PERFORMANCE MADE SMARTER

Universal trip amplifier

4179B

– Measures AC current and voltage signals
– Output: 2 relays
– Programming, process monitoring and diagnostics via PR 4500
– Universal power supply 21.6…253 VAC / 19.2...300 VDC

Functional highlights

- The 0... 5 AAC RMS range makes it possible to accurately measure a typical current transformer.
- The 0...300 VAC RMS range allows accurate supply voltage monitoring.
- The device measures standard input ranges and can be freely configured to customer-defined input range.
- Process control with 2 pairs of potential-free relay contacts which can be configured to suit any application.
- Trip amplifier with window function allowing the relay to change state within a high and a low setpoint on the input span.
- Simulation of process value during commissioning / maintenance.
- All terminals are over-voltage protected, polarity protected and short-circuit protected.
- The 4179B provides the required failure data (SFF and PFDAVG) for SIL 2 applications as per IEC 61508 / IEC 61511.
- Failure rates for 4179B correspond to Performance Level “d” according to ISO-13849.

Technical characteristics

- Accuracy < 0.3% of span.
- Temperature coefficient 0.01% / °C.
- Response time < 0.75 s for measuring AC current / voltage signals.
- High galvanic isolation of 2.3 kVAC.
- Extended EMC immunity: NAMUR NE21, A criterion, burst.
- Functional safety: HW assessment, SFF > 90%.

Programming

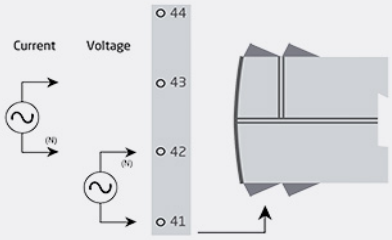
- Configuration, monitoring and diagnostics using PR 4500 detachable communication interfaces. Product-specific functionality includes communication via Modbus and Bluetooth using our PR Process Supervisor (PPS) application, available for iOS and Android.
- All programming can be password protected.
- Scrolling help text in 7 languages.

Mounting / installation

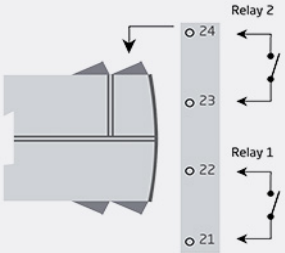
- Units can be mounted side by side, horizontally and vertically, without air gap on a standard DIN rail, even at 60°C ambient temperature.

Applications

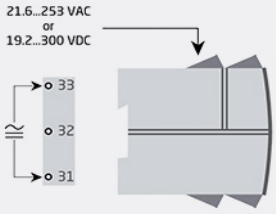
Input signals:



Output signals:



Power connection:



Order:

Type
4179B

Environmental Conditions

Operating temperature	-20°C to +60°C
Storage temperature	-20°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & meas. / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	109 x 23.5 x 104 mm
Dimensions (HxWxD) w/ PR 4500	109 x 23.5 x 131 mm
Weight approx.	155 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13...2.08 mm^2 AWG 26...14 stranded wire
Screw terminal torque	0.5 Nm
Vibration	IEC 60068-2-6
2...13.2 Hz	±1 mm
13.2...100 Hz	±0.7 g

Common specifications

Supply

Supply voltage, universal	21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Internal fusible resistor	< 80 s, 2.4 A
Max. required power	1.2 W
Max. power dissipation - current measurement	2.2 W
Max. power dissipation - voltage measurement	1.2 W

Isolation voltage

Test voltage	2.3 kVAC
Input to any (working)	250 VAC (reinforced)
Relay to relay (working)	125 VAC (reinforced)

Response time

Response time (0...90%, 100...10%)	< 0.75 s
Signal dynamics, input	20 bit
Bandwidth	40…400 Hz
Programming	PR 4500 communication interfaces
EMC immunity influence	< ±0.5% of span*
Extended EMC immunity: NAMUR NE21, A criterion, burst	< ±1% of span*
of span	= of selected standard range

Input specifications

Current input

Signal range	0...5 AAC / 40...400 Hz
Maximum input limit	6.00 AAC @ 40°C
Programmable measurement ranges	0...0.5; 0…1; 0…2.5 & 0...5 AAC
Custom configurable signal range	0...5 AAC /40...400 Hz
Min. measurement range (span)	0.5 AAC
Input resistance	< 0.042 Ω (incl. terminals)

Voltage input

Signal range	0...300 VAC / 40...400 Hz
Programmable measurement ranges	0...0.5, 0...1, 0...2.83, 0…5, 0…120, 0…230 & 0…300 VAC
Custom configurable signal range	0...300 VAC / 40...400 Hz
Min. measurement range (span)	0.5 VAC
Input resistance	Nom. 3 MΩ || 100 pF

Output specifications

Relay output

Relay functions	Setpoint, Window, Error indication, Latch, Power and Off
Hysteresis	0...100%
ON and OFF delay	0...3600 s
Power On delay	0...9999 s
Max. voltage	250 VAC / VDC
Max. current	2 A
Max. AC power	500 VA
Max. DC current, resistive load ≤ 30 VDC	2 ADC
Max. DC current, resistive load > 30 VDC	See manual for details

Observed authority requirements

EMC	2014/30/EU & UK SI 2016/1091
LVD	2014/35/EU & UK SI 2016/1101
RoHS	2011/65/EU & UK SI 2012/3032

Approvals

c UL us, UL 508	E248256
SIL	Hardware assessed for use in SIL applications