

Power Defense Molded Case Circuit Breakers—Frame Size 6



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Power Defense Molded Case Circuit Breakers—Frame Size 6

Product Description

Frame Size 6 covers a range of 700 A through 2500 A with a complete offering of advanced PXR electronic trip units. It includes three frame sizes of 1600 A, 2000 A and 2500 A.

Application Description

Frame Size 6 can be used to meet a wide range of circuit protection and power distribution needs, including ground fault protection and 100% UL ratings. PXR trip units in PD-6 provide all levels of protection, including energy metering with multiple communication schemes, breaker health indication and arc flash reduction options.

Features and Benefits

Frame Size 6 breakers are modular and available as complete breakers from the factory or as modular components, including frames, trip units, accessories and terminals to provide flexibility for customers. PXR trip units are available with advanced features to provide customers unparalleled situational awareness of their electrical system.

Standards and Certifications

Power Defense breakers are designed and tested to meet stringent requirements for:

- UL
- CSA
- IEC (CE)
- CB (CCC)



Catalog Number / Product Selection

Power Defense—Frame Size 6 (700–2500 A)

Frame Size 6 covers a range of 700 A through 2500 A using electronic trip units. It is available in configurations of 2-pole, 3-pole and 4-pole, with the 2-pole being in the same physical size of a 3-pole variant.

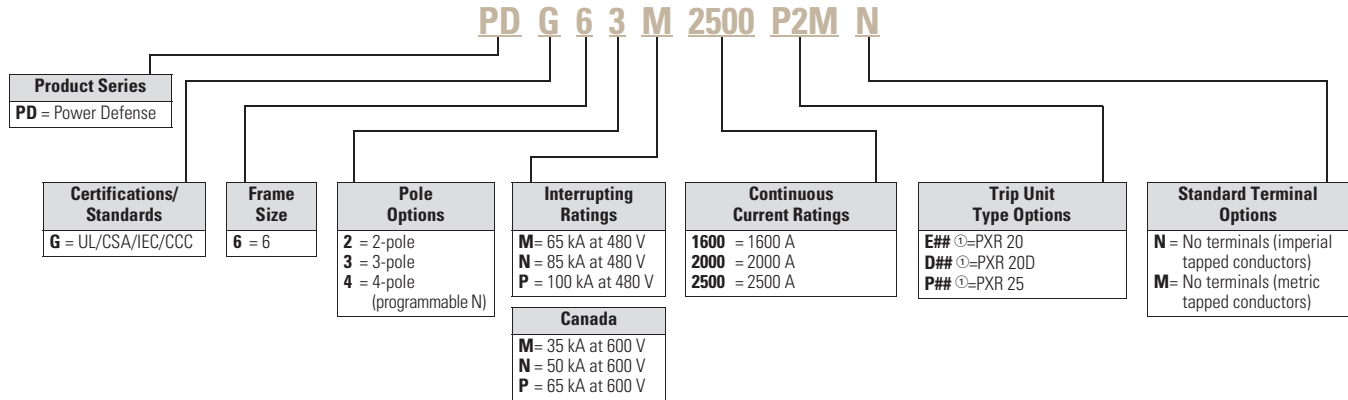
Interrupting Ratings

	M		N		P	
ANSI (UL/CSA)	kA rms		kA rms		kA rms	
240 Vac	125		150		200	
480 Vac	65		85		100	
600 Vac	35		50		65	
IEC	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}
240 Vac	135	100	150	100	200	100
380–415 Vac	70	53	70	53	100	53
440 Vac	50	40	70	50	100	50
480 Vac	50	30	65	40	85	40
525 Vac	30	25	35	25	40	25
660–690 Vac	15	7.5	20	13	35	18

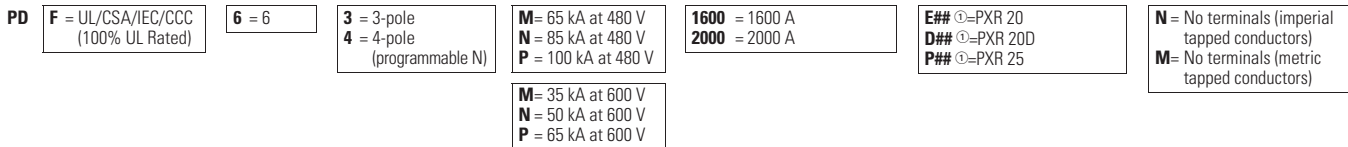
Molded Case Circuit Breakers with Power Xpert Release (PXR) Electronic Trip Units (ETU)

This information is presented as a tool to develop catalog numbers for selecting Power Defense circuit breakers and trip units.

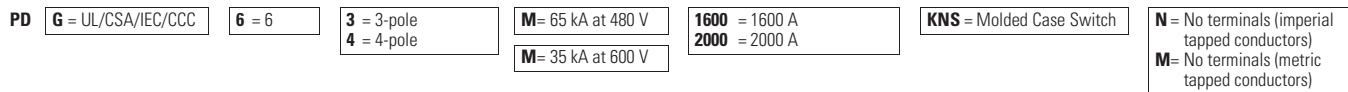
Molded Case Circuit Breakers with PXR ETU—Globally Rated



Molded Case Circuit Breakers with PXR ETU—Globally Rated (100% UL Rated)



Molded Case Switches—Globally Rated ⊕



Notes

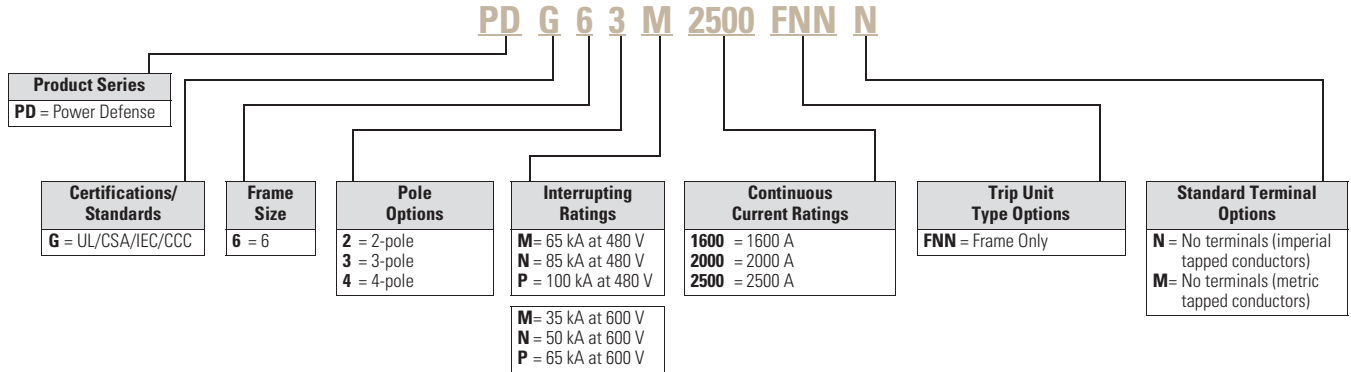
- ⊕ See tables and descriptions on **Page V4-T2-82** for protection type (#₁) and available configured options (#₂).
- ⊕ Molded case switch may open above 17,500 A.

Globally Rated Frame Only

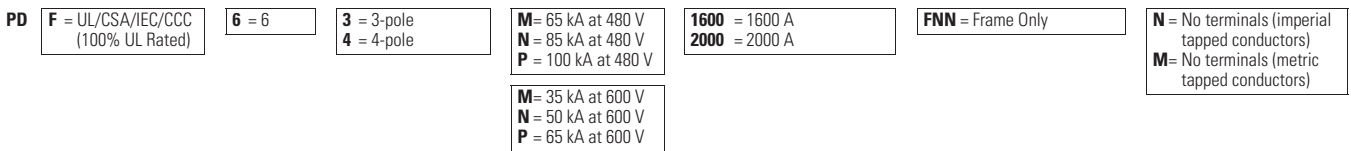
PD-6 electronic breakers may also be purchased as separate frames, trip units, terminals, and accessories for field configuration of a final breaker. Each Frame Only device is marked with interrupting ratings and a maximum continuous current rating; each trip unit is also marked with a maximum continuous current rating, which must not exceed that of the frame. Additionally, 100% UL Rated frames are marked as such on the Frame Only device.

This information is presented as a tool to develop catalog numbers for selecting Power Defense circuit breakers and trip units.

Frame Only—Globally Rated



Frame Only—Globally Rated (100% UL Rated)



Trip Units

PD-6 electronic breakers may also be purchased as separate frames, trip units, terminals, and accessories for field configuration of a final breaker. Each frame rating (1600 A, 2000 A, and 2500 A) must use trip units of the same rating. Additionally, for two-pole breakers, three-pole trip units are used.

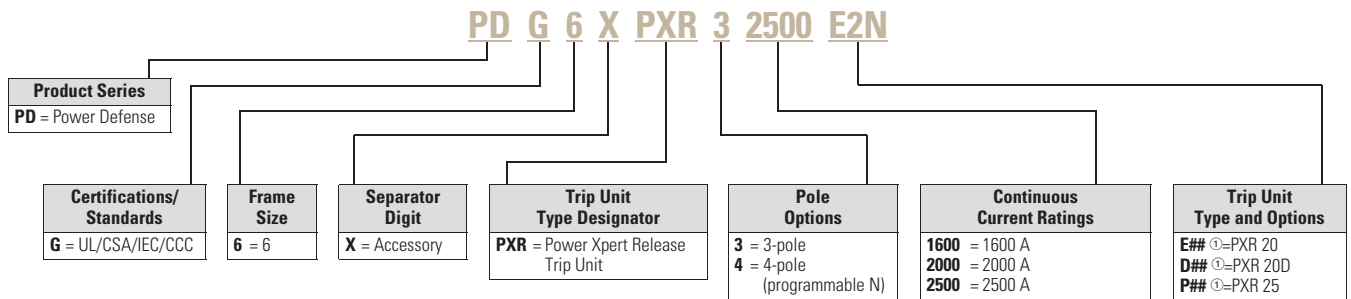
PDG designated trip units are for use with PDG and PDF breaker frames. The 100% rating for PDF (100% UL Rated) is marked on the frame, not the trip unit.

Trip Units Only

This information is presented as a tool to develop catalog numbers for selecting Power Defense circuit breakers and trip units.

Power Xpert Release (PXR) Electronic Trip Units

Power Xpert Release (PXR) Electronic Trip Units



Note

① See PXR Trip Unit Options table on Page V4-T2-82 for protection type (#₍₁₎) and available configured options (#₍₂₎).

Globally Rated Frame Only

Power Xpert Release (PXR) Trip Unit Options

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PXR	ETU	#(1)—Protection Type				#(2)—Available Configured Options								
		LSI	LSIG	LSI with ARMS	LSIG with ARMS	Relays	Relays Modbus	Relays ZSI	Relays CAM	Relays Modbus ZSI	Relays Modbus CAM	Relays Modbus ZSI CAM		
PXR 20	E	2	—	—	—	N	R	M	Z	C	W	X	—	—
		—	3	4	5	—	R	M	Z	C	W	X	—	—
PXR 20D	D	2	3	4	5	—	—	M	—	—	W	—	D	Y
PXR 25	P	2	3	4	5	—	—	M	—	—	W	—	D	Y

Descriptions of PXR Configured Options

Relays—3 Form A contacts (rated for 240 Vac, 1 A)

- Interface: 3 wires (ALM1, ALM2, ALM Common)
- Programmable to indicate breaker conditions
- Available as field-installable option if not pre-configured (catalog number **PDG56XRELAYS**)

Modbus—Modbus RTU directly from breaker

- Interface: 3 wires (MODBA, MODBB, MODBG)
- No additional modules required
- Available as field-installable option if not pre-configured (catalog number **PDG56XMODRTU**)

ZSI—Zone Selective Interlocking

- Interface: 3 wires (Zin, Zout, Zcomm)
- Includes ability to turn ON and OFF, and indicate signals

CAM—CAM Link connection (requires a CAM module per breaker)

- Interface: 5 wires (refer to CAM IL for details)
- Communications Adapter Modules available for ModbusTCP and PROFIBUS

ARMS—Arcflash Reduction Maintenance System, or Maintenance Mode

- Available as trip unit Protection Type 4 or 5
- Interface: Switch and LED on face of trip unit and two wires for remote switch enable option (24 Vdc required)
- A programmable relay will be factory defaulted to remote indication of ARMS

Auxiliary Power

- Connection included with all PXR 20, 20D, and 25 trip units
- Required for communications, relays, and metering accuracy
- 24 Vdc, 0.5 A
- Interface: 2 wires (Aux + 24 V, Aux 0 V)

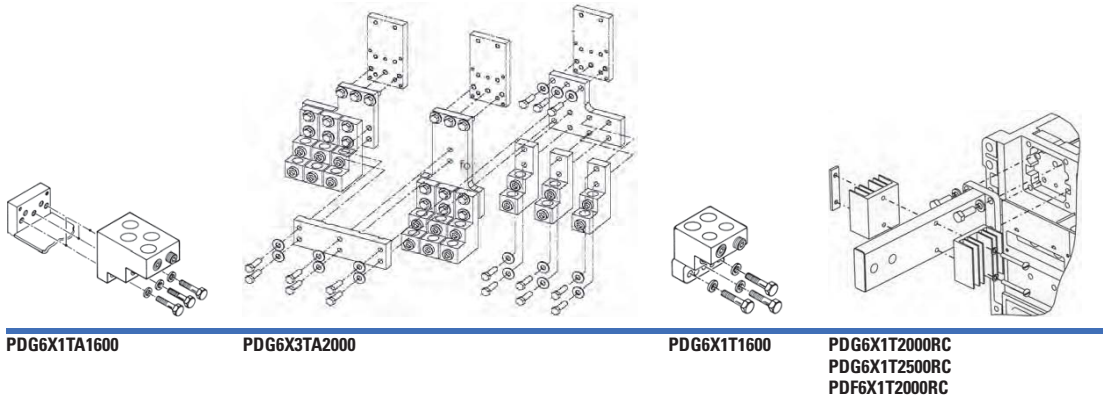
Available Continuous Current (I_r) Settings on PXR Electronic Trip Units

Option	Setting	Catalog Number Selection and Maximum Setting (I _n)		
		1600 1600 A	2000 2000 A	2500 2500 A
PXR 20	1	700 A	1000 A	1600 A
	2	800 A	1100 A	1700 A
	3	900 A	1200 A	1800 A
	4	1000 A	1250 A	1900 A
	5	1100 A	1400 A	2000 A
	6	1200 A	1600 A	2100 A
	7	1250 A	1700 A	2200 A
	8	1400 A	1800 A	2300 A
	9	1500 A	1900 A	2400 A
	10 = I _n	1600 A	2000 A	2500 A
PXR 20D, PXR 25		Programmable from minimum to maximum values in 10 A increments.		

Terminals—Frame Size 6

Terminals for Frame 6 are available as single terminals only, unless otherwise specified. To configure both line and load of a 3-pole breaker, order quantity 6 terminals.

Terminal Types



Note: Pictures are for reference only.

Terminals

Maximum Breaker Amperes	Terminal Body Type	Wire Type	Wire Class	Number of Conductors per Phase	AWG / kcmil Range per Conductor	Metric (mm ²) Range per Conductor	3-Pole Catalog Number ^①	Hardware Included
Aluminum Terminal Options								
1600	Aluminum	Cu/Al	B, C	4	500–1000	253–507	PDG6X1TA1600	Imperial
2000	Aluminum	Cu/Al	B, C	6	2–600	33.6–304	PDG6X3TA2000 ^②	Imperial bus connection
Copper Terminal Options								
1600	Copper	Cu	B, C	4	1–600	42.4–304	PDG6X1T1600	Imperial
Rear Connectors ^③								
2000	Copper						PDG6X1T2000RC	Imperial
2000	Copper						PDF6X1T2000RC ^④	Imperial
2500	Copper						PDG6X1T2500RC	Imperial

Note: Wire capacity is based on standard imperial wire sizes; metric sizes provided in table are a direct conversion to demonstrate maximum capacity, not to denote metric wire sizes.

Notes

- ① Add **M** at end for metric hardware.
- ② Only available for 3-pole breaker; order quantity 1 per breaker side, or quantity 2 per breaker.
- ③ Kit includes one conductor and hardware; order quantity 6 for both sides of a 3-pole breaker.
- ④ Included with 100% rated breaker.

Accessories

Internal Accessory Configurations—Frame Size 6

All Frame 6 accessories are installed in an internal pocket to the right of the breaker handle.

2

Internal Accessory

Accessory Slot 1 Options	Accessory Slot 2 Options
None	None
2 Form C	2 Form C

Lower Accessory Slot 1 Options	Lower Accessory Slot 2 Options	Lower Accessory Slot 3 Options
None	None	None
Shunt trip	Shunt trip	UVR
Alarm switch	UVR	Alarm switch
—	Alarm switch	—

Indicating Accessories—Frame Size 6

Indicating Accessories ^{①②}

	Alarm Switch	Auxiliary Switch
1 Form C	PDG6X1BC	—
2 Form C	PDG6X2BC	PDG6X2AC
4 Form C	—	PDG6X4AC

Factory Installed Indicating Accessories

		Auxiliary	2 Form C	4 Form C
		None		
Alarm switch	None	NN	A1	A7
	1 Form C	BC	C1	C9
	2 Form C	B1	CY	CZ

Notes

- ① All PDG6 indicating accessories come with 29 in/0.75 m pigtails.
- ② All PDG6 indicating accessories are installed in the accessory pocket to the right of the breaker handle.

Tripping Accessories—Frame Size 6**Shunt Trips**

Voltage	Pigtail (29 in / 0.75 m)	Factory Installed Catalog Number (Digit 17–18)
48–60 Vdc	PDG6XST60DCS	SK
110–125 Vdc	PDG6XST125DCS	SL
220–250 Vdc	PDG6XST250DCS	SM
24 Vac/Vdc	PDG6XST24ACDCS	SN
48–60 Vac	PDG6XST60ACS	ST
110–240 Vac	PDG6XST240ACS	SA or SB
380–440 Vac	PDG6XST440ACS	SC
480–600 Vac	PDG6XST600ACS	SD or SE

Undervoltage Releases (UVRs)

Voltage	Pigtail (29 in / 0.75 m)	Factory Installed Catalog Number (Digit 17–18)
12 Vdc	PDG6XUV12DCU	UH
24 Vdc	PDG6XUV24DCU	UG
48–60 Vdc	PDG6XUV60DCU	UJ or UK
125 Vdc	PDG6XUV125DCU	UL
250 Vdc	PDG6XUV250DCU	UM
12 Vac	PDG6XUV12ACU	UU
24 Vac	PDG6XUV24ACU	UF
48–60 Vac	PDG6XUV60ACU	UT
110–127 Vac	PDG6XUV120ACU	UA
208–240 Vac	PDG6XUV240ACU	UB
380–500 Vac	PDG6XUV480ACU	UC or UV

Handle Mechanisms—Size 6**Variable Depth Rotary Handle Mechanism**

Description	NEMA 1/3R/12/4/4X Catalog Number	Factory Installed Digits 19–20
Standard lockable handle and mechanism	PDG6XHMDS	DA
Emergency lockable handle and mechanism	PDG6XHMDE	D1
12 in (305 mm) handle mechanism shaft	PDG56XHMS305	—

Flex Shaft Handle Mechanism

Cable Length (ft)	Metal Handle, NEMA 1/3R/12 Catalog Number	High Performance Handle, NEMA 1/3R/12 Catalog Number	Metal Handle, NEMA 4/4X Catalog Number	High Performance Handle, NEMA 4/4X Catalog Number
4 ft	PDG6XFS04	PDG6XFS04HP	PDG6XFS04X	PDG6XFS04HPX
5 ft	PDG6XFS05	PDG6XFS05HP	PDG6XFS05X	PDG6XFS05HPX
6 ft	PDG6XFS06	PDG6XFS06HP	PDG6XFS06X	PDG6XFS06HPX

External Accessories—Frame Size 6**External Accessories**

Description	Fit Type	Catalog Number	Factory Installed Digits 19–20
Padlockable hasp	Right	PDG6XPLKR	L6
Padlockable hasp, OFF only	Right	PDG6XPLKROFF	L3
Kirk key interlock kit ^①	Right	PDG6XKLKPRF	L9
Walking beam interlock ^{②③}	Three-pole	PDG6XWBI3P	WB ^④
Electrical operator	48 Vdc	EOP6T21K	MJ
	120 Vac	EOP6T08K	MA
	240 Vac	EOP6T11K	MB
Neutral CTs for ground fault (PXR)	Bus bar type	PDG6XNCTB2500	—

Dimensions and Weights—Frame Size 6**Approximate Dimensions in Inches (mm)**

Number of Poles	Width	Height	Depth
2	15.5 (393.7)	16 (406.4)	9.75 (247.7)
3	15.5 (393.7)	16 (406.4)	9.75 (247.7)
4	20 (508.0)	16 (406.4)	9.75 (247.7)

Approximate Shipping Weight in lb (kg)

Breaker Type	2-Pole	3-Pole	4-Pole
PDG6 1600 and 2000 A	102 (46.3)	102 (46.3)	135 (61.2)
PDG6 2500 A	135 (61.2)	135 (61.2)	182 (82.6)

Notes

- ^① Provision only. For use with Type F Kirk keylock (sold separately). Bolt projection in withdrawn position is 1.00 in (25.4 mm).
- ^② Breaker must be ordered with walking beam interlock ready modification from plant (factory suffix "WB").
- ^③ Requires two breakers.
- ^④ Modification code for Walking Beam denotes modification to the breaker; accessory must be ordered separate.