

Data sheet | Item number: 789-665

Ground resistance signaling module; Ground fault alarm via digital output;
Supply voltage: 24 VDC; Module width: 18 mm



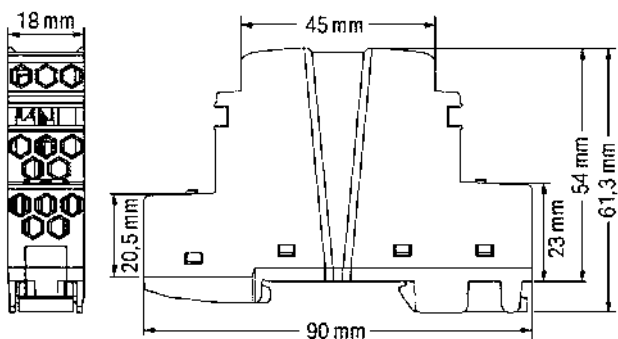
www.wago.com/789-665



RoHS
Compliant



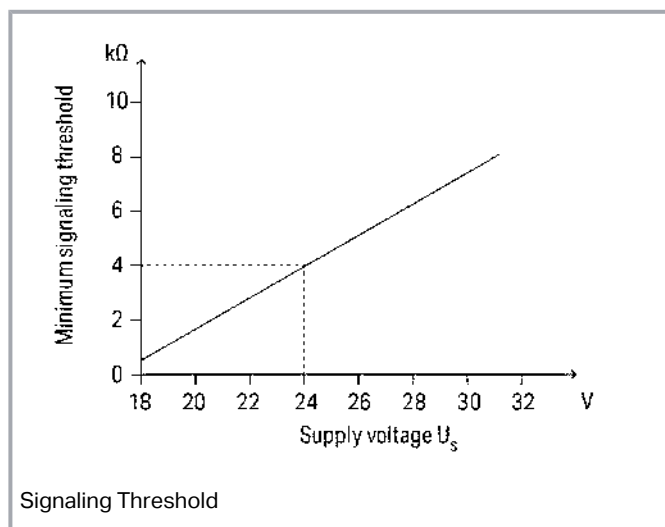
X1.1			X2.1
X1.2			
X1.3	+24 V	U_s^+	0 V
			X2.2



Subject to changes. Please also observe the further product documentation!

WAGO Corporation
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Item description

Short Description

The product signals a value falling below a non-adjustable, asymmetric isolation resistance between +24 V or 0 V of the supply voltage and ground by means of a potential-free contact ("Iso OK") and status LED. The "Iso OK" contact can be evaluated via a PLC.

This status is maintained until the next measurement interval.

Operation with Grounded Control Circuit (Functional Potential Equalization)

- The module establishes an internal connection between the 0 V (X2.2) and ground (X2.1) connections via a semiconductor switch.
- At 10 s intervals, the connection between 0 V and ground is interrupted for 0.5 s, and the isolation resistance between +24 V (X1.3) or 0 V (X2.2) of the supply voltage and earth (X2.1) is determined.
- The grounding connection on the module does not meet the requirements of a protective earth terminal (PE). It serves as a functional ground. The measurement method does not involve the module establishing any permanent connection between 0 V and ground.

Operation with Ungrounded Control Circuit

- In this operating mode, the semiconductor switch to establish a connection between 0 V (X2.2) and ground (X2.1) is deactivated. At 1 s intervals, the isolation resistance offset is determined for 0.5 s.
- The module does not meet the requirements of an isolation monitoring device per EN 61557-8.

"Iso OK" Contact

- The potential-free contact serves the purpose of supporting evaluation (e.g., via a PLC) of looming isolation faults.
- This contact must not be used to switch safety-related products that could cause the circuit to switch off.

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Data Supply

Nominal supply voltage U_S	DC 24 V (SELV)
Supply voltage range (DC)	DC 18 ... 31.2 V
Power consumption at nominal supply voltage	≤ 40 mA
Power loss P_I	≤ 1.7 W
Current at ground fault (24 VDC) (max.)	56 mA

Signaling

Operation status indicator	1 x LED "Status OK" (green) 1 x LED "Status OK" (green)
Signaling	1 x LED "Iso Alarm" (red) 1 x LED "Iso Alarm" 24 V – Ground (yellow) 1 x LED "Iso Alarm" 0 V – Ground (yellow) 1 x Signal output "Iso OK" 1 x LED "Iso Alarm" (red) 1 x LED "Iso Alarm" 24 V – Ground (yellow) 1 x LED "Iso Alarm" 0 V – Ground (yellow) 1 x Signal output "Iso OK"

Iso OK Kontakt

Schaltspannung max.	48 VDC (SELV)
Continuous current (max.)	500 mA (for general use)
Number of Iso OK contacts connected in series (max.)	25 (Limit value type: 1); 32 (Limit value type: 2 and 3) (per IEC 61131)
Function	1 make contact (NO); closed with applied power supply and insulation resistance > limit value

Fuse Protection

Required backup fusing	<p>The fuse must be placed in the output circuit of the power supply. The fuse must be adapted to the power supply used and must trip safely in case of a short circuit. The module is designed for use with a 10 A (max.) fuse or with a 10 ADC (max.) circuit breaker (characteristic B or C).</p> <p>The fuse must be placed in the output circuit of the power supply. The fuse must be adapted to the power supply used and must trip safely in case of a short circuit. The module is designed for use with a max. 10 A DC thermal or magnetic circuit breaker (characteristic B or C).</p>
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**Safety and protection:**

Pollution degree	2
Overvoltage category	II
Protection type	IP20
Test voltage (supply/"Iso OK" contact)	1.5 kVAC; 50 ... 60 Hz; 1 min

Mode: ungrounded control circuit

Response value for alarm at nominal supply voltage	4 k Ω (at $U_S = 24$ V, for other values of U_S see signaling threshold characteristic)
Response time	1 s
Hysteresis (typ.)	1 k Ω

Mode: grounded control circuit

Response value for alarm at nominal supply voltage	4 k Ω (at $U_S = 24$ V, for other values of U_S see signaling threshold characteristic)
Response time	10 s
Hysteresis (typ.)	1 k Ω

Environmental Requirements

Surrounding air temperature (operation)	-40 ... +70 °C
Surrounding air temperature (storage)	-40 ... +85 °C
Temperature range of the connecting cable according to EN 61010-2-201	$\geq (T_{\text{surrounding air}} + 10 \text{ K})$
Relative humidity	5 ... 95 % (non-condensing)
Operating altitude (max.)	3000 m

Connection Data

Connection type (1)	X1.x
Connection technology	Push-in CAGE CLAMP®
WAGO Connector	picoMAX® eCOM
Solid conductor	0.25 ... 1.5 mm ² / 24 ... 14 AWG
Fine-stranded conductor	0.25 ... 1.5 mm ² / 24 ... 14 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.75 mm ²
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm ²
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch

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Connection type 2	X2.x
Connection technology 2	Push-in CAGE CLAMP®
WAGO Connector 2	picoMAX® eCOM
Solid conductor 2	0.2 ... 2.5 mm² / 24 ... 12 AWG
Fine-stranded conductor 2	0.2 ... 2.5 mm² / 24 ... 14 AWG
Fine-stranded conductor; with insulated ferrule 2	0.25 ... 1.5 mm² /
Fine-stranded conductor; with uninsulated ferrule 2	0.25 ... 2.5 mm² /
Strip length 2	9 ... 10 mm / 0.35 ... 0.39 inch

Geometrical Data

Width	18 mm / 0.71 inch
Height	90 mm / 3.54 inch
Depth from upper edge of DIN-rail	51 mm / 2.01 inch

Mechanical Data

Mounting type	DIN-35 rail
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Material Data

Weight	47 g
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Standards and specifications

Conformity marking	CE
EMC immunity to interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-3; EN 61000-6-4
Standards/Specifications	UL 61010-2-201

Commercial data

Packaging type	BOX
Country of origin	CN
GTIN	4055144067200
Customs tariff number	85365005000

Approvals / Certificates

Ex-Approvals

Logo	Approval	Additional Approval Text	Certificate name
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UL
Underwriters Laboratories Inc. (HAZARDOUS
LOCATIONS)

UL 121201

E198726

UL-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 61010-2-201	E175199

Compatible products

tools



Item no.: 210-719
Operating tool; Blade: 2.5 x 0.4 mm; with a partially insulated shaft

www.wago.com/210-719

Marking accessories



Item no.: 2009-110
Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white

www.wago.com/2009-110

Item no.: 2009-198
Adaptor; gray

www.wago.com/2009-198

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 789-665	URL	Download
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Installation Notes

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