

Section 6— Interfacing Legacy and New Communications Systems

Introduction

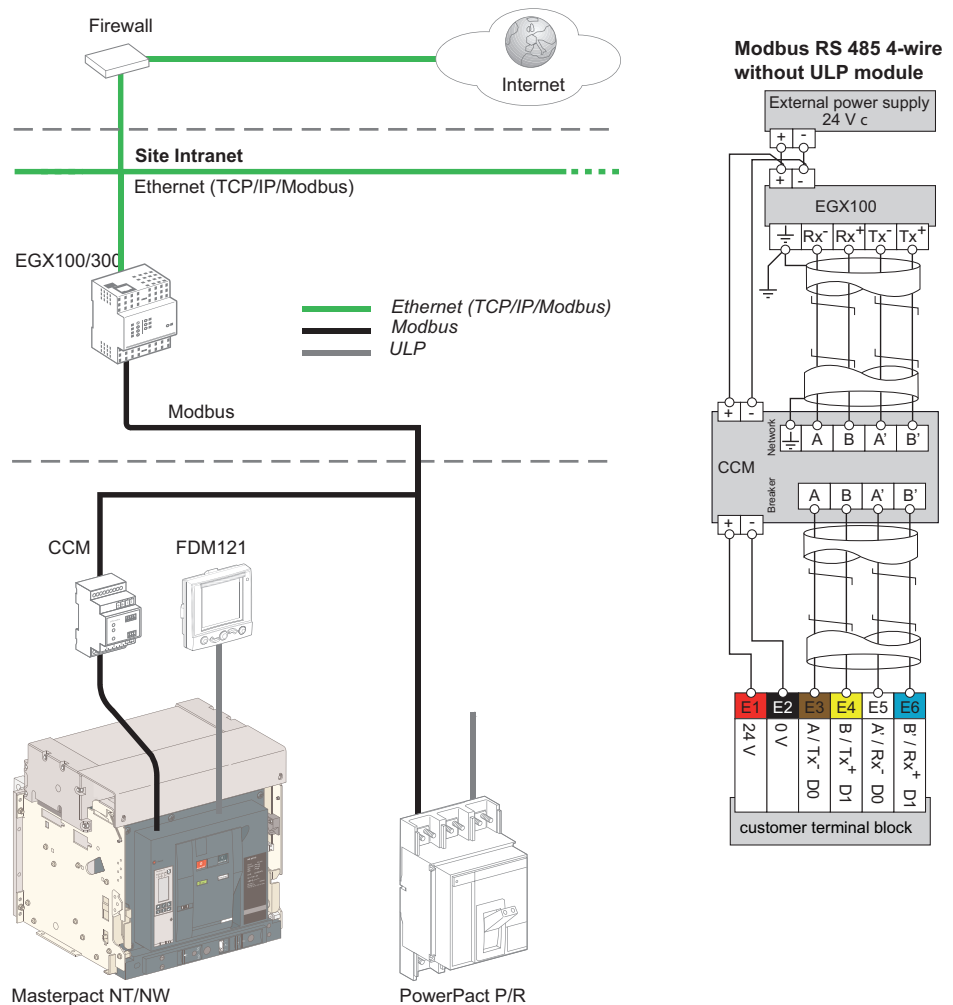
There are thousands of existing installations with Masterpact and PowerPact circuit breakers communicating on four-wire Modbus systems and two-wire Modbus systems without Smart System™ components. This section describes systems that are existing and how to interface the new two-wire systems and Smart System components.

The Smart System communication system is designed to connect installations to real savings in three steps: Measure, connect, and save using Smart System components which include Micrologic trip units, display modules (FDM121 and FDM128), and communication devices (IO module, IFE module, IFM module). See 0613IB1313 Communication Guide for more information.

This section will also describe how to replace existing communication devices to keep your existing communication system functioning properly.

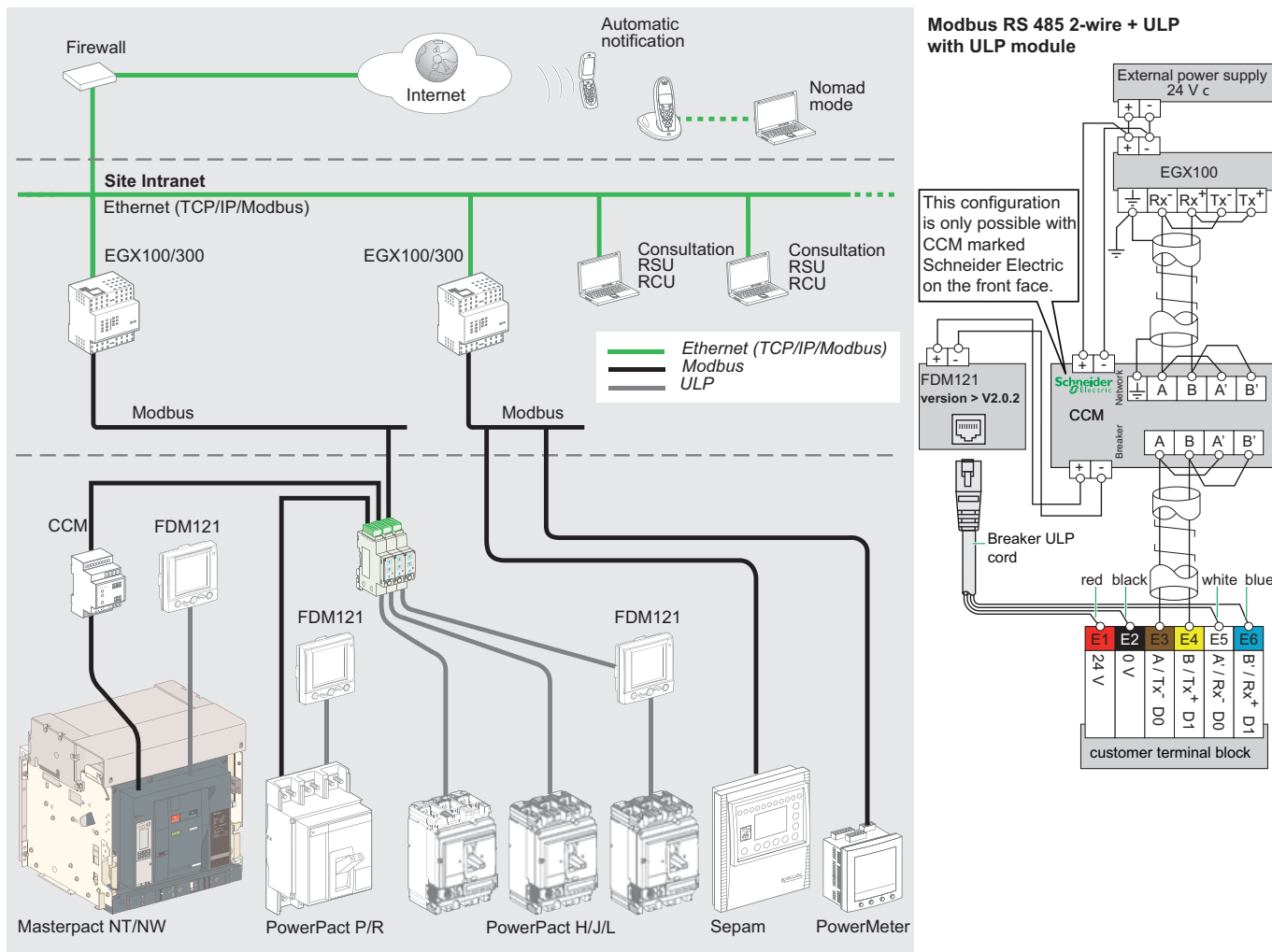
Typical Communication System Diagrams

Figure 6 – Masterpact and PowerPact P/R Circuit Breakers (Four-Wire System)



These systems were used in switchboards, switchgear and motor control centers and are covered by the information in the other sections of this instruction bulletin.

Figure 7 – Masterpact, PowerPact P/R-Frame in a System with H, J, and L-frame Micrologic (Two-Wire Systems without Smart System Components)



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These systems were used in switchboards and motor control centers where PowerPact H-, J-, and L-frame circuit breakers with Micrologic electronic trip units were added into communication systems with Masterpact and/or PowerPact P- and R-frame circuit breakers. These systems are covered in this instruction, 48940-329-01 *ULP User Guide* and in 48940-313-01 *PowerPact H-, J-, and L-Frame with Micrologic Trip Unit User Guide*.

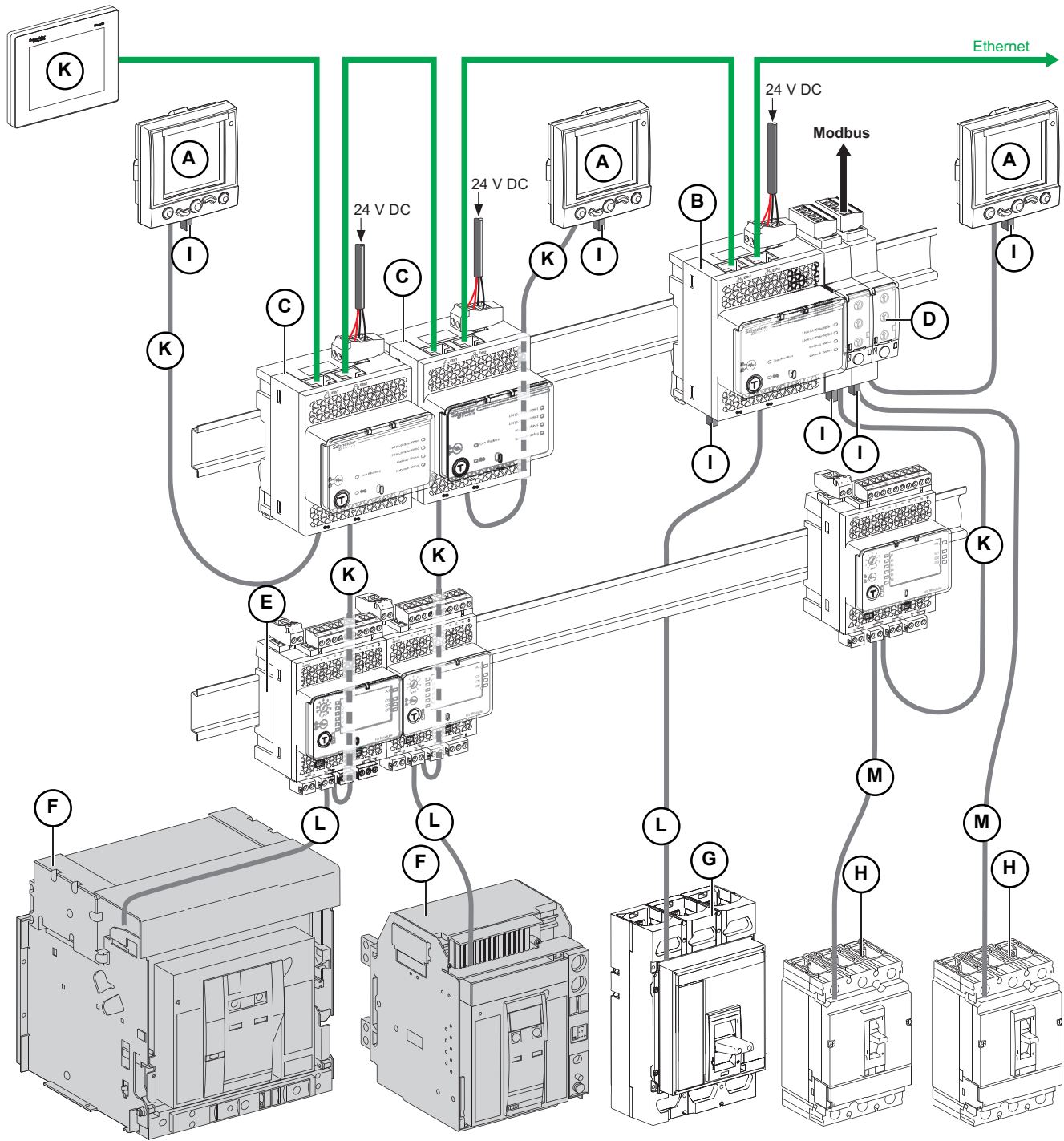
Interfacing New Two-Wire Modbus and Smart Communications Systems with Four-Wire Modbus Systems

Figure 8 shows the new Smart System wiring and components for two-wire Modbus + ULP.

In most cases you can keep the four-wire Modbus system and interface with a new installation at the Ethernet level either at the EGX gateway, IFE module, or at the power meter device. See Figure 9 for recommended connections.

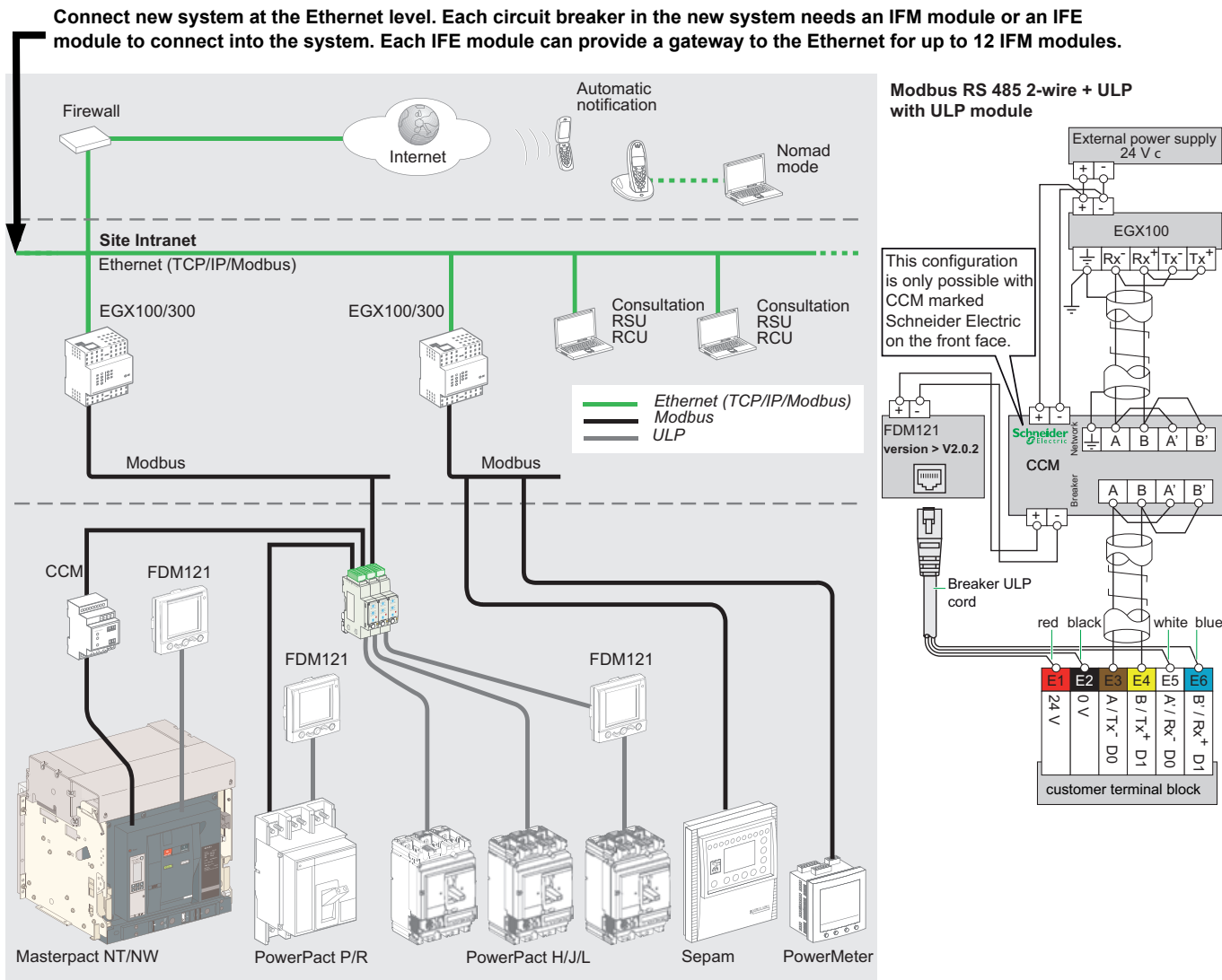
If you want to interface new and existing systems at the Modbus level, See Figure 10 for recommended connections.

Figure 8 – Masterpact and PowerPact P/R Circuit Breakers in a System with H, J, and L-Frame Circuit Breakers with Micrologic Trip Units (Two-Wire Systems with Smart System™ components)



- | | | | |
|--------------------------|-------------------------------------|-------------------------------|-------------|
| A. FDM121 (TRV00121) | E. IO application module (LV434063) | I. ULP termination (TRV00880) | M. NSX cord |
| B. IFE master (LV434011) | F. Masterpact NT/NW | J. FDM128 (LV434128) | |
| C. IFE (LV434010) | G. PowerPact P/R | K. ULP cable | |
| D. IFM (TRV00210) | H. PowerPact H/J/L | L. Circuit breaker ULP cord | |

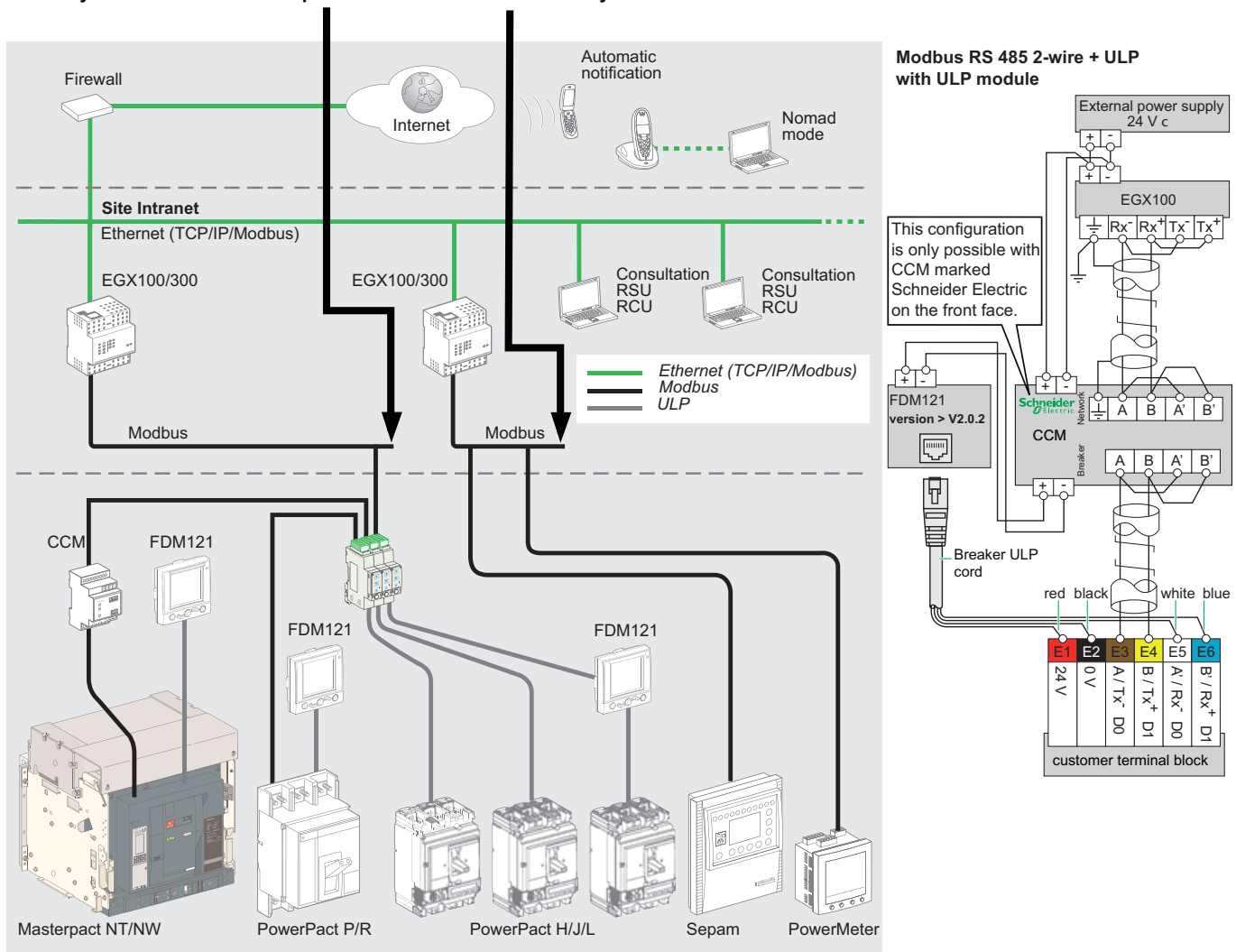
Figure 9 – Masterpact and PowerPact P/R-Frame in a System with H, J, and L-Frame Circuit Breakers with Micrologic Trip Units (Four-Wire and Two-Wire) Connected at Ethernet Level



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Figure 10 – Masterpact and PowerPact P/R-Frame in a System with H, J, and L-Frame Circuit Breakers with Micrologic Trip Units (Four-Wire and Two-Wire) Connected at Modbus Level

Connect new system at the Modbus level. Each circuit breaker in the new system needs an IFM module to connect into the system so that it can be addressed and respond to the Modbus system. Be sure to select Modbus addresses in the new system that do not overlap with the addresses in the old system.



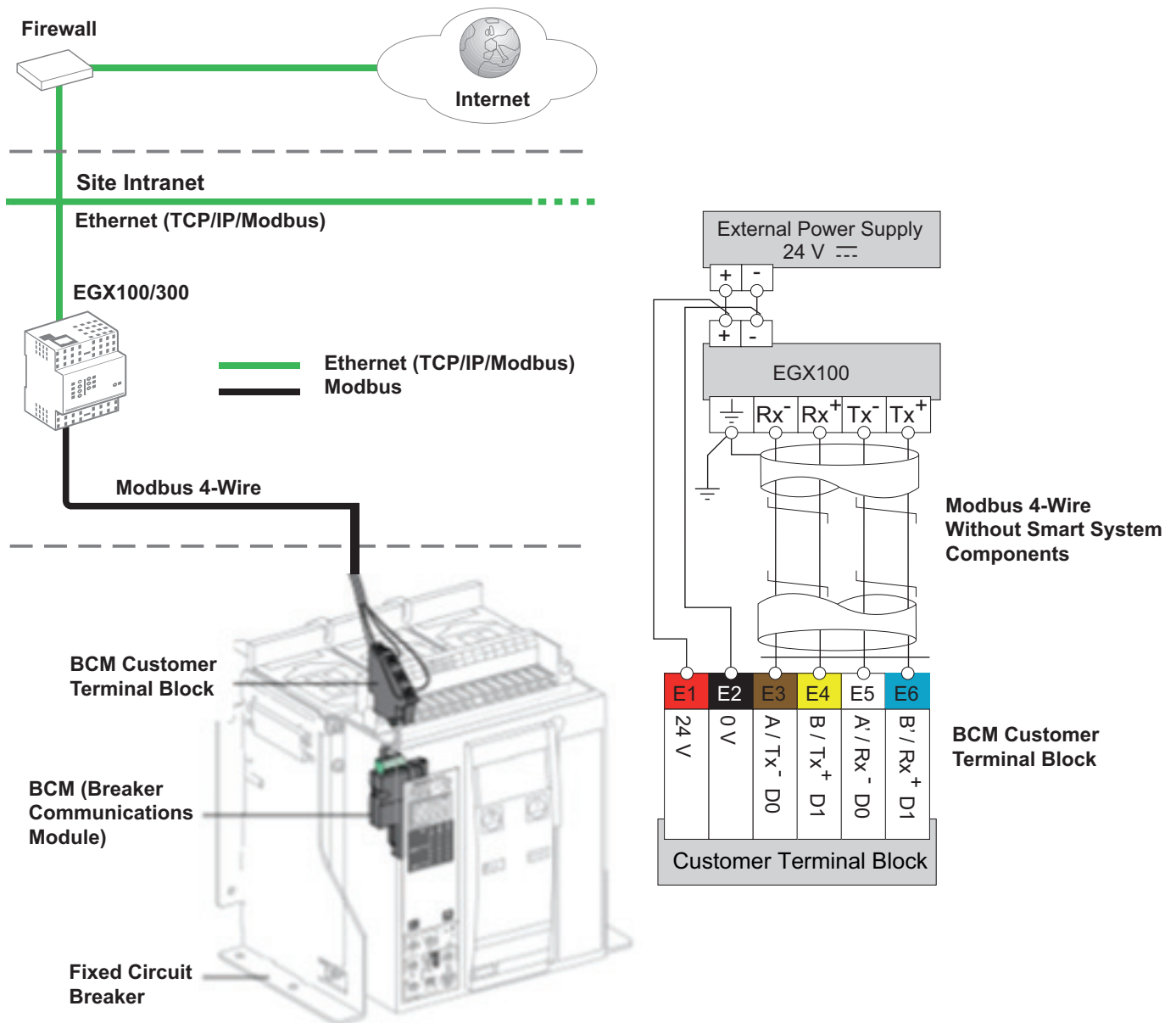
Converting Legacy Four-Wire Modbus Communications to Smart System Components.

General Information

For more information on Smart System with ULP, see 06131B1313 and 06021B1503 for instructions.

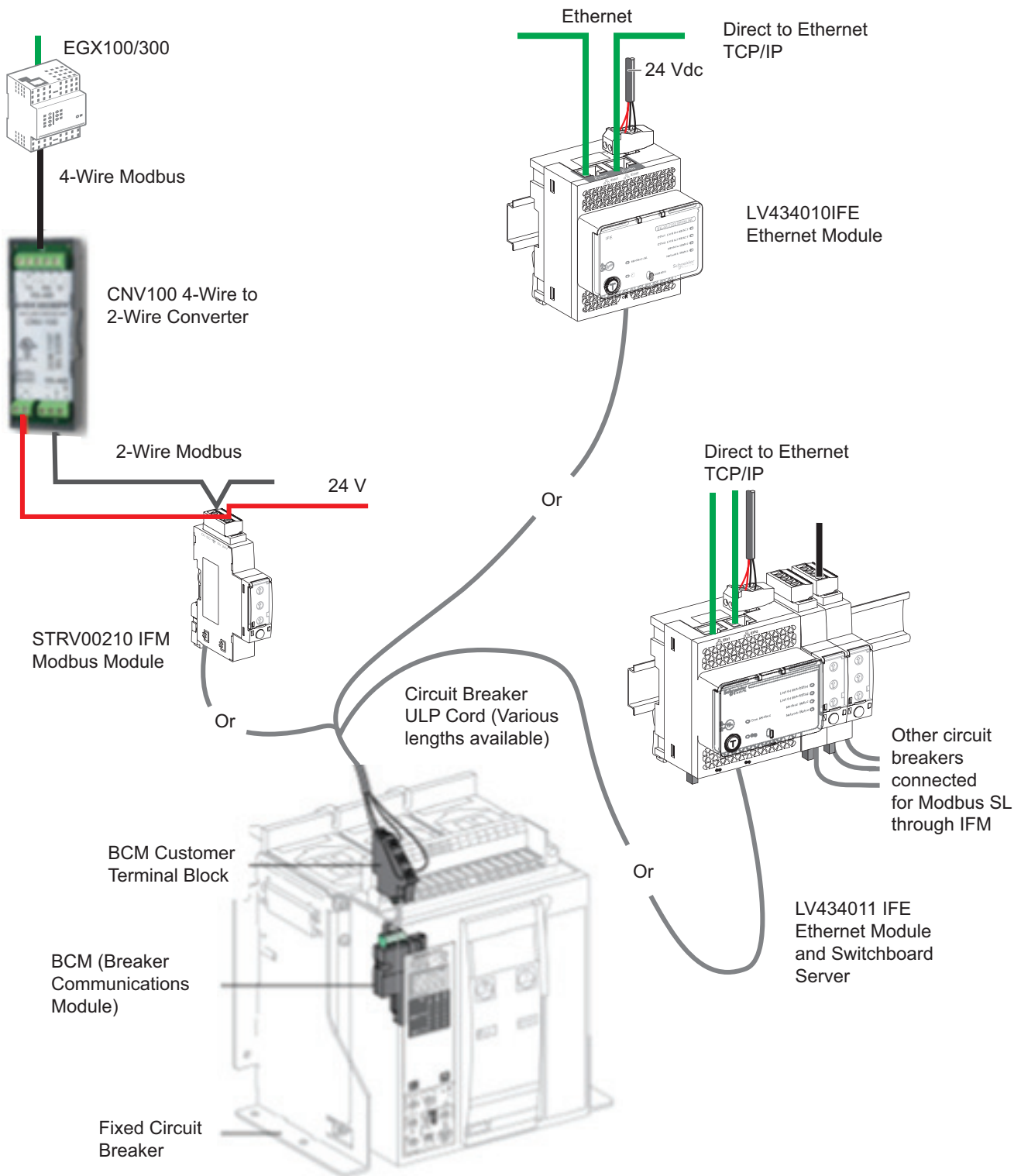
Fixed Circuit Breaker Communications System

Figure 11 – Existing Four-Wire Modbus System



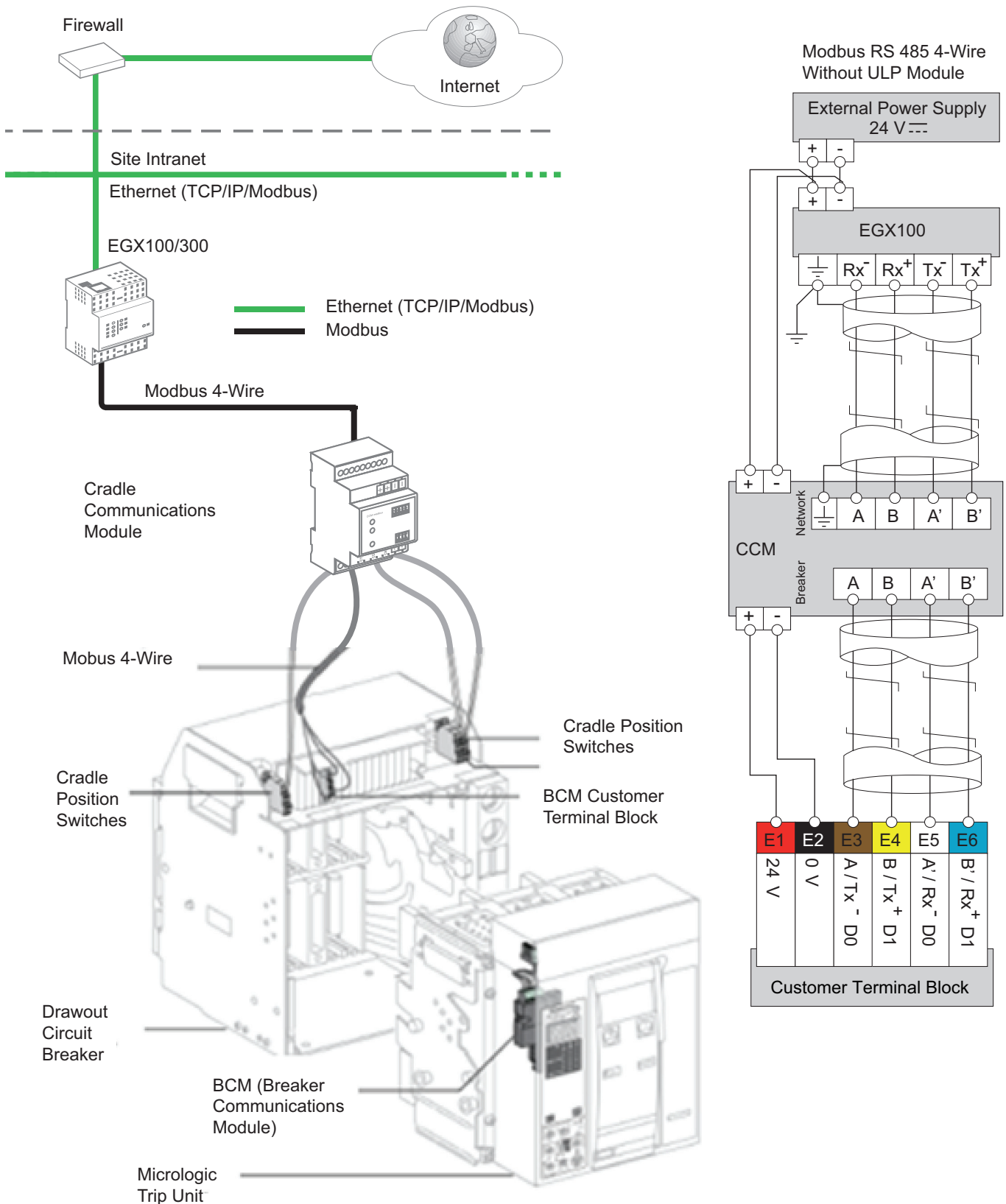
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Figure 12 – New Smart System



Drawout Circuit Breaker Communications System

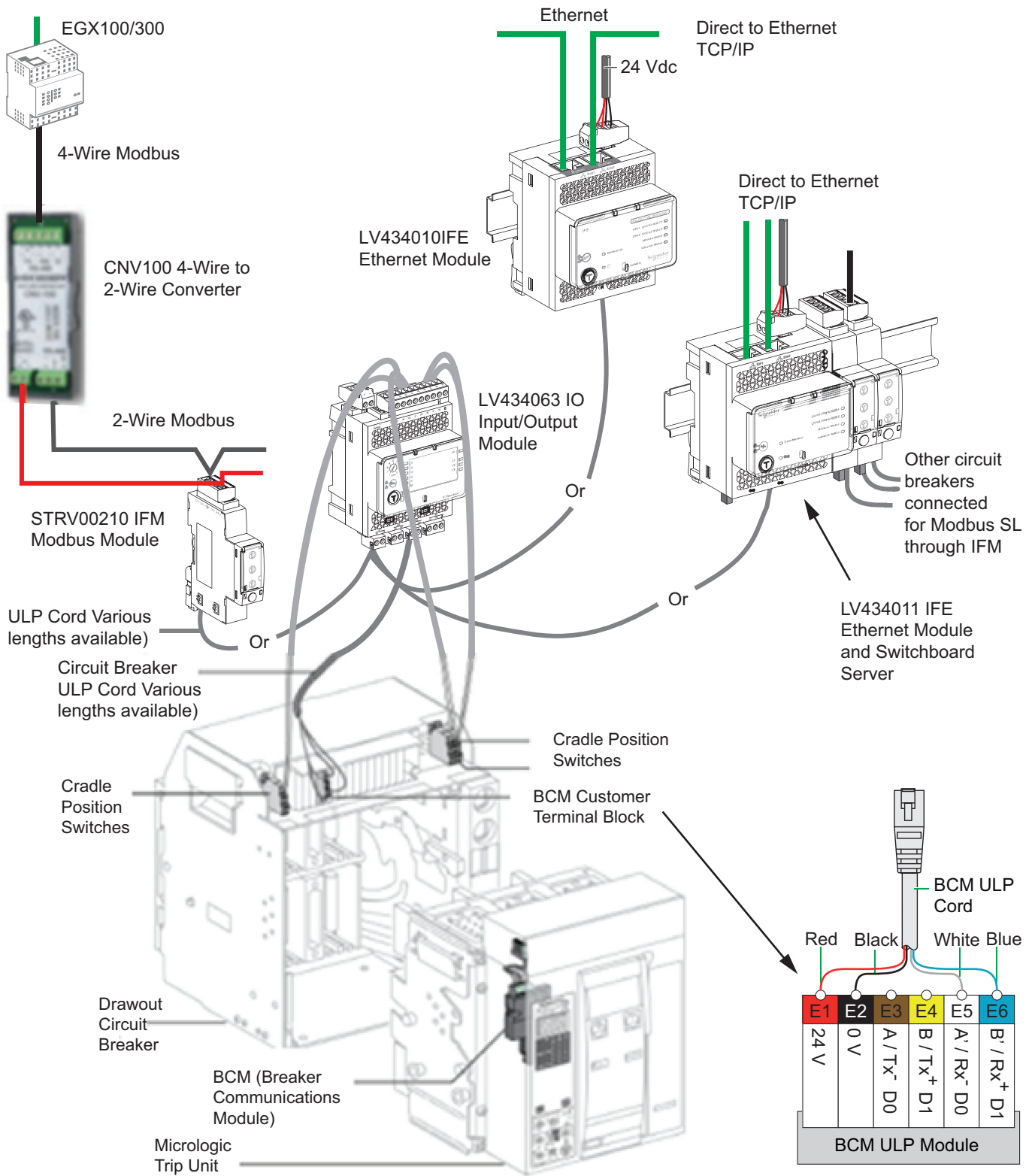
Figure 13 – Existing Four-Wire Modbus System



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Figure 14 – New Smart System



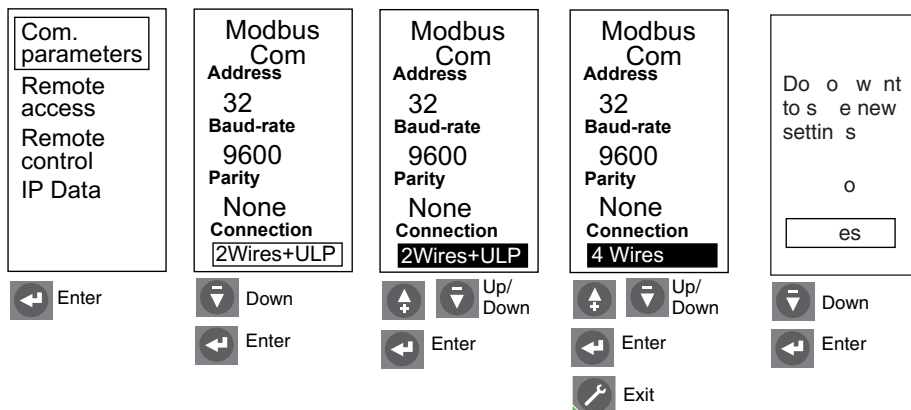
Replacing the BCM (Breaker Communications Module)

If you need to replace the BCM in an existing system with four-wire Modbus, do the following steps.

NOTE: This option is only available for P & H trip units with firmware version 2010AK or later. If your trip unit does not have this option then follow the process described in Step 3 for Micrologic A trip units.

1. Order a replacement BCM – part number S48384.
2. For a Micrologic P- or H-trip unit, change the communication parameter in the BCM to four-wire Modbus by doing the following.
 - a. Replace the BCM using the Installation Bulletin that came with the new BCM.
 - b. Connect the wiring to the BCM.
 - c. Turn on the 24 Vdc control power to the BCM E1(+)-E2(-) and the Micrologic trip unit F1(-) and F2 (+).
 - d. Press the wrench key (Maintenance button) and scroll to COM SETUP.
 - e. Scroll to COM PARAMETER and to the bottom of the screen to 2wire+ULP/4wires.
 - f. Select 4wires and save selection.

Figure 15 – Setting Trip Unit Connection Value



3. If you have a Micrologic A trip unit, the communication parameter cannot be changed with the trip unit interface. The communication parameter can be changed by doing the following steps:
 - a. Order the following parts:

Qty	Reference Number	Description
1	S48384	BCM (breaker communications module)
1	LV434010	IFE Ethernet interface module
1	Depending on length needed	Breaker ULP cord
	LV434196	L = 1.3 m (4.26 ft)
	LV434197	L = 3 m (9.84 ft)
1	Depending on length needed	ULP cable
	TRV00810	L = 1 m (3.28 ft), 5 cables
	TRV00820	L = 2 m (6.56 ft), 5 cables