Current Sensor
RCM14-03

Ac/Dc Residual Current Monitor, Mode 2

Description

The RCM14-03 is a compact residual current monitor designed to detect both ac and dc residual currents in 50 Hz / 60 Hz ac installations.

It is primarily used in Mode 2 Electric Vehicle In-Cable Control and Protection Devices (IC-CPDs) to disconnect power to the EV in the event of a residual current fault.

The RCM14-03 supports detection in dc, single-phase, and multiphase systems. It features a panel-mountable design with a JST connector for straightforward integration.

Fully compliant with IEC 62752 detection requirements.

Features & Benefits

FEATURES	BENEFITS
JST XH 2.5 mm Pitch Connector JST:B4B-XH-A (LF)(SN)	Provides easy installation
LED Indication for "On" and "Fault"	At-a-glance function and fault indication
Large 14 mm ID aperature	Flexibility to support single or 3-phase supply cables

Applications

- Mode 2 EV Charging Stations

Ordering Information

CATALOG #	DESCRIPTION
90130	AC/DC residual current monitor

Revised: 11/12/2025

Specifications

Relevant Product Standard	IEC 62752
Rated Residual Operating Current - (IΔn)	6 mA dc / 30 mA ac
Rated Non-operating Residual Current - (IΔno)	3 mA dc / 15 mA ac
Response Time to residual current fault (time between appearance of fault to output going high)	According to IEC 62752
Dc Supply Voltage (Vcc): **Supply current (no fault present)** **Supply current (fault current >150 mA)**	12V dc ± 10% 2.2 mA maximum 14.5 mA maximum
Rated Load Current	100 A Single Phase 40 A 3 Phase
Test Function (Externally applied 12 V dc) - Test Current Limit	0.8 mA dc
Fault Signal Output **Drain Current** **Pull up Voltage**	Active High Open Drain 100 mA maximum +24 V dc maximum
Environmental Operating Conditions **Absolute Temperature**	-40 °C to +85 °C
Weight	45 g
Recommended screw type	M3 x 6 (2 pcs.)
Conditional Residual Short-circuit Current	10 kA
Surge Current Withstand	3000 A

Environmental Conditions

PARAMETER	MIN.	TYP.	MAX.	UNIT
Operating temperature	-40	-	85	°C
Storage temperature	-40	-	85	°C
Altitude	-	-	3000	m

Electrical Specifications

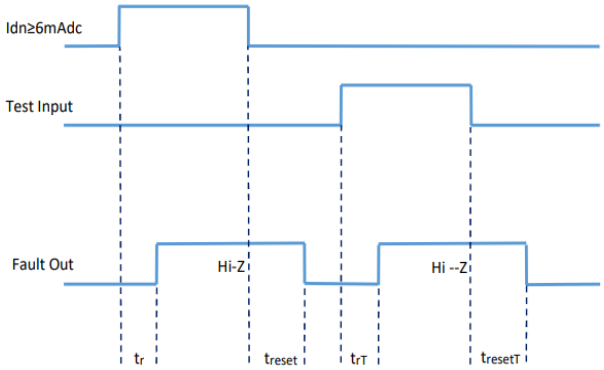
PARAMETER	MIN.	TYP.	MAX.	UNIT
Supply voltage	10.8	12	13.2	V dc
Supply current, no fault current[1]	-	-	2.2	mA
Supply current, peak >150 mA ac fault current[1]	-	-	14.5	
DC trip threshold	3	-	6	mA
AC trip threshold	15	-	30	mA
Fault Out drain current	-	-	100	mA
Fall Out pull up voltage	-	-	24	V
Test input current @ 12 V	-	0.8	-	mA
Rated load current, 1 phase / 3 phase	-	-	100/40	A

1. Fall Out external pull up current not included.

Timing Specification

PARAMETER	MIN.	TYP.	MAX.	UNIT
Fault Out response time @ 6 mA dc, $t_{r(6mA)}$	-	-	250	ms
Fault Out response time @ 30 mA dc, $t_{r(30mA)}$	-	-	200	ms
Fault Out reset time[2], t_{reset}	-	-	250	ms
Fault Out response time with test, t_{rT}	-	-	300	ms
Fault Out reset time[2] with test, t_{resetT}	-	-	200	ms
Max switching time of external switching device incl. processing time	-	-	20	ms

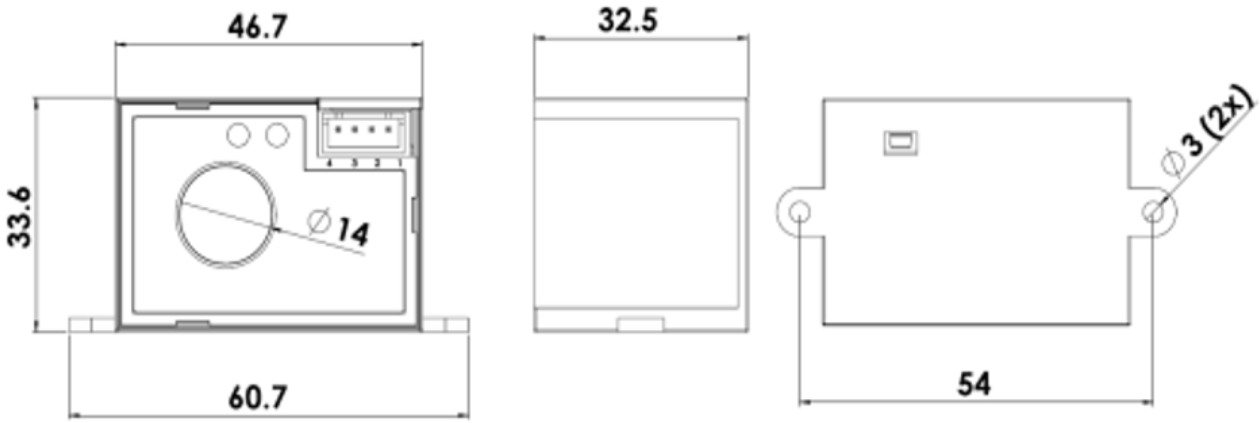
2. Time taken for fault out to return from Hi-Z state after fault removed.



Other

PARAMETER	MIN	TYP.	MAX	UNIT
Overvoltage category		III		-
IP Rating		IP20		-

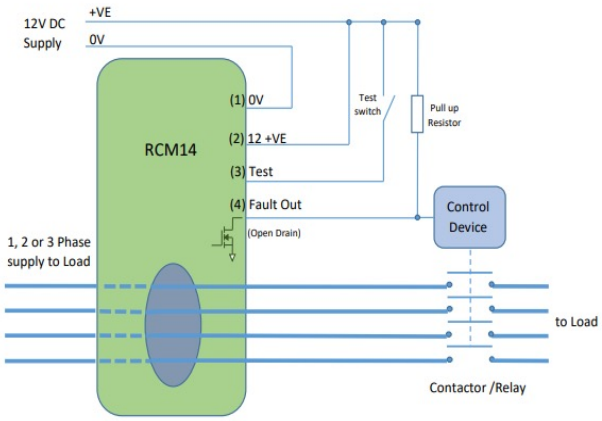
Product Dimensions (Millimeters)



Handling Instructions

Care should be taken to ensure the correct connection of the RCM14-03. Miswiring the product may cause permanent damage.

Wiring Diagram



PIN NO.	NAME	DESCRIPTION
1	0 V dc	Ground
2	+12 V dc	Power Supply Input: Requires 12 V dc for proper operation. The 'ON' LED will illuminate green when voltage is present. Performance may be affected if the supply voltage falls outside this range.
3	External Test	Test Function: To verify correct device positioning, apply +VE (e.g., 12 V dc) to the test input. When activated, Pin 4 (Fault Out) goes HIGH if the test passes. Once +VE is removed, Fault Out returns to LOW. The test input should remain disconnected when not in use. Activation can be done via a test switch or a control device.
4	Fault Signal Output (Active High Open Drain)	Open-drain output requiring an external pull-up resistor to the desired signal level (e.g., +VE). *LOW State (low impedance): Indicates no fault and test function inactive. 'FAULT' LED is off. *HIGH State (high impedance): Triggered when residual fault current exceeds 6 mA dc, 30 mA ac, or test function is active. 'FAULT' LED lights red. *The pin resets to LOW once the fault is cleared and test is inactive, turning off the LED. *To prevent contactor/relay chatter, do not connect this pin directly to such devices. *Use hardware or software latching in the control system to capture fault signals reliably.

Note:
RCM14 product connector:JST XH 2.5mm Pitch Connector: B4B-XH-A (LF)(SN)
Recommended Mating connector: The mating connector is assembled from a housing and 4 x crimps with suitable wires.
Recommended Mating connector housing: JST XHP-4
Recommended Crimps: JST SXH-001T-P0.6
Pre-crimped wires are also available from JST for ease of assembly.

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	IEC	Conformity with the European safety, health, and environmental protection requirements for ac and dc fault current detection requirements of IEC 62752 In-Cable Control and Protection Device for mode 2 charging of electric road vehicles (IC_CPD)	**IEC 62752**

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

Intended Use

The RCM14-03 is designed to be integrated with the appropriate switching device, e.g. relay or contactor, to provide the 6 mA dc and 30 mA ac detection requirements defined by IEC 62752 for use in Mode 2 electric vehicle charging.

No special start-up procedures or calibration is required for the RCM14-03. Once powered the system is ready to detect residual faults to IEC 62752.

Related Products

RCM01-02	6 mA dc / 30 mA ac Detection to IEC 62752, 9 mm CT Aperture
RCM14-01	6 mA dc Detection to IEC 62955, 14 mm CT Aperture
RCM14-04	56 mA dc / 20 mA ac Detection to UL 2231, 14 mm CT Aperture
RCM20-03	6 mA dc / 30 mA ac Detection to IEC 62752, 20 mm CT Aperture
RCM14-03 System	6 mA dc / 30 mA ac Detection to IEC 62752, 14 mm CT Aperture, PCB Mount Sensor Board + CT