

ComPass B / Switch ComPass Bs

Directional short-circuit and directional earth fault indicator with monitoring and control function



- For all types of networks/neutral point treatments
- Fault indicator: 2 directional arrow LEDs (A, B) and OLED display
- 6 earth fault detection methods
- High-precision current and voltage measurement
- Monitoring of the parameters voltage (V), current (I), load current (B↓ or A↑), power factor (cos φ), power (P, Q), energy (E) and temperature (T)
- Limit monitoring: V, I, P, Q, T
- Simultaneous voltage monitoring via capacitive and resistive voltage coupling
- ComPass Explorer Software: Commissioning and parametrisation via front-mounted USB port
- Switch ComPass Bs with control function and freely programmable logic

The ComPass B is suitable for use in substations with a remote control connection of the electrical power distribution in a medium voltage network. ComPass B supplies the collected measured values and their defined limits for transmission to the control room.

If a fault occurs, the unique fault direction is displayed via flashing directional arrows. In addition, phase selectivity and fault mode (earth fault or short circuit) can be read in the OLED display. The PT100 sensor measures the temperature, for example of the transformer or the transformer station. Two high and low temperature thresholds can be defined in each case.

In addition to the functions of the ComPass B, the Switch ComPass Bs offers a control function for switching a load-break switch or circuit-breaker. Random information, such as the SF6 gas disruption or HV tripped fuse, can be captured via the free assignment of the 6 binary inputs. The combination of binary inputs with a freely programmable logic (32 modules, PLC functionality), enables the user to define the switching conditions in a flexible manner.

Technical data	ComPass B	Switch ComPass Bs
Detection of short-circuit and earth fault current direction	▪	▪
Earth fault detection methods	Transient, earth short-circuit, wattmetric	
Control system/freely programmable logic	—	▪
Measured values/Indication	<ul style="list-style-type: none"> ▪ Phase currents I₁, I₂, I₃, I_E with phase angle ▪ Phase-to-earth voltage V₁, V₂, V₃, V_{NE} with phase angle and phase-to-phase voltage V₁₂, V₂₃, V₃₁, V_{NE} with phase angle ▪ Load flow direction B↓ or A↑ ▪ Power P, Q, S and cos φ (P_{1,2,3}, Q_{1,2,3}, S_{1,2,3}, cos φ_{1,2,3}) ▪ Amount of active energy, separate for load flow direction B↓ or A↑; additionally per phase ▪ Operating current, I_{1,2,3} 15 min, I_{max}. 24 h/7 days/365 days, maximum demand indicator I_{max}. LR ▪ Network frequency f ▪ Temperature T 	
Measurement accuracy phase currents	up to 0.5 %/0.5 A depending on the type of sensor (split-core or closed)	
Measurement accuracy voltages	up to 0.5 % in the range of 80–120 %/V _{nom} , depending on the type of sensor (resistive or capacitive)	
I>> Short-circuit trip current	20 – 2,000 A; tI>> Response delay: 40 ms–60 s	
V _{NE} > Neutral earth voltage trip values	1–100 %; tV _{NE} > Response delay: 40 ms–60 s	
I _{ES} >/I _{ES} >> Earth short-circuit trip current	10 – 1,000 A; tI _{ES} >/tI _{ES} >> Response delay: 40 ms–60 s	
I _{ET} > Transient earth fault method	1 – 500 A	
I _{EP} > Active current/ I _{EQ} > Reactive current (wattmetric)	1 – 200 A ; tI _{EP} >/tI _{QP} > Response delay: 40 ms–60 s	
Limit value	<ul style="list-style-type: none"> I> Overload current 5–1,500 A; tI> Response delay: 40 ms–60 s V> Over-voltage 100–200 %; tV> Response delay: 40 ms–60 s V< Under-voltage 1–100 %; tV< Response delay: 40 ms–60 s P>/P>> Active power 1–30,000 kW; tP</tP>> Response delay: 40 ms–60 s Q>/Q>> Reactive power 1–30,000 kW; tQ</tQ>> Response delay: 40 ms–60 s T</T<</T>/T>> Temperature -40 to +85°C 	
Indication	▪ LED fault direction and status indicators (multicolour); OLED display (multilingual)	
Reset	<ul style="list-style-type: none"> ▪ Local, remote, automatic time reset: 1 min – 24 h ▪ Via RS485/MODBUS interface ▪ Auxiliary supply restoration, voltage and current restoration ▪ ComPass Explorer Software 	
Remote signal/Communication	<ul style="list-style-type: none"> ▪ 4 potential-free, freely programmable relay contacts ▪ RS485/MODBUS interface ▪ USB port with ComPass Explorer Software 	
Remote contact	4 permanent or momentary contacts, bistable, NC/NO Contact capacity: 230 V AC/1 A/62.5 VA max 220 V DC/1 A/60 W max.	4 permanent or momentary contacts, monostable, NC/NO Contact capacity: 250 V AC/6 A; 30 V DC/6 A, resistive load
Binary inputs	2, potential-free, 1 s < t < 5 s	6, freely programmable, max. 30 V DC
Power supply	<ul style="list-style-type: none"> ▪ External: 24–230 V AC/DC (±10%) ▪ Internal: 3.6 V long-life lithium cell, shelf life ≥20 years, >1,000 h total flashing time of the LED, > 1,000 display activations 	
Housing	Polycarbonate, IP50 (device front panel), IP20 (terminals)	
Dimensions	96 x 48 x 107 mm (W x H x D), plug-in depth: 90 mm	
Temperature range	-30 to +70°C	

Article	Order No.	
	ComPass B	ComPass Bs
Equipment set	<ul style="list-style-type: none"> ▪ 1 Display unit ▪ 3 Single-phase current sensors (or 2 + 1 summation current sensor) 	
Display unit in plug-in housing	38-4150-001	38-4153-001
Split-core cable-type current sensor for retrofit	49-6024-001 (15–55 mm), 49-6024-010 (15–65 mm)	
Phase current sensors for new installation	Available for different switchgears	
Split-core summation sensor	49-6023-020 (220–250 mm)	
Integrated voltage detecting system	51-1250-001(WEGA 1.2 C), 51-2250-001 (WEGA 2.2 C), 51-1300-001 WEGA 1.2 C vario)	
System specific interface cable set	Available for different lengths	
Connection leads (ComPass - WEGA)	Available for different lengths	
Resistive dividers	38-9100-003 (long cone), 38-9100-007 (short cone)	
Connecting line (ComPass - splitter)	Available for different lengths	
Wall-mounted housings	Available for different housings	