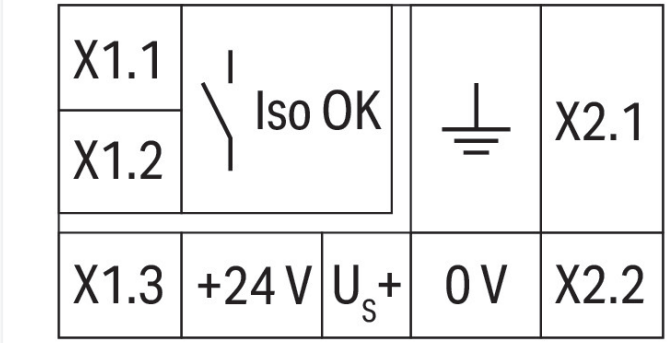
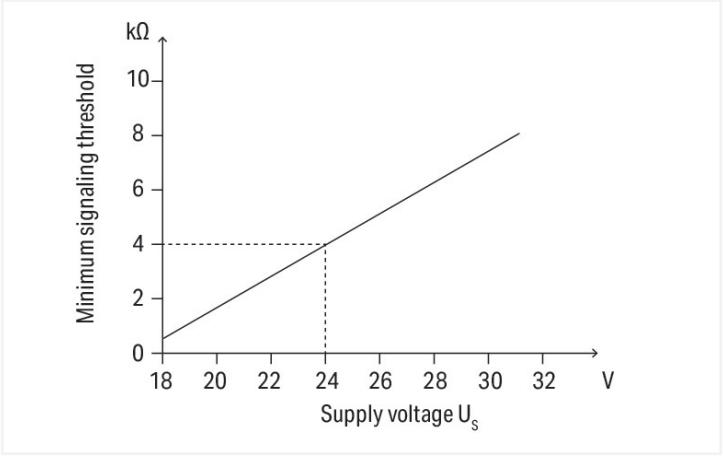
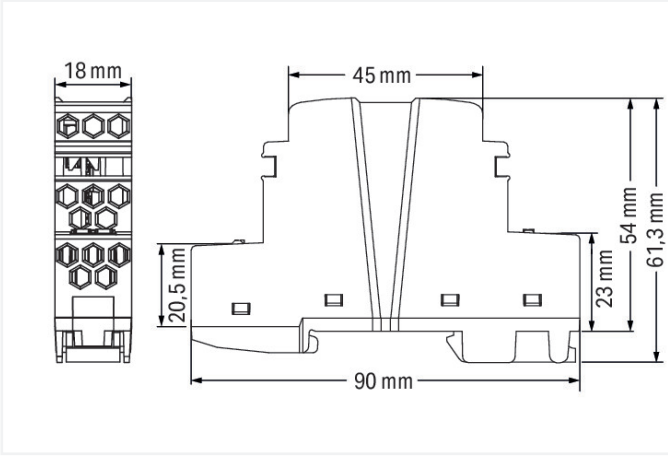
Data Sheet | Item Number: 789-665

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

https://www.wago.com/789-665







Signaling threshold

Short description:

WAGO's module signals a value falling below a non-adjustable, asymmetric isolation resistance between +24 V or 0 V of the supply voltage and ground with a potential-free (Iso OK) contact 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, this 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.

Supply

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

Signaling

Operation status indicator	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”

Iso OK contact

Switching voltage (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

Circuit protection

Backup fusing (required)	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).

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
MTBF	> 600,000 h (per MIL-HDBK-217F2)

Mode: Ungrounded circuit

Response value for alarm at nominal voltage	4 kΩ (at U_S = 24 V; for other U_S values, see diagram for signaling threshold)
Response time	1 s
Hysteresis (typ.)	1 kΩ

Mode: Grounded circuit

Response value for alarm at nominal voltage	4 kΩ (at U_S = 24 V; for other U_S values, see diagram for signaling threshold)
Response time	10 s
Hysteresis (typ.)	1 kΩ

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Environmental requirements

Ambient temperature (operation)	-40 … +70 °C
Ambient temperature (storage)	-40 … +85 °C
Temperature range of connection cable	≥ ($T_{ambient}$ + 10 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 mm² / 24 … 14 AWG
Fine-stranded conductor	0.25 … 1.5 mm² / 24 … 14 AWG
Fine-stranded conductor; with insulated ferrule	0.25 … 0.75 mm²
Fine-stranded conductor; with uninsulated ferrule	0.25 … 1.5 mm²
Strip length	8 … 9 mm / 0.31 … 0.35 inches
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 inches

Physical data

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

Mechanical data

Mounting type	DIN-35 rail

Material data

Fire load	0 MJ
Weight	47 g

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

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Commercial data

ETIM 8.0	EC003596
ETIM 7.0	EC003596
PU (SPU)	1 pcs
Country of origin	CN
GTIN	4066966120820
Customs tariff number	85365005000

Environmental Product Compliance

RoHS Compliance Status	Compliant,No Exemption