



Universal AC / DC transmitter

4179

- Measures AC current and voltage signals
- Outputs passive or active current signals
- Programming, process monitoring and diagnostics via PR 4500
- Response time < 0.75 s and excellent accuracy better than 0.3%
- Universally powered by 21.6...253 VAC / 19.2...300 VDC



Application

- 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 4179 measures standard input ranges, and can be freely configured to customer-defined input range.
- Converts narrow AC current / voltage inputs to wide bipolar or unipolar outputs, e.g. 0...1 VAC RMS input = ± 10 volt or 4...20 mA output with a minimum span of 0.5 AAC RMS or 0.5 VAC RMS.
- Configurable input limits control the output value for increased safety.
- The 4179 provides the required failure data (SFF and PFD_{AVG}) for SIL 2 applications as per IEC 61508 / IEC 61511.
- Failure rates for 4179 correspond to Performance Level "d" according to ISO-13849.

Technical characteristic

- The latest analog and digital techniques are used to obtain maximum accuracy and immunity to interference.
- Possibility of output safety feedback by selecting S4...20 mA output.
- The current output can drive up to 800 Ohms, with an adjustable response time of 0.0...60.0 seconds.
- Exceptional mA output load stability of <0.001% of span / 100 Ohm.
- Meets the NAMUR NE21 recommendations, ensuring high accuracy in harsh EMC environments.
- Meets the NAMUR NE43 recommendations, allowing the control system to easily detect an input error.
- Tested to a high 2.3 kVAC, 3-port galvanic isolation level.
- Excellent signal to noise ratio of > 60 dB.

Mounting / installation / programming

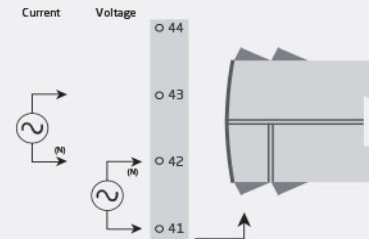
- Very low power consumption means units can be mounted side by side without an air gap – even at 60°C ambient temperature.
- Configuration, monitoring, 2-point process calibration and more are accomplished using PR's 4500 series of detachable displays.

Note

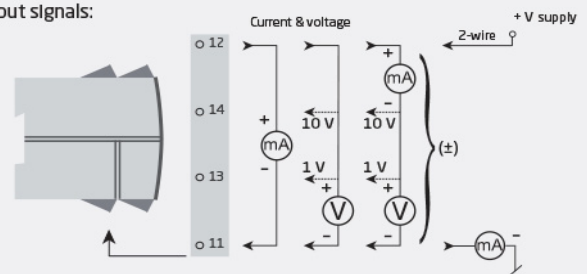
- If you need an installation instruction in hard copy, you can order it for free when placing your order.

Applications

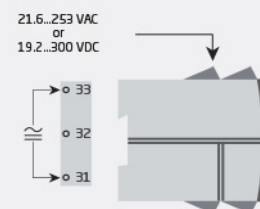
Input signals:



Output signals:



Power connection:



Order:

Type
4179

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
Weight incl. 4501 / 451x (approx.).....	170 g / 185 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
Max. required power.....	1.6 W
Max. power dissipation - current measurement.....	2.7 W
Max. power dissipation - voltage measurement.....	1.6 W

Isolation voltage

Test voltage.....	2.3 kVAC
Working voltage.....	250 VAC (reinforced) / 500 VAC (basic)

Response time

Response time (0...90%, 100...10%).....	< 0.75 s
Programming.....	PR 4500 communication interfaces
Signal dynamics, input.....	20 bit
Signal dynamics, output.....	18 bit
Signal / noise ratio.....	> 60 dB
Output referred common mode rejection ratio.....	0.02 ppm / VHz
Accuracy.....	Better than 0.3% of selected range*
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**Active unipolar and bipolar mA output**

Programmable ranges.....	0...20, 4...20 and S4...20 mA
Programmable ranges.....	±10 and ±20 mA
Programmable ranges.....	Direct or Inverted Action
Load (@ current output).....	≤ 800 Ω
V-curve function, active signals, 100-0-100%.....	20-0-20 mA

Passive 2-wire mA output

Programmable ranges.....	0...20 and 4...20 mA
Programmable ranges.....	Direct or Inverted action
V-curve function, 100-0-100%.....	20-0-20 mA
External loop supply.....	3.5...30 V

Current output

Signal range.....	0...23 mA (unipolar)
Signal range.....	-23...+23 mA (bipolar)
Current limit.....	≤ 28 mA (unipolar)
Current limit.....	± 28 mA (bipolar)
Load stability.....	≤ 0.001% of span / 100 Ω
Response time, programmable.....	0.0...60.0 s

Voltage output

Programmable signal ranges.....	0/0.2...1; 0/1...5; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V
Programmable signal ranges.....	±1, ±5 and ±10 V
Programmable signal ranges.....	Direct or Inverted action
V-curve function, 100-0-100%.....	1-0-1, 5-0-5 and 10-0-10 V
Load (@ voltage output).....	≥ 500 kΩ
Response time, programmable.....	0.0...60.0 s

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
EAC.....	TR-CU 020/2011

Approvals

c UL us, UL 508..... E248256

SIL..... Hardware assessed for use in
SIL applications

NB

* / **..... For custom configurable signal
ranges, general accuracy and
EMC specifications are 0.3% of
full scale