

Application Solution 110:

Marine Voltage Sensing Power Distribution Center (PDC)

The Challenge:

An industry leading boat builder's vessel uses a 120/240V system protected by a 3-Pole 50Amp C-Series breaker. When the neutral wire became broken or lifted, the unchecked 240V was destroying expensive 120V on-board electronics.

Common causes for lifted, or dropped neutral:

1. Sub-standard, or poor/faulty wiring at the marina.
2. Incomplete shore power plug connection - making two of three contacts.
3. Inadvertent disconnection of shore cables by marina personnel or other boat owners.

The Solution:

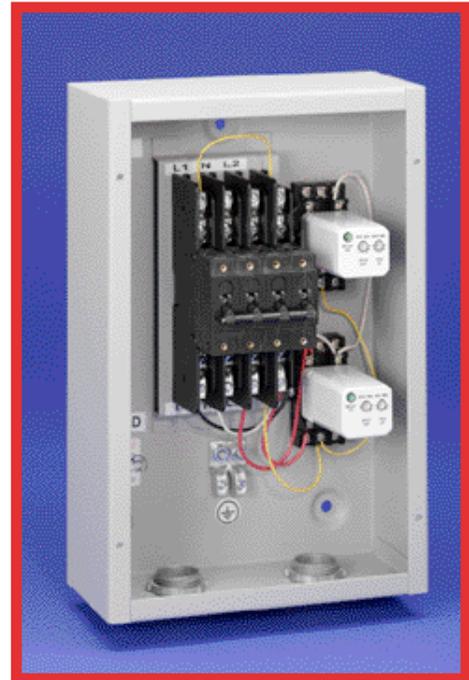
Although isolation transformers can be used to address this situation, but they are costly, require counterbalancing to adjust the centerline, and do not include integral circuit protection. To counter the deficiencies of the isolation transformer solution, Carling designed and developed a voltage sensing PDC incorporating a combination of our relay trip constructed circuit breakers and voltage sensing relays. The internal circuit is designed to ensure that when a lifted/dropped neutral condition occurs, the relays signal the relay trip portion of the circuit breaker and immediately open the circuit before the runaway high voltage has an opportunity to destroy expensive lower voltage on-board electronics.

The Results:

Our Marine Voltage Sensing PDC provides the boat builder with a cost-effective solution, which is lighter in weight and easier to install, than their isolation transformer solution. As a result, the boat builder is now utilizing the Carling PDC to protect their expensive 120V on-board electronics.

Applications:

Any 120/240V application that requires protection from occurrences of costly lifted/dropped neutral conditions.



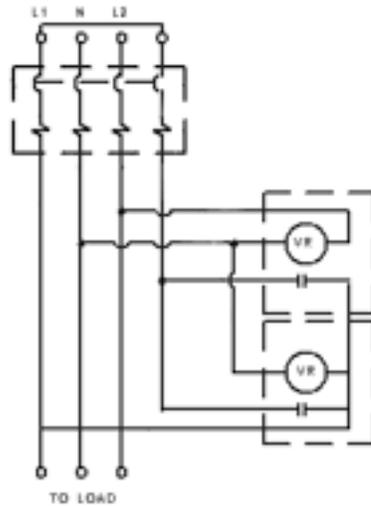
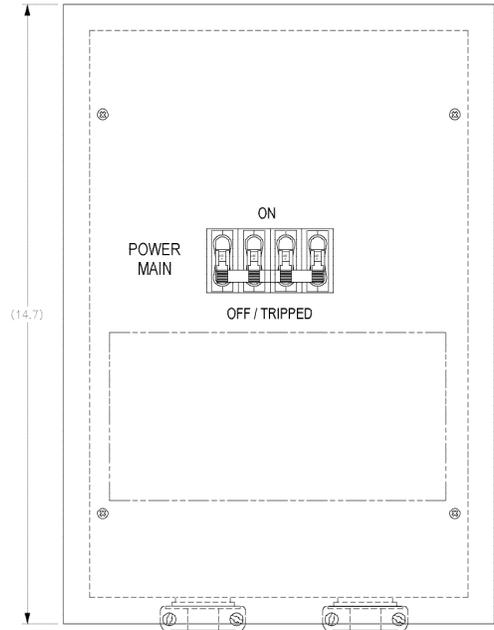
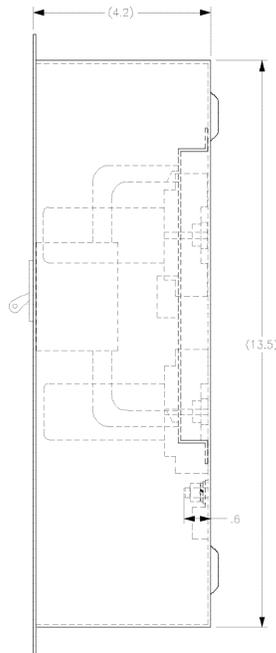
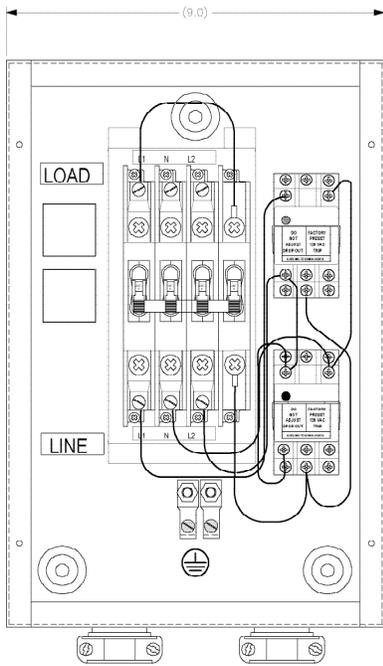
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For additional information and to order our Marine Voltage Sensing PDC, please contact a Carling Technologies Technical Customer Service Rep:

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Dimensional Specifications [in.]:



Warranty Policy

Carling Technologies, Inc. (Seller) warrants that goods sold hereunder shall be free of defects in material and workmanship for one year from date of shipment.

In the event of such defects, the Seller's only obligation shall be the replacement or the cost of the defective goods, themselves, excluding, without limitation, labor costs, which are or may be required in connection with the replacement or reinstallation of the goods. This warranty is the Seller's sole obligation and excludes all other remedies or warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. This Warranty expressly excludes any and all incidental, special and/or consequential damages of any nature. Seller further disclaims any responsibility for injury to person or damage to or loss of property or value caused by any product which has been subjected to misuse, negligence, or accident; or misapplied, or modified or repaired by a person or persons not authorized by the Seller or which have been improperly installed.