

Voltage References & Current Transformer Wiring Diagram (4-wire WYE)



Auxiliary Mains Supply

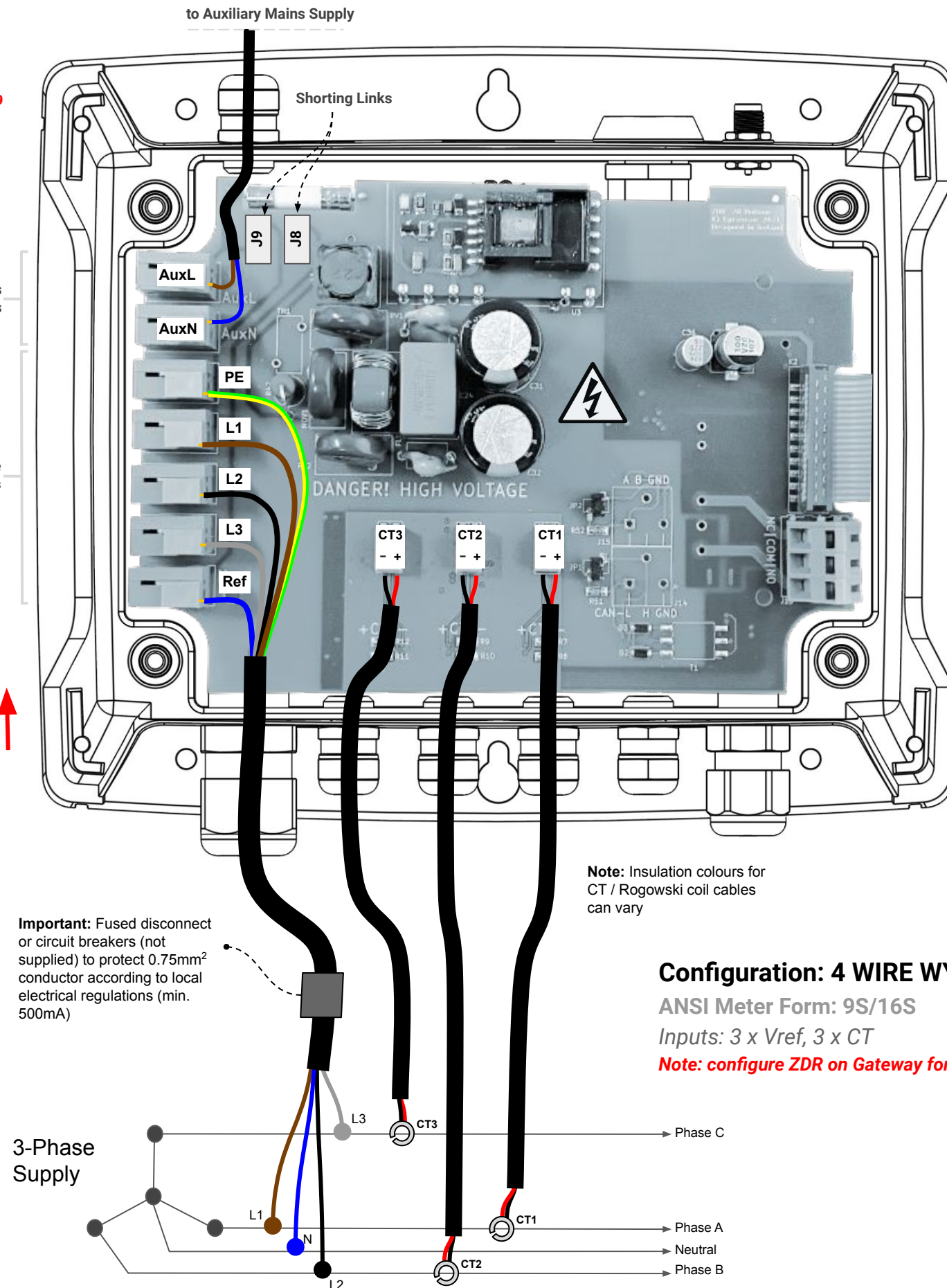
By default, the ZDR is powered from a single-phase supply taken from voltage references L1 and N. To power the ZDR from an Auxiliary Mains Supply (85 - 480VAC ± 10%) first remove shorting links J8 and J9. **Important:** Use a fused disconnect or circuit breaker (not supplied) according to local electrical regulations (min. 500mA).

IMPORTANT: Remove shorting links J8 and J9 before connecting an auxiliary mains supply!

Auxiliary Mains Supply Terminals

Voltage Reference Terminals

IMPORTANT: must be installed in orientation shown



Configuration: 4 WIRE WYE

ANSI Meter Form: 9S/16S

Inputs: 3 x Vref, 3 x CT

Note: configure ZDR on Gateway for 9S/16S

Install Sheet

ZDR-20, ZDR-21, ZDR-22 // Wireless Demand Response Controller

Document Ref. EPI-212-01



HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH



- NEVER work alone.
- Use appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading the entire set of installation instructions.
- If the equipment is not used in a manner specified by EpiSensor, the protection provided by the equipment may be impaired.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, inspect the work area for tools and objects that may have been left inside the equipment or panel.
- When removing or installing metering or other equipment, do not allow it to extend into the energised bus.
- The successful operation of this equipment depends upon proper handling,
- Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- Before performing Dielectric (Hi-Pot) or Megger testing on any equipment in which the energy meter is installed, disconnect all input and output wires to the energy meter.
- High voltage testing may damage electronic components contained in the meter.
- Failure to follow these instructions will result in death or serious injury.

Installation & Safety Notes

- EpiSensor equipment should be installed, operated, serviced and maintained only by qualified personnel. EpiSensor does not assume any responsibility for any consequences arising out of the use of this equipment.
- The ZDR voltage measurement inputs are rated for up to 277 V L-N or 480 V L-L. For any voltage exceeding 277 V L-N, an auxiliary power source must be used. Consult the ZDR-2X datasheet for more information on available product variants. For voltages exceeding 480 V L-L, a voltage transformer must be used.
- Fuse for neutral terminal is required if the source neutral connection is not grounded.
- Clearly label the device's disconnect circuit mechanism and install it within easy reach of the operator.
- The fuses / circuit breakers must be rated for the installation voltage and sized for the available fault current.
- Depending on the type of current transformers used with the EpiSensor ZDR, shorting links may be required. Please consult the user guide for more information.
- If Voltage Transformers are used, the VT ratio setting should be adjusted on the ZDR settings page on the Gateway.
- ZDR's using Rogowski coil or milliamp Current Transformers are individually calibrated and the current transformer cables should not be extended or interchanged.

Voltage References & Current Transformer Wiring Diagram (3-wire Delta)



Auxiliary Mains Supply

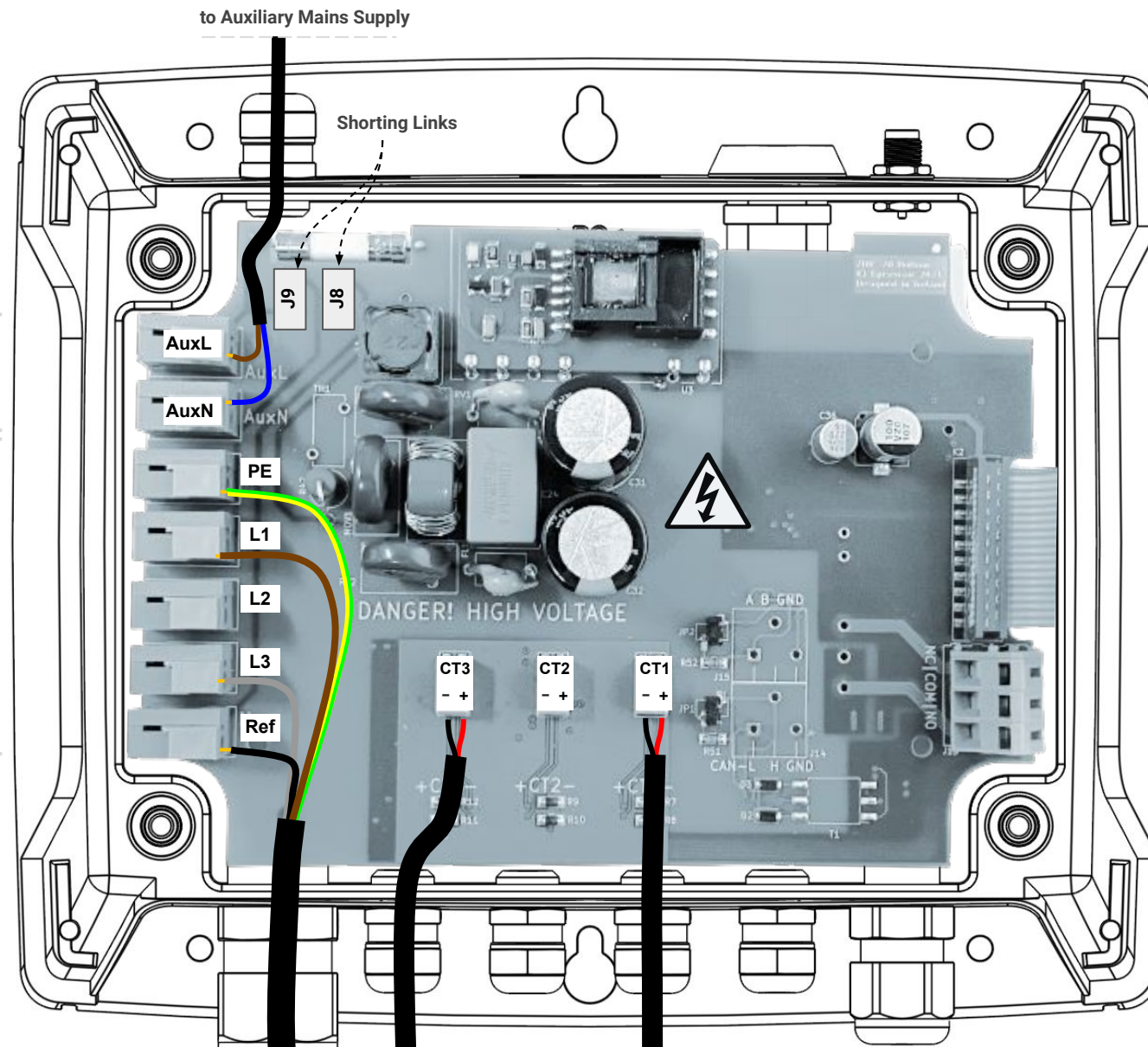
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IMPORTANT: Remove shorting links J8 and J9 before connecting an auxiliary mains supply!

Auxiliary Mains Supply Terminals

Voltage Reference Terminals

IMPORTANT: must be installed in orientation shown



Configuration: 3 WIRE DELTA

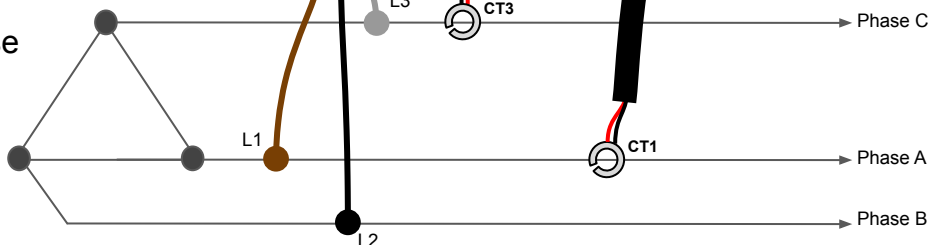
ANSI Meter Form: 5S/13S

Inputs: 3 x Vref, 2 x CT

Note: configure ZDR on Gateway for 5S/13S

Important: Fused disconnect or circuit breakers (not supplied) to protect 0.75mm² conductor according to local electrical regulations (min. 500mA)

3-Phase Supply



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Connecting a GPS Antenna to ZDR (only applicable to ZDR-22 variant)

Recommended Antenna:

Manufacturer: Taoglas

Part No.: A.03.C.1001111

Description: Hercules A.03 GPS/GALILEO

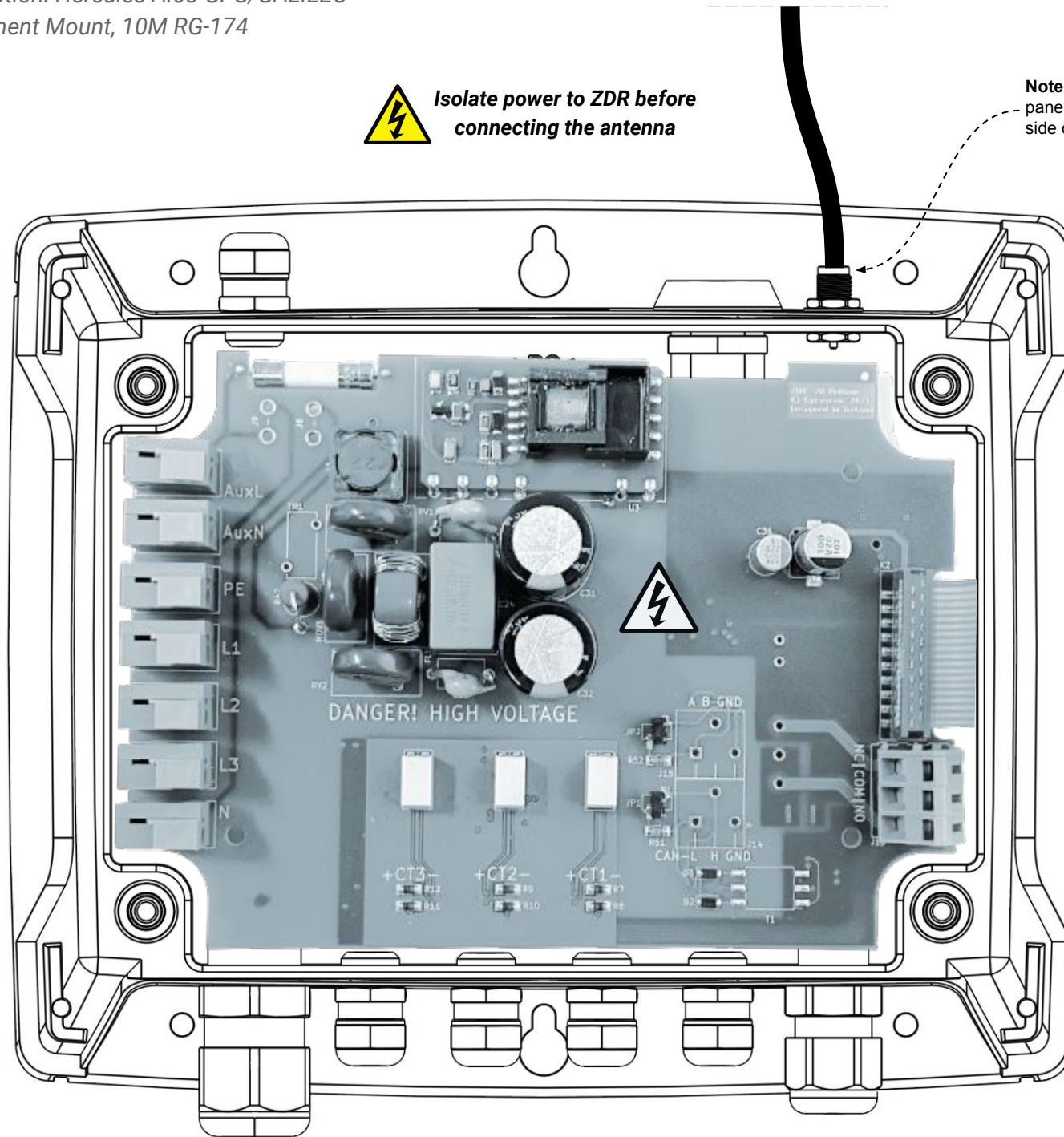
Permanent Mount, 10M RG-174

to active GPS Antenna



Isolate power to ZDR before connecting the antenna

Note: SMA (F) connector panel mounted on top side of ZDR enclosure



Install Sheet

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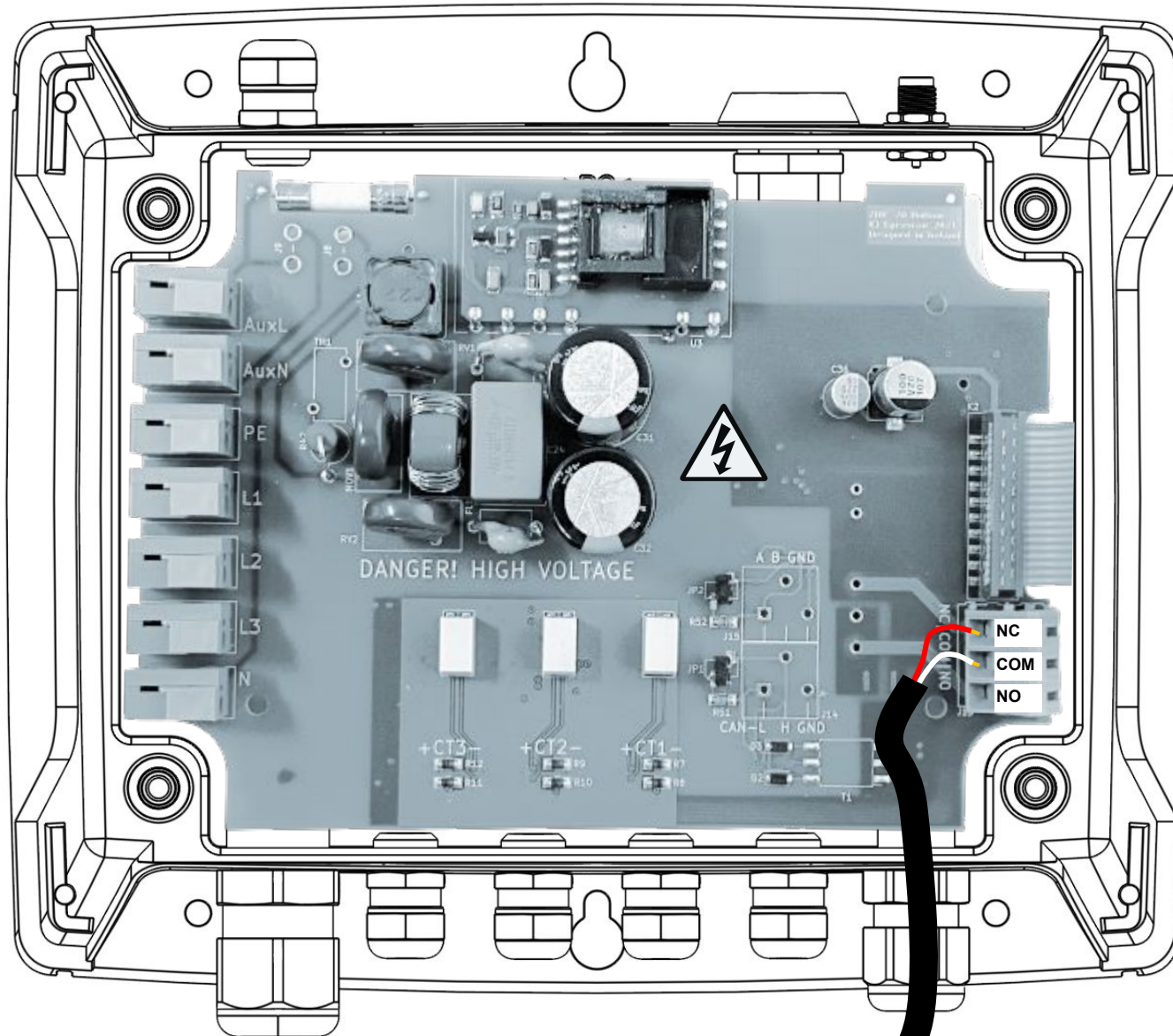
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Connecting the relay output of the ZDR

 **Isolate power to ZDR before connecting the relay**



 **IMPORTANT: must be installed in orientation shown**

Note: relay output not available on ZDR-22 variant

Relay Output Specifications:

Max Current: 4A (250VAC, $\cos\phi=1$, 85°C)

Max Voltage: 250VAC

Conductor CSA: 0.08 to 3.3mm²

Cable Diameter: 4.5 to 7mm

to switched load

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Installation Checklist

- 1 Input Voltage**
If the mains power supply of the ZDR is powered directly from the 3-phase voltage reference, ensure that the voltage does not exceed 480V AC L-L 
- 2 Enclosure Contamination & Integrity**
Ensure that there is no swarf or other dirt inside the ZDR enclosure, and that the enclosure has not been drilled or modified. 
- 3 GPS Signal**
If using ZDR-21 or ZDR-22, confirm (with a mobile app, or other handheld test device) that there is a good GPS signal available at the GPS antenna of ZDR. Line-of-sight view to the sky is needed for ZDR to synchronise time with GPS satellites. 

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