

Insulation monitoring relays for unearthed supply systems

Product group picture

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Insulation monitoring relays for unearthed supply systems

Benefits and advantages, Applications

Overview

The CM-IWx product family offers a convincing solution for monitoring ungrounded AC, AC/DC and DC networks according to EN/IEC 61557-8. An IT network is supplied either by an isolated transformer or a voltage source such as a battery or generator. In these systems no active conductor is directly connected to earth potential.

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. The insulation monitoring device recognizes insulation faults (at least one conductor has a galvanic connection to earth potential) as they develop and immediately reports if the insulation resistance has fallen below a given threshold. Therefore, maintenance activities can be scheduled and executed while the plant keeps running.

Benefits:

- Increase plant availability and avoid costly unplanned stops of a plant / machine by quickly detecting first faults
- Prevents fires due to detection of a creeping deterioration of the insulation resistance
- The adjustment of the setting values is simple and user friendly done with rotary switches on the front of the device
- Device status is displayed with LEDs that are easy to read and understand

Application

CM-IWS.x and CM-IWN.x series provide excellent insulation monitoring for general purpose supply networks such as

- Non-earthed AC, DC, AC/DC networks
- UPS systems
- Battery networks
- Hybrid and battery-powered vehicles
- Railway applications
- Many more

CM-IWM.x can be additionally used in special applications such as

- Industrial networks with frequency inverters or direct current drives
- Photovoltaic systems with high system leakage capacitance
- Networks with system voltages up to 1500 V DC or 1100 V AC without requiring a coupling unit
- Installation on the AC or DC side of an inverter
- Networks which require measuring circuit deactivation in case two or more unearthed networks are coupled

Note:

Only one insulation monitor must be connected and active in a network at the same time.



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Selection table

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Type	Order number								
CM-IWS.2S	1SVR730670R0200								
CM-IWS.2P	1SVR740670R0200								
CM-IWS.1S	1SVR730660R0100								
CM-IWS.1P	1SVR740660R0100								
CM-IWN.1S	1SVR750660R0200								
CM-IWN.1P	1SVR760660R0200								
CM-IWM.10	1SVR470670R1000								
CM-IWM.11	1SVR470670R1100								
Rated control supply voltage U_s									
24 - 240 V AC/DC		■	■	■	■	■	■		
24 V DC								■	■
Measuring voltages									
250 V AC (L-PE)				■	■				
400 V AC (L-PE)		■	■			■	■		
690 V AC (L-PE)						■ ¹⁾	■ ¹⁾	■ ²⁾	
1000 V AC (L-PE)									■ ³⁾
300 V DC (L-PE)				■	■				
600 V DC (L-PE)						■	■		
690 V DC (L-PE)								■ ²⁾	
1000 V DC (L-PE)						■ ¹⁾	■ ¹⁾		■ ³⁾
Measuring range									
1 - 100 k Ω		■	■	■	■	■	■		
2 - 200 k Ω						■	■		
1 - 250 k Ω								■	■
System leakage capacitance, max.									
10 μ F		■	■	■	■				
20 μ F						■	■		
1000 μ F								■	
3000 μ F									■
Output									
1 c/o		■	■	■	■				
1 x 2 c/o or 2 x 1 c/o						■	■		
2 c/o								■	■
Operating principle									
Open-circuit principle		■	■	■	■			■	■
Open- or closed-circuit principle adjustable						■	■		
Test									
Front-face button or control input		■	■	■	■	■	■	■	■
Reset and further functions									
Front-face button or control input		■	■	■	■	■	■	■	■
Fault storage / latching configurable		■	■	■	■	■	■		
Non volatile storage configurable		■	■	■	■	■	■		
Interrupted wire detection						■	■	■	■
Threshold values configurable		1	1	1	1	2	2	2	2
Control Input (measuring input deactivation)									■
Connection type									
Push-in terminals			■		■		■		
Double-chamber cage connection terminals		■		■		■			
Screw terminals								■	■

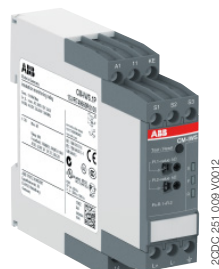


Further documentation insulation monitoring relays on www.abb.com

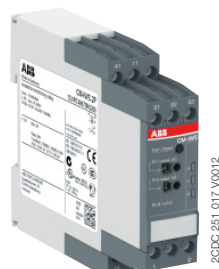
Insulation monitoring relays for unearthed supply systems

Ordering details

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CM-IWS.1



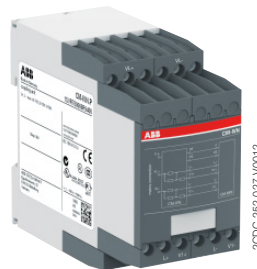
CM-IWS.2



CM-IWN.1



CM-IWM.x



CM-IVN

Description

The CM-IWx serves to monitor insulation resistance in accordance with IEC 61557-8 in unearthed IT AC systems, IT AC systems with galvanically connected DC circuits, or IT DC systems.

The devices are able to monitor control circuits (single-phase) and main circuits (3-phase).

Ordering details

Rated control supply voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
24-240 V AC/DC	0-250 V AC / 0-300 V DC	10 μ F	1-100 k Ω	CM-IWS.1S	1SVR730660R0100		0.148 (0.326)
				CM-IWS.1P	1SVR740660R0100		0.137 (0.302)
	0-400 V AC			CM-IWS.2S	1SVR730670R0200		0.141 (0.311)
				CM-IWS.2P	1SVR740670R0200		0.130 (0.287)
	0-400 V AC / 0-600 V DC	20 μ F	1-100 k Ω 2-200 k Ω	CM-IWN.1S	1SVR750660R0200		0.241 (0.531)
				CM-IWN.1P	1SVR760660R0200		0.217 (0.478)

1) With coupling unit CM-IVN

screw version

CM-IVN.S: 1SVR750669R9400

push-in version

CM-IVN.P: 1SVR760669R9400

Description

The CM-IWM.x provides provides best and up to date insulation monitoring of modern IT supply systems in an optimum and state of the art way according to IEC 61558-8 including annex C.

The device can be used in the most flexible way for AC, DC and AC/DC systems even with a large leakage capacity to earth (PE) and under adverse conditions.

Ordering details

Rated control supply voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
24 V DC	0-690 V AC / DC ²⁾	1000 μ F	1-250 k Ω 20 k Ω -2 M Ω	CM-IWM.10	1SVR470670R1000		0.500 (1,1)
	0-1000 V AC / DC ³⁾	3000 μ F		CM-IWM.11	1SVR470670R1100		

2) Allowed voltage range of the supervised network: 0-760 V AC / 0-1000 V DC

3) Allowed voltage range of the supervised network: 0-1100 V AC / 0-1500 V DC

Ordering details - Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
Passive device, no control supply voltage needed	0-690 V AC / 0-1000 V DC	CM-IVN.S	1SVR750669R9400		0.179 (0.395)
		CM-IVN.P	1SVR760669R9400		0.165 (0.364)

S: screw connection

P: push-in connection