ComPass B 2.0 | ComPass Bs 2.0

Directional fault indicator with monitoring and control function

HORSTMANN GERMANY

ComPass Bs 2.0

ComPass B 2.0

Product features

- Clear fault indication and reading on-site: 2 directional arrow LEDs (A, B) and high contrast OLED display
- High-precision current and voltage measurement to 0.5 %
- Monitoring of the parameters voltage (V), current (I), load flow direction (A↑ or B↓), power factor (cos ϕ), power (P, Q, S), energy (E), temperature (T) and frequency (f)
- Suitable for all types of networks/neutral point treatments
- Earth fault detection with 6 different earth fault detection methods, also in combination
- Connection to capacitive and resistive (ohmic) sensors
- Limit monitoring: V, I, P, Q, T
- ComPass Explorer Software: Commissioning and parameterisation via front accessible USB port

Additional features of the Control ComPass Bs 2.0:

- Control ComPass Bs 2.0 for remote controlling of a load-break switch or circuit-breaker
- Free assignment of six binary inputs for the collection and transmission of relevant switchgear / station data
- Freely programmable logic for flexible definition of switchgear conditions

Your advantages

- Immediate detection of fault direction
- Immediate detection of limit violations
- Measured values available for SCADA and on site
- Automatic self-calibration of the capacitive voltage inputs, optionally with temperature compensation
- Only ComPass Bs: Remote switching

The ComPass B 2.0 is suitable for use in substations with a remote control connection of the electrical power distribution in a medium voltage network. In addition to the short-circuit and earth fault function, ComPass B 2.0 supplies the collected measured values of current, voltage and power from the station for transmission to the control room. The PT-100 sensor measures the temperature, for example of the transformer or the transformer station. For all measured values limits can be defined, which can also be transmitted to the control room.

The voltage coupling/measurement is done via the capacitive VDS system and/or via resistive (ohmic) voltage sensors. With the simultaneous measurement, the voltage measurement of the VDS system can be automatically calibrated with the resistive voltage measurement. Up to four ComPass B can be connected to one set of resistive voltage sensors.

In addition to the functions of the ComPass B 2.0, the Control ComPass Bs 2.0 offers a control function for switching a load-break switch or circuit-breaker. A free assignment of six binary inputs in combination with a freely programmable logic (PLC functionality) enables the user to define the switching conditions in a flexible manner. Random information, such as the SF6 gas disruption or HV tripped fuse, can be captured via the binary inputs.

Technical data	ComPass B 2.0	ComPass Bs 2.0
Directional short-circuit indicator	■	■
Directional earth fault indicator	■	■
Earth fault detection methods	Permanent, earth short-circuit, transient, cos ϕ, sin ϕ	
Control system / freely programmable logic	–	■
Measured values / indication	▪ Phase currents I_1, I_2, I_3, I_E with phase angle ▪ Phase-to-earth voltage V_1, V_2, V_3, V_{NE} and phase-to-phase voltage V_{12}, V_{23}, V_{31}, V_{NE} ▪ Load flow direction A↑ or B↓ ▪ P, Q, S and cos ϕ (power factor) ($P_{1,2,3}$, $Q_{1,2,3}$, $S_{1,2,3}$, cos $\phi_{1,2,3}$ via RS485) ▪ Amount of active energy, separate for load flow direction A↑ or B↓, additionally per phase ▪ Operating current, I_1, I_2, I_3, I_E, S, P, Q, U_{12}, U_{23}, U_{31}, all average values adjustable (1 – 60 min), I_1, I_2, $I_{3\,max.}$ 24 h / 7 days / 365 days , maximum demand indicator $I_{max.}$ LR, $V_{12max.}$ LR, $V_{23max.}$ LR, $V_{31max.}$ LR, $S_{max.}$ LR, $P_{max.}$ LR, $Q_{max.}$ LR, Tmin LR, $T_{max.}$ LR (last reset) ▪ Power frequency f ▪ Temperature T	
I>> short-circuit trip current	20 – 2,000 A, self-adjustment	tI>> response delay: 20 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 method	1 – 500 A	
I_{EP}> active current cos ϕ	1 – 200 A	tI_{EP}> response delay: 40 ms – 60 s
I_{EQ}> reactive current sin ϕ	1 – 200 A	tI_{EQ}> response delay: 40 ms – 60 s
V_{NE}> permanent earth fault values	1 – 100 %	tV_{NE}> response delay: 40 ms – 60 s
Limit monitoring		
I> overload current	5 – 1,500 A	tI> response delay: 40 ms – 60 s
V> overvoltage	100 – 200 %	tV> response delay: 40 ms – 60 s
V< undervoltage	1 – 100 %	tV< response delay: 40 ms – 60 s
P> / P>> / +P> / –P> active power	1 – 30,000 kW	tP>/tP>>/+tP>/–tP> response delay: 40 ms – 60 s
Q> / Q>> / +Q> / –Q> reactive power	1 – 30,000 kW	tQ>/tQ>>/+tQ>/–tQ> response delay: 40 ms – 60 s
T</T<</T>/T>> temperature	–40 to +85 °C	
Measurement accuracy phase currents	Up to 0.5 % / 0.5 A closed sensor type, ≤1 % / 0.5 A split-core sensor type	
Measurement accuracy voltages	Up to 0.5 % in the range of 80 – 120 % / Vnom (resistive)	
Indication	▪ LED status display (multicolour) ▪ OLED display (multicolour)	
Binary inputs	2, potential-free, 1 s < t < 5 s, freely programmable	6, freely programmable, max. 30 V DC
Remote signal / communication	▪ 4 potential-free relay contacts, freely configurable ▪ RS485 / Modbus interface	
Parameter setting	USB port with ComPass Explorer Software	
Remote contact	4 permanent or momentary contacts, bistable, NC or 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 or NO Contact capacity: 250 V AC/6 A; 30 V DC/6 A, resistive load
Reset	▪ By rocker switch ▪ Automatic time reset: 1 min – 24 h ▪ Remote reset ▪ Via RS485 / Modbus interface ▪ Current restoration ▪ Restoration of auxiliary supply ▪ Voltage restoration ▪ ComPass Explorer Software	
Power supply		
External auxiliary supply	24 – 230 V AC/DC (±10 %)	
Internal power supply	Long-life lithium cell, active flashing time >1,000 h, >1,000 display activations, shelf life ≥20 years	
Housing	Polycarbonate, IP50	
Temperature range	–30 to +70 °C	

Dimension drawing see main catalogue on page 159, M7

Equipment set		Main catalogue page
1 display unit		
ComPass B 2.0	Order no. 38-4150-001	
ComPass Bs 2.0	Order no. 38-4153-001	
3 single-phase current sensors[1)]		50
1 voltage signal		52

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External signal lamp	56
Disassembly clip	57
Spring clip	57

1) Combination with summation current sensor possible: 3+1 or 2+1.

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