device.	
4	Charge the mechanism.	
5	• Check that the device is not tripped. • Check that the device does not have a permanent opening order from an MN undervoltage release. • Check that the device does not have a permanent opening order from an MX opening voltage release. The device is ready-to-close.	• If the device is tripped, reset it by pushing in the blue fault-trip reset button. • If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release. • If the device is equipped with an MX opening voltage release, remove the power supply to the MX.
6	Verify that the PF contact indicates that the device is ready-to-close: • Check electrical continuity between terminals 251-252. • Check electrical non-continuity between terminals 251-254.	In case of electrical non-continuity between terminals 251-252, or electrical continuity between terminals 251-254, see the corrective action concerning electrical continuity above.

Auxiliaries NIII_Z_2: Check Closing Operation with XF Closing Voltage Release at 0.85 Un

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check closing the device with the XF closing voltage release at 0.85 Un.
Goal	Verify that the device closes electrically at Umin.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	Connect the XF closing voltage release to an external power supply.

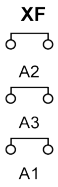
Procedure characteristics	Description
Necessary tools	• Adjustable external power supply • Voltmeter • External pushbutton
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*

Preliminary Conditions

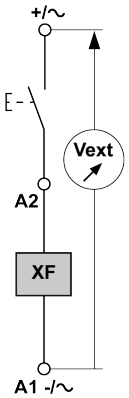
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Charged	N/A
Drawout	Open	Charged	Removed from chassis

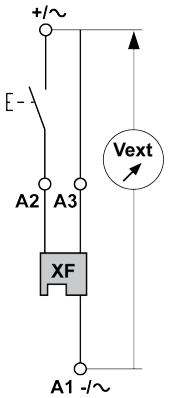
XF Closing Voltage Release Wiring Diagram



Standard XF closing voltage release



Communicating XF closing voltage release



Closing Procedure with the XF Closing Voltage Release

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Before starting this check, it is advisable to execute a few electrical opening and closing cycles as per procedure Mechanism NII_Z_1, page 29.

Step	Action	Corrective action
1	Disconnect supply wires on the customer terminal block.	
2	Connect the adjustable external power supply and external pushbutton according to the corresponding wiring diagram above.	
3	Set the external power supply voltage to 0.85 Un (Un = customer auxiliary voltage).	
4	Press the external pushbutton to close the device. The device closes.	If the device does not close: 1. Check that the power supply voltage is not lower than 0.85 Un and do the procedure again. 2. If the device still does not close, replace the XF closing voltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
5	Reconnect the customer terminal block according to the initial wiring.	
6	Check that the device electrically closes according to procedure Mechanism NII_Z_1, page 29.	

Auxiliaries NIII_Z_3: Check Opening Operation with MX Opening Voltage Release at 0.7 Un

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check opening the device with the MX opening voltage release at 0.7 Un.
Goal	Verify that the device opens electrically at Umin.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	Connect the MX opening voltage release to an external power supply.
Necessary tools	• Adjustable external power supply • Voltmeter • External pushbutton
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*

Preliminary Conditions

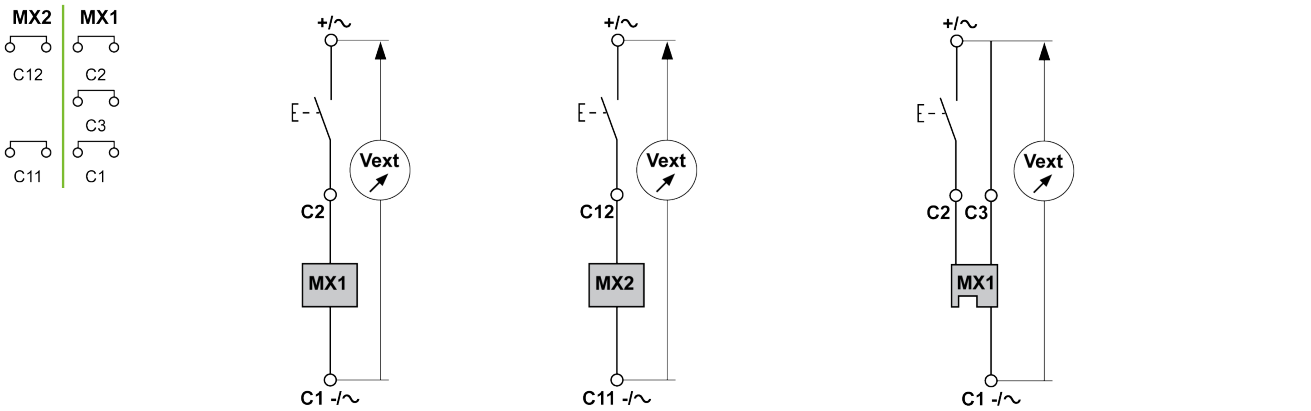
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Charged or discharged	N/A
Drawout	Closed	Charged or discharged	Test

MX Opening Voltage Release Wiring Diagram

Standard MX opening voltage releases

Communicating MX opening voltage release



Opening Procedure with the MX Opening Voltage Release

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Before starting this check, it is advisable to execute a few electrical opening and closing cycles as per procedure Mechanism NII_Z_1, page 29.

Step	Action	Corrective action
1	Disconnect supply wires on the customer terminal block.	
2	Connect the adjustable external power supply and external pushbutton according to the corresponding wiring diagram above.	
3	Set the external power supply voltage to 0.7 Un (Un = customer auxiliary voltage).	
4	Press the external pushbutton to open the device. The device opens.	If the device does not open: 1. Check that the power supply voltage is not below 0.7 Un and do the procedure again.

Step	Action	Corrective action
		2. If the device still does not open, replace the MX opening voltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
5	Reconnect the customer terminal block according to the initial wiring.	
6	Check that the device electrically opens according to procedure Mechanism NII_Z_1, page 29.	

Auxiliaries NIII_Z_4: Check Closing and Opening Operations with MN Undervoltage Release

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check closing the device with the MN undervoltage release at Un. • Check opening the device with the MN undervoltage release below 0.7 Un. • Check closing the device with the MN undervoltage release above 0.35 Un.
Goal	Verify device operation when equipped with an MN undervoltage release operating.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	• Connect the MN undervoltage release to an external power supply. • With an MNR delayed undervoltage release, disconnect the MN delay unit.

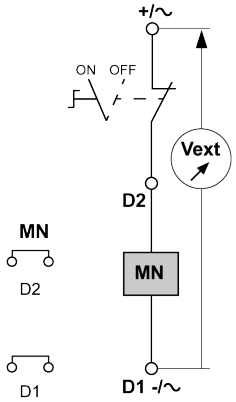
Procedure characteristics	Description
Necessary tools	• Adjustable external power supply • Voltmeter • External switch
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

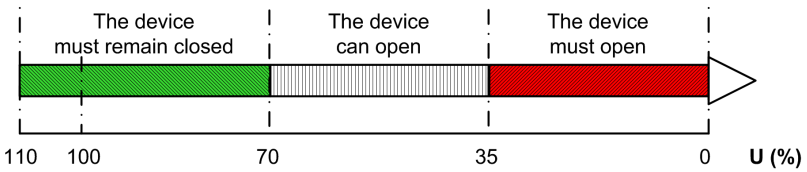
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Charged	N/A
Drawout	Open	Charged	Test

MN Undervoltage Release Wiring Diagram

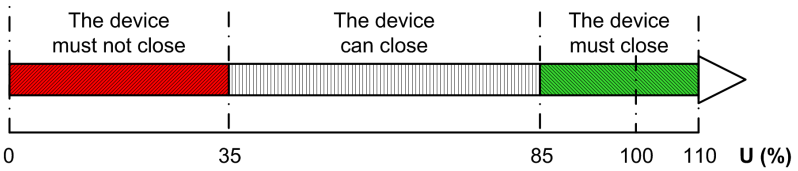


MN Undervoltage Release Operating Mode

- MasterPacT MTZ device status with an MN undervoltage release during voltage drop:



- MasterPacT MTZ device status with an MN undervoltage release during voltage increase:



Closing and Opening Procedures with the MN Undervoltage Release

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Before starting this check, it is advisable to execute a few electrical opening and closing cycles as per procedure Mechanism NII_Z_1, page 29.

Step	Action	Corrective action
1	Disconnect supply wires on the customer terminal block.	
2	Connect the external switch and the adjustable external power supply according to the wiring diagram above.	
3	Set the external power supply voltage to Un.	
4	Close the external switch.	
5	Press the closing pushbutton. The device closes.	If the device does not close: 1. Check that the power supply voltage is set to Un and do the procedure again. 2. If the device still does not close, replace the MN undervoltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
6	Gradually decrease the voltage: • The device can open at any voltage between 0.7 Un and 0.35 Un. • The device must open at 0.35 Un. • The device must remain open below 0.35 Un.	• If the device opens before the voltage reaches 0.7 Un, replace the MN undervoltage release. • If the device does not open below 0.35 Un, replace the MN undervoltage release. • If the device does not remain open below 0.35 Un, replace the MN undervoltage release. Refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet* to replace the MN undervoltage release. If the problem persists, contact your Schneider Electric Services representative.
7	Set the voltage to a value lower than 0.35 Un.	
8	Charge the mechanism.	
9	Press the closing pushbutton. The device must not close.	If the device closes: 1. Check that the power supply voltage is set to a value lower than 0.35 Un and do the procedure again. 2. If the device still closes, replace the MN undervoltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
10	Gradually increase the voltage. While pressing the closing pushbutton: • The device can close at any voltage between 0.35 Un and 0.85 Un. • The device must close at 0.85 Un. • The device must remain closed above 0.85 Un.	• If the device does not close at 0.85 Un, replace the MN undervoltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). • If the device does not remain closed above 0.85 Un, replace the MN undervoltage release (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
11	Reconnect the customer terminal block according to the initial wiring.	
12	Check that the device electrically closes and opens according to procedure Mechanism NII_Z_1, page 29.	

Auxiliaries NIII_Z_5: Check Time Delay of MNR Delayed Undervoltage Release

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check the time delay on the MN delay unit at 0.35 Un and 0.7 Un.
Goal	Verify that the MNR delayed undervoltage release is not activated before the end of the selected time delay.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	Connect the MNR delayed undervoltage release to an external power supply.
Necessary tools	• Adjustable external power supply • Voltmeter • Stopwatch
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Voltage Releases - Instruction Sheet* • *MasterPacT MTZ1/MTZ2/MTZ3 - MN-MX-XF Communicating Voltage Releases with Diagnostic Function - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

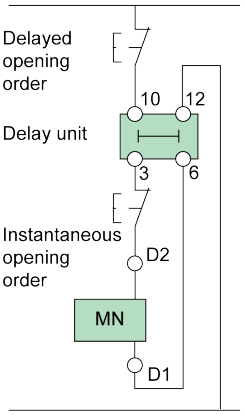
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Closed	Discharged	Test

Time Delay Definition

The time delay is the time elapsed between the opening order and the moment when the MNR delayed undervoltage release operates.

The time delay does not exceed the delay setting ±15%.

MNR Delayed Undervoltage Release Wiring Diagram



Checking the Time Delay of the MN Delay Unit During Device Opening

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK

When using the adjustable external power supply, take all suitable measures to protect against electric shock.

Failure to follow these instructions will result in death or serious injury.

Before starting this check, it is advised to execute a few electrical opening and closing cycles as per procedure Mechanism NII_Z_1, page 29.

Step	Action	Corrective action
1	Disconnect supply wires on the customer terminal block.	
2	Connect the adjustable external power supply according to the corresponding wiring diagram above.	

Step	Action	Corrective action
	NOTE: If possible, the opening time should be measured using the main connections. If that is not possible, carry out the measurement on an OF contact.	
3	Set the external power supply voltage to 0.35 Un.	
4	To start the stopwatch, remove the power supply or issue a delayed opening order.	
5	The device opens when the time delay equals the delay setting on the MN delay unit. The stopwatch stops when the device opens.	
6	Check the time delay on the stopwatch: it must equal the delay setting ±15%.	If the time delay differs by more than ±15% from the delay unit setting, replace the MN delay unit (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*) and do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
7	Reconnect the external power supply to the MNR delayed undervoltage release, and then close the device.	
8	Set the external power supply voltage to 0.7 Un.	
9	To start the stopwatch, remove the power supply or issue a delayed opening order.	
10	The device opens when the time delay equals the delay setting on the MN delay unit. The stopwatch stops when the device opens.	
11	Check the time delay on the stopwatch: it must equal the delay setting ±15%.	If the time delay differs by more than ±15% from the delay unit setting, replace the MN delay unit (refer to *MasterPacT MTZ - MN-MX-XF Voltage Releases - Instruction Sheet*) and do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
12	Reconnect the customer terminal block according to the initial wiring.	
13	Check that the device electrically closes and opens according to procedure Mechanism NII_Z_1, page 29.	

Control Unit NIII_Z_1: Check Microswitches OF/SDE/PF/CH

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Check that the microswitches delivering the OF/SDE/PF/CH information to the MicroLogic X control unit operate correctly.
Goal	Verify that the MicroLogic X control unit gets the device status information.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	• A PC running EcoStruxure Power Commission software • A USB cable (standard to mini USB port)
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help* • *MasterPacT MTZ1 - Microswitches OF/SDE/PF/CH - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Microswitches OF/SDE/PF/CH - Instruction Sheet*

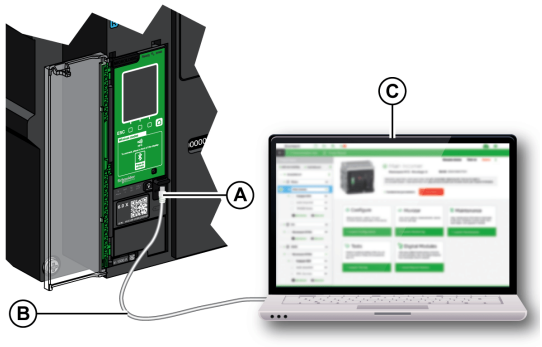
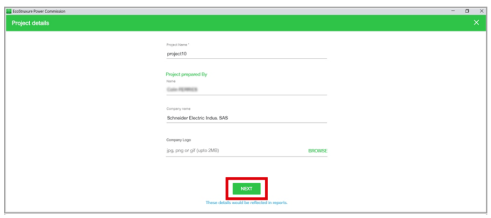
Preliminary Conditions

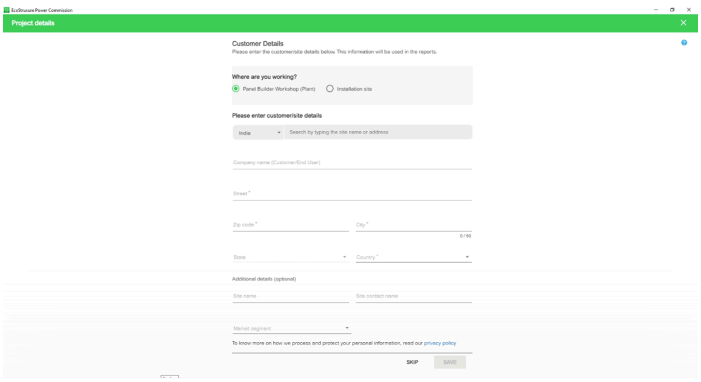
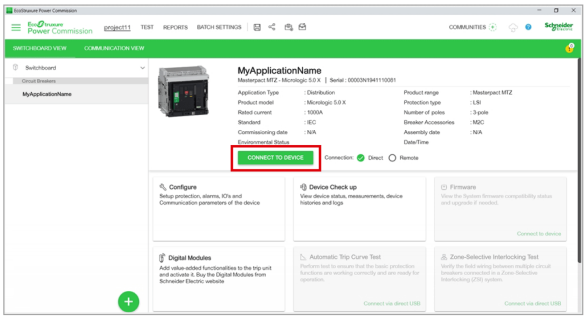
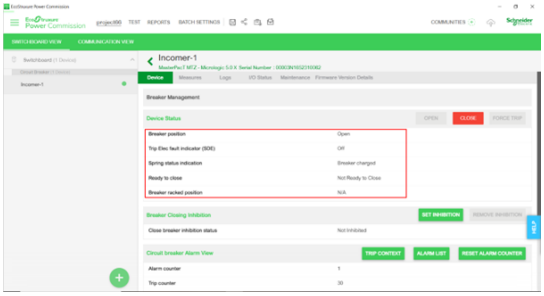
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

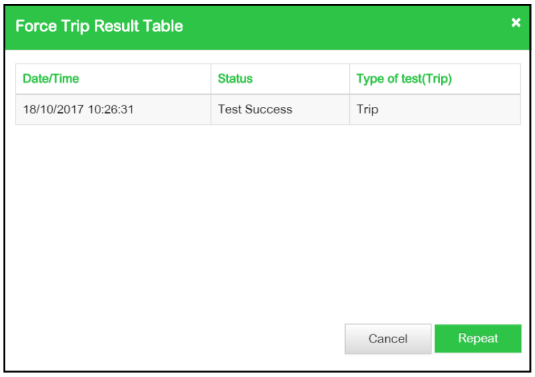
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Test

Checking the Microswitches OF/SDE/PF/CH

Check that the microswitches OF/SDE/PF/CH and the control unit are functioning correctly:

Step	Action	Corrective action
1	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.	
2	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
3	Launch EcoStruxure Power Commission software.	
4	Click **Connect Device Directly.** **Result**: A window displays to indicate that the device discovery is in progress. It disappears automatically when the device is discovered.	
5	Click **NEXT** to close the **Project Information** window. 	
6	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**.	

Step	Action	Corrective action
		
7	Click the **Connect to device** button. 	
8	In the **Device Check up** section, click the **Device** tab.	
9	If no MCH gear motor is installed in the device, charge the device by using the spring charging handle.	
10	Check that **Device Status** data is as follows: • **Breaker position** is **Open**. • **Trip Elec fault indicator (SDE)** is **Off**. • **Spring status indication** is **Breaker charged**. • **Ready to close** is **Ready to close**. 	If a status of the device is not correct: 1. Remove the microswitches (refer to *MasterPacT MTZ - Microswitches OF/SDE/PF/CH - Instruction Sheet*). 2. Check that the actuators correctly operate: with an ohmmeter, check the contact status. 3. Reinstall the microswitches. 4. Do the procedure again. 5. If the problem persists, replace the microswitches.
11	Manually close the device.	
12	Check that **Device Status** data is as follows: • **Breaker position** is **Close**. • **Trip Elec fault indicator (SDE)** is **Off**. • **Spring status indication** is **Breaker charged** (if MCH gear motor is installed) or **Breaker discharged** (if there is no MCH gear motor). • **Ready to close** is **Not ready to close**.	If a status of the device is not correct, see corrective action in step 9.
13	In the **Device** tab, click the **Force Trip** button to trip the device.	
14	Read carefully the safety message that displays then click **I understand**.	
15	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **OK**.	
16	In the **Force Trip Result Table** window, click **Cancel**.	

Step	Action	Corrective action
		
17	Check that **Device Status** data is as follows: • **Breaker position** is **Open**. • **Trip Elec fault indicator (SDE)** is **Trip**. • **Spring status indication** is **Breaker charged** (if MCH gear motor is installed) or **Breaker discharged** (if there is no MCH gear motor). • **Ready to close** is **Not ready to close**.	If a status of the device is not correct, see corrective action in step 9.
18	Reset the device by pressing the blue button.	
19	If no MCH gear motor is installed in the device, charge the device by using the spring charging handle.	
20	Check that **Device Status** data is as follows: • **Breaker position** is **Open**. • **Trip Elec fault indicator (SDE)** is **Off**. • **Spring status indication** is **Breaker charged**. • **Ready to close** is **Ready to close**.	If a status of the device is not correct, see corrective action in step 9.
21	Exit EcoStruxure Power Commission software.	

Control Unit NIII_Z_2: Check M2C Programmable Contacts

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

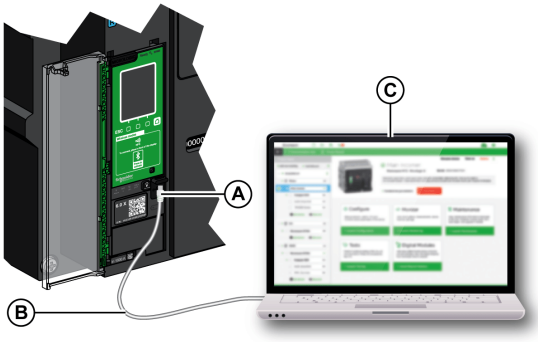
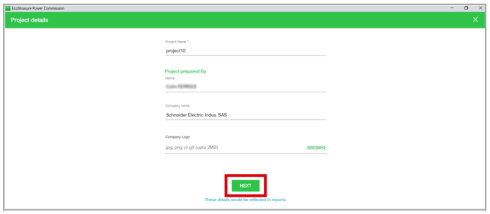
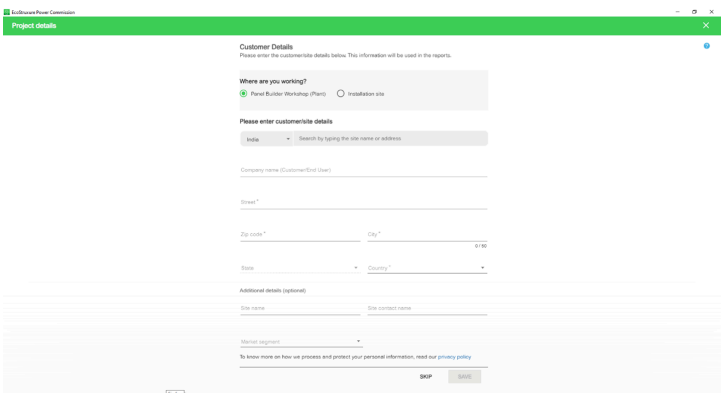
Procedure characteristics	Description
Action	Check physically that the device connected to the M2C programmable contacts operates correctly.
Goal	Verify that the device can be operated remotely when M2C programmable contacts are installed.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	• A PC running EcoStruxure Power Commission software. • A standard Ethernet cable. • A USB cable (standard to mini USB port).
Related documents, page 6	• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help*

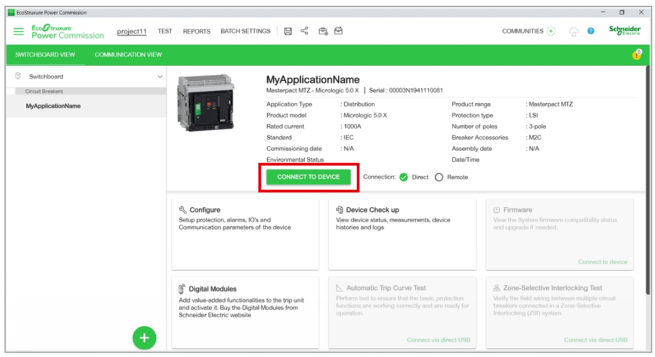
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open	Discharged	N/A
Drawout	Open	Discharged	Disconnected

Checking M2C Programmable Contacts

Step	Action	Corrective action
1	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
2	Launch EcoStruxure Power Commission software.	
3	Click **Connect Device Directly**. **Result**: A window displays to indicate that the device discovery is in progress. It disappears automatically when the device is discovered.	
4	Click **NEXT** to close the **Project Information** window. 	
5	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**. 	

Step	Action	Corrective action
6	Click the **Connect to device** button. 	
7	Click **Device Check up** section. **Result:** The product switchboard displays.	
8	Click the **I/O Status** tab.	
9	Select **Digital Output 1** by clicking the check box.	
10	Click **Force** to 1.	
11	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **OK**.	
12	Check physically that the device connected to the M2C contact operates correctly.	If the device does not operate correctly, contact your Schneider Electric Services representative.
13	In EcoStruxure Power Commission software, click **Unforce**.	
14	Repeat the procedure for Digital Output 2.	If the device does not operate correctly, contact your Schneider Electric Services representative.
15	Exit EcoStruxure Power Commission software.	

Control Unit NIII_Z_3: Save Protection Settings, Reports, and Event Logs With EcoStruxure Power Commission Software

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

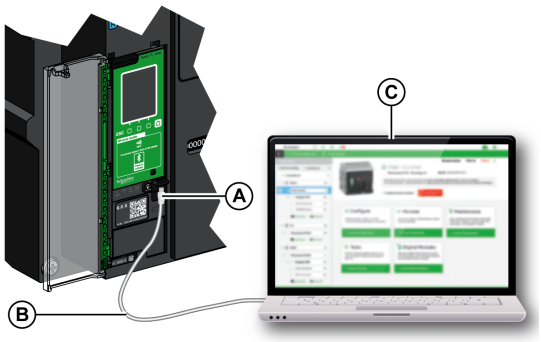
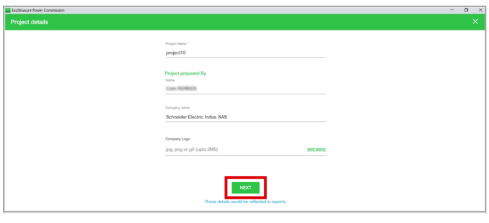
Procedure characteristics	Description
Action	Save project information by using EcoStruxure Power Commission software installed on a PC: • Save the protection settings of the MicroLogic X control unit • Generate and save project report • Export and save event logs of the MicroLogic X control unit.
Goal	Verify that the protection settings in EcoStruxure Power Commission software are up-to-date with the ones in the MicroLogic X control unit, and back-up project information (project reports and event logs).
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	–
Necessary tools	• A PC running EcoStruxure Power Commission software. • A USB cable (standard to mini USB port)
Related documents, page 6	• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help*

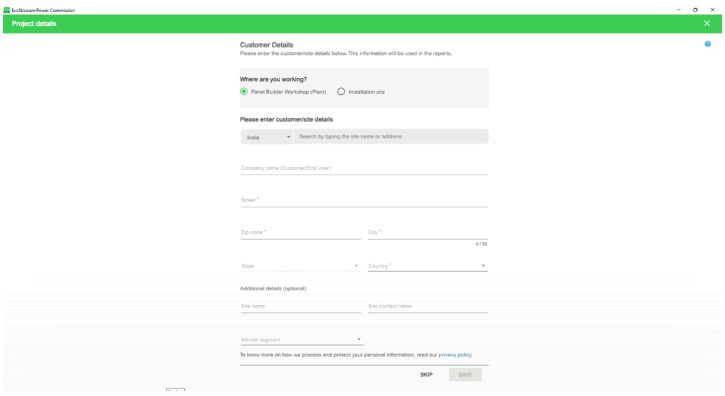
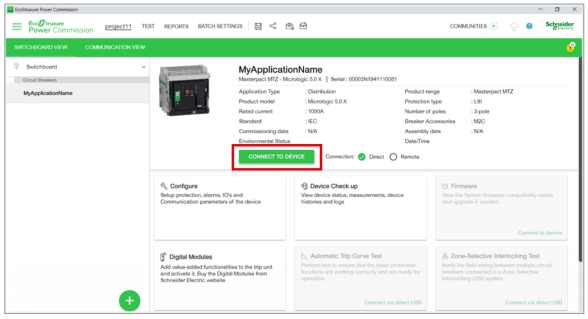
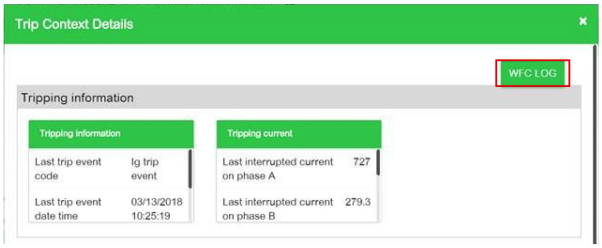
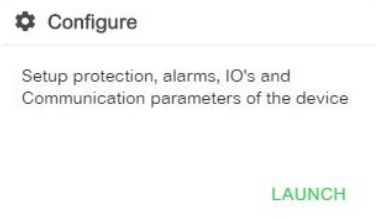
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Open or Closed	Charged or Discharged	N/A
Drawout	Open or Closed	Charged or Discharged	Connected or Test or Disconnected

Saving Protection Settings of MicroLogic X Control Unit

Step	Action	Corrective action
1	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software	
2	Launch EcoStruxure Power Commission software.	
3	Click **Connect Device Directly** on the EcoStruxure Power Commission welcome screen. **Result:** EcoStruxure Power Commission software connects to the MicroLogic X control unit.	If EcoStruxure Power Commission software does not connect to the MicroLogic X control unit and the message **This device can perform faster** appears at the bottom of the screen on the PC: 1. Replace the USB cable. 2. Connect the PC to the MicroLogic X control unit again. 3. If the problem persists, contact your Schneider Electric Services representative. It disappears automatically when the device is discovered.
4	Click **NEXT** to close the **Project Information** window. 	
5	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**.	

Step	Action	Corrective action
		
6	Click the **Connect to device** button. 	
7	In the **CB Alarm View** section, click **TRIP CONTEXT**.	
8	In the **Trip Context Details** window, click the **WFC Log** button.  **Result**: The waveform capture report (tripping information and last measurements before trip) is downloaded as .cfg and .dat files on the PC: • The .cfg and .dat files can be opened with the appropriate program. • The .cfg and .dat files should be added to the customer report.	
9	Click the **Configure** section. 	
10	The **Protection** tab displays the protection settings: • The project settings currently saved in EcoStruxure Power Commission software are displayed under the **Protection** tab. • The device settings are displayed on the right hand-side of the screen. Discrepancies in the protection settings between the project in EcoStruxure Power Commission software and the device are highlighted in yellow.	
11	Click the **Write to project** button at top of the screen.	
12	EcoStruxure Power Commission software downloads the existing protection settings from the MicroLogic X control unit of the selected device. A message displays when writing to the project has completed successfully. Click **OK**.	

Generating Project Reports

Step	Action	Corrective action
1	At the top of the EcoStruxure Power Commission window, click **Reports > Project Report**. **Result:** EcoStruxure Power Commission software generates a project report for one or more devices concerned.	
2	A window opens and displays the complete report of the project, that is, comprehensive project information.	
3	You can download the report on the PC or print it.	
4	Close the report and return to the device listing.	
5	Click the **Save** icon at the top of the EcoStruxure Power Commission window to save the project.	
6	A message displays when project saving has completed successfully. Click **OK**.	
7	Close the report and return to the device screen.	

Exporting Event Logs

Step	Action	Corrective action
1	In EcoStruxure Power Commission software, click the green arrow on the left side of the **COMMUNICATION VIEW** area to return to the **SWITCHBOARD VIEW** window.	
2	Click **LAUNCH** in the **Device Check up** section.	
3	Click the **Logs** tab to view the event log reports which help you to ensure that the installed equipment is operating correctly as per the settings. Three logs are available, including: • **Circuit breaker logging** • **IO1 events log** (if IO1 installed in the system) • **IO2 events log** (if IO2 installed in the system)	
4	Select a log. The **Export** button changes color from gray to green.	
5	Click the **Export** button.	
6	A window opens and displays the event log export. Event log exports must be open with a spreadsheet software.	
7	You can download the event log export on the PC or print it.	
8	Click the green arrow on the left side of the **COMMUNICATION VIEW** area to return to the **SWITCHBOARD VIEW** window.	
9	Click the red button **Disconnect** to disconnect from the device.	
10	Exit EcoStruxure Power Commission software.	

Control Unit NIII_Z_4: Check Overcurrent Protection

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check overcurrent protection (long-time, short-time, instantaneous) by using EcoStruxure Power Commission software installed on a PC. • Check fault-trip LEDs. • Save the test results to a personal computer.
Goal	Verify that the control unit operates when any electrical fault occurs.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	–
Necessary tools	• A PC running EcoStruxure Power Commission software • A USB cable (standard to mini USB port) • Waveform capture on trip event Digital Module installed on the MicroLogic X control unit.
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* • *EcoStruxure Power Commission Online Help*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

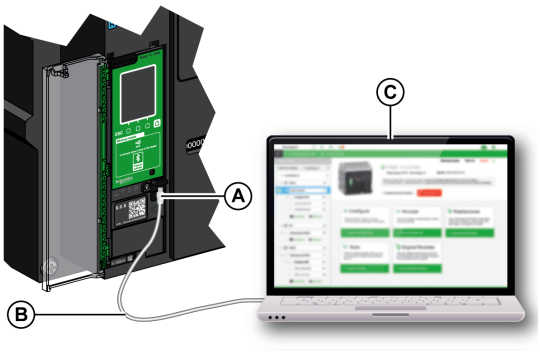
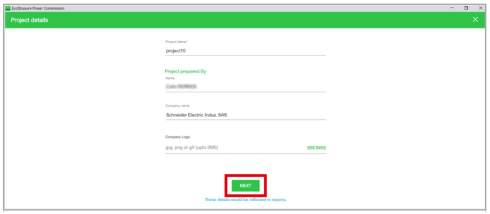
Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	Closed	Discharged	N/A
Drawout	Closed	Discharged	Test

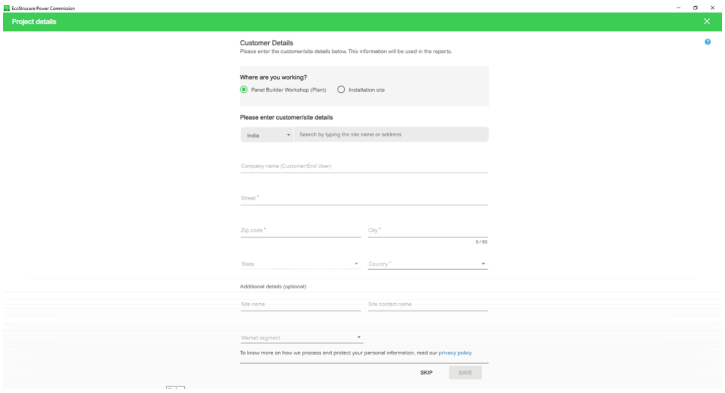
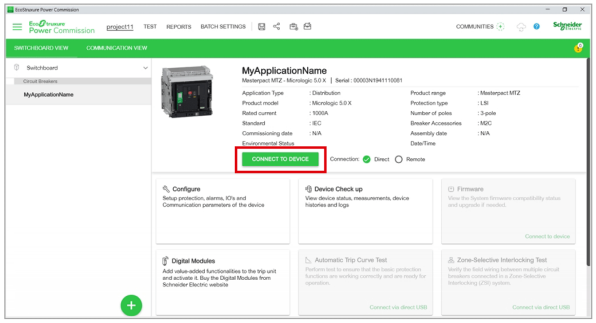
Checking Overcurrent Protection and Fault-Trip LEDs

The process of checking overcurrent protection includes the following procedures:

- Connect to the MicroLogic X control unit with EcoStruxure Power Commission software, page 143.
- Launch an automatic trip curve test with preconfigured test points, page 144.
- Launch an automatic trip curve test with custom test points, page 147.

Connecting the MicroLogic X Control Unit to EcoStruxure Power Commission Software

Step	Action
1	If the device is equipped with an MN undervoltage release, either connect it to the power supply with its rated voltage or remove the MN undervoltage release.
2	Connect a PC running EcoStruxure Power Commission software to the MicroLogic X control unit.  **A** Cable plug connected to the mini USB port of MicroLogic X control unit **B** Standard to mini USB port cable **C** PC running EcoStruxure Power Commission software
3	Launch EcoStruxure Power Commission software.
4	Click **Connect Device Directly** on the EcoStruxure Power Commission welcome screen. **Result**: EcoStruxure Power Commission software connects to the MicroLogic X control unit. A window displays and indicates that the device discovery is in progress.
5	Click **NEXT** to close the **Project Information** window. 

Step	Action
6	Click **SAVE** to close the **Customer Details** window and display the **SWITCHBOARD VIEW**. 
7	Click the **Connect to device** button. 
8	In the **Device Check up** section, click the **Device** tab.
9	Follow the procedure Control Unit NII_Z_3, page 138 to save settings and the waveform capture to avoid losing this information.
10	Click the **Automatic Trip test** section.

Launching Automatic Trip Curve Test with Preconfigured Test Points

NOTICE
HAZARD OF UNEXPECTED BEHAVIOR Before launching the automatic trip curve test, make a note of the active trip curve setting (Set A, Set B, or ERMS) and set the circuit breaker to this trip curve at the end of the test. **Failure to follow these instructions can result in incorrect settings.**

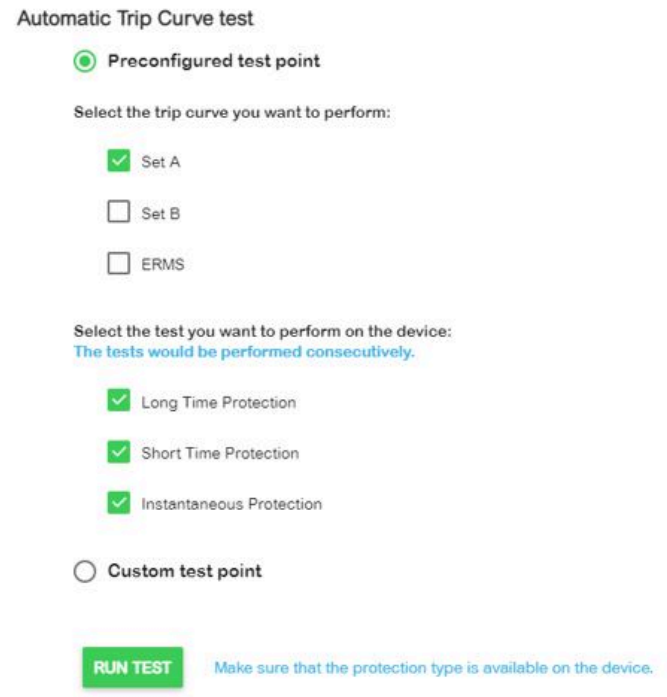
Do the procedure for each of the following overcurrent protection functions:

- Long-time Ir
- Short-time Isd
- Instantaneous Ii
- Ground-fault Ig (MicroLogic 6.0 X)
- Earth-leakage fault IΔn (MicroLogic 7.0 X)

The following trip curves can be tested:

- Set A
- Set B
- ERMS

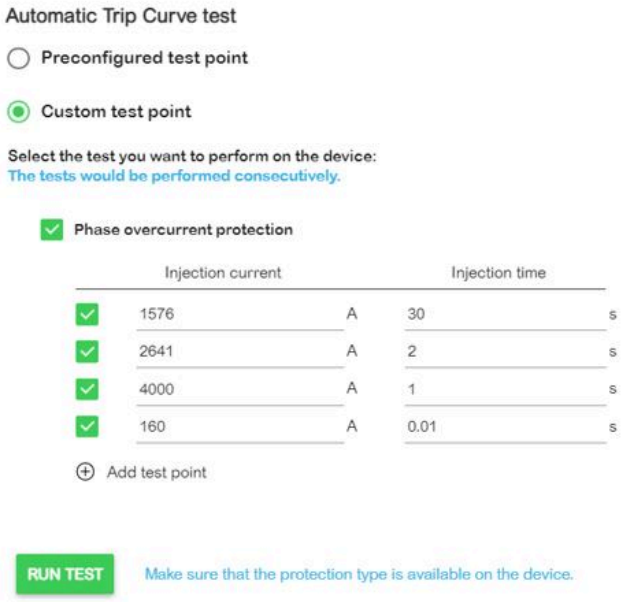
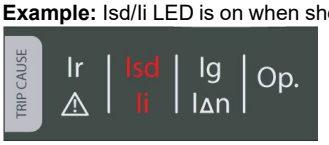
After connecting the PC running EcoStruxure Power Commission software to the MicroLogic X control unit, page 143, follow this procedure to test overcurrent protection using preconfigured test points:

1	Select **Preconfigured test point**. **Result:** EcoStruxure Power Commission software displays the lists of curves and overcurrent protection functions available on the MicroLogic X control unit.	
2	Select the trip curve and overcurrent protection to be tested. By default Set A and all the protection functions are selected. You can select one or more trip curves to test. 	
3	Check that the device is closed and the fault-trip LEDs are off.	
4	Click **RUN TEST**.	
5	Read carefully the safety message that displays and click **I UNDERSTAND**.	
6	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **CONTINUE**. **Result**: The automatic trip test starts executing.	
7	Check that the device trips.	If the device does not trip: 1. Check that the device is closed. 2. Check that the blue fault-trip reset button is pushed-in. Refer to troubleshooting in the appendix, page 177. 3. Do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
8	Check that the LED corresponding to the protection tested is on and the MicroLogic X screen display turns to red with the correct event. **Example:** Isd/Ii LED is on when short-time protection is tested. 	

9	Check in EcoStruxure Power Commission software that the test is successful.	• If the test is successful, reset the thermal memory then continue the next test. • If the test fails, reset the thermal memory then redo the test. If the problem persists, contact your Schneider Electric Services representative.
10	Before proceeding to the next protection setting, EcoStruxure Power Commission software prompts you to: • Reset the trip cause LEDs by pressing and holding the Test/Reset button on the MicroLogic X control unit until the LEDs are off. • Reset the device by pressing the blue fault-trip reset button on the front cover. • Close the device.	
11	Click **CONFIRM**. **Result:** EcoStruxure Power Commission software proceeds to perform the next overcurrent protection test.	
12	If you have selected more than one trip curve to test, you are prompted to switch to another trip curve to continue the tests. Press **CONFIRM** when you are ready to continue. **Result:** The next trip curve test begins.	
13	After completing the automatic trip curve tests, set the circuit breaker to the active trip curve noted before starting the tests.	

Launching Automatic Trip Curve Test with Custom Test Points

After connecting the PC running EcoStruxure Power Commission software to the MicroLogic X control unit, page 143, follow this procedure to test overcurrent protection functions using custom test points. For phase overcurrent, up to six test points can be added. For ground-fault, only one test point can be tested.

1	Select **Custom test point**.	
2	Add test points as required and define the injection current and time for each test point. 	
3	Check that the device is closed and the fault-trip LEDs are off.	
4	Click **RUN TEST**.	
5	Read carefully the safety message that displays and click **I UNDERSTAND**.	
6	You are prompted to provide the password: 1. Type the Administrator password of the MicroLogic X control unit. 2. Click **CONTINUE**. **Result**: The automatic trip test starts executing.	
7	Check that the device trips. **NOTE:** For certain custom test points, based on the injection current and time, a No Trip result may be acceptable. Check the final report for detailed information regarding a No Trip result.	If the device does not trip (for test points where a trip is expected): 1. Check that the device is closed. 2. Check that the blue fault-trip reset button is pushed-in. Refer to troubleshooting in the appendix, page 177. 3. Do the procedure again. If the problem persists, contact your Schneider Electric Services representative.
8	Check that the LED corresponding to the protection tested is on and the MicroLogic X screen display turns to red with the correct event. **Example:** Isd/Ii LED is on when short-time protection is tested. 	

9	Check in EcoStruxure Power Commission software that the test is successful.	• If the test is successful, reset the thermal memory then continue the next test. • If the test fails, reset the thermal memory then redo the test. If the problem persists, contact your Schneider Electric Services representative. **NOTE:** If EcoStruxure Power Commission software displays a No trip result, check the corresponding threshold and time settings of the circuit breaker to determine if a trip was expected for the values entered. A No Trip result may be acceptable if the user-defined values are below the configured settings of the circuit breaker.
10	Before proceeding to the next protection setting, EcoStruxure Power Commission software prompts you to: • Reset the trip cause LEDs by pressing and holding the Test/Reset button on the MicroLogic X control unit until the LEDs are off. • Reset the device by pressing the blue fault-trip reset button on the front cover. • Close the device.	
11	Click **CONFIRM**. **Result:** EcoStruxure Power Commission software proceeds to perform the next overcurrent protection test.	

Saving the Test Results to a PC

After running the overcurrent protection tests, access the test results in EcoStruxure Power Commission software.

Step	Action
1	At the top of the EcoStruxure Power Commission window, click **Reports > Automatic Trip Test Report** for MasterPacT MTZ. A window opens and displays the report.
2	Save the report on the PC and print it, if needed.
3	Exit EcoStruxure Power Commission software.

Customer Report

Add the automatic trip test report generated above to the customer report.

Chassis NIII_Z_1: Check Operation of CD, CT, CE Position Contacts and EF Auxiliary Contacts

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Operate the chassis position contacts: • CD disconnected position contact • CT test position contact • CE connected position contact • EF combined connected/closed auxiliary contact (MasterPacT MTZ2/MTZ3)
Goal	Verify consistency between actual position of the device in the chassis and the indications given by the position contacts.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.
Special indications	• If the device positions in the chassis are indicated on the front panel of the switchboard, make sure that the auxiliary circuits are energized. • If the device positions in the chassis are not indicated on the front panel of the switchboard, isolate the auxiliary circuits and use an ohmmeter or a tester to test them.

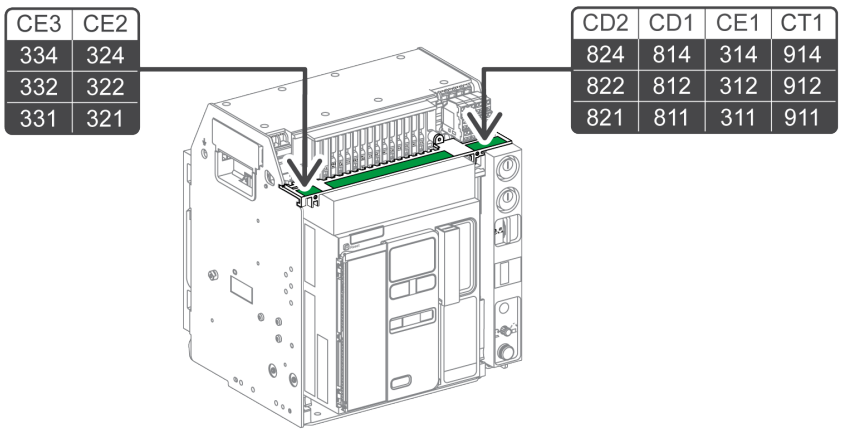
Procedure characteristics	Description
Necessary tools	Ohmmeter or tester
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - EF Combined Connected/Closed Contact - Instruction Sheet*

Preliminary Conditions

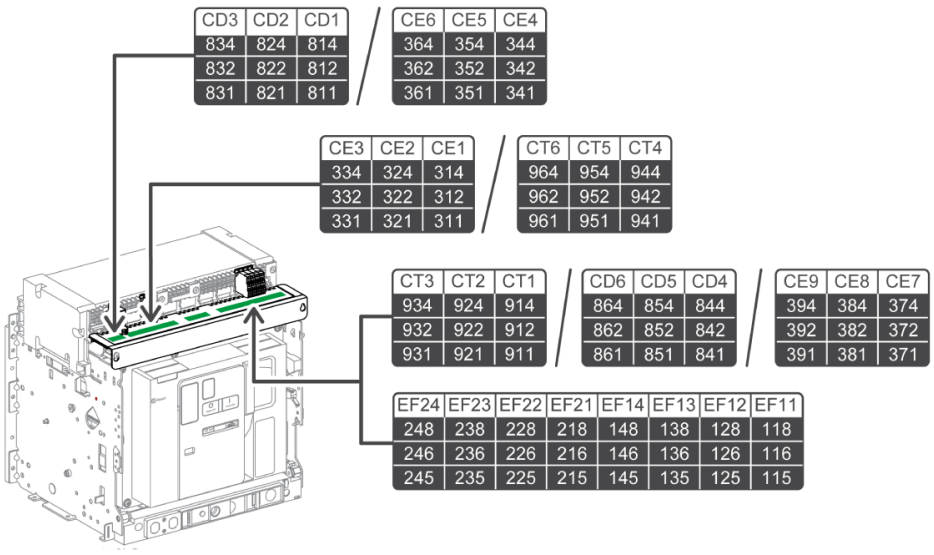
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Disconnected **NOTE:** It is advisable to check the positions with the device in the chassis to obtain the correct position of the actuators.

Location of Contacts in the MasterPacT MTZ1 Devices

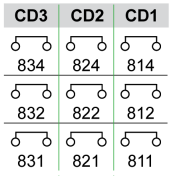
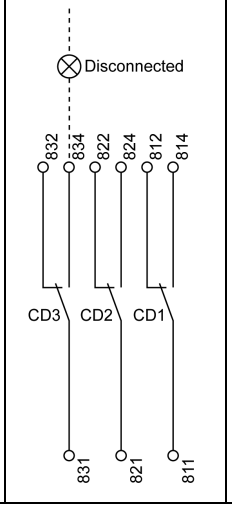
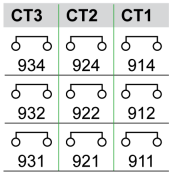
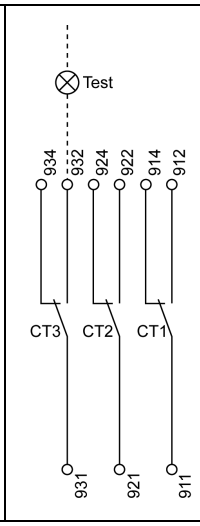
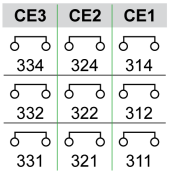
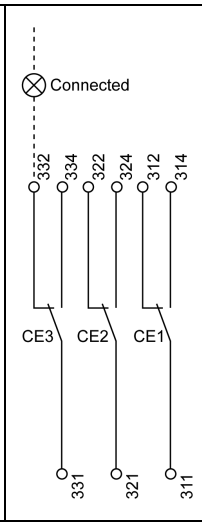


Location of Contacts in the MasterPacT MTZ2/MTZ3 Devices



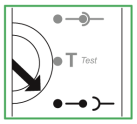
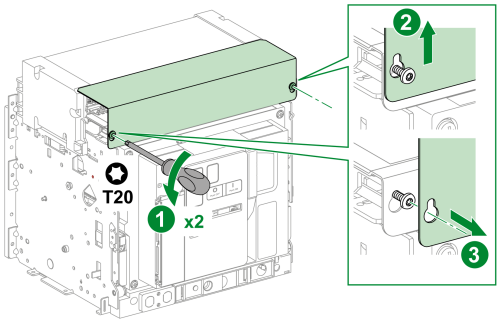
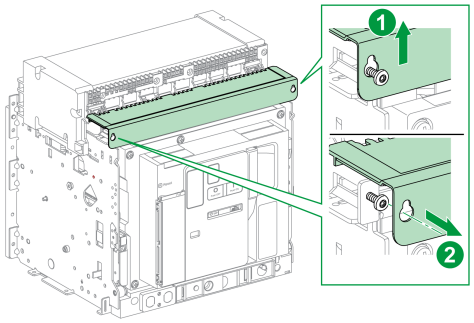
Wiring Diagrams of CD, CT, and CE Position Contacts

The following wiring diagrams show the case of a MasterPacT MTZ2/MTZ3 chassis with three CD, three CT, and three CE contacts, that is, the standard configuration without EIFE embedded Ethernet interface. The checking operations are based on this configuration. The availability of the position contacts depends on the customer configuration.

CD position contacts		CT position contacts		CE position contacts	
					

Checking Position Contacts With Device in Disconnected Position

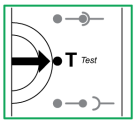
The CD position contacts indicate that the device is in the disconnected position.

Step	Action	Corrective action
1	Check that the device is in the disconnected position.  **NOTE:** If needed, refer to device racking operations as per procedure Chassis NII_Z_1, page 68.	
2	Check that the signal is consistent with the device position by using the LED on the switchboard, if any.	If the LED on the switchboard does not operate, check the LED and the voltage power supply.
3	Remove the auxiliary terminal shield from a drawout device, if present. 	
4	For a MasterPacT MTZ2/MTZ3 device, remove the terminal block identification plate. 	
5	Identify and disconnect all wires for the CD, CT, and CE position contacts, and EF auxiliary contacts, if present.	
6	For MasterPacT MTZ1, use an ohmmeter or tester: • To check electrical continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. • To check electrical non-continuity between terminals: ◦ 911-912 on CT1 contact. ◦ 311-314 on CE1 contact. ◦ 321-324 on CE2 contact. ◦ 331-334 on CE3 contact. For MasterPacT MTZ2/MTZ3, use an ohmmeter or tester: • To check electrical continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. ◦ 831-834 on CD3 contact. • To check electrical non-continuity between terminals: ◦ 911-912 on CT1 contact. ◦ 921-922 on CT2 contact. ◦ 931-932 on CT3 contact. ◦ 311-314 on CE1 contact. ◦ 321-324 on CE2 contact. ◦ 331-334 on CE3 contact.	If a contact does not operate: 1. Check the fixing of the CD contact actuator and manually operate it (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). 2. Check contact status again. 3. If the contact still does not operate, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.

Step	Action	Corrective action
7	If the device has other CD contact blocks, check the corresponding contacts.	
8	Put the device in the test position.	

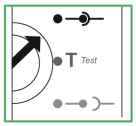
Checking Position Contacts With Device in Test Position

The CT position contacts indicate that the device is in the test position.

Step	Action	Corrective action
1	Check that the device is in the test position.  **NOTE:** If needed, refer to device racking operations as per procedure Chassis NII_Z_1, page 68.	
2	Check that the signal is consistent with the device position by using the LED on the switchboard, if any.	If the LED on the switchboard does not operate, check the LED and the voltage power supply.
3	For MasterPacT MTZ1, use an ohmmeter or tester: • To check electrical continuity between terminals 911-912 on CT1 contact. • To check electrical non-continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. ◦ 311-314 on CE1 contact. ◦ 321-324 on CE2 contact. ◦ 331-334 on CE3 contact. For MasterPacT MTZ2/MTZ3, use an ohmmeter or tester: • To check electrical continuity between terminals: ◦ 911-912 on CT1 contact. ◦ 921-922 on CT2 contact. ◦ 931-932 on CT3 contact. • To check electrical non-continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. ◦ 831-834 on CD3 contact. ◦ 311-314 on CE1 contact. ◦ 321-324 on CE2 contact. ◦ 331-334 on CE3 contact.	If a contact does not operate: 1. Check the fixing of the CT contact actuator and manually operate it (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). 2. Check contact status again. 3. If the contact still does not operate, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
4	If the device has other CT contact blocks, check the corresponding contacts.	
5	Put the device in the connected position.	

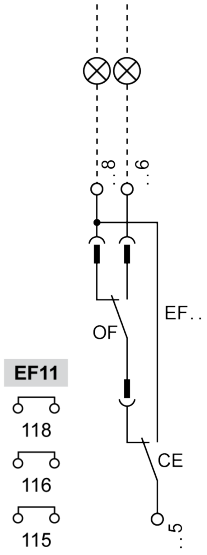
Checking Position Contacts With Device in Connected Position

The CE position contacts indicate that the device is in the connected position.

Step	Action	Corrective action
1	Check that the device is in the connected position.  **NOTE:** If needed, refer to device racking operations as per procedure Chassis NII_Z_1, page 68.	
2	Check that the signal is consistent with the device position by using the LED on the switchboard, if any.	If the LED on the switchboard does not operate, check the LED and the voltage power supply.
3	For MasterPacT MTZ1, use an ohmmeter or tester: • To check electrical continuity between terminals: ◦ 311-312 on CE1 contact. ◦ 321-322 on CE2 contact. ◦ 331-332 on CE3 contact. • To check electrical non-continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. ◦ 911-912 on CT1 contact. For MasterPacT MTZ2/MTZ3, use an ohmmeter or tester: • To check electrical continuity between terminals: ◦ 311-312 on CE1 contact. ◦ 321-322 on CE2 contact. ◦ 331-332 on CE3 contact. • To check electrical non-continuity between terminals: ◦ 811-814 on CD1 contact. ◦ 821-824 on CD2 contact. ◦ 831-834 on CD3 contact. ◦ 911-912 on CT1 contact. ◦ 921-922 on CT2 contact. ◦ 931-932 on CT3 contact.	If a contact does not operate: 1. Check the fixing of the CE contact actuator and manually operate it (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). 2. Check contact status again. 3. If the contact still does not operate, replace the auxiliary terminal block (refer to *MasterPacT MTZ1/MTZ2/MTZ3 - Position Contacts (Connected / Disconnected / Test) - Instruction Sheet*). If the problem persists, contact your Schneider Electric Services representative.
4	If the device has other CE contact blocks, check the corresponding contacts.	
5	Reconnect all the wires for the CD, CT, and CE position contacts.	
6	For MasterPacT MTZ2/MTZ3 with optional EF auxiliary contacts, check operation of these contacts, page 156.	
7	Put the terminal block identification plate and the auxiliary terminal shield back in place.	

Wiring Diagram of EF Auxiliary Contacts (Option on MasterPacT MTZ2/MTZ3)

The availability of the EF auxiliary contacts depends on the device.


8
9
EF..
OF
EF11
118
116
115
CE
5

Checking Operation of EF Auxiliary Contacts (MasterPacT MTZ2/MTZ3)

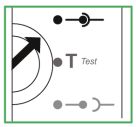
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Check that the device and the chassis are de-energized on the upstream and downstream terminals.

Failure to follow these instructions will result in death or serious injury.

This EF information combines the device connected (CE) contact and device closed (OF) contact to produce the circuit connected/closed signal.

Step	Action	Corrective action
1	Put the device in the connected position. 	
2	Close the device.	
3	Check that the signal is consistent with the device position by using the LED on the switchboard, if any.	If the LED on the switchboard does not operate, check the LED and the voltage power supply.
4	With the device in the connected position and with poles closed, use an ohmmeter or tester: • To check electrical continuity between terminals 115-116. • To check electrical non-continuity between terminals 115-118.	If a contact does not operate: 1. Put the device in the test position. 2. Check the fixing of the EF contact actuator and manually operate it (refer to *MasterPacT MTZ2/MTZ3 - EF Combined Connected/Closed Contact - Instruction Sheet*). 3. Check contact status again. 4. If the contact still does not operate, replace the EF contact (refer to *MasterPacT MTZ2/MTZ3 - EF Combined Connected/Closed Contact - Instruction Sheet* 5. If there is still no improvement: • Check the operation of the OF indication contact as per procedure Auxiliaries NIII_Z_1, page 114. • If necessary, replace the OF contact. If the problem persists, contact your Schneider Electric Services representative.
5	Open the device.	
6	With the device in the connected position and with poles open, use an ohmmeter or tester: • To check electrical continuity between terminals 115-118. • To check electrical non-continuity between terminals 115-116.	
7	If the device has other EF auxiliary contact block, check them.	
8	Put the terminal block identification plate and the auxiliary terminal shield back in place.	

Chassis NIII_Z_2: Check Operation of Safety Shutters

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check the opening and closing of the safety shutters manually. • Check the locking and unlocking of the safety shutters with the optional VIVC locking accessory (MasterPacT MTZ2/MTZ3).
Goal	Verify that the safety shutters operate correctly and prevent access to the power circuit when the device is removed from the chassis.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 15.

Procedure characteristics	Description
Special indications	–
Necessary tools	• Padlock with shackle diameter 5–8 mm • Racking handle
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - Safety Shutters - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Safety Shutters - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - VIVC Front Face Shutter Position Indication and Locking - Instruction Sheet*

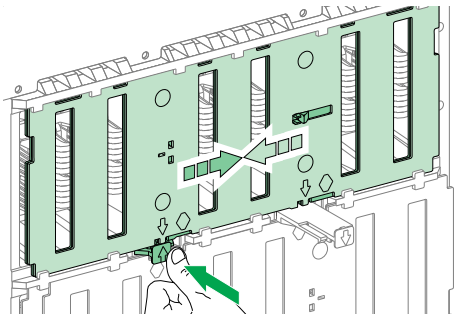
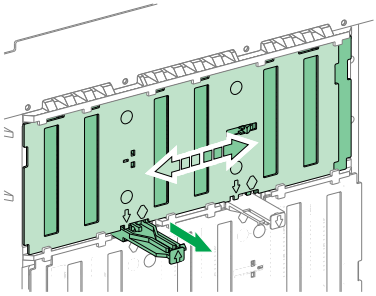
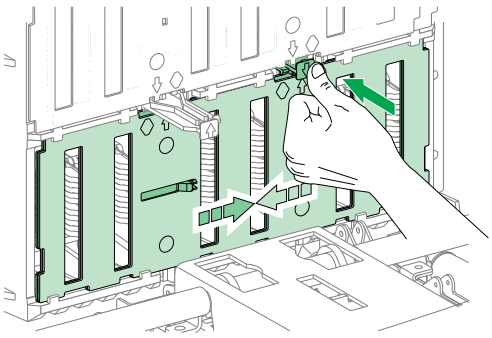
Preliminary Conditions

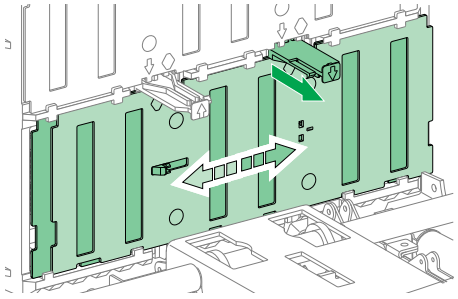
The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Removed from chassis

Checking Safety Shutter Operation for MasterPacT MTZ1, MTZ2, and for MTZ3 Before 09/2022

Execute the following procedure for each safety shutter.

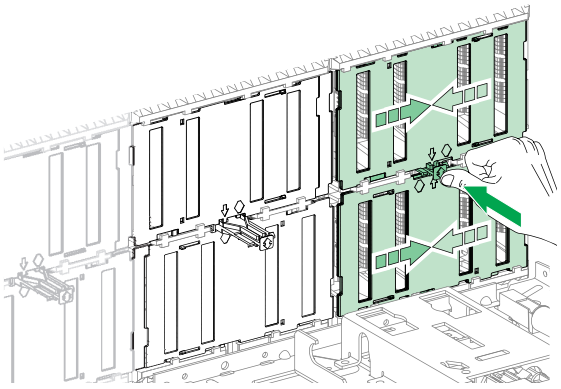
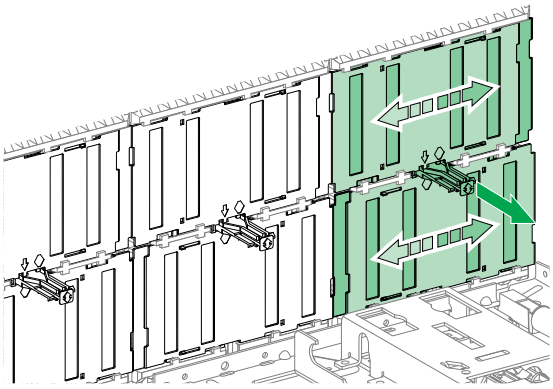
Step	Action	Corrective action
1	Press and hold the opening mechanism of the top safety shutter until the shutter opens completely. 	
2	Quickly release the mechanism. The top shutter must close completely. 	If the shutter remains partially or completely open: • Remove the shutter (refer to the relevant *MasterPacT MTZ - Safety Shutters - Instruction Sheet*). • Remove the shutter actuator (MasterPacT MTZ2). • Clean the shutter actuator and safety shutter to remove any grease or dust. • Reinstall the shutter actuator (MasterPacT MTZ2). • Reinstall the shutter. • Do the procedure again. If the problem persists, replace: • The safety shutter. • The shutter actuator (MasterPacT MTZ2). Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Press and hold the opening mechanism of the bottom safety shutter until the shutter opens completely. 	

Step	Action	Corrective action
4	Quickly release the mechanism. The bottom shutter must close completely. 	If the shutter remains partially or completely open, follow the corrective action described in step 2.
5	Repeat steps 1 to 4 of the procedure with a slow release of the mechanism until it has returned to its initial position. The slow release simulates the slow translation of the device during disconnection. Each shutter must close completely.	If a shutter remains partially or completely open, follow the corrective action described in step 2.

Checking Safety Shutter Operation for MasterPacT MTZ3 After 09/2022

From 09/2022, each MTZ3 safety shutter protects the top and bottom chassis clusters of one phase. Prior to this date, one safety shutter protected the top chassis clusters of all phases, and one safety shutter protected the bottom chassis clusters of all phases.

Execute the following procedure for the safety shutter mechanism of each phase.

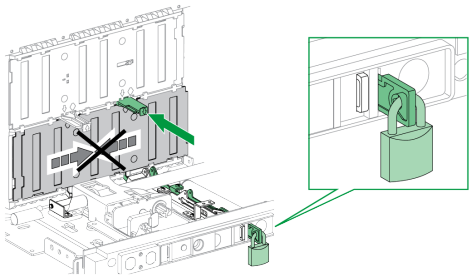
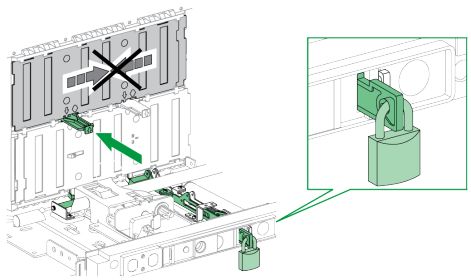
Step	Action	Corrective action
1	Press and hold the opening mechanism of the safety shutters of one phase until the top and bottom shutters open completely. 	
2	Quickly release the mechanism. The top and bottom shutters must close completely. 	If a shutter remains partially or completely open: • Remove the shutter (refer to the relevant *MasterPacT MTZ - Safety Shutters - Instruction Sheet*). • Remove the shutter actuator. • Clean the shutter actuator and safety shutter to remove any grease or dust. • Reinstall the shutter actuator. • Reinstall the shutter. • Do the procedure again. If the problem persists, replace: • The safety shutter. • The shutter actuator. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts.
3	Press and hold the same opening mechanism again until the safety shutters open completely.	
4	Slowly release pressure until the mechanism has returned to initial position. The slow release simulates the slow translation of the device during disconnection. The top and bottom shutters must close completely.	If a shutter remains partially or completely open, follow the corrective action described in step 2.
5	Repeat the procedure for the shutter mechanism of each phase.	

Checking Shutter Padlocking with the VIVC Locking Accessory for MasterPacT MTZ2, and for MTZ3 Before 09/2022

Before starting this check, verify that the VIVC front face shutter position indication and locking accessory is mounted.

The top or bottom safety shutters can be locked individually or together on MasterPacT MTZ2 devices and on MasterPacT MTZ3 devices manufactured before 09/2022.

Safety shutter locking is only possible with the chassis in test or disconnected position.

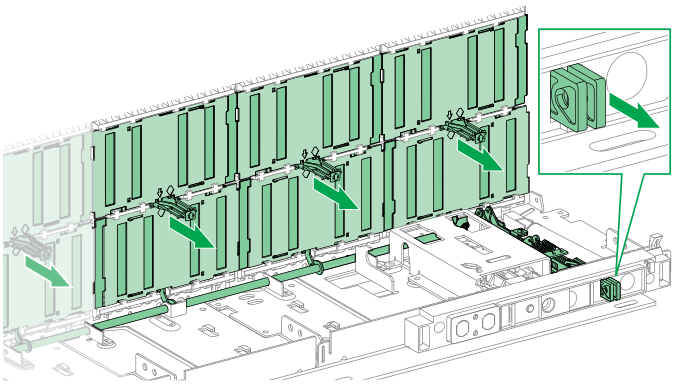
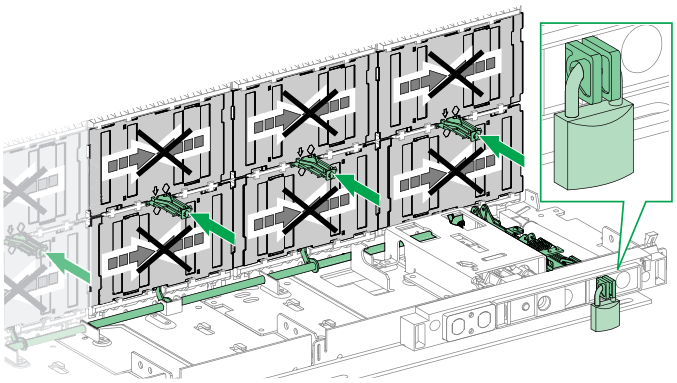
Step	Action	Corrective action
1	Pull out the right-hand tab.	If the tab cannot be pulled out, check that the locking accessory is correctly installed (refer to *MasterPacT MTZ2/MTZ3 - VIVC Front Face Shutter Position Indication and Locking - Instruction Sheet*). If the locking accessory is damaged, replace it. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
2	Insert the padlock in this tab.	
3	Check that it is not possible to press the shutter actuator of the bottom safety shutter. The bottom safety shutter must remain closed. 	If the shutter actuator can be pressed and/or the safety shutter can be opened, remove and replace the shutter. If the problem persists, contact your Schneider Electric Services representative.
4	Check that the racking handle cannot be inserted.	If the racking handle can be inserted, contact your Schneider Electric Services representative
5	Remove the padlock.	
6	Pull out the left-hand tab.	
7	Insert the padlock in this tab.	
8	Check that it is not possible to press the shutter actuator of the top safety shutter. The top safety shutter must remain closed. 	If the shutter actuator can be pressed and/or the safety shutter can be opened, remove and replace the shutter. If the problem persists, contact your Schneider Electric Services representative.
9	Check that the racking handle cannot be inserted.	If the racking handle can be inserted, contact your Schneider Electric Services representative
10	Remove the padlock.	

Checking Shutter Padlocking with the VIVC Locking Accessory for MasterPacT MTZ3 After 09/2022

Before starting this check, verify that the VIVC front face shutter position indication and locking accessory is mounted.

The VIVC locking accessory locks all safety shutters together on MasterPacT MTZ3 devices manufactured after 09/2022.

Safety shutter locking is only possible with the chassis in test or disconnected position.

Step	Action	Corrective action
1	Pull out the tabs. 	If the tab cannot be pulled out, check that the locking accessory is correctly installed (refer to *MasterPacT MTZ2/MTZ3 - VIVC Front Face Shutter Position Indication and Locking - Instruction Sheet*). If the locking accessory is damaged, replace it. Refer to the *MasterPacT MTZ with MicroLogic X Control Unit - Catalog* for spare parts. If the problem persists, contact your Schneider Electric Services representative.
2	Insert the padlock in the tabs.	
3	Check that it is not possible to press the shutter actuators of the safety shutter. The safety shutters must remain closed. 	If a shutter actuator can be pressed and/or the safety shutters can be opened, remove and replace the shutter. If the problem persists, contact your Schneider Electric Services representative.
4	Check that the racking handle cannot be inserted.	If the racking handle can be inserted, contact your Schneider Electric Services representative
5	Remove the padlock.	

Chassis NIII_Z_3: Clean Chassis and Check Presence of Grease on Chassis

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check cleanliness of internal parts of the chassis (no dust) and presence of grease. • If necessary, spread the grease uniformly across the mechanical parts of the chassis.
Goal	Verify the smooth mechanical racking-in and racking-out of the device.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	–

Procedure characteristics	Description
Necessary tools	• Vacuum cleaner • Small paintbrush
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Removed from chassis

Checking Cleanliness of Internal Parts of Chassis

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The chassis must be de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the chassis and the auxiliary circuits are de-energized.

Failure to follow these instructions will result in death or serious injury.

Check cleanliness of the internal parts of the chassis. In presence of dust, use a vacuum cleaner to remove it.

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Do not use pressurized cleaning products or products containing solvents (trichloroethane or trichloroethylene) such as WD40.

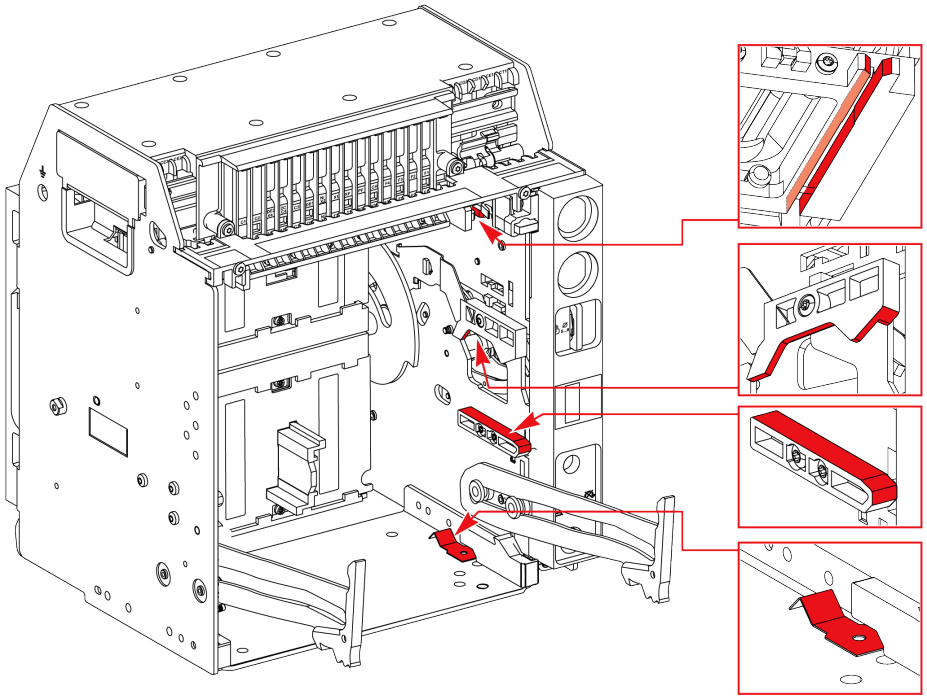
Failure to follow these instructions can result in equipment damage.

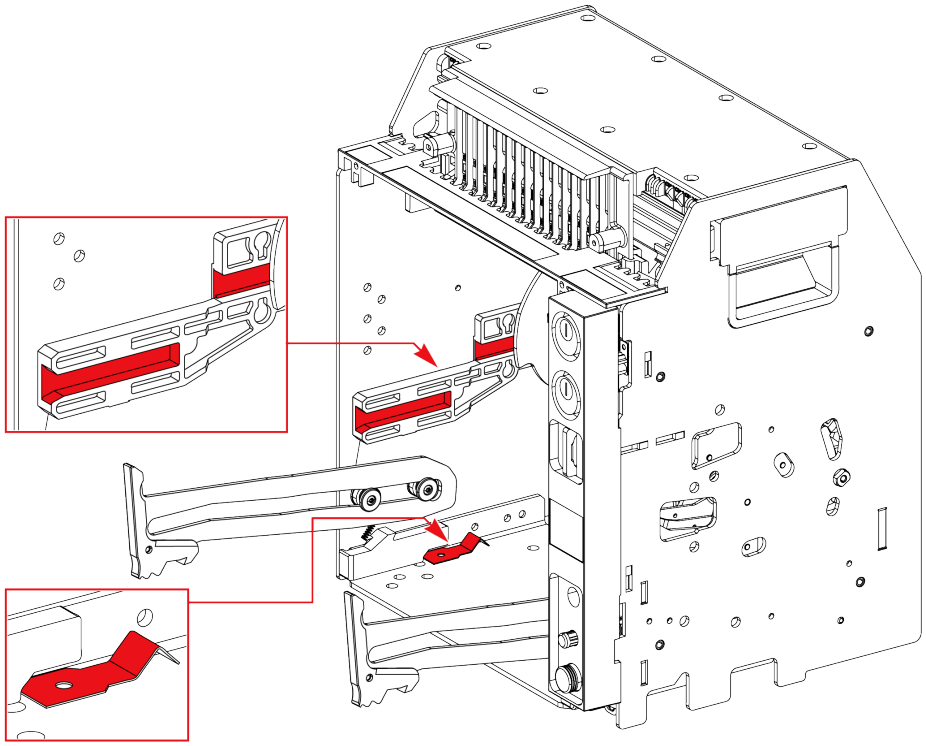
Checking Greasing of Internal Parts of Chassis

Step	Action	Corrective action
1	Check the color and texture of grease. See parts indicated in the corresponding illustrations for MasterPacT MTZ1, page 166 or MasterPacT MTZ2/MTZ3, page 167. **NOTE:** • Dust mixed with grease can be abrasive and can lead to premature wear of mechanisms. • Dust mixed with grease can increase mechanical friction and blocking moving parts.	If there is a change in grease (for example, grease is dirty or hardened on the mechanical parts of the chassis), contact your Schneider Electric Services representative.
2	Check if the grease on the mechanical parts is applied uniformly on the whole zone concerned. See parts indicated in the corresponding illustrations for MasterPacT MTZ1, page 166 or MasterPacT MTZ2/MTZ3, page 167. **NOTE:** • Too much grease impacts negatively on the device operation. • Absence of grease increases racking forces and leads to blocking moving parts.	• If there is excessive grease, spread the grease uniformly across the zone with a small paintbrush. • If there is no grease, contact your Schneider Electric Services representative.

Grease Points On MasterPacT MTZ1 Chassis

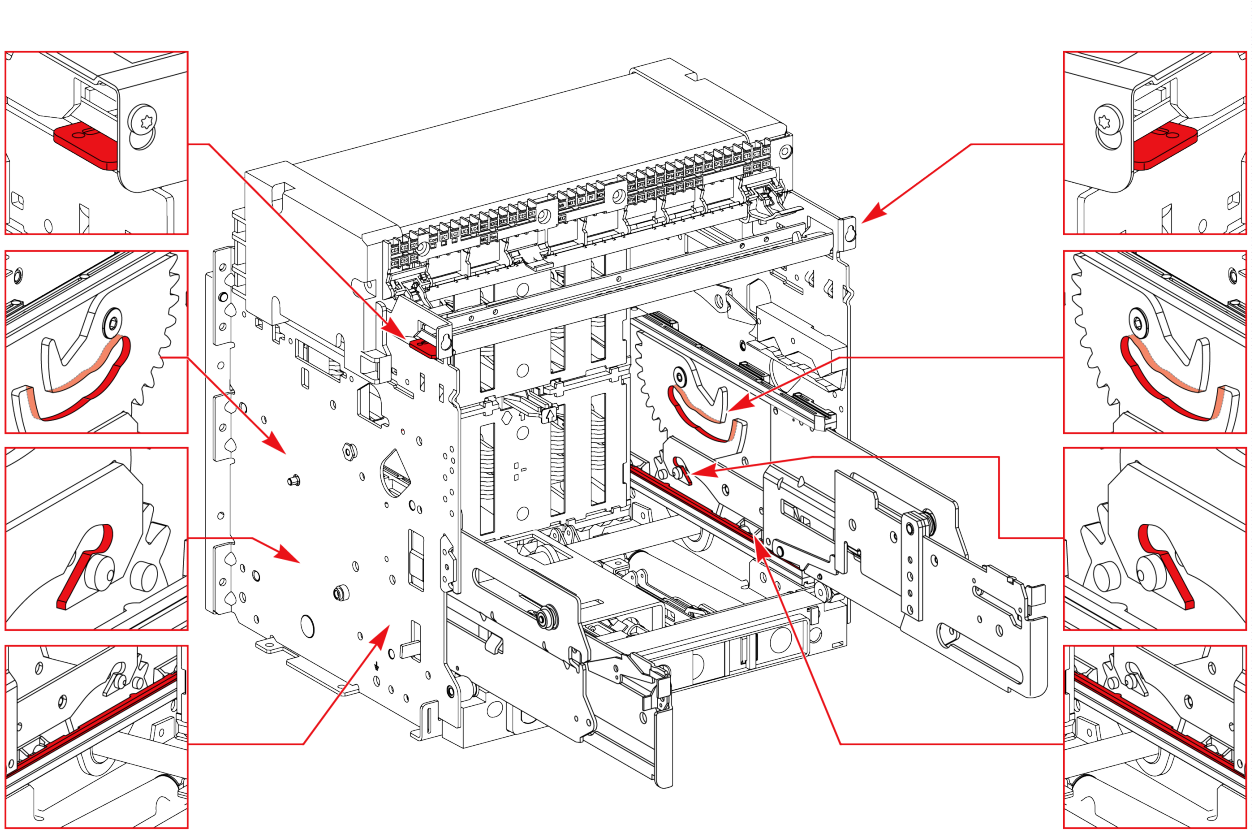
Check grease points on the right and left hand-side of the chassis as indicated on the zones identified in these illustrations.





Grease Points On MasterPacT MTZ2/MTZ3 Chassis

Check grease points symmetrically on the right and left hand-side of the chassis as indicated on the zones identified in these illustrations.



Chassis NIII_Z_4: Check Disconnecting Contact Clusters

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	Visually check the disconnecting contact clusters and cluster supports.
Goal	• Verify the smooth mechanical racking-in of the device. • Verify the smooth racking-out of the device (avoid pulling out the clusters during disconnection).
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.
Special indications	–

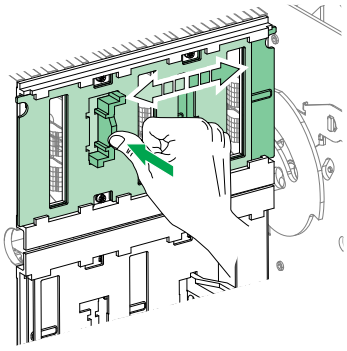
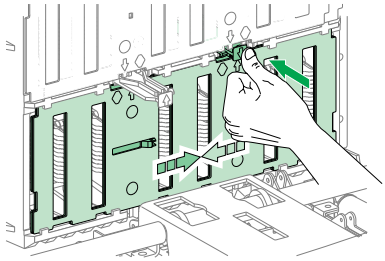
Procedure characteristics	Description
Necessary tools	–
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide*

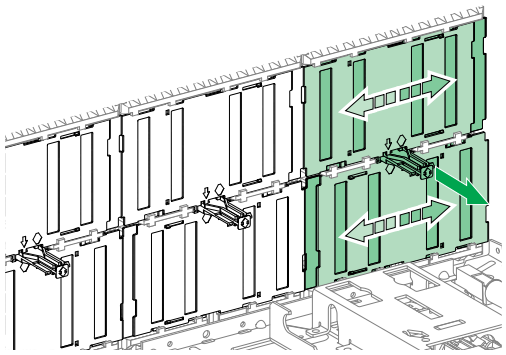
Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	N/A	N/A	N/A
Drawout	Open	Discharged	Removed from chassis

Checking Disconnecting Contact Clusters

Step	Action	Corrective action
1	If present, remove the VIVC locking accessory for safety shutters (MasterPacT MTZ2/MTZ3).	
2	Without removing the safety shutters, visually check the disconnecting contact clusters. • MasterPacT MTZ1  • MasterPacT MTZ2 and MasterPacT MTZ2/MTZ3 (before 08/2022) 	

Step	Action	Corrective action
	• MasterPacT MTZ2/MTZ3 (after 08/2022) 	
3	Check that no copper is present on the surface of the clusters.	If copper is visible, contact your Schneider Electric Services representative.
4	Check if the disconnecting contact clusters are blackened.	If the disconnecting contact clusters are blackened, contact your Schneider Electric Services representative.
5	Check the state of the grease on disconnecting contact clusters.	If there is no grease or there is a change in color or texture of grease, contact your Schneider Electric Services representative.
6	Reinstall the optional VIVC locking accessory for safety shutters (MasterPacT MTZ2/MTZ3).	

Power Connections NIII_Z_1: Check Connection System

Safety Instructions

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS, or local equivalent.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Unless specified otherwise in the maintenance procedures, all operations (inspection, test, and preventive maintenance) must be carried out with the device, the chassis, and the auxiliary circuits de-energized.
- Check that the device and the chassis are de-energized on the upstream and downstream terminals.
- Always use a properly rated voltage sensing device to confirm that the device, the chassis, and the auxiliary circuits are de-energized.
- Install safety barriers and display a danger sign.
- During the tests, it is strictly forbidden for anyone to touch the device, the chassis, or the conductors while voltage is applied.
- Before turning on power to this equipment, check that all connections are made with the correct tightening torque and the device is open (OFF position).
- Before turning on power to this equipment, put all devices, doors, and covers back in place.
- Before turning on power to this equipment, beware of potential hazards and carefully inspect the work area for tools and objects that may have been left inside the equipment.

Failure to follow these instructions will result in death or serious injury.

⚠DANGER

HAZARD OF DEVICE FALLING

- Be sure that lifting equipment has lifting capacity for the device being lifted.
- Follow manufacturer’s instructions for use of lifting equipment.
- Wear hard hat, safety shoes, and heavy gloves.

Failure to follow these instructions will result in death or serious injury.

Procedure Definition

Procedure characteristics	Description
Action	• Check that the connection terminals and cables and/or busbars are correctly tightened. • Check presence and state of grease. • Check penetration of terminals in clusters in the case of a drawout device. • Clean contact surfaces.
Goal	Verify normal temperature rise on device and customer connections according to IEC standards.
Frequency	Refer to Recommended Frequency for the Intermediate End-User Maintenance Program, page 16.

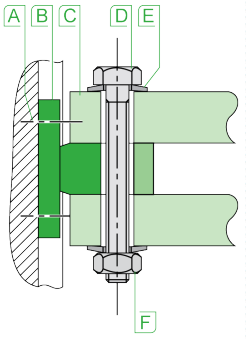
Procedure characteristics	Description
Special indications	–
Necessary tools	• White abrasive pad (for example, Scotch-Brite) • Torque wrench • Small paintbrush • New bolts, nuts, and washers
Related documents, page 6	• *MasterPacT MTZ1 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ2/MTZ3 - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - User Guide* • *MasterPacT MTZ1 - Connectors - Instruction Sheet* • *MasterPacT MTZ2/MTZ3 - Connectors - Instruction Sheet*

Preliminary Conditions

The device must comply with the conditions specified below. Refer to the *MasterPacT MTZ User Guides* to find instructions for operating the device.

Device installation type	Position of poles	Mechanism	Device position in the chassis
Fixed	–	–	N/A
Drawout	–	–	Removed from chassis

Example of Hardware Connection



A Terminal screw factory-tightened to 13 N•m (MasterPacT MTZ1) and 17 N•m (MasterPacT MTZ2/MTZ3)

B Circuit breaker terminal

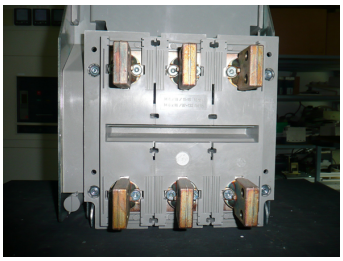
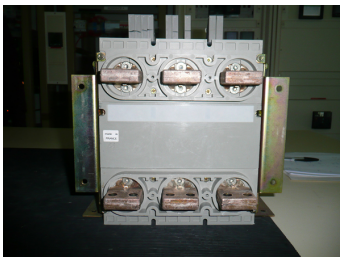
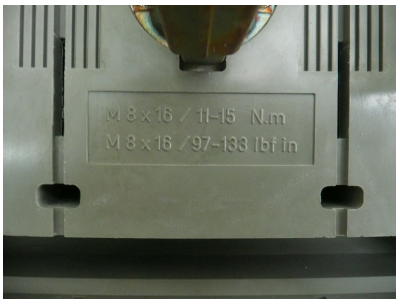
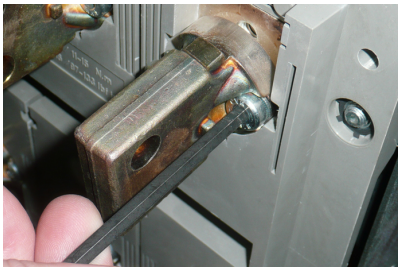
C Busbar

D Bolt

E Washer

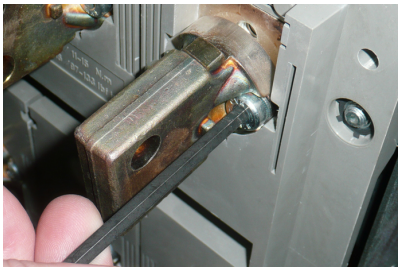
F Nut

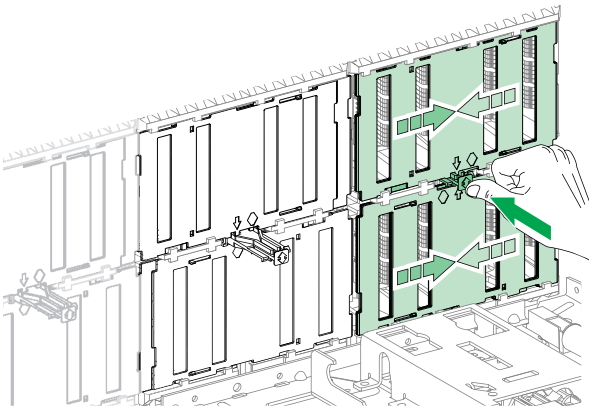
Fixed Device: Checking Mounting of Connection Terminals to Device and Cables And/Or Busbars to Connection Terminals

Step	Action	Corrective action
1	Disconnect busbars from all the connection terminals. Connection types: • Mixed connection  • Vertical rear connection  • Horizontal rear connection 	Advise customer in case of damage to busbars noticed during disconnection.
2	Check the recommended torque value on the device: • For MasterPacT MTZ1: 13 N•m  • For MasterPacT MTZ2/MTZ3: 17 N•m	
3	Make sure that the screws are not overtightened: 1. Set the torque wrench to 1 N•m under the recommended value, and then tighten connection terminals to this value. 	If a screw cannot be tightened to this value, contact your Schneider Electric Services representative.

Step	Action	Corrective action
	2. Set the torque wrench to the recommended value, and then tighten connection terminals to this value.	
4	Clean the busbar contact surfaces and customer terminals by using a white abrasive pad.	If there is a major change in color, contact your Schneider Electric Services representative.
5	Disconnect cables from all the connection terminals.	Advise customer in case of damage to cables noticed during disconnection.
6	Clean the contact surfaces of the cable lugs by using a white abrasive pad.	Advise customer in case of damage to the cable insulation (for example, cracks or cable shrinkage).
7	Reconnect the cables and/or busbars with a new set of bolts, nuts, and washers, and then tighten to the recommended torque. **NOTE:** Standard connection hardware is class 8.8 steel hardware with contact washers. For MTZ2 40, MTZ3 40, MTZ3 50, and MTZ3 63, it is recommended to use A80 stainless steel hardware.	

Drawout Device: Checking Mounting of Connection Terminals to Device and Cables And/Or Busbars to Connection Terminals

Step	Action	Corrective action
1	Check the recommended torque value on the device: • For MasterPacT MTZ1: 13 N•m • For MasterPacT MTZ2/MTZ3: 17 N•m	
2	Make sure that the screws are not overtightened: 1. Set the torque wrench to 1 N•m under the recommended value, and then tighten connection terminals to this value.  2. Set the torque wrench to the recommended value, and then tighten connection terminals to this value.	If a screw cannot be tightened to this value, contact your Schneider Electric Services representative.
3	Check the state of the grease on internal terminals on device.	• If there is excessive grease, spread the grease uniformly across the zone with a small paintbrush. • If there is no grease or there is a change in color or texture of grease, contact your Schneider Electric Services representative.
4	Check that the depth of the penetration of internal terminals in the clusters, indicated by the mark, is about 5 mm. 	If penetration depth is less that 5 mm, contact your Schneider Electric Services representative.

Step	Action	Corrective action
5	Open manually the top and bottom safety shutters, and check presence of grease on the clusters. 	• If there is excessive grease, spread the grease uniformly across the zone with a small paintbrush. • If there is no grease or there is a change in color or texture of grease, contact your Schneider Electric Services representative.
6	Disconnect customer cables and/or busbars from all the connection terminals on the chassis.	Advise customer in case of damage to cables or busbars noticed during disconnection.
7	Make sure that the screws are not overtightened: Set the torque wrench to 1 N•m under the recommended value, and then tighten connection terminals to this value.	If a screw cannot be tightened to this value, contact your Schneider Electric Services representative.
8	Without removing the customer terminals, tighten connection terminals to the recommended value: • For MasterPacT MTZ1: 13 N•m • For MasterPacT MTZ2/MTZ3: 17 N•m	If a screw cannot be tightened to this value, contact your Schneider Electric Services representative.
9	Clean the busbar contact surfaces and customer terminals by using a white abrasive pad.	If there is a major change in color, contact your Schneider Electric Services representative.
10	Clean the contact surfaces of the cable lugs by using a white abrasive pad.	
11	Reconnect the cables and/or busbars with a new set of bolts, nuts, and washers, and then tighten to the recommended torque. **NOTE:** Standard connection hardware is class 8.8 steel hardware with contact washers. For MTZ2 40, MTZ3 40, MTZ3 50, and MTZ3 63, it is recommended to use A80 stainless steel hardware.	

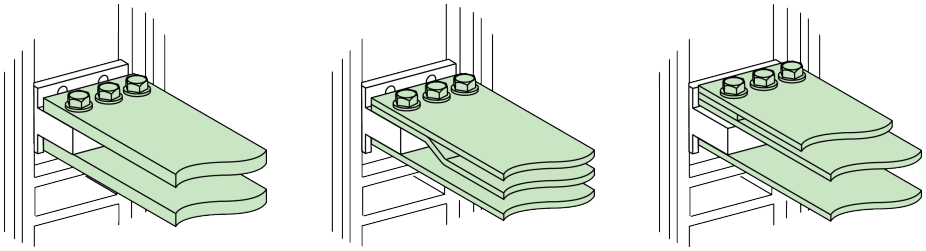
Terminal Mounting on Device and Recommended Tightening Torque

Refer to the following documentation:

- *MasterPacT MTZ1 - Connectors - Instruction Sheet*
- *MasterPacT MTZ2/MTZ3 - Connectors - Instruction Sheet*

Recommended Tightening Torque of Connecting Busbars

The following table shows the tightening torques to be used for connecting busbars (Cu ETP - French standard NFA 51-100) to the circuit breaker. These values are for use with copper busbars and steel nuts and bolts, class 8.8. The same torques can be used with AGS-T52 quality aluminum bars (French standard NFA 02-104 or American National Standard H-35-1).



Ø (mm) Nominal	Ø (mm) Drilling	Tightening torques (N•m) with grower or flat washers	Tightening torques (N•m) with contact or corrugated washers
10	11	37.5	50

MasterPacT MTZ Troubleshooting

What's in This Part

Introduction to Troubleshooting

Presentation

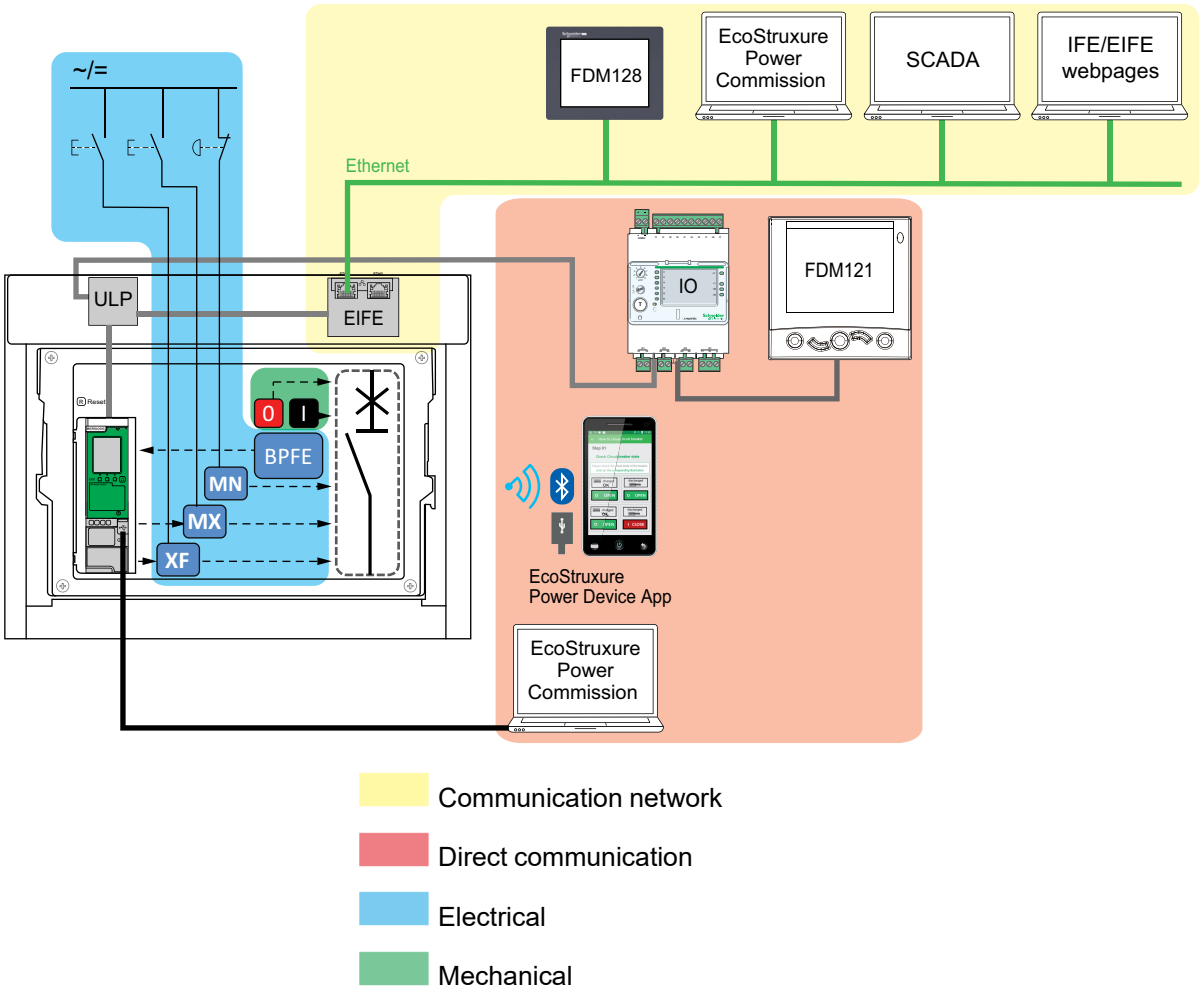
This part contains information for troubleshooting problems in a working system. It assumes that the system is correctly installed and that all the commissioning tests have been completed successfully. The troubleshooting operations are described under the following headings:

Layer Model

When troubleshooting the device, it is useful to consider a layer model. There are four layers:

- Communication network
- Direct connection
- Electrical
- Mechanical

The following diagram shows the layers in the device:



If the troubleshooting actions for a layer are not successful, go to the next layer until you reach the Mechanical layer. If you cannot solve the problem after troubleshooting the Mechanical layer, contact your Schneider Electric Services representative.

Troubleshooting with Assistance

Assistance for troubleshooting is provided by the MasterPacT Operation Assistant Digital Module.

The MasterPacT Operation Assistant Digital Module helps to close a circuit breaker after a trip or an opening.

The following features are available:

- Ready-to-close status
- Reset (if applicable)

- Spring charging (if applicable)
- Diagnostics on related reclosing information, for example, no power supply to MX opening voltage release, MN undervoltage release, or MCH gear motor

For more information about downloading Digital Modules, refer to DOCA0102•• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* in **Related Documents** at the beginning of this guide.

Maintenance of the Device

Schneider Electric recommends a preventive maintenance program to ensure that devices retain the operating and technical characteristics specified in the catalogs during their service life. Maintenance must be carried out by trained and qualified personnel.

For information about the preventive maintenance program and maintenance procedures, refer to DOCA0099•• *MasterPacT MTZ - IEC Switch-Disconnectors and Circuit Breakers with MicroLogic X Control Unit - Maintenance Guide* in **Related Documents** at the beginning of this guide.

Troubleshooting: Chassis Operation

Definition

Chassis operation includes the following:

- Racking in and racking out the drawout device
- Locking and unlocking the chassis

Troubleshooting

Problem description	Probable causes	Solutions
Impossible to insert the racking handle in connected, test, or disconnected position.	A padlock or keylock is present on the chassis or a door interlock is present.	Disable the locking function.
Impossible to turn the racking handle.	The position release button is not pushed in and so the racking handle cannot be rotated.	Push the position release button.
Device cannot be removed from chassis.	Device is not in the disconnected position.	Turn the racking handle until the device is in the disconnected position and the position release button pops out.
	Rails are not completely extended.	Pull out the rails of the chassis.
Device cannot be connected (racked in).	Chassis and device do not match (mismatch protection).	Check that the chassis corresponds with the device.
	Safety shutters are locked.	Remove the locks.
	Disconnecting contact clusters are incorrectly positioned.	Reposition the disconnecting contact clusters.
	Chassis is locked in the disconnected position.	Disable the chassis locking function.
	The position release button is not pushed in and so the racking handle cannot be rotated.	Push the position release button.
	Device has not been sufficiently inserted in the chassis.	Insert the device completely so that it is engaged in the racking mechanism.
Device cannot be locked in the disconnected position.	Device is not in the correct position.	Check the device position by checking that the position release button is popped out.
	Racking handle is still in the chassis.	Remove the racking handle and store it.
Device cannot be locked in the connected, test, or disconnected position.	Locking in any position is not enabled.	Adapt the chassis locking mechanism so that the chassis can be locked in any position.
	Device is not in the correct position.	Check the device position by checking that the position release button is out.
	Racking handle is still in the chassis.	Remove the racking handle and store it.
The racking handle cannot be inserted to connect or disconnected the device.	Rails are not completely in.	Push the rails all the way in.
The right-hand rail (chassis alone) or the device cannot be drawn out.	Racking handle is still in the chassis.	Remove the racking handle and store it.

Troubleshooting: Unexpected Tripping

Definition

Unexpected tripping is tripping that is not caused by a protection function during normal operation or by tests.

Troubleshooting

Problem description	Symptom	Probable causes	Solutions
Device opened without any over-current electrical fault.	The blue fault-trip reset button is not popped out and no trip cause LED is lit.	Drop in voltage to below the threshold detected by MN undervoltage release.	Check the voltage and the MN supply circuit (V > 0.85 Un).
		An order (for example load-shedding) sent to the MX opening voltage release by another device.	Check the parameters of the device that sent the order.
		Unnecessary opening order from the MX opening voltage release.	Determine the origin of the order and cancel it.
Device trips in a shorter time than expected after attempt to close the device.	The blue fault-trip reset button is popped out and the Ir LED is lit.	Thermal memory is still active and current on the line is above the Ir threshold.	Check whether there is still an overload on the line. If necessary, make a correction. For details of thermal memory, refer to DOCA0102•• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* in **Related Documents** at the beginning of this guide.
	The blue fault-trip reset button is popped out, the Ir or Isd LED is lit, and the ERMS LED is lit.	ERMS is active so device opens at lower protection settings.	The ERMS function applies reduced protection settings for use during maintenance. Check whether maintenance is in progress. If ERMS is no longer necessary, disengage it to revert to normal protection settings.
	–	The tripping curves (A or B) have been modified, or the control unit is not set to the usual set of tripping curves (A or B).	This might be a change in intended behavior so not a problem. Check the tripping curve definitions are describing the intended behavior. Modify the definitions if necessary.
Immediate tripping after an attempt to close the device.	The blue fault-trip reset button is popped out and the Ir LED is lit.	Transient overcurrent when closing.	• Modify the distribution system or the control unit settings. • Check the condition of the device before putting it back into service.
Immediate tripping after an attempt to close the device with activation of the blue fault-trip reset button.	–	Closing on a short-circuit.	Refer to MasterPacT MTZ critical cases.
Nuisance tripping of the device with activation of the blue fault-trip reset button.	–	Blue fault-trip reset button is not pushed-in completely.	Push in the blue fault-trip reset button completely.

Problem description	Symptom	Probable causes	Solutions
	–	Transient overcurrent detected on the line and fast instantaneous trip setting is active in EcoStruxure Power Commission software.	Intended behavior. If necessary, adjust the settings in EcoStruxure Power Commission software.

Troubleshooting: Mechanical Control Operations

Definition

Mechanical control operations are operations that are made using the opening or closing pushbuttons.

Device Cannot be Closed by Using the Mechanical Closing Pushbutton

Symptom	Probable causes	Solutions
The blue fault-trip reset button is popped out.	The blue fault-trip reset button has not been reset.	• Clear the fault. • Push the blue fault-trip reset button.
–	Device is padlocked or keylocked in the open position.	Unlock the device.
–	Device is interlocked mechanically in a mechanical interlocking system.	• Check the position of the other device in the changeover system. • Modify the situation to release the interlock.
The closing spring and ready-to-close indicator shows that the mechanism is discharged. 	Stored energy mechanism is not charged.	• Charge the mechanism manually. • If the device is equipped with an MCH gear motor, check the supply of power to the motor. If the problem persists, replace the MCH gear motor.
The closing spring and ready-to-close indicator shows that the mechanism is charged but the device is not ready to close. 	MX opening voltage release is permanently powered.	As there is an opening order, determine the origin of the order. The order must be canceled before the device can be closed.
	MN undervoltage release is not powered due to an opening order.	As there is an opening order, determine the origin of the order. The order must be canceled before the device can be closed.
	MN undervoltage release is not powered due to insufficient voltage power supply.	Check the voltage and the MN supply circuit (V > 0.85 Un). If the problem persists, replace the MN undervoltage release.
Recurring undervoltage trip.	The measured voltage remains at 0 V.	Set the undervoltage behavior parameter, Vmin behavior, to **Force to Off when CB is open**. For more information, refer to DOCA0102•• *MasterPacT MTZ - MicroLogic X Control Unit - User Guide* in **Related Documents** at the beginning of this guide.
The position release button on the chassis of the drawout device is pushed in.	Device is not correctly connected.	Terminate racking in (connection) of the device, making sure that it is fully inserted in the chassis, to the connected position. Check that the position release button is popped out.

Device Cannot be Opened by Using the Mechanical Opening Pushbutton

Probable causes	Solutions
Operating mechanism incident or welded contacts.	Contact your Schneider Electric Services representative.

Troubleshooting: Electrical Control Operations

Definition

Electrical control operations are operations that are made by an electrical order through a voltage release or by an external pushbutton that is directly connected to a voltage release.

Troubleshooting Voltage Releases

Troubleshooting depends on the type of voltage release, as follows:

- For communicating voltage releases, consult the MicroLogic X event messages and then refer to MasterPacT MTZ Critical Cases
- For standard voltage releases, follow the troubleshooting instructions given in the following tables. If the problem persists, replace the voltage release.

Device Cannot be Closed by Using an External Pushbutton/Electrical Order

Symptom	Probable causes	Solutions
–	Device is padlocked or keylocked in the open position.	Unlock the device.
–	Electrical closing order not executed by the XF closing voltage release due to insufficient voltage power supply.	Check the voltage and the XF supply circuit (0.85–1.1 Un). If the problem persists, replace the XF closing voltage release.
The closing spring and ready-to-close indicator shows that the mechanism is charged but the device is not ready to close. 	MX opening voltage release is permanently powered.	As there is an opening order, determine the origin of the order. The order must be canceled before the device can be closed.
	MN undervoltage release is not powered due to an opening order.	As there is an opening order, determine the origin of the order. The order must be canceled before the device can be closed.
	MN undervoltage release is not powered due to insufficient voltage power supply.	Check the voltage and the MN supply circuit (V > 0.85 Un). If the problem persists, replace the MN undervoltage release.
–	XF closing voltage release is continuously supplied, but device was not ready-to-close when the closing order was sent (XF closing voltage release is not wired in series with PF ready-to-close contact).	• Remove the power supply to the XF closing voltage release. • Only if the device is ready-to-close, send the closing order again via the XF closing voltage release.

Device Cannot be Opened by Using an External Pushbutton/Electrical Order

Probable causes	Solutions
Opening order is not executed by the MN undervoltage release.	Drop in voltage insufficient or residual voltage (V > 0.35 Un) across the terminals of the MN undervoltage release. If the problem persists, replace the MN undervoltage release.
Opening order is not executed by the MX opening voltage release.	Check the voltage and the MX supply circuit (0.7–1.1 Un). If the problem persists, replace the MX opening voltage release.

Device Cannot be Reset by Using RES Electrical Remote Reset

Symptom	Probable causes	Solutions
The blue fault-trip reset button is popped out.	Insufficient supply voltage for the RES electrical remote reset.	Check the voltage and the RES supply circuit (0.7–1.1 Un). If the problem persists, replace the RES electrical remote reset.

Additional Checks

If the troubleshooting actions described above do not work, refer to the troubleshooting information for Mechanical Control Operations, page 184.

Troubleshooting: Control Operations from EcoStruxure Power Device App

Definition

Control operations include commands to open and close the device from the EcoStruxure Power Device app.

Device Cannot be Controlled from the EcoStruxure Power Device App

Problem description	Symptom	Probable causes	Solutions
Device cannot be opened or closed.	–	The device control mode is set to Manual.	Change the control mode to Auto.
	–	The device control mode is set to Auto Remote.	Change the control mode to Auto Local.
	The EcoStruxure Power Device app displays a message to download the MasterPacT Operation Assistant Digital Module.	The MasterPacT Operation Assistant Digital Module is not installed.	Use EcoStruxure Power Commission software to download and install the MasterPacT Operation Assistant Digital Module in the MicroLogic X control unit.
	The EcoStruxure Power Device app displays a message indicating a firmware version mismatch.	The EcoStruxure Power Device app on the smartphone is not compatible with the firmware version of the MicroLogic X control unit.	Update the EcoStruxure Power Device app.
Device cannot be closed.	–	The close command is inhibited by the IO module.	Enable the close command by using the selector switch wired on a digital input of the IO module (I=1).
		The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Device Check-up > Devices** menu, change the value of the **Remote Close Breaker Inhibited** parameter from **Enabled by communication** to **Disabled**.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Device Cannot be Controlled from the EcoStruxure Power Device App Connected Through Bluetooth Connection

Problem description	Probable causes	Solutions
The Bluetooth LED does not light up when you press the Bluetooth activation pushbutton on the MicroLogic X control unit.	The Bluetooth function is not enabled in the MicroLogic X control unit.	Enable Bluetooth Low Energy communication in the MicroLogic X control unit.
	The MicroLogic X control unit is not powered.	Check the power supply of the MicroLogic X control unit.
The Bluetooth Low Energy connection was established but the signal is lost.	The smartphone has been moved out of range.	Place the smartphone within the range for Bluetooth Low Energy connection and establish a new connection.
The Bluetooth LED is blinking on the control unit but you cannot see its ID number in the list of devices available.	A smartphone is already connected to the MicroLogic X control unit.	Check whether another smartphone within range is also connected to the control unit.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from IO Module

Definition

Control operations include commands to open and close the device from the IO module with the Breaker Operation predefined application.

For information about control operations from the IO module, refer to DOCA0055•• *Enerlin'X IO - Input/Output Application Module for One Circuit Breaker - User Guide* in **Related Documents** at the beginning of this guide.

Device Cannot be Controlled from the IO Module

Problem description	Symptom	Probable causes	Solutions
Device cannot be opened or closed.	–	The IO module is not configured for Breaker Operation predefined application 2.	Configure the IO module for Breaker Operation predefined application 2, by using the rotary switch and pressing the Test/Reset button for 5 seconds to validate the configuration.
	–	The device control mode is set to Manual.	Change the control mode to Auto.
	Local open or close orders wired on digital inputs I5 or I6 do not control the device.	The device control mode is set to Remote.	Change the control mode to Local by using the control mode selector switch wired on the digital input I1 of the IO module (I1=0).
	Remote open or close orders wired on digital inputs I2 or I3 do not control the device.	The device control mode is set to Local.	Change the control mode to Remote by using the control mode selector switch wired on the digital input I1 of the IO module (I1=1).
Device cannot be closed.	–	The close command is inhibited by the IO module configured in the Breaker Operation predefined application 2.	Enable the close command by using the selector switch wired on the digital input I4 of the IO module (I4=1).
	–	The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Device Check-up > Devices** menu, change the value of the **Remote Close Breaker Inhibited** parameter from **Enabled by communication** to **Disabled**.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from FDM121 Display

Definition

Control operations include commands to open and close the device from the FDM121 display.

For information about control operations from the FDM121 display, refer to DOCA0088•• *Enerlin'X FDM121 - Front Display Module for One Circuit Breaker - User Guide* in **Related Documents** at the beginning of this guide.

Device Cannot be Controlled from the FDM121 Display

Problem description	Symptom	Probable causes	Solutions
The FDM121 display does not display any data when connected to the MicroLogic X control unit.	The FDM121 display screen blinks continuously, indicating a conflict in the IMU.	The FDM121 firmware version is not compatible with the MicroLogic X control unit.	1. Remove the MasterPacT device from the IMU in which the FDM121 display is installed. 2. Update the FDM121 firmware to the last firmware version, 004.000.009 or later, by using EcoStruxure Power Commission software. 3. Connect the MasterPacT device in the IMU again. For more information about updating the firmware, see DOCA0150•• *Enerlin'X FDM121 - Front Display Module for One Circuit Breaker - Firmware Release Notes* in **Related Documents** at the beginning of this guide.
Device cannot be opened or closed.	–	The device control mode is set to Manual.	Change the control mode to Auto.
	–	The device control mode is set to Auto Remote.	Change the control mode to Auto Local.
Device cannot be closed.	–	The close command is inhibited by the IO module.	Enable the close command by using the selector switch wired on a digital input of the IO module (I=1).

Problem description	Symptom	Probable causes	Solutions
		The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Device Check-up > Devices** menu, change the value of the **Remote Close Breaker Inhibited** parameter from **Enabled by communication** to **Disabled**.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from EcoStruxure Power Commission Software

Definition

Control operations include commands to open and close the device from EcoStruxure Power Commission software.

Device Cannot be Controlled from EcoStruxure Power Commission Software Connected to a Mini USB Port

Problem description	Symptom	Probable causes	Solutions
Device cannot be opened or closed.	EcoStruxure Power Commission message: **Breaker operation not successful: actuator is in manual mode. Remote breaker commands are not allowed**	The device control mode is set to Manual.	Change the control mode to Auto.
	EcoStruxure Power Commission message: **Breaker operation not successful: Operation mode is Remote**	The device control mode is set to Auto Remote.	Change the control mode to Auto Local.
	EcoStruxure Power Commission software does not display the relevant option.	Insufficient access rights.	Log in to EcoStruxure Power Commission software with Administrator rights.
	EcoStruxure Power Commission message: **Insufficient user rights (incorrect password)**	The password is incorrect: error entering password or the user has insufficient access rights.	Enter the password again. In the case of insufficient access rights, check the password validity with the system administrator.
Device cannot be closed.	EcoStruxure Power Commission message: **Breaker operation not successful: The requested action is not allowed as it has been previously inhibited**	The close command is inhibited by the IO.	Enable the close command by using the selector switch wired on a digital input of the IO module (I=1).
		The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Device Check-up > Devices** menu, change the value of the **Remote Close Breaker Inhibited** parameter from **Enabled by communication** to **Disabled**.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Device Cannot be Controlled from EcoStruxure Power Commission Software Connected by IFE, EIFE, or IFM Interface

Symptom	Probable causes	Solutions
EcoStruxure Power Commission message: **Breaker operation not successful: Either device is unable to execute the operation or communication interface is locked**	The remote control commands are disabled by the locking pad on the front of the IFE interface.	Move the locking pad on the front of the IFE interface to the Unlocked position.
	The EIFE interface is locked by EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Configure > Communication** menu, change the value of the **Remote Padlock Position** parameter from **Locked** to **Unlocked**.
EcoStruxure Power Commission message: **Breaker operation not successful: actuator is in manual mode. Remote breaker commands are not allowed**	The device control mode is set to Manual.	Change the control mode to Auto.
EcoStruxure Power Commission software does not display the relevant option.	Insufficient access rights.	Log in to EcoStruxure Power Commission software with Administrator rights.
EcoStruxure Power Commission message: **Breaker operation is not successful: Operation mode is Local (Operation via remote control is not allowed)**	The device control mode is set to Auto Local.	Change the control mode to Auto Remote.
EcoStruxure Power Commission message: **Insufficient user rights: Incorrect password**	The password is incorrect: error entering password or the user has insufficient access rights.	Enter the password again. In the case of insufficient access rights, check the password validity with the system administrator.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from IFE/EIFE Webpages

Definition

Control operations include commands to open and close the device from IFE or EIFE webpages.

For information about control operations from IFE or EIFE webpages, refer to the following guides in **Related Documents** at the beginning of this guide:

- DOCA0084•• *Enerlin'X IFE - Ethernet Switchboard Server - User Guide*
- DOCA0142•• *Enerlin'X IFE - Ethernet Interface for One Circuit Breaker - User Guide*
- DOCA0106•• *Enerlin'X EIFE - Embedded Ethernet Interface for One MasterPacT MTZ Drawout Circuit Breaker - User Guide*

Device Cannot be Controlled from IFE or EIFE Webpages

Problem description	Symptom	Probable causes	Solutions
Device cannot be opened or closed.	The **Close** and **Open** buttons are not displayed on the webpage.	Application control is not enabled in the IFE interface.	Enable application control by pressing the Test button on the front of the IFE interface for 10–15 s.
		The user is not logged in as Administrator.	Log in as Administrator.
	Message on webpage: **Breaker operation not successful: actuator is in manual mode. Remote breaker commands are not allowed**	The device control mode is set to Manual.	Change the control mode to Auto.
	Message on webpage: **Breaker operation is not successful: Operation mode is Local (Operation via remote control is not allowed)**.	The device control mode is set to Auto Local.	Change the control mode to Auto Remote.
	Message on webpage: **Close has failed**. **NOTE:** There is no message if opening action fails.	The remote control commands are disabled by the locking pad on the front of the IFE interface.	Move the locking pad on the front of the IFE interface to the Unlocked position.
		The EIFE interface is locked by EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Configure > Communication** menu, change the value of the **Remote Padlock Position** parameter from **Locked** to **Unlocked**.
Device cannot be closed.	Message on webpage: **Close has failed**.	The close command is inhibited by the IO module.	Enable the close command by using the selector switch wired on a digital input of the IO module (I=1).

Problem description	Symptom	Probable causes	Solutions
		The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Device Check-up > Devices** menu, change the value of the **Remote Close Breaker Inhibited** parameter from **Enabled by communication** to **Disabled**.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from Communication Network

Definition

Control operations include commands to open and close the device from the communication network.

For information about control operations from the communication network, refer to the following guides in **Related Documents** at the beginning of this guide:

- DOCA0105•• *MasterPacT MTZ Circuit Breakers with MicroLogic X Control Units - Modbus Communication - User Guide*
- DOCA0162•• *MasterPacT MTZ Circuit Breakers with MicroLogic X Control Units - IEC 61850 Communication Guide*

Device Cannot be Controlled with a Remote Controller Connected from IFE, EIFE, or IFM Interface

Problem description	Symptom	Probable causes	Solutions
Device cannot be opened or closed.	–	The device control mode is set to Manual.	Change the control mode to Auto.
	–	The device control mode is set to Auto Local.	Change the control mode to Auto Remote.
	–	The remote control commands are disabled by the locking pad on the front of the IFE interface.	Move the locking pad on the front of the IFE interface to the Unlocked position.
	–	The EIFE interface is locked by EcoStruxure Power Commission software.	In EcoStruxure Power Commission software, in the **Configure > Communication** menu, change the value of the **Remote Padlock Position** parameter from **Locked** to **Unlocked**.
	The opening or closing command is returned with Modbus error code 01.	The password in the opening or closing is incorrect or the user has insufficient access rights.	Send the opening or closing command with a valid password. In the case of insufficient access rights, check the password validity with the system administrator. If the password is lost, refer to DOCA0105•• *MasterPacT MTZ Circuit Breakers with MicroLogic X Control Units - Modbus Communication - User Guide* in **Related Documents** at the beginning of this guide.
Device cannot be closed.	–	The close command is inhibited by the IO module.	Enable the close command by using a selector switch wired on a digital input of the IO module (I=1).

Problem description	Symptom	Probable causes	Solutions
		The close command is inhibited by a command from the communication network or EcoStruxure Power Commission software.	Use the **Set Close Breaker Inhibition** command to enable the close order.

Inhibit Closing by IO Module is Not Operational

Problem description	Probable cause	Solution
Device can be closed while selector switch wired on a digital input of the IO module is set to Inhibit (I4=0).	The MicroLogic X setting **Breaker closing by digital input** is disabled.	In EcoStruxure Power Commission software, in the **General** menu, in **Breaker Closing Inhibition**, change the value of the **Allow control by a digital input** parameter to **Enable**.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be in the mechanical or electrical operations of the device. Refer to the troubleshooting information for Mechanical Control Operations, page 184 and Electrical Control Operations, page 186.

Troubleshooting: Control Operations from FDM128 Display

Definition

Control operations include commands to open and close the device from the FDM128 display.

For information about control operations from the FDM128 display, refer to DOCA0037•• *Enerlin'X FDM128 - Ethernet Display for Eight Devices - User Guide* in **Related Documents** at the beginning of this guide.

Device Cannot be Controlled from the FDM128 Display

Symptom	Probable causes	Solutions
On FDM128 display, in the **Device** view, the **Control** submenu is grayed out.	You are not logged in as Administrator.	Log in to the FDM128 display as Administrator.
	The password is incorrect: error entering password or the user has insufficient access rights.	Enter a valid password. In the case of insufficient access rights, check the password validity with the system administrator.

Additional Checks

If the troubleshooting actions described above do not work, the problem might be linked to the communication network. Refer to the troubleshooting information for the communication network, page 198.

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