CONPROSYS Series
Measurement Module

CPS-MM-LC

* Specifications, color and design of the products are subject to change without notice.

This product is a module to monitor isolation resistance of the equipment in a live state that is driven by three-phase alternating current power. Set this module to operate along with the CONPROSYS series configurable type CPU module controller.

It has a function useful for early deterioration discovery in the equipment powered by the three-phase and AC motors connected to the servo amplifier or invertors, which are widely used in the FA factories or water treatment facilities, for instance in a pump, and the system can be examined while power is active.

* The contents in this document are subject to change without notice.
* Visit the CONTEC website to check the latest details in the document.
* The information in the data sheets is as of April, 2021.

Hardware Features

Find isolation deterioration in AC motor
This product finds isolation deterioration of the three-phase induction motor by calculating isolation resistance from the measured applied voltage as well as ground fault current to the three-phase induction motor (low pressure three-phase motor) and AC servo motor.
Isolation resistance in a live state can be accurately measured, and it is applicable to detect isolation deterioration of the three-phase induction motor of AC motor.
The product can be set either in front of or behind the inverter and the servo amplifier.

Compact Design
Compact design, 25.2(W)×94.7(D)×124.8 (H), features flexibility in installation.

Adaptable to a temperature range between -20 and +60°C
The product is capable of operating in the temperature between -20 and + 60°C. It can be installed in the various environments.

Installation easy with two pieces of terminal support and DIN rail
You can install and remove a terminal connector without a screwdriver so that it can shorten the time of the replacement.
As the product can be mounted and slid on a DIN rail, removing and replacing are easy as well.

Equipped with LED for an operation check
The product has LED for an operation check, which helps you visually confirm the communication status of each interface.

Packing List

Product [CPS-MM-LC]...1
Product Guide...1
Warranty Certificate...1
Serial Number Label...1
4-pin Connector (Power/Analog) ...3
ZCT Unit ...1

Specifications

Function Specifications <Product>

Item		CPS-MM-LC
Measurement function		Leakage current measurement, Isolation resistance measurement
The number of measurement channels		1
Applied motor type *1		Three-phase induction motor (low pressure three-phase motor), AC servo motor
Measurement target circuit	Motor isolation resistance measurement	Three-phase output part (motor) of inverter /servo amplifier powered by three-phase Delta (3-wire, three-phase corner-grounded system), three-phase Wye (3-wire/4-wire, three-phase solidly-grounded neutral system).
	All equipment isolation resistance	Three-phase Delta (3-wire, three-phase corner-grounded system) Three-phase Wye (3-wire/4-wire, three-phase solidly-grounded neutral system)
Rated input voltage *2		Line voltage, 10VAC - 600VAC 50Hz/60Hz three-phase
Line average voltage range		0.000 VAC - 999.999 VAC (Measurement voltage range is 10VAC-600VAC (Line voltage))
Measurement Leakage current range	Motor isolation resistance measurement	0.000mA - 99.999mA
	All equipment isolation resistance	0.000mA - 999.999mA
Isolation resistance output range		0.000MΩ - 999.999MΩ
Measurement time		30sec.
Voltage value accuracy *3 *4	Line average voltage value, Va	±(1% of reading + 300digits)
Leakage current value accuracy *3 *4 (25°C±2°C)	Leakage current value, Io	±(1% of reading + 10 digits)
	Leakage current value by isolation resistance, Ior	±(1% of reading + 10 digits + Io × 0.005)
Isolation resistance value accuracy *3 *4 *5 (25°C±2°C)	Combined isolation resistance value, R	±(10% of reading + 100 digits) *when Io=Ior
Isolation specification		Bus Isolation
Voltage resistance *6		2200VAC
Voltage measurement connector		2-piece 7.62mm pitch 4-pin terminal
Applicable wire		AWG24 - 12
LED		Status (Green, Red)
Power voltage		24VDC ±10%
Power consumption		0.1A (Max)
Physical dimensions (mm)		25.2(W)×94.7(D)×124.8(H) (No projection included)
Weight		200g
Installation method		Quick mounting on the 35mm DIN rail
Installation environment		Applicable pollution degree 2

*1 Inverter and servo amplifier of mono-phase power type are not applicable for measurement.
*2 Use in the circuit not exceed CAT III 300V or CAT II 600 V.
*3 The accuracy excludes the noise effects from external magnetic fields or residual magnetism.
*4 Value is when adjusted with standard jig
*5 Accuracy cannot be guaranteed for Isolation resistance value of 10MΩ or greater.
*6 Between voltage measurement connector and stack bus

CAUTION

You can set the modules as you desire to the configurable controller up to 16 modules.
The total current consumption of the modules should be less than 3.3A.

Function Specifications < ZCT unit >

Item	ZCT unit
Structure	Penetrating type
Rated voltage	600VAC *7
Penetrating hole diameter	φ25mm
Isolation resistance	2200VAC
Cable length	2.9m
Connector	ZER-11V-S (or equivalent)
Physical dimensions (mm)	37.2(W)×74.5(D)×115.9(H) (No projection included)
Weight	600g
Installation method	With screws

*7 Use an isolated cable to connect through the ZCT unit.

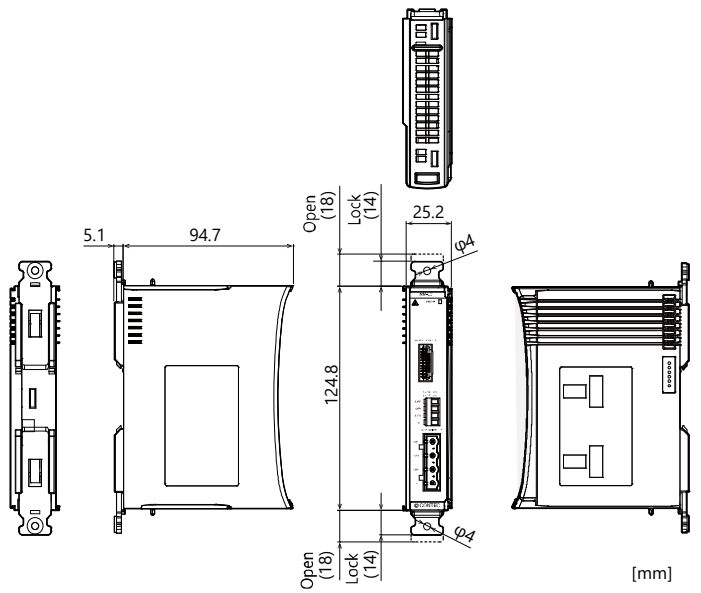
Function Specifications < ZCT unit >

Item		CPS-MM-LC
Operating Temperature		-20 - +60°C
Storage Temperature		-20 - +60°C
Humidity		10 - 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Line-noise resistance	Line noise	Signal Line /± 1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance	Contact discharge /±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air discharge /±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance (The product alone) *8	Sweep resistance	10 - 57Hz *8 /semi-amplitude vibration 0.15mm, 57 - 150Hz/2.0G 40minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
Shock resistance (The product alone) *9		15G half-sine shock for 11ms in X, Y, and Z directions (JIS C 60068-2-27 –compliant, IEC 60068-2-27 -compliant)
Altitude		2000m or less
Pollution degree		2
Measurement category		CAT III 300V / CAT II 600V

*8 When you use an optional power product: 10 - 55Hz (See the manual of optional power product for details)
*9 Do not use the ZCT UNIT in a place subject to vibration or shock. It may lead to malfunction or shorter life of the product.

Physical Dimensions

Product



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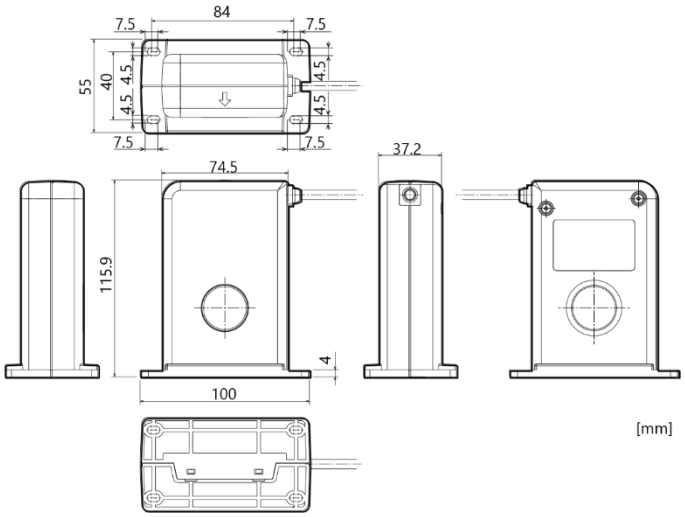
ZCT unit



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List of Option

Configurable Type Controller

CPS-MCS341-DS1-111: Configurable type CPU module

CPS-MCS341-DS1-131: Configurable type CPU module + OPC UA server + MT Connect

CPS-MCS341G-DS1-130: Configurable type CPU module +3GWAN

CPS-MCS341Q-DS1-131: Configurable type CPU module +920MHz LAN

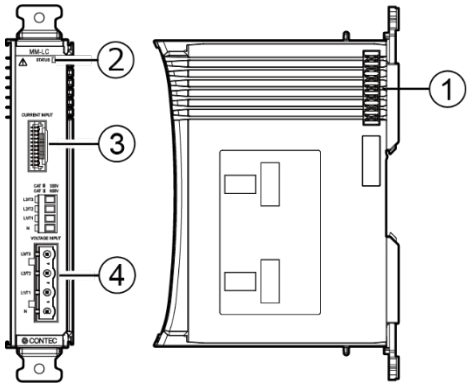
DIN rail mounting power supply

CPS-PWD-90AW24-01: Fitting power supply 90W (Input: 100 - 240VAC, Output: 24VDC 3.8 A)

CPS-PWD-30AW24-01: Fitting power supply 30W (Input: 100 - 240VAC, Output: 24VDC 1.3 A)

* Information about the option products, see the Contec's website.

Component Name



No.	Name	Function
1	Stack Bus	Used for power supply and communication with the configurable type module.
2	LED Indicator	This indicates status of the product.
3	ZCT Connector	Used to connect the ZCT unit. (use ZCT unit included in the package)
4	Voltage Measurement Connector	Used to measure voltage. (use the 4-pin connector included in the package)