

Smart Panels

Technical guide
Data acquisition
with Acti9, Compact, Masterpact



Energy management has never been simpler

Smart Panels connect you to energy savings

This guide will help you to determine exactly how to equip the circuit breakers and other protective devices in the Acti9, Compact and Masterpact ranges, depending on the information to be acquired from each of them.

This guide supplements the other Smart Panel design and construction documents.



Architecture guide



Data acquisition guide



Catalogue

Thank you for choosing Schneider Electric's exclusive Smart Panels, which can be fully connected directly to the company IT network, to help your customers improve their energy performance.



1 Measure

Embedded and stand-alone metering & control capabilities

2 Connect

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

3 Act

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





5 types of information

To determine the equipment required according to the information which will be useful to your customer, we can classify this information by making an analogy with a car.

Measurement

This is the speed indicator. Your customer has a real-time indication of their electricity consumption and can track its rise or fall.

Availability

These are the warning lights for the battery, tyre wear, or even the fuel gauge. If one of these lights up, a maintenance operation is required.



Metering

This is the car's odometer. Here, the circuit breakers indicate the electricity consumption.

Quality

This is the rev counter. For the same electricity consumption, the installation may be over-used or under-used just like an engine over-revving or under-revving.

Controls

These are the steering wheel levers. Just like the lights, horn, indicators, etc., signals from this control will switch the loads on or off.



Two ways of accessing information



> Directly via the front panel








> Remotely via the company IT network.



Acti 9






Data acquisition

 Metering	 Measurement	 Quality	 Availability (states/statuses)	 Control	Page no.
			@		5
				@	6
@					7



Compact NSX 100-630






Data acquisition

 Metering	 Measurement	 Quality	 Availability (states/statuses)	 Control	Page no.
	@				8 - 9
	@		@		10 - 11
	@		@	@	12 - 13
			@	@	14 - 15



Compact NS Masterpact NT/NW






Data acquisition

 Metering	 Measurement	 Quality	 Availability (states/statuses)	 Control	Page no.
	@				18 - 19
	@			@	20 - 21
	@				22 - 23
	@			@	24 - 25



Masterpact MTZ

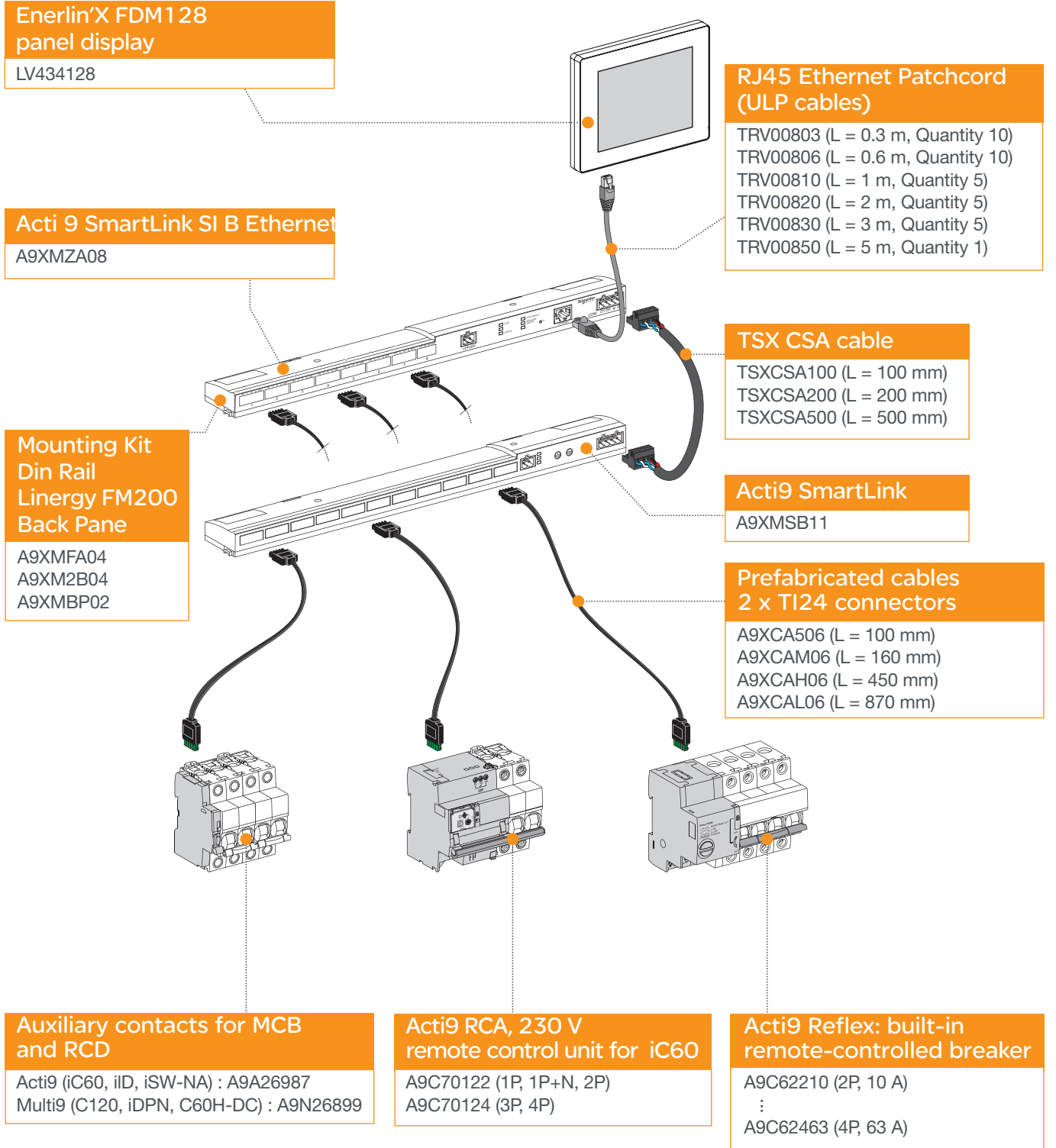
Data acquisition

 Metering	 Measurement	 Quality	 Availability (states/statuses)	 Control	Page no.
	@				26
	@			@	27



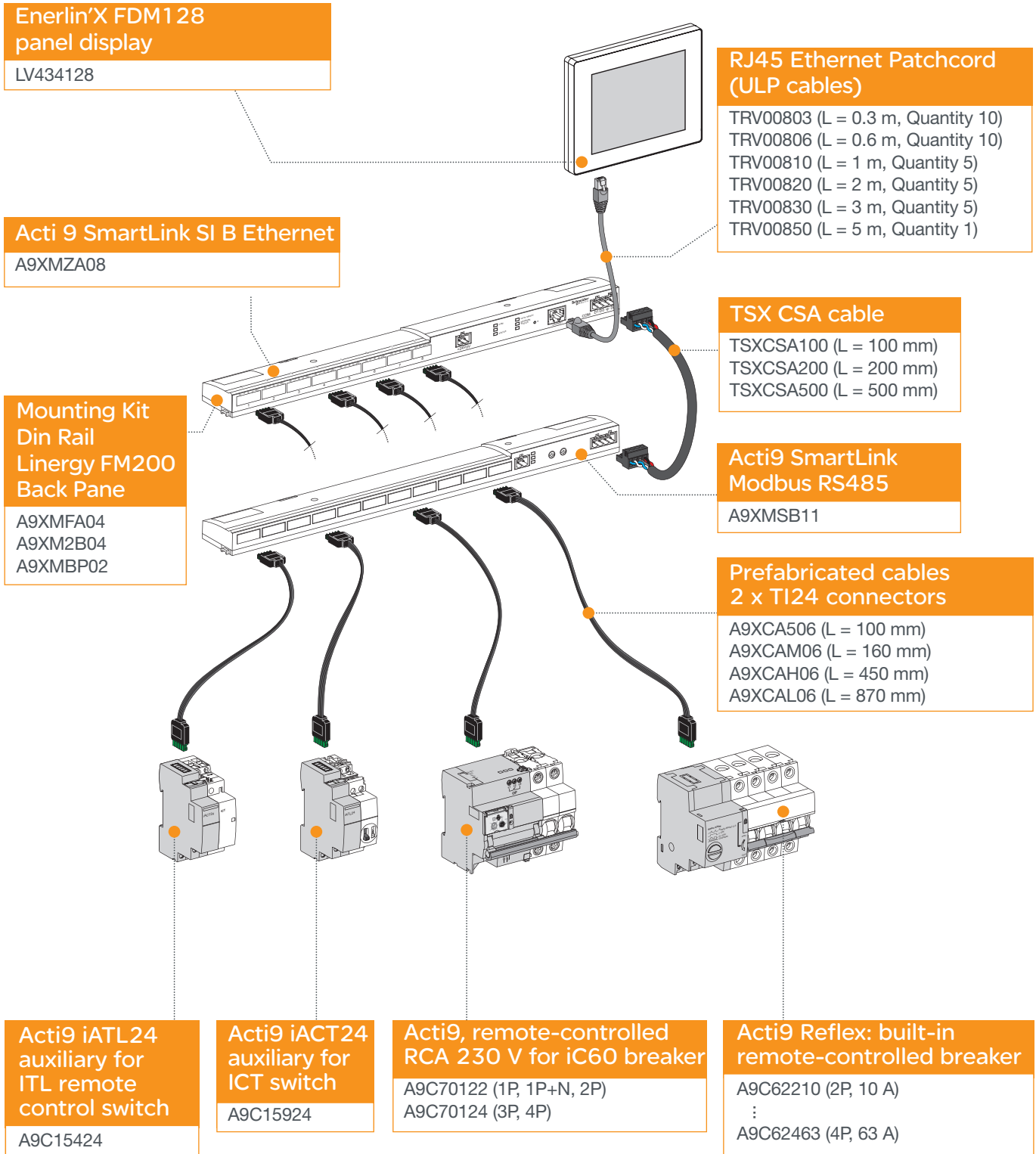
Availability

Modular equipment, front panel display and remote view



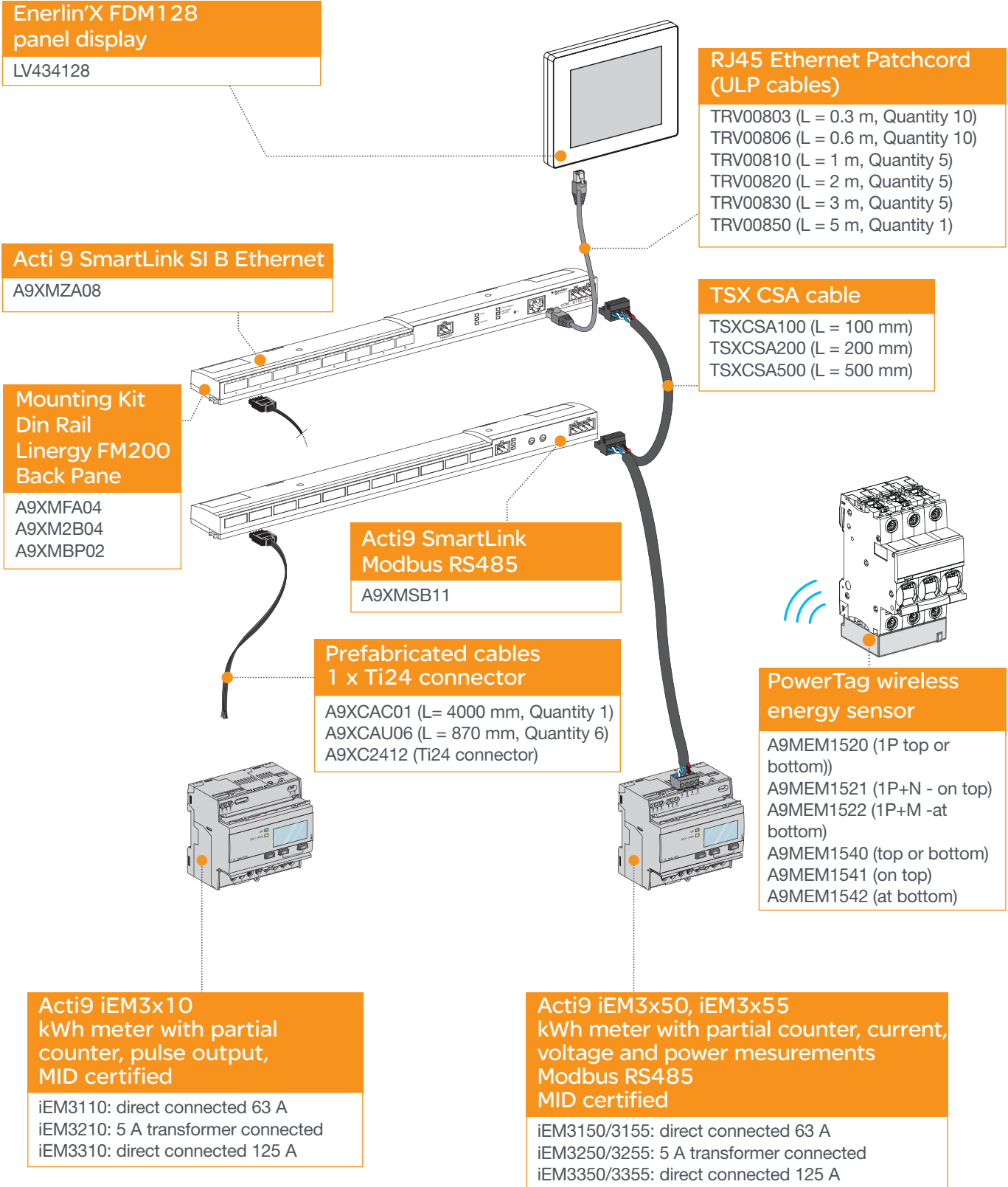
Control

Modular equipment, front panel display and remote view



Metering

Modular equipment, front panel display and remote view



Metering, Measurement, Quality

Front panel display

FDM121 panel display

TRV00121

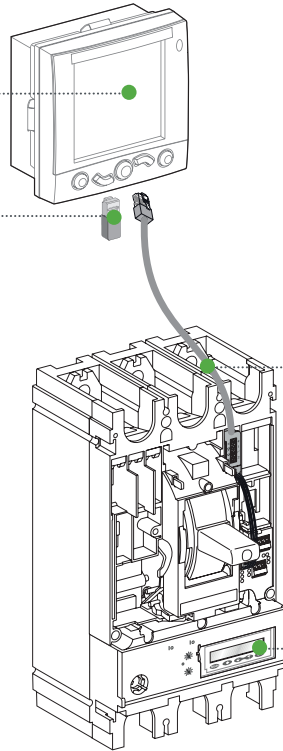
ULP line terminations
(pack of 10)

TRV00880

NSX cable (optional)

- LV434200 (L = 0.35 m)
- LV434201 (L = 1.3 m)
- LV434202 (L = 3 m)

Micrologic E circuit breaker control unit



Remote view

ULP line terminations
(pack of 10)

TRV00880

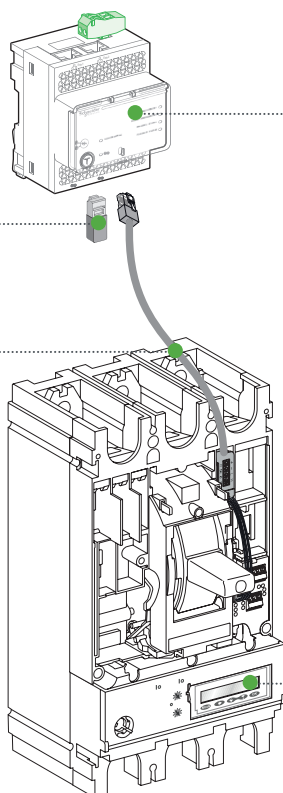
Communication interface
(optional)

- TRV00210 (Modbus RS485 IFM)
- LV434010 (Ethernet IFE)
- LV434011 (Ethernet IFE + gateway function)

NSX cable (optional)

- LV434200 (L = 0.35 m)
- LV434201 (L = 1.3 m)
- LV434202 (L = 3 m)

Micrologic E circuit breaker control unit



Metering, Measurement, Quality

Front panel display and remote view

TRV00121

Communication interface (optional)

TRV00210 (Modbus RS485 IFM)
 LV434010 (Ethernet IFE)
 LV434011 (Ethernet IFE + gateway function)

NSX cable (optional)

LV434200 (L = 0.35 m)
 LV434201 (L = 1.3 m)
 LV434202 (L = 3 m)

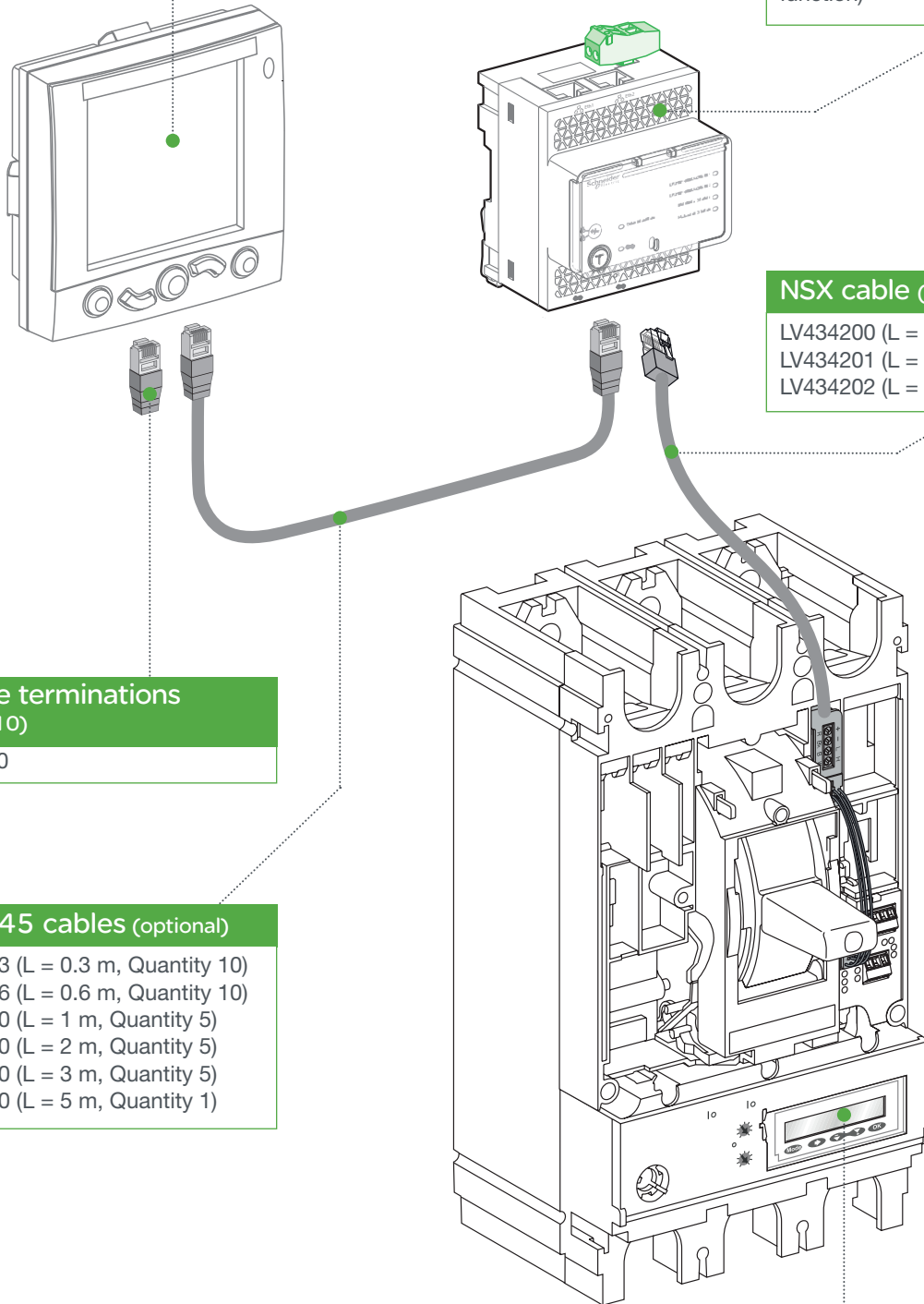
ULP line terminations (pack of 10)

TRV00880

ULP RJ45 cables (optional)

TRV00803 (L = 0.3 m, Quantity 10)
 TRV00806 (L = 0.6 m, Quantity 10)
 TRV00810 (L = 1 m, Quantity 5)
 TRV00820 (L = 2 m, Quantity 5)
 TRV00830 (L = 3 m, Quantity 5)
 TRV00850 (L = 5 m, Quantity 1)

Micrologic E circuit breaker control unit



Metering, Measurement, Quality and Availability

Front panel display

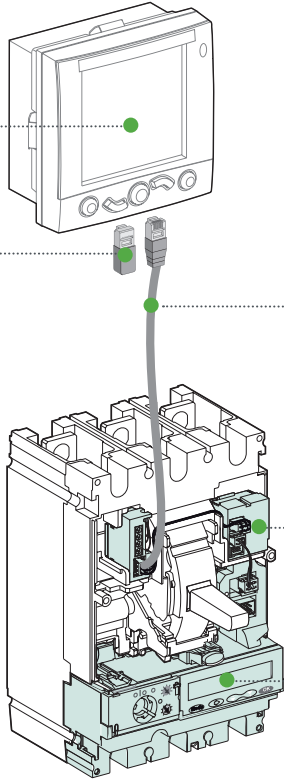
FDM121 panel display
TRV00121

ULP line terminations
(pack of 10)
TRV00880

NSX cable (optional)
LV434200 (L = 0.35 m)
LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

BSCM module
LV434205

Micrologic E circuit breaker control unit



Remote view

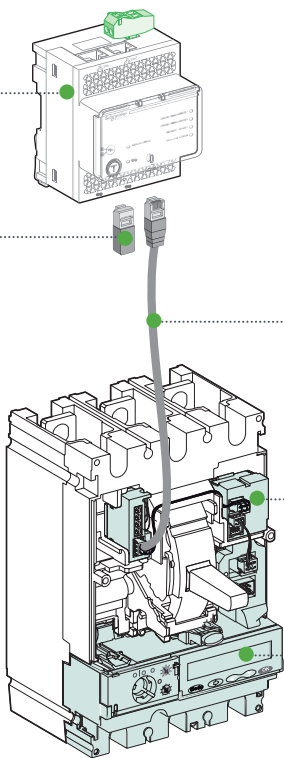
Communication interface (optional)
TRV00210 (Modbus RS485 IFM)
LV434010 (Ethernet IFE)
LV434011 (Ethernet IFE + gateway function)

ULP line terminations
(pack of 10)
TRV00880

NSX cable (optional)
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LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

BSCM module
LV434205

Micrologic E circuit breaker control unit



Metering, Measurement, Quality and Availability

Front panel display and remote view

FDM121 panel display

TRV00121

Communication interface (optional)

TRV00210 (Modbus RS485 IFM)
LV434010 (Ethernet IFE)
LV434011 (Ethernet IFE + gateway function)

NSX cable (optional)

LV434200 (L = 0.35 m)
LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

BSCM module

LV434205

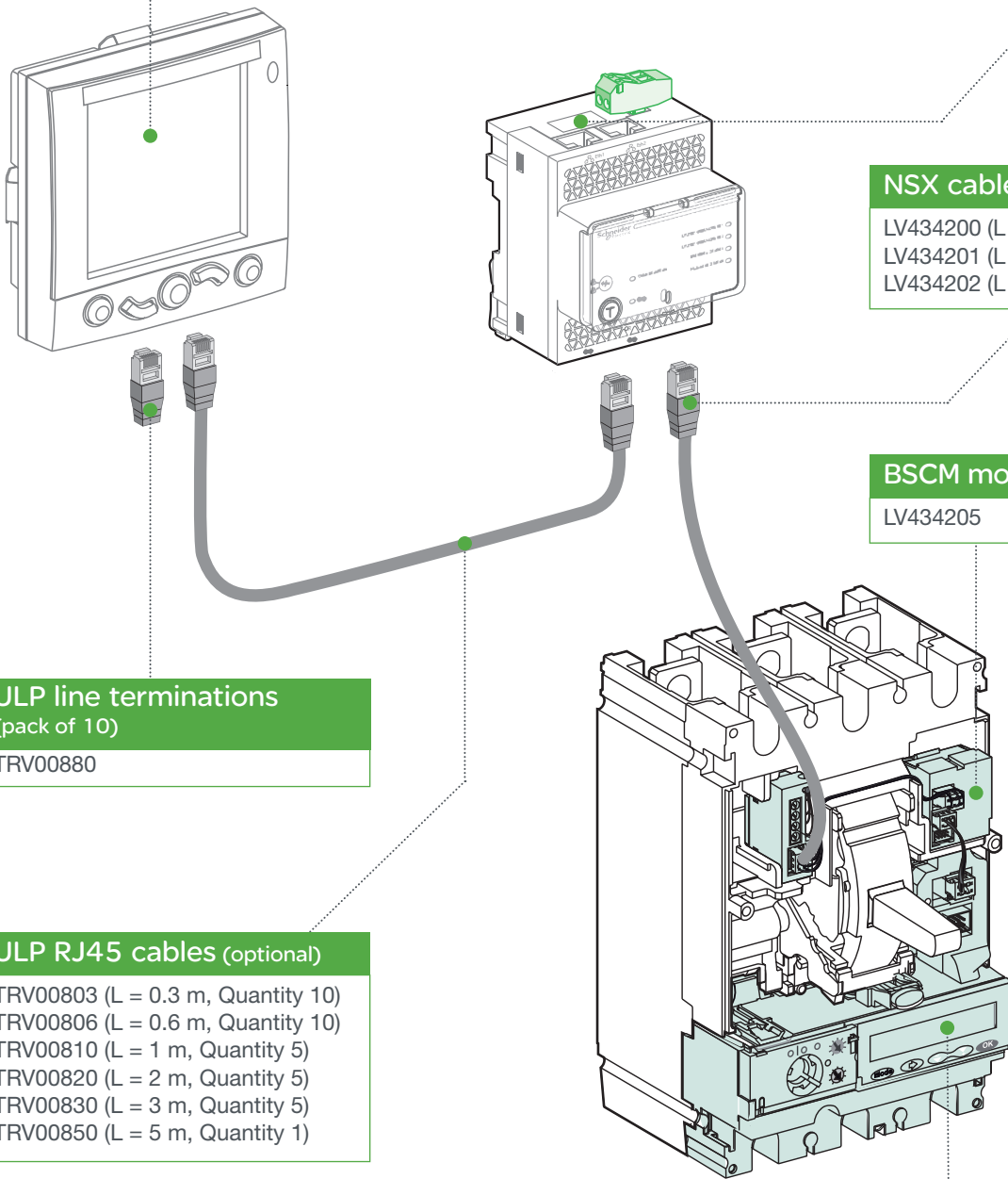
ULP line terminations (pack of 10)

TRV00880

ULP RJ45 cables (optional)

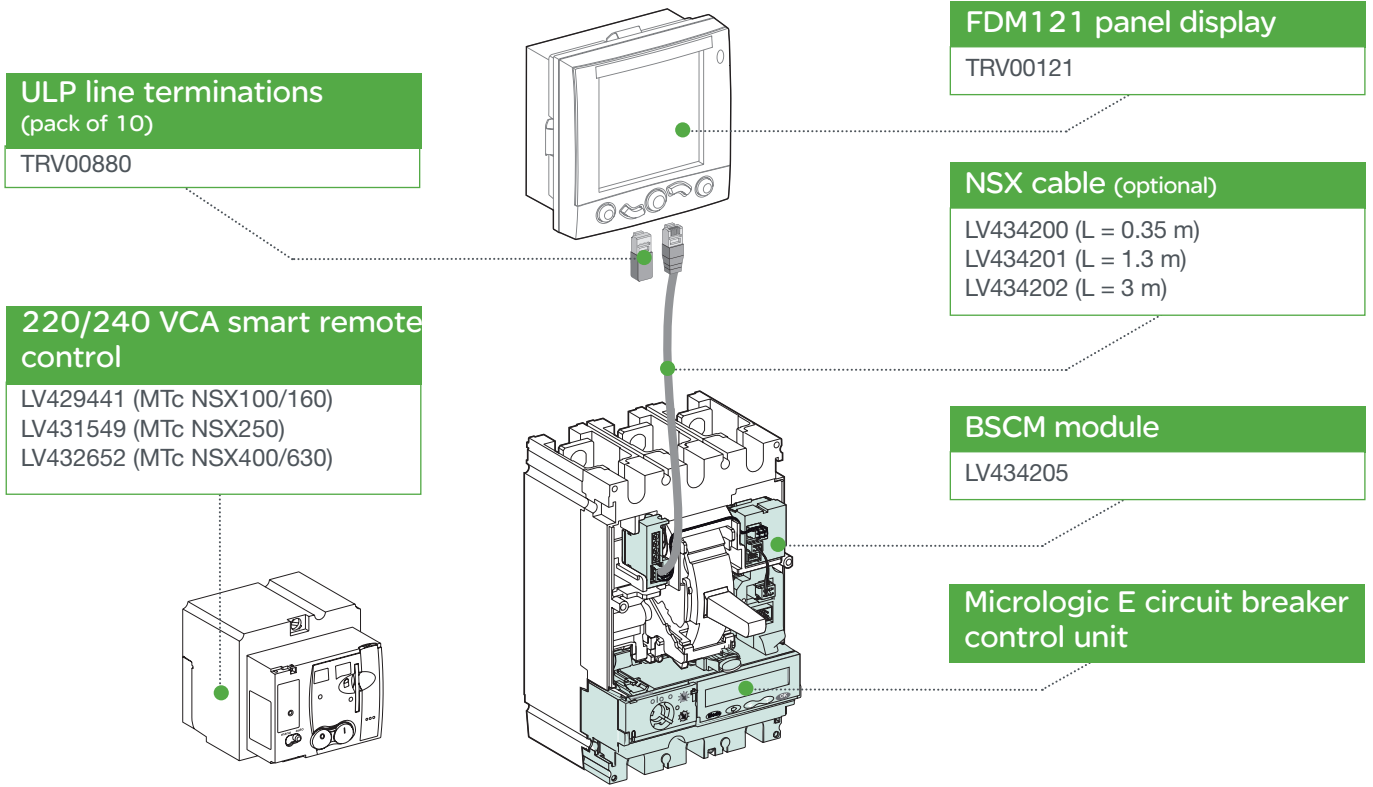
TRV00803 (L = 0.3 m, Quantity 10)
TRV00806 (L = 0.6 m, Quantity 10)
TRV00810 (L = 1 m, Quantity 5)
TRV00820 (L = 2 m, Quantity 5)
TRV00830 (L = 3 m, Quantity 5)
TRV00850 (L = 5 m, Quantity 1)

Micrologic E circuit breaker control unit

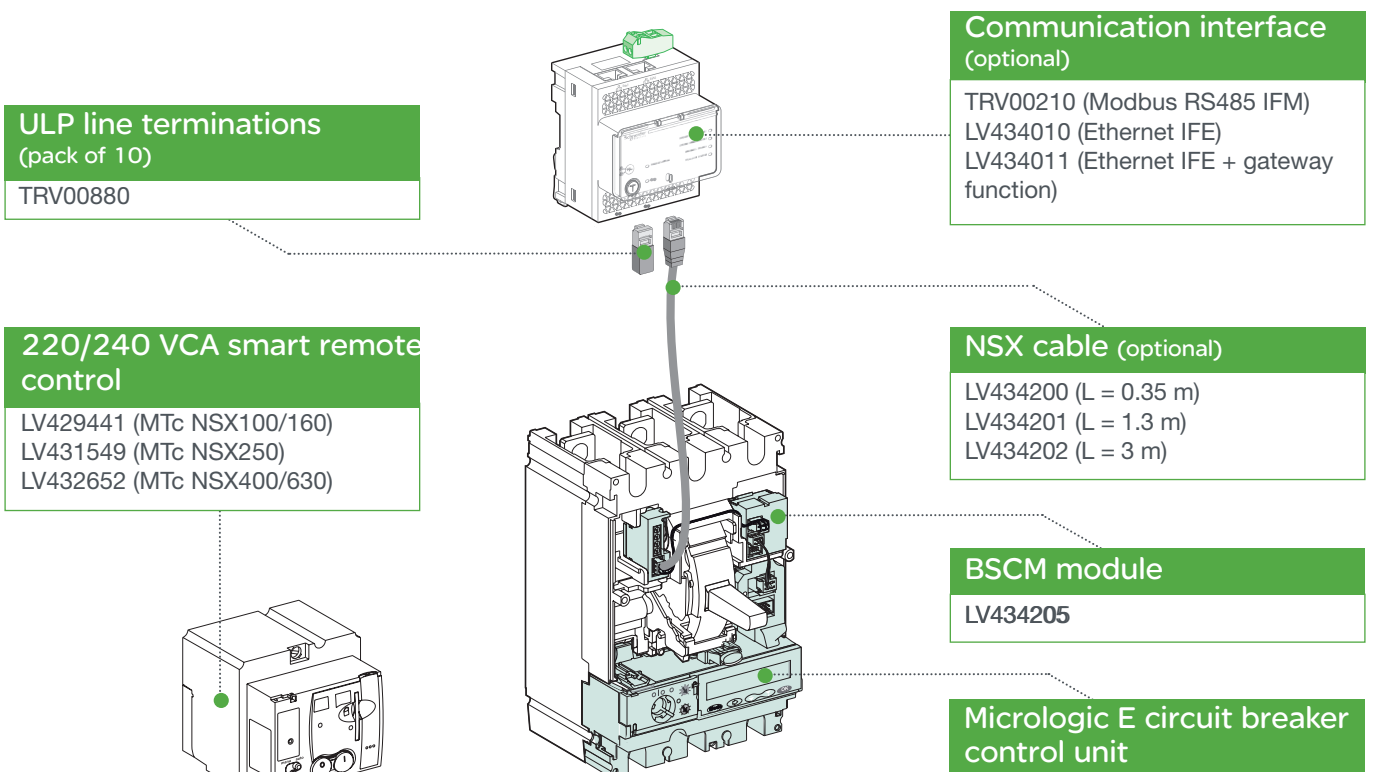


Metering, Measurement, Quality, Availability and Control

Front panel display

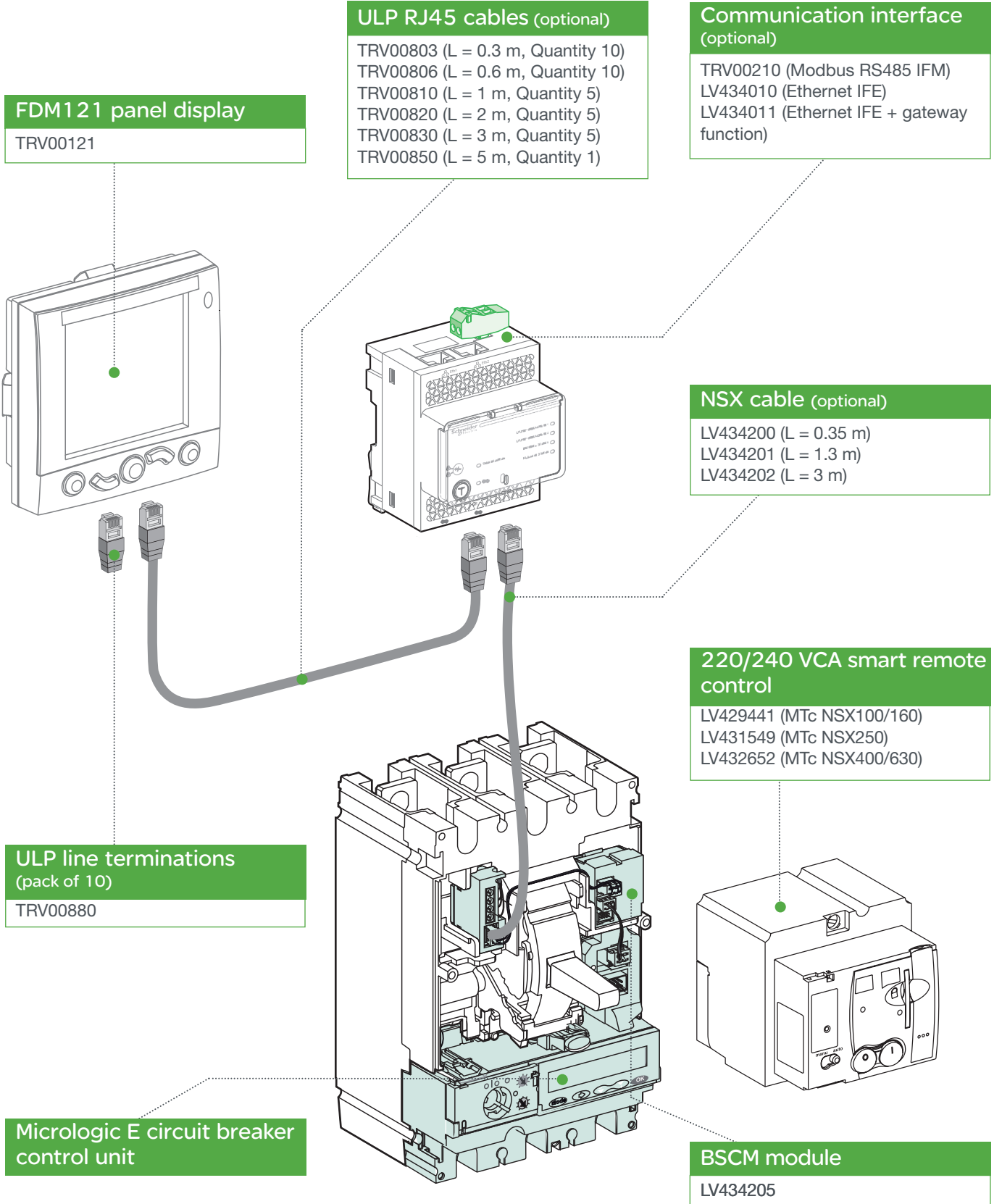


Remote view



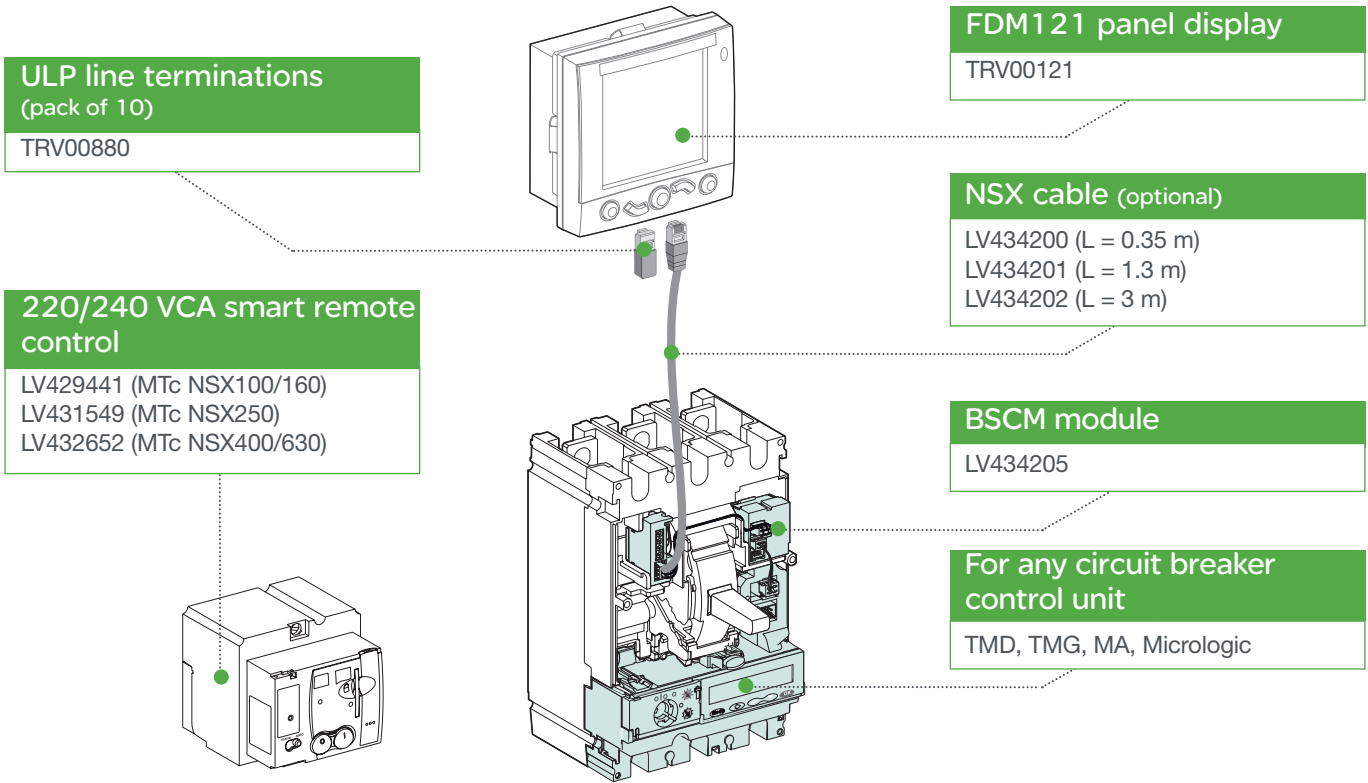
Metering, Measurement, Quality, Availability and Control

Front panel display and remote view

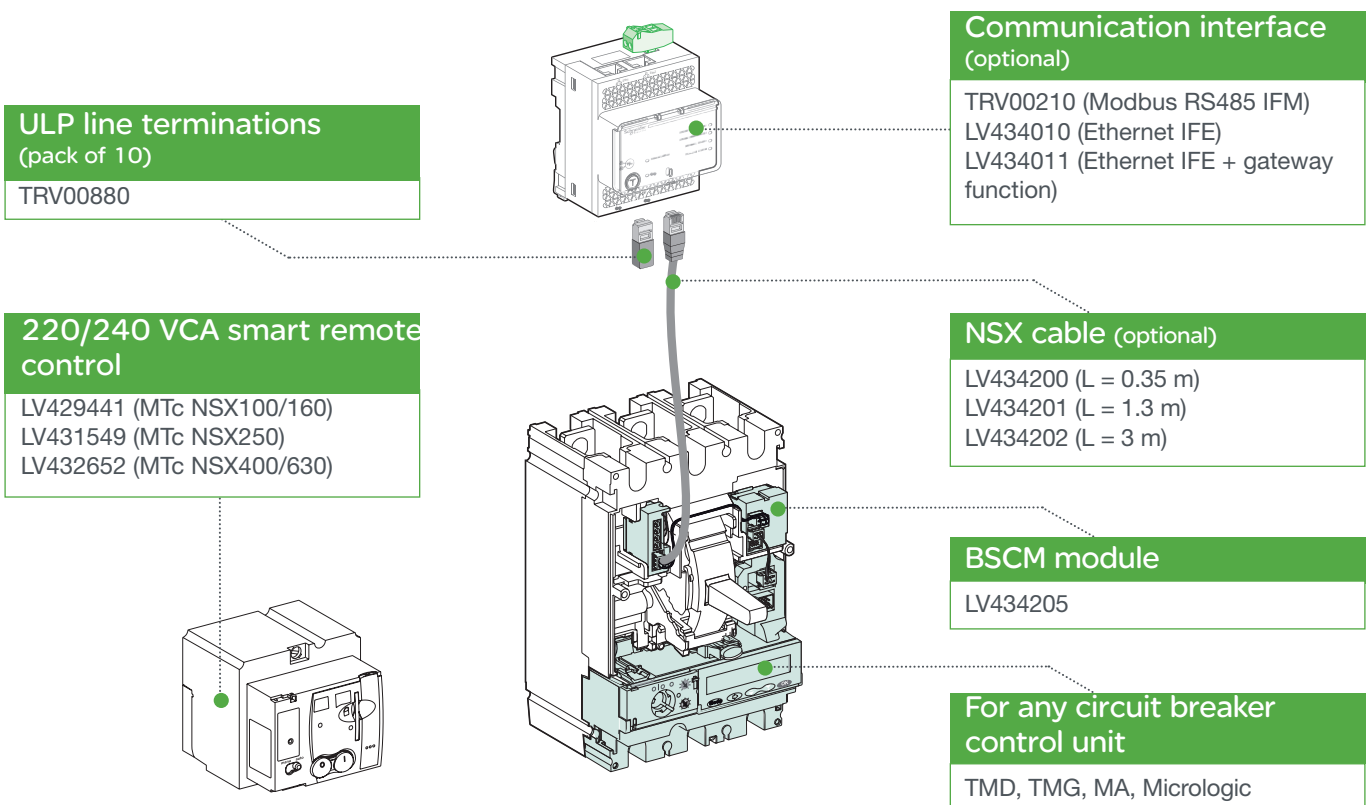


Availability (states/statuses) and Control

Front panel display



Remote view



Availability (states/statuses) and Control

Front panel display and remote view

FDM121 panel display
TRV00121

ULP RJ45 cables (optional)
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TRV00806 (L = 0.6 m, Quantity 10)
TRV00810 (L = 1 m, Quantity 5)
TRV00820 (L = 2 m, Quantity 5)
TRV00830 (L = 3 m, Quantity 5)
TRV00850 (L = 5 m, Quantity 1)

Communication interface (optional)
TRV00210 (Modbus RS485 IFM)
LV434010 (Ethernet IFE)
LV434011 (Ethernet IFE + gateway function)

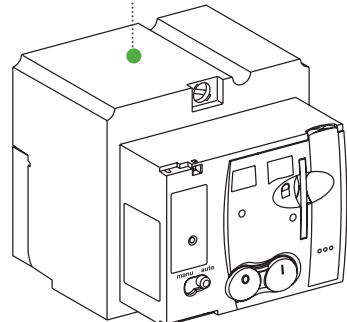
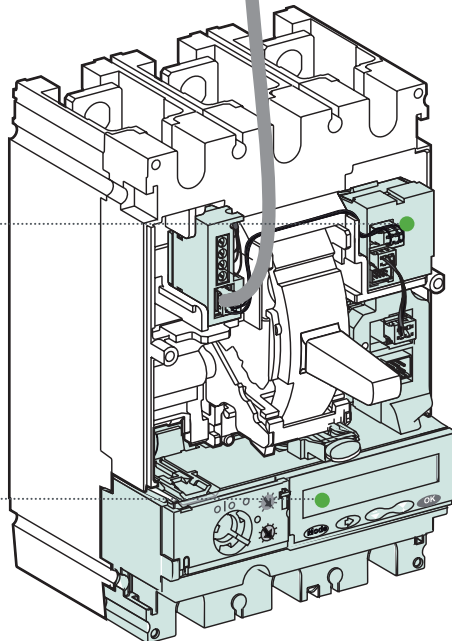
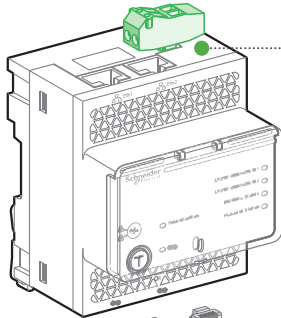
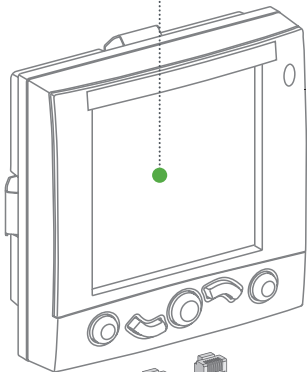
NSX cable (optional)
LV434200 (L = 0.35 m)
LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

220/240 VCA smart remote control
LV429441 (MTc NSX100/160)
LV431549 (MTc NSX250)
LV432652 (MTc NSX400/630)

ULP line terminations (pack of 10)
TRV00880

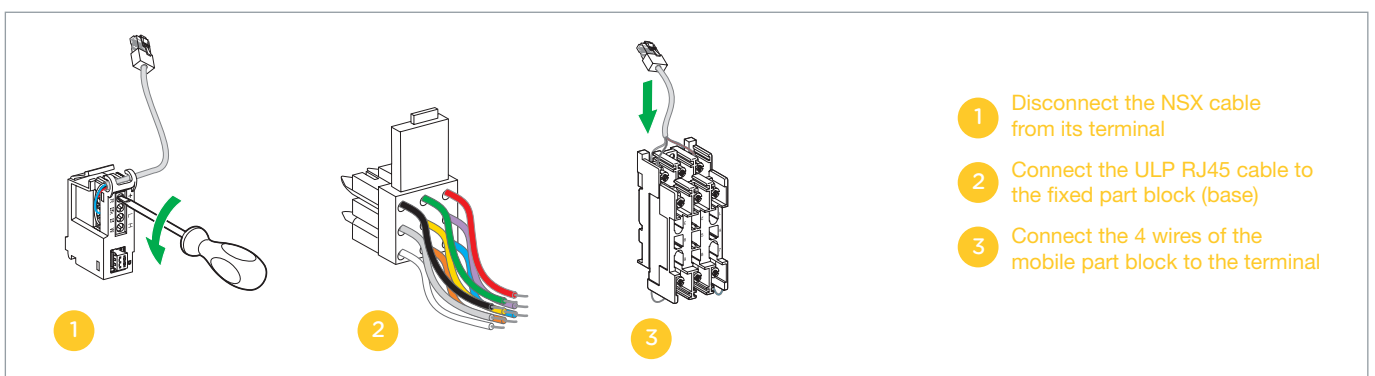
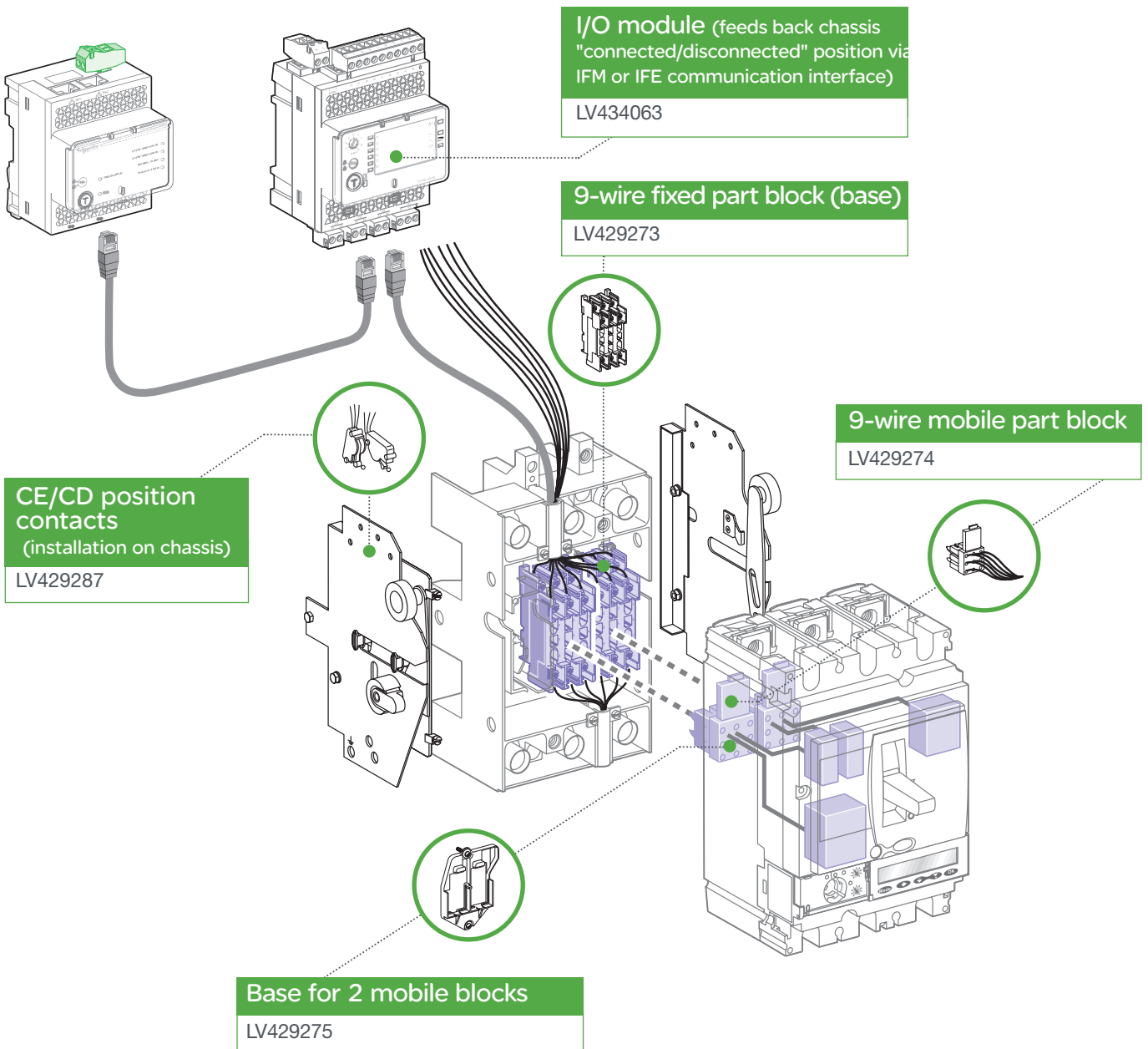
BSCM module
LV434205

For any circuit breaker control unit
TMD, TMG, MA, Micrologic



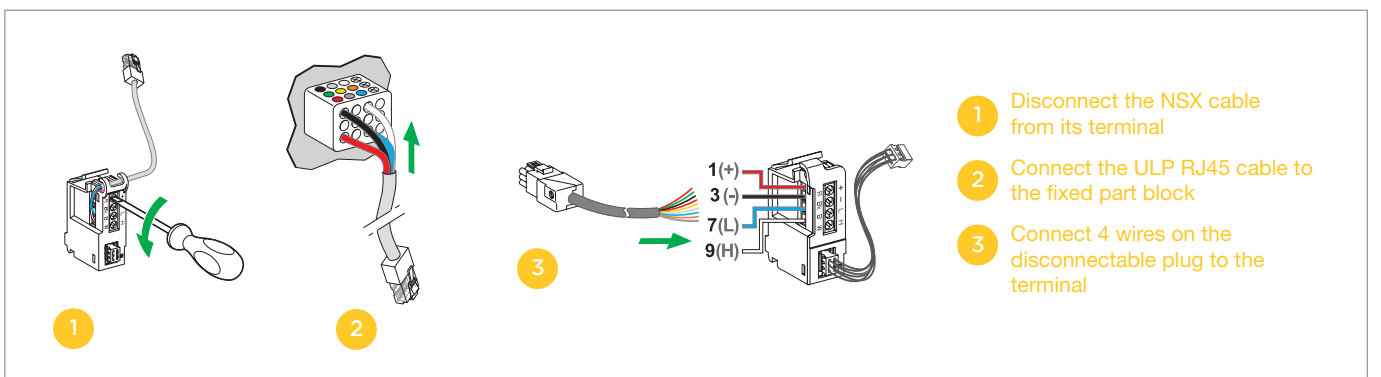
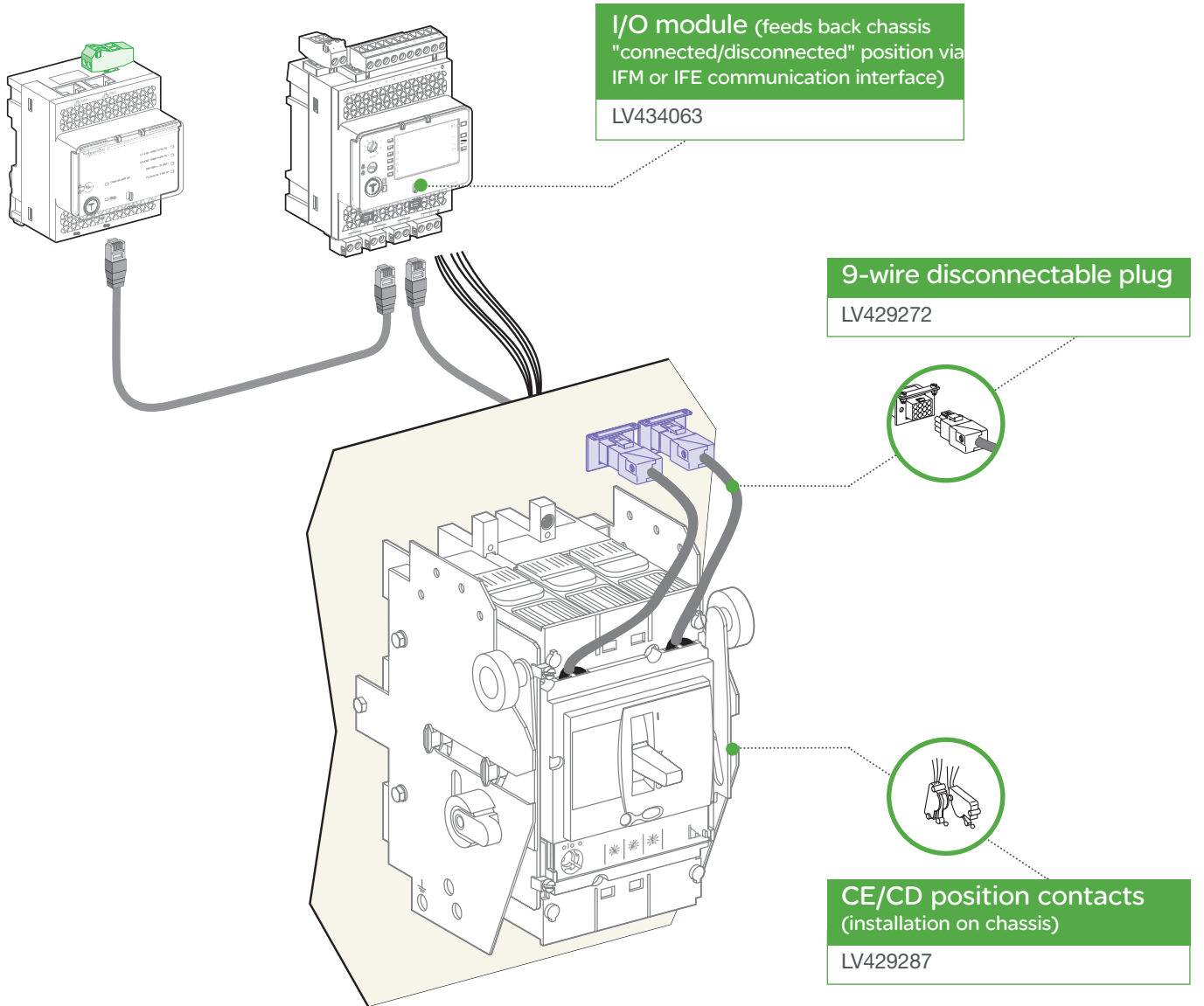
Drawout device (base or chassis)

List of references



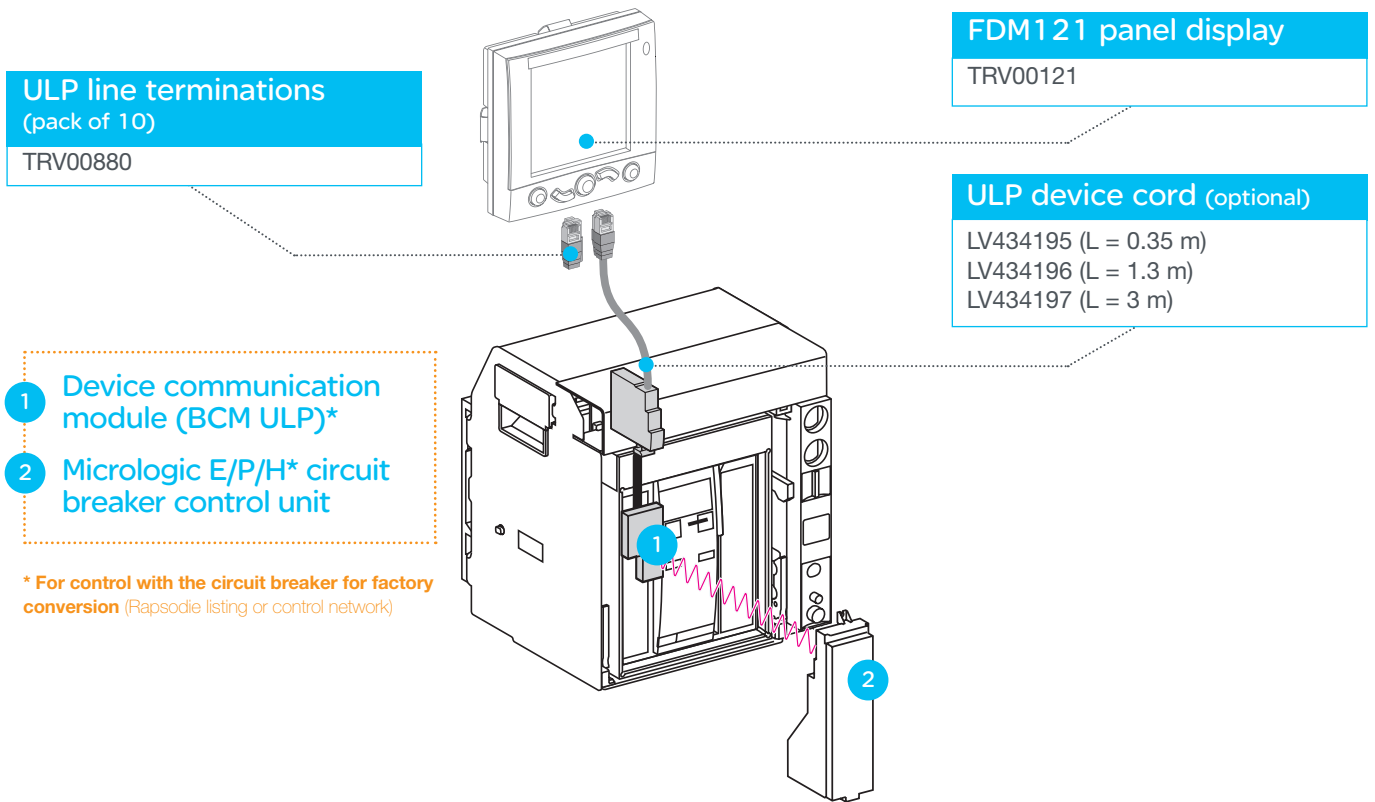
Drawout device (base or chassis)

List of references

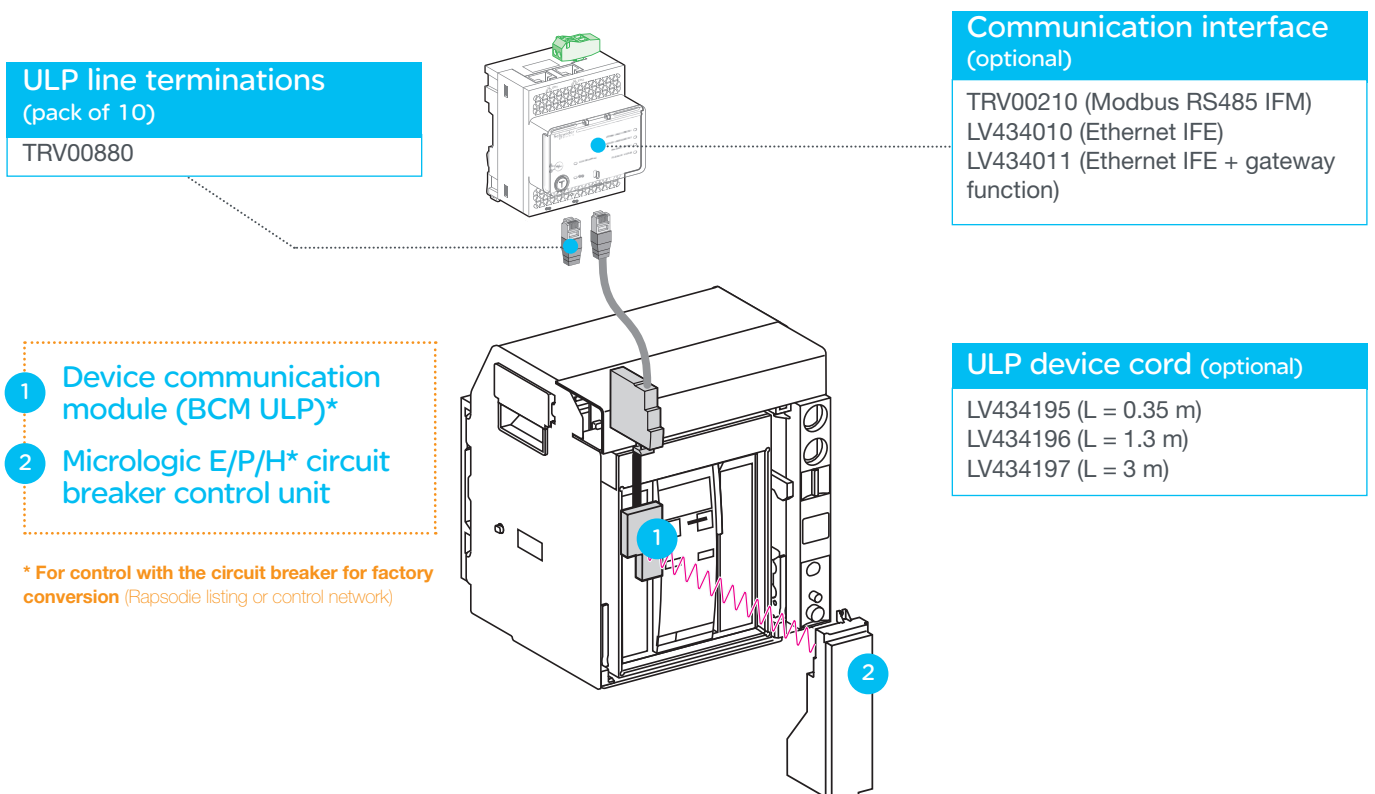


Metering, Measurement, Quality and Availability

Fixed device, front panel display

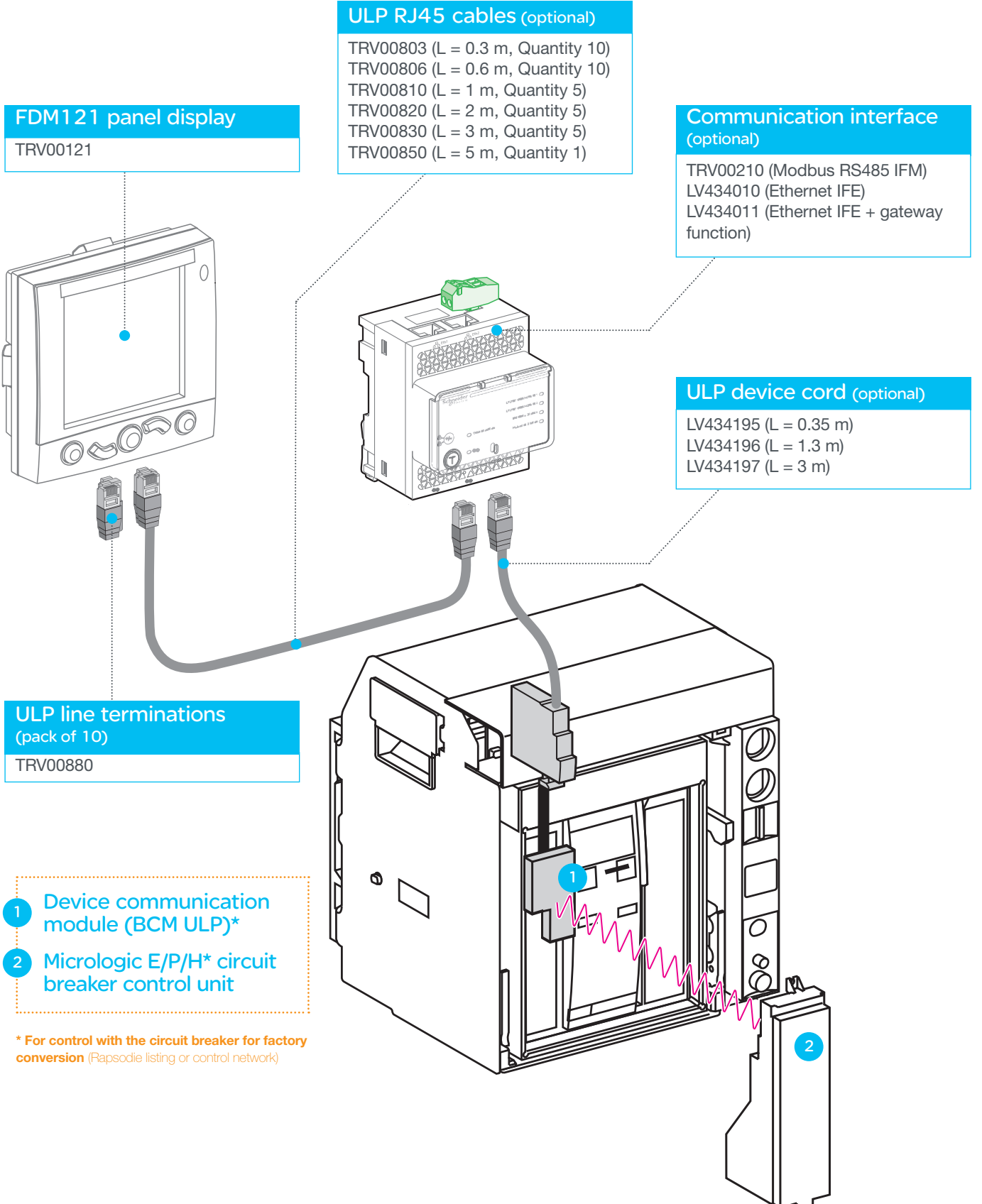


Fixed device, remote view



Metering, Measurement, Quality and Availability

Fixed device, front panel display and remote view



FDM121 panel display
TRV00121

ULP RJ45 cables (optional)
 TRV00803 (L = 0.3 m, Quantity 10)
 TRV00806 (L = 0.6 m, Quantity 10)
 TRV00810 (L = 1 m, Quantity 5)
 TRV00820 (L = 2 m, Quantity 5)
 TRV00830 (L = 3 m, Quantity 5)
 TRV00850 (L = 5 m, Quantity 1)

Communication interface (optional)
 TRV00210 (Modbus RS485 IFM)
 LV434010 (Ethernet IFE)
 LV434011 (Ethernet IFE + gateway function)

ULP device cord (optional)
 LV434195 (L = 0.35 m)
 LV434196 (L = 1.3 m)
 LV434197 (L = 3 m)

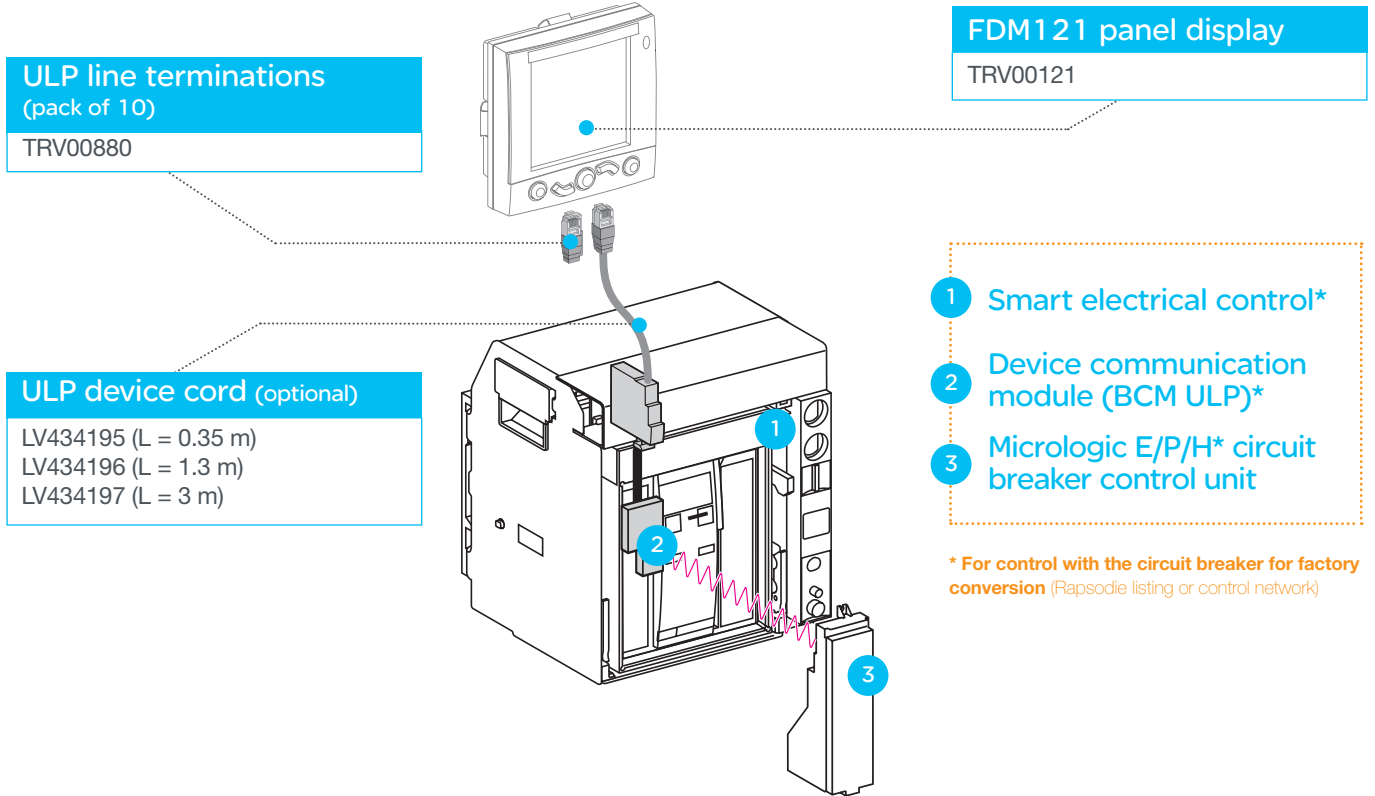
ULP line terminations (pack of 10)
TRV00880

- 1 Device communication module (BCM ULP)*
- 2 Micrologic E/P/H* circuit breaker control unit

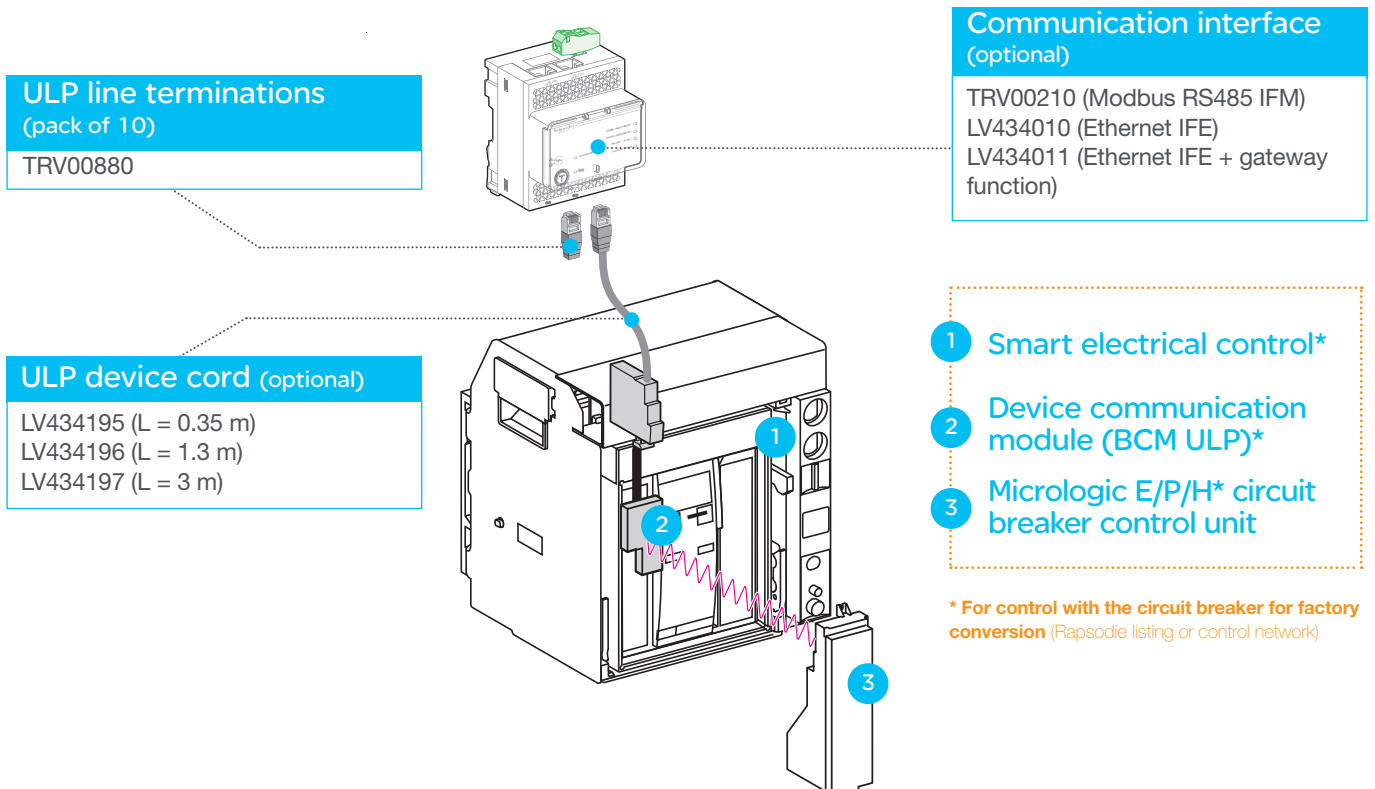
* For control with the circuit breaker for factory conversion (Rapsodie listing or control network)

Metering, Measurement, Quality, Availability and Control

Fixed device, front panel display

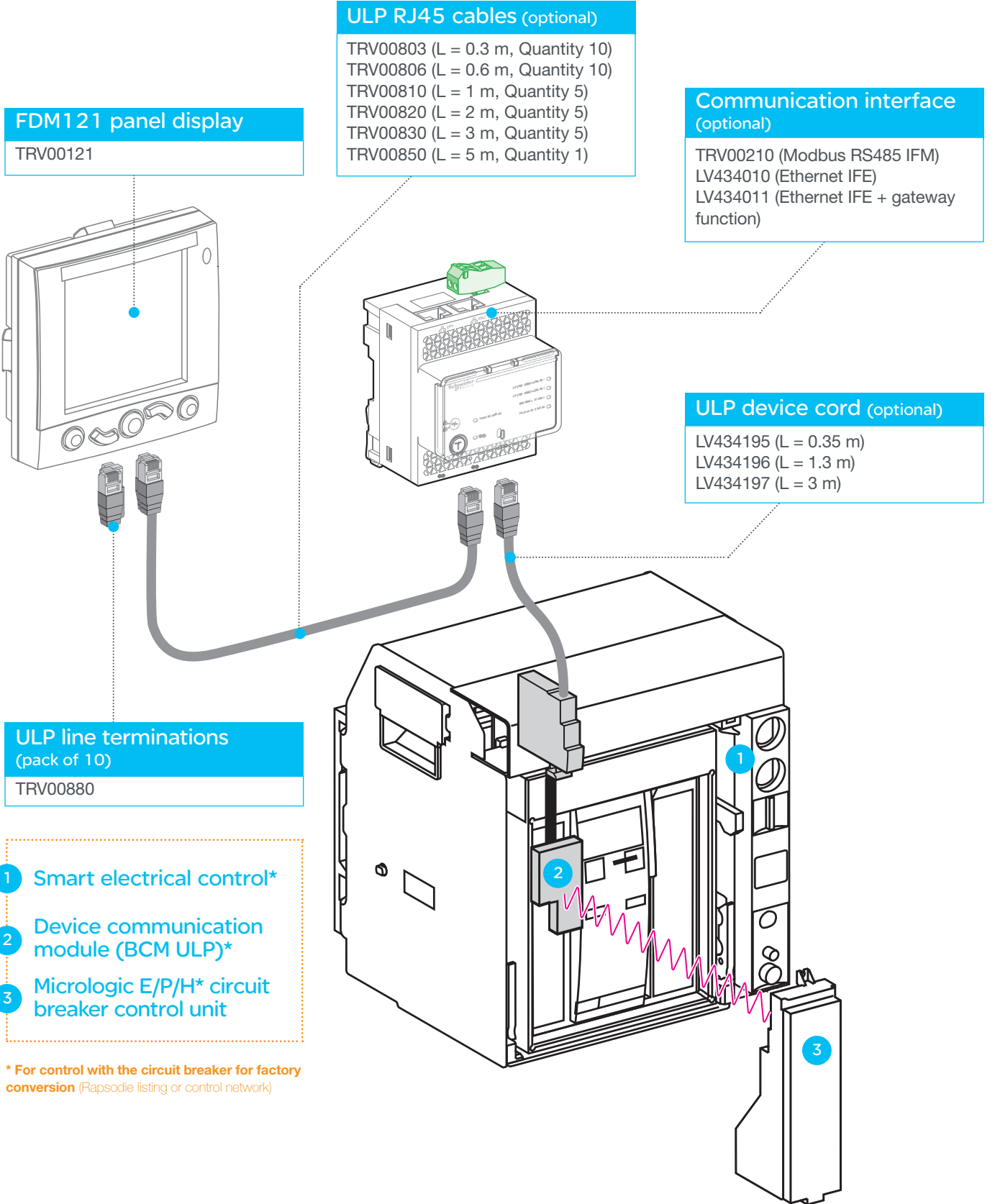


Fixed device, remote view



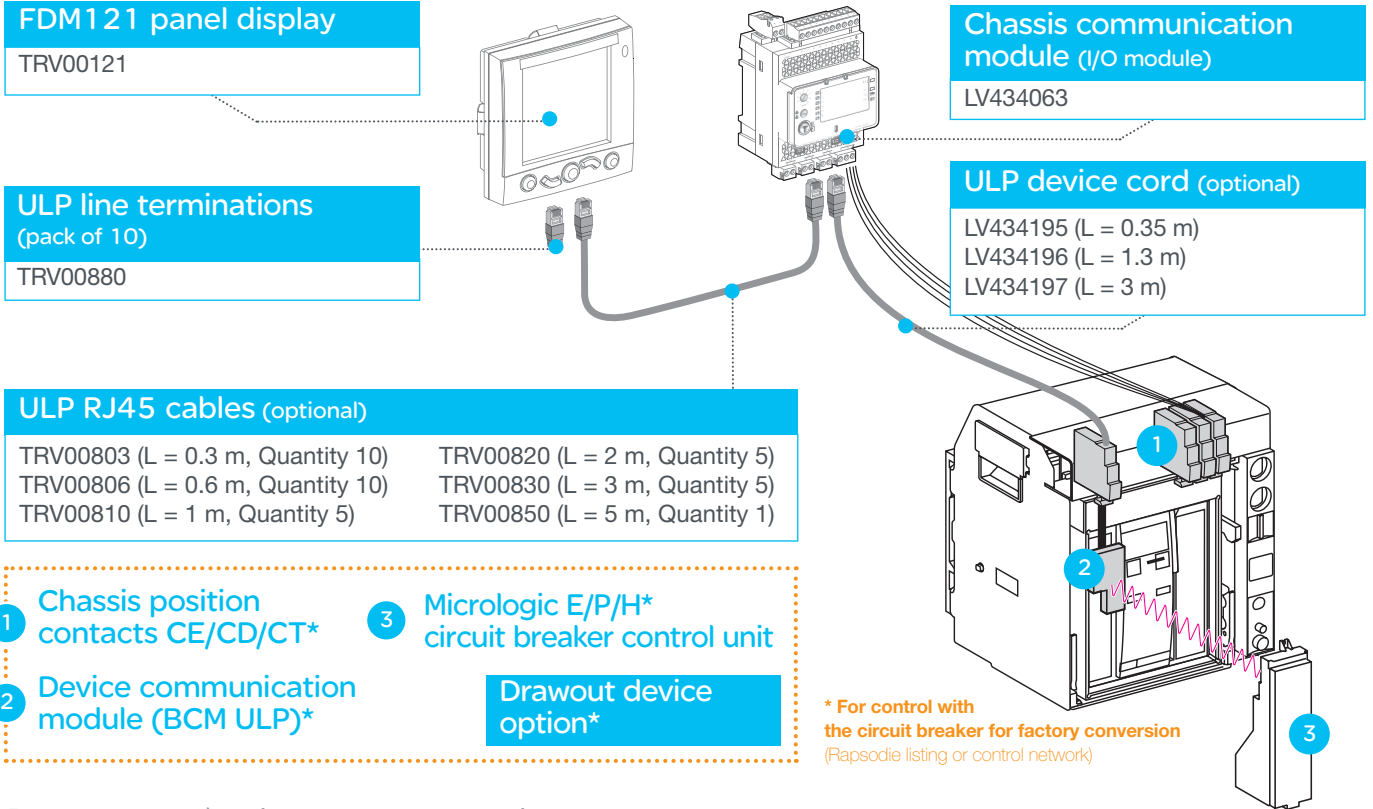
Metering, Measurement, Quality, Availability and Control

Fixed device, front panel display and remote view

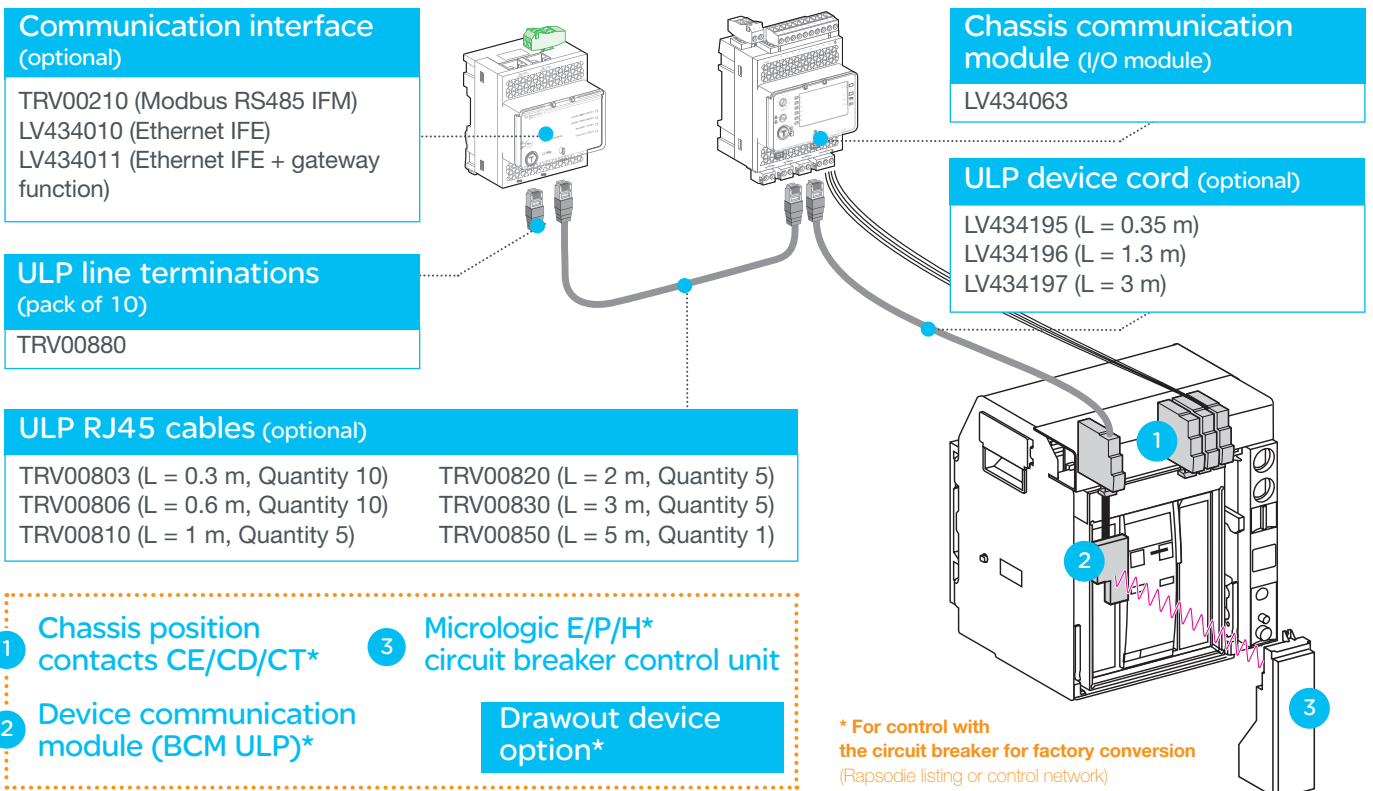


Metering, Measurement, Quality and Availability

Drawout device, front panel display

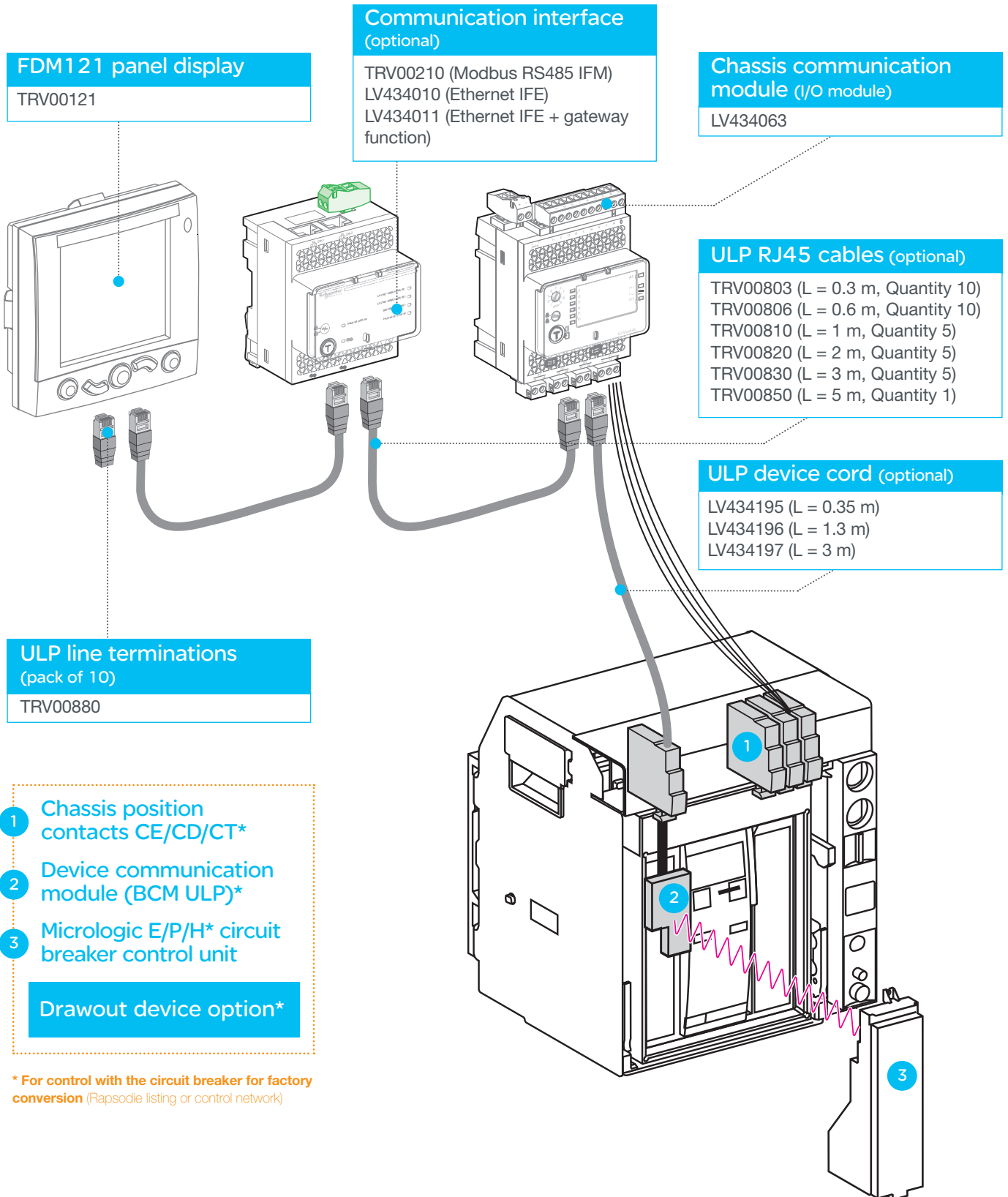


Drawout device, remote view



Metering, Measurement, Quality and Availability

Drawout device, front panel display and remote view



FDM121 panel display
TRV00121

Communication interface (optional)
TRV00210 (Modbus RS485 IFM)
LV434010 (Ethernet IFE)
LV434011 (Ethernet IFE + gateway function)

Chassis communication module (I/O module)
LV434063

ULP RJ45 cables (optional)
TRV00803 (L = 0.3 m, Quantity 10)
TRV00806 (L = 0.6 m, Quantity 10)
TRV00810 (L = 1 m, Quantity 5)
TRV00820 (L = 2 m, Quantity 5)
TRV00830 (L = 3 m, Quantity 5)
TRV00850 (L = 5 m, Quantity 1)

ULP device cord (optional)
LV434195 (L = 0.35 m)
LV434196 (L = 1.3 m)
LV434197 (L = 3 m)

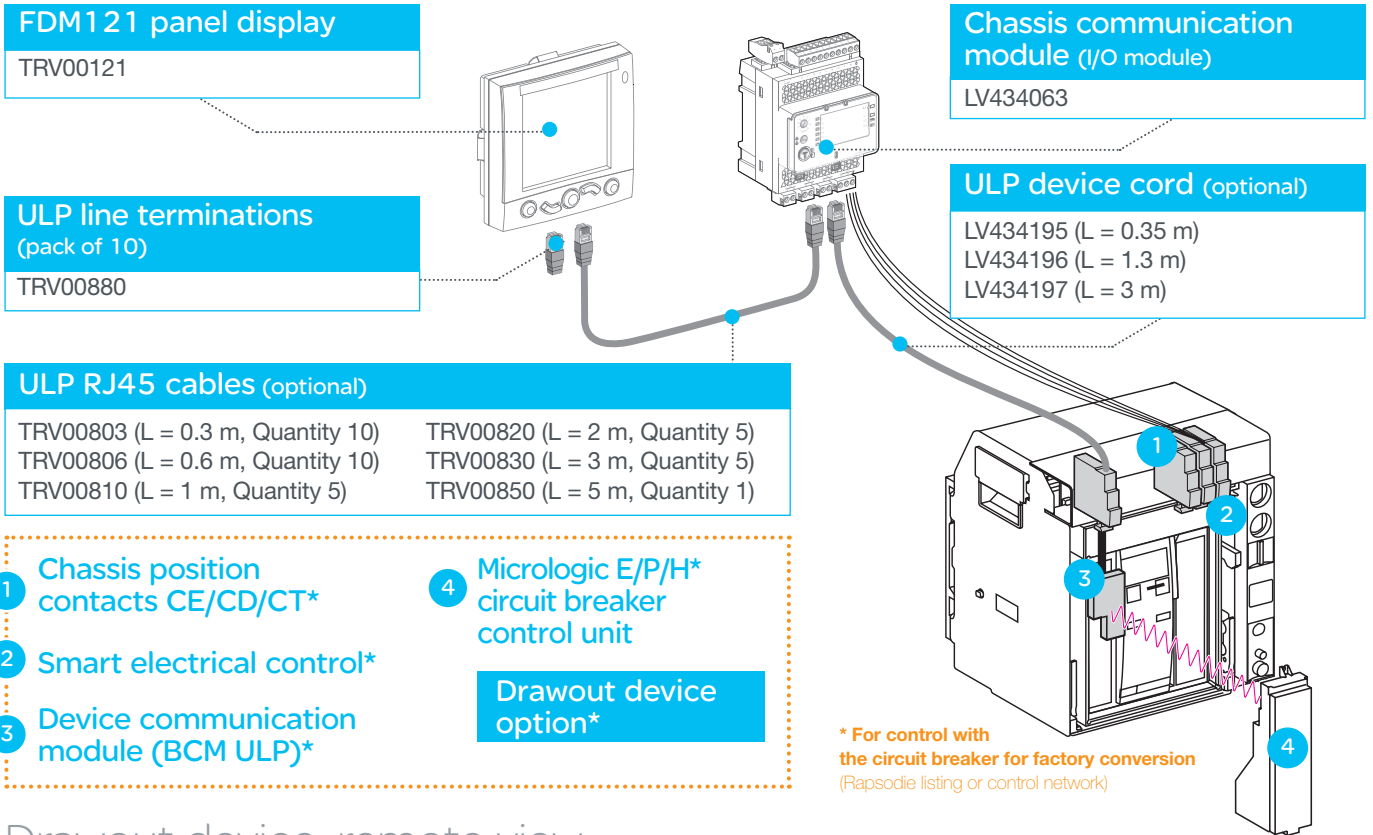
ULP line terminations (pack of 10)
TRV00880

- 1 Chassis position contacts CE/CD/CT*
 - 2 Device communication module (BCM ULP)*
 - 3 Micrologic E/P/H* circuit breaker control unit
- Drawout device option***

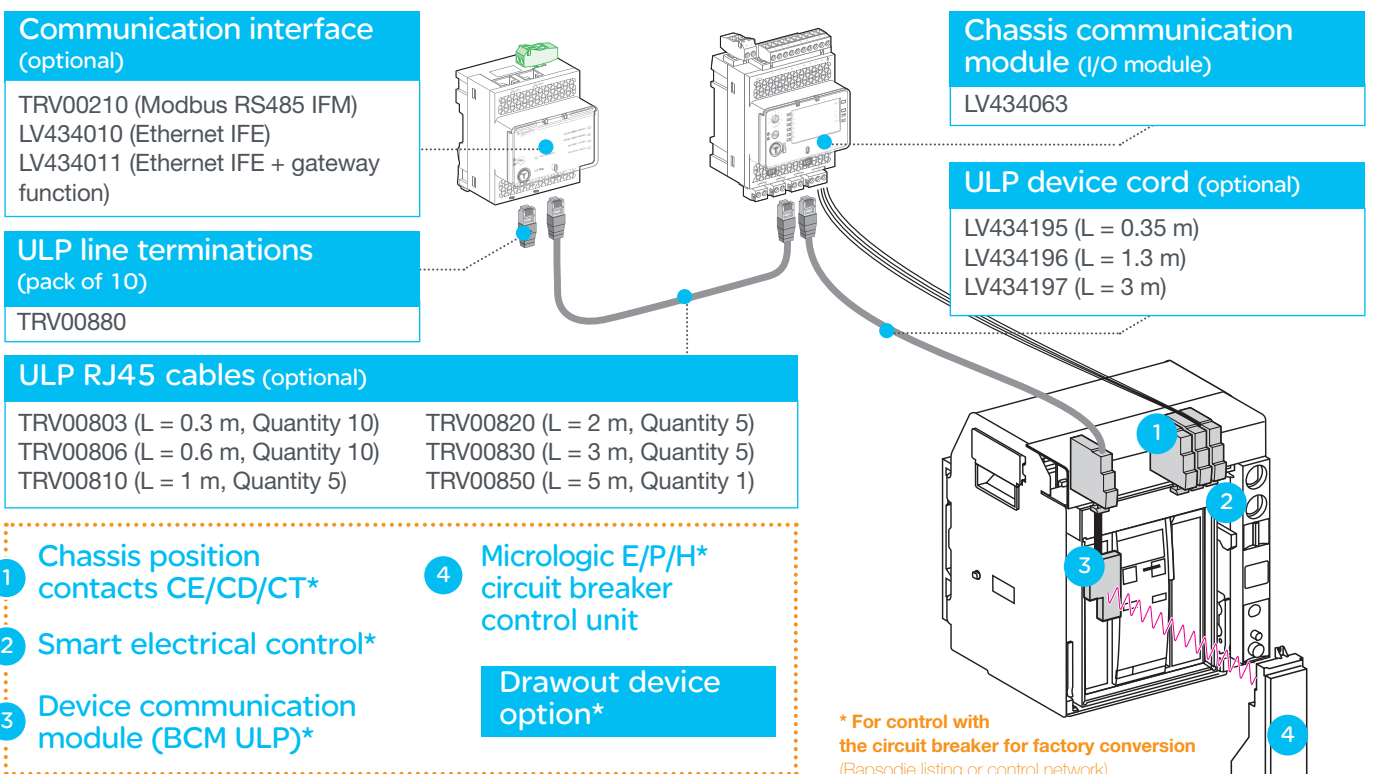
* For control with the circuit breaker for factory conversion (Rapsodie listing or control network)

Metering, Measurement, Quality, Availability and Control

Drawout device, front panel display

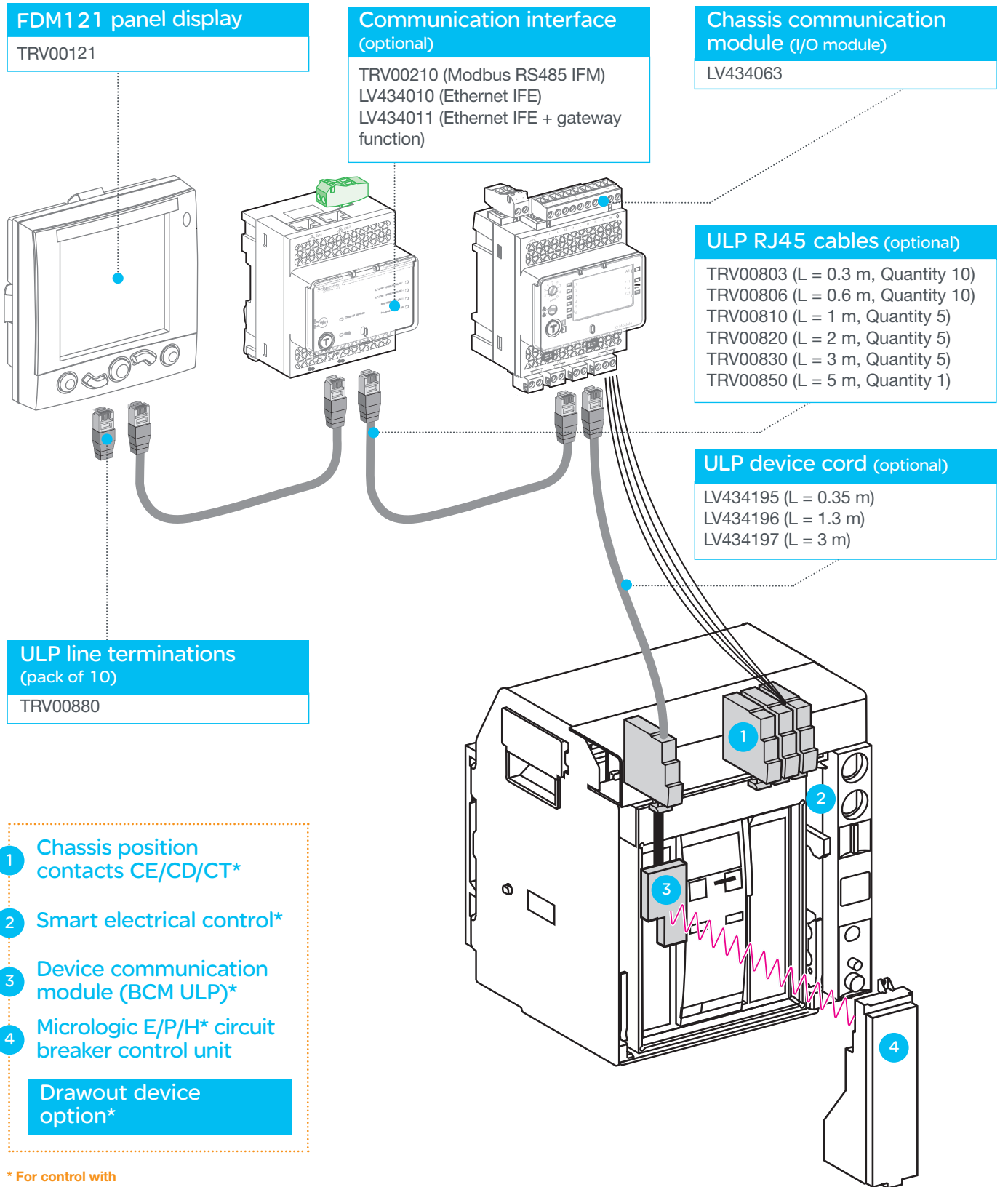


Drawout device, remote view



Metering, Measurement, Quality, Availability and Control

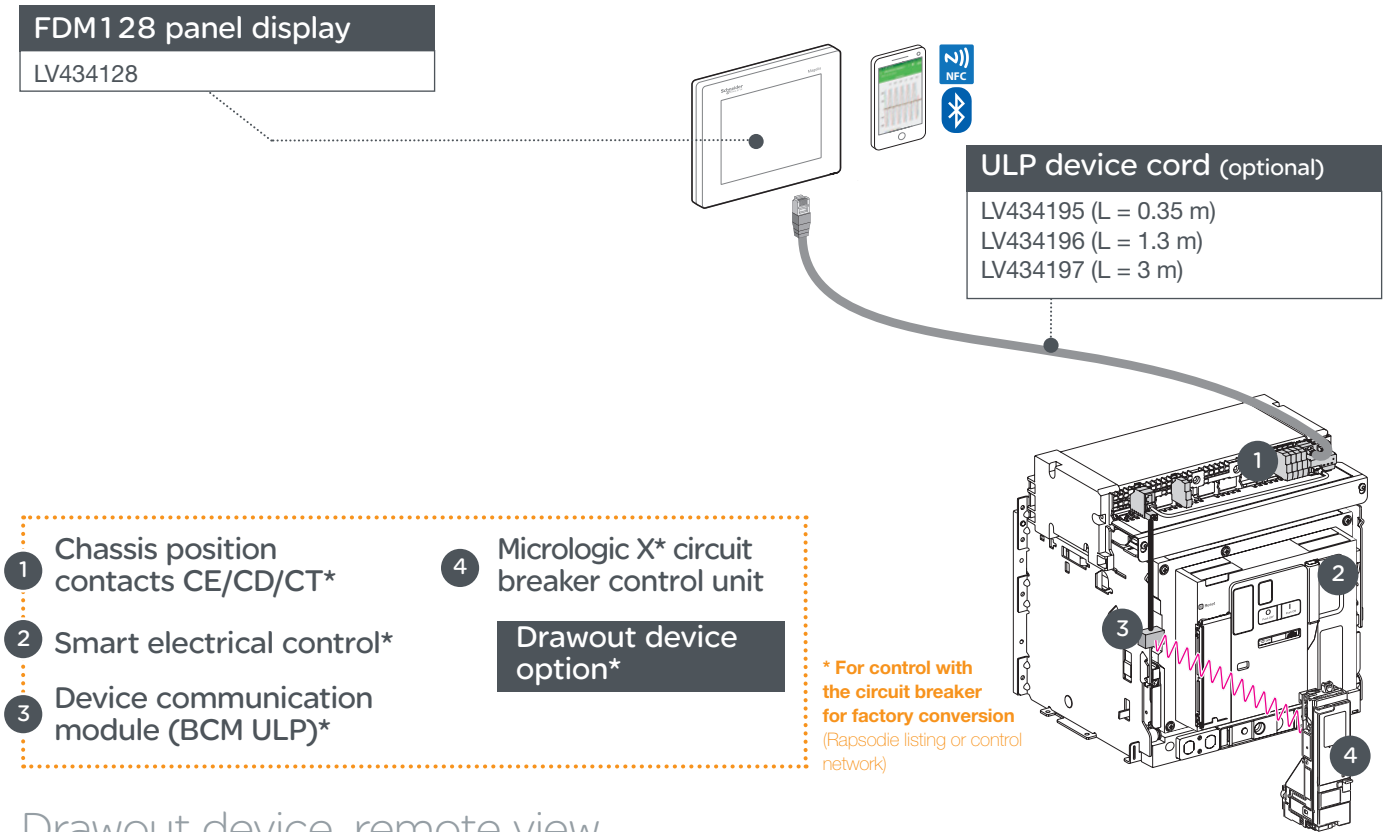
Drawout device, front panel display and remote view



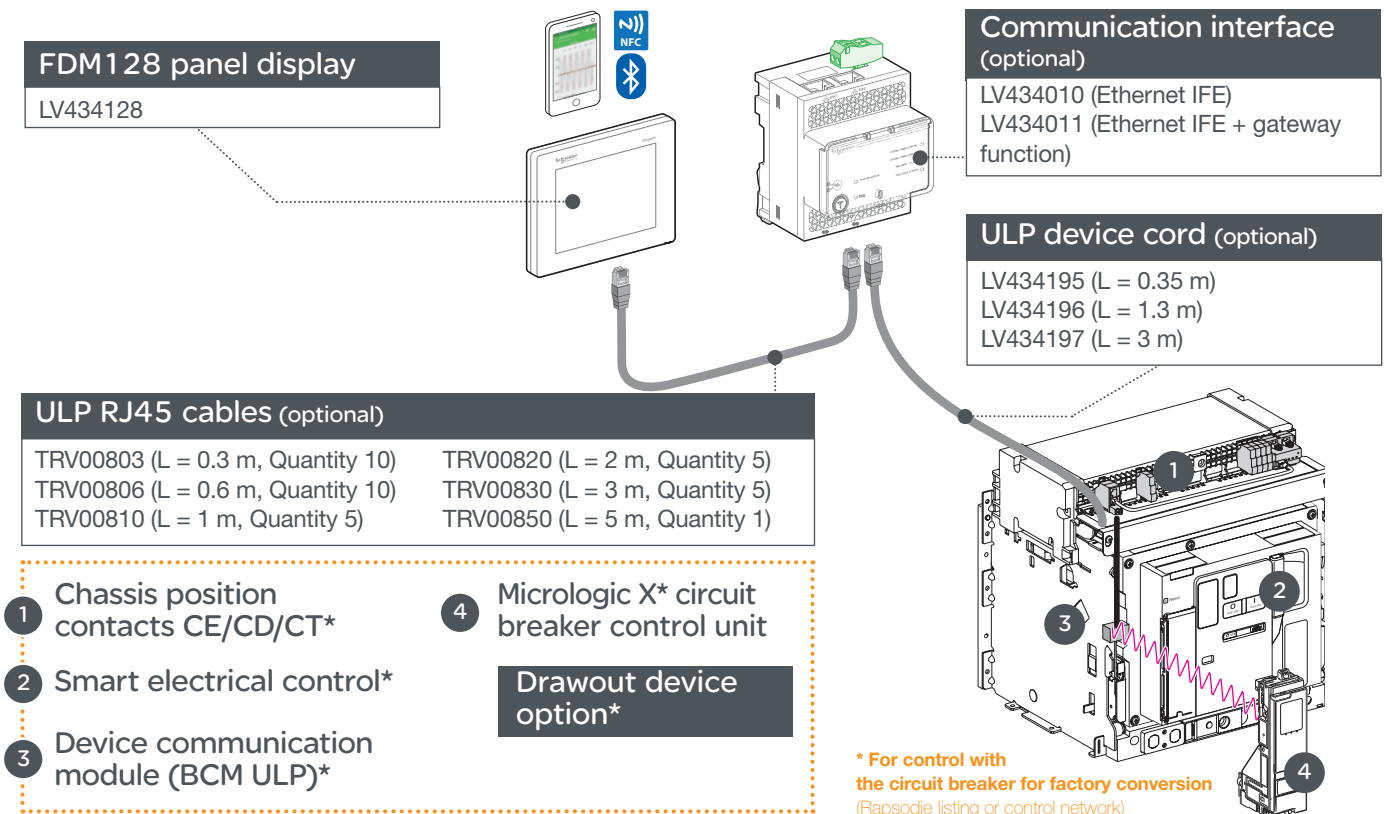
* For control with the circuit breaker for factory conversion (Rapsodie listing or control network)

Metering, Measurement, Quality, Availability and Control

Drawout device, front panel display

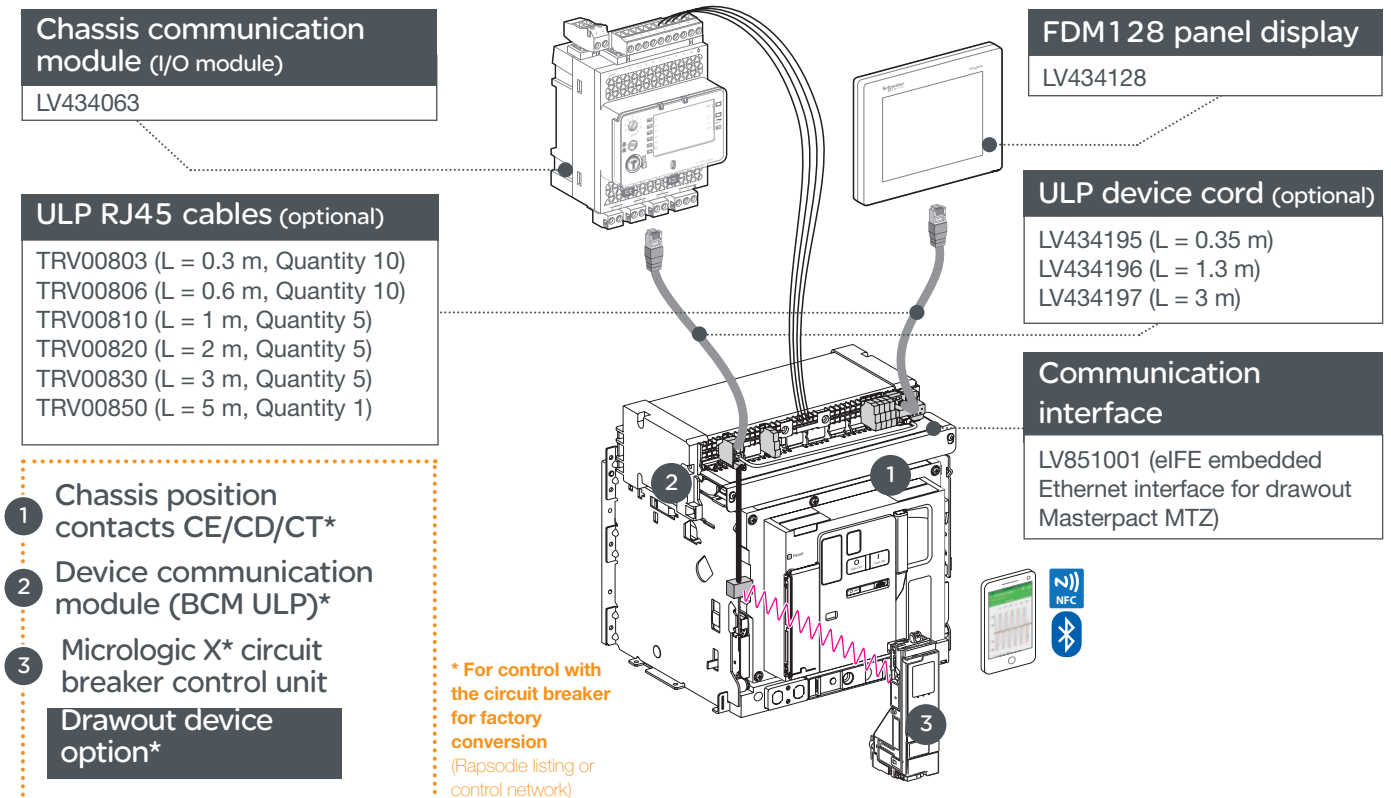


Drawout device, remote view

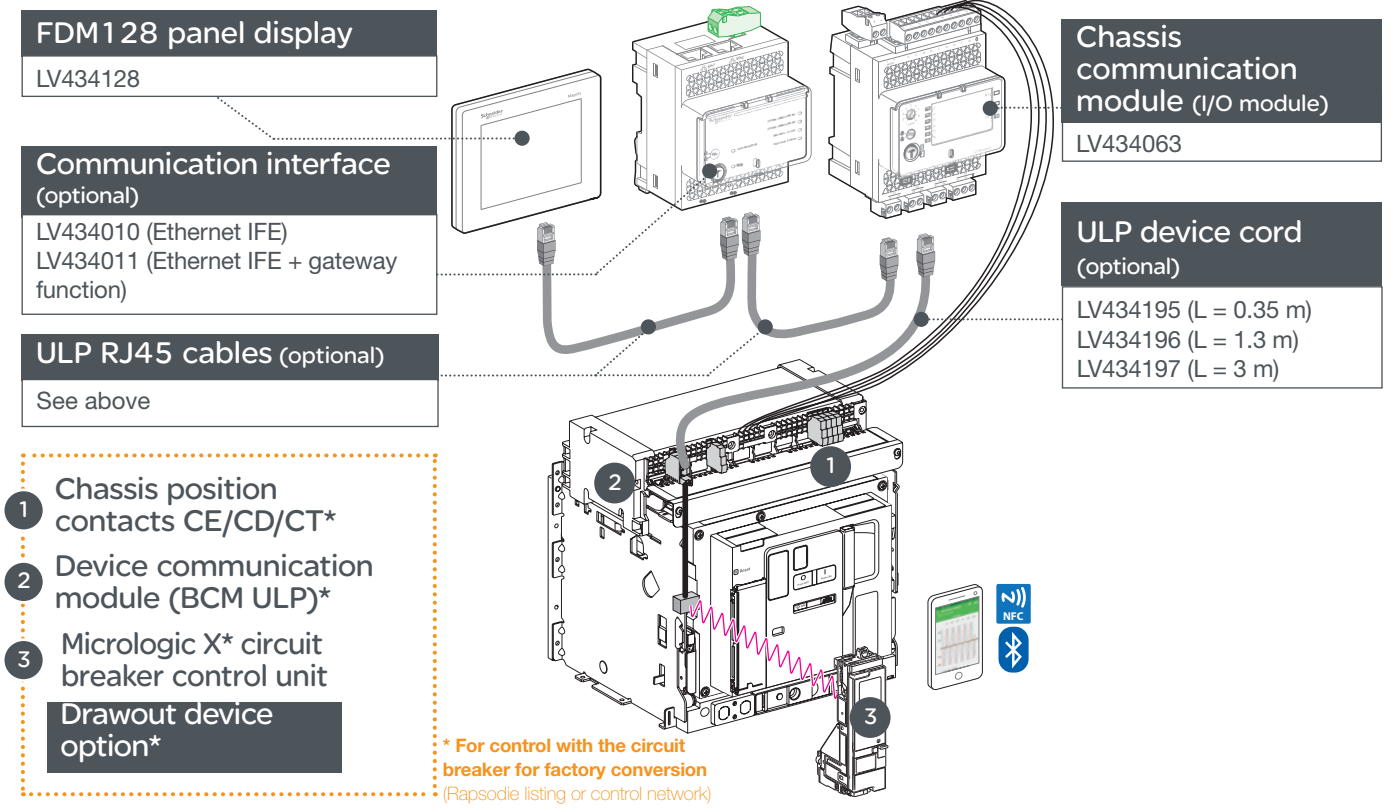


Metering, Measurement, Quality and Availability

Drawout device, front panel display

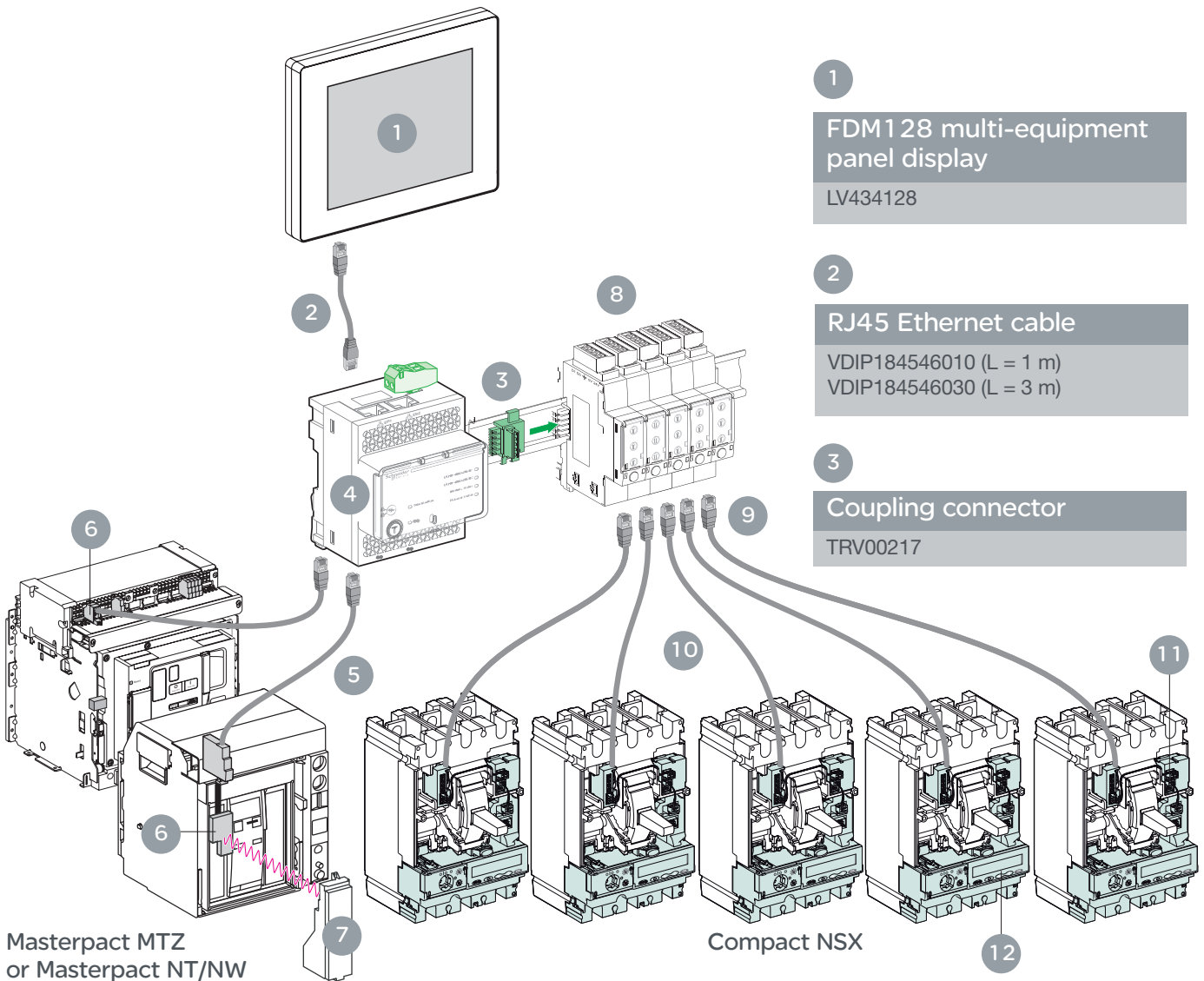


drawout device, remote view



Multi-product architectures

Architecture example



1
FDM128 multi-equipment panel display
LV434128

2
RJ45 Ethernet cable
VDIP184546010 (L = 1 m)
VDIP184546030 (L = 3 m)

3
Coupling connector
TRV00217

Masterpact MTZ
or Masterpact NT/NW

Compact NSX

4
Ethernet interface
LV434011 (IFE switchboard server)

5
Compact NS and Masterpact NT/NW cord
LV434195 (L = 0.35 m)
LV434196 (L = 1.3 m)
LV434197 (L = 3 m)

6
Communication option
BCM ULP
(option for Masterpact NT, NW)
ULP port (option for Masterpact MTZ)

7
Circuit breaker control unit
Micrologic E, P or H
for Masterpact NT/NW
Micrologic X for Mastepact MTZ

8
Modbus RS485 interface
TRV00210

9
ULP line terminations
(pack of 10)
TRV00880

10
NSX cable (optional)
LV434200 (L = 0.35 m)
LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

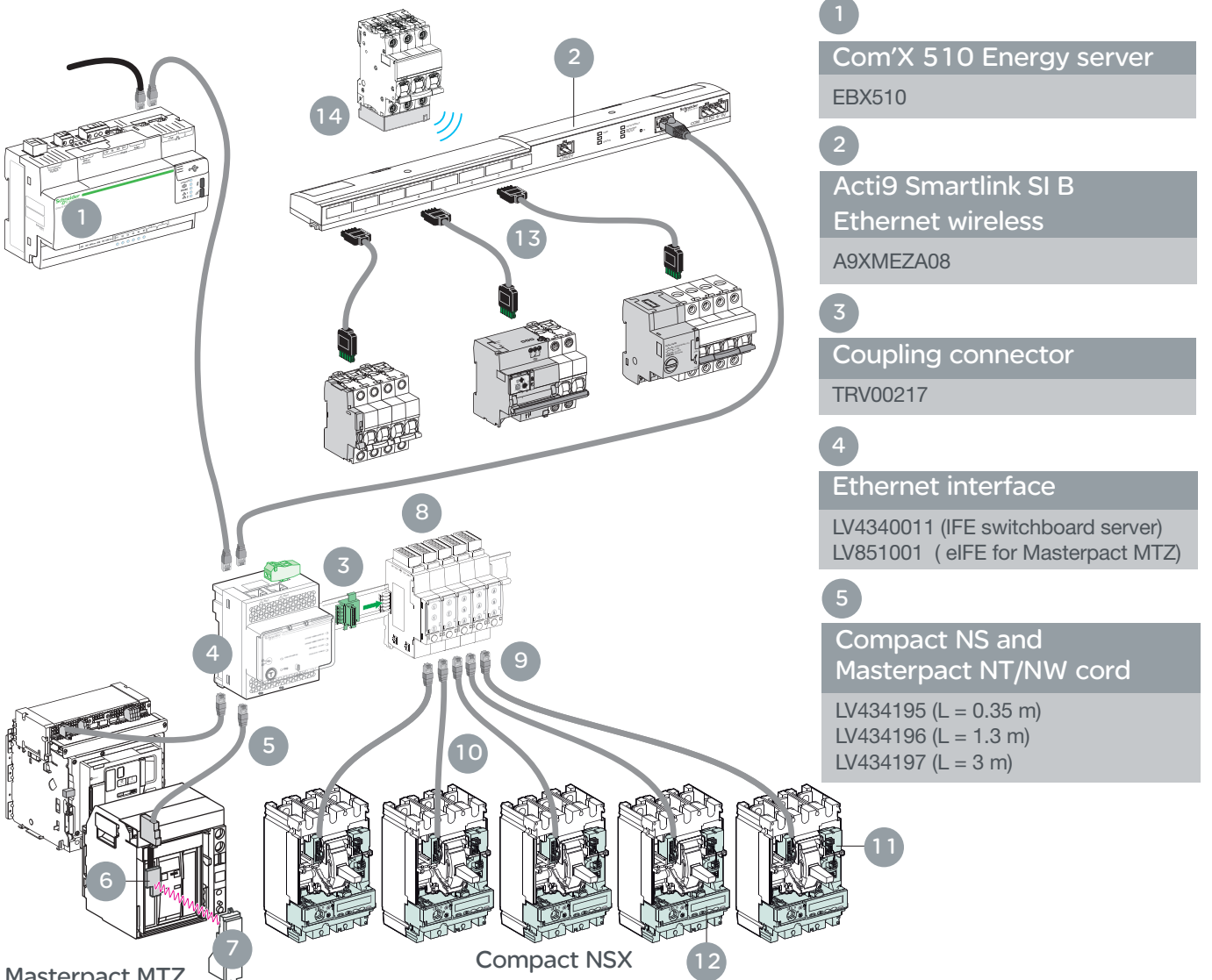
11
BSCM module
LV434205

12
Micrologic E circuit breaker control unit

Energy and assets management

Multi-product architectures

Architecture example



1
Com'X 510 Energy server
EBX510

2
Acti9 Smartlink SI B
Ethernet wireless
A9XMEZA08

3
Coupling connector
TRV00217

4
Ethernet interface
LV4340011 (IFE switchboard server)
LV851001 (eIFE for Masterpact MTZ)

5
Compact NS and
Masterpact NT/NW cord
LV434195 (L = 0.35 m)
LV434196 (L = 1.3 m)
LV434197 (L = 3 m)

Masterpact MTZ
or Masterpact NT/NW

6
Communication option
BCM ULP (option for Masterpact NT, NW)
ULP port (option for Masterpact MTZ)

7
Circuit breaker control unit
Micrologic E, P or H
for Masterpact NT/NW
Micrologic X for Mastepact MTZ

8
Modbus RS485 interface
TRV00210

9
ULP line terminations
(pack of 10)
TRV00880

10
NSX cable (optional)
LV434200 (L = 0.35 m)
LV434201 (L = 1.3 m)
LV434202 (L = 3 m)

11
BSCM module
LV434205

12
Micrologic E circuit breaker
control unit

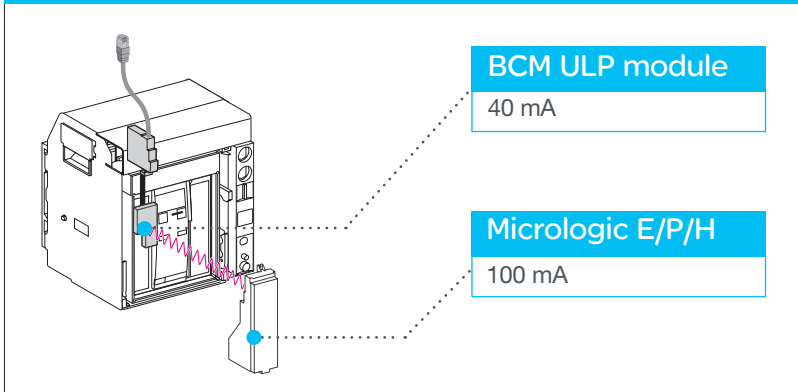
13
2 connectors Smartlink cable
A9XCAS06 (L=100 mm)
A9XCAM06 (L=160 mm)
A9XCAH06 (L=450 mm)
A9XCAL06 (L=870 mm)

14
Powertag power sensor
for modular circuit breaker

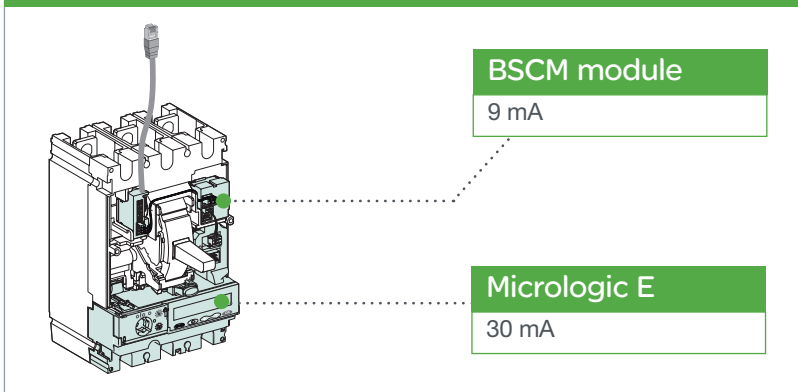
24 VDC power supply

24 VDC and supply unit consumption

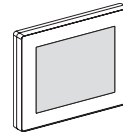
Compact NS, Masterpact NT/NW



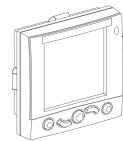
Compact NSX



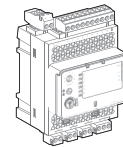
Shared accessories



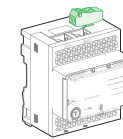
FDM128 display
285 mA



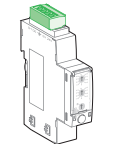
FDM121 display
21 mA



I/O module
165 mA



IFE Ethernet interface
120 mA



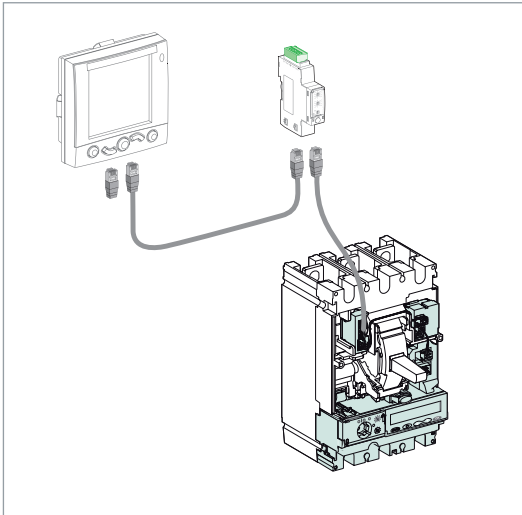
RS485 IFM interface
21 mA

24 V DC power supply unit	AD range	Phaseo range
Nominal current	1A	3A
Primary surge cat.	IV	II
24/30 V DC input	54440	/
48/60 V DC input	54441	/
100/125 V DC input	54442	/
110/130 V AC input	54443	ABL8RPS24030
200/240 V AC input	54444	
380/415 V AC input	54445	

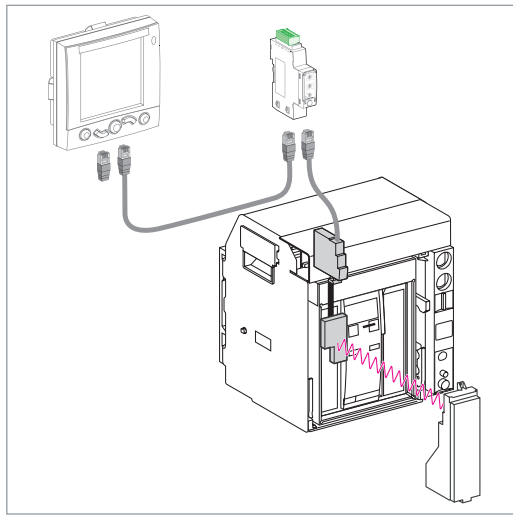
24 VDC power supply calculation

Single product calculation examples

Compact NSX with RS485 interface and display



Compact NS with RS485 interface and display

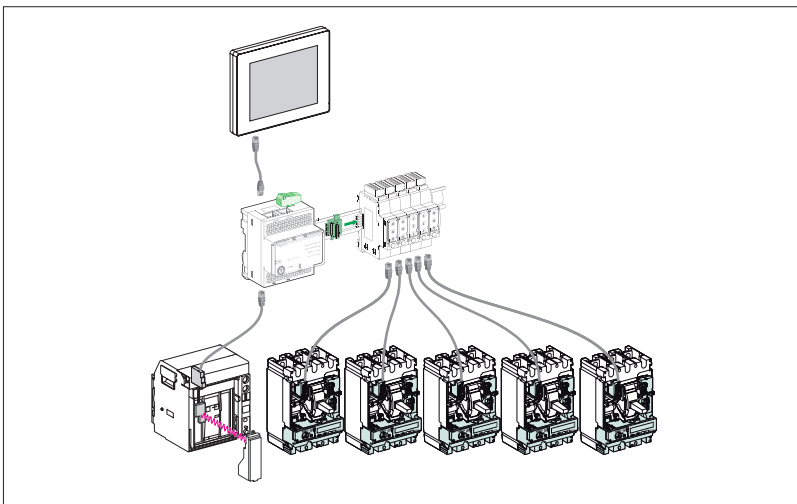


Product	Consumption
FD121 display	21 mA
RS485 IFM interface	21 mA
BSCM module	9 mA
Micrologic circuit breaker control unit	30 mA
Total	81 mA

Product	Consumption
FD121 display	21 mA
RS485 IFM interface	21 mA
BCM ULP module	40 mA
Micrologic circuit breaker control unit	100 mA
Total	182 mA

Multi-product calculation example

Compact NS with IFE Ethernet interface, 5 Compact NSX with RS485 IFM interfaces, 1 x FDM128 front panel display



Product	Consumption	Qty
FDM128 display	285 mA	1
IFE Ethernet interface	120 mA	1
BCM ULP module	40 mA	1
Micrologic Compact NS	100 mA	1
RS485 IFM interface	21 mA	5
BSCM module	9 mA	5
Micrologic Compact NSX	30 mA	5
Total	845 mA	

Life Is On



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