

AXM-IO4

Residual Current Monitoring Datasheet

ACCUEnergy



DESCRIPTION

The AXM-IO4 is an expansion module for Acuvim II, Acuvim L, and Acuvim 3 series meters, providing two inputs for residual current and two inputs for temperature monitoring. The residual current monitoring inputs support passive and active residual current sensors for AC and DC leakage monitoring, while simultaneously monitoring equipment temperature with industry standard RTD sensors.

FEATURES

- + 2 Residual Current Monitoring (RCM) inputs support passive AC and active DC residual current sensors, for detection of leakage current.
- + Supports Type A, Type AC, Type F, and Type B residual current monitoring applications.
- + RCM accuracy Class 1 IEC 61557-1 ($I \geq 0.5 \text{ mA}$)
- + RTD accuracy up to $\pm 1.5\%$ FS temperature range
- + Two-wire temperature inputs support PT100, PT1000, KTY83 and KTY84 sensors.
- + Compliant to IEC 61000-4-2/3/4/5/6/8/11 standard for electromagnetic compatibility

KEY FEATURES

High-Resolution Residual Current Measurement

- + Two independent Residual Current Monitoring (RCM) inputs support passive AC and active DC residual current sensors for detection of leakage current in electrical systems, with 1 μ A resolution, 8 kHz sampling, Class 1 accuracy, and a CT secondary measurement range from 0-30 mA AC and 0-20 mA DC or 4-20 mA DC.

Equipment Temperature Monitoring

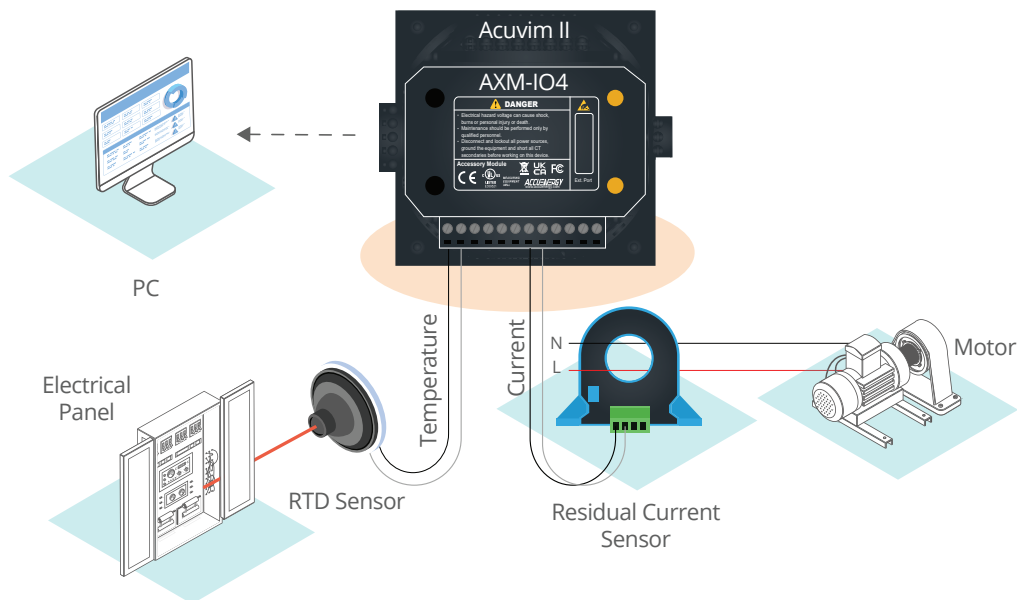
- + Two-wire temperature inputs sensors, for equipment temperature monitoring ranging from -99°C to 500°C, based on the sensor element.

Comprehensive Residual Current Monitoring

- + Supports Type A, Type AC, Type F, and Type B residual current monitoring applications in accordance with IEC 60755:2017, enabling monitoring across loads to identify abnormal conditions and fault conditions in electrical systems.

Fault Diagnostics

- + Integrated fault detection identifies abnormal RCM input conditions, while temperature channels provide open circuit, short circuit, and alarms for fault detection.



APPLICATIONS

Industrial Power Distribution Residual Current Monitoring

- + Monitoring residual currents in distribution panels, UPS systems, and industrial installations to identify current leakage conditions.

Monitor Insulation Degradation and Fire Prevention

- + Early detection of abnormal residual currents caused by insulation degradation or electrical faults which helps to reduce the risk of short circuits, equipment damage, and fire hazards.

Mixed AC and DC Load Environments

- + Monitoring residual currents in electrical systems containing rectifiers, variable frequency drives, or power electronics, including single and three phase inverters, EV chargers, and solar photovoltaic systems.

Equipment Temperature Monitoring

- + Monitor the temperature of electrical equipment, including switchgear, transformers, Motor Control Centres (MCCs), electrical panels, and UPS systems to identify overheating caused by loose connections, overloaded circuits, or deteriorating components before equipment failure occurs.

AXM-IO4 SUPPORTED METERS



Acuvim 3



Acuvim II



Acuvim L



AXM-IO4 Integration

SPECIFICATIONS

Residual Current Inputs

Channels	2 Inputs
Input Type	Passive AC Active DC
Pickup Current*	0.05 mA
Primary Measuring Range	0 A to 21 A
Secondary Measuring Range*	AC: 0 - 30 mA (RMS, Secondary) DC: 0 - 20 mA (Secondary) / 4 - 20 mA (Secondary)
Resolution	1 μ A
Accuracy	Class 1 IEC 61557-12, where $I \geq 0.5$ mA
Crest Factor	≤ 2.5 at 30 mA AC
Sampling Rate	8 kHz
Overload Capability	200 mA Continuous, 1 A for 1 s (Non-Repetitive Event)
Fault Detection	Open Circuit Short Circuit Current Overflow

* Values referred to CT secondary side.

Operating Environment

Operating Temperature	-25°C to 70°C (-13°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Relative Humidity	0% to 95%
Altitude	0 to 2000m
Pollution Degree	2
Location	Indoor Use Only

Standard Compliance & Certifications

RCM	IEC 60755:2017, IEC 61557-12
RTD	IEC 60751:2022
Safety Standard	IEC/UL 61010-1:2010
EMC Standard	IEC 61000-4-2/3/4/5/6/8/11, IEC 62052-11

Temperature Inputs

Channels	2 Inputs
Supported Sensors	PT100, PT1000, KTY83, KTY84
Wiring	2-Wire
Accuracy	$\pm 1.5\%$ Full Scale of Respective Temperature Range
Maximum Loop Resistance	≤ 3.3 k Ω Including Sensor and Cable
Fault Detection	Open Circuit Short Circuit High Alarm Low Alarm

Temperature Range

PT100 / PT1000	-99°C to 500°C (-146.2°F to 932°F)
KTY83	-55°C to 175°C (-67°F to 347°F)
KTY84	-40°C to 300°C (-40°F to 572°F)

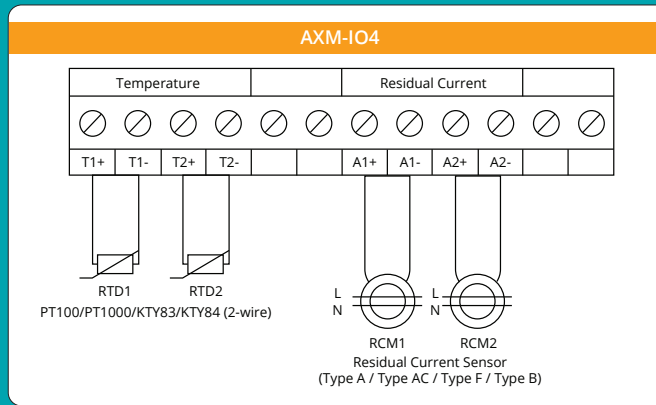
Compatible Products

Meter Series	Acuvim II, Acuvim L, Acuvim 3
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Mechanical Characteristics

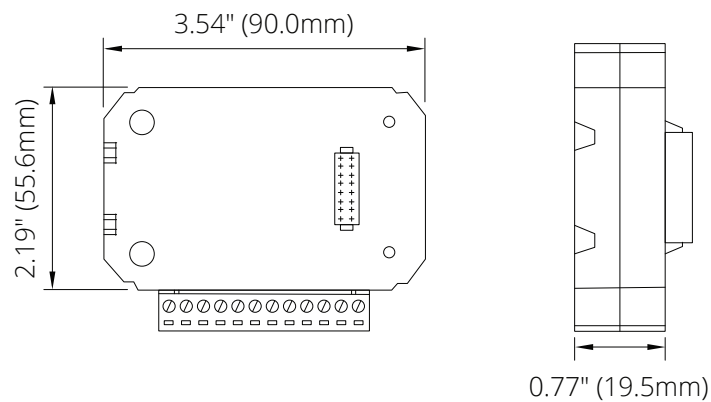
Ingress Protection Rating	IP30
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TERMINAL CONNECTION DIAGRAM



DIMENSIONS

AXM-IO4 Dimensions



ORDERING INFORMATION

Model Name	Function Type
AXM-IO4	2 Residual Current Inputs, 2 RTD Temperature Inputs
Ordering Example:	AXM-IO4



Accuenergy Inc.

Los Angeles - Toronto - Pretoria
 North America Toll Free: 1-877-721-8908
 Web: www.accuenergy.com
 Email: marketing@accuenergy.com

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ISO 9001, 14001
& 45001 Certified



ISO 27001 &
50001 Certified

