PERFORMANCE MADE SMARTER

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

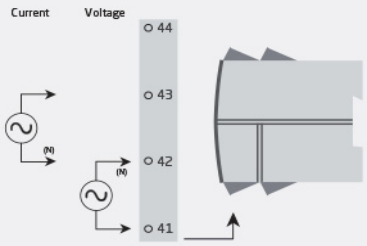
Application
- The 0...5 AAC RMS range makes it possible to accurately measure a typical current transformer.
- The 0...300 VAC RMS range allows accurate supply voltage monitoring.
- The 4179 measures standard input ranges, and can be freely configured to customer-defined input range.
- Converts narrow 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 PFDAVG) 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.

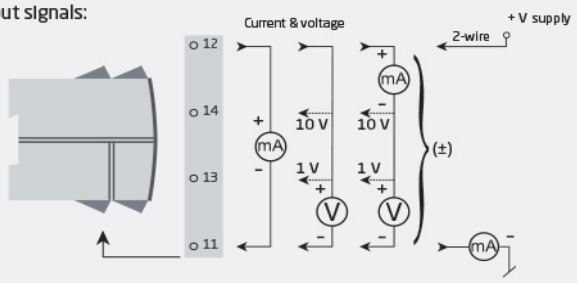
Mounting / installation / programming
- Very low power consumption means units can be mounted side by side without an air gap – even at 60°C ambient temperature.
- Configuration, monitoring, 2-point process calibration and more are accomplished using PR's 4500 series of detachable displays.

Applications

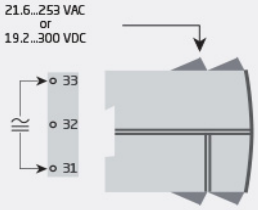
Input signals:



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