Neutral Current Sensors - PXR Trip Units, Frames 2, 3, 4, 5 & 6

Instructions apply to:

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**WARNING**

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

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

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**WARNING**

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

- Disconnecting;
- Ensure that devices cannot be accidentally restarted;
- Verify isolation from the supply;
- Earthing and short-circuiting; and
- Covering or providing barriers to adjacent live parts.

Disconnect the equipment from the supply. Use only authorized spare parts in the repair of the equipment. The specified maintenance intervals as well as the instructions for repair and exchange must be strictly adhered to prevent injury to personnel and damage to the switchboard.
Section 1: Neutral Current Sensor Installation

Ground Fault Trip Units detect ground fault currents through Residual Sensing. If the system neutral is grounded and residual ground fault is desired, but no phase to neutral loads are used, a neutral current sensor is not necessary. In that case, a jumper is required between the circuit breaker’s gray and white wires.

If the system neutral is grounded and phase to neutral loads are used, then the neutral current sensor (see Figure 1) must be used to account for this load in the residual ground fault sensing. It has the same turns ratio as the phase current sensors in the circuit breaker. The factory installed jumper wire must be removed before installing the neutral current sensor.

For all neutral sensors, primary connections should be made by routing or connecting the source neutral connection on the side or terminal where the dot is placed. Note: the dot must face the current source. Secondary connections are made by terminating the gray and white colored wires from the trip unit to the terminals labeled with those colors. Refer to Figure 2, 3, 4, or 5 for dimensional and labeling details.

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<th>Application</th>
<th>Catalog#</th>
<th>Trip Unit Rating Where Used</th>
<th>Details</th>
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<td>PD2</td>
<td>Cable Type</td>
<td>PDG2XNCTD0100</td>
<td>60A, 63A, 100A</td>
<td>Figure 2</td>
</tr>
<tr>
<td>PD2</td>
<td>Cable Type</td>
<td>PDG2XNCTD0225</td>
<td>150A, 160A, 225A, 250A</td>
<td>Figure 2</td>
</tr>
<tr>
<td>PD2</td>
<td>Busbar Type</td>
<td>PDG2XNCTB0100</td>
<td>60A, 63A, 100A</td>
<td>Figure 3</td>
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<tr>
<td>PD2</td>
<td>Busbar Type</td>
<td>PDG2XNCTB0225</td>
<td>150A, 160A, 225A, 250A</td>
<td>Figure 3</td>
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<td>PD3</td>
<td>Busbar Type</td>
<td>PDG3XNCTB0600</td>
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<td>800A, 1000A</td>
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<td>PD5</td>
<td>Busbar Type</td>
<td>PDG5XNCTB1200</td>
<td>800A, 1200A, 1600A</td>
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<td>PD6</td>
<td>Busbar Type</td>
<td>PDG6XNCTB2500</td>
<td>1600A, 2000A, 2500A</td>
<td>Figure 5</td>
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</tbody>
</table>

Table 1. Catalog Number and Use Details

Figure 1. Neutral Current Sensor Application
Neutral Current Sensors - PXR Trip Units, Frames 2, 3, 4, 5 & 6

Figure 2. PD2-Cable type Dimensions

Figure 3. PD2, PD3 and PD4 Busbar Type Dimensions
Section 2: Performance Testing For Ground Fault Circuit Breakers

Please consult Instruction Leaflet number IL012125EN for general instructions to aid you in ground fault testing of Power Defense circuit breakers with PXR electronic trip units.

General Test Instructions

The interconnect system shall be evaluated in accordance with the equipment assembler’s detailed instruction by qualified personnel. The polarity of the neutral sensor connection (if used) must agree with equipment assembler’s detailed instructions to avoid improper operations following apparently correct simulated test operations. Where a question exists, consult the specifying engineer and/or equipment assembler.

The grounding points of the system shall be verified to determine that ground paths do not exist that would bypass the sensors. High-voltage testers and resistance bridges may be used.

IMPORTANT

THE POLARITY OF THE SENSOR CONNECTIONS IS CRITICAL. ALWAYS OBSERVE THE POLARITY MARKINGS ON THE INSTALLATION DRAWINGS. THE POLARITY MARKINGS ARE IDENTIFIED AS WHITE DOTS ON THE TRANSFORMERS. TO INSURE CORRECT GROUND FAULT EQUIPMENT PERFORMANCE, CONDUCT FIELD TESTS TO COMPLY WITH NATIONAL ELECTRIC CODE REQUIREMENTS UNDER ARTICLE 230-95-C. SEE PERFORMANCE TESTING INSTRUCTIONS ON IL012125EN.

Note: Since the ground fault circuit breakers derive their operating power from the phase current and not from the neutral current, passing current through the neutral sensor only will not properly test the ground fault feature.
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