Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Contents

Description
Table 1. Revision notes ....................................................... 4
Table 2. Circuit breaker catalog number convention ......................... 5
Table 3. Electronic trip unit catalog number convention ...................... 6
Table 4. Thermal magnetic trip unit catalog number convention ................ 6
Table 5. Symmetrical RMS interruption ratings $I_{cu}$ (kA) for each breaker frame ............... 7
Table 6. Curve notes .......................................................... 7

Labels
Figure 1. Power Defense frame 2 trip unit front labels .......................... 8

Curves
Figure 2. PXR 20D / PXR 25 - $I_{lt}$ long delay and flat short delay .............. 9
Figure 3. PXR 20 - $I_{lt}$ long delay and flat short delay .......................... 10
Figure 4. PXR 20D / PXR 25 - $I_{lt}$ long delay and $I_{lt}$ short delay ............... 11
Figure 5. PXR 20 $I_{lt}$ long delay and $I_{lt}$ short delay ............................ 12
Figure 6. PXR 20D / PXR 25 - $I_{lt}$ long delay and flat short delay ............... 13
Figure 7. PXR 20D / PXR 25 ground (earth) flat delay .......................... 14
Figure 8. PXR 20D / PXR 25 -ground (earth) $I_{lt}$ delay ......................... 15
Figure 9. PXR 20 - ground (earth) flat delay ................................. 16
Figure 10. PXR 20 - ground (earth) $I_{lt}$ delay ................................. 17
Figure 11. PXR 20D / PXR 25 - instantaneous and override for 60A frame ............... 18
Figure 12. PXR 20D / PXR 25 - instantaneous and override for 100A frame ............... 19
Figure 13. PXR 20D / PXR 25 - instantaneous and override for 150A frame ............... 20
Figure 14. PXR 20D / PXR 25 - instantaneous and override for 225A frame ............... 21
Figure 15. PXR 20D / PXR 25 - instantaneous and override for 63A frame ............... 22
Figure 16. PXR 20D / PXR 25 - instantaneous and override for 100A frame ............... 23
Figure 17. PXR 20D / PXR 25 - instantaneous and override for 160A frame ............... 24
Figure 18. PXR 20D / PXR 25 - instantaneous and override for 200A frame ............... 25
Figure 19. PXR 20D / PXR 25 - instantaneous and override for 250A frame ............... 26
Figure 20. PXR 20 / PXR 10 - instantaneous and override for 60A frame ............... 27
Figure 21. PXR 20 / PXR 10 - instantaneous and override for 100A frame ............... 28
Figure 22. PXR 20 / PXR 10 - instantaneous and override for 150A frame. .............................. 29
Figure 23. PXR 20 / PXR 10 - instantaneous and override for 225A frame. ............................ 30
Figure 24. PXR 20 / PXR 10 - instantaneous and override for 63A frame. ............................. 31
Figure 25. PXR 20 / PXR 10 - instantaneous and override for 100A frame. ........................... 32
Figure 26. PXR 20 / PXR 10 - instantaneous and override for 160A frame. ......................... 33
Figure 27. PXR 20 / PXR 10 - instantaneous and override for 200A frame. ........................... 34
Figure 28 PXR 20 / PXR 10 - instantaneous and override for 250A frame. .......................... 35
Figure 29. PXR 10 LSI profile for short flat curves. ....................................................... 36
Figure 30. PXR 10 LSI profile for I2t short curves. ......................................................... 37
Figure 31. PXR 10 LI style 60A frame. ............................................................................. 38
Figure 32. PXR 10 LI style 100A frame. ........................................................................... 39
Figure 33. PXR 10 LI style 150A Frame. ............................................................................ 40
Figure 34. PXR 10 LI style 225A frame. ............................................................................ 41
Figure 35. PXR 10 LI style 63A frame. .............................................................................. 42
Figure 36. PXR 10 LI style 100A frame. ............................................................................ 43
Figure 37. PXR 10 LI style 160A frame. ............................................................................ 44
Figure 38. PXR 10 LI style 200A frame. ............................................................................ 45
Figure 39. PXR 10 LI style 250A frame. ............................................................................ 46
Figure 40. 15A fixed thermal fixed magnetic. ...................................................................... 47
Figure 41. 20A fixed thermal fixed magnetic. ...................................................................... 48
Figure 42. 25A fixed thermal fixed magnetic. ...................................................................... 49
Figure 43. 30A fixed thermal fixed magnetic. ...................................................................... 50
Figure 44. 35A fixed thermal fixed magnetic. ...................................................................... 51
Figure 45. 40A fixed thermal fixed magnetic. ...................................................................... 52
Figure 46. 45A fixed thermal fixed magnetic. ...................................................................... 53
Figure 47. 50A fixed thermal fixed magnetic. ...................................................................... 54
Figure 48. 60A fixed thermal fixed magnetic. ...................................................................... 55
Figure 49. 70A fixed thermal fixed magnetic. ...................................................................... 56
Figure 50. 80A fixed thermal fixed magnetic. ...................................................................... 57
Figure 51. 90A fixed thermal fixed magnetic. ...................................................................... 58
Figure 52. 100A fixed thermal fixed magnetic. .................................................................... 59
Figure 53. 110A fixed thermal fixed magnetic. .................................................................... 60
Figure 54. 125A fixed thermal fixed magnetic. .................................................................... 61
Figure 55. 150A fixed thermal fixed magnetic. .................................................................... 62
Figure 56. 15A fixed thermal fixed magnetic. ..................................................................... 63
Figure 57. 20A fixed thermal fixed magnetic. ..................................................................... 64
Figure 58. 25A fixed thermal fixed magnetic. ..................................................................... 65
Figure 59. 30A fixed thermal fixed magnetic. ..................................................................... 66
Figure 60. 35A fixed thermal fixed magnetic. ..................................................................... 67
Figure 61. 40A fixed thermal fixed magnetic. ..................................................................... 68
Figure 62. 45A fixed thermal fixed magnetic. ..................................................................... 69
Figure 63. 50A fixed thermal fixed magnetic. ..................................................................... 70
Figure 64. 60A fixed thermal fixed magnetic. ..................................................................... 71
Figure 65. 70A fixed thermal fixed magnetic. ..................................................................... 72
Figure 66. 80A fixed thermal fixed magnetic. ..................................................................... 73
Figure 67. 90A fixed thermal fixed magnetic. ..................................................................... 74
Figure 68. 100A fixed thermal fixed magnetic. ................................................................... 75
Figure 69. 110A fixed thermal fixed magnetic. ................................................................... 76
Figure 70. 125A fixed thermal fixed magnetic. ................................................................... 77
Figure 71. 150A fixed thermal fixed magnetic. ................................................................... 78
Figure 72. 175A fixed thermal fixed magnetic. ................................................................... 79
Figure 73. 200A fixed thermal fixed magnetic. ................................................................... 80
Figure 74. 225A fixed thermal fixed magnetic. ................................................................... 81
Figure 75. 160A/200A/250A adjustable thermal and adjustable magnetic. ......................... 82
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 76. 240V let-through current 225A. ................................................ 83
Figure 77. 240V let-through current 250A. ................................................ 84
Figure 78. 240V let-through energy 225A. ................................................... 85
Figure 79. 240V let-through energy 250A. ................................................... 86
Figure 80. 415-440V let-through current 225A. ............................................ 87
Figure 81. 415V/440V let-through current 250A. ............................................ 88
Figure 82. 415V-480V let-through current 225A. ............................................ 89
Figure 83. 480V let-through current 250A. ................................................... 90
Figure 84. 415V/440V let-through energy 225A. .......................................... 91
Figure 85. 415V/440V let-through energy 250A. .......................................... 92
Figure 86. 415V-480V let-through energy 225A. .......................................... 93
Figure 87. 480V let-through energy 250A. ................................................... 94
Figure 88. 600V let-through current 150A. ................................................... 95
Figure 89. 600V let-through current 160A. ................................................... 96
Figure 90. 690V let-through current 250A. ................................................... 97
Figure 91. 600V let-through energy 150A. ................................................... 98
Figure 92. 600V let-through energy 160A. ................................................... 99
Figure 93. 690V let-through energy 250A. ................................................... 100
### Table 1. Revision notes

Note: Unless noted below, all curves remain unchanged from their prior revision.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Curve number</th>
<th>Page</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power Defense frame 2 initial release</td>
<td></td>
<td>02/15/2019</td>
</tr>
</tbody>
</table>
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

This information is provided only as an aid to understand the catalog numbers.
It is not to be used to build catalog numbers for circuit breakers or trip units as all combinations may not be available.

### Table 2. Circuit breaker catalog number convention

**PDG2 3 M 0225 P 2 M J**

<table>
<thead>
<tr>
<th>Breaker Family</th>
<th>Interrupting Rating Designator</th>
<th>Continuous Current Rating</th>
<th>Magnetic Protection</th>
<th>ETU Trip Unit Style</th>
<th>ETU Protection Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDG3</td>
<td>3 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>3 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>2 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>1 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
<tr>
<td>PDG2</td>
<td>0 M</td>
<td>0225</td>
<td>2 125 A</td>
<td>B</td>
<td>1 Li</td>
</tr>
</tbody>
</table>

**Note:** IEC standard breakers include the CE mark; GB standard breakers include the CCC mark.
Table 3. Electronic trip unit catalog number convention

<table>
<thead>
<tr>
<th>Style Family</th>
<th>Ampere Frame Rating</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDG2</td>
<td>060</td>
<td>N None</td>
</tr>
<tr>
<td>PDG2</td>
<td>063</td>
<td>R Relays</td>
</tr>
<tr>
<td>PDG2</td>
<td>0100</td>
<td>Z ZSi</td>
</tr>
<tr>
<td>PDG2</td>
<td>0150</td>
<td>M Modbus</td>
</tr>
<tr>
<td>PDG2</td>
<td>0160</td>
<td>C CAM Interface</td>
</tr>
<tr>
<td>PDG2</td>
<td>0200</td>
<td>O Modbus &amp; CAM Interface</td>
</tr>
<tr>
<td>PDG2</td>
<td>0225</td>
<td>W ZSi and Modbus</td>
</tr>
<tr>
<td>PDG2</td>
<td>0250</td>
<td>X ZSi and CAM Interface</td>
</tr>
<tr>
<td>PDG2</td>
<td>0275</td>
<td>Y ZSi, Modbus and CAM Interface</td>
</tr>
<tr>
<td>PDC2</td>
<td>0300</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0305</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0310</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0315</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0320</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0325</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0330</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0335</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0340</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0345</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0350</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0360</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0370</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0380</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0390</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0400</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0410</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0420</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0430</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0440</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0450</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0460</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0470</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0480</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0490</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0500</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0510</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0520</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0530</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0540</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0550</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0560</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0570</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0580</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0590</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0600</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0610</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0620</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0630</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0640</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0650</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0660</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0670</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0680</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0690</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0700</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0710</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0720</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0730</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0740</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0750</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0760</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0770</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0780</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0790</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0800</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0810</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0820</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0830</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0840</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0850</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0860</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0870</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0880</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0890</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0900</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0910</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0920</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0930</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0940</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0950</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0960</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0970</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0980</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>0990</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1010</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1020</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1030</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1040</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1050</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1060</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1070</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1080</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1090</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1100</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1110</td>
<td></td>
</tr>
<tr>
<td>PDC2</td>
<td>1120</td>
<td></td>
</tr>
</tbody>
</table>

Note: IEC standard breakers include the CE mark; GB standard breakers include the CCC mark.

This information is provided only as an aid to understand the catalog numbers.

Table 4. Thermal magnetic trip unit catalog number convention

<table>
<thead>
<tr>
<th>Style Family</th>
<th>Trip Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDG2</td>
<td>TFA Thermal Fixed - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDG2</td>
<td>TAA Thermal Adjustable - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDG2</td>
<td>VFA Thermal Fixed 50°C calibrated - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDG2</td>
<td>VAA Thermal Adjustable 50°C calibrated - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDC2</td>
<td>TFA Thermal Fixed - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDC2</td>
<td>TAA Thermal Adjustable - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDC2</td>
<td>VFA Thermal Fixed 50°C calibrated - Adjustable Magnetic</td>
</tr>
<tr>
<td>PDC2</td>
<td>VAA Thermal Adjustable 50°C calibrated - Adjustable Magnetic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poles</th>
<th>ETU Protection Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1 LI</td>
</tr>
<tr>
<td>4</td>
<td>2 LSI</td>
</tr>
<tr>
<td>6</td>
<td>3 LSIG</td>
</tr>
<tr>
<td>0</td>
<td>4 LSI ARMS</td>
</tr>
<tr>
<td></td>
<td>5 LSIG ARMS</td>
</tr>
</tbody>
</table>

Note: IEC standard breakers include the CE mark; GB standard breakers include the CCC mark.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Table 5. Symmetrical RMS interruption ratings $I_{cu}$ (kA) for each breaker frame

<table>
<thead>
<tr>
<th>Frame</th>
<th>Voltage</th>
<th>UL / CSA</th>
<th>IEC / CCC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>240V</td>
<td>480V</td>
<td>600V</td>
</tr>
<tr>
<td>Globally rated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDG2xF</td>
<td>35</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>PDG2xG</td>
<td>65</td>
<td>35</td>
<td>18</td>
</tr>
<tr>
<td>PDG2xK</td>
<td>85</td>
<td>50</td>
<td>22</td>
</tr>
<tr>
<td>PDG2xM</td>
<td>100</td>
<td>65</td>
<td>25</td>
</tr>
<tr>
<td>PDG2xN</td>
<td>150</td>
<td>85</td>
<td>30/25</td>
</tr>
<tr>
<td>PDG2xP</td>
<td>200</td>
<td>100</td>
<td>35/25</td>
</tr>
<tr>
<td>IEC / GB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDC2xF</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDC2xG</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDC2xK</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDC2xM</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDC2xN</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UL/CSA Rated up to 240V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDD2xF</td>
<td>35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDD2xG</td>
<td>65</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDD2xK</td>
<td>85</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDD2xM</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDD2xN</td>
<td>150</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PDD2xP</td>
<td>200</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Two poles in series

Table 6. Curve notes

1. These curves apply for 50Hz and 60Hz applications.
2. The maximum voltage rating for the frame style is stated in Table 5.
3. These curves are comprehensive for Power Defense style circuit breakers including frame sizes, ratings and constructions stated.
4. The total clearing times shown include the response time for the trip unit, the breaker opening and the interruption of the current. The bottom of the time band is the minimum commit to trip time.
5. The end of the curve is determined by the application or the interrupting rating of the circuit breaker.
6. Thermal Magnetic trip unit calibration based on 40°C ambient, cold start. Tested with 4 feet of rated wire (75°C) per terminal. Tested in open air with current in all poles.
7. Thermal Magnetic trip unit instantaneous calibration based on single pole testing.
Technical Data

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Labels

PXR 25 and PXR 20 – unit with LSIG protection pictured

PXR 20 – unit with LSIG protection pictured

PXR 10 – unit with LSI protection pictured

Adjustable thermal, adjustable magnetic unit pictured

Figure 1. Power Defense frame 2 trip unit front labels.

Note: Trip unit drawings in Figure 1 are representative of the face plates provided. Values on the trip unit dials will change based upon the specific breaker and trip unit. Refer to the time current curve of the breaker or the PXR User Guide for the specific settings.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Curves

Figure 2. PXR 20D / PXR 25 - I^2t Long Delay and Flat Short Delay Curves

Notes:
1. Long Delay pickup is 110% of the Ir setting at steps of 1A with ±5% tolerance.
2. Long Delay Time Settings adjustable from 0.5s - 24s at steps of 0.1s with ±0%/-30% tolerance.
3. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
4. Short Delay pickup settings adjustable from 1.5x - 12.0x at steps of 0.1x with ±5% tolerance.
5. Short delay time settings adjustable from 0.050s - 0.500s at steps of 0.010s with tolerances as follows: time delay settings 0.500s to greater than 0.200s have tolerances of ±0%/-30%, time delay settings between 0.200s to 0.100s have tolerances of ±0%/-40%, and time delay settings below 0.100s to 0.050s have tolerances of ±50%/-50%.
6. If the Long Delay time is projected to be faster than the Short Delay time, the Long Delay trip time will go no faster than the Short Delay time value.
7. With ZSI enabled, tripping times for 3-phase faults, no auxiliary power will be a maximum of 60ms for 60Hz and 68ms for 50Hz.
Figure 3. PXR 20 - $I_t$ long delay and flat short delay
Figure 4. PXR 20D / PXR 25 - I²t Long Delay and I²t Short Delay Curves.

Notes:
1. Long Delay pickup is 110% of the Ir setting at steps of 1A with ±5% tolerance.
2. Long Delay Time Settings adjustable from 0.5s - 24s at steps of 0.1s with +0%/-30% tolerance.
3. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
4. Short Delay pickup settings adjustable from 1.5x - 8.0x at steps of 0.1x with ±5% tolerance.
5. Short delay time settings adjustable from 0.067s – 0.300s at steps of 0.010s with tolerances as follows:
   - I²t time delay slope settings from 0.3 to 1.0 have a tolerance of ±30%.
   - Slope settings below 0.100s have a ±0/40% tolerance after 8x time delay flat settings greater than 0.200s have tolerances of ±0/40%.
   - Time delay settings between 0.200s to 0.100s have tolerances of ±0/40%.
   - Time delay settings below 0.100s to 0.067s have tolerances of ±0/50%.
6. If the Long Delay time is projected to be faster than the Short Delay time, the Long Delay trip time will go no faster than the Short Delay time value.
7. With ZSI enabled, tripping times for 3-phase faults, no auxiliary power will be a maximum of 60ms for 60Hz and 63ms for 50Hz.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Notes:
1. Long Delay pickup is 110% of the Ir setting with ±5% tolerance.
2. Long Delay Time Settings as shown have +0%/−30% tolerance.
3. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
4. Short Delay pickup settings as shown have ±5% tolerance.
5. Short Delay time settings are shown with tolerances.
6. If the Long Delay time is projected to be faster than the Short Delay time, the Long Delay trip time will go no faster than the Short Delay time value.
7. With ZSI enabled, tripping times for 3-phase faults, no auxiliary power will be a maximum of 60ms for 60Hz and 63ms for 50Hz.

Figure 5. PXR 20 I²t long delay and I²t short delay.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Technical Data

Time current curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 3 and 4 Poles
Trip Unit Type: Power Xpert Release – PXR 20D / PXR 25
Curve: Long Delay I₄ᵗ and Short Delay Flat

Ir setting  | PDG 60A | PDG 100A | PDG 150A | PDG 225A
Min.       | 15A    | 32A      | 50A      | 80A
Max.       | 60A    | 100A     | 150A     | 225A

Ir setting  | PDC9 63A | PDC9 100A | PDC9 160A
Min.       | 16A      | 25A       | 40A
Max.       | 63A      | 100A      | 160A

Ir setting  | PDC2 160A | PDC2 200A | PDC2 250A
Min.       | 40A       | 50A       | 63A
Max.       | 160A      | 200A      | 250A

Notes:
1. Long Delay pickup is 110% of the Ir setting at
steps of 1A with ±5% tolerance.
2. Long Delay Time Settings adjustable from 0.5s -
7s at steps of 0.1s with +0%/-30% tolerance.
3. If Thermal Memory is enabled, trip times may be
shorter than indicated in this curve.
4. Short Delay pickup settings adjustable from 1.5x-
12.0x at steps of 0.1x with ±5% tolerance.
5. Short delay time settings adjustable from 0.05s-
0.500s at steps of 0.01s with tolerances as
follows: time delay settings 0.500s to greater
than 0.200s have tolerances of +0/-30%, time
delay settings between 0.200s to 0.100s have
tolerances of +0/-40%, and time delay settings
below 0.100s to 0.050s have tolerances of
+50/-50%.
6. If the Long Delay time is projected to be faster
than the Short Delay time, the Long Delay trip
time will go no faster than the Short Delay
time value.
7. With ZSI enabled, tripping times for 3-phase
faults, no auxiliary power will be a maximum of
60ms for 60Hz and 63ms for 50Hz.

Figure 6. PXR 20D / PXR 25 - I₄ᵗ long delay and flat short delay.

February 2019
Figure 7. PXR 20D / PXR 25 ground (earth) flat delay.
Figure 8. PXR 20D / PXR 25 - ground (earth) I^2t delay.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 9. PXR 20 - ground (earth) flat delay.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Figure 10. PXR 20 - ground (earth) \( I^2T \) Delay Curves

Notes:
1. Ground Pickup settings as shown are for Residual sensing with a tolerance of ± 10%.
2. Ground slope \( I^2T \) time settings are shown with tolerances.
3. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
4. With ZSI enabled, tripping times for 3-phase faults, no aux. power will be a maximum of 60ms for 60Hz and 63ms for 50Hz.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 11. PXR 20D / PXR 25 - instantaneous and override for 60A frame.

Notes:
1. The Instantaneous pickup settings adjustable from 2x – 18.3(Max) at steps of 0.10x with a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 1100A and has a ±15% tolerance.
Figure 12. PXR 20D / PXR 25 - instantaneous and override for 100A frame.
Technical Data TD012064EN
Effective February 2019

Time current curves Power Defense MCCB Frame 2 thermal-magnetic and PXR electronic trip units Standards: UL, CSA, IEC, CCC

PXR 20D / PXR 25 - 150A Frame Instantaneous Curves

Time Current Curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 3 and 4 Poles
Trip Unit Type: Power Xpert Release – PXR 20D / PXR 25
Curve: Instantaneous and Override curves for 150A Frame
Frame: PDG2

Notes:
1. The instantaneous pickup settings as shown with a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 2100A and has a ±15% tolerance.

Figure 13. PXR 20D / PXR 25 - instantaneous and override for 150A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 14. PXR 20D / PXR 25 - instantaneous and override for 225A frame.
Figure 15. PXR 20D / PXR 25 - Instantaneous and override for 63A frame.
**Technical Data**

Effective February 2019

**Time current curves Power Defense MCCB**

Frame 2 thermal-magnetic and PXR electronic trip units

Standards: UL, CSA, IEC, CCC

---

**Figure 16. PXR 20D / PXR 25 - instantaneous and override for 100A frame.**

- **PXR 20D / PXR 25 - 100A Frame Instantaneous Curves**
  - **Time Current Curves**
  - **Power Defense Circuit Breakers**
  - **Style:** Frame 2
  - **Configuration:** 3 and 4 Poles
  - **Trip Unit Type:** Power Xpert Release – PXR 20D / PXR 25
  - **Curve:** Instantaneous and Override curves for 100A Frame
  - **Frame:** PDC9

**Notes:**
1. The Instantaneous pickup settings adjustable from 2x – 11x(Max) at steps of 0.1x with a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 1100A and has a ±15% tolerance.
Figure 17. PXR 20D / PXR 25 - instantaneous and override for 160A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 18. PXR 20D / PXR 25 - instantaneous and override for 200A frame.
Figure 19. PXR 20D / PXR 25 - instantaneous and override for 250A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 20. PXR 20 / PXR 10 - instantaneous and override for 60A frame.
Technical Data

TD012064EN

Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 21. PXR 20 / PXR 10 - instantaneous and override for 100A frame.

Notes:
1. The Instantaneous pickup settings shown have a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 1100A and has a ±15% tolerance.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Technical Data TD012064EN
Effective February 2019

PXR 20 / PXR 10 - 150A Frame Instantaneous Curves

1. The Instantaneous pickup settings as shown with a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 2100A and has a ±15% tolerance.

Figure 22. PXR 20 / PXR 10 - instantaneous and override for 150A frame.
Figure 23. PXR 20 / PXR 10 - instantaneous and override for 225A frame.
**Time Current Curves Power Defense MCCB**

Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

---

**EATON**

www.eaton.com

---

**Figure 24. PXR 20 / PXR 10 - instantaneous and override for 63A frame.**
EATON

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 25. PXR 20 / PXR 10 - instantaneous and override for 100A frame.

Notes:
1. The Instantaneous pickup settings shown have a ±10% tolerance.
2. For high fault current levels a fixed instantaneous override is provided at 1100A and has a ±15% tolerance.
**Eaton Time Current Curves**

**Power Defense Circuit Breakers**

**Style:** Frame 2

**Configuration:** 3 and 4 Poles

**Trip Unit Type:** Power Xpert Release – PXR 20 / PXR 10

**Curve:** Instantaneous and Override curves for 160A Frame

**Frame:** PDC9

**Notes:**
1. The instantaneous pickup settings shown have a ±10% tolerance
2. For high fault current levels a fixed instantaneous override is provided at 2100A and has a ±15% tolerance.

---

**Figure 26. PXR 20 / PXR 10 - instantaneous and override for 160A frame.**
Technical Data TD012064EN
Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 27. PXR 20 / PXR 10 - instantaneous and override for 200A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 28. PXR 20 / PXR 10 - instantaneous and override for 250A frame.
**Technical Data**

**TD012064EN**

**Effective February 2019**

**Time current curves Power Defense MCCB**

**Frame 2 thermal-magnetic and PXR electronic trip units**

**Standards: UL, CSA, IEC, CCC**

---

**Figure 29. PXR 10 LSI profile for short flat curves. February 2019**

---

**Notes:**

1. Long Delay pickup is 110% of the Ir setting with ±5% tolerance.
2. Long Delay Time Setting has ±5% tolerance. It is fixed at a 10s time band.
3. Instantaneous pickup settings have ±10% tolerance.
4. Short Delay pickup settings as shown have ±5% tolerance.
5. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
6. Setting J in the table is the default value but can be programmed from a minimum of 2x to a maximum of 10x in steps 0.5x and a time delay of 50ms to 300ms in steps of 50ms using the Power Xpert Protection Manager software (PXPM).
7. When Profile K is selected, PXR 10 LTI style curve should be used.

---

**Current in Multiples of Long Delay Setting (Ir)**

---

**Ir PDC9 PDC9 PDC9**

1 16A 25A 40A
2 18A 32A 50A
3 20A 40A 63A
4 25A 50A 70A
5 32A 55A 80A
6 40A 63A 90A
7 45A 70A 100A
8 50A 80A 125A
9 55A 90A 150A
10 63A 100A 160A

---

**Ir PDC16 PDC16 PDC16**

1 40A 50A 63A
2 50A 63A 80A
3 63A 80A 100A
4 70A 90A 125A
5 80A 100A 150A
6 90A 125A 160A
7 100A 150A 175A
8 125A 160A 200A
9 150A 175A 225A
10 160A 200A 250A

---

**Profile Isd (n x Ir) tsd (s)**

<table>
<thead>
<tr>
<th>Profile</th>
<th>Isd (n x Ir)</th>
<th>tsd (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>0.150</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>0.300</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>0.300</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>0.300</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>0.300</td>
</tr>
<tr>
<td>F</td>
<td>6</td>
<td>0.150</td>
</tr>
<tr>
<td>G</td>
<td>6</td>
<td>0.300</td>
</tr>
<tr>
<td>H</td>
<td>10</td>
<td>0.300</td>
</tr>
<tr>
<td>J</td>
<td>10</td>
<td>0.300</td>
</tr>
<tr>
<td>K</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

---

**EATON**

www.eaton.com
Figure 30. PXR 10 LSI profile for I^2t short curves.
Figure 31. PXR 10 LI style 60A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 32. PXR 10 LI style 100A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 33. PXR 10 LI style 150A Frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Technical Data TD012064EN
Effective February 2019

Figure 34. PXR 10 Li style 225A frame.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 35. PXR 10 LI style 63A frame.

Notes:
1. Long Delay pickup is 110% of the Ir setting with ±5% tolerance.
2. Long Delay Time Setting has ±0%/-30% tolerance.
3. Instantaneous pickup settings have ±10% tolerance.
4. For high fault current levels a fixed instantaneous override is provided at 1100A and has a ±15% tolerance.
5. If Thermal Memory is enabled, trip times may be shorter than indicated in this curve.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Figure 36. PXR 10 LI style 100A frame.
Technical Data TD012064EN
Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 37. PXR 10 LI style 160A frame.

EATON www.eaton.com
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Figure 38. PXR 10 LI style 200A frame.
**Figure 39. PXR 10 LI style 250A frame.**
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 40. 15A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 41. 20A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 42. 25A fixed thermal fixed magnetic.

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB-4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.
30A Fixed Thermal Fixed Magnetic

**Figure 43. 30A fixed thermal fixed magnetic.**

- **Style:** Frame 2
- **Configuration:** 1 Pole
- **Trip Unit Type:** Thermal Magnetic
- **Trip Unit Style:** Fixed Thermal – Fixed Magnetic
- **Breaker Frame:** PDG or PDC style

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

---

**Technical Data**

**Effective February 2019**

EATON www.eaton.com

---

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

**Technical Data**

**Effective February 2019**

**Figure 44. 35A fixed thermal fixed magnetic.**

### Time Current Curves
- **Power Defense Circuit Breakers**
- **Style:** Frame 2
- **Configuration:** 1 Pole
- **Trip Unit Type:** Thermal Magnetic
- **Trip Unit Style:** Fixed Thermal – Fixed Magnetic
- **Breaker Frame:** PDG or PDC style

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB-4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 45. 40A fixed thermal fixed magnetic.

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

EATON www.eaton.com

Figure 46. 45A fixed thermal fixed magnetic.
Technical Data TD012064EN
Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 47. 50A fixed thermal fixed magnetic.
Technical Data

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Note:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.
70A Fixed Thermal Fixed Magnetic

Time Current Curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 1 Pole
Trip Unit Type: Thermal Magnetic
Trip Unit Style: Fixed Thermal – Fixed Magnetic
Breaker Frame: PDG or PDC style

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB-4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

Figure 49. 70A fixed thermal fixed magnetic.
Figure 50. 80A fixed thermal fixed magnetic.

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 51. 90A fixed thermal fixed magnetic.

Notes:
1. Single pole test data at 25°C based on NEMA procedures (A8-4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.
Figure 52. 100A fixed thermal fixed magnetic.
Figure 53. 110A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 54. 125A fixed thermal fixed magnetic.
Figure 55. 150A fixed thermal fixed magnetic.

**F.T.N.**

**Time Current Curves**

**Power Defense Circuit Breakers**

- **Style:** Frame 2
- **Configuration:** 1 Pole
- **Trip Unit Type:** Thermal Magnetic
- **Trip Unit Style:** Fixed Thermal – Fixed Magnetic
- **Breaker Frame:** PDG or PDC style

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

15A Fixed Thermal Fixed Magnetic

<table>
<thead>
<tr>
<th>Time in Seconds</th>
<th>Current in Amperes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>0.10</td>
<td>1.00</td>
</tr>
<tr>
<td>1.00</td>
<td>10.00</td>
</tr>
<tr>
<td>10.00</td>
<td>100.00</td>
</tr>
<tr>
<td>100.00</td>
<td>1000.00</td>
</tr>
<tr>
<td>1000.00</td>
<td>10000.00</td>
</tr>
<tr>
<td>10000.00</td>
<td>100000.00</td>
</tr>
<tr>
<td>100000.00</td>
<td>1000000.00</td>
</tr>
</tbody>
</table>

Maximum Single Pole Trip Times at 25°C

Maximum Tolerance

Minimum Tolerance

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.

Figure 56. 15A fixed thermal fixed magnetic.
**20A Fixed Thermal Fixed Magnetic**

- **Time Current Curves**
- **Power Defense Circuit Breakers**
- **Style:** Frame 2
- **Configuration:** 2, 3, 4 Pole
- **Trip Unit Type:** Thermal Magnetic
- **Trip Unit Style:** Fixed Thermal – Fixed Magnetic
- **Breaker Frame:** PDG or PDC style

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.

---

**Figure 57. 20A fixed thermal fixed magnetic.**
Figure 58. 25A fixed thermal fixed magnetic.
30A Fixed Thermal Fixed Magnetic

Time Current Curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 2, 3, 4 Pole
Trip Unit Type: Thermal Magnetic
Trip Unit Style: Fixed Thermal – Fixed Magnetic
Breaker Frame: PDG or PDC style

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

Figure 59. 30A fixed thermal fixed magnetic.
Figure 60. 35A fixed thermal fixed magnetic.
Figure 61. 40A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 62. 45A fixed thermal fixed magnetic.

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.
Figure 63. 50A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

60A Fixed Thermal Fixed Magnetic

Figure 64. 60A fixed thermal fixed magnetic.
Technical Data TD012064EN
Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

70A Fixed Thermal Fixed Magnetic

Time Current Curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 2, 3, 4 Pole
Trip Unit Type: Thermal Magnetic
Trip Unit Style: Fixed Thermal – Fixed Magnetic
Breaker Frame: PDG or PDC style

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

Figure 65. 70A fixed thermal fixed magnetic.
80A Fixed Thermal Fixed Magnetic

Time Current Curves
Power Defense Circuit Breakers
Style: Frame 2
Configuration: 2, 3, 4 Pole
Trip Unit Type: Thermal Magnetic
Trip Unit Style: Fixed Thermal – Fixed Magnetic
Breaker Frame: PDG or PDC style

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

Figure 66. 80A fixed thermal fixed magnetic.
Figure 67. 90A fixed thermal fixed magnetic.
100A Fixed Thermal Fixed Magnetic

Maximum Single Pole Trip Times at 25°C

Minimum Tolerance

Maximum Tolerance

interruption rating and application determines end of curve

240V, 480V, 600V

Figure 68. 100A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Technical Data TD012064EN
Effective February 2019

110A Fixed Thermal Fixed Magnetic

- Style: Frame 2
- Configuration: 2, 3, 4 Pole
- Trip Unit Type: Thermal Magnetic
- Trip Unit Style: Fixed Thermal – Fixed Magnetic
- Breaker Frame: PDG or PDC style

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC Instantaneous trip values are approximately 40% higher.

Figure 69. 110A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Effective February 2019

Figure 70. 125A fixed thermal fixed magnetic.

Notes:
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

150A Fixed Thermal Fixed Magnetic

Maximum Single Pole Trip Times at 25°C

Minimum Tolerance

Maximum Tolerance

interruption rating and application determines end of curve

240V 480V 600V

Figure 71. 150A fixed thermal fixed magnetic.
**Technical Data**

**TD012064EN**

Effective February 2019

Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

**EATON**

www.eaton.com

---

**Figure 72. 175A fixed thermal fixed magnetic.**

- **175A Fixed Thermal Fixed Magnetic**
- **Time in Seconds**
- **Current in Amperes**

**Notes:**
1. Single pole test data at 25°C based on NEMA procedures (AB 4) for verifying performance of molded case circuit breakers.
2. DC instantaneous trip values are approximately 40% higher.

---

**Technical Data**

**TD012064EN**

Effective February 2019
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 73. 200A fixed thermal fixed magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 74. 225A fixed thermal fixed magnetic.
Figure 75. 160A/200A/250A adjustable thermal and adjustable magnetic.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 76. 240V let-through current 225A.

Effective February 2019
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Figure 77. 240V let-through current 250A.

Peak Let-through Current

Available Short Circuit Current, kA_{rms}
Figure 78. 240V let-through energy 225A.
PD2 250A 240V
Peak Let-through Energy

Available Short Circuit Current, kA$_{rms}$

Figure 79. 240V let-through energy 250A.
Figure 80. 415-440V let-through current 225A.
Figure 81. 415V/440V let-through current 250A.
Time current curves Power Defense MCCB
Frame 2 thermal-magnetic and PXR electronic trip units
Standards: UL, CSA, IEC, CCC

Technical Data TD012064EN
Effective February 2019

Figure 82. 415V-480V let-through current 225A.

EATON www.eaton.com
Figure 83. 480V let-through current 250A.

PD2 250A 480V
Peak Let-through Current

Available Short Circuit Current, kA

Peak Let -Through Current, kA

1 10 100 1000

1 10 100

480V
Figure 84. 415V/440V let-through energy 225A.
Figure 85. 415V/440V let-through energy 250A.
Figure 86. 415V-480V let-through energy 225A.
Figure 88. 600V let-through current 150A.
**PD2 160A 600V**

**Peak Let-through Current**

Available Short Circuit Current, kA \(\text{rms}\)

**Figure 89. 600V let-through current 160A.**
Figure 90. 690V let-through current 250A.
Figure 91. 600V let-through energy 150A.
Figure 92. 600V let-through energy 160A.
Figure 93. 690V let-through energy 250A.

PD2 250A 690V
Peak Let-through Energy

Available Short Circuit Current, kA rms

Peak Let-Through Energy $I^2t$, A$^2$ sec

10000000
1000000
100000
10000
100
1
10
100

690V