Power Defense Molded Case Circuit Breakers-Frame Size 3


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## Power Defense Molded Case Circuit Breakers-Frame Size 3

## Product Description

Frame Size 3 covers a range of 45 A through 600 A with a complete offering of trip units, including PXR electronic trip units and fixedadjustable thermal-magnetic trip units. PD-3 is available in two versions, with 400 A and 600 A constructions to optimize performance in multiple applications.

## Application Description

Frame Size 3 can be used to meet a wide range of circuit protection and power distribution needs, including ground fault protection, current limiting, 100\% UL ratings, and high instantaneous settings for selective coordination. PXR trip units in PD-3 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 3 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)


Power Defense Molded Case Circuit Breakers

## Catalog Number / Product Selection

## Power Defense—Frame Size 3 (45-600 A)

Frame Size 3 covers a range of 45 A through 600 A using electronic trip units, and 100 A through 600 A using thermal-magnetic 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. Frame 3 has two unique constructions: one for 400 A and a second one for 600 A . The 600 A construction provides a unique capability to be used at 400 A and below in critical coordination applications where a high level fixed instantaneous is required. This is accomplished by using a letter $\mathbf{H}$ in the 7th digit of the catalog number, as shown below.

Interrupting Ratings

| Catalog Designator | F |  | G |  | K |  | M ${ }^{1}$ |  | N ${ }^{1}$ |  | P ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ANSI (UL/CSA) | kA rms |  | kA rms |  | kA rms |  | kA rms |  | kA rms |  | kA rms |  |
| 240 Vac | 35 |  | 65 |  | 85 |  | 100 |  | 150 |  | 200 |  |
| 480 Vac | 25 |  | 35 |  | 50 |  | 65 |  | 85 |  | 100 |  |
| 600 Vac | 14 |  | 18 |  | 25 |  | 35 |  | 50 |  | 65 |  |
| 250 Vdc (2) ${ }^{\text {3 }}$ | 10 / 22 |  | 10/22 |  | 10/22 |  | 22 / 42 |  | 22 / 42 |  | $22 / 42$ |  |
| IEC | $\mathrm{I}_{\text {cu }}$ | $\mathrm{I}_{\text {cs }}$ | $\mathrm{I}_{\text {cu }}$ | $\mathrm{I}_{\text {cs }}$ | $\mathrm{I}_{\mathrm{cu}}$ | $\mathrm{I}_{\mathrm{cs}}$ | $\mathrm{I}_{\text {cu }}$ | $\mathrm{I}_{\mathrm{cs}}$ | $\mathrm{I}_{\mathrm{cu}}$ | $\mathrm{I}_{\text {cs }}$ | $\mathrm{I}_{\mathrm{cu}}$ | $\mathrm{I}_{\text {cs }}$ |
| 240 Vac | 35 | 35 | 55 | 55 | 85 | 85 | 100 | 100 | 150 | 100 | 200 | 150 |
| 380-415 Vac | 25 | 25 | 36 | 36 | 50 | 50 | 70 | 53 | 70 | 70 | 100 | 70 |
| 440 Vac | 25 | 20 | 30 | 22.5 | 35 | 35 | 50 | 40 | 70 | 50 | 100 | 50 |
| 480 Vac | 20 | 20 | 25 | 20 | 35 | 22.5 | 50 | 30 | 65 | 40 | 85 | 40 |
| 525 Vac | 18 | 5 | 20 | 7.5 | 25 | 10 | 30 | 15 | 35 | 25 | 40 | 25 |
| 660-690 Vac | - | - | 8 | 4 | 10 | 5 | 15 | 7.5 | 20 | 10 | 20 | 10 |
| 250 Vdc (2) 3 | 10/22 | 10/22 | 10/22 | 10/22 | 10/22 | 10/22 | $22 / 42$ | 22 / 42 | $22 / 42$ | $22 / 42$ | $22 / 42$ | $22 / 42$ |

## Notes

(1) UL current limiting. M interrupting rating only current limiting for the 400 A construction breakers.
(2) DC ratings available in thermal-magnetic breakers only. 250 Vdc is achieved using two poles in series.
(3) First rating listed is for 400 A frame, second rating is for 600 A frame.

Molded Case Circuit Breakers
Power Defense Molded Case Circuit Breakers

## Molded Case Circuit Breaker

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

Molded Case Circuit Breaker with Thermal-Magnetic Trip Units (TMTU)-Globally Rated


Molded Case Circuit Breakers with TMTU-Globally Rated (100\% UL Rated)


Molded Case Circuit Breakers with TMTU—UL/CSA Rated to 240 Vac

| PD $\mathbf{D}=\mathrm{UL} / \mathrm{CSA}$ | $3=3$ | $\begin{aligned} & \mathbf{2}=2 \text {-pole (1) } \\ & \mathbf{3}=3 \text {-pole } \end{aligned}$ | $\begin{aligned} & \mathbf{F}=35 \mathrm{kA} \text { at } 240 \mathrm{~V} \\ & \mathbf{G}=65 \mathrm{kA} \text { at } 240 \mathrm{~V} \\ & \mathbf{K}=85 \mathrm{kA} \text { at } 240 \mathrm{~V} \\ & \mathbf{M}=100 \mathrm{kA} \text { at } 240 \mathrm{~V} \\ & \mathbf{N}=150 \mathrm{kA} \text { at } 240 \mathrm{~V} \\ & \mathbf{P}=200 \mathrm{kA} \text { at } 240 \mathrm{~V} \end{aligned}$ | $\begin{aligned} & \mathbf{0 1 0 0}=100 \mathrm{~A} \\ & \mathbf{0 1 2 5}=125 \mathrm{~A} \\ & \mathbf{0 1 5 0}=150 \mathrm{~A} \\ & \mathbf{0 1 7 5}=175 \mathrm{~A} \\ & \mathbf{0 2 0 0}=200 \mathrm{~A} \\ & \mathbf{0 2 2 5}=225 \mathrm{~A} \\ & \mathbf{0 2 5 0}=250 \mathrm{~A} \\ & \mathbf{0 2 0 0}=300 \mathrm{~A} \\ & \mathbf{0 3 5 0}=350 \mathrm{~A} \\ & \mathbf{0 4 0 0}=400 \mathrm{~A} \\ & \mathbf{0 5 0 0}=500 \mathrm{~A} \\ & \mathbf{0 6 0 0}=600 \mathrm{~A} \end{aligned}$ | TFA $=$ Fixed thermal $/$ <br> Adjustable magnetic <br> VFA $=50^{\circ} \mathrm{C}$ Fixed thermal $/$ <br> Adjustable magnetic <br> (non UL) | $\begin{array}{\|l\|l\|} \hline \mathbf{N}=\text { No terminals } \\ \mathbf{J}=\text { Line and load terminals } \\ \mathbf{K}=\text { Line only terminals } \\ \mathbf{L}=\text { Load only terminals } \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Molded Case Switches © - Globally Rated
PD G=UL/CSA/IEC/CCC $\begin{array}{lll}\mathbf{3}=3 & \begin{array}{l}\mathbf{3}=3 \text {-pole } \\ \mathbf{4}=4 \text {-pole }(100 \% ~ N)\end{array}\end{array}$

| $\begin{aligned} & \begin{array}{l} \mathbf{G}=35 \mathrm{kA} \text { at } 480 \mathrm{~V} \\ \mathbf{M}=65 \mathrm{kA} \text { at } 480 \mathrm{~V} \end{array} \\ & \begin{array}{l} \mathbf{G}=18 \mathrm{kA} \text { at } 600 \mathrm{~V} \\ \mathbf{M}=35 \mathrm{k} \text { at } 600 \mathrm{~V} \end{array} \end{aligned}$ |
| :---: |
|  |  |


| $0400=400 \mathrm{~A}$ |
| :--- |
| $\mathbf{0 6 0 0}=600 \mathrm{~A}$ |

## Notes

(1) All PD-3 2-pole breakers are physically the same size as a 3-pole frame with the outer poles used for electrical connections.
${ }^{2}$ (2) Not available in 4 -pole $60 \%$ neutral protection.
(3) High override ( 600 A frame).
(4) Molded case switches may open above 4000 A for the 400 A frame, and above 6300 A for the 600 A frame.

KNS = Molded case switch
$\mathbf{N}=$ No terminals
$\mathbf{J}=$ Line and load terminals
$\mathbf{K}=$ Line only terminals
$\mathbf{L}=$ Load only terminals

## 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)


Note
(1) All PD-3 2-pole breakers are physically the same size as a 3-pole frame with the outer poles used for electrical connections.
(2) See PXR Trip Unit Options table on Page V4-T2-48 for protection type (\#(1)) and available configured options (\#(2)).

## Globally Rated Frame Only

PD-3 thermal-magnetic and 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.
Frame Only-Globally Rated


Frame Only-Globally Rated (100\% UL Rated)


Note
(1) All PD-3 2-pole breakers are physically the same size as a 3-pole frame with the outer poles used for electrical connections.

## Trip Units

PD-3 thermal-magnetic and electronic breakers may also be purchased as separate frames, trip units, terminals and accessories for field configuration of a final breaker. The 400 A frame must use trip units of ratings 0100-0400, while the 600 A frame must use trip units of ratings 0500,0600 or designated by H, such as H250. Additionally, for 2-pole breakers using electronic trip units, 3-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.

## Thermal-Magnetic Trip Units



## Power Xpert Release (PXR) Electronic Trip Units

Power Xpert Release (PXR) Electronic Trip Units


## Notes

[^0]
## Power Xpert Release (PXR) Trip Unit Options-Frame Size 3

Power Xpert Release (PXR) Trip Unit Options

|  |  | \#(1)-Protection Type |  |  |  | \#(2)-Available Configured Options |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PXR | ETU | LSI | LSIG | LSI with ARMS | LSIG with ARMS | - | Relays <br> - | Relays Modbus $\qquad$ | Relays <br> ZSI | Relays <br> - <br> CAM | Relays Modbus ZSI $\qquad$ | Relays <br> ZSI <br> CAM | Relays Modbus <br> CAM | Relays <br> Modbus <br> ZSI <br> CAM |
| PXR 10 | B | 2 | - | - | - | N | - | - | - | - | - | - | - | - |
| 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- 2 Form A contacts (rated for $240 \mathrm{Vac}, 1$ A)

- Interface: 3 wires (ALM1, ALM2, ALM Common)
- Programmable to indicate breaker conditions
Modbus-Modbus RTU directly from breaker
- Interface: 3 wires (MODBA, MODBB, MODBG)
- No additional modules required

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 Modbus TCP 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 (selfpowered) 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
- $24 \mathrm{Vdc}, 0.5 \mathrm{~A}$
- Interface: 2 wires Aux +24 V, Aux 0 V)

Available Continuous Current $\left(I_{r}\right)$ Settings on PXR Electronic Trip Units

| Catalog Number Selection and Maximum Setting ( $\mathrm{In}_{\mathrm{n}}$ ) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Option | Setting | $\begin{gathered} 0125 \\ 125 \mathrm{~A} \end{gathered}$ | $\begin{array}{r} \text { 0250/H250 } \\ 250 \mathrm{~A} \end{array}$ | 0400/H400 400 A | $\begin{array}{r} 0600 \\ 600 \mathrm{~A} \end{array}$ |
| PXR 10, PXR 20 | 1 | 45 A | 90 A | 160 A | 250 A |
|  | 2 | 50 A | 100 A | 175 A | 275 A |
|  | 3 | 60 A | 110 A | 200 A | 300 A |
|  | 4 | 63 A | 125 A | 225 A | 320 A |
|  | 5 | 70 A | 150 A | 250 A | 350 A |
|  | 6 | 80 A | 160 A | 275 A | 400 A |
|  | 7 | 90 A | 175 A | 300 A | 450 A |
|  | 8 | 100 A | 200 A | 320 A | 500 A |
|  | 9 | 110 A | 225 A | 350 A | 550 A |
|  | $10=1 n$ | 125 A | 250 A | 400 A | 600 A |
| PXR 20D, PXR 25 | Programmable from minimum to maximum values in 1 A increments. |  |  |  |  |

## Terminals—Frame Size 3

Catalog numbers shown are for a single side of a 3-pole breaker.
For 2- and 4-pole options, replace the $\mathbf{X 3}$ with $\mathbf{X 2}$ or $\mathbf{X 4}$, respectively.
Example: PDG3X3TA300 becomes PDG3X2TA300 for two-pole.
Terminal Types


Note: Pictures are for reference only.
Terminals

| Maximum <br> Breaker <br> Amperes | Breaker Frame | Terminal Body Type | Wire Type | Wire Class | Number of Conductors per Phase | AWG / kcmil Range per Conductor | Metric ( $\mathrm{mm}^{2}$ ) <br> Range per <br> Conductor | 3-Pole <br> Catalog Number | Included Accessories | Digit 14 Designation |  |  | Factory <br> Config. <br> Ampere <br> Range |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  | Line and Load | Line <br> Only | Load <br> Only |  |
| Standard Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 300 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 3-350 | 26.7-177 | PDG3X3TA300 | - | J | K | L | 100-225 |
| 350 | 400 | Aluminum | Cu/Al | B, C | 1 | 250-500 | 127-253 | PDG3X3TA350 | - | J | K | L | 250-350 |
| 400 | 400 | Aluminum | Cu/Al | B, C | 2 | 3/0-250 | 85-127 | PDG3X3TA400 | Terminal shield | $J$ | K | L | 400 |
| 400 | 600 | Aluminum | Cu/AI | B, C | 1 | 500-750 | 253-380 | PDG3X3TA401H | Terminal shield | $J$ | K | L | H250-H400 |
| 630 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 2 | 2-500 | 33.6-253 | PDG3X3TA630 | Terminal shield | $J$ | K | L | 450-600 |
| Optional Aluminum Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 500-750 | 253-380 | PDG3X3TA402 | Terminal shield | T | U | V | 100-400 |
| 400 | 400 | Aluminum | Cu/AI | B, C | 2 | $\begin{aligned} & \text { 2/0-250 (2) or } \\ & 2 / 0-500(1) \end{aligned}$ | 67.4-127 (2) or <br> 67.4-253 (1) | PDG3X3TA401 | Terminal shield | 1 | 0 | F | 100-400 |
| 400 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 3-500 | 26.7-253 | PDG3X3TA400H | - | T | U | V | H250-H400 |
| Optional Copper Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 300 | 400 | Copper | Cu | B, C | 1 | 3-350 | 26.7-177 | PDG3X3T300 | - | W | Y | Z | 100-225 |
| 350 | 400 | Copper | Cu | B, C | 1 | 250-500 | 127-253 | PDG3X3T350 | - | W | Y | Z | 250-350 |
| 400 | 400 | Copper | Cu | B, C | 2 | 3/0-250 | 85-127 | PDG3X3T400 | Terminal shield | W | Y | Z | 400 |
| 400 | 400 | Copper | Cu/Al | B, C | 1 | $\begin{aligned} & \text { Al: } 500-750 \\ & \text { Cu: } 500 \text { Only } \end{aligned}$ | - | PDG3X3T402 | Terminal shield | - | - | - | - |
| 400 | 600 | Copper | Cu | B, C | 1 | 3-500 | 26.7-253 | PDG3X3T400H | - | - | - | - | - |
| 400 | 600 | Copper | Cu | B, C | 1 | 500-750 | 253-380 | PDG3X3T401H | Terminal shield | W | Y | Z | H250-H400 |
| 630 | 600 | Copper | Cu | B, C | 2 | 2-500 | 33.6-253 | PDG3X3T630 | Terminal shield | W | Y | Z | 450-600 |
| StrandAble Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Aluminum | Cu/Al | B, C | 2 | 3/0-250 | 85-127 | PDG3X3TA400SW | Terminal shield | A | B | C | 100-400 |
|  |  |  |  | $\begin{aligned} & \text { D, G, H, } \\ & \text { I, K, M } \end{aligned}$ |  | 3/0-4/0 | 85-107 |  |  |  |  |  |  |
| 350 | 400 | Aluminum | Cu/Al | B, C | 1 | 250-500 | 127-253 | PDG3X3TA350SW | - | - | - | - | - |
|  |  |  |  | $\begin{aligned} & \mathrm{D}, \mathrm{G}, \mathrm{H}, \\ & \mathrm{I}, \mathrm{~K}, \mathrm{M} \end{aligned}$ |  | 250-350 | 127-177 |  |  |  |  |  |  |
| 630 | 600 | Aluminum | Cu/Al | B, C | 2 | 2-500 | 33.6-253 | PDG3X3TA630SW | Terminal shield | A | B | C | H250-600 |
|  |  |  |  | $\begin{aligned} & \text { D, G, H, } \\ & \text { I, K, M } \end{aligned}$ |  | 2-350 | 33.6-177 |  |  |  |  |  |  |

Molded Case Circuit Breakers

Power Defense Molded Case Circuit Breakers

## Terminals—Frame Size 3

Terminals, continued

| Maximum <br> Breaker Amperes | Breaker Frame | Terminal Body Type | Wire Type | Wire Class | Number of Conductors per Phase | AWG / kcmil <br> Range per <br> Conductor | Metric ( $\mathrm{mm}^{2}$ ) <br> Range per <br> Conductor | 3-Pole Catalog Number | Included Accessories | Digit 14 Designation |  |  | Factory <br> Config. <br> Ampere <br> Range |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  | Line and Load | Line Only | Load Only |  |
| Control Wire Aluminum Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 2 | 3/0-250 | 85-127 | PDG3X3TA400CW | Terminal shield | 1 | 2 | 3 | 100-400 |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 2 | $\begin{aligned} & \text { 2/0-250 (2) or } \\ & 2 / 0-500(1) \end{aligned}$ | $\begin{aligned} & \text { 67.4-127 (2) or } \\ & 67.4-253(1) \end{aligned}$ | PDG3X3TA401CW | Terminal shield | 4 | 5 | 6 | 100-400 |
| 400 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 500-750 | 253-380 | PDG3X3TA401HCW | Terminal shield | 1 | 2 | 3 | H250-H400 |
| 630 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 2 | 2-500 | 33.6-253 | PDG3X3TA630CW | Terminal shield | 1 | 2 | 3 | 450-600 |
| Control Wire Copper Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Copper | Cu | B, C | 2 | 3/0-250 | 85-127 | PDG3X3T400CW | Terminal shield | 7 | 8 | 9 | 100-400 |
| 400 | 600 | Copper | Cu | B, C | 1 | 500-750 | 253-380 | PDG3X3T401HCW | Terminal shield | 7 | 8 | 9 | H250-H400 |
| 630 | 600 | Copper | Cu | B, C | 2 | 2-500 | 33.6-253 | PDG3X3T630CW | Terminal shield | 7 | 8 | 9 | 450-600 |
| Multi-wire Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 3 | 12-2/0 | 3.31-67.4 | PDG3X3TA4003W | Terminal shield | - | - | H | 100-400 |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 6 | 14-3 | 2.08-26.7 | PDG3X3TA4006W | Terminal shield | - | - | G | 100-400 |
| 600 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 6 | 14-1/0 | 2.08-53.5 | PDG3X3TA6006W | Terminal shield | - | - | G | H250-600 |
| StrandAble Multi-wire Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 600 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 6 | 12-2/0 | - P | PDG3X3TA6006WSW | Terminal shield | - | - | - | - |
|  |  |  |  | $\begin{aligned} & \text { D, G, H, } \\ & \text { I, K, M } \end{aligned}$ |  | 8-1/0 |  |  |  |  |  |  |  |
| Rear-fed Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | 400 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 250-500 | 127-253 | PDG3X3TA400RF ${ }^{\text {¹ }}$ | Interphase barriers | - | - | - | - |
| 400 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 1 | 2-500 | 33.6-253 | PDG3X3TA400HRF ${ }^{(1)}$ | Interphase barriers | - | - | - | - |
| 630 | 600 | Aluminum | $\mathrm{Cu} / \mathrm{Al}$ | B, C | 2 | 2-500 | 33.6-253 | PDG3X3TA630RF ${ }^{\text {¹ }}$ | Interphase barriers | - | - | - | - |
| Rear Connectors |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | - | - | - | - | - | - | - | PDG3X3T400RC | - | R | - | - | 100-400 |
| 630 | - | - | - | - | - | - | - | PDG3X3T630RC | - | R | - | - | 250-600 |
| End Cap Kits/Screw Terminals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 400 | - | - | - | - | - | - | - | PDG3X3TS400 | - | S | D | E | 100-400 |
| 600 | - | - | - | - | - | - | - | PDG3X3TS600 | - | S | D | E | 250-600 |

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.

## Control Wire Tabs

| Use | Package <br> Oty. | Catalog <br> Number |
| :--- | :--- | :--- |
| $100-400 \mathrm{~A}$ | 12 | KCWTK |

Note
(1) Terminals not UL Listed.

## Accessories

## Internal Accessory Configurations—Frame Size 3

## 3-Pole Circuit Breakers



4-Pole Circuit Breakers


## Notes

(1) Frame 3 Power Defense breakers with electronic trip units AND communication only have access to one alarm space. Breakers with thermal-magnetic trip units or electronic trip units without communication have access to two alarm spaces.
(2) Neutral pole includes two additional auxiliary spaces.

## Alarm and Auxiliary Contact Blocks-Frame Size 3

Power Defense breakers have designated positions for alarm and auxiliary switches in the right pole accessory cavity. For Frame 3, the two left-most positions are used for alarm switches, and the two right-most locations are used for auxiliary switches.
Power Defense breakers have secondary covers for ease of field installation of accessories, including alarm and auxiliary switches.

Power Defense alarm and auxiliary switches are available in contact blocks, in Form A (NO), Form B (NC), and Form C (NO-NC) types. Form A and Form B contacts take one position in the breaker accessory cavity, and Form C contacts take two positions in the cavity. Identical contact blocks are used for the alarm and auxiliary switch functions.
Electronic breakers with communications options (Modbus RTU or CAM Link) lose one alarm switch position, but are also able to provide trip position via communications and the PXR programmable relays.

## Contact Blocks

Pigtail (29 in / 0.75 m ) Contact Blocks for Alarm and Auxiliary Switch Functionality

| Catalog Number | PDGXAA | PDGXAB | PDGXAC |
| :--- | :--- | :--- | :--- |
| Type | Form A / NO | Form B / NC | Form C / NO-NC |
|  |  |  |  |
| Screw Terminal Contact Blocks for <br> Alarm and Auxiliary Switch Functionality <br> Catalog Number | PDGXXA | PDGXXB | PDGXXA + PDGXXB |
| Type | Form A / NO | Form B / NC | For NO-NC, use two <br> separate contact <br> blocks |

Pigtail ( 118 in / 3.0 m ) Contact Blocks for Alarm and Auxiliary Switch Functionality

| Catalog Number | PDGXDA | PDGXDB | PDGXDC |
| :--- | :--- | :--- | :--- |
| Type | Form A / NO | Form B / NC | Form C / NO-NC |

## Factory Installation of Alarm and Auxiliary Switches-Frame Size 3

Alarm and auxiliary switches are plug-and-play accessories designed to be field installable. However, Eaton also offers installation service in our factories.

Breaker catalog numbers with alarm and auxiliary switch combinations require a complete 20-digit catalog number, adding the alarm and
auxiliary switch functionality in digits 15-16 and adhering to the following conditions and tables:

- Digit 15 denotes the type of accessory(-ies) installed and the terminal types
- Switches may be requested for alarm only, auxiliary only or a combination of the two
- For Eaton factory
installation, the same type of terminals (i.e., all pigtail 0.75 m , all screw, etc.) must be used. If a combination of alarm and auxiliary switches is selected, they must be the same type (i.e., all 1NC, all 1NO/1NC, etc.)
- Digit 16 denotes number and type (NO, NC) of switches installed
- If no other accessories are selected, use NNNN for the final 4 digits of the catalog number
- Electronic breakers with communications lose one alarm switch position in order to provide trip status via communications. They do not lose an auxiliary position for this purpose.

Pigtails-29 in / $0.75 \mathrm{~m}(\mathrm{~A}, \mathrm{~B}, \mathrm{C})$


Screw Terminals (X,Y, Z)


Push-In Clamps (U, V, W)

|  |  | Auxiliary Switch Three-Pole |  |  |  |  |  | Four-Pole 2NO/2NC | 4NO | 4NC |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | None | 1N0 | 1NC | 1NO/1NC | 2N0 | 2NC |  |  |  |
| Alarm Switch | None | NN | UA | UB | UC | UD | UE | U1 | U2 | U3 |
|  | 1N0 | VA | WA | - | - | - | - | - | - | - |
|  | 1NC | VB | - | WB | - | - | - | - | - | - |
|  | 1NO/1NC | VC | - | - | WC | - | - | W1 | - | - |
|  | 2NO | VD | - | - | - | WD | - | - | W2 | - |
|  | 2NC | VE | - | - | - | - | WE | - | - | W3 |

# Molded Case Circuit Breakers 

Power Defense Molded Case Circuit Breakers

## Factory Installation of Alarm and Auxiliary Switches-Frame Size 3

Pigtails-118 in / 3.0 m (D, E, F)

|  |  | Auxiliary Switch |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | None | 1N0 | 1NC | 1NO/1NC | 2NO | 2NC | Four-Pole 2NO/2NC | 4NO | 4NC |
| Alarm Switch | None | NN | DA | DB | DC | DD | DE | D1 | D2 | D3 |
|  | 1N0 | EA | FA | - | - | - | - | - | - | - |
|  | 1NC | EB | - | FB | - | - | - | - | - | - |
|  | 1NO/1NC | EC | - | - | FC | - | - | F1 | - | - |
|  | 2NO | ED | - | - | - | FD | - | - | F2 | - |
|  | 2NC | EE | - | - | - | - | FE | - | - | F3 |

For PXR Trip Units with Communication ©

|  |  | Auxiliary Switch |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | None | 1NO | 1NC | 1NO/1NC | 2NO | 2NC | 2NO/2NC | 4NO | 4NC |
| Alarm Switch | None | NN | AA | AB | AC | AD | AE | A1 | A2 | A3 |
|  | 1NO | BA | CA | - | CF | CG | - | CP | CO | - |
|  | 1NC | BB | - | CB | CH | - | Cl | CR | - | CS |

## Tripping Accessories—Frame Size 3

Power Defense breakers have designated positions for shunt trips and undervoltage releases
(UVRs) in the left pole accessory cavity. Each breaker has space for one tripping accessory only.
Power Defense breakers have secondary covers for ease of field installation of tripping accessories.
Shunt Trips

| Voltage | Screw Terminals | Pigtail (29 in / 0.75 m) | Pigtail (118 in / 3.0 m) |
| :--- | :--- | :--- | :--- |
| 12 Vdc | PDG3XST12DCT | PDG3XST12DCS | PDG3XST12DCR |
| 48 Vdc | PDG3XST48DCT | PDG3XST48DCS | PDG3XST48DCR |
| 60 Vdc | PDG3XST60DCT | PDG3XST60DCS | PDG3XST60DCR |
| $24 \mathrm{Vac} / \mathrm{Vdc}$ | PDG3XST24ACDCT | PDG3XST24ACDCS | PDG3XST24ACDCR |
| $110-130 \mathrm{Vac} / 125 \mathrm{Vdc}$ | PDG3XST130ACDCT | PDG3XST130ACDCS | PDG3XST130ACDCR |
| $200-240 \mathrm{Vac} / 250 \mathrm{Vdc}$ | PDG3XST250ACDCT | PDG3XST250ACDCS | PDG3XST250ACDCR |
| $380-440 \mathrm{Vac}$ | PDG3XST440ACT | PDG3XST440ACS | PDG3XST440ACR |
| $480-525 \mathrm{Vac}$ | PDG3XST525ACT | PDG3XST525ACS | PDG3XST525ACR |
| 600 Vac | PDG3XST600ACT | PDG3XST600ACS | PDG3XST600ACR |

Undervoltage Releases (UVRs)

| Voltage | Screw Terminals | Pigtail (29 in / 0.75 m) | Pigtail (118 in / 3.0 m) |
| :--- | :--- | :--- | :--- |
| 12 Vdc | PDG3XUV12DCV | PDG3XUV12DCU | PDG3XUV12DCW |
| 24 Vdc | PDG3XUV24DCV | PDG3XUV24DCU | PDG3XUV24DCW |
| 48 Vdc | PDG3XUV48DCV | PDG3XUV48DCU | PDG3XUV48DCW |
| 60 Vdc | PDG3XUV60DCV | PDG3XUV60DCU | PDG3XUV60DCW |
| 125 Vdc | PDG3XUV125DCV | PDG3XUV125DCU | PDG3XUV125DCW |
| 250 Vdc | PDG3XUV250DCV | PDG3XUV250DCU | PDG3XUV250DCW |
| 24 Vac | PDG3XUV24ACV | PDG3XUV24ACU | PDG3XUV24ACW |
| 130 Vac | PDG3XUV130ACV | PDG3XUV130ACU | PDG3XUV130ACW |
| 240 Vac | PDG3XUV240ACV | PDG3XUV240ACU | PDG3XUV240ACW |
| 440 Vac | PDG3XUV440ACV | PDG3XUV440ACU | PDG3XUV440ACW |
| 525 Vac | PDG3XUV525ACV | PDG3XUV525ACU | PDG3XUV525ACW |
| 600 Vac | PDG3XUV600ACV | PDG3XUV600ACU | PDG3XUV600ACW |

Note: Use PDG3XUV18DCW when using Time Delay UVR.
Note
(1) All options shown have $29 \mathrm{in} / 0.75 \mathrm{~m}$ pigtail termination. For alternate termination options, contact the product line.

Power Defense Molded Case Circuit Breakers

## Factory Installed Tripping Accessories—Frame Size 3

Shunt trips and undervoltage releases (UVRs) are plug-andplay accessories designed to be field installable. However, Eaton also offers the service of installation in our factories.

Breaker catalog numbers with shunt trips or UVRs require a complete 20-digit catalog number, adding the tripping accessory functionality in digits 17 and 18 and adhering to the following conditions and tables.

- Digit 17 denotes the type of accessory installed and the terminal type
- Digit 18 denotes the voltage of the accessory
- If no additional accessories are selected, use NN for digits 15-16 and 19-20 of the catalog number
- Each breaker has space for one shunt trip or UVR tripping accessory only


## Shunt Trips

| Voltage | Screw Terminals | Pigtail ( $\mathbf{2 9} \mathbf{~ i n ~ / ~ 0 . 7 5 ~ m ) ~}$ | Pigtail ( $\mathbf{1 1 8} \mathbf{~ i n ~ / ~ 3 . 0 ~ m ) ~}$ |
| :--- | :--- | :--- | :--- |
| 12 Vdc | TH | SH | RH |
| 48 Vdc | TJ | SJ | RJ |
| 60 Vdc | TK | SK | RK |
| $24 \mathrm{Vac} / \mathrm{Vdc}$ | SN | RN |  |
| $110-130 \mathrm{Vac} / 125 \mathrm{Vdc}$ | TP | SP | RP |
| $200-240 \mathrm{Vac} / 250 \mathrm{Vdc}$ | TR | SR | RR |
| $380-440 \mathrm{Vac}$ | TC | SC | RC |
| $480-525 \mathrm{Vac}$ | TD | SD | RD |
| 600 Vac | TE | SE | RE |

## Undervoltage Releases (UVRs)

| Voltage | Screw Terminals | Pigtail (29 in / 0.75 m) | Pigtail (118 in / 3.0 m) |
| :--- | :--- | :--- | :--- |
| 12 Vdc | VH | UH | WH |
| 24 Vdc | VG | UG | WG |
| 48 Vdc | VJ | UJ | WJ |
| 60 Vdc | VK | UK | WK |
| 125 Vdc | VL | UL | WL |
| 250 Vdc | VM | UM | WM |
| 24 Vac | VF | UF | WF |
| 130 Vac | VA | UB | WA |
| 240 Vac | VB | UC | WC |
| 440 Vac | VC | UD | WD |
| 525 Vac | VD | UE | WE |
| 600 Vac | VE |  |  |

Note: Use suffix US for 18 Vdc when using Time Delay UVR.

## Handle Mechanisms-Frame Size 3

Direct Rotary Handle Mechanism (1)

| Description | NEMA 1/12 <br> Catalog Number | Factory Installed <br> Digits 19-20 |
| :--- | :--- | :--- |
| Standard lockable handle and mechanism | PDG3XHMCS | HA |
| Standard lockable handle and mechanism with door interlock | PDG3XHMCSN | HB |
| Standard lockable handle and mechanism with mechanical padlock | PDG3XHMCSP | HC |
| Standard lockable handle and mechanism with door interlock and <br> mechanical padlock | PDG3XHMCSNP | HE |
| Emergency lockable handle and mechanism | PDG3XHMCE | H1 |
| Emergency lockable handle and mechanism with door interlock | PDG3XHMCEN | H2 |
| Emergency lockable handle and mechanism with mechanical padlock | PDG3XHMCEP | H3 |
| Emergency lockable handle and mechanism with door interlock and <br> mechanical padlock | PDG3XHMCENP | H5 |

Variable Depth Rotary Handle Mechanism ©

| Description | NEMA 1/3R/12/4/4X <br> Catalog Number | Factory Installed <br> Digits 19-20 |
| :--- | :--- | :--- |
| Standard lockable handle and mechanism | PDG3XHMDS | DA |
| Standard lockable handle and mechanism with mechanical padlock | PDG3XHMDSP | DC |
| Emergency lockable handle and mechanism | PDG3XHMDE | D1 |
| Standard lockable handle and mechanism with mechanical padlock | PDG3XHMDEP | D3 |
| 9 in $(245 \mathrm{~mm})$ handle mechanism shaft | PDG34XHMS245 | - |
| 17 in $(445 \mathrm{~mm})$ handle mechanism shaft | PDG34XHMS445 | - |
| Standard NFPA79-compliant shaft handle | PDG34XHM79S | - |
| Emergency NFPA79-compliant shaft handle | PDG34XHM79E | - |

Flex Shaft Handle Mechanism

|  | Metal Handle, <br> NEMA 1/3R/12 <br> Catalog Number | High Performance Handle, <br> NEMA 1/3R/12 <br> Catalog Number | Metal Handle, <br> NEMA 4/4X <br> Catalog Number | High Performance Handle, <br> NEMA 4/4X <br> Catalog Number |
| :--- | :--- | :--- | :--- | :--- |
| 2 | PDG3XFS02 | PDG3XFS02HP | PDG3XFS02X | PDG3XFS02HPX |
| 3 | PDG3XFS03 | PDG3XFS03HP | PDG3XFS03X | PDG3XFS03HPX |
| 4 | PDG3XFS04 | PDG3XFS04HP | PDG3XFS04X | PDG3XFS04HPX |
| 5 | PDG3XFS05 | PDG3XFS05HP | PDG3XFS05X | PDG3XFS05HPX |
| 6 | PDG3XFS06 | PDG3XFS06HP | PDG3XFS06X | PDG3XFS06HPX |
| 7 | PDG3XFS07 | PDG3XFS07HP | PDG3XFS07X | PDG3XFS07HPX |
| 8 | PDG3XFS08 | PDG3XFS08HP | PDG3XFS08X | PDG3XFS08HPX |
| 9 | PDG3XFS09 | PDG3XFS09HP | PDG3XFS09X | PDG3XFS09HPX |
| 10 | PDG3XFS10 | PDG3XFS10HP | PDG3XFS10X | PDG3XFS10HPX |

Note
(1) Standard handles are black and gray; Emergency handles are red and yellow.

Molded Case Circuit Breakers

Power Defense Molded Case Circuit Breakers

Accessories—Frame Size 3
External Accessories
2

| Description | Fit Type | Catalog Number | Factory Installed Digits 19-20 |
| :---: | :---: | :---: | :---: |
| Padlockable hasp | Top | PDG3XPLKT | L4 |
| Padlockable hasp, OFF only | Top | PDG3XPLKTOFF | L1 |
| Padlockable handle block | On handle | PDG3XPHB | - |
| Kirk lock provisionleft side, Type F ${ }^{(1)}$ | Left side | PDG3XKLKPSF | L8 |
| Kirk lock provisionright side, Type F ${ }^{(1)}$ | Right side |  | L9 |
| Kirk lock provisionleft/right side, Type FF (1) | Left/right side | PDG3XKLKPSFF | - |
| Walking beam interlock (2) (3) | 400 A frame, two-, three- and four-pole | PDG3XWBI234P | - |
|  | 600 A frame, two- and three-pole | PDG3XWBI23P | - |
|  | 600 A frame, four-pole | PDG3XWBI4P | - |
| Electrical operator | 24 Vdc | PDG3XR0P24DC | RG |
|  | $48-60 \mathrm{Vdc}$ | PDG3XR0P60DC | RJ or RK |
|  | 125 Vdc | PDG3XROP125DC | RL |
|  | 250 Vdc | PDG3XROP250DC | RM |
|  | 110-130 Vac | PDG3XR0P130AC | RA |
|  | 200-240 Vac | PDG3XR0P240AC | RB |
|  | 380-440 Vac | PDG3XR0P440AC | RC |
| Plug-in breaker base only | Three-pole | PDG3XPIBB3P600A | - |
|  | Four-pole | PDG3XPIBB4P600A | - |
| Plug-in breaker parts kit | Three-pole, 400 A | PDG3XPIBK3P400A | - |
|  | Three-pole, 600 A | PDG3XPIBK3P600A | - |
|  | Four-pole, 400 A | PDG3XPIBK4P400A | - |
|  | Four-pole, 600 A | PDG3XPIBK4P600A | - |
| Terminal covers (4) | Three-pole (400 A frame) | PDG3XTC3P400A | - |
|  | Three-pole | PDG3XTC3P | - |
|  | Four-pole | PDG3XTC4P | - |
| Interphase barriers | Single-pole | PDG3XIB | - |
|  | Three-pole | PDG3XIB3P | - |
|  | Four-pole | PDG3XIB4P | - |
| Finger protection | Three-pole | PDG3XFP3P | - |
|  | Four-pole | PDG3XFP4P | - |
| Neutral CTs for ground fault (PXR) | Bus bar type | PDG3XNCTB0600 | - |
| Service entrance barrier kit | Three-pole | PRLSEBPD3 | - |

Base Mounting Hardware

| Description | Catalog Number |
| :--- | :--- |
| Two-, three-, four-pole metric (400 A) | BMH3M |
| Two-, three-, four-pole English (400 A) | BMH3 |
| Two-, three-, four-pole metric (600 A) | $\mathbf{6 6 A 4 5 6 0 G 0 3}$ |

Note: Base mounting hardware is included with a circuit breaker or molded case switch.

## Dimensions and Weights-Frame Size 3

Approximate Dimensions in Inches (mm)

| Number of Poles | Width | Height | Depth |
| :--- | :--- | :--- | :--- |
| 2 | $5.47(138.9)$ | $10.13(257.1)$ | $4.30(109.1)$ |
| 3 | $5.47(138.9)$ | $10.13(257.1)$ | $4.30(109.1)$ |
| 4 | $7.22(182.9)$ | $10.13(257.1)$ | $4.30(109.1)$ |

Approximate Shipping Weight in lb (kg)

| Breaker Type | 2-Pole | 3-Pole | 4-Pole |
| :--- | :--- | :--- | :--- |
| PDG3 400 A | $8.05(3.65)$ | $11.02(5.0)$ | $13.77(6.25)$ |
| PDG3 600 A | $10.43(4.73)$ | $12.36(5.61)$ | $16.27(7.39)$ |

Notes
(1) Provision only. Kirk keylock sold separately. Bolt projection in withdrawn position is 0.375 in $(9.525 \mathrm{~mm})$ for F -lock and 0 in $(0 \mathrm{~mm})$ for FF -lock.
(2) Breaker must be ordered with walking beam interlock ready modification from plant (factory suffix WB in digits 19-20).
(3) Requires two breakers.
(4) PDG3 with 0400 or below rating ship from the factory with the 400 A frame terminal cover, but can be fitted with either in the field. 600 A frames, including H 250 , H 400 , etc ship with the standard terminal cover.


[^0]:    (1) Not available in 4-pole $60 \%$ neutral protection.
    ${ }^{2}$ 2 See tables and descriptions on Page V4-T2-48 for protection type ( $\left.\#_{(1)}\right)$ and available configured options $\left(\#_{(2)}\right)$.

