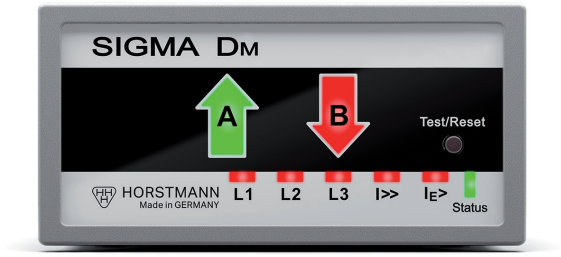
Sigma DM

Directional fault indicator with Modbus communication

HORSTMANN GERMANY



Sigma DM

Product features

- CT powered directional short-circuit and directional earth fault indicator for all distribution networks / neutral point treatments
- Earth fault detection with up to six different earth fault detection methods, also in combination
- Independent, fully automatic voltage calibration
- Easy and flexible parameter setting via DIP switch or USB port
- Event memory
- Multicolour LED status display
- RS485 interface: Remote signalling with Modbus RTU
- Sigma Explorer Software: Commissioning and parameterisation via front accessible USB port

Special features of Sigma DM

- Only 3 single-phase current sensors needed for all earth fault detection methods
- Wide-range power supply 24 to 230 V AC/DC

Your benefits

- Immediate fault direction detection
- Access to all measured values and fault signals in the control room and on site via USB and Sigma Explorer Software
- Fast commissioning and parameterisation

Sigma DM is a combined short-circuit and earth-fault direction indicator for medium-voltage networks, designed for remote data transmission via RS485 with Modbus RTU.

The measured voltage can be tapped via various voltage testing systems:

- Wega 1.2 and Wega 2.2 series, integrated voltage detection system with LRM interface according to IEC 61243-5.
- Wega 1 and Wega 2 series, integrated voltage detection system with LRM interface according to IEC 62271-213.
- For retrofitting or expansion solution via HR / LRM interfaces or support with capacitive coupling out.

The current measurement is carried out via three phase current sensors. The Sigma DM is suitable for all star point treatments and offers 6 earth fault location methods.
No auxiliary voltage is required for fault detection, except for earth fault transient method. For remote data transmission via RS485 with Modbus RTU, an auxiliary voltage must be connected.
In addition to the fully automatic voltage calibration (24h), this can also be carried out manually on site.

Technical data	Sigma DM
Directional short-circuit indicator	▪
Directional earth fault indicator	▪
Earth fault detection methods	UNE - Residual voltage (displacement voltage) IES - earth fault (earth short circuit) IEP - wattmetric/cos φ-method IEQ - wattmetric/sin φ-method ΔIE - pulse method IET - earth fault transient method
Measured values (Sigma Explorer)	Phase current, I1, I2, I3, IE with phase angle Phase-to-earth voltage: U1, U2, UNE with phase angle Phase to phase voltage: U12, U23, U31 with phase angle Power P, Q, S and cos φ, P1,2,3, Q1,2,3, S1,2,3, cos φ 1, 2, 3 Rated frequency
I>> short-circuit, pickup element	10 - 2000 A (DIP: 400, 800, 1000, 2000A)
tI>> response delay	40 - 60.000 ms (DIP: 40, 80ms)
$I_{E>}$ earth fault, pickup element	10 - 1000 A
$tI_{E>}$ response delay	40 - 60.000 ms
UNE> Residual voltage, pickup element	1 - 100 %
tUNE> Response delay	40 - 60.000 ms
$I_{EP>}$ Active-earth current, pickup element	1 - 200 A
$I_{EQ>}$ Reactive-earth current, pickup element	1 - 200 A
tIEP> / tIEQ> Response delay	40 - 60.000 ms
ΔIE Response values pulse locating (clock stroke)	1 - 200 A
IET> Earth transient method, pickup element	10 - 500 A
Measuring accuracy phase currents	3 % (0 - 630 A, resolution 1 A) 5 % (630 - 1.500 A) 10 % (1.500 - 2.000 A)
Voltage measurement	3% simple calibration, 1% with calibration via reference voltage
Display LED	Fault direction arrows red/green
Communication	RS485/Modbus RTU
Parameterisation	USB 2.0 interface, connection to Sigma Explorer operator software On the unit via DIP switch
Voltage calibration	Manual / Automatic
Binary inputs	2, potential-free contacts, freely configurable
Reset	▪ Automatic time reset: 1 - 1440h (DIP: 2h, 4h) ▪ Push-button ▪ Remote reset via digital input ▪ RS485/Modbus RTU ▪ Power recovery ▪ Voltage recovery
Power supply CT powered Internal power supply	▪ Long-life lithium cell, shelf life ≥20 years
External auxiliary supply	24 - 230 V AC/DC (necessary for earth fault transient method and communication: RS485/Modbus RTU)
Housing	Dimensions: 96x96x104 mm Installation depth: 96 mm (106 mm including connecting cables) Polycarbonate
Temperature range	–30 °C to +70 °C

Notes to the Main catalogue

Equipment set	Art. no.	Page
1 Sigma DM display unit	37-6250-001	
3 phase current sensors	49-602X-XXX	50
1 voltage signal	-	52

Optional accessories	Page
Commissioning system	57
Connection to telecommunication solution	71
Wall-mounted housing	56
Disassembly aid	57
Housing spring	57