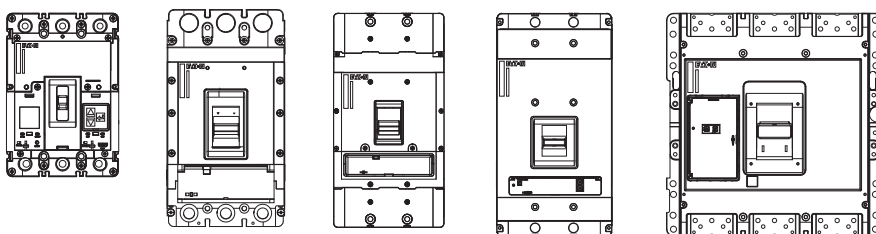


Wiring Diagrams - PXR Trip Units, Power Defense Frames 2, 3, 4, 5 & 6

Instructions apply to:



WARNING

- (1) ONLY QUALIFIED ELECTRICAL PERSONNEL SHOULD BE PERMITTED TO WORK ON THE EQUIPMENT.
- (2) ALWAYS DE-ENERGIZE PRIMARY AND SECONDARY CIRCUITS IF A CIRCUIT BREAKER CANNOT BE REMOVED TO A SAFE WORK LOCATION.
- (3) DRAWOUT CIRCUIT BREAKERS SHOULD BE LEVERED (RACKED) OUT TO THE DISCONNECT POSITION.
- (4) ALL CIRCUIT BREAKERS SHOULD BE SWITCHED TO THE OFF POSITION

FAILURE TO FOLLOW THESE STEPS FOR ALL PROCEDURES DESCRIBED IN THIS INSTRUCTION LEAFLET COULD RESULT IN DEATH, BODILY INJURY, OR PROPERTY DAMAGE.

WARNING

THE INSTRUCTIONS CONTAINED IN THIS IL AND ON PRODUCT LABELS HAVE TO BE FOLLOWED. OBSERVE THE FIVE SAFETY RULES:

- DISCONNECTING;
- ENSURE THAT DEVICES CANNOT BE ACCIDENTALLY RESTARTED;
- VERIFY ISOLATION FROM THE SUPPLY;
- EARTHING AND SHORT-CIRCUITING; AND
- COVERING OR PROVIDING BARRIERS TO ADJACENT LIVE PARTS.

DISCONNECT THE EQUIPMENT FROM THE SUPPLY. USE ONLY AUTHORIZED SPARE PARTS IN THE REPAIR OF THE EQUIPMENT. THE SPECIFIED MAINTENANCE INTERVALS AS WELL AS THE INSTRUCTIONS FOR REPAIR AND EXCHANGE MUST BE STRICTLY ADHERED TO PREVENT INJURY TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

TABLE OF CONTENTS

Name	Page No.
Wire Harness Pin-out and Color code	3
Control Power and Relay Wiring (Fig. 1)	4
External Neutral Sensing (Fig. 2)	5
Source Ground and Zero Sequence Sensing - PD 5 and 6 (Fig. 3)	6
Zone Interlock Wiring (Fig. 4)	7
Maintenance Mode Wiring (Fig. 5)	8
Modbus RTU Wiring (Fig. 6)	9
PXR to ECAM or PCAM Wiring (Fig. 7)	10

Feature	PXR Trip Unit		Wiring side (PD 2, 3, 4 & 5), Terminal (PD6)													Notes			
	Short name	Color	base/ stripe	PD 2	PD 3	PD 4	PD 5	PD 6	PD 2	PD 3	PD 4	PD 5	PD 6	PD 2	PD 3		PD 4	PD 5	PD 6
Auxiliary Power	AUX +24V AUX 0v	Orange Orange / Black	O O/Bk	left left	left left	left left	left left	C12 C13											24 VDC 0.1A 2.4 VA is required. Eaton's PSG family of 24 Vdc output, globally rated power supplies are recommended.
ZSI	ZIN ZOUT ZCOM	Yellow / Black Yellow / Red Yellow	Y/Bk Y/R Y	left left left	left left left	left left left	left left left	D1 D3 D2											Connect to other ZSI enabled breakers in the system. Maximum length of 75 meters (250 feet) using AWG # 22 wire. See PXR for PowerDefense™ User Manual (MN012007EN) Zone Selective Interlocking (ZSI).
Neutral Current Sensor	N1 N2	Grey White	Gy W	left left	left left	left left	left left	D5 D4											Connect to the external neutral current sensor secondary terminals labeled Grey & White. Observe source/Load polarity mark on the neutral current sensor, see IL012302EN.
Neutral Voltage	NV	White / Grey	W/Gy	right	right	right	left	D13											Connect to the neutral voltage sensor module and then the neutral bus (see IL012316EN)
Source Ground Sensor	SGS (dot)	Blue/Black Blue/Yellow	Bl/Bk Bl/Y	na na	na na	na na	left left	D6 D7											Connect to the Ground Fault Secondary Transformer Module. Refer to IL012309EN for module details.
Configurable Relays	RLY1	Black / Red	Bk/R	left	right	right	left	C8											Normally open contacts, closed when the associated function is active. Contacts rated (resistive): PD2 = 0.3A@120/240Vac or 1A@30Vdc, PD3, 4, 5, 6 = 2A@120/240Vac or 2A@30Vdc. See PXR for PowerDefense™ User Manual (MN012007EN) General Purpose Relay Mapping for a detailed list of functions supported.
	RLY2	Black / White	Bk/W	left	right	right	left	C9											
	RLY3	Black / Yellow	Bk/Y	na	na	na	left	C10											
	RLYC	Black	Bk	left	right	right	left	C13											
Form C AUX Contact	NC_AUX_C	Blue	Bl	right	na	na	na	na											One INO/INC (Form C) auxiliary contact is automatically factory installed for all Frame 2 Power Defense breakers with electronic trip units. Contacts rated (resistive): 6A@120/240Vac or 2A@30Vdc.
	NO_AUX_C	Red	R	right	na	na	na	na											
Modbus RTU	COM_AUX_C	Black	Bk	right	na	na	na	na											
	RTU_D(+)	Green / Black	Gn/Bk	left	left	left	right	D8											Modbus network, max. 32 nodes, max. length 1200 meters (4000 ft.). Cable: twisted-pair foil shield w/ drain, 120 ohms impedance, rated for the application (typical Belden 3105A or similar).
Maintenance Mode	RTU_D(-)	Green / Red	Gn/R	left	left	left	right	D9											as labeled on PXG & PXDB
	RTU_GND	Green	Gn	left	left	left	right	D10											CMN
Communication Adapter (CAM) Link	MM	Brown / White	Br/W	na	left	left	right	C1											Remotely activate ARMS using an external dry contact, use one contact per breaker. This is a low-voltage signal, high quality gold contact required, max length 3 meters (15 feet).
	MM (RTN)	Brown	Br	na	left	left	right	C2											
	CMMG (GND)	Violet	V	right	left	left	right	C5											Connect directly to selected CAM module. Use 2x twisted pair cable w/ shield and drain, max. length 3 meters (3.2 ft) . Refer to CAM Instruction Leaflets for detail (ECAM: IL0131132EN, Profibus: IL120009EN).
	CMM1	Violet / Green	V/W	right	left	left	right	C7											as labeled on CAM module
Communication Adapter (CAM) Link	CMM2	Violet / Yellow	V/R	right	left	left	right	C6											
	CMM3	Violet / White	V/Gr	right	left	left	right	C3											
Communication Adapter (CAM) Link	CMM4	Violet / Red	V/Y	right	left	left	right	C4											

Note: Available wiring connections depend on optional features selected.

PD2 wires are 0.205 mm² (24 AWG) size, PD3, 4, 5, 6 wires are 0.326 mm² (22 AWG).
Wires are 0.75 meters (30 inches) long.

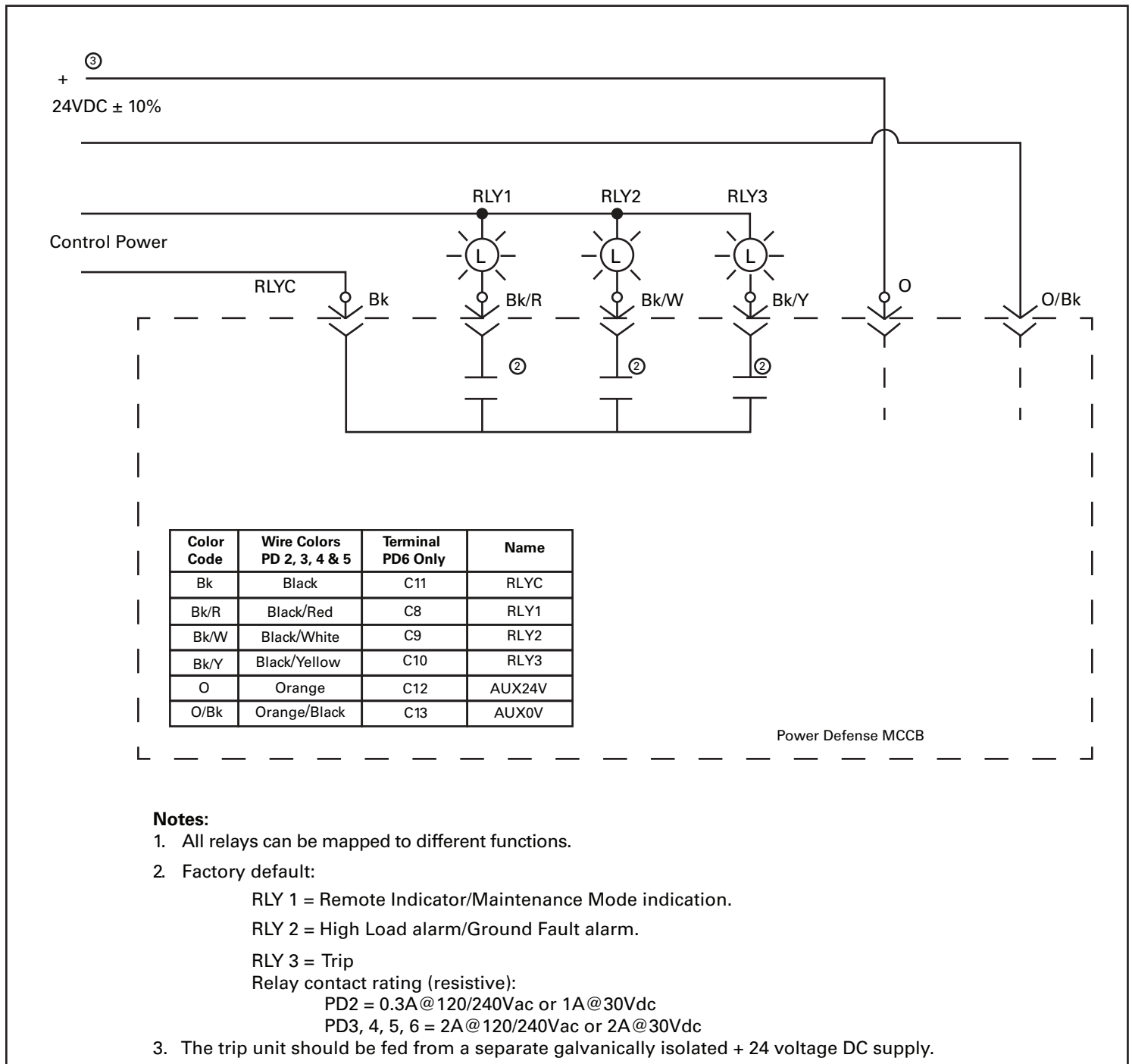


Figure 1. Control Power and Relay Wiring

Frame	Relays	Field Kit Cat #
PD2 w/modbus	1	PDG2XMODRTURELAY
PD2 w/o modbus	2	PDG2XRELAYS
PD3	2	na
PD4	2	na
PD5	3	PDG56XRELAYS
PD6	3	PDG56XRELAYS

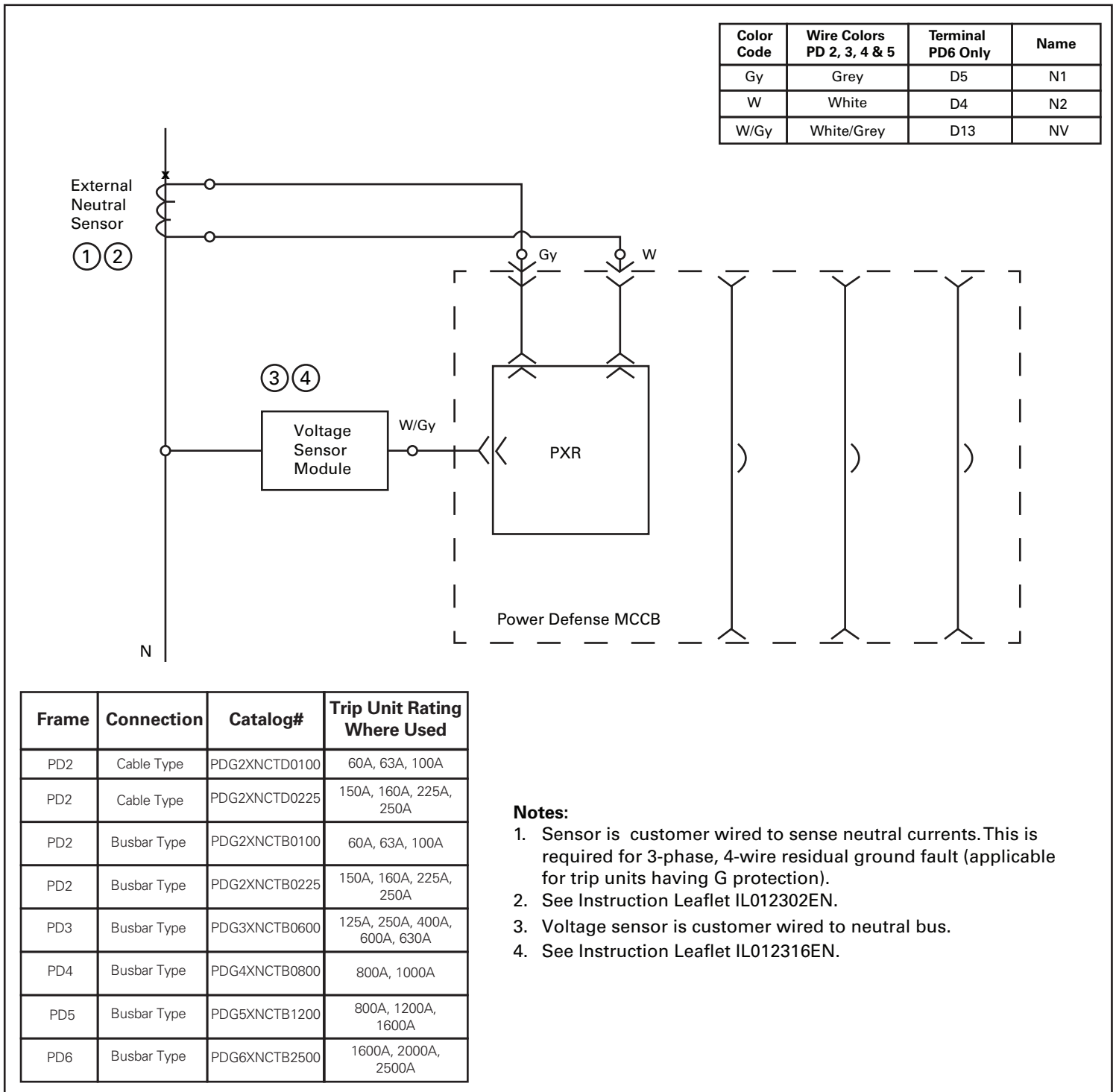


Figure 2. External Neutral Sensing

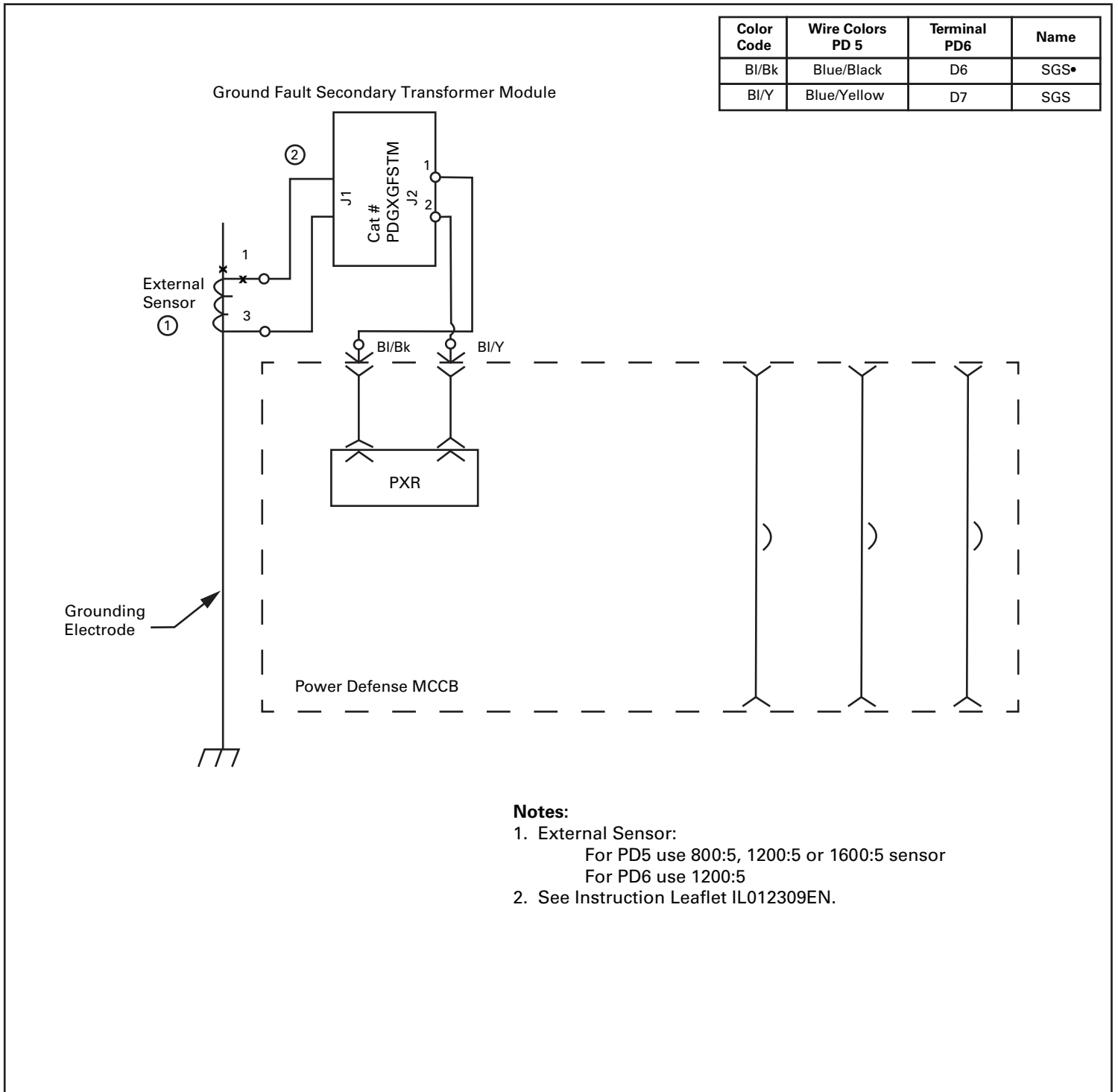


Figure 3. Source Ground and Zero Sequence Sensing - PD 5 and 6 only

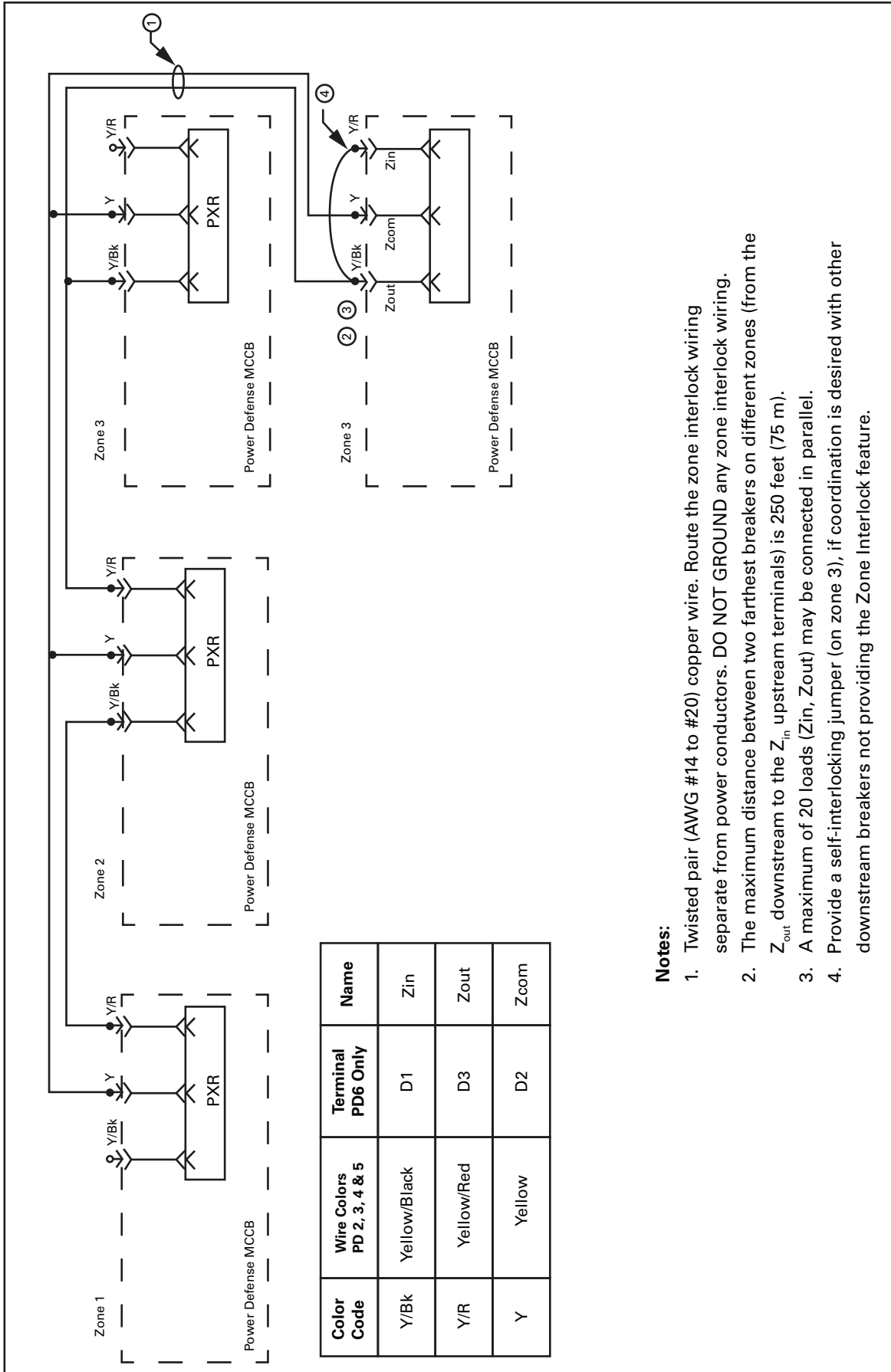


Figure 4. Zone Interlock Wiring

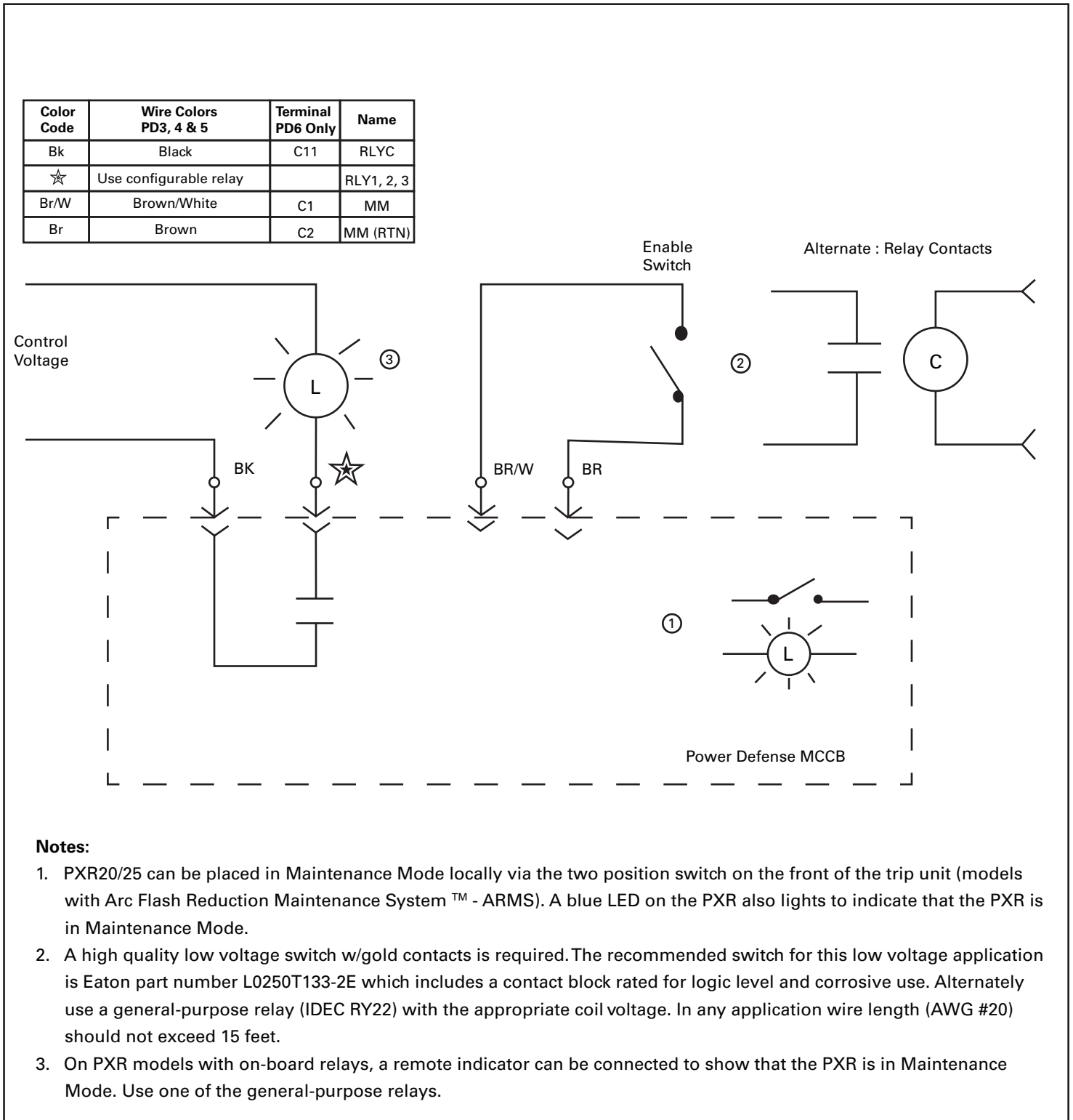


Figure 5. Maintenance Mode Wiring

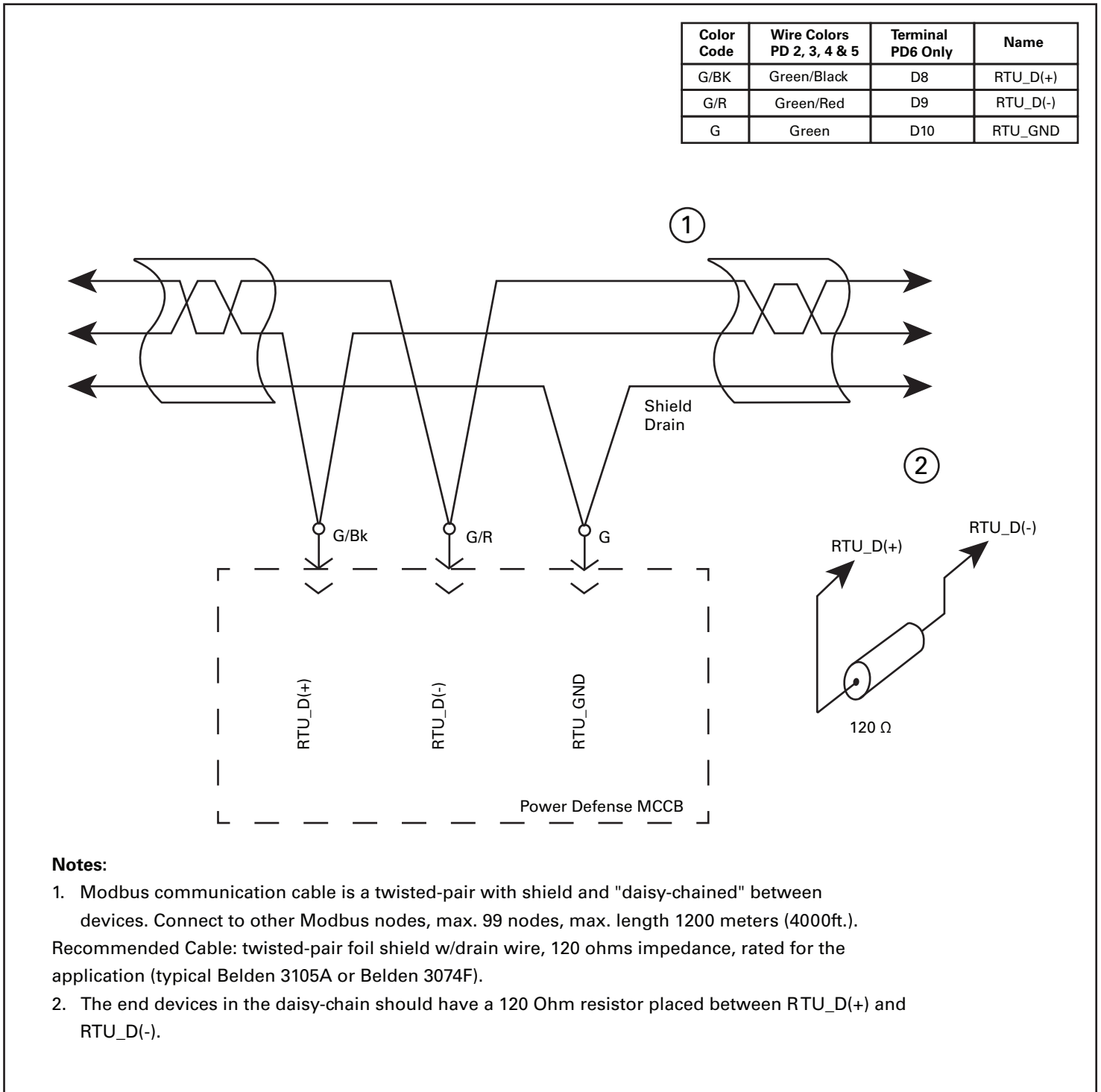
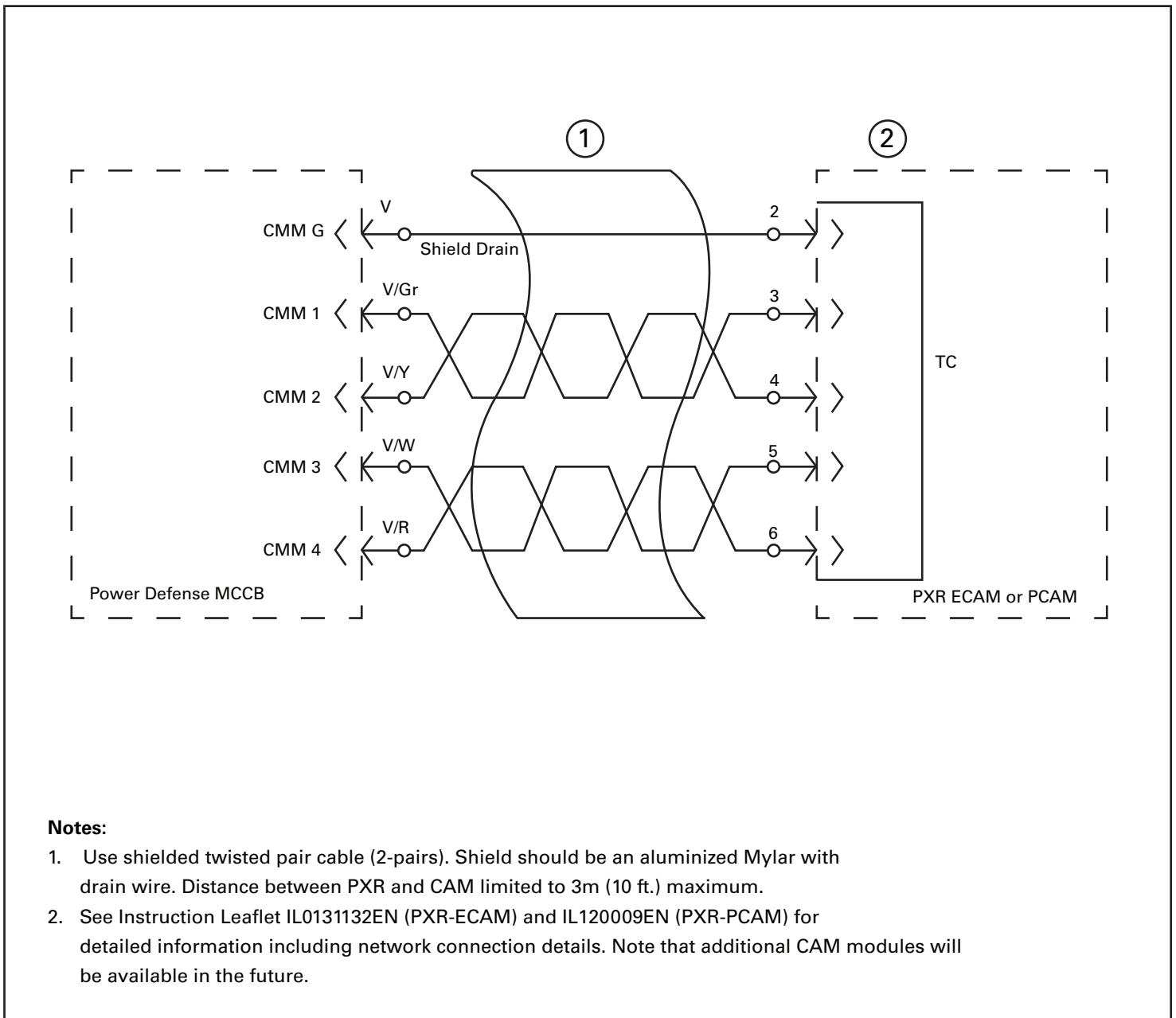


Figure 6. Modbus RTU Wiring



Notes:

1. Use shielded twisted pair cable (2-pairs). Shield should be an aluminized Mylar with drain wire. Distance between PXR and CAM limited to 3m (10 ft.) maximum.
2. See Instruction Leaflet IL0131132EN (PXR-ECAM) and IL120009EN (PXR-PCAM) for detailed information including network connection details. Note that additional CAM modules will be available in the future.

Figure 7. PXR to ECAM or PCAM Wiring

Color Code	Wire Colors PD 2, 3, 4 & 5	Terminal PD6	Name
V/Gr	Violet/Green	C7	CMM 1
V/Y	Violet/Yellow	C6	CMM 2
V/W	Violet/White	C3	CMM 3
V/R	Violet/Red	C4	CMM 4
V	Violet	C5	CMM G

Disclaimer of warranties and limitation of liability

The information, recommendations, descriptions, and safety notations in this document are based on Eaton Corporation's ("Eaton") experience and judgment, and may not cover all contingencies. If further information is required, an Eaton sales office should be consulted.

Sale of the product shown in this literature is subject to the terms and conditions outlined in appropriate Eaton selling policies or other contractual agreement between Eaton and the purchaser.

THERE ARE NO UNDERSTANDINGS, AGREEMENTS, WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OTHER THAN THOSE SPECIFICALLY SET OUT IN ANY EXISTING CONTRACT BETWEEN THE PARTIES. ANY SUCH CONTRACT STATES THE ENTIRE OBLIGATION OF EATON. THE CONTENTS OF THIS DOCUMENT SHALL NOT BECOME PART OF OR MODIFY ANY CONTRACT BETWEEN THE PARTIES.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability, or otherwise for any special, indirect, incidental, or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations, and descriptions contained herein.

The information contained in this manual is subject to change without notice.

Eaton
Electrical Sector
1000 Eaton Boulevard
Cleveland OH 44122
United States
877-ETN-CARE (877-386-2273)
Eaton.com

© 2019 Eaton
All Rights Reserved
Printed in USA
Publication No. TD012071EN
Part Number: TD012071ENH01
April 2019