

# Smart Equipment

0614DB1801

## Data Bulletin

Data Acquisition with PowerPacT™ and MasterPacT™ Devices.

0614DB1801  
04/2025



**Smart Equipment**

Measure  
Connect  
Protect

**Technical guide**  
Data acquisition  
with PowerPacT, MasterPacT Devices

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# Energy Management using Smart Equipment

Schneider Electric's exclusive Smart Equipment can be fully directed to company IT networks to help improve energy performance.

This user guide provides basic information on the Enerlin'X system and how it can be used to design, build, and configure Smart Equipment.

The guide can help determine how to equip circuit breakers and other protective devices in the PowerPacT and MasterPacT ranges, depending on the information required from each of them. This guide is a supplement to the other Smart Equipment design and construction documents.

For additional information about Enerlin'X, see catalog 0614CT1802, Enerlin'X Digital Solutions for Smart Systems Catalog.

For additional information about ULP, see user guide DOCA0093EN, ULP (Universal Logic Plug) System User Guide.

For additional information about Modbus, see user guide 0611IB1302, PowerPacT H-, J-, and L-Frame Circuit Breakers — Modbus Communication Guide.



0614C-T1802

Enerlin'X Catalog



ULP System User Guide



DO-CA0093E-N



Modbus Communication Guide



0611I-B1302



## 1 Measure

Embedded and stand-alone metering & control capabilities

## 2 Connect

- > Integrated communication interfaces
- > Ready to connect to energy management platforms

## 3 Protect

- > Data-driven energy efficiency actions
- > Real time monitoring and control
- > Access to energy and site information through on-line services



## Five Types of Information

Below are definitions of the five types of information available through the Enerlin'X system. First, select the relevant information types for your application, then consult the Data Acquisition section of this document for the equipment options.



### Metering

Indicates the electricity consumption.



### Measurement

Provides a real-time indication of electricity consumption and can track its rise or fall.

- MicroLogic A trip units provide adjustable protection and have a built-in ammeter.
- MicroLogic E trip units provide MicroLogic A functions plus energy measurements.
- MicroLogic P trip units provide MicroLogic E functions plus basic power monitoring and metering functions.
- MicroLogic H trip units provide MicroLogic P functions plus enhanced power monitoring, and power quality measurements.



### Quality

For the same electricity consumption, the installation capacity may be over-used or under-used.



### Availability

Information about the state of the device.



### Controls

Control signals switch the loads on or off.



## Two Ways to Access Information



Directly via the front panel



Remotely via IT network

## Communication Accessory Abbreviations

- **BCM:** Breaker Communication Module
- **BSCM:** Breaker Status and Control Module
- **FDM:** Front Display Module
- **IFE:** Interface Ethernet Module
- **IFM:** Interface Modbus SL Module
- **I/O:** Input/Output Module

# Data Acquisition

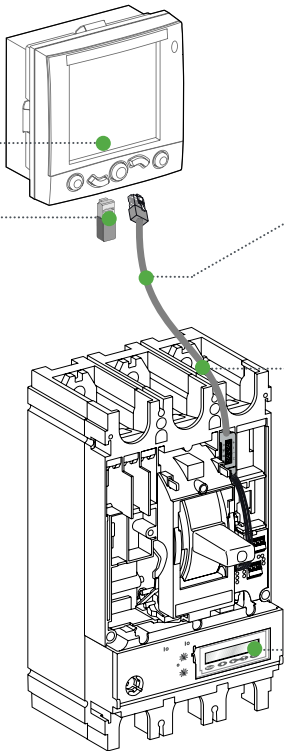
## PowerPacT H, J, and L Circuit Breakers

### Metering, Measurement, and Quality

Front Display Panel

FDM121 panel display  
STRV00121

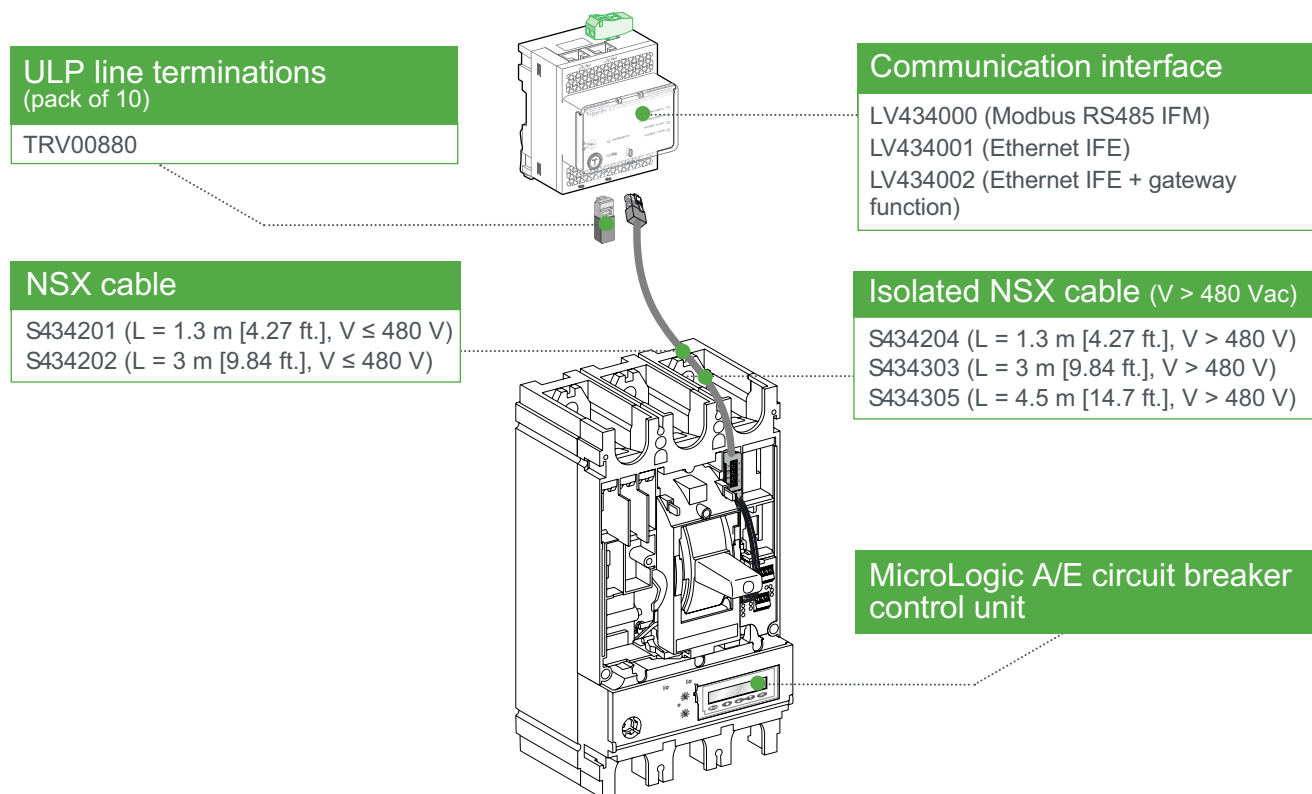
ULP line terminations  
(pack of 10)  
TRV00880



Isolated NSX cable (V > 480 Vac)  
S434204 (L = 1.3 m [4.27 ft.], V > 480 V)  
S434303 (L = 3 m [9.84 ft.], V > 480 V)  
S434305 (L = 4.5 m [14.7 ft.], V > 480 V)

NSX cable  
S434201 (L = 1.3 m [4.27 ft.], V ≤ 480 V)  
S434202 (L = 3 m [9.84 ft.], V ≤ 480 V)

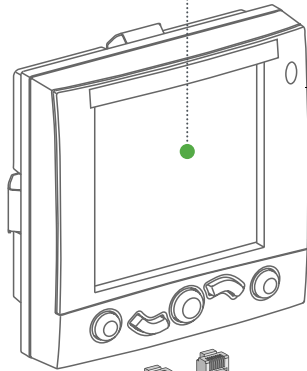
MicroLogic A/E circuit breaker  
control unit

**Remote View**

## Front Panel Display and Remote View

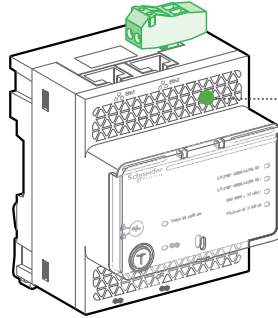
### FDM121 Panel Display

STRV00121



### Communication interface

LV434000 (Modbus RS485 IFM)  
 LV434001 (Ethernet IFE)  
 LV434002 (Ethernet IFE + gateway function)



### Isolated NSX cable ( $V > 480$ Vac)

S434204 (L = 1.3 m [4.27 ft.],  $V > 480$  V)  
 S434303 (L = 3 m [9.84 ft.],  $V > 480$  V)  
 S434305 (L = 4.5 m [14.7 ft.],  $V > 480$  V)

### NSX cable

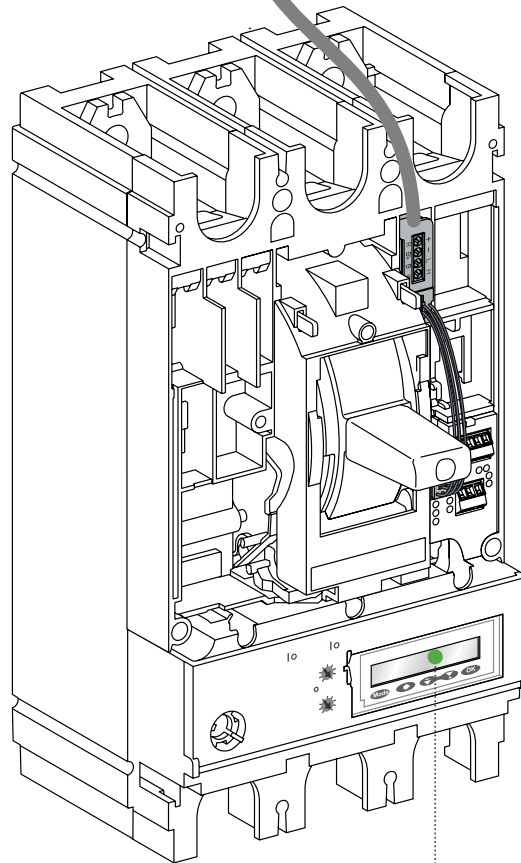
S434201 (L = 1.3 m [4.27 ft.],  $V \leq 480$  V)  
 S434202 (L = 3 m [9.84 ft.],  $V \leq 480$  V)

### ULP line terminations (pack of 10)

TRV00880

### ULP RJ45 cables

TRV00803 (L = 0.3 m [0.98 ft.], Qty. 10)  
 TRV00806 (L = 0.6 m [1.97 ft.], Qty. 10)  
 TRV00810 (L = 1 m [3.28 ft.], Qty. 5)  
 TRV00820 (L = 2 m [6.56 ft.], Qty. 5)  
 TRV00830 (L = 3 m [9.84 ft.], Qty. 5)  
 TRV00850 (L = 5 m [16.40 ft.], Qty. 1)



### MicroLogic A/E circuit breaker control unit

## Metering, Measurement, Quality, and Availability

### Front Panel Display

#### FDM121 Panel Display

STRV00121

#### ULP line terminations (pack of 10)

TRV00880

#### Isolated NSX cable ( $V > 480 \text{ Vac}$ )

S434204 (L = 1.3 m [4.27 ft.],  $V > 480 \text{ V}$ )  
S434303 (L = 3 m [9.84 ft.],  $V > 480 \text{ V}$ )  
S434305 (L = 4.5 m [14.7 ft.],  $V > 480 \text{ V}$ )

#### NSX cable

S434201 (L = 1.3 m [4.27 ft.],  $V \leq 480 \text{ V}$ )  
S434202 (L = 3 m [9.84 ft.],  $V \leq 480 \text{ V}$ )

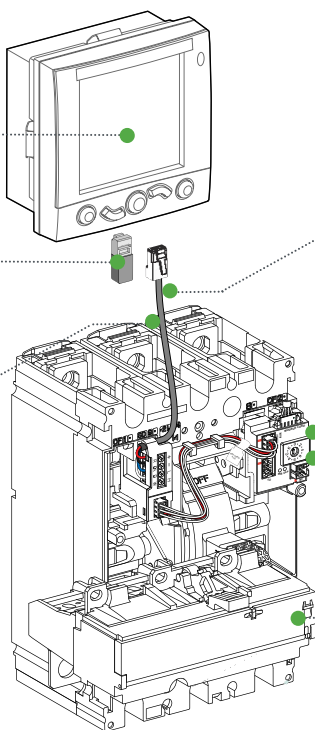
#### BSCM Kits (BSCM Module w/ NSX Cable/Isolated NSX Cable)

S434201BX (L = 1.3 m [4.27 ft.],  $V \leq 480 \text{ V}$ )  
S434202BX (L = 3 m [9.84 ft.],  $V \leq 480 \text{ V}$ )  
S434204BX (L = 1.3 m [4.27 ft.],  $V > 480 \text{ V}$ )  
S434303BX (L = 3 m [9.84 ft.],  $V > 480 \text{ V}$ )

#### BSCM replacement module

S434220

#### MicroLogic A/E circuit breaker control unit



### Remote View using ULP

#### Communication interface

LV434000 (Modbus RS485 IFM)  
LV434001 (Ethernet IFE)  
LV434002 (Ethernet IFE + gateway function)

#### ULP line terminations (pack of 10)

STRV00880

#### Communicating Motor Operator

S429441 (H-Frame)  
S431549 (J-Frame)  
S432652 (L-Frame)

#### NSX cable

S434201 (L = 1.3 m [4.27 ft.],  $V \leq 480 \text{ V}$ )  
S434202 (L = 3 m [9.84 ft.],  $V \leq 480 \text{ V}$ )

#### Isolated NSX cable ( $V > 480 \text{ Vac}$ )

S434204 (L = 1.3 m [4.27 ft.],  $V > 480 \text{ V}$ )  
S434303 (L = 3 m [9.84 ft.],  $V > 480 \text{ V}$ )  
S434305 (L = 4.5 m [14.7 ft.],  $V > 480 \text{ V}$ )

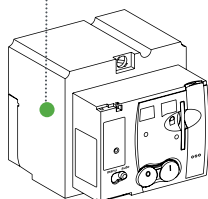
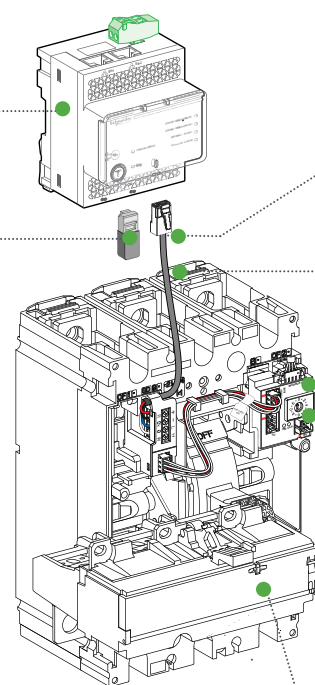
#### BSCM Kits (BSCM Module w/ NSX Cable/Isolated NSX Cable)

S434201BX (L = 1.3 m [4.27 ft.],  $V \leq 480 \text{ V}$ )  
S434202BX (L = 3 m [9.84 ft.],  $V \leq 480 \text{ V}$ )  
S434204BX (L = 1.3 m [4.27 ft.],  $V > 480 \text{ V}$ )  
S434303BX (L = 3 m [9.84 ft.],  $V > 480 \text{ V}$ )

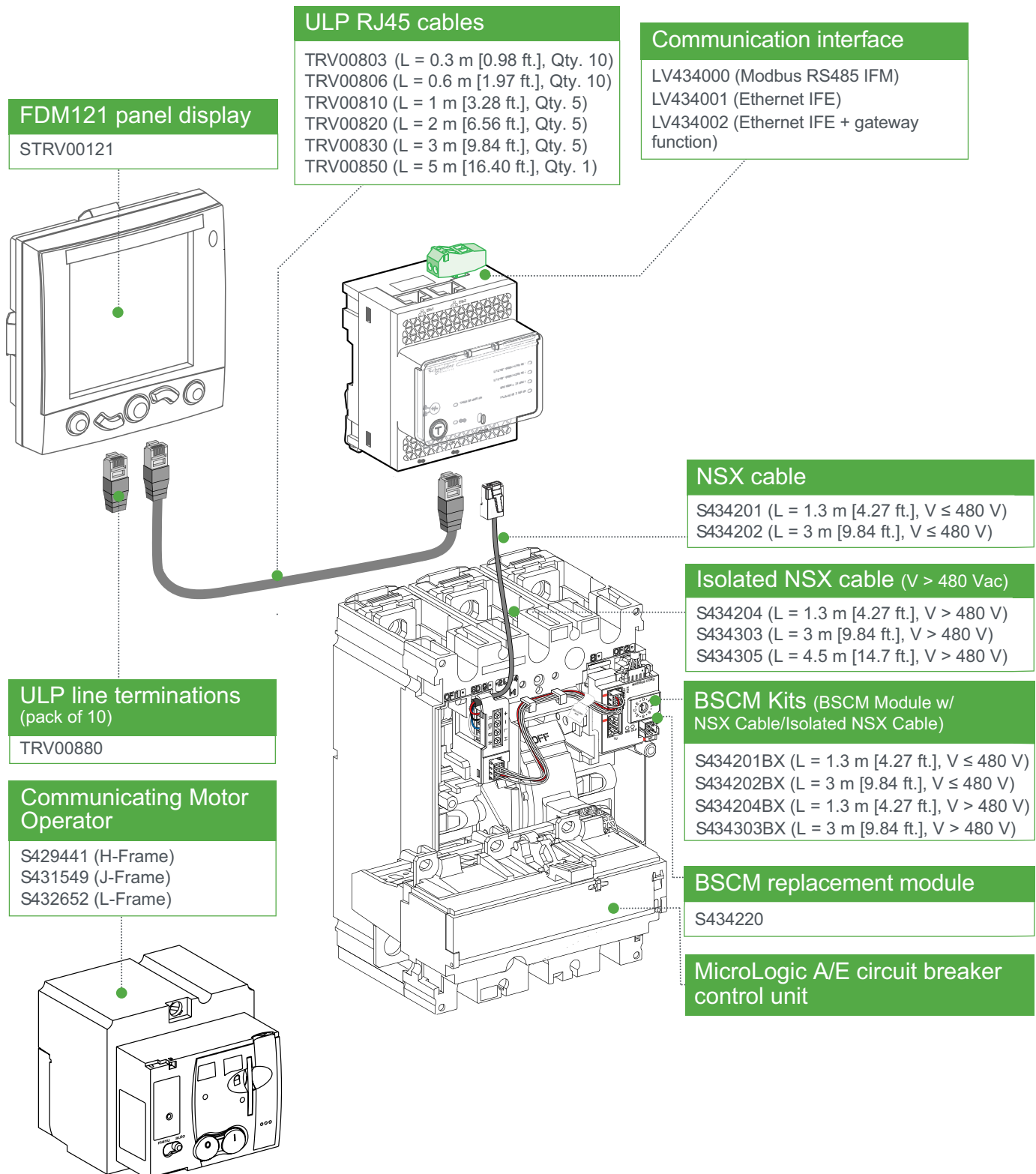
#### BSCM replacement module

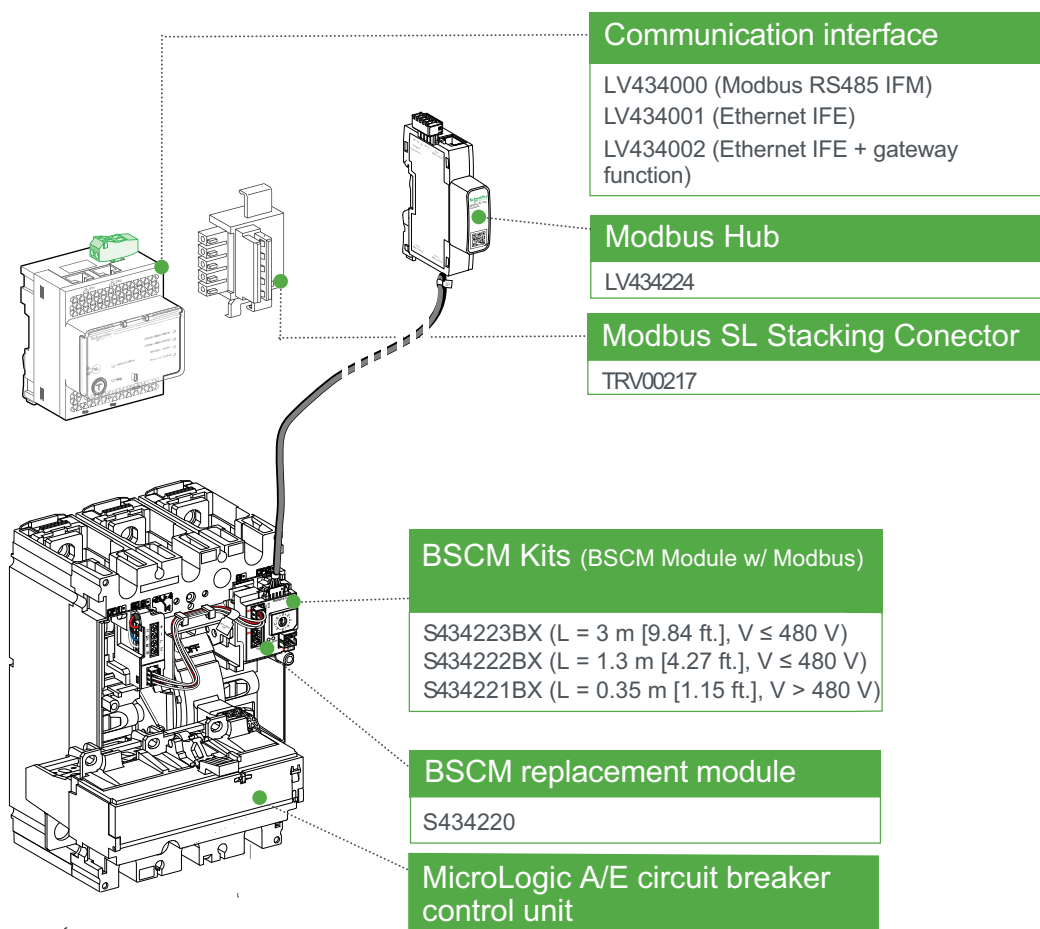
S434220

#### MicroLogic A/E circuit breaker control unit

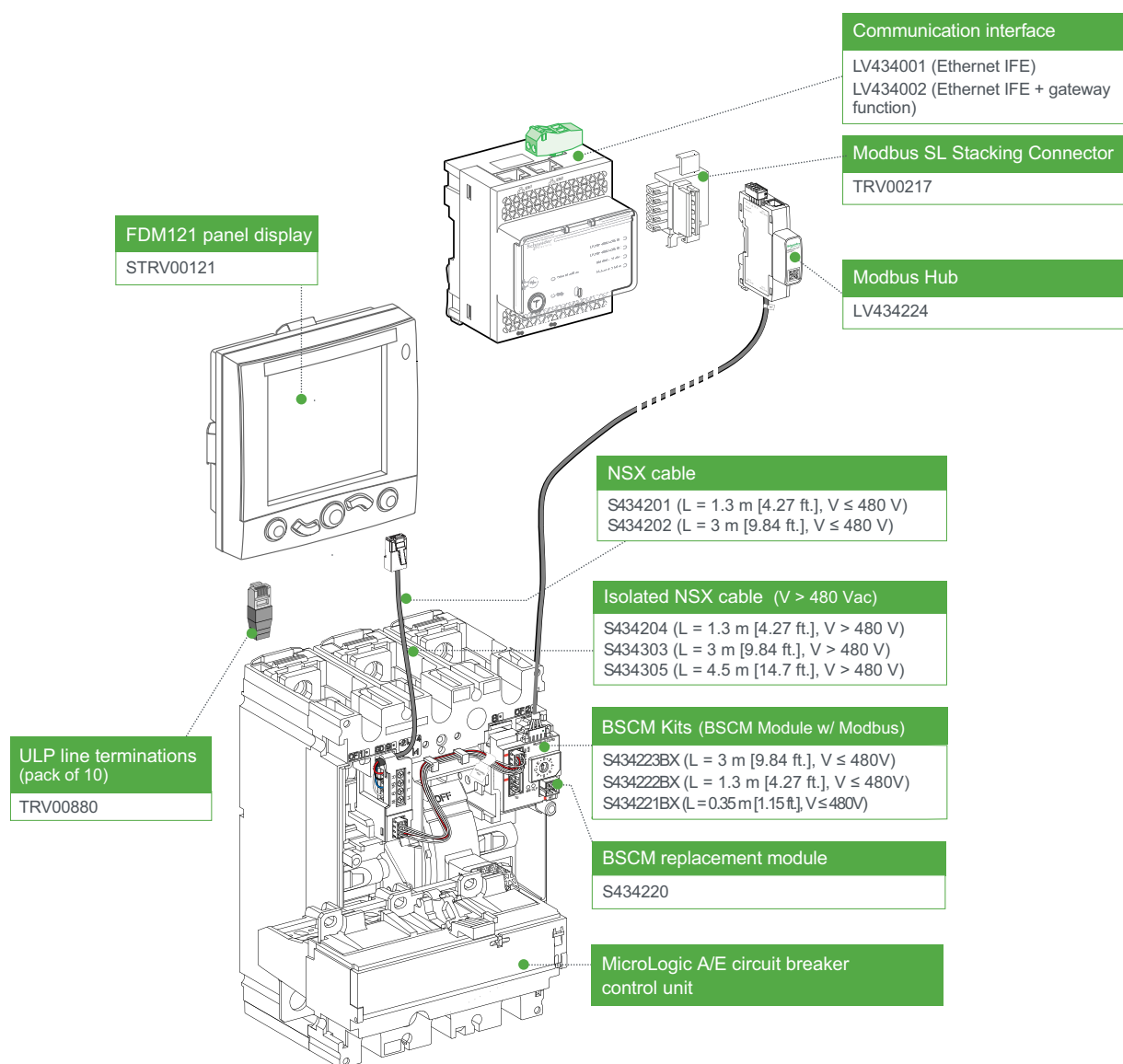


## Front Panel Display and Remote View using ULP



**Remote View using Modbus SL**

## Front Panel Display and Remote View using Modbus SL





# Metering, Measurement, Quality, Availability, and Control

## Front Panel Display

### FDM121 panel display

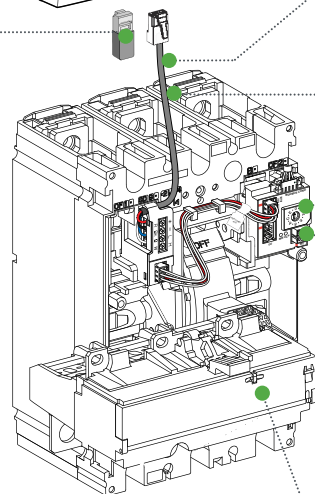
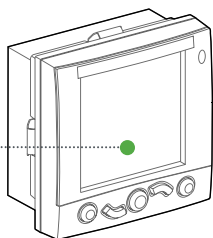
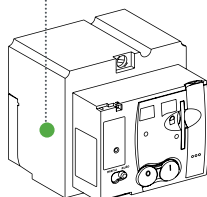
STRV00121

### ULP line terminations (pack of 10)

STRV00880

### Communicating Motor Operator

S429441 (H-Frame)  
S431549 (J-Frame)  
S432652 (L-Frame)



### NSX cable

S434201 (L = 1.3 m [4.27 ft.],  $V \leq 480$  V)  
S434202 (L = 3 m [9.84 ft.],  $V \leq 480$  V)

### Isolated NSX cable ( $V > 480$ Vac)

S434204 (L = 1.3 m [4.27 ft.],  $V > 480$  V)  
S434303 (L = 3 m [9.84 ft.],  $V > 480$  V)  
S434305 (L = 4.5 m [14.7 ft.],  $V > 480$  V)

### BSCM Kits (BSCM Module w/ NSX Cable/Isolated NSX Cable)

S434201BX (L = 1.3 m [4.27 ft.],  $V \leq 480$  V)  
S434202BX (L = 3 m [9.84 ft.],  $V \leq 480$  V)  
S434204BX (L = 1.3 m [4.27 ft.],  $V > 480$  V)  
S434303BX (L = 3 m [9.84 ft.],  $V > 480$  V)

### BSCM replacement module

S434220

### MicroLogic A/E circuit breaker control unit

## Remote Control using ULP

### Communication interface

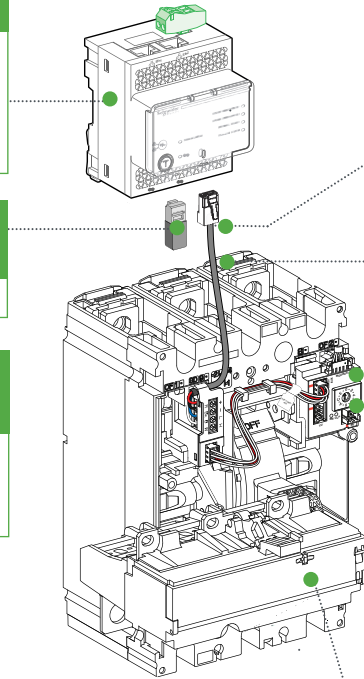
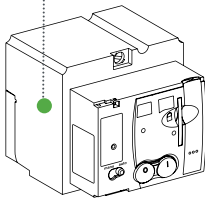
LV434000 (Modbus RS485 IFM)  
 LV434001 (Ethernet IFE)  
 LV434002 (Ethernet IFE + gateway function)

### ULP line terminations (pack of 10)

STRV00880

### Communicating Motor Operator

S429441 (H-Frame)  
 S431549 (J-Frame)  
 S432652 (L-Frame)



### NSX cable

S434201 (L = 1.3 m [4.27 ft.], V ≤ 480 V)  
 S434202 (L = 3 m [9.84 ft.], V ≤ 480 V)

### Isolated NSX cable (V > 480 Vac)

S434204 (L = 1.3 m [4.27 ft.], V > 480 V)  
 S434303 (L = 3 m [9.84 ft.], V > 480 V)  
 S434305 (L = 4.5 m [14.7 ft.], V > 480 V)

### BSCM Kits (BSCM Module w/ NSX Cable/Isolated NSX Cable)

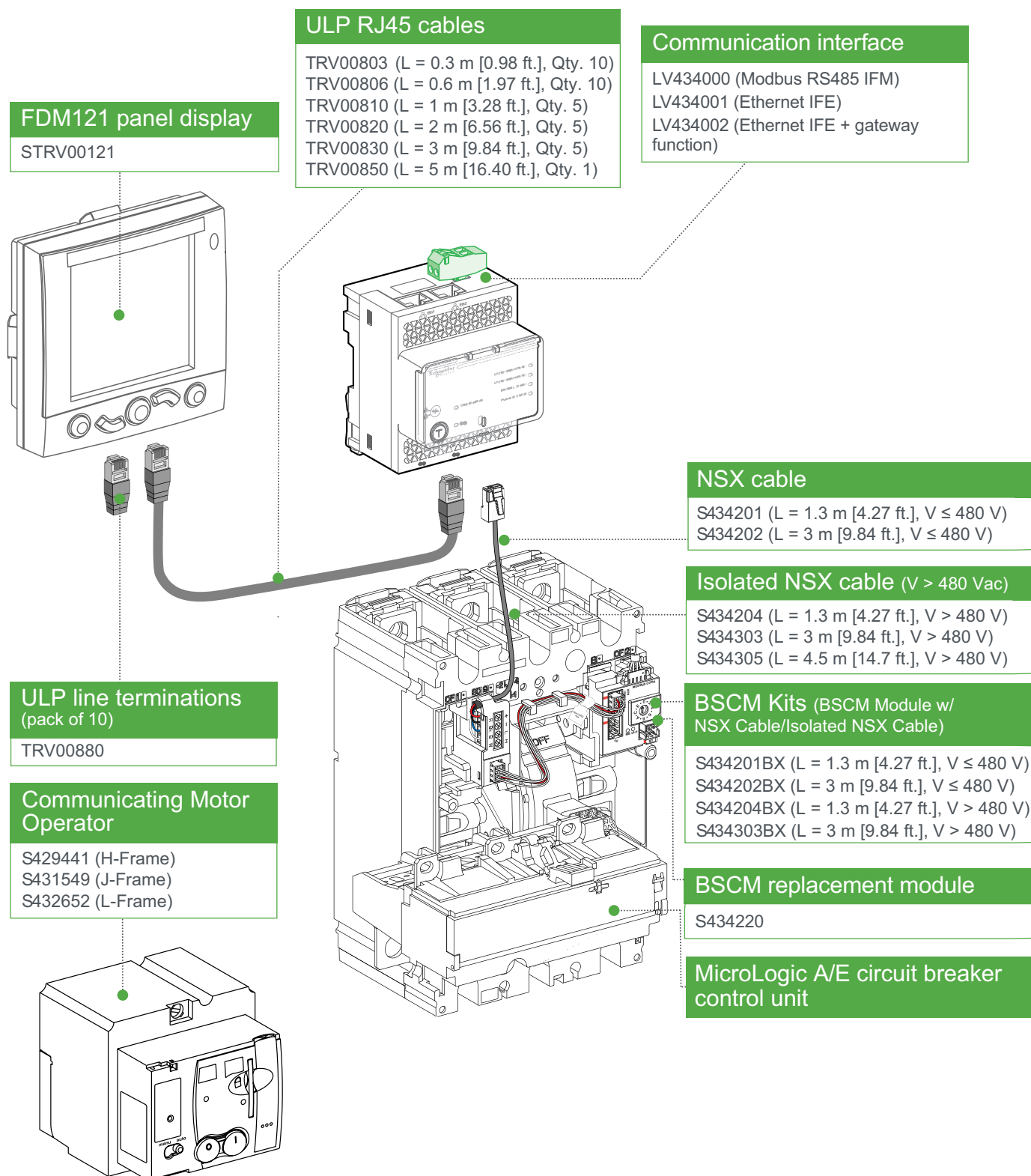
S434201BX (L = 1.3 m [4.27 ft.], V ≤ 480 V)  
 S434202BX (L = 3 m [9.84 ft.], V ≤ 480 V)  
 S434204BX (L = 1.3 m [4.27 ft.], V > 480 V)  
 S434303BX (L = 3 m [9.84 ft.], V > 480 V)

### BSCM replacement module

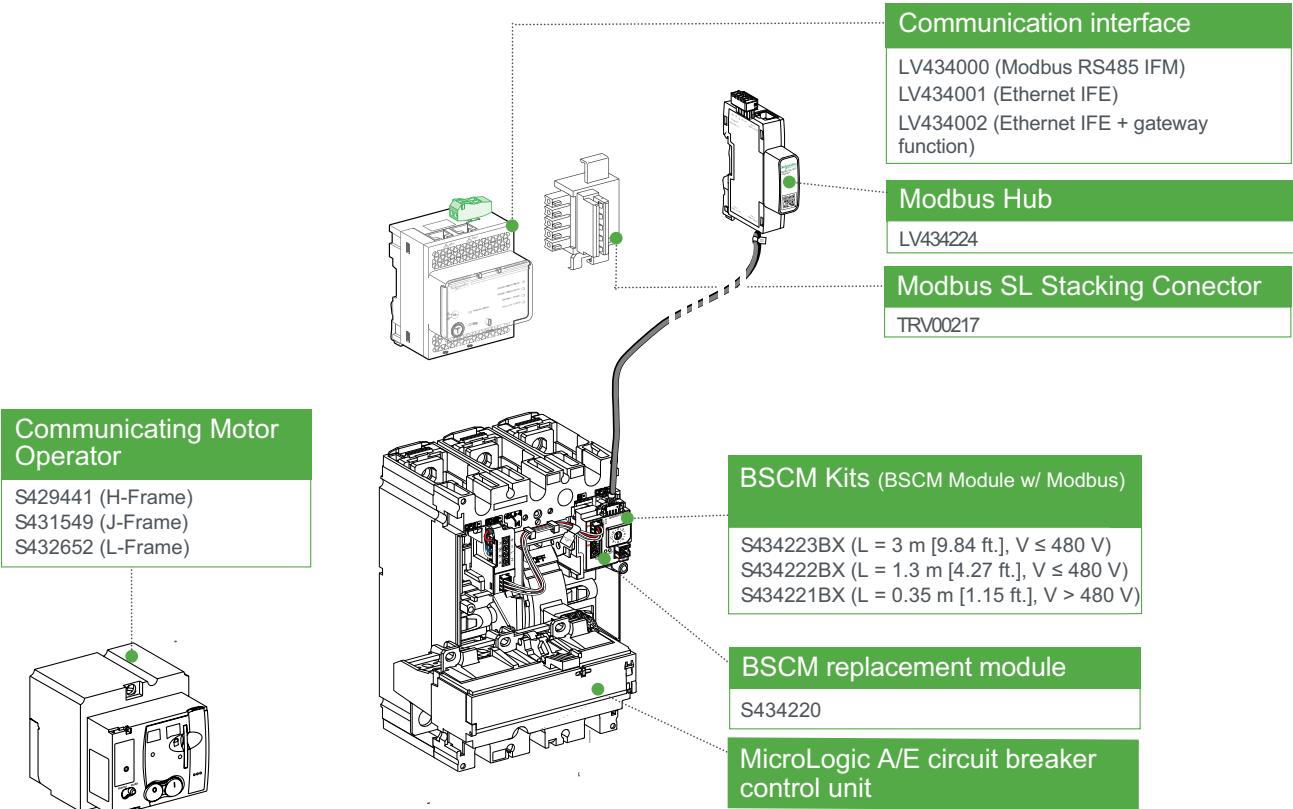
S434220

### MicroLogic A/E circuit breaker control unit

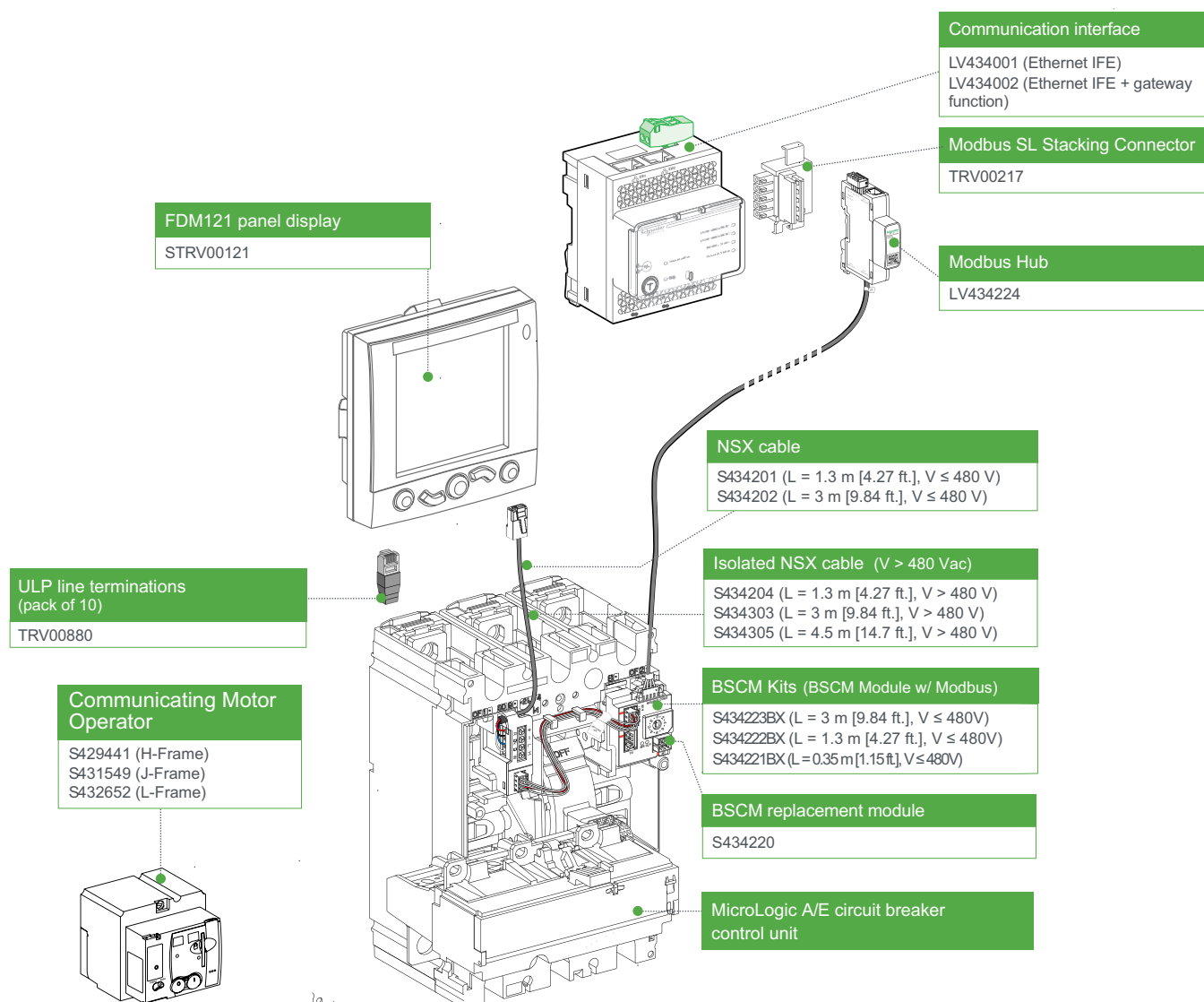
## Front Panel Display and Remote Control using ULP



Remote Control using Modbus SL

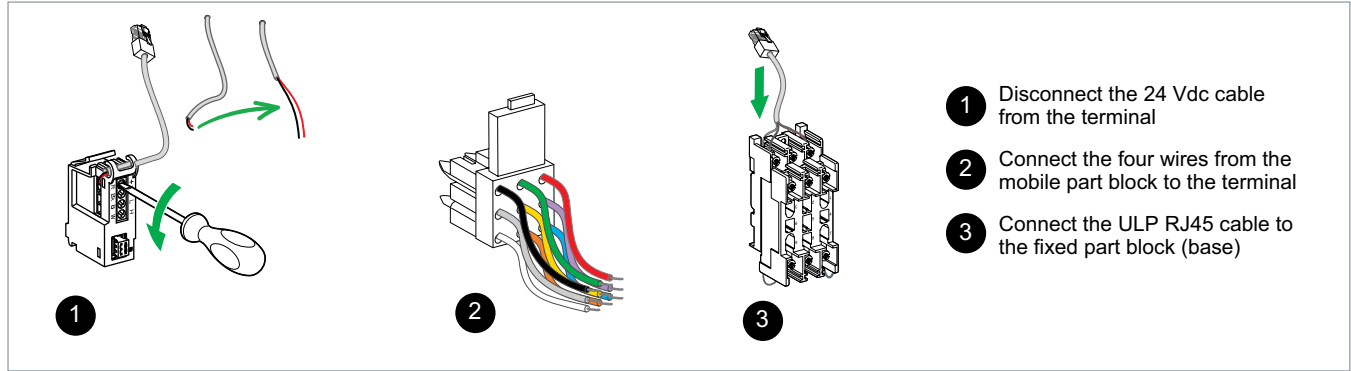
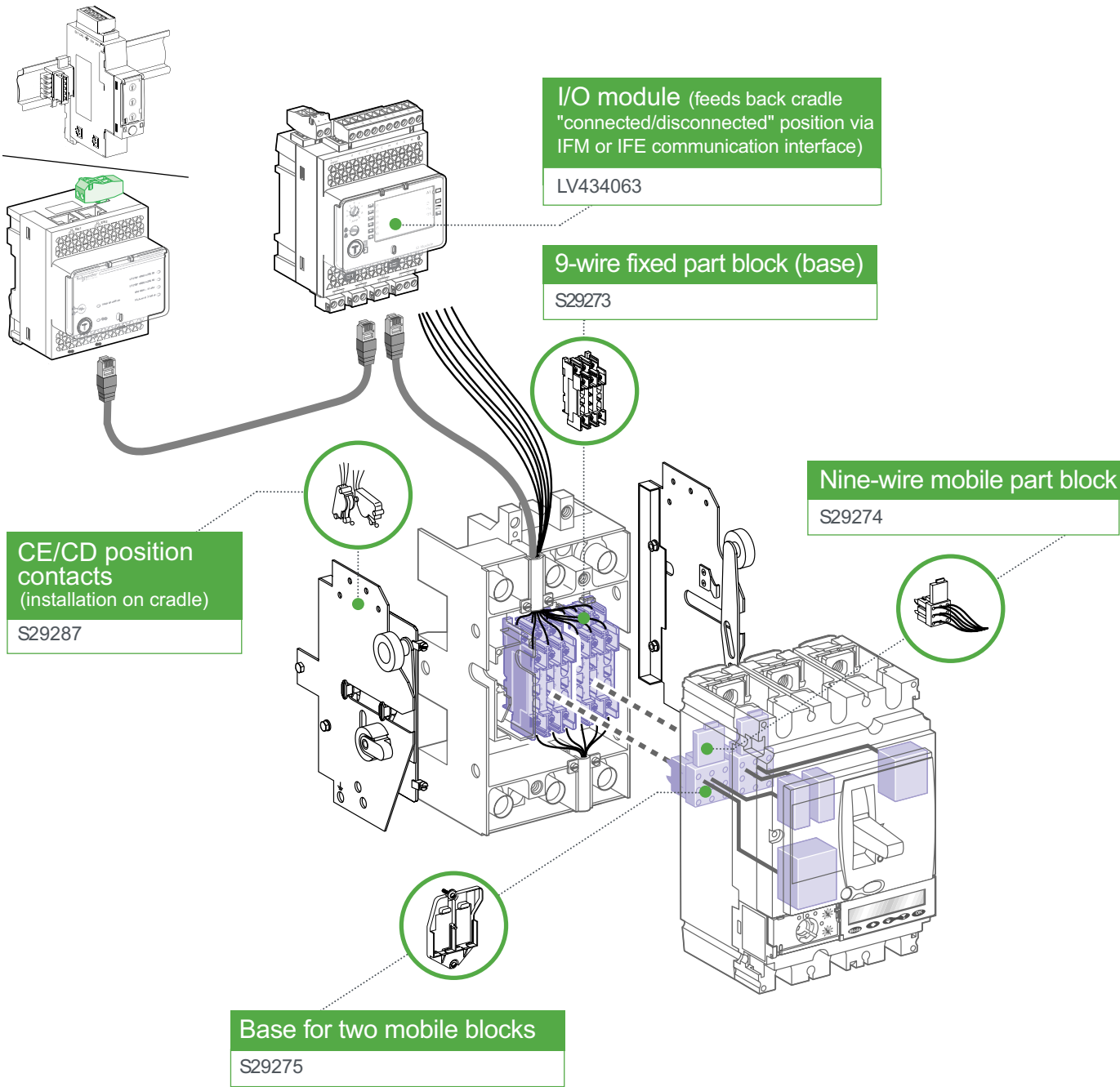


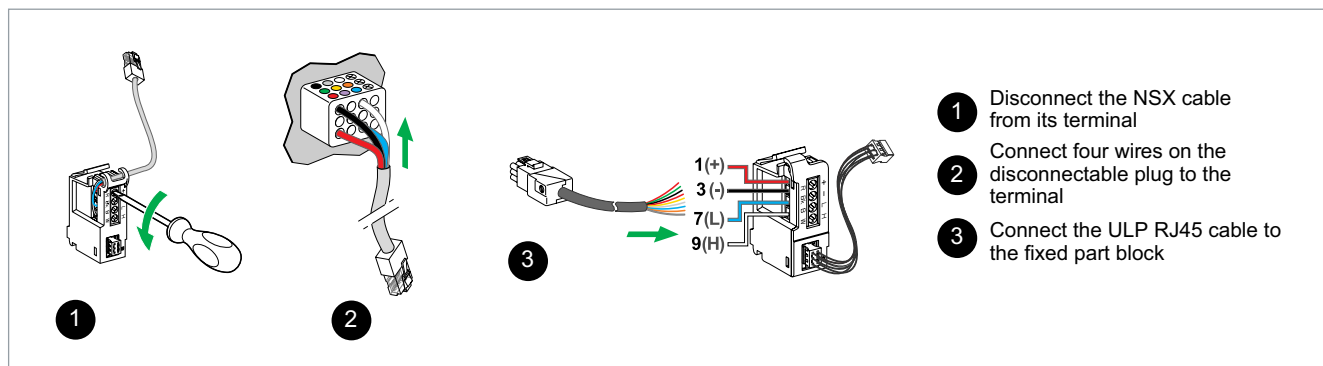
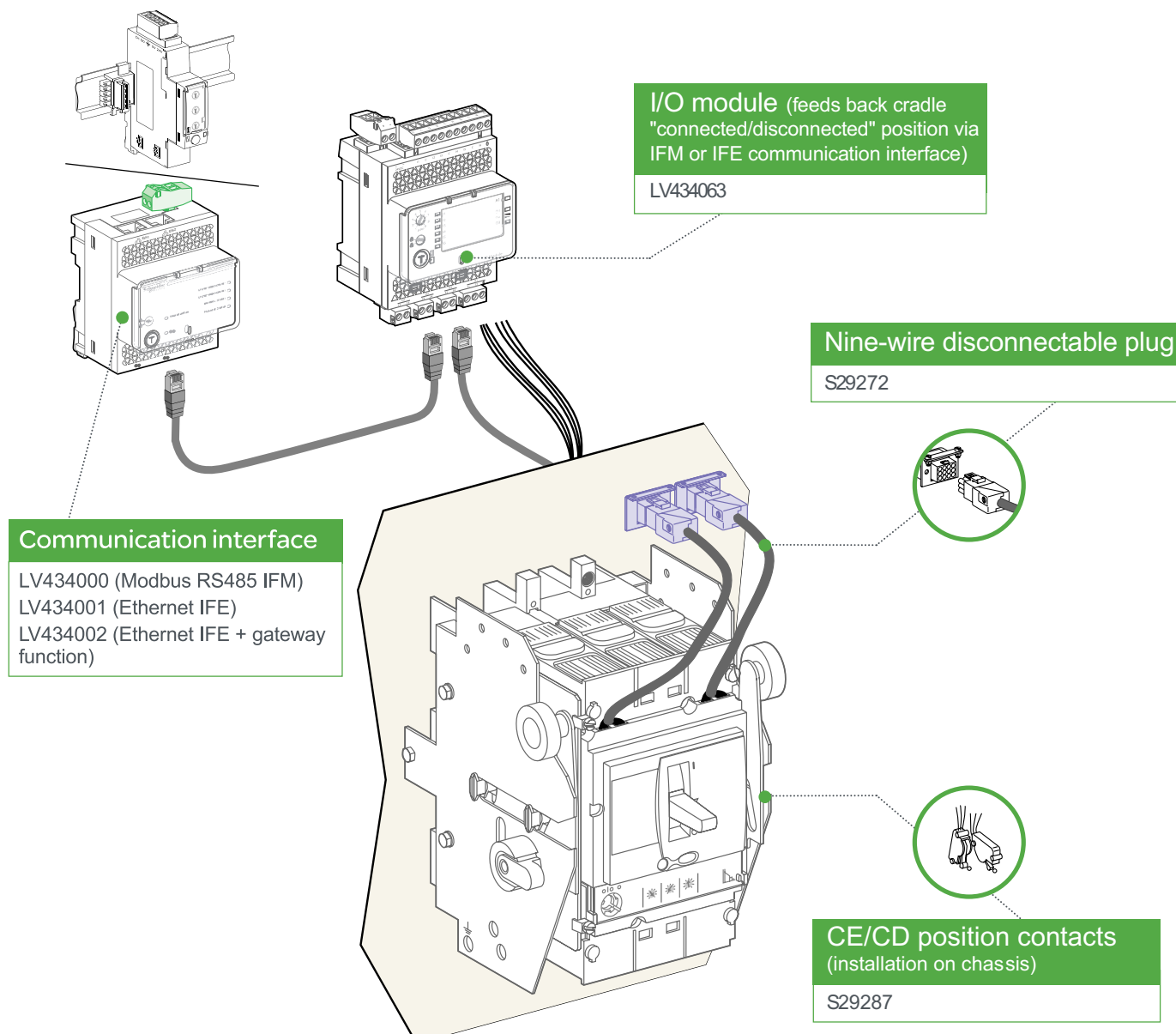
## Front Panel Display and Remote Control using Modbus SL



# Drawout Device (Base or Cradle)

## List of References

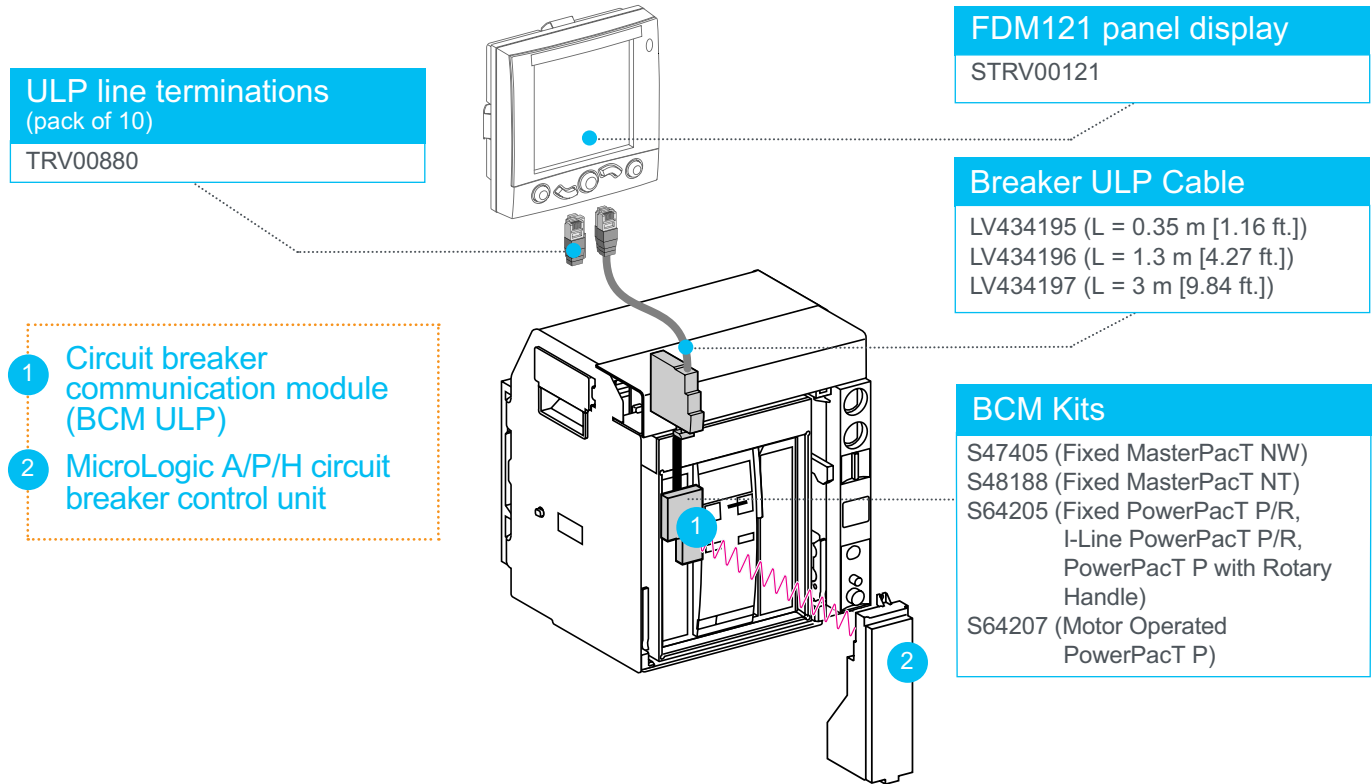




# PowerPacT P/R and MasterPacT NT/NW Circuit Breakers

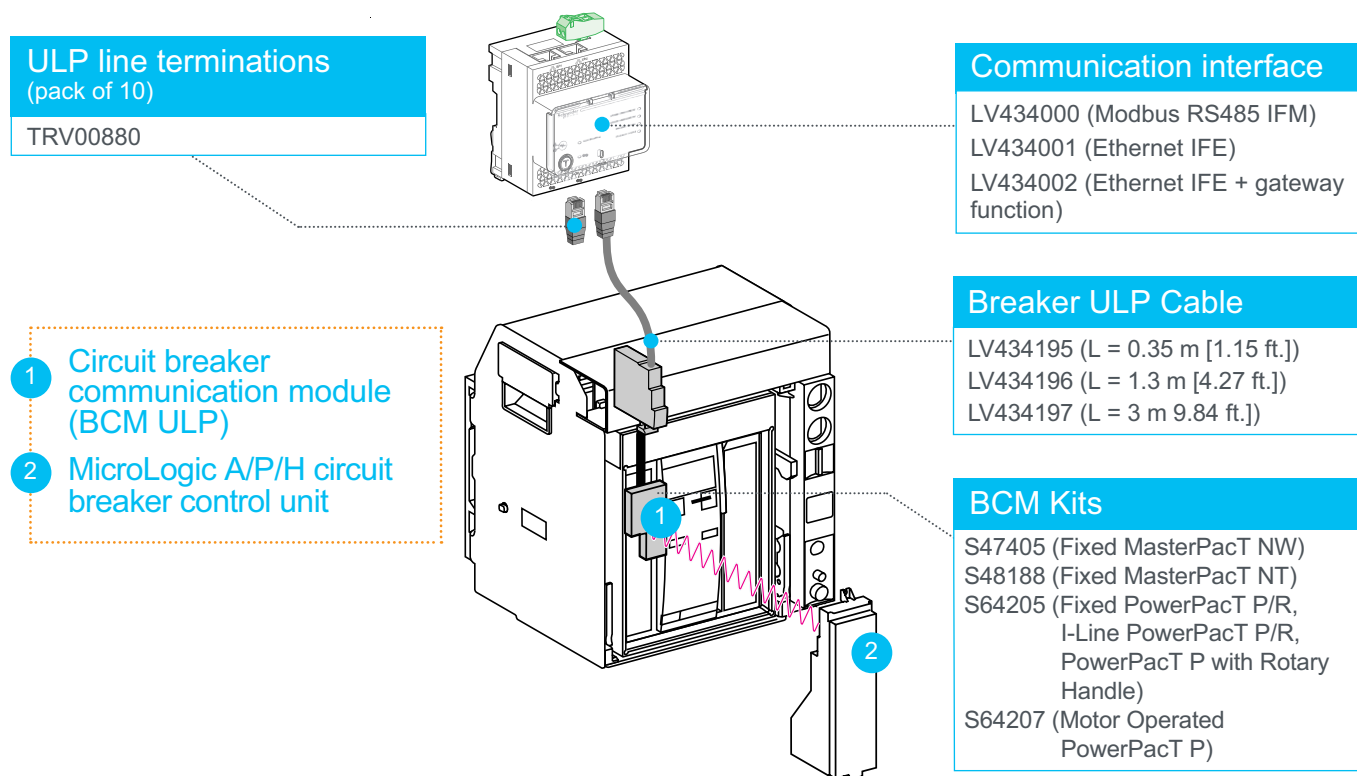
## Metering, Measurement, Quality and Availability, Fixed Device

### Fixed Device, Front Panel Display

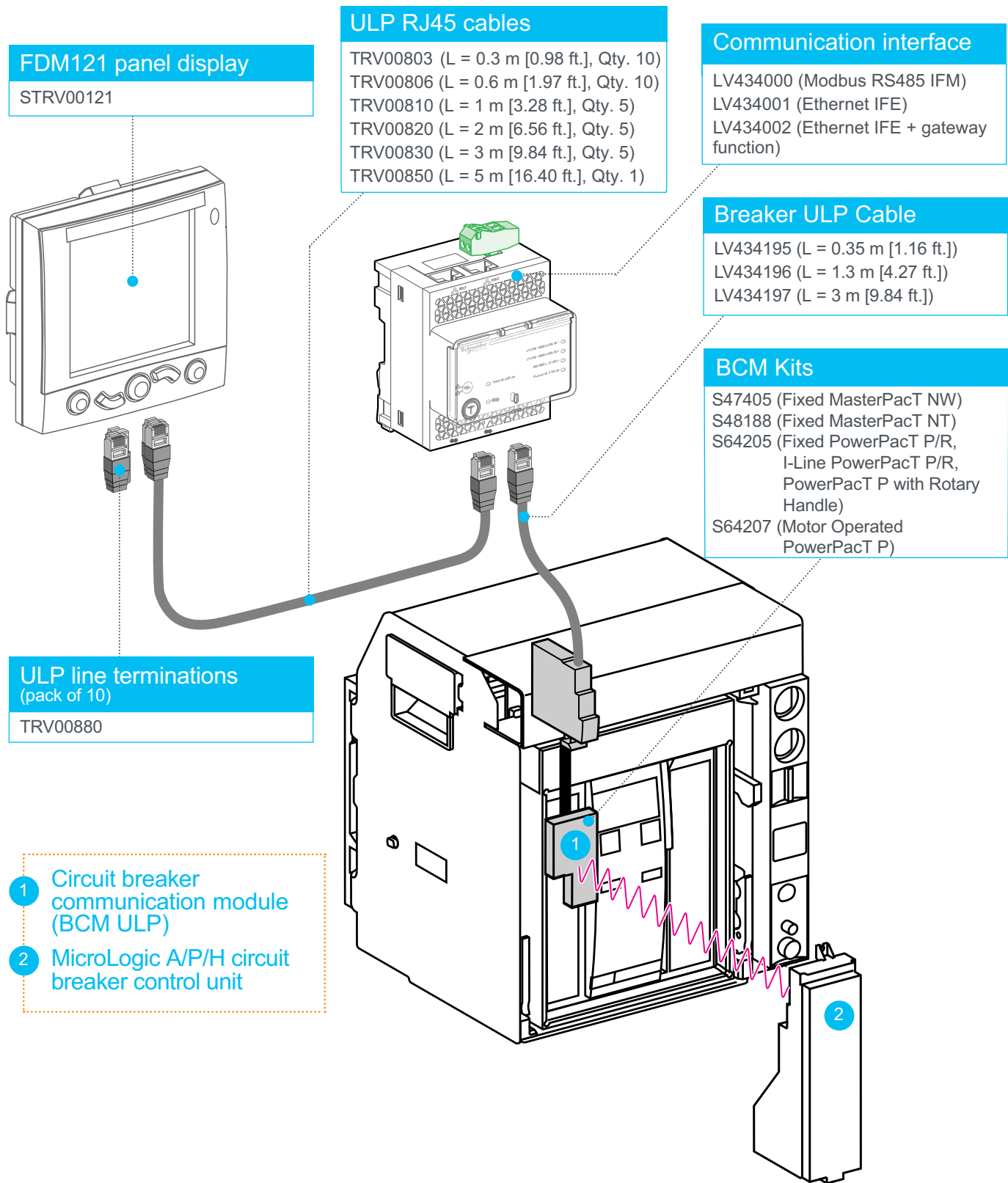




## Fixed Device, Remote View

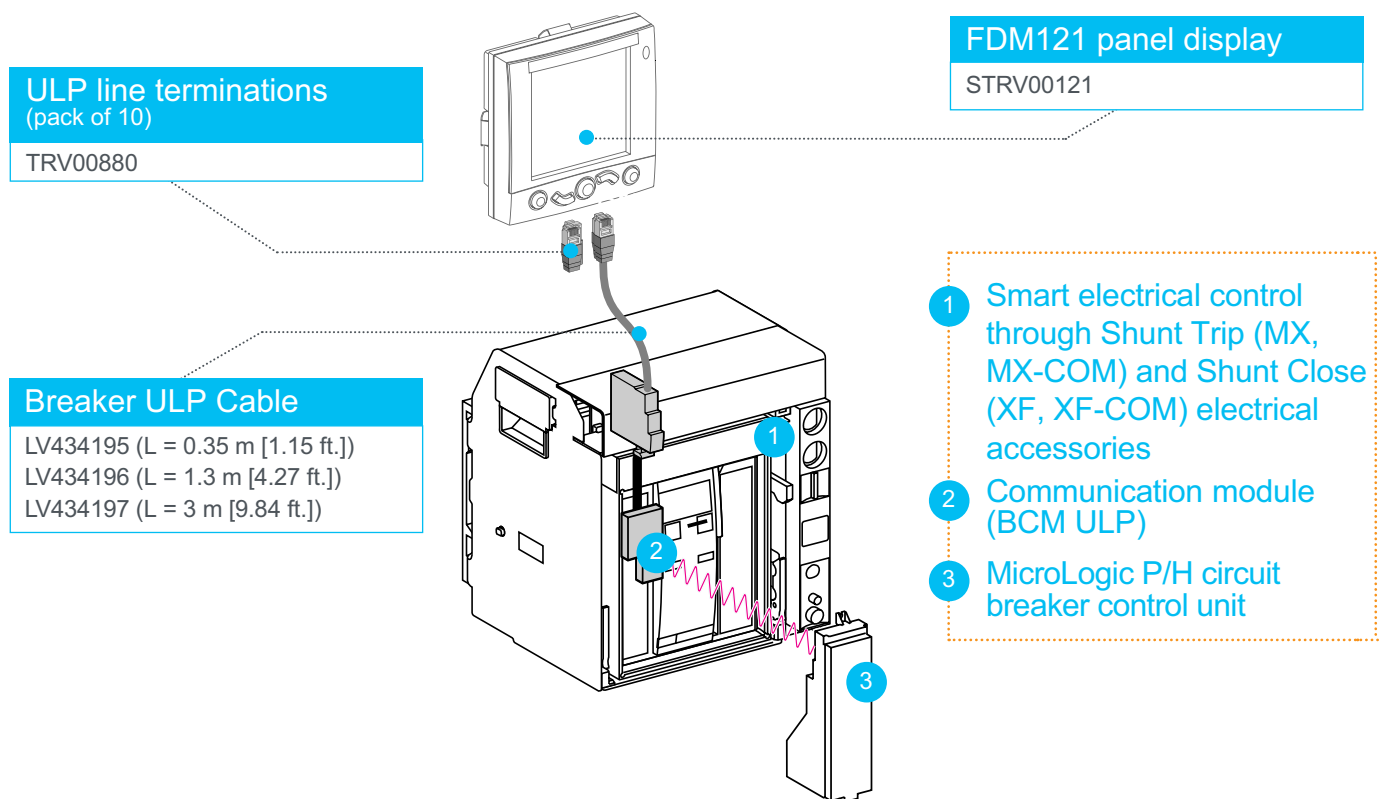


## Fixed Device, Front Panel Display, and Remote View

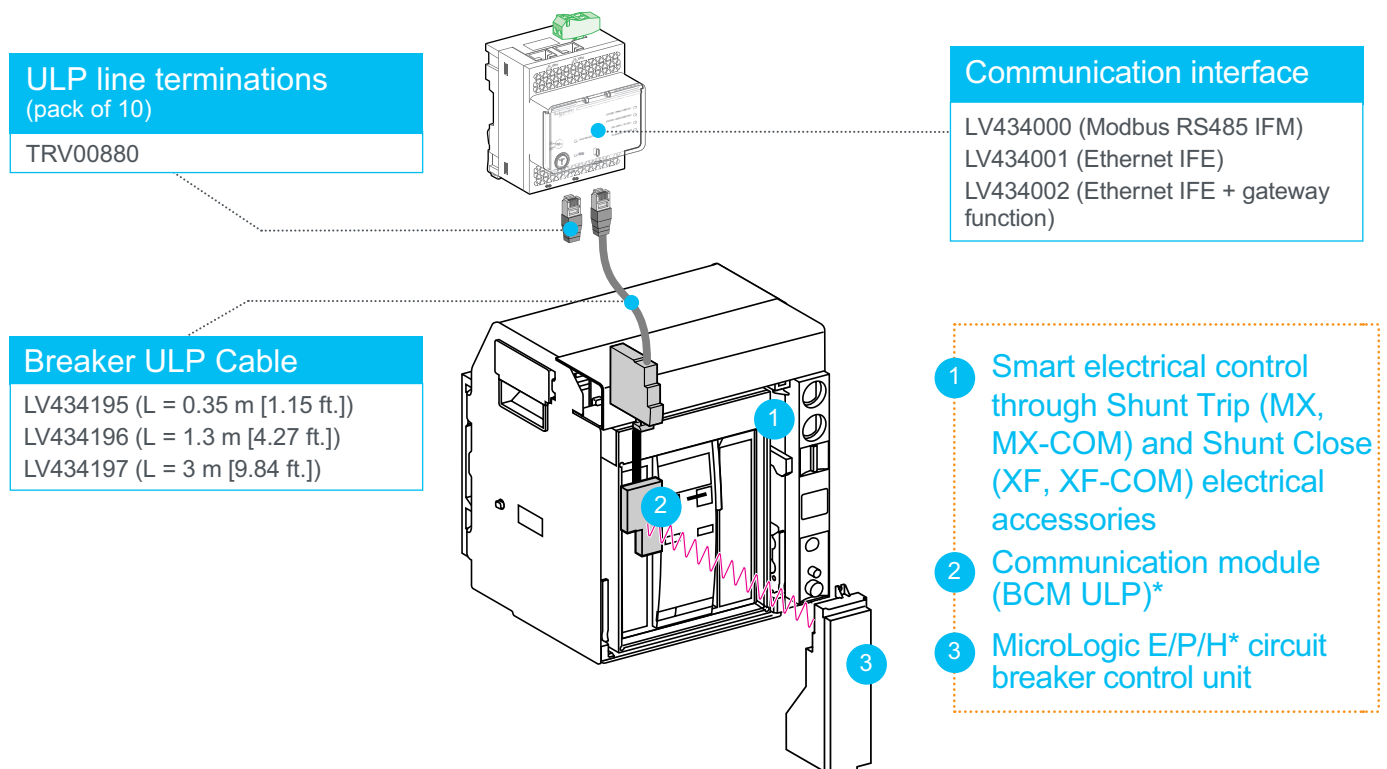


# Metering, Measurement, Quality, Availability, and Control

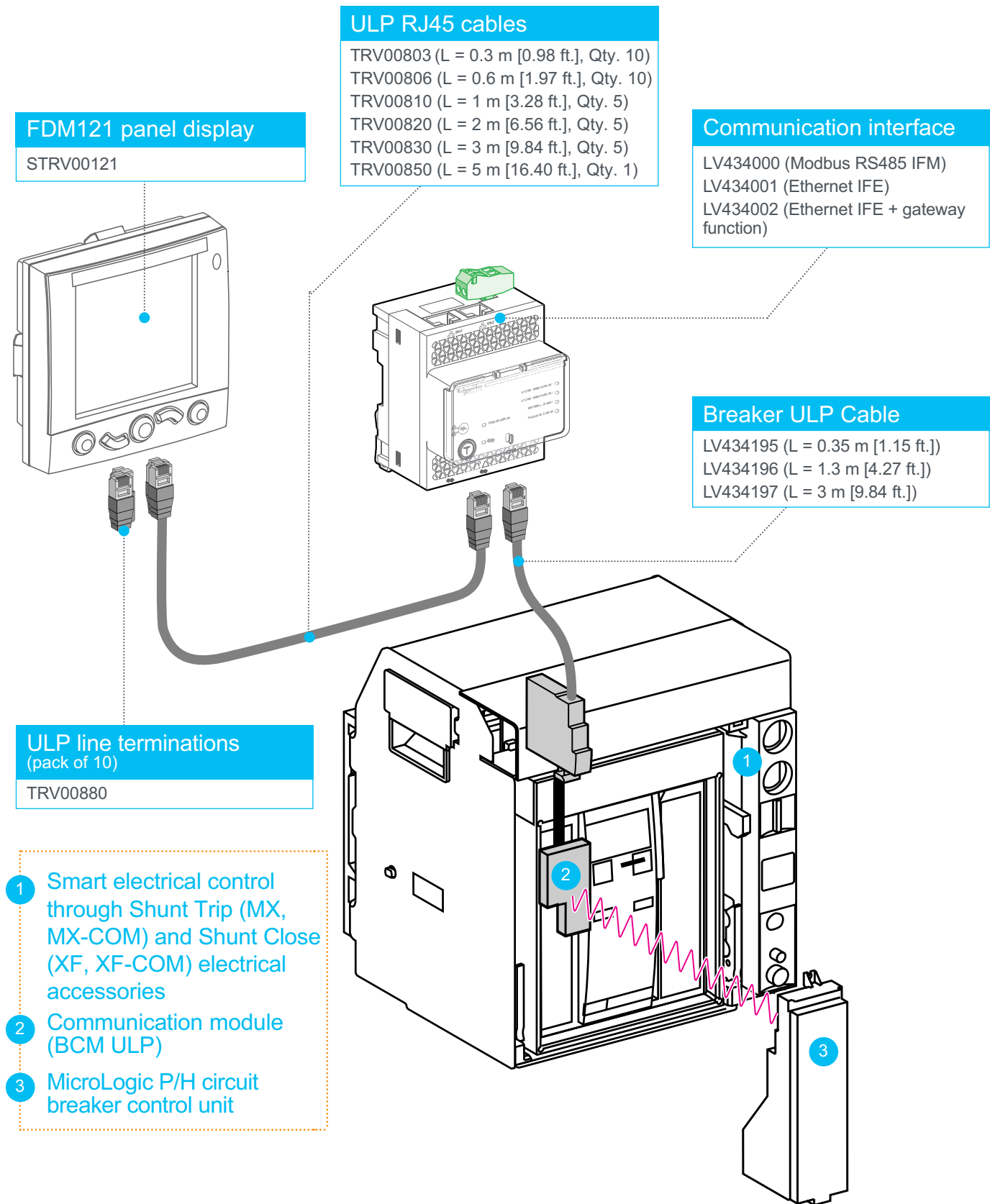
## Fixed Device, Front Panel Display



## Fixed Device, Remote View



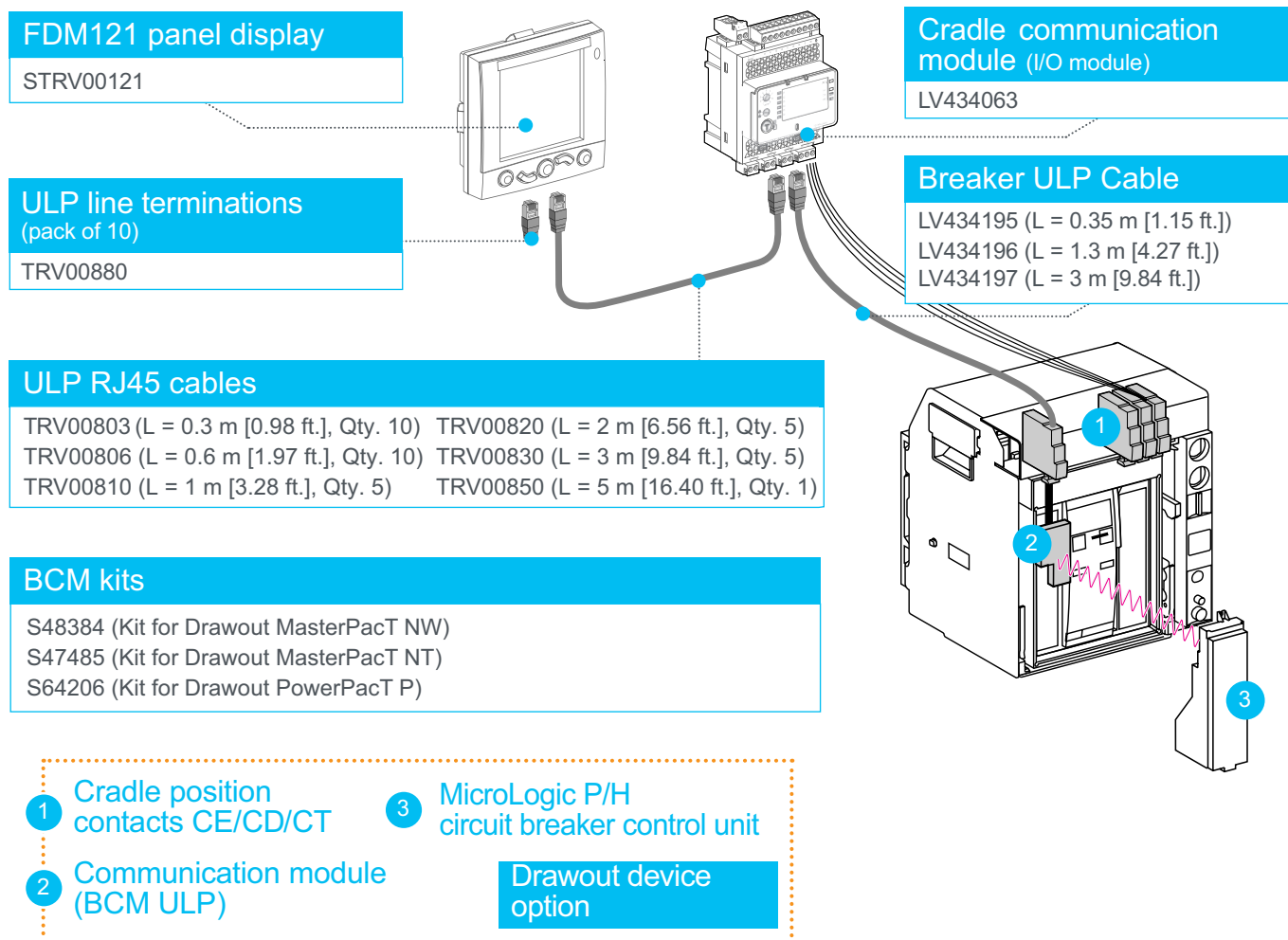
## Fixed Device, Front Panel Display, and Remote View



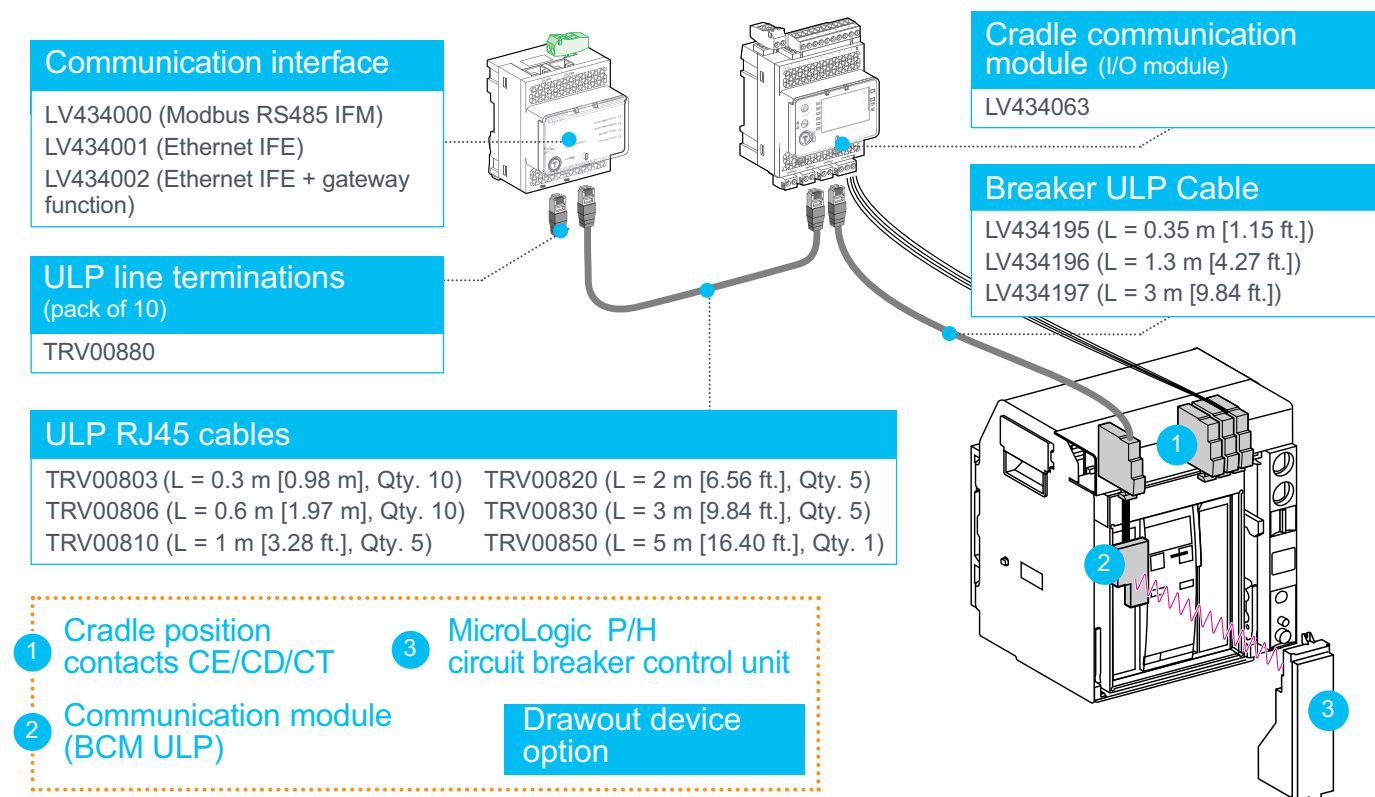
# MasterPacT NT/NW Circuit Breakers

## Metering, Measurement, Quality, and Availability

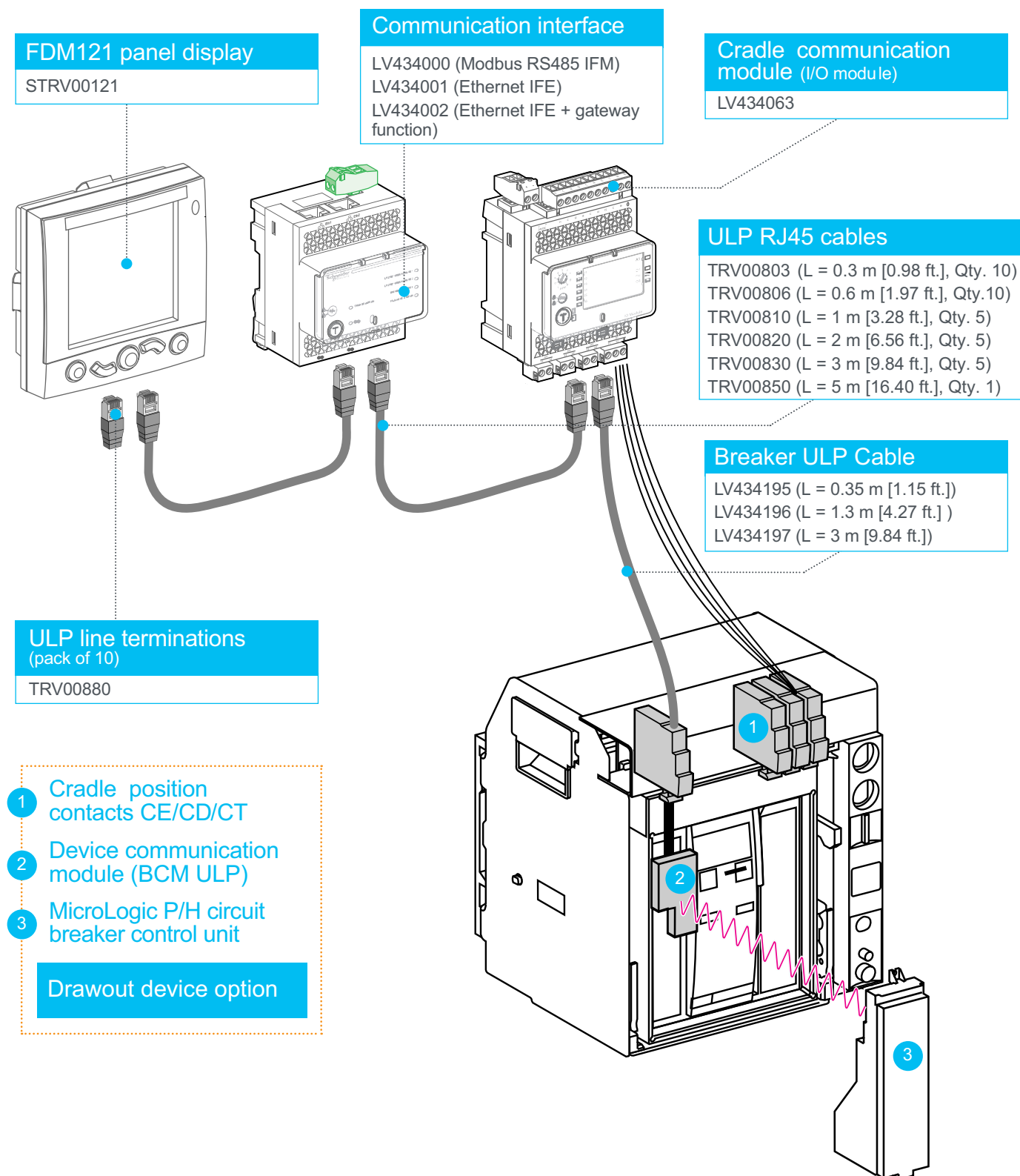
### Drawout Device, Front Panel Display



## Drawout Device, Remote View

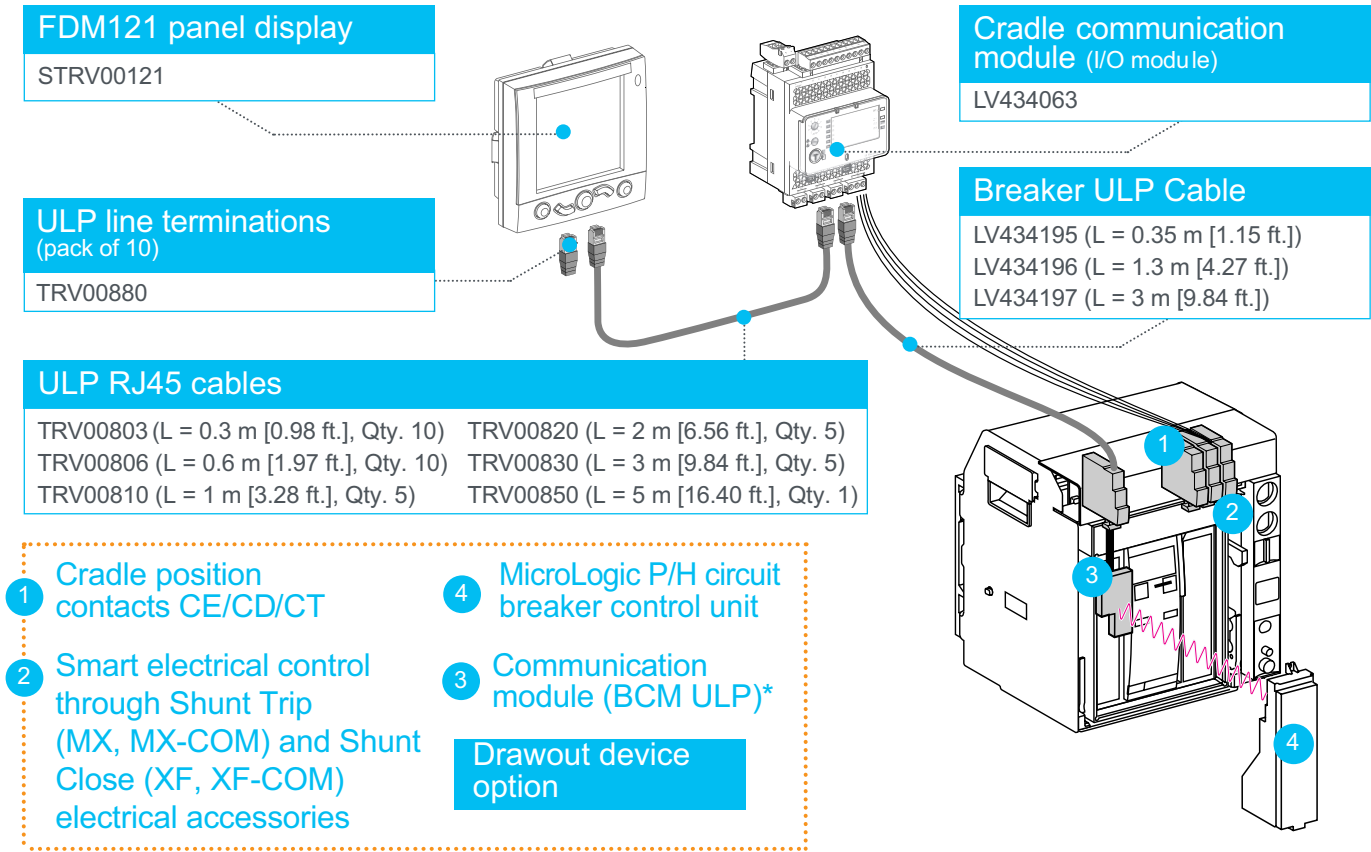


## Drawout Device, Front Panel Display, and Remote View

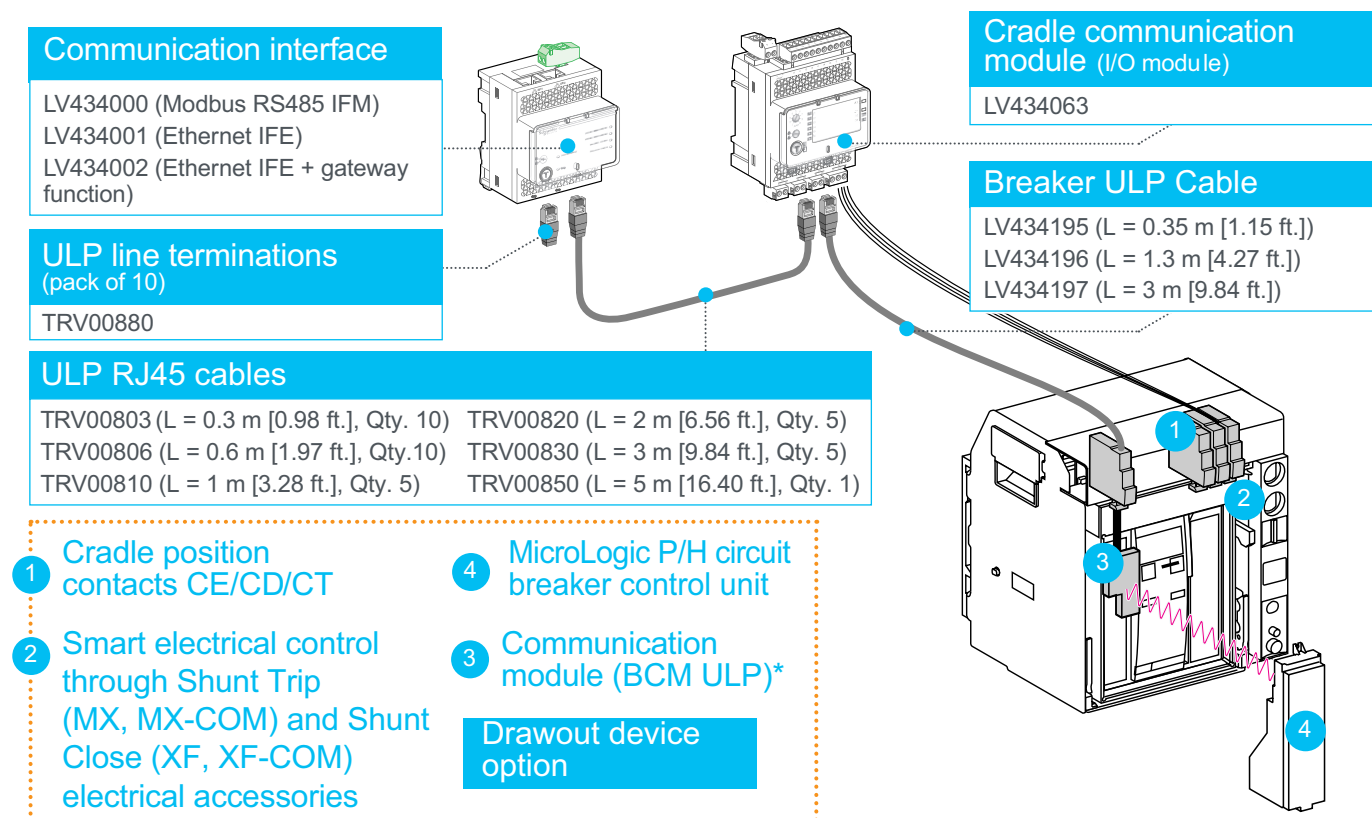


Metering, Measurement, Quality, Availability, and Control

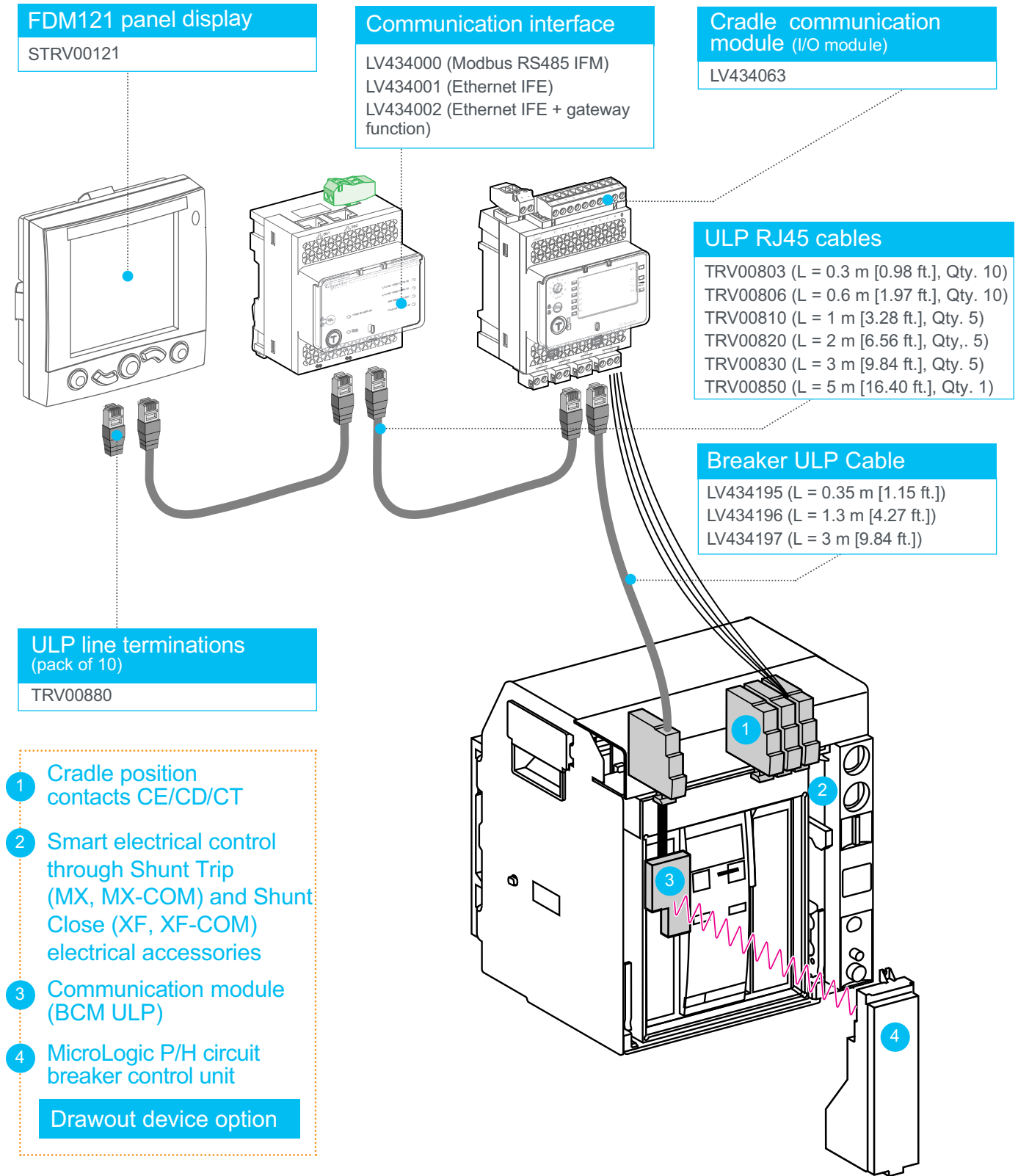
Drawout Device, Front Panel Display





**Drawout Device, Remote View**

## Drawout Device, Front Panel Display, and Remote View



# MasterPacT MTZ Circuit Breakers

## Metering, Measurement, Quality, Availability, and Control

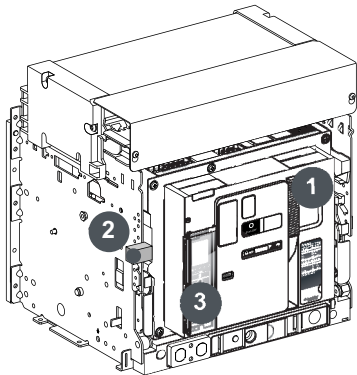
### Smart device-Based View

- 1

Smart electrical control through Shunt Trip (MX, MX-COM) and Shunt Close (XF, XF-COM) electrical accessories
- 2

ULP Port Module
- 3

MicroLogic X circuit breaker control unit



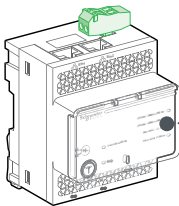
### Remote View

- 1

Smart electrical control through Shunt Trip (MX, MX-COM) and Shunt Close (XF, XF-COM) electrical accessories
- 2

ULP Port Module
- 3

MicroLogic X circuit breaker control unit



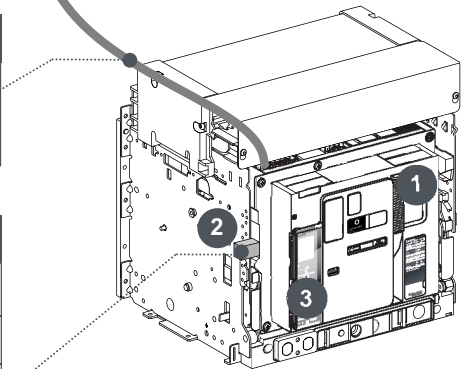
Communication interface

LV434001 (Ethernet IFE)

LV434002 (Ethernet IFE + gateway function)

| ULP RJ45 cables                          |                                        |
|------------------------------------------|----------------------------------------|
| TRV00803 (L = 0.3 m [0.98 ft.], Qty. 10) | TRV00820 (L = 2 m [6.56 ft.], Qty. 5)  |
| TRV00806 (L = 0.6 m [1.97 ft.], Qty. 10) | TRV00830 (L = 3 m [9.84 ft.], Qty. 5)  |
| TRV00810 (L = 1 m [3.28 ft.], Qty. 5)    | TRV00850 (L = 5 m [16.40 ft.], Qty. 1) |

| ULP Port Modules |                                              |            |
|------------------|----------------------------------------------|------------|
|                  | MasterPacT MTZ1 fixed circuit breaker        | LV850063SP |
|                  | MasterPacT MTZ2/MTZ3 fixed circuit breaker   | LV850061SP |
|                  | MasterPacT MTZ1 drawout circuit breaker      | LV850064SP |
|                  | MasterPacT MTZ2/MTZ3 drawout circuit breaker | LV850062SP |



# Metering, Measurement, Quality, and Availability for MasterPacT MTZ

## Smart device-Based View and Remote View

### ULP RJ45 cables

TRV00803 (L = 0.3 m [0.98 ft.], Qty. 10)  
 TRV00806 (L = 0.6 m [1.97 ft.], Qty. 10)  
 TRV00810 (L = 1 m [3.28 ft.], Qty. 5)  
 TRV00820 (L = 2 m [6.56 ft.], Qty. 5)  
 TRV00830 (L = 3 m [9.84 ft.], Qty. 5)  
 TRV00850 (L = 5 m [16.40 ft.], Qty. 1)

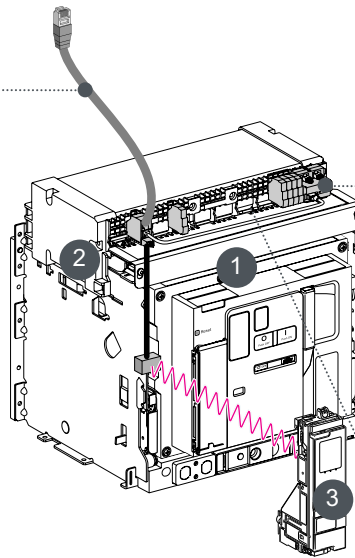
1 Cradle position contacts  
 CE/CD/CT monitored  
 via EIFE

2 MicroLogic X circuit  
 breaker control unit

Drawout device  
 option

### EIFE Kits

LV851100SP (Spare part kit EIFE for one  
 MasterPacT MTZ1 drawout circuit breaker)  
 LV851200SP (Spare part kit EIFE for one  
 MasterPacT MTZ2/MTZ3 drawout circuit breaker)



### Communication interface

LV851001SP (EIFE embedded  
 Ethernet interface for drawout  
 MasterPacT MTZ)

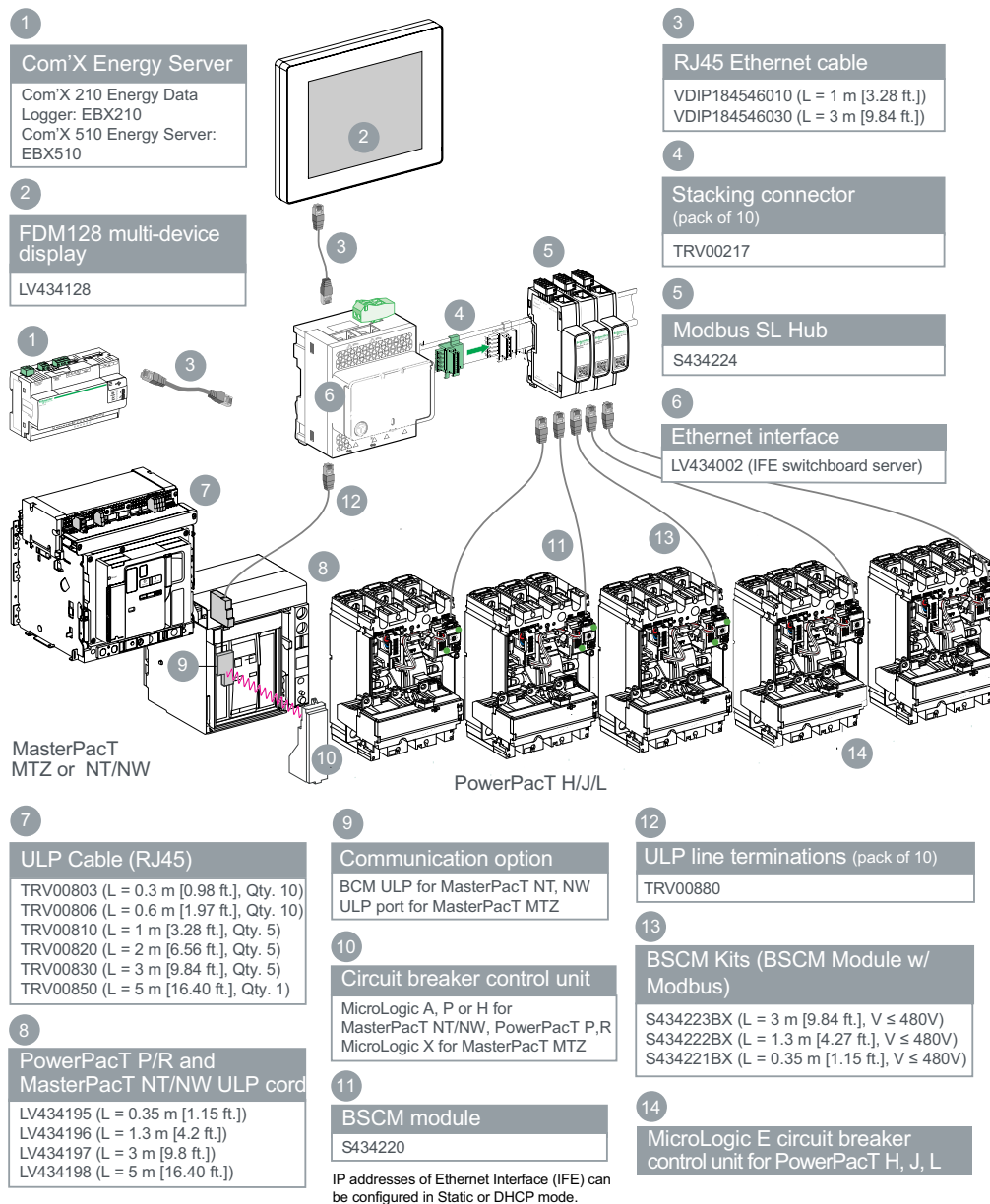


### EIFE Cables

LV851120SP (EIFE cable for  
 drawout MasterPacT MTZ1)  
 LV851220SP (EIFE cable for  
 drawout MasterPacT MTZ2/MTZ3)

# Multi-Product Architecture Examples

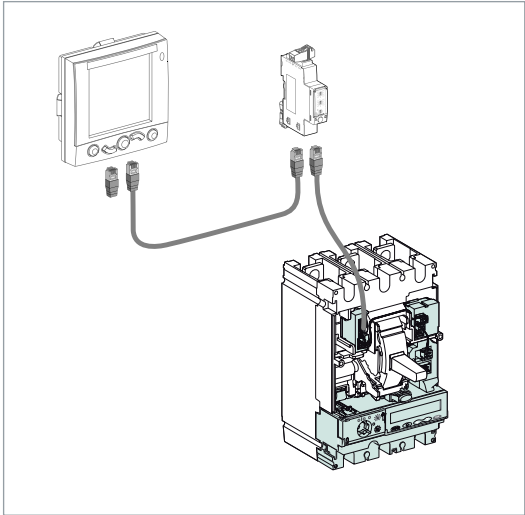
## Hybrid Communication - Ethernet and Modbus



# 24 Vdc Power Supply

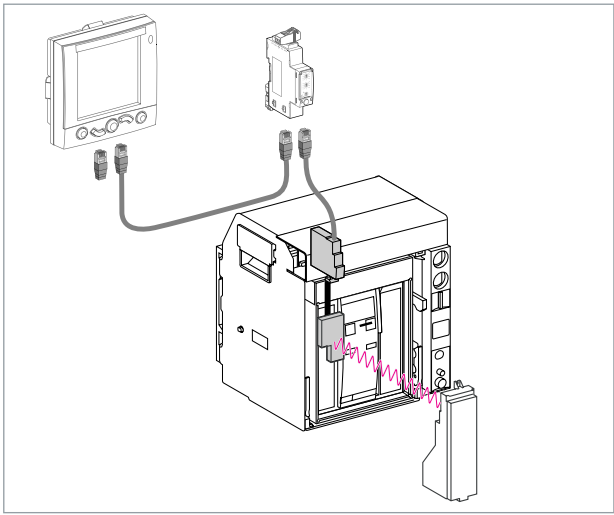
## 24 Vdc Power Supply and Unit Consumption

PowerPacT H, J, L  
with IFM interface and display



| Product                                 | Consumption |
|-----------------------------------------|-------------|
| FDM121 display                          | 21 mA       |
| IFM interface                           | 21 mA       |
| BSCM module                             | 9 mA        |
| MicroLogic circuit breaker control unit | 30 mA       |
| Total                                   | 81 mA       |

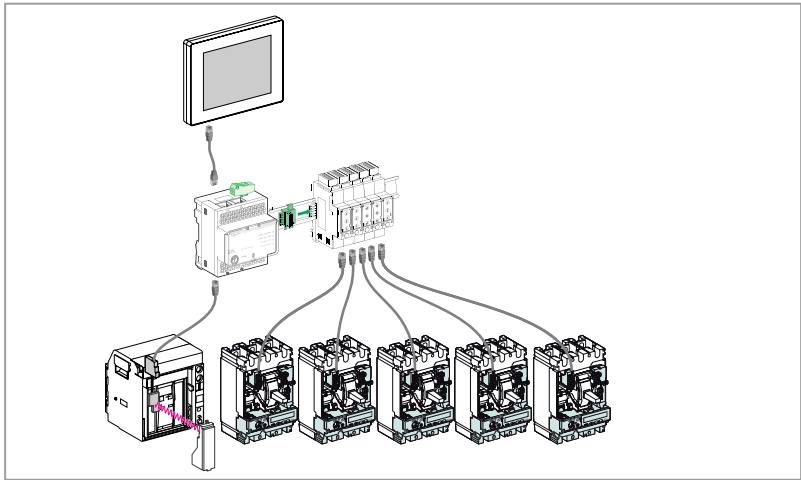
PowerPacT P, R and MasterPacT NT/NW  
with IFM interface and display



| Product                                 | Consumption |
|-----------------------------------------|-------------|
| FDM121 display                          | 21 mA       |
| IFM interface                           | 21 mA       |
| BCM ULP module                          | 40 mA       |
| MicroLogic circuit breaker control unit | 100 mA      |
| Total                                   | 182 mA      |

## Multi-Product Calculation Example

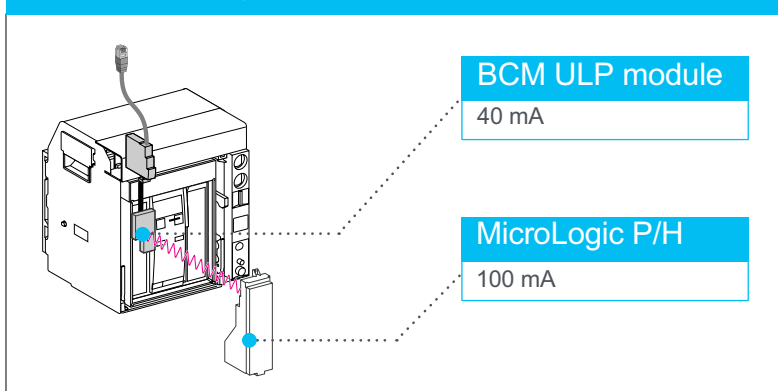
MasterPacT NT/NW circuit breaker with IFE Ethernet interface, Five PowerPacT H/J/L devices with RS485 IFM interfaces, and one FDM128 front display module



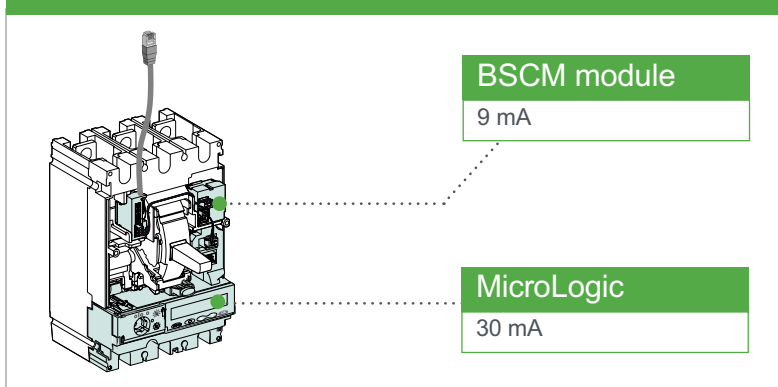
| Product                    | Consumption | Qty |
|----------------------------|-------------|-----|
| FDM128 display             | 285 mA      | 1   |
| IFE Ethernet interface     | 120 mA      | 1   |
| BCM ULP module             | 40 mA       | 1   |
| MicroLogic PowerPacT P, R  | 100 mA      | 1   |
| IFM interface              | 21 mA       | 5   |
| BSCM module                | 9 mA        | 5   |
| MicroLogic PowerPacT H/J/L | 30 mA       | 5   |
| Total                      | 845 mA      |     |

## 24 Vdc Power Supply and Unit Consumption

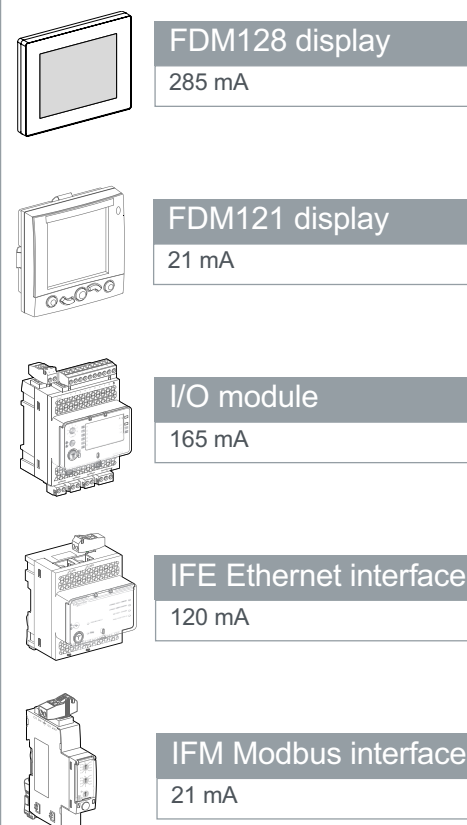
### PowerPacT P/R, MasterPacT NT/NW



### PowerPacT H/J/L



### Shared accessories



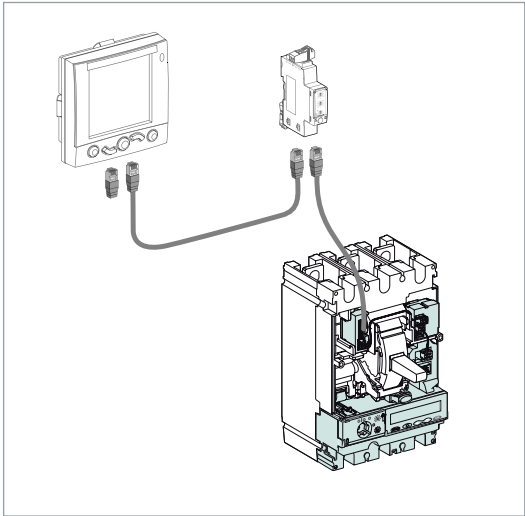
| 24 Vdc Power Supply Unit | AD Range |               | Phaseo Range  |               |  |
|--------------------------|----------|---------------|---------------|---------------|--|
|                          |          |               |               |               |  |
| Nominal Current          | 1 A      | 3 A           | 5 A           | 10 A          |  |
| Primary Surge Category   | IV       | II            |               |               |  |
| 24/30 Vdc input          | 685823   |               | —             |               |  |
| 48/60 Vdc input          | 685824   |               | —             |               |  |
| 100/125 Vdc input        | 685825   |               | —             |               |  |
| 110/130 Vac input        | 685826   | ABL8RP-S24030 | ABL8RP-S24050 | ABL8RP-S24100 |  |
| 200/240 Vac input        | 685827   |               |               |               |  |

**NOTE:** Example of other compliant power supplies: Phoenix Contact TRIO POWER power supply unit, TRIO-PS-2G/1AC/24DC/10/B+D (part number 2903145).

# Calculation Examples

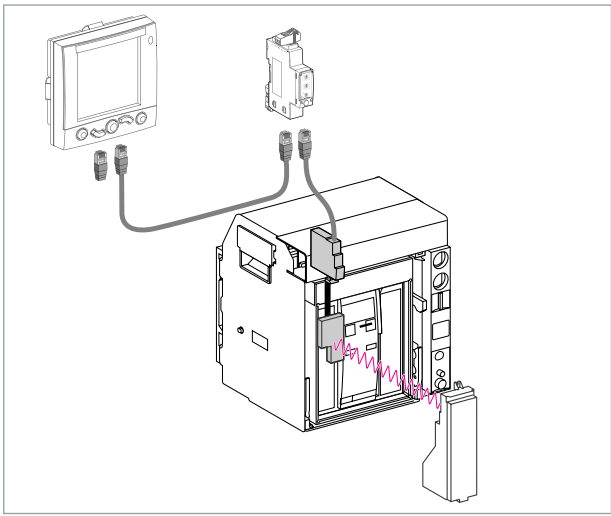
## Single Product Calculation Examples

### PowerPacT H, J, L with IFM interface and display



| Product                                 | Consumption  |
|-----------------------------------------|--------------|
| FDM121 display                          | 21 mA        |
| IFM interface                           | 21 mA        |
| BSCM module                             | 9 mA         |
| MicroLogic circuit breaker control unit | 30 mA        |
| <b>Total</b>                            | <b>81 mA</b> |

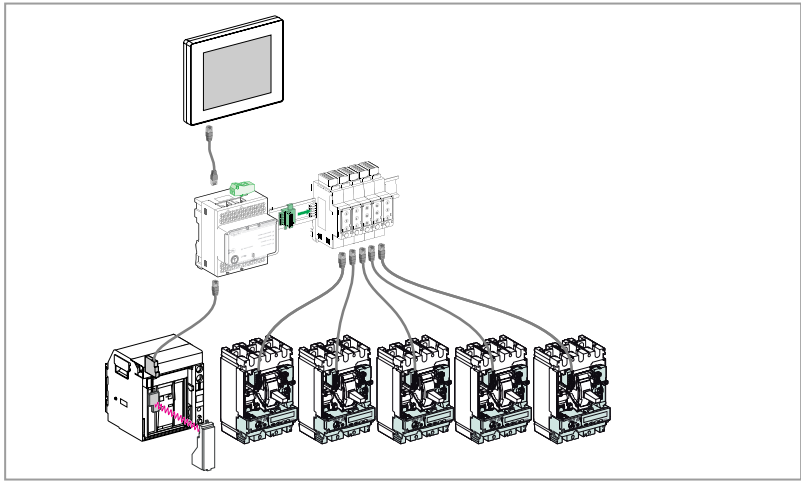
### PowerPacT P, R and MasterPacT NT/NW with IFM interface and display



| Product                                 | Consumption   |
|-----------------------------------------|---------------|
| FDM121 display                          | 21 mA         |
| IFM interface                           | 21 mA         |
| BCM ULP module                          | 40 mA         |
| MicroLogic circuit breaker control unit | 100 mA        |
| <b>Total</b>                            | <b>182 mA</b> |

## Multi-Product Calculation Example

MasterPacT NT/NW circuit breaker with IFE Ethernet interface, Five PowerPacT H/J/L devices with RS485 IFM interfaces, and one FDM128 front display module



| Product                    | Consumption   | Qty |
|----------------------------|---------------|-----|
| FDM128 display             | 285 mA        | 1   |
| IFE Ethernet interface     | 120 mA        | 1   |
| BCM ULP module             | 40 mA         | 1   |
| MicroLogic PowerPacT P, R  | 100 mA        | 1   |
| IFM interface              | 21 mA         | 5   |
| BSCM module                | 9 mA          | 5   |
| MicroLogic PowerPacT H/J/L | 30 mA         | 5   |
| <b>Total</b>               | <b>845 mA</b> |     |





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