
Grounding Failure Case Study

Verifying Absence of Voltage

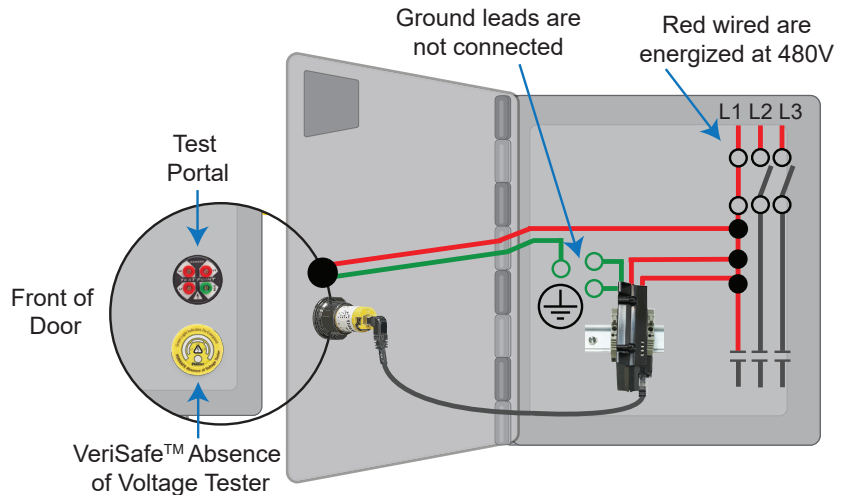





Electrical Enclosure with Incoming 3-Phase 480V AC Power

Situation

Worker approaches the enclosure and the disconnect switch for the 480V power source is in the OFF position. The disconnect switch has failed with one phase (L1) in the closed position (L2, L3 are open). The ground leads of the devices are NOT connected to ground because of an improper installation or termination failure.

The worker applies a lock. Following safety procedures, the worker performs an absence of voltage test with the electrical enclosure closed using a permanently mounted device.



Permanently Mounted Device	Failure Mode	Potential Cause	System State	Detection	Failure Effect	Incident Consequence
 Absence of Voltage Tester (AVT)	Ground lead(s) are NOT connected to ground	Improper installation or termination failure	Disconnect is in the OPEN/OFF position with L1 energized	YES The AVT will detect open ground (or phase) lead(s) and communicate the installation of sensor leads is not verified	AVT will detect open ground lead(s) and communicate installation is the reason the absence of voltage test cannot be confirmed	None - Incident Avoided
 Test Portal				NO Voltage measurement results in zero voltage when <u>voltage is present</u>	Worker erroneously considers electrical enclosure as deenergized	
 Voltage Test Station				NO The L1 LED for the voltage indicator will not be illuminated and measurement results in zero voltage when <u>voltage is present</u>		• Probable shock or arc flash event • Equipment damage is likely



Since 1955, Panduit's culture of curiosity and passion for problem solving have enabled more meaningful connections between companies' business goals and their marketplace success. Panduit creates leading-edge physical, electrical, and network infrastructure solutions for enterprise-wide environments, from the data center to the telecom room, from the desktop to the plant floor. Headquartered in Tinley Park, IL, USA and operating in 112 global locations, Panduit's proven reputation for quality and technology leadership, coupled with a robust partner ecosystem, help support, sustain, and empower business growth in a connected world.

For more information

Visit us at www.panduit.com

**Contact Panduit North America Customer Service by email: cs@panduit.com
or by phone: 800.777.3300**

THE INFORMATION CONTAINED IN THIS ARTICLE IS INTENDED AS A GUIDE FOR USE BY PERSONS HAVING TECHNICAL SKILL AT THEIR OWN DISCRETION AND RISK. BEFORE USING ANY PANDUIT PRODUCT, THE BUYER MUST DETERMINE THE SUITABILITY OF THE PRODUCT FOR HIS/HER INTENDED USE AND BUYER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH. PANDUIT DISCLAIMS ANY LIABILITY ARISING FROM ANY INFORMATION CONTAINED HEREIN OR FOR ABSENCE OF THE SAME.

All Panduit products are subject to the terms, conditions, and limitations of its then current Limited Product Warranty, which can be found at www.panduit.com/warranty.

* All trademarks, service marks, trade names, product names, and logos appearing in this document are the property of their respective owners.

PANDUIT US/CANADA
Phone: 800.777.3300

PANDUIT EUROPE LTD.
London, UK
cs-emea@panduit.com
Phone: 44.20.8601.7200

PANDUIT SINGAPORE PTE. LTD.
Republic of Singapore
cs-ap@panduit.com
Phone: 65.6305.7575

PANDUIT JAPAN
Tokyo, Japan
cs-japan@panduit.com
Phone: 81.3.6863.6000

PANDUIT LATIN AMERICA
Guadalajara, Mexico
cs-la@panduit.com
Phone: 52.33.3777.6000

PANDUIT AUSTRALIA PTY. LTD.
Victoria, Australia
cs-aus@panduit.com
Phone: 61.3.9794.9020