

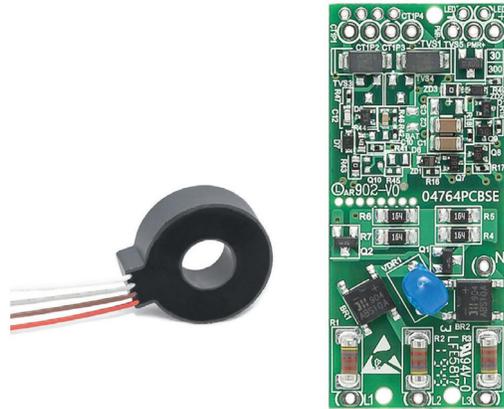
# Circuit Protection & Interrupter Subassemblies

## Type EV System

4 Pole • 30 mA



REACH



### Description

The Type EV System consists of a CT and a PCBA and is intended to provide 6 mA dc fault detection during Mode 3 EV charging as defined in IEC 62955. This system is designed to be integrated into any standard 4-pole VI RCCB to produce a 4-pole Type RDC-PD.

A standard Type A RCCB can be easily upgraded to an RDC-PD by integration of the EV system.

### Features & Benefits

FEATURES	BENEFITS
<b>Complies with IEC 62955</b>	System provides 6 mA dc residual current detection
<b>Suitable for integration into 4-pole RCCB products</b>	Upgrades A type performance to RDC-PD performance, ac and dc detection
<b>Powered from any two poles</b>	Provides design flexibility

### Applications

- EV Charging Stations

### Ordering Information

CATALOG #	DESCRIPTION
90133	Type EV System 4-Pole
90145	05043ASSM Type EV 4-Pole PCBA Only
90146	05050WIND Type EV 4-Pole CT Only

Note: Type EV System 4P can be purchased either as a System (PCBA & CT) or individual parts. PCBA and CT will not be sold separately without the corresponding part.

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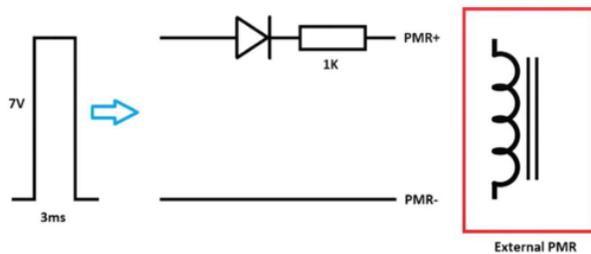
### Specifications

<b>Rated Supply Voltage (Un)</b>	240 Vrms
<b>AC Supply Voltage</b>	85 V - 240 V ac
<b>Minimum Operating Voltage</b>	85 Vrms
<b>Rated Frequency</b>	50 Hz
<b>Supply Current</b>	≤ 1.5 mA
<b>Rated Load Current (In)</b>	≤ 63 A
<b>DC Detection Active Output</b>	40 uA LED Current
<b>Rated Residual Operating Current (IΔn)</b>	6 mA dc
<b>Impulse Withstand</b>	4 kV
<b>Working Temperature</b>	-25 °C to 40 °C
<b>Environmental Operating Conditions Absolute Temperature</b>	-25 °C to +85 °C
<b>Residual Current Operating Frequency Range</b>	DC
<b>Rated Non-Operating Residual Current</b>	Per Relevant Product Standards
<b>Trip Time Characteristic</b>	General Type
<b>Applicable Standards</b>	IEC62423, RoHS, REACH
<b>WARD WA7 IC Maximum Operating Temperature</b>	95 °C
<b>Sensor Board Weight</b>	15 g
<b>Fault Signal Output</b>	PMR Current Pulse

### Tripping Details

The tripping signal generated from the circuit corresponds to a minimum of 7 V pulse for a minimum of 3 ms through a 1 K resistor. Any PMR used must trip with these criteria.

### Tripping Output



### Status Led

A status LED indicating dc sensing operation can be connected directly to the LED+ and LED- pins. There are no additional components necessary as an internal 7 V dc supply voltage is fed through an integrated 150 K resistor.

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## Type EV System

### Recommended End Product Assembly Guidelines

#### Dielectric

The Type-EV System Circuit is referenced to the supply voltage. Care must be taken when connecting to other auxiliary circuits.

Once assembled with the Type-EV System, the Voltage Independent circuit and PMR will now be referenced to the mains supply. The VI Circuit will no longer be isolated from the mains.

Insulation and isolation distances should be reviewed to ensure product meets the requirements of the product standard.

#### EMC

The EMC performance will be dependent on the final product construction, wiring configuration and routing.

Good EMC wiring practice is recommended. Wire lengths should be kept as short as possible, with smallest loop areas along with maintaining clearances between main power conductors and PCBA.

### Environmental

#### Temperature

For proven operation, the localised temperature on the WARD WA7 IC must be kept below the absolute maximum value specified. Consideration should be given of maximum operating temperature and maximum load currents of the final product.

Sufficient spacing around the PCBA is required to provide adequate convection cooling.

#### Climatic

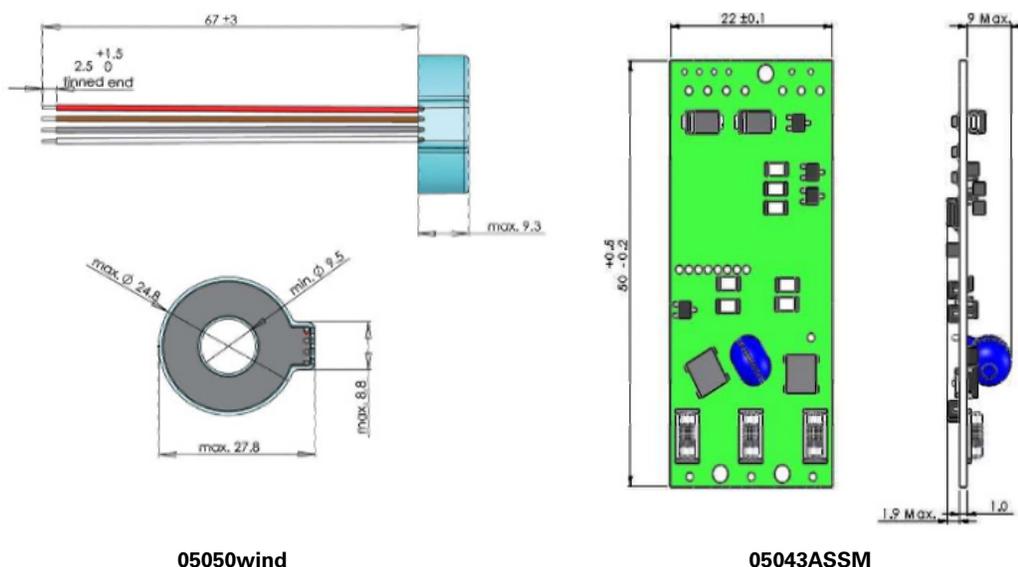
The target RCCB should not promote internal condensation that could affect the performance of the Type-EV System.

Excessive Flux residue beyond industry norms remaining after soldering of wires could lead to issues when operating in high humidity environments.

#### Endurance/High Current

The PCBA should be adequately isolated from debris occurring from high current switching.

### Dimensional Drawings (Millimeters)

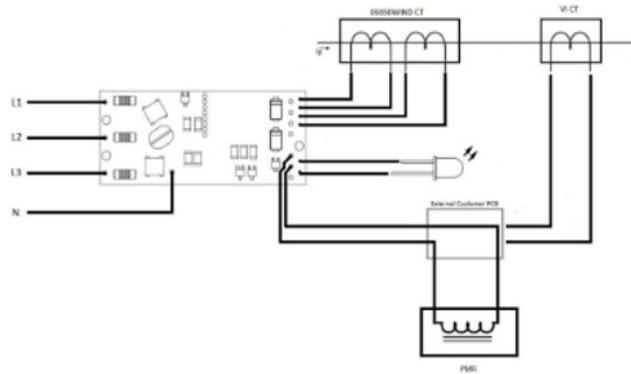


# Circuit Protection & Interrupter Subassemblies

## Type EV System

### Wiring Diagrams

#### SYSTEM CONNECTION



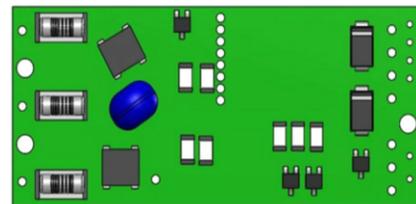
PIN OUT	
L1, L2, L3	240 V ac to Neutral
N	Neutral
PMR+	Permanent Magnet Relay+
PMR-	Permanent Magnet Relay-
LED+	LED Indication+
LED-	LED Indication-

#### 05043ASSM WIRING



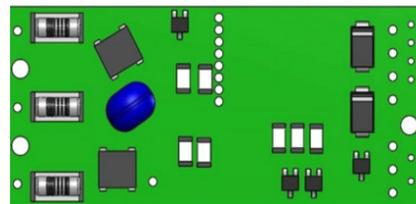
PCB CONNECTIONS	PCB DESIGNATION	NOTES
Power Supply	L1, L2, L3, N	Recommended supply wire connections to product to be rated $\geq 600$ V Live connections can be made in any order of phase.
PMR	PMR+, PMR-	Connect to VI circuit PMR. Correct polarity of connections PMR+ and PMR- is required to trip PMR. <b>Important Note:</b> VI circuit will now be referenced to the supply voltage.
CT Connections	CT1P1, CT1P2, CT1P3, CT1P3	CT wires can be connected in two orientations.
LED	LED+, LED-	LED Connection points for power on indication. LED- and PMR- are the same circuit node.

#### CT CONNECTION OPTION 1



CT1P1 HOLE	CT1P2 HOLE	CT1P3 HOLE	CT1P4 HOLE
Red	Brown	Grey	White

#### CT CONNECTION OPTION 2



CT1P1 HOLE	CT1P2 HOLE	CT1P3 HOLE	CT1P4 HOLE
White	Grey	Brown	Red

Note: Two CT connection hole footprint alternatives are available for use on PCBA; 2.54 mm and 2.0 mm pitch.

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### Handling Instructions

#### ESD Caution

PCBA contains ESD (electrostatic discharge) sensitive devices. Damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

### Standards Conformity & Certifications

#### Product Safety Certifications

Products tested, compliant and certified to the following standards that states the requirements for electrical products to ensure they are safe for consumers to use.

CERTIFICATION BODY MARK	CERTIFICATION BODY NAME	CERTIFICATION DESCRIPTION	STANDARDS COVERED BY THE CERTIFICATION
	IEC	Meets dc fault current detection requirements of IEC 62955 Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of electric vehicles Classification 4.1.2 RDC-PD.	<b>IEC 62955</b>

### Environmental Compliance

Products comply to the following environmental standard requirements for electrical products to ensure they are safe for consumers to use.

	STANDARD NAME	STANDARD DESCRIPTION	STANDARD NUMBER
	RoHS	Conformity with the European Restriction of Hazardous Substances in electrical and electronic products.	European Union RoHS 2 Directive 2011/65/EU
	REACH	Conformity with the Registration, Evaluation, Authorization and Restriction of Chemicals regulation to ensure safe use of chemicals.	European Directive 1907/2006

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