

Signal converters and monitoring components

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Signal converters and monitoring components

Analogue signal converters and monitoring components in IP20 housings can be attached to mounting rails

This product line includes: passive and active isolation amplifiers for analogue current and voltage signals; measurement isolators for measuring temperatures, resistances, frequencies, AC/DC currents and voltages; and universally-configurable signal isolating converters with integrated threshold monitoring.

Our wide range of products covers all the functions for isolating, converting and monitoring analogue signals. Thus these products can be used in practically all industrial measurement applications to safeguard the basic functionality between field signals and post-processing systems. A comprehensive line of accessories is also available for the analogue signal converter product line. These include pluggable cross-connectors, markers, and configuration adapters for the software-programmable products.

Features

- Can handle a variety of measurements
- Standard analogue signals on the output side
- Universally configurable
- Stand-alone, pluggable connection mechanism – screw or tension clamp
- Tool-free installation
- Quick initial commissioning – with interchangeable electronic
- Minimal wiring effort – with pluggable ZQV 2,5N cross-connector
- Excellent functionality
- Clear type designations makes selecting easy
- High level galvanic isolation





ACT20P

Strain gauge transmitter



WAVESERIES

Universal signal converter and
trip amplifier, configurable

ACT20P Strain gauge transmitter for reading load cells

The ACT20P Bridge converts strain gauge measurement signals to standard analogue signals.

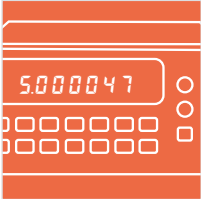
The ACT20P family offers the customer precise and functional signal converters in a compact design. The ACT20P bridge is the first product from this new line of signal converters.

Load cells, or so-called force transducers, are used for weighing all types of industrial products. Most of these are made of a metallic spring bellow. The spring deformations are recorded by a strain gauge and converted into a mV signal. The ACT20P Bridge reads these signals and converts them to a standard signal 0(4) – 20 mA or 0 – 10 V. This secure separation also protects against counterfeit signals. A control signal at the tare input can be used to set the empty weight.

Features

- Adjust to load cells using the push button
- Easy tare calibration using the integrated control input
- Intelligent pluggable connection method
- The release lever simplifies maintenance and enables the connection to be unplugged without any wire damage.
- Integrated captive coding with the unique „auto-set“ function





Exact measurement

The input with 6-conductor connection and very high accuracy (0.05 % of the measurement range) enables precise signal processing.



Conversion

Conversion of the bridge voltage in standardised analogue signals.



Tare calibration

Simple calibration of the empty (tare) weight can be done on-site by using the button under the front plate or with an external connection via a PLC output.



On-site calibration

Simple and reliable calibration on-site. The ACT20P Bridge is adjusted to the different load cells by means of a push button behind the hinged panel.



Protection

Protection against noise from the field. The 3-way isolation separates the input, the voltage supply and the output with 5.7 kV isolation voltage.



ACT20P Bridge

Strain gauge transmitter for reading load cells

ACT20P – Strain gauge transmitter for reading from load cells

ACT20P bridge – Strain gauge transmitter for reading from load cells

General

The ACT20P Bridge is a DIN rail mounted, signal conditioner for industrial measuring bridges. It provides a precise excitation voltage for the bridge, and converts the input measurement to an isolated current/voltage signal. Strain gauge transmitter are used for various measurements like weight, force, tension, pressure, torque, and deflection.

Bridge excitation supply

Voltage sense connections are provided so that the excitation voltage can be measured at the bridge. Known as 'remote sensing' this method compensates for cabling and contact resistance errors. It is recommended for all new installations or where an upgrade is possible. Remote sensing wiring requires three twisted pairs.

TARE adjustment

The installed strain gauge is normally subjected to an initial load independent of the measurement taken. The TARE connection allows you to correct for this initial loading by operating a switch. Alternatively there is a button on the front of the unit (under the front cover) that performs the same function. Press for two seconds to correct for the initial load (the 'CAL HI' LED will light for one second).

Gauge factor

Every strain gauge has a 'gauge factor' which gives the output voltage at full-scale for a one volt excitation voltage (given in mV/V). You multiply this by the bridge excitation voltage to get the output voltage when the gauge is fully loaded. For example, a load cell with 10V excitation and 2mV/V gauge factor will give 20mV when fully loaded. The meaning of a 20mV output depends on the type of the strain gauge. If it was designed to measure 0-1000Kg then 20mV indicates a 1000Kg load.

Setup

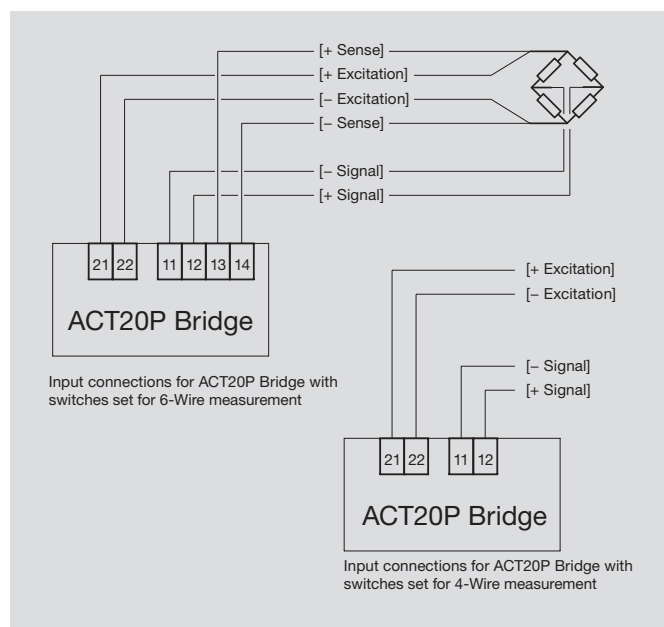
The ACT20P Bridge has internal switch settings that determine the excitation voltage (5V or 10V) and Input range limits. Select the appropriate settings from the table below. Once you have set the DIP switches, you simply calibrate the unit to the input and output range for your application.

Calibration

There are three options for calibrating the ACT20P Bridge:

- Bench calibrate using a bridge simulator (if you know the gauge factor)
- Calibrate on-site by loading the actual installed strain gauge
- Bench calibrates using a mV source (if you know the gauge factor).

For more information please read the manual from the web page: www.weidmueller.com

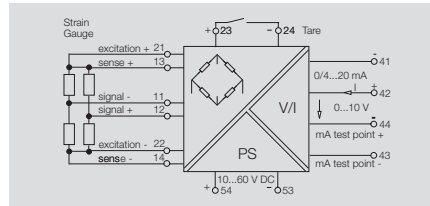


Configurable

Strain gauge transmitter for reading from load cells

- 3-way isolation
- Supply for measuring bridges up to 4 x 350 Ω
- Simple calibration of the tare weight using external switch or PLC input
- Input and output ranges adjustable via DIP switch

ACT20P-BRIDGE-S



Technical data

Input	
Type	Resistance measuring bridge
Bridge sensitivity	1.0 mV / V to 5.0 mV / V
Input measurement range	± 10 mV / ± 20 mV / ± 30 mV / ± 50 mV (adjustable)
Input resistance	> 1 MΩ
Sensor supply	120 mA @ 10 V (= 4 x 350 Ω bridge resistors)
Bridge supply voltage	5 V or 10 V

Output	
Type	Voltage and current output (configurable)
Output voltage / Output current	0 ...11 V (adjustable) / 0...22 mA (adjustable)
Load impedance, voltage/current	600 Ω / 1 kΩ

General data	
Supply voltage	10...60 V DC
Power consumption	3 W @ 24 V DC
Linearity	Typically ± 0.05% of signal range
Repeat accuracy	± 0.05% of signal range
Humidity	10...90 % (no condensation)
Temperature coefficient	typ. 0.005 % / °C
Long-term drift	0.1 % / 10,000 h
Step response time	< 400 ms (10...90 %)
Ambient temperature / Storage temperature	-40 °C...+70 °C / -40 °C...+85 °C
Approvals	cULus; CE

Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 61326
Rated voltage	300 V _{eff}
Impulse withstand voltage	4 kV (1.2/50 μs)
Pollution severity	2
Overvoltage category	III
Insulation voltage	5.7 kV (input / output, input / supply)

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm

Note	

Screw connection	
	2.5 / 0.5 / 2.5
	119.2 / 22.5 / 113.6

Note	

Ordering data

Type	Qty.	Order No.
ACT20P-BRIDGE-S	1	1067250000

Note	

Accessories

Note	

Front panel DIP Switch settings

Switch	Action if On	Action if Off
1	10 V Excitation	5 V Excitation
2	mA Output	Voltage Output
3	10 mV Span	Turn off for other ranges
4	20 mV Span	
5	30 mV Span	
6	50 mV Span	
7	4-wire Measurement	6-wire Measurement
8		

Connections

Terminal	Signal	
11	Signal -	Input signal
12	Signal +	
13	Sense +	Bridge Excitation Voltage
14	Sense -	
21	Excitation +	
22	Excitation -	
23	Tare +	External Tare switch
24	Tare -	
41	mA Output -	Output signal
42	Output +	
43	mA Test Point -	
44	Voltage Output -	
44	mA Test Point +	Power Supply
54	+	
53	-	

WAVESERIES – signal converters and monitoring components

Isolation, conversion and monitoring of analogue signals – enclosed in a rail-mounted WAVEBOX housing

WAVESERIES products are well suited for users seeking an analogue signal conversion solution. Weidmüller’s WAVESERIES integrates a wide variety of functions into a compact, space-saving design. This product line covers a broad range of products suitable for many different analogue signal conditioning applications.

- Passive isolation amplifier for standard analogue signals
- Active isolation amplifier for standard analogue signals with 2-way or 3-way isolation
- Measurement isolating converters for recording temperatures (RTD sensors/ thermocouples), resistances, frequencies, AC/DC currents up to 60 A, and AC voltages up to 450 V.
- Measuring transducer for measuring AC currents up to 500 A
- Measurement converters for different input signals, with universal configuration (possible with DIP switch or software)
- Measurement converters with threshold monitoring, universal configuration possible with software

Service

No tools are required when removing the PCB from the housing. Simply push in the locking clips on the head piece and then pull out the upper section along with the connections and the PCB.

Saves time

The ZQV 2,5N cross-connector can be used to connect the housing together in order to bridge the power supply between the modules.

Security

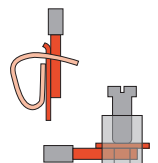
You must ensure the presence of „protective separation“ in accordance with EN50178. The WAVESERIES product are able to fulfil these requirements completely.

Flexibility

The BLZ/ BLZF pluggable screw and tension-clamp connections offer you the best flexibility. Coding elements can be used (without loss of poles) to make sure that the wrong plug cannot be inserted.

Protection

The WAVEBOX housing is made from recyclable plastics. It is available in widths of 12.5, 17.5, 22 or 45 mm. Practically no tools are required during installation. All requirements and EMC are met. The integrated ventilation slits ensure that sufficient heat dissipation takes place.





WAVE TTA / ITXPlus

Universal signal converter and trip amplifier, configurable



PRO DC/DC

DC/DC 3-way isolator, configurable



WAS / WAZ 5...C DC

DC/DC 3-way isolator



WAS / WAZ4...C DC

DC/DC 2-way isolator with supply on output side



WAS / WAZ5 OLP/ CCC LP

DC/DC passive isolator output/input loop powered



PRO RTD

RTD signal isolating converters, configurable



WAS / WAZ4 PT100

RTD signal converters for 2-, 3- and 4-wire connections



PRO Thermo

Thermocouple signal isolator, configurable



Thermo select

Thermocouple signal converters, configurable



PRO Frequency

Frequency signal isolator converter, configurable



WAS / WAZ CMA

Current monitoring up to 60 A AC/DC, configurable



CMA

Current measurement converter up to 500 A



WAS / WAZ VMA AC

Voltage monitoring up to 450 V AC

WAVE TTA – one module fits all ...

In the case of signal processing this is a big benefit. The maintenance engineer who hasn't got the right spare isolator or transmitter, and has to run part of the plant on manual control for a day or two before the replacement arrives understands this. It wastes his time and money. So Weidmüller have designed a signal processor with unique flexibility.

In one module the Wave TTA is an intelligent signal

- Isolator
- Convertor
- Transmitter
- Lineariser
- Trip-amplifier

The new Wave TTA is a „universal“ Transmitter Trip-Amplifier. It is part of Weidmüller's well-established WAVESERIES family of analogue signal conditioners, which are widely used in process and factory automation applications.

The TTA is unique. It has a combination of high performance and exceptional configurability. Designed for process industry applications, the TTA will work accurately and stably over a wide ambient temperature range, and over a wide supply voltage range, and with most types of sensor inputs. For 2 wire current transmitters 24 V DC power is provided. Alternatively the TTA can be a passive input for the current source.

Most commonly used temperature sensors and DC inputs are accepted, and the TTA also allows the user to define his own characteristic, so special sensor types and linearisation can easily be accommodated.

To help simplify installation and loop commissioning, test terminals are provided to permit input and output signal checks without removing cabling.

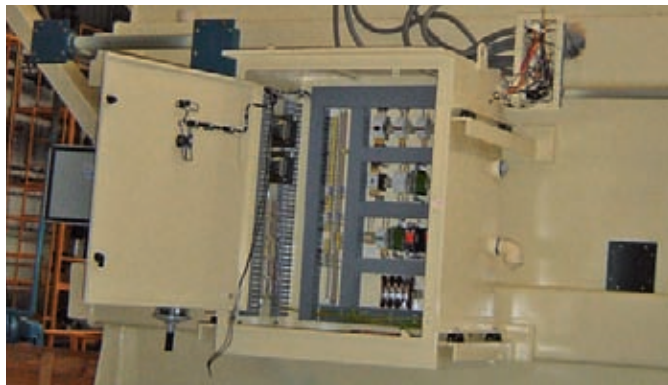
For linearised and/or isolated analogue outputs, the user has a choice of standard or rangeable DC milliamps and voltage ranges. These can be set as either direct or reverse acting. The user can also select upscale or downscale output in the event of a sensor break or an open circuit in the input.

The TTA provides 2 independently settable changeover-relay outputs, for use as high and low level alarms or control points.

Configuring the versatile TTA to change input and output parameters is simple, and performed from a computer via an interface (CBX200 USB).

Powering the TTA is flexible too. When the auxiliary supply is anything between 18 and 264 V (AC or DC), one module can take it.

Physically, the TTA comes in a black WAVESERIES housing with a flammability class V0 acc. UL 94, for mounting on TS35 DIN rail. Pluggable connectors, allow screw or tension clamp wiring. A screwdriver-releasable front flap gives access to the configuration interface socket.



Universal input signals

- Temperature signals (such as RTDs),
One module integrates thermocouples and potentiometers, frequency transmitter, DC voltage signals and DC current signals.

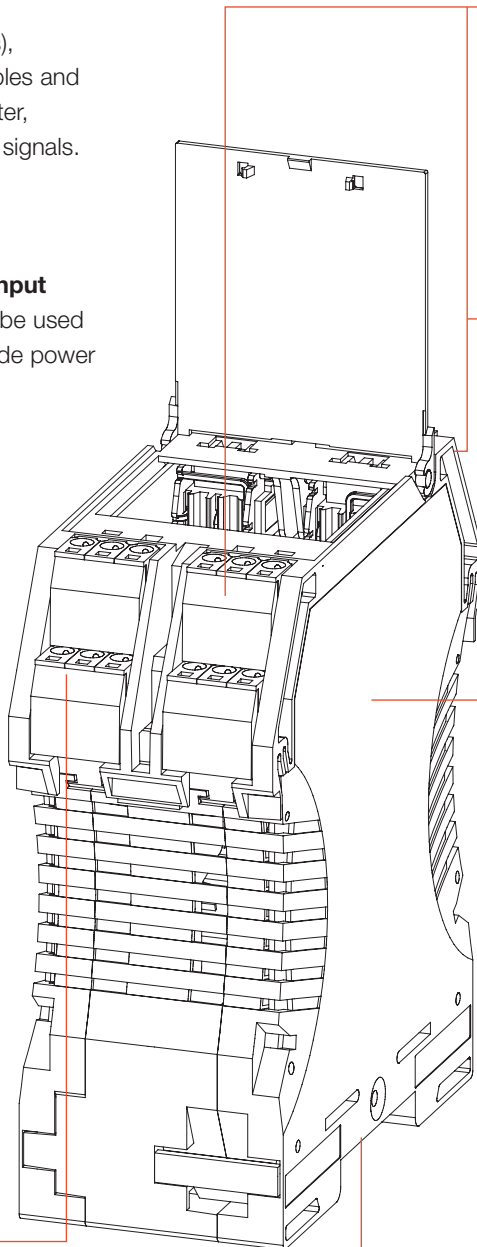
Current source or loop powered input

- For DC current inputs the TTA can be used with either a passive input, or provide power for a two-wire transmitter.

Wide AC/DC power input (18-264 V AC/DC)

User-definable characterisation

- If none of the standard input linearisation options suit the sensor, a special curve can easily be created.



Inputs & outputs configurable via computer

- The range of configurability of the TTA is remarkable – and made easy using TTA SET software, in conjunction with the CBX200 USB interface.

Both analogue and relay outputs

- In one module the TTA integrates adjustable alarm or control outputs from mechanical relays, as well as it's proportional analogue output.

Wide ambient temperature range (-40 to 70 °C)

- Mounting the TTA outside in the field is no problem. It's ambient temperature range means it can also be field enclosure mounted.

High accuracy and temperature stability

- The Wave TTA offers performance minimizes losses for data acquisition systems, with it's output accuracy typically < 0,1 %, and temperature stability < 0,01 %/K

Milliamp signal testing without removing cables

- The current and voltage inputs can be tested using a supplemental test contact without loosening the existing wiring.

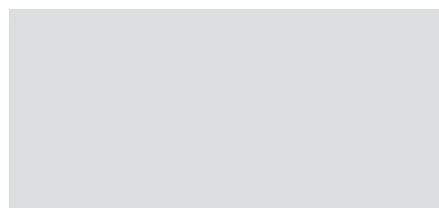
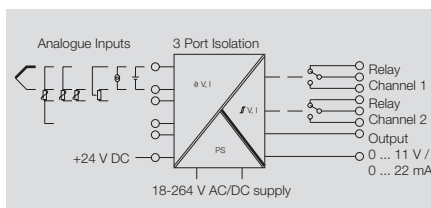
UL Class I Div.2 and ATEX Zone 2 approvals

WAVESERIES – Universal signal converter and trip amplifier, configurable

WAVE TTA

- Inputs and outputs can be configured by PC with TTA-SET, download at www.weidmueller.com
- Universal input signals
- Loop-powered or passive input
- Pluggable connection terminals

WAS6 TTA / WAZ6 TTA

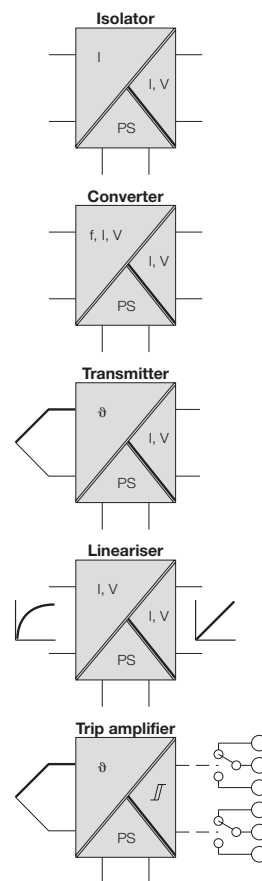


Technical data

Input	
Sensor	
Potentiometer	
Resistance	
Input frequency	
Input voltage	
Input current	
Sensor supply	
Output analogue	
Output voltage	
Output current	
Load impedance, voltage/current	
Signal output	
Transmit function	
Output digital	
Type	
Switching voltage AC, max. / DC, max.	
Continuous current	
General data	
Supply voltage	
Power consumption	
Accuracy	
Temperature coefficient	
Ambient temperature / Storage temperature	
Step response time	
Humidity	
Approvals	
Insulation coordination	
Standards	
EMC standards	
Rated voltage	
Impulse withstand voltage	
Pollution severity	
Oversoltage category	
Clearance & creepage distances	
Insulation voltage	
Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Thermocouples: B, E, J, K, L, N, R, S, T (IEC 60584), PT100, PT1000, (EN 60571) Ni100, Ni1000, (JIS1604), Cu10, Cu25, Cu50, Cu100 (DIN 43760) 2-/3-/4-wire	
100 Ω...100 kΩ	
10 Ω...5 kΩ	
2 Hz...100 kHz	
-200...500 mV (min. 4 mV span), -20...50 V DC (min. 0.5 V span)	
-20...50mA (min. span 0.4 mA)	
24 V DC / 22 mA	
Adjustable between -10...+10 V (min. span of 2.5 V)	
Adjustable between 0...20 mA (min. span of 5 mA)	
> 10 kΩ @ 0...10 V / > 20 kΩ @ -10...+10 V / < 700 Ω	
direct or inverted	
Linear, x ^{1/2} , x ^{3/2} , x ^{5/2} or user-defined curve (101 points)	
2 x 1 CO contact (hard gold-plated)	
250 V / 30 V	
3 A AC / 2 A DC	
18...264 V AC/DC	
< 3.5 W	
< 0.1 % span (DC, RTD); 0.2 % span (or 1 °C) + Cj failure	
< 0.1 % / K (DC, RTD); < 0.1 % FSR / K + Cj error 0.07 °C/K (thermocouples)	
-40 °C...+70 °C / -40 °C...+85 °C	
50 ms...1 sec (RTD, mV inputs), 110 ms...1 sec (V, mA inputs)	
5...95 %, no condensation	
cULus; GL; CE	
EN 50178 (secure separation)	
EN 55011, EN 61000-6	
300 V	
6 kV	
2	
III	
≥ 5.5 mm (1 mm <small>Input/output</small>)	
2.5 kV	
Screw connection	
Tension clamp connection	
2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
100 / 45 / 112.4	100 / 45 / 112.4

Typical functions



Ordering data

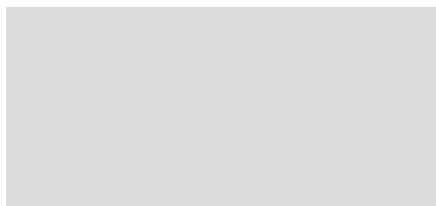
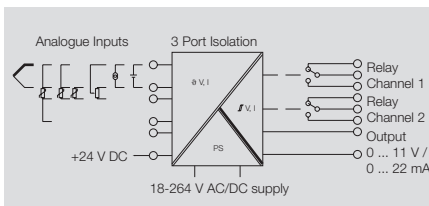
Type	Qty.	Order No.
Screw connection		
WAS6 TTA	1	8939670000
Tension clamp connection		
WAZ6 TTA	1	8939680000

CBX200 USB configuration interface - 8978580000

WAVE TTA EX

- Inputs and outputs can be configured by PC with TTA-SET, download at www.weidmueller.com
- Universal input signals
- Loop-powered or passive input
- Pluggable connection terminals
- ATEX 3 G Ex nA IIC T4
- UL Class I, Div. 2

WAS6 TTA EX / WAZ6 TTA EX

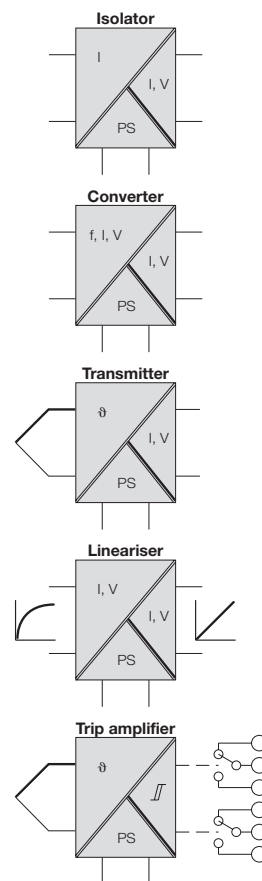


Technical data

Input	Sensor
Potentiometer	
Resistance	
Input frequency	
Input voltage	
Input current	
Sensor supply	
Output analogue	
Output voltage	
Output current	
Load impedance, voltage/current	
Signal output	
Transmit function	
Output digital	
Type	
Switching voltage AC, max. / DC, max.	
Continuous current	
General data	
Supply voltage	
Power consumption	
Accuracy	
Temperature coefficient	
Ambient temperature / Storage temperature	
Step response time	
Humidity	
Approvals	
Insulation coordination	
Standards	
EMC standards	
Rated voltage	
Impulse withstand voltage	
Pollution severity	
Overvoltage category	
Clearance & creepage distances	
Insulation voltage	
Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Thermocouples: B, E, J, K, L, N, R, S, T (IEC 60584), PT100, PT1000, (EN 60571) Ni100, Ni1000, (JIS1604), Cu10, Cu25, Cu50, Cu100 (DIN 43760) 2-/3-/4-wire	
100 Ω...100 kΩ	
10 Ω...5 kΩ	
2 Hz...100 kHz	
-200...500 mV (min. 4 mV span), -20...50 V DC (min. 0.5 V span)	
-20...50mA (min. span 0.4 mA)	
24 V DC / 22 mA	
Adjustable between -10...+10 V (min. span of 2.5 V)	
Adjustable between 0...20 mA (min. span of 5 mA)	
> 10 kΩ @ 0...10 V / > 20 kΩ @ -10...+10 V / < 700 Ω	
direct or inverted	
Linear, x ^{1/2} , x ^{3/2} , x ^{5/2} or user-defined curve (101 points)	
2 x 1 CO contact (hard gold-plated)	
250 V / 30 V	
2 A AC/DC	
24...240 V AC/DC; 24...36 V AC / 24...50 V DC (ATEX Zone 2)	
< 3.5 W	
< 0.1 % span (DC, RTD); 0.2 % span (or 1 °C) + CJ failure	
< 0.1 % / K (DC, RTD); < 0.1 % FSR / K + CJ error 0.07 °C/K (thermocouples)	
-40 °C...+70 °C / -40 °C...+85 °C	
50 ms...1 sec (RTD, mV inputs), 110 ms...1 sec (V, mA inputs)	
5...95 %, no condensation	
cULus; GL; cULusEX; ATEX; CE	
EN 50178 (secure separation)	
EN 55011, EN 61000-6	
300 V	
6 kV	
2	
III	
≥ 5.5 mm (1 mm _{Input/output})	
2.5 kV	
Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
100 / 45 / 112.4	100 / 45 / 112.4

Typical functions



Ordering data

Type	Qty.	Order No.
Screw connection		
WAS6 TTA EX	1	8964310000
Tension clamp connection		
WAZ6 TTA EX	1	8964320000

CBX200 USB configuration interface - 8978580000

ITXPlus

Universal, loop powered signal isolating converter

The ITXPlus is a compact signal isolating converter that is loop-powered, programmable and electrically isolated. On the input side, you can connect DC-current/voltage signals, 2-, 3-, or 4-wire PT100s, and thermocouples. The ITXPlus measures, filters and separates the input signals. It converts them into a proportional signal from 4 to 20 mA. The ITXPlus is supplied using a 4 to 20 mA current loop on the output side. For linear temperature measurements, you can connect all standard types of thermocouples and resistance temperature detectors (RTDs). The ITXPlus can also process signals from any non-linear resistance setpoint device, such as the NTC, PTC, or log. potentiometer. The appropriate characteristic is programmed in a configurable table containing up to 101 measured values.

Furthermore, the ITXPlus can be connected to resistors, potentiometers and sensors which operate in the mV/mA range. The internal program also features many square-root, linear and x3/2-/x5/2-transfer functions. Other characteristic curves which have not been pre-programmed can be entered directly using a PC. In this way you can reproduce any sensor's characteristic curve.

The T-Set software can be used for configuration or for showing measurement trends. The CBX100 interface connects the ITXPlus with the PC. It implements complete electrical isolation between the serial port and the signal converter.

Technical data

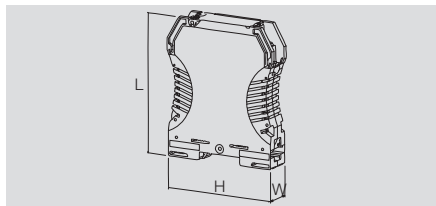
Inputs		
Type		
Thermocouple inputs	Type	Standard
	B	
	C	
	E	IEC584
	J	
	K	
	L	DIN 43710
	N	
	R	IEC584
	S	
	T	
	W3, W5	ASTM E98890
	User-defined Input	
	Cold-junction compensation	
Wire-break recognition		
mA		
Volt		
mV		
2, 3, 4-wire RTD	Type	Standard
	PT 100	DIN 43710
	PT 100	JIS
	PT 200	DIN 43710
	PT 200	JIS
	NI 120	DIN 43710
	CU 100	DIN 43710
	Cable resistance	
	Sensor current	
	Influence of cable resistance sensor (3/4 wire)	
Resistance		
Accuracy		
Type	Range	
E,J,K,L,N,T,U	< 500 °C	
	> 500 °C	
B, C, R, S, W3, W5		
mV, V, mA		
PT100/RTD	All	
Resistance		

Thermocouple, PT100/RTD, mA, volt, mV, resistance		
Lower limit	Upper limit	Min. range
400 °C	1828 °C	200 °C
0 °C	2000 °C	
-100 °C	1000 °C	
-100 °C	1200 °C	50 °C
-180 °C	1372 °C	
-100 °C	900 °C	
-180 °C	1300 °C	100 °C
-50 °C	1760 °C	
-50 °C	1760 °C	200 °C
-200 °C	400 °C	50 °C
0 °C	2300 °C	200 °C
2-101 values		
± 1.0 °C		
yes		
- 10 mA to + 20 mA to 40 Ω input resistance (min. range 1 mA)		
- 5 V to + 10 V to 2 M Ω input resistance (min. range 0,5 V)		
- 100 mV to + 200 mV to 2 M Ω input resistance (min range 4 mV)		
Lower limit	Upper limit	Min. range
-200 °C	850 °C	
-200 °C	630 °C	
-200 °C	850 °C	50 °C
-200 °C	630 °C	
-80 °C	320 °C	
-100 °C	260 °C	100 °C
5 Ω max.		
0.1 mA		
< 0.002 Ω per Ω wire resistance		
0 to 10 k Ω (min. range 10 Ω)		
Temperature coefficient		Accuracy
± 0.02 °C per C° ambient temperature		≤ ± 1.0 °C
± 0.01 % of end value per °C ambient temperature		
± 0.02 °C per C° ambient temperature		≤ ± 2.0 °C
		≤ ± 0.1 % of end value
		≤ ± 0.5 °C
		≤ ± 0.1 % of end value

ITXPlus

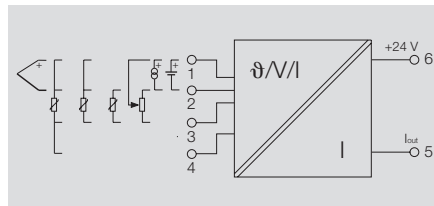
Universal signal isolator/converter with 2-wire technology

- Current, voltage and temperature inputs (RTD, TC)
- Supply via output loop (Output loop-powered)
- PC-programmable with T-SET, download at www.weidmueller.com
- Pluggable connection terminals



ITXPlus

Programmable with T-SET



Technical data

Input	
Type	Type, thermocouple
Input current	
Input voltage	
Input resistance, voltage/current	
Output	
Type	
Output current	
load impedance current	
General data	
Supply voltage	
Humidity	
Temperature coefficient	
Ambient temperature / Storage temperature	
Long-term drift	
Step response time	
Insulation coordination	
Impulse withstand voltage	
Rated voltage	
Insulation voltage	
EMC standards	
Approvals	

Universal signal isolator / signal amplifier, thermocouple, RTD B / C / E / J / K / L / N / R / S / T / W3 / W5 - 200...+ 2300 °C depending on thermocouple -10...+20 mA (min. span 1 mA) -5...+10 V / -100...+200 mV (min. span 0.5 V / 4 mV) 2 MΩ / 40 Ω	
Current output 4...20 mA typ. 700 Ω @ 24 V DC	
10...40 V DC, loop powered 10...90 % (no condensation) typ. 0.02 % / °C -10 °C...+70 °C / -20 °C...+70 °C 0.1 % / 10.000 h Typ. 200 ms (10...90%)	
4 kV (1.2/50 μs) 300 V _{eff} 2 kV input / output DIN EN 61326 cULus; CE	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	
1.5 / 0.5 / 2.5 92.4 / 12.5 / 112.4	

Ordering data

Universal input

Type	Qty.	Order No.
ITX+ 4-20mA/4-20mA	1	7940016563

Note

Accessories

CBX100 USB configuration interface - 7940025031 Refer to Accessories for markers

Connections

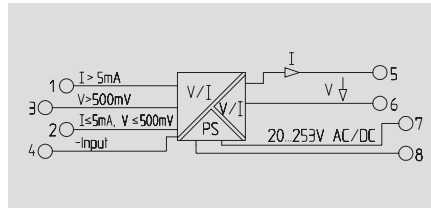
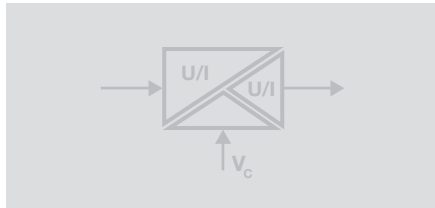
Terminal	Signal	
5	Loop -ve	Supply voltage
6	Loop +ve	
1	Signal + Power supply Sensor	Thermocouple
2	Signal + Power supply Storage (only for programming)	
1	A-Sense	4-wire PT100/RTD (or resistance)
3	A	
2	B	
4	B-Sense	3-wire PT100/RTD (or resistance)
1	A-Sense	
3	A	
2	B	2-wire PT100/RTD (or resistance)
3	A	
2	B	Voltage (mV or V)
1	Signal +	
2	Signal -	Current (mA)
1	Signal +	
2	Signal -	
3	A	Potentiometer
1	Wiper	
2	B	

WAVESERIES - DC/DC 3-way isolator

Configurable

- Universally adjustable via DIP switch
- WAVETOOL software offers configuration help, download at www.weidmueller.com
- Power supply 20...230 V AC/DC
- Minimal power loss
- Adjustable transmission frequency

PRO DC/DC



Technical data

Input	
Input voltage / Input current	
Input resistance, voltage/current	
Output	
Output voltage / Output current	
Load impedance, voltage/current	
Cut-off frequency (-3 dB)	
Offset current / Offset voltage	
Adjustment range, zero point	
Adjustment range, amplification	
Displacement	
General data	
Supply voltage	
Power consumption	
Accuracy	
Temperature coefficient	
Ambient temperature	
Storage temperature	
Approvals	
Insulation coordination	
Standards	
EMC standards	
Rated voltage	
Impulse withstand voltage	
Insulation voltage input or output/supply	
Overvoltage category	
Pollution severity	

± 20 mV...± 200 V / ± 0.1mA...± 100 mA
Approx. 1 MΩ / < 5 mA; approx. 100 Ω; > 5 mA: approx. 5 Ω
0...±10 V / 0...±20 mA
≥ 1 kΩ / ≤ 600 Ω
> 10 kHz / < 10 Hz
20 μA / 10 mV
± 25 % of the measuring span of selected output range
0.33...3.30 x end value of selected output range
-100%, -50%, 0%, 50%, 100% of measuring span
22...230 V AC/DC +10 %
ca. 1 W
< 0.1 % of end value, + Offset
≤ 60 ppm/K of final value
-10 °C...+70 °C
-40 °C...+85 °C
cULus; GL; CE
EN 50178
DIN EN 61326, EN 61000-2-6
600 V
5 kV, 1.2/50 μs (IEC 255-4)
4 kV _{eff}
III
2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Ordering data

Screw connection
Tension clamp connection

Type	Qty.	Order No.
WAS4 PRO DC/DC	1	8560740000
WAZ4 PRO DC/DC	1	8560750000

Note

Accessories

Markers – refer to Accessories

Switch position/setting options

Input	Switch							
	S1				S2			
Input range	1	2	3	4	1	2	3	4
0 ... ±60 mV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 ... ±100 mV	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±150 mV	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±300 mV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±500 mV	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±1 V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±5 V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±10 V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±100 V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... + ~0.3 mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±1 mA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±5 mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±10 mA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±20 mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±50 mA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 ... ±20 mA*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Switch S2		4
calibratet ranges		<input checked="" type="checkbox"/>
Span-pot. activated: input x 0.33 ... x 3.30		

Output	Switch			
	S1			S3
Output range	5	6	7	1 2
0 ... ±10 V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 ... 10 V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±5 V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1 ... 5 V	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0 ... ±20 V	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4 ... 20 mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Offset (in % of output voltage)	S1			S2
	8	9	10	5
0 %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
-100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
-50 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+50 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+100 %	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Zero pot. activated: additional ±25 %				

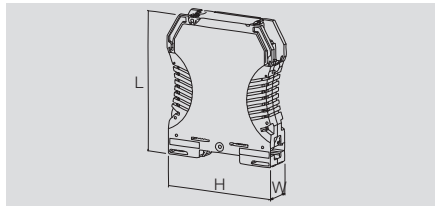
Switch S3		3
Bandwidth 10 kHz		<input type="checkbox"/>
Bandwidth 10 Hz		<input checked="" type="checkbox"/>
Set range can be documented on side of housing.		

■ = on
□ = off

Configurable

Configurable signal isolators/converters in 4-wire technology

- External sensor supply
- Supply of 12 - 60 V DC
- Current or voltage input can be configured with DIP switch
- Input or output scaling
- Direct or reverse output signal

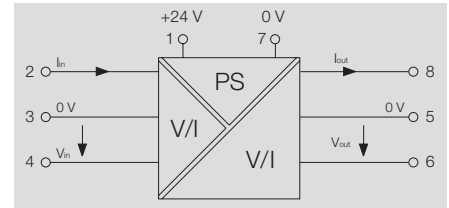


WAVEPak

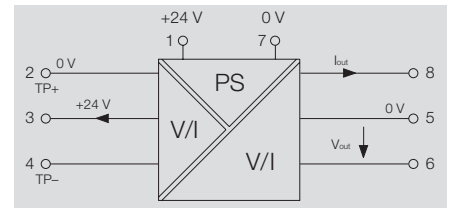
3-way isolator



Wiring possibility A (input passive)



Wiring possibility B (input active)



Technical data

Input	
Type	Current or voltage output configurable with jumper
Input signal	0...22 mA or 0...10 V
Sensor supply	20 mA @ 24 V DC output
Input resistance, voltage/current	> 1 MΩ / 100 Ω
Resolution	3.5 μA / 1.76 mV per bit
Output	
Type	Current of voltage output, configured with jumper
Output current / Output voltage	0...22 mA / 0...10 V
load impedance current	≤ 1 kΩ
load impedance voltage	≥ 500 kΩ
General data	
Supply voltage	12...60 V DC
Power consumption	2.5 W @ 24 V DC
Linearity	< ± 0.1 % (typically ± 0.05 %)
Humidity	10...90 % (no condensation)
Ambient temperature / Storage temperature	0 °C...+60 °C / -25 °C...+70 °C
Temperature coefficient	≤ 0.05 % / °C
Long-term drift	0.1 % / 10.000 h
Step response time	< 220 ms (10...90 %)
Approvals	cULus; CE
Insulation coordination	
Impulse withstand voltage	4 kV (1.2/50 μs)
EMC standards	DIN EN 61326
Insulation voltage	2 kV input / output / power supply
Rated voltage	300 V _{eff}
Overtoltage category	III
Pollution severity	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	
Screw connection	
	1.5 / 0.5 / 2.5
	92.4 / 12.5 / 112.4
Type	
Ordering data	
Note	
Accessories	
	Markers – refer to Accessories

Connections

Terminal	Signal	
1	Signal +	Supply voltage
7	Signal -	
4	Signal +	Voltage input
3	Signal -	
2	Signal +	Current input
3	Signal -	
3	Signal +	Loop Powered Input
2	Signal -	
6	Signal +	Voltage output
5	Signal -	
8	Signal +	Current output
5	Signal -	

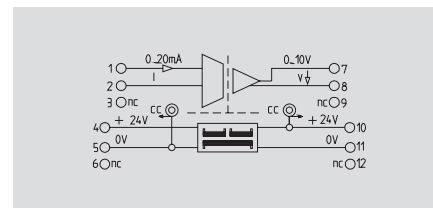
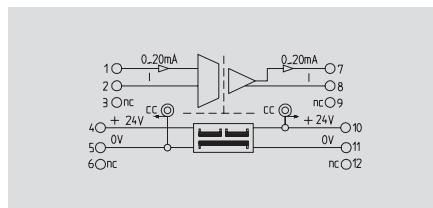
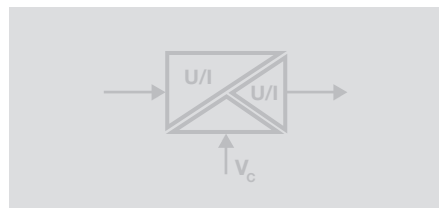
20 kHz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

0 (4)...20 mA/0 (4)...20 mA



0...20 mA / 0...10 V



Technical data

Input	
Input voltage / Input current	/ 0(4)...20 mA
Input resistance, voltage/current	/ 50 Ω
Output	
Output voltage / Output current	/ 0(4)...20 mA
Load impedance, voltage/current	/ ≤ 500 Ω
Cut-off frequency (-3 dB)	≥ 15 kHz (typ. 20 kHz)
General data	
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.5 W @ I _{OUT} = 20 mA
Accuracy	< 0.2 % of end value
Temperature coefficient	≤ 250 ppm/K of final value
Step response time	≤ 40 μs (typ. 30 μs)
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CSA; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	1.2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

	/ 0...20 mA
	/ 50 Ω
	0...10 V /
	≥ 2 kΩ /
	≥ 15 kHz (typ. 20 kHz)
	24 V DC ± 25 %
	< 1.3 W @ I _{OUT} = 5 mA
	< 0.2 % of end value
	≤ 250 ppm/K of final value
	≤ 40 μs (typ. 30 μs)
	0 °C...+55 °C
	-20 °C...+85 °C
	cULus; CSA; CE
	EN 50178
	EN 55011, EN 61000-6
	300 V
	4 kV
	1.2 kV _{eff} / 5 s
	III
	2
	≥ 3 mm

	/ 0...20 mA
	/ 50 Ω
	0...10 V /
	≥ 2 kΩ /
	≥ 15 kHz (typ. 20 kHz)
	24 V DC ± 25 %
	< 1.3 W @ I _{OUT} = 5 mA
	< 0.2 % of end value
	≤ 250 ppm/K of final value
	≤ 40 μs (typ. 30 μs)
	0 °C...+55 °C
	-20 °C...+85 °C
	cULus; CSA; CE
	EN 50178
	EN 55011, EN 61000-6
	300 V
	4 kV
	1.2 kV _{eff} / 5 s
	III
	2
	≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Screw connection
2.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 CCC HF 0-20/0-20MA	1	8447160000
WAZ5 CCC HF 0-20/0-20MA	1	8447170000

Type	Qty.	Order No.
WAS5 CVC HF 0-20/0-10V	1	8447220000

Note

Accessories

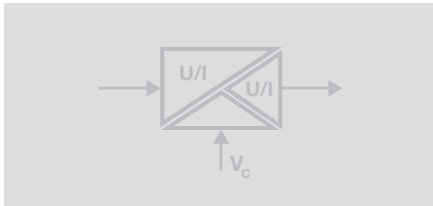
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Cross-connector for power supplies and markers – refer to Accessories

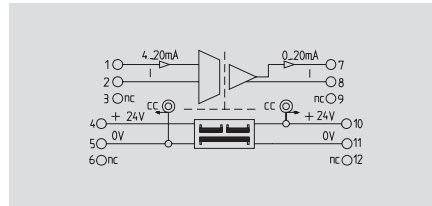
Cross-connector for power supplies and markers – refer to Accessories

20 kHz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

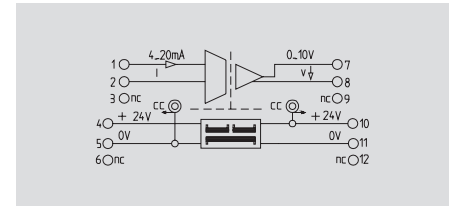


4...20 mA / 0...20 mA



4...20 mA / 0...10 V

UL Class I, Div. 2



Technical data

Input	
Input voltage / Input current	/ 4...20 mA
Input resistance, voltage/current	/ 50 Ω
Output	
Output voltage / Output current	/ 0...20 mA
Load impedance, voltage/current	/ ≤ 500 Ω
Cut-off frequency (-3 dB)	≥ 15 kHz (typ. 20 kHz)
General data	
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.5 W @ I _{OUT} = 20 mA
Accuracy	< 0.2 % of end value
Temperature coefficient	≤ 250 ppm/K of final value
Step response time	≤ 40 μs (typ. 30 μs)
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CSA; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	1.2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

		/ 4...20 mA
		/ 50 Ω
		/ 0...20 mA
		/ ≤ 500 Ω
		≥ 15 kHz (typ. 20 kHz)
		24 V DC ± 25 %
		< 1.5 W @ I _{OUT} = 20 mA
		< 0.2 % of end value
		≤ 250 ppm/K of final value
		≤ 40 μs (typ. 30 μs)
		0 °C...+55 °C
		-20 °C...+85 °C
		cULus; CSA; CE
		EN 50178
		EN 55011, EN 61000-6
		300 V
		4 kV
		1.2 kV _{eff} / 5 s
		III
		2
		≥ 3 mm

		/ 4...20 mA
		/ 50 Ω
		0...10 V /
		≥ 2 kΩ / ≤ 600 Ω
		≥ 15 kHz (typ. 20 kHz)
		24 V DC ± 25 %
		< 1.3 W @ I _{OUT} = 5 mA
		< 0.2 % of end value
		≤ 250 ppm/K of final value
		≤ 40 μs (typ. 30 μs)
		0 °C...+55 °C
		-20 °C...+85 °C
		cULus; CSA; cULusEX; CE
		EN 50178
		EN 55011, EN 61000-6
		300 V
		4 kV
		1.2 kV _{eff} / 5 s
		III
		2
		≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	
2.5 / 0.5 / 2.5	
92.4 / 17.5 / 112.4	

Screw connection	
2.5 / 0.5 / 2.5	
92.4 / 17.5 / 112.4	

Ordering data

	Screw connection
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Type	Qty.	Order No.
WAS5 CCC HF 4-20/0-20MA	1	8447250000

Type	Qty.	Order No.
WAS5 CVC HF 4-20/0-10V	1	8447280000

Note	
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Accessories

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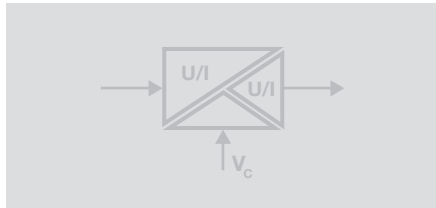
Cross-connector for power supplies and markers – refer to Accessories

Cross-connector for power supplies and markers – refer to Accessories

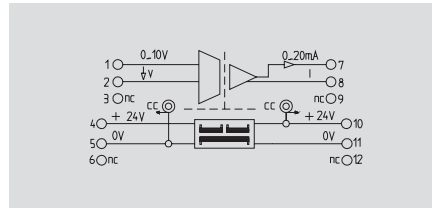
WAVESERIES - DC/DC 3-way isolator

20 kHz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

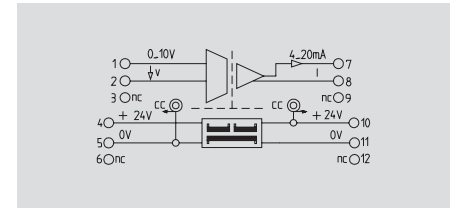


0...10 V / 0...20 mA



0...10 V / 4...20 mA

UL Class I, Div. 2



Technical data

Input	Input voltage / Input current Input resistance, voltage/current
Output	Output voltage / Output current Load impedance, voltage/current Cut-off frequency (-3 dB)
General data	Supply voltage Power consumption Accuracy Temperature coefficient Step response time Ambient temperature Storage temperature Approvals
Insulation coordination	Standards EMC standards Rated voltage Impulse withstand voltage Insulation voltage Overvoltage category Pollution severity Clearance & creepage distances

0...10 V / 500 kΩ /
/ 0...20 mA / ≤ 500 Ω ≥ 15 kHz (typ. 20 kHz)
24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA ± 0.2 % of final value ≤ 250 ppm/K of final value ≤ 40 μs (typ. 30 μs) 0 °C...+55 °C -20 °C...+85 °C cULus; CSA; CE
EN 50178 EN 55011, EN 61000-6 300 V 4 kV 1.2 kV _{eff} / 5 s III 2 ≥ 3 mm

0...10 V / 500 kΩ /
/ 4...20 mA / ≤ 500 Ω ≥ 15 kHz (typ. 20 kHz)
24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA ± 0.2 % of final value ≤ 250 ppm/K of final value ≤ 40 μs (typ. 30 μs) 0 °C...+55 °C -20 °C...+85 °C cULus; CSA; cULusEX; CE
EN 50178 EN 55011, EN 61000-6 300 V 4 kV 1.2 kV _{eff} / 5 s III 2 ≥ 3 mm

Dimensions	Clamping range (nominal / min. / max.) mm ² Length x width x height mm
Note	

Screw connection	2.5 / 0.5 / 2.5 92.4 / 17.5 / 112.4

Screw connection	2.5 / 0.5 / 2.5 92.4 / 17.5 / 112.4

Ordering data

Screw connection

Type	Qty.	Order No.
WAS5 VCC HF 0-10/0-20MA	1	8447310000

Type	Qty.	Order No.
WAS5 VCC HF 0-10/4-20MA	1	8447340000

Note

Accessories

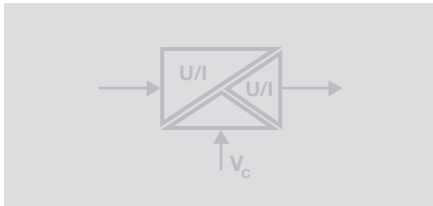
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Cross-connector for power supplies and markers – refer to Accessories

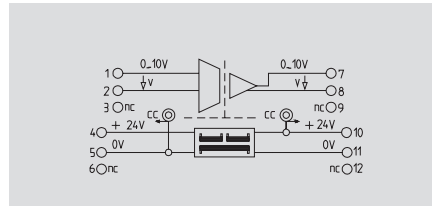
Cross-connector for power supplies and markers – refer to Accessories

20 kHz limiting frequency

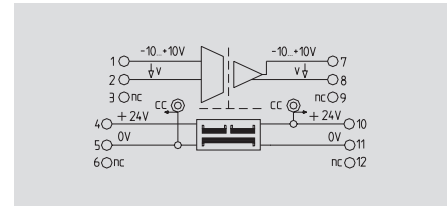
- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.



0...10 V / 0...10 V



-10 V...+10 V / -10 V...+10 V



Technical data

Input	
Input voltage / Input current	0...10 V /
Input resistance, voltage/current	500 kΩ /
Output	
Output voltage / Output current	0...10 V /
Load impedance, voltage/current	≥ 2 kΩ /
Cut-off frequency (-3 dB)	≥ 15 kHz (typ. 20 kHz)
General data	
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.3 W @ I _{OUT} = 5 mA
Accuracy	± 0.2 % of final value
Temperature coefficient	≤ 250 ppm/K of final value
Step response time	≤ 40 μs (typ. 30 μs)
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CSA; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	1.2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

	0...10 V /	
	500 kΩ /	
	0...10 V /	
	≥ 2 kΩ /	
	≥ 15 kHz (typ. 20 kHz)	
	24 V DC ± 25 %	
	< 1.3 W @ I _{OUT} = 5 mA	
	± 0.2 % of final value	
	≤ 250 ppm/K of final value	
	≤ 40 μs (typ. 30 μs)	
	0 °C...+55 °C	
	-20 °C...+85 °C	
	cULus; CSA; CE	
	EN 50178	
	EN 55011, EN 61000-6	
	300 V	
	4 kV	
	1.2 kV _{eff} / 5 s	
	III	
	2	
	≥ 3 mm	

	-10...+10 V /	
	500 kΩ /	
	-10...+10 V /	
	≥ 2 kΩ /	
	≥ 15 kHz (typ. 20 kHz)	
	24 V DC ± 25 %	
	< 1.3 W @ I _{OUT} = 5 mA	
	± 0.2 % of measuring range	
	≤ 250 ppm/K of measuring range	
	≤ 40 μs (typ. 30 μs)	
	0 °C...+55 °C	
	-20 °C...+85 °C	
	cULus; CE	
	EN 50178	
	EN 55011, EN 61000-6	
	300 V	
	4 kV	
	1.2 kV _{eff} / 5 s	
	III	
	2	
	≥ 3 mm	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Screw connection
2.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 VVC HF 0-10/0-10V	1	8447370000
WAZ5 VVC HF 0-10/0-10V	1	8447380000

Type	Qty.	Order No.
WAS5 VVC HF +-10V/+10V	1	8561610000

Note

Accessories

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Cross-connector for power supplies and markers – refer to Accessories

Cross-connector for power supplies and markers – refer to Accessories

WAVESERIES - DC/DC 3-way isolator

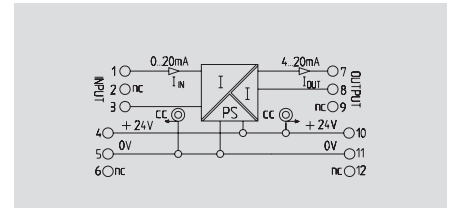
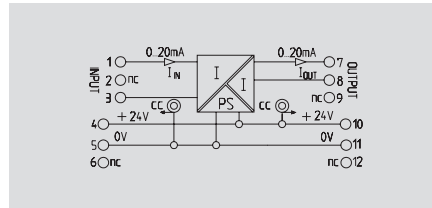
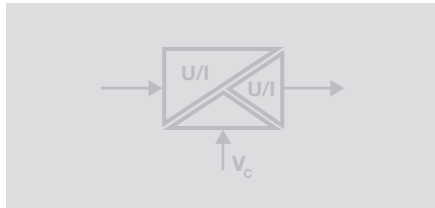
10 Hz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

0...(4) 20 mA / 0...(4) 20 mA



0...20 mA / 4...20 mA



Technical data

Input	Input voltage / Input current
Output	Output voltage / Output current Load impedance, voltage/current Cut-off frequency (-3 dB)
General data	Supply voltage Power consumption Accuracy Temperature coefficient Step response time Ambient temperature Storage temperature Approvals
Insulation coordination	Standards EMC standards Rated voltage Impulse withstand voltage Insulation voltage Overvoltage category Pollution severity Clearance & creepage distances

Input	/ 0(4)...20 mA
Output	/ 0(4)...20 mA / ≤ 600 Ω
General data	10 Hz 24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA 0.2 % ± 250 ppm/K ≤ 45 ms 0 °C...+55 °C -20 °C...+85 °C cULus; CE
Insulation coordination	EN 50178 EN 55011, EN 61000-6 300 V 4 kV 2 kV _{eff} / 5 s III 2 ≥ 3 mm

Input	/ 0...20 mA
Output	/ 4...20 mA / ≤ 600 Ω
General data	10 Hz 24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA 0.2 % ± 250 ppm/K ≤ 45 ms 0 °C...+55 °C -20 °C...+85 °C cULus; CE
Insulation coordination	EN 50178 EN 55011, EN 61000-6 300 V 4 kV 2 kV _{eff} / 5 s III 2 ≥ 3 mm

Dimensions	Clamping range (nominal / min. / max.)	mm ²
	Length x width x height	
Note		

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Screw connection
2.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection
Note	

Type	Qty.	Order No.
WAS5 CCC 0-20/0-20mA	1	8540180000
WAZ5 CCC 0-20/0-20mA	1	8540190000

Type	Qty.	Order No.
WAS5 CCC 0-20/4-20mA	1	8540250000

Accessories

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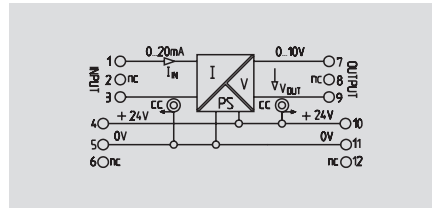
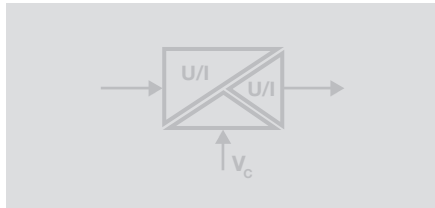
Cross-connector for power supplies and markers – refer to Accessories

Cross-connector for power supplies and markers – refer to Accessories

10 Hz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

0...20 mA / 0...10 V



Technical data

Input
Input voltage / Input current
Output
Output voltage / Output current
Load impedance, voltage/current
Cut-off frequency (-3 dB)
General data
Supply voltage
Power consumption
Accuracy
Temperature coefficient
Step response time
Ambient temperature
Storage temperature
Approvals
Insulation coordination
Standards
EMC standards
Rated voltage
Impulse withstand voltage
Insulation voltage
Overvoltage category
Pollution severity
Clearance & creepage distances

/ 0...20 mA
0...10 V /
≥ 1 kΩ /
10 Hz
24 V DC ± 25 %
< 1.3 W @ I _{OUT} = 5 mA
0.2 %
± 250 ppm/K
≤ 45 ms
0 °C...+55 °C
-20 °C...+85 °C
cULus; CE
EN 50178
EN 55011, EN 61000-6
300 V
4 kV
2 kV _{eff} / 5 s
III
2
≥ 3 mm

Dimensions
Clamping range (nominal / min. / max.)
Length x width x height
Note

Screw connection
2.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4
Note

Ordering data

Screw connection

Type	Qty.	Order No.
WAS5 CVC 0-20mA/0-10V	1	8540270000

Note

Accessories

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Cross-connector for power supplies and markers – refer to Accessories

WAVESERIES - DC/DC 3-way isolator

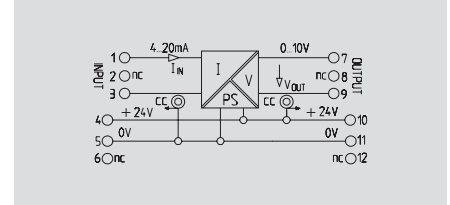
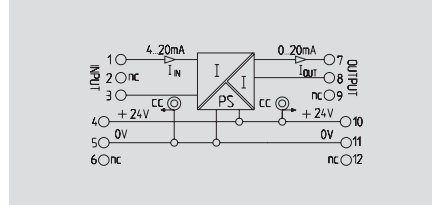
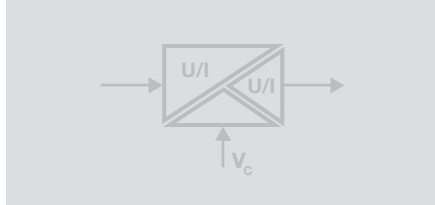
10 Hz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

4...20 mA / 0...20 mA



4...20 mA / 0...10 V



Technical data

Input	Input voltage / Input current
Output	Output voltage / Output current Load impedance, voltage/current Cut-off frequency (-3 dB)
General data	Supply voltage Power consumption Current-carrying capacity of cross-connect. Accuracy Temperature coefficient Step response time Ambient temperature Storage temperature Approvals
Insulation coordination	Standards EMC standards Rated voltage Impulse withstand voltage Insulation voltage Overvoltage category Pollution severity Clearance & creepage distances

Input	/ 4...20 mA
Output	/ 0...20 mA / ≤ 600 Ω
General data	10 Hz
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.5 W @ I _{OUT} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Accuracy	0.2 %
Temperature coefficient	± 250 ppm/K
Step response time	≤ 45 ms
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CE
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

Input	/ 4...20 mA
Output	0...10 V / ≥ 1 kΩ /
General data	10 Hz
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.3 W @ I _{OUT} = 5 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Accuracy	0.2 %
Temperature coefficient	± 250 ppm/K
Step response time	≤ 45 ms
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CE
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

Dimensions	Clamping range (nominal / min. / max.)	mm ²
	Length x width x height	mm
Note		

Screw connection	2.5 / 0.5 / 2.5
	92.4 / 17.5 / 112.4
Note	

Screw connection	2.5 / 0.5 / 2.5
	92.4 / 17.5 / 112.4
Note	

Ordering data

	Screw connection
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Type	Qty.	Order No.
WAS5 CCC 4-20/0-20MA	1	854020000

Type	Qty.	Order No.
WAS5 CVC 4-20mA/0-10V	1	854023000

Note	
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Note	
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Note	
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Accessories

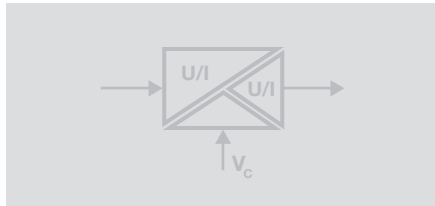
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Cross-connector for power supplies and markers – refer to Accessories

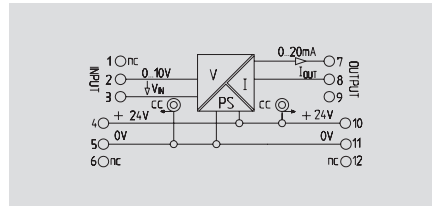
Cross-connector for power supplies and markers – refer to Accessories

10 Hz limiting frequency

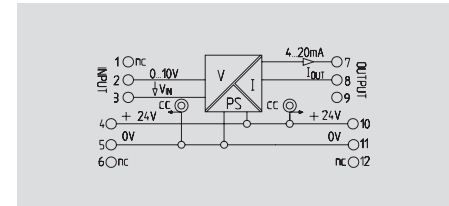
- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.



0...10 V / 0...20 mA



0...10 V / 4...20 mA



Technical data

Input	Input voltage / Input current
Output	Output voltage / Output current Load impedance, voltage/current Cut-off frequency (-3 dB)
General data	Supply voltage Power consumption Accuracy Temperature coefficient Step response time Ambient temperature Storage temperature Approvals
Insulation coordination	Standards EMC standards Rated voltage Impulse withstand voltage Insulation voltage Overvoltage category Pollution severity Clearance & creepage distances

0...10 V /
/ 0...20 mA / ≤ 600 Ω
10 Hz
24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA
0.2 % ± 250 ppm/K ≤ 45 ms 0 °C...+55 °C -20 °C...+85 °C cULus; CE
EN 50178 EN 55011, EN 61000-6 300 V 4 kV 2 kV _{eff} / 5 s III 2 ≥ 3 mm

0...10 V /
/ 4...20 mA / ≤ 600 Ω
10 Hz
24 V DC ± 25 % < 1.5 W @ I _{OUT} = 20 mA
0.2 % ± 250 ppm/K ≤ 45 ms 0 °C...+55 °C -20 °C...+85 °C cULus; CE
EN 50178 EN 55011, EN 61000-6 300 V 4 kV 2 kV _{eff} / 5 s III 2 ≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 VCC 0-10V/0-20MA	1	8540310000
WAZ5 VCC 0-10V/0-20MA	1	8540320000

Type	Qty.	Order No.
WAS5 VCC 0-10V/4-20MA	1	8540290000
WAZ5 VCC 0-10V/4-20MA	1	8540300000

Note	
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Accessories

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Cross-connector for power supplies and markers – refer to Accessories

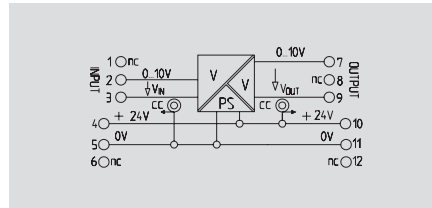
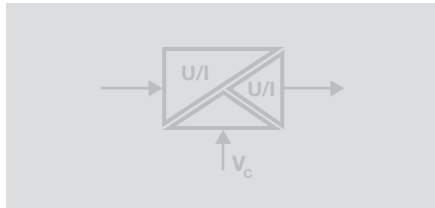
Cross-connector for power supplies and markers – refer to Accessories

WAVESERIES - DC/DC 3-way isolator

10 Hz limiting frequency

- Signal conversion
- Galvanic isolation between input / output signals and power supply
- Power supply can be cross-connected using plug-in jumpers.

0...10 V / 0...10 V



Technical data

Input	
Input voltage / Input current	0...10 V /
Output	
Output voltage / Output current	0...10 V /
Load impedance, voltage/current	≥ 1 kΩ /
Cut-off frequency (-3 dB)	10 Hz
General data	
Supply voltage	24 V DC ± 25 %
Power consumption	< 1.3 W @ I _{OUT} = 5 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Accuracy	0.2 %
Temperature coefficient	± 250 ppm/K
Step response time	≤ 45 ms
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage input or output/supply	2 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 3 mm

	0...10 V /
	0...10 V /
	≥ 1 kΩ /
	10 Hz
	24 V DC ± 25 %
	< 1.3 W @ I _{OUT} = 5 mA
	≤ 2 A
	0.2 %
	± 250 ppm/K
	≤ 45 ms
	0 °C...+55 °C
	-20 °C...+85 °C
	cULus; CE
	EN 50178
	EN 55011, EN 61000-6
	300 V
	4 kV
	2 kV _{eff} / 5 s
	III
	2
	≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 VVC 0-10V/0-10V	1	8540330000
WAZ5 VVC 0-10V/0-10V	1	8540340000

Note	
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Accessories

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Cross-connector for power supplies and markers – refer to Accessories

WAVESERIES - DC/DC 2-way isolator

Supply on outside

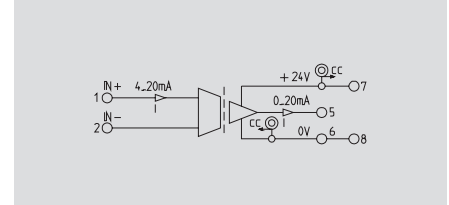
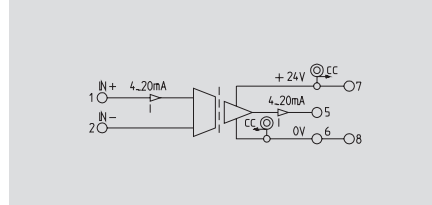
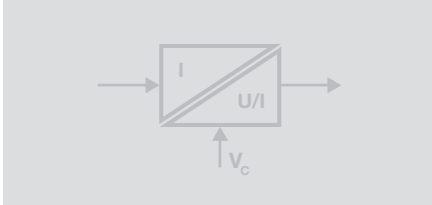
- Signal conversion
- Galvanic isolation between input and output signals
- Power supply can be cross-connected using plug-in jumpers.

4...20 mA / 4...20 mA

UL Class I, Div. 2



4...20 mA / 0...20 mA



Technical data

Input
Input voltage / Input current
Output
Output voltage / Output current
Load impedance, voltage/current
Cut-off frequency (-3 dB)
General data
Supply voltage
Current consumption
Current-carrying capacity of cross-connect.
Accuracy
Temperature coefficient
Step response time
Ambient temperature
Storage temperature
Approvals
Insulation coordination
Standards
EMC standards
Rated voltage
Impulse withstand voltage
Insulation voltage
Overvoltage category
Pollution severity
Clearance & creepage distances

/ 4...20 mA (current loop)
/ 4...20 mA
/ ≤ 500 Ω
≥ 15 Hz (typ. 20 Hz)
24 V DC ± 20 %
< 32 mA @ I _{OUT} = 20 mA
≤ 2 A
± 0.2 % of final value
≤ 250 ppm/K of final value
≤ 30 ms (typ. 20 ms)
0 °C...+55 °C
-20 °C...+85 °C
cULus; CSA; cULusEX; CE
EN 50178
EN 55011, EN 61000-6
300 V
4 kV
1.2 kV _{eff} / 5 s
III
2
≥ 3 mm

/ 4...20 mA (current loop)
/ 0...20 mA
/ ≤ 500 Ω
≥ 15 Hz (typ. 20 Hz)
24 V DC ± 20 %
< 32 mA @ I _{OUT} = 20 mA
≤ 2 A
± 0.2 % of final value
≤ 250 ppm/K of final value
≤ 30 ms (typ. 20 ms)
0 °C...+55 °C
-20 °C...+85 °C
cULus; CSA; CE
EN 50178
EN 55011, EN 61000-6
300 V
4 kV
1.2 kV _{eff} / 5 s
III
2
≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Screw connection
2.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS4 CCC DC 4-20/4-20MA	1	8444980000
WAZ4 CCC DC 4-20/4-20MA	1	8444990000

Type	Qty.	Order No.
WAS4 CCC DC 4-20/0-20MA	1	8445010000

Note

Accessories

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Cross-connector for power supplies and markers – refer to Accessories

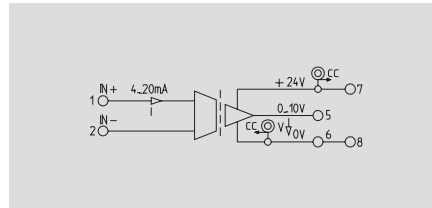
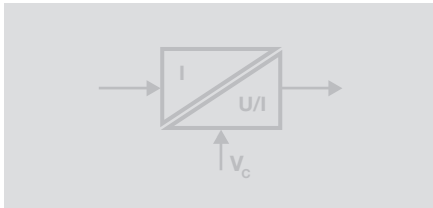
Cross-connector for power supplies and markers – refer to Accessories

Supply on outside

- Signal conversion
- Galvanic isolation between input and output signals
- Power supply can be cross-connected using plug-in jumpers.

4...20 mA / 0...10 V

UL Class I, Div. 2



Technical data

Input
Input voltage / Input current
Output
Output voltage / Output current
Load impedance, voltage/current
Cut-off frequency (-3 dB)
General data
Supply voltage
Current consumption
Current-carrying capacity of cross-connect.
Accuracy
Temperature coefficient
Step response time
Ambient temperature
Storage temperature
Approvals
Insulation coordination
Standards
EMC standards
Rated voltage
Impulse withstand voltage
Insulation voltage
Overvoltage category
Pollution severity
Clearance & creepage distances

/ 4...20 mA (current loop)
0...10 V /
≥ 1 kΩ /
≥ 15 Hz (typ. 20 Hz)
24 V DC ± 20 %
< 20 mA @ I _{out} = 10 mA
≤ 2 A
± 0.2 % of final value
≤ 250 ppm/K of final value
≤ 30 ms (typ. 20 ms)
0 °C...+55 °C
-20 °C...+85 °C
cULus; CSA; cULusEX; CE
EN 50178
EN 55011, EN 61000-6
300 V
4 kV
1.2 kV _{eff} / 5 s
III
2
≥ 3 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4
Note	

Ordering data

Screw connection
Tension clamp connection

Type	Qty.	Order No.
WAS4 CVC DC 4-20/0-10V	1	8445040000
WAZ4 CVC DC 4-20/0-10V	1	8445050000

Note

Accessories

Cross-connector for power supplies and markers – refer to Accessories



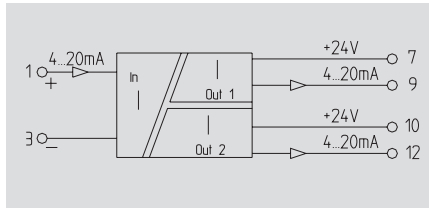
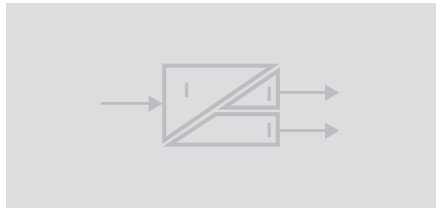
WAVESERIES - DC/DC passive isolator

Signal multiplier

Loop powered

- Galvanic isolation
- Input and output current loop feed
- Very low power consumption
- No calibration necessary

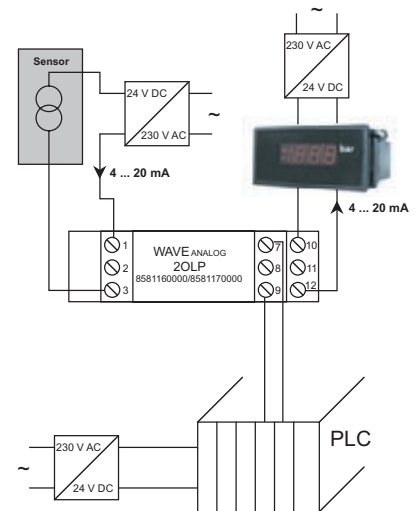
20LP



Technical data

Input	
Input current	4...20 mA (current loop)
Voltage drop	3.8 V
Output	
Output current	2 x 4...20 mA (current loop)
Output signal limit	Approx. 31 mA
Load impedance, voltage/current	$/ R_L = (U_{gr} - 12 V) / 20 \text{ mA}$ z.B. 600 Ω at 24 V
Cut-off frequency (-3 dB)	30 Hz
General data	
Supply voltage	min. 12 V DC/ max. 30 V DC
Accuracy	typ. 0.1 %; max. 0.2 %
Temperature coefficient	$\leq 150 \text{ ppm/K}$
Step response time	< 20 ms
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage input or output/supply	4 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	$\geq 5.5 \text{ mm}$

Example of application



Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 CCC 20LP	1	8581160000
WAZ5 CCC 20LP	1	8581170000

Note	
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Accessories

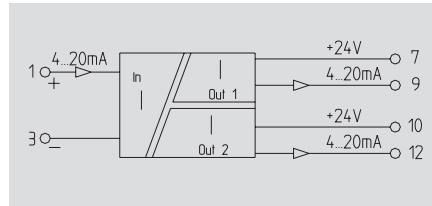
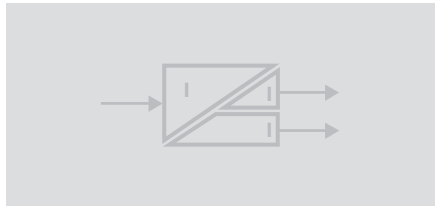
Markers – refer to Accessories.

Signal multiplier

Loop powered

- Galvanic isolation
- Input and output current loop feed
- Very low power consumption
- No calibration necessary
- ATEX II 3 G Ex nA IIC T4
- UL Class I, Div. 2

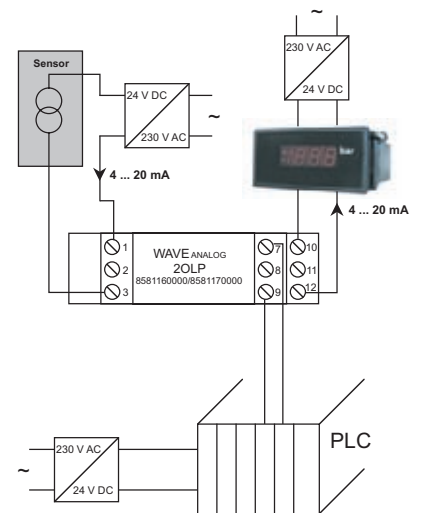
20LP



Technical data

Input	
Input current	4...20 mA (current loop)
Voltage drop	3.8 V
Output	
Output current	2 x 4...20 mA (current loop)
Output signal limit	Approx. 31 mA
Load impedance, voltage/current	$/ R_L = (U_{0V} - 12 V) / 20 \text{ mA}$ z.B. 600 Ω at 24 V
Cut-off frequency (-3 dB)	30 Hz
General data	
Supply voltage	min. 12 V DC/ max. 30 V DC
Accuracy	typ. 0.1 %; max. 0.2 %
Temperature coefficient	$\leq 150 \text{ ppm/K}$
Step response time	< 20 ms
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CE; cULusEX; ATEX
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage input or output/supply	4 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	$\geq 5.5 \text{ mm}$

Example of application



Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS5 CCC 20LP EX	1	8975640000
WAZ5 CCC 20LP EX	1	8975650000

Note	
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Accessories

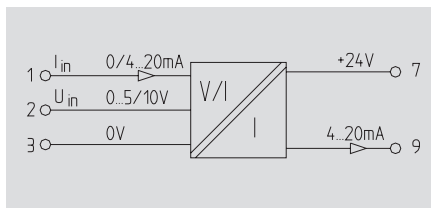
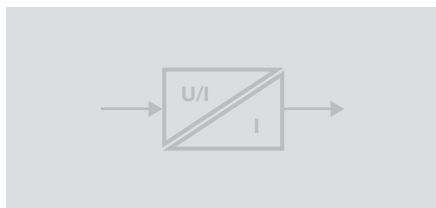
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Markers – refer to Accessories.

Output-current loop-powered

- Galvanic isolation
- Very low power consumption
- Input range selected via DIP switch
- No calibration necessary

OLP



Technical data

Input	0...(5)10 V
Input voltage	0...5V: 210 kΩ; 0...10V: 430 kΩ / 51 Ω
Input resistance, voltage/current	0(4)...20 mA
Input current	40 mA
Rated current	
Output	
Output current	Current loop
Output signal limit	Approx. 31 mA
Load impedance, voltage/current	$R_L = (U_s - 12 V) / 20 \text{ mA}$ z.B. 600 Ω at 24 V
Load impedance, voltage/current	10 Hz/ 100 Hz switchable
Cut-off frequency (-3 dB)	
General data	
Supply voltage	min. 12 V DC/ max. 30 V DC
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Default setting	0...20mA, 10 Hz
Accuracy	0.2% of measuring range final value
Temperature coefficient	≤ 150 ppm/K
Step response time	< 10 Hz: 80 ms; 100 Hz: 50 ms
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	4 kV
Insulation voltage	4 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 5.5 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

	Screw connection
	Tension clamp connection

Note	
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Accessories

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Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Type	Qty.	Order No.
WAS5 OLP	1	8543720000
WAZ5 OLP	1	8543730000

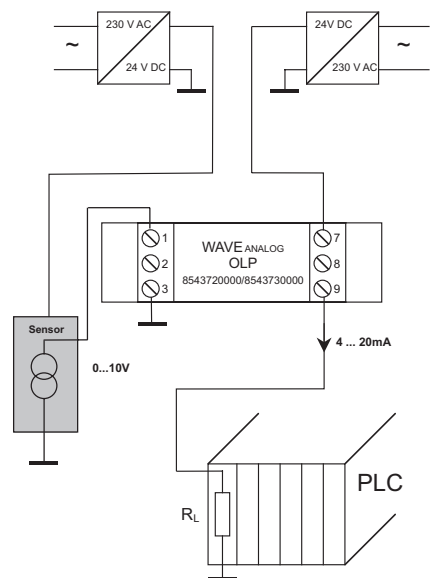
Markers – refer to Accessories.

Setting options/switch position

	SW 1			
Input	1	2	3	4
0 ... 20 mA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 ... 20 mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 ... 5 V	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0 ... 10 V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transmission frequency				
10 Hz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
100 Hz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

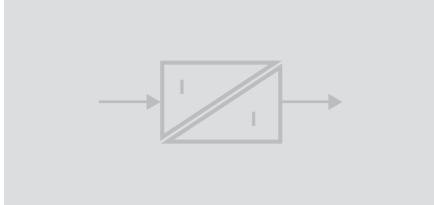
■ = on
□ = off

Example of application



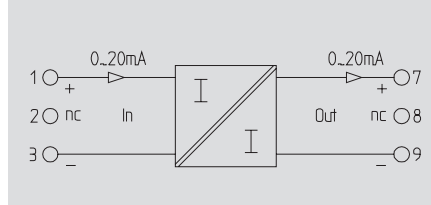
Input current loop feed

- Reliable isolation
- Very low power consumption
- UL Class I, Div. 2



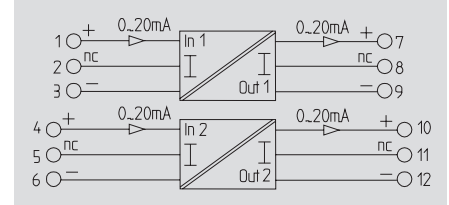
CCC LP

(1-channel)



CCC LP

(2-channel)



Technical data

Input	
Input voltage / Input current	/ 0(4)...20 mA current loop
Pick-up current	< 100 µA
Voltage drop	Approx. 3 V at $R_L = 0 \Omega$; approx. 13 V at $R_L = 500 \Omega$; ($I_N = 20$ mA)
Output	
Output voltage / Output current	/ 0(4)...20 mA
Load impedance, voltage/current	/ $\leq 500 \Omega$
General data	
Ambient temperature	-25 °C...+70 °C
Storage temperature	-40 °C...+80 °C
Accuracy	< 0.1 % of end value
Temperature coefficient	≤ 50 ppm/K of final value
Approvals	cULus; CSA; cULusEX; GL; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Insulation voltage	4 kV _{eff} / 1 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 5.5 mm

Input	
Input voltage / Input current	/ 0(4)...20 mA current loop
Pick-up current	< 100 µA
Voltage drop	Approx. 3 V at $R_L = 0 \Omega$; approx. 13 V at $R_L = 500 \Omega$; ($I_N = 20$ mA)
Output	
Output voltage / Output current	/ 0(4)...20 mA
Load impedance, voltage/current	/ $\leq 500 \Omega$
General data	
Ambient temperature	-25 °C...+70 °C
Storage temperature	-40 °C...+80 °C
Accuracy	< 0.1 % of end value
Temperature coefficient	≤ 50 ppm/K of final value
Approvals	cULus; CSA; cULusEX; GL; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Insulation voltage	4 kV _{eff} / 1 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 5.5 mm

Input	
Input voltage / Input current	/ 0(4)...20 mA current loop
Pick-up current	< 100 µA
Voltage drop	Approx. 3 V at $R_L = 0 \Omega$; approx. 13 V at $R_L = 500 \Omega$; ($I_N = 20$ mA)
Output	
Output voltage / Output current	/ 0(4)...20 mA
Load impedance, voltage/current	/ $\leq 500 \Omega$
General data	
Ambient temperature	-25 °C...+70 °C
Storage temperature	-40 °C...+80 °C
Accuracy	< 0.1 % of end value
Temperature coefficient	≤ 50 ppm/K of final value
Approvals	cULus; CSA; cULusEX; GL; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Insulation voltage	4 kV _{eff} / 1 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	≥ 5.5 mm

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4
Note	

Ordering data

	Screw connection
	Tension clamp connection
Note	

Type	Qty.	Order No.
WAS5 CCC LP 0-20/0-20mA	1	8444950000
WAZ5 CCC LP 0-20/0-20mA	1	8444960000
Note		

Type	Qty.	Order No.
WAS5 CCC LP 0-20/0-20mA	1	8463580000
WAZ5 CCC LP 0-20/0-20mA	1	8463590000
Note		

Accessories

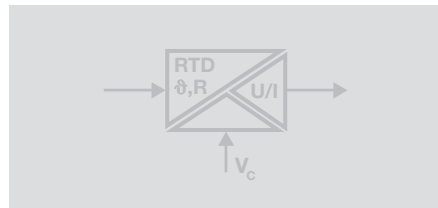
Markers – refer to Accessories.

Markers – refer to Accessories.

Markers – refer to Accessories.

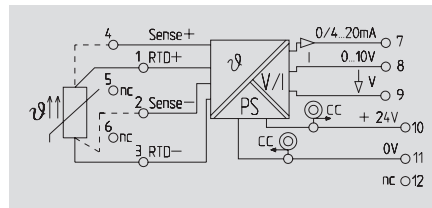
RTD signal isolator/converter

- Universally adjustable via DIP switch
- 3-way isolation
- Linearisation
- Power supply can be cross-connected using plug-in jumpers.
- WAVETOOL software offers configuration help, download at www.weidmueller.com

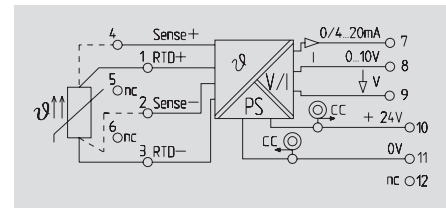


PRO RTD

UL Class I, Div. 2



PRO RTD 1000



Technical data

Input	
Sensor	
Temperature input range	
Output	
Output current / Output voltage	
Offset current / Offset voltage	
Load impedance, voltage/current	
Wire break detection	
Fine adjustment	
Status indicator	
General data	
Supply voltage	
Power consumption	
Step response time	
Ambient temperature	
Storage temperature	
Approvals	
Insulation coordination	
Standards	
EMC standards	
Rated voltage	
Impulse withstand voltage	
Insulation voltage	
Overvoltage category	
Pollution severity	
Clearance & creepage distances	

PT100/2-/3-/4-wire, Ni100/2-/3-/4-wire, potentiometer: min. 0-100 Ω, max. 0-100 kΩ, resistance: 0-450 Ω configurable	
0(4)...20 mA / 0...10 V	
max. 100 μA / max. 0.05 V	
≥ 1 kΩ / ≤ 600 Ω	
LED flashing (output value: > 20 mA, >10 V)	
≥ ± 5 %, Version 1 and later: ≥ 12.5 % / potentiometer: 12.5%...25%	
Module active: LED on/ wire breakage: LED flashing/ Error: LED off	
24 V DC ± 25 %	
830...880...980mW at I _{OUT} = 20 mA	
fast/slow: 2-/3-/4-conductor: 1.2 s/2.2 s; potentiometer: 0.5 s/1.1 s	
0 °C...+55 °C	
-20 °C...+85 °C	
cULus; cULusEX; GL; CE	
DIN 43760, EN 50178, EN 60751, IEC 751	
EN 55011, EN 61000-6	
300 V	
4 kV	
2 kV _{eff} / 5 s	
III	
2	
≥ 3 mm	

Ni1000/2-/3-/4-wire, Potentiometer: min. 0-1kΩ, max. 0-100kΩ, PT1000/2-/3-/4-wire, Resistance: 0-4.5kΩ configurable	
0(4)...20 mA / 0...10 V	
max. 100 μA / max. 0.05 V	
≥ 1 kΩ / ≤ 600 Ω	
LED flashing (output value: > 20 mA, >10 V)	
± 12.5 % of FSR; potentiometer: ± 12.5 % ... ± 25 %	
Module active: LED on/ wire breakage: LED flashing/ Error: LED off	
24 V DC ± 25 %	
830...880...980mW at I _{OUT} = 20 mA	
Fast/slow:2-/3-/4-conductor: 1.2s/2.3s; potentiometer: 0.5s/1.2s	
0 °C...+55 °C	
-20 °C...+85 °C	
cULus; GL; CE	
DIN 43760, EN 50178, EN 60751, IEC 751	
EN 55011, EN 61000-6	
300 V	
4 kV	
2 kV _{eff} / 5 s	
III	
2	
≥ 3 mm	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4	92.4 / 17.5 / 112.4

Screw connection	
2.5 / 0.5 / 2.5	
92.4 / 17.5 / 112.4	

Ordering data

Screw connection
Tension clamp connection

Type	Qty.	Order No.
WAS5 PRO RTD	1	8560700000
WAZ5 PRO RTD	1	8560710000

Type	Qty.	Order No.
WAS5 PRO RTD 1000	1	8679490000

Note

Accessories

Cross-connector for power supplies and markers – refer to Accessories

Cross-connector for power supplies and markers – refer to Accessories

Cross-connector for power supplies and markers – refer to Accessories

PRO RTD

Switch positions/setting options

Selection of input		Switch 1		
Input		1	2	3
PT100	2-conductor	■	■	■
PT100	3-conductor	□	■	■
PT100	4-conductor	■	□	■
R	2-conductor	□	□	■
Ni100	2-conductor	■	■	□
Ni100	3-conductor	□	■	□
Ni100	4-conductor	■	□	□
Potentiometer		□	□	□

■ = on
□ = off

PRO RTD 1000

Switch positions/setting options

Selection of input		Switch 1		
Input		1	2	3
PT1000	2-conductor	■	■	■
PT1000	3-conductor	□	■	■
PT1000	4-conductor	■	□	■
R	2-conductor	□	□	■
Ni1000	2-conductor	■	■	□
Ni1000	3-conductor	□	■	□
Ni1000	4-conductor	■	□	□
Potentiometer		□	□	□

■ = on
□ = off

Selection of minimum input size			Switch 1			
ϑ_{min}	R_{min}	Poti _{min}	4	5	6	7
0 °C	0 Ω	0 %	■	■	■	■
-10 °C	10 Ω	10 %	■	■	■	□
-20 °C	20 Ω	20 %	■	■	□	■
-25 °C	20 Ω	25 %	■	■	□	□
-30 °C	30 Ω	30 %	■	□	■	■
-40 °C	40 Ω	40 %	■	□	■	□
-50 °C	50 Ω	50 %	■	□	□	■
-60 °C	60 Ω	60 %	■	□	□	□
-70 °C	70 Ω	70 %	□	■	■	■
-80 °C	80 Ω	80 %	□	■	■	□
-90 °C	90 Ω		□	■	□	■
-100 °C	100 Ω		□	■	□	□
-150 °C	150 Ω		□	□	■	■
-200 °C	200 Ω		□	□	■	□
Special range			□	□	□	■

Selection of minimum input size			Switch 1			
ϑ_{min}	R_{min}	Poti _{min}	4	5	6	7
0 °C	0 Ω	0 %	■	■	■	■
-10 °C	100 Ω	10 %	■	■	■	□
-20 °C	200 Ω	20 %	■	■	□	■
-25 °C	200 Ω	25 %	■	■	□	□
-30 °C	300 Ω	30 %	■	□	■	■
-40 °C	400 Ω	40 %	■	□	■	□
-50 °C	500 Ω	50 %	■	□	□	■
-60 °C	600 Ω	60 %	■	□	□	□
-70 °C	700 Ω	70 %	□	■	■	■
-80 °C	800 Ω	80 %	□	■	■	□
-90 °C	900 Ω		□	■	□	■
-100 °C	1000 Ω		□	■	□	□
-150 °C	1500 Ω		□	□	■	■
-200 °C	2000 Ω		□	□	■	□
Special range			□	□	□	■

Choice of measuring range			Switch 2				
T	R	Poti	1	2	3	4	5
40 K	20 Ω	20 %	■	■	■	■	■
50 K	25 Ω	25 %	■	■	■	■	□
60 K	30 Ω	30 %	■	■	■	□	■
70 K	35 Ω	35 %	■	■	■	□	□
80 K	40 Ω	40 %	■	■	□	■	■
90 K	45 Ω	45 %	■	■	□	■	□
100 K	50 Ω	50 %	■	■	□	□	■
110 K	55 Ω	55 %	■	■	□	□	□
120 K	60 Ω	60 %	■	□	■	■	■
125 K	62.5 Ω	62.5 %	■	□	■	■	□
130 K	65 Ω	65 %	■	□	■	□	■
140 K	70 Ω	70 %	■	□	■	□	□
150 K	75 Ω	75 %	■	□	□	■	■
160 K	80 Ω	80 %	■	□	□	■	□
170 K	85 Ω	85 %	■	□	□	□	■
180 K	90 Ω	90 %	■	□	□	□	□
190 K	95 Ω	95 %	□	■	■	■	■
200 K	100 Ω	100 %	□	■	■	■	□
250 K	125 Ω	---	□	■	■	□	■
300 K	150 Ω	---	□	■	■	□	□
350 K	175 Ω	---	□	■	□	■	■
400 K	200 Ω	---	□	■	□	■	□
450 K	225 Ω	---	□	■	□	□	■
500 K	250 Ω	---	□	■	■	□	□
550 K	275 Ω	---	□	□	■	■	■
600 K	300 Ω	---	□	□	■	■	□
650 K	325 Ω	---	□	□	■	□	■
700 K	350 Ω	---	□	□	■	□	□
750 K	375 Ω	---	□	□	□	■	■
800 K	400 Ω	---	□	□	□	■	□
850 K	425 Ω	---	□	□	□	□	■
900 K	450 Ω	---	□	□	□	□	□

Choice of measuring range			Switch 2				
T	R	Poti	1	2	3	4	5
40 K	200 Ω	20 %	■	■	■	■	■
50 K	250 Ω	25 %	■	■	■	■	□
60 K	300 Ω	30 %	■	■	■	□	■
70 K	350 Ω	35 %	■	■	■	□	□
80 K	400 Ω	40 %	■	■	□	■	■
90 K	450 Ω	45 %	■	■	□	■	□
100 K	500 Ω	50 %	■	■	□	□	■
110 K	550 Ω	55 %	■	■	□	□	□
120 K	600 Ω	60 %	■	□	■	■	■
125 K	625 Ω	62.50 %	■	□	■	■	□
130 K	650 Ω	65 %	■	□	■	□	■
140 K	700 Ω	70 %	■	□	■	□	□
150 K	750 Ω	75 %	■	□	□	■	■
160 K	800 Ω	80 %	■	□	□	■	□
170 K	850 Ω	85 %	■	□	□	□	■
180 K	900 Ω	90 %	■	□	□	□	□
190 K	950 Ω	95 %	□	■	■	■	■
200 K	1000 Ω	100 %	□	■	■	■	□
250 K	1250 Ω	---	□	■	■	□	■
300 K	1500 Ω	---	□	■	■	□	□
350 K	1750 Ω	---	□	■	□	■	■
400 K	2000 Ω	---	□	■	□	■	□
450 K	2250 Ω	---	□	■	□	□	■
500 K	2500 Ω	---	□	■	■	□	□
550 K	2750 Ω	---	□	□	■	■	■
600 K	3000 Ω	---	□	□	■	■	□
650 K	3250 Ω	---	□	□	■	□	■
700 K	3500 Ω	---	□	□	■	□	□
750 K	3750 Ω	---	□	□	□	■	■
800 K	4000 Ω	---	□	□	□	■	□
850 K	4250 Ω	---	□	□	□	□	■
900 K	4500 Ω	---	□	□	□	□	□

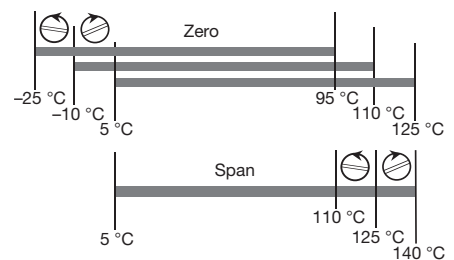
Selection of output		Switch 2		Switching on the manual adjustment	
Output		6	7	manual adjustment	S. 1
0...10 V		■	□		8
0...5 V		■	■	off	□
0...20 mA		□	□	on	■
4...20 mA		□	■		

Selection of the step response		S. 2
step response		8
slow		■
fast		□

Accuracy, slow/fast step response	
PT 100, Ni100: 0.3 % of measuring range	0.8 %
Measuring range: < 100 K / 0.3 K / 0.8 K	
Potentiometer: 0.2 % of final value / 0.3 %	
Resistance: 0.2 % of final value / 0.3 %	

Temperature coefficient	
Measuring range ≥ 200 K	≤ 200 ppm / °C
100 K ≤ Measuring range < 200 K	≤ 250 ppm / °C
40 K ≤ Measuring range < 100 K	≤ 400 ppm / °C

Examples for setting zero and range	
Temperature setting:	
Output	4 ... 20 mA
DIP switch	-10 °C ... +110 °C
Range	75 ... 110 °C
Range	120 °C
Range adjustment	± 12.5 %



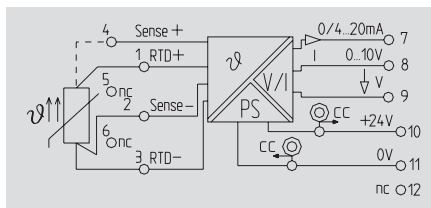
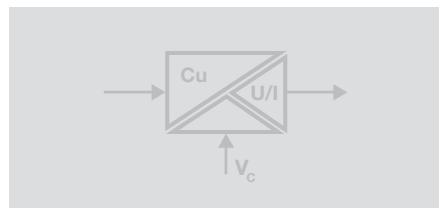
WAVEtool setting aid
 The service tool is used for fast, uncomplicated configuration of WAVEANALOG PRO.
 Download from the internet:
<http://www.weidmueller.com>

RTD signal isolator/converter

- Universally adjustable via DIP switch
- 3-way isolation
- Linearisation
- Power supply can be cross-connected using plug-in jumpers.
- WAVETOOL software offers configuration help, download at www.weidmueller.com

PRO RTD Cu

UL Class I, Div.2



Technical data

Input

Sensor
Temperature input range

Output

Output current / Output voltage
Offset current / Offset voltage
Load impedance, voltage/current
Wire break detection
Fine adjustment
Status indicator

General data

Supply voltage
Power consumption
Step response time
Ambient temperature
Storage temperature
Approvals

Insulation coordination

Standards
EMC standards
Rated voltage
Impulse withstand voltage
Insulation voltage
Overvoltage category
Pollution severity
Clearance & creepage distances

3-/4-wired, Cu 10, Cu 25, Cu 50, Cu 100

Adjustable from -200...+260°C

0(4)...20 mA / 0...10 V
max. 100 µA / max. 0.05 V
≥ 1 kΩ / ≤ 600 Ω
LED flashing (output value: > 20 mA, >10 V)
± 12.5% of FSR
Module active: LED on/ wire breakage: LED flashing/
Error: LED off

24 V DC ± 25 %
880...980...1030mW at I_{OUT} = 20 mA
Fast: 1.2 s/ slow: 2.2 s
0 °C...+55 °C
-20 °C...+85 °C
cULus; cULusEX; CE

Dimensions

Clamping range (nominal / min. / max.) mm²
Length x width x height mm

Note

Screw connection

2.5 / 0.5 / 2.5
92.4 / 17.5 / 112.4

Ordering data

Screw connection

Type	Qty.	Order No.
WAS5 PRO RTD Cu	1	8638950000

Note

Accessories

Cross-connector for power supplies and markers – refer to Accessories

Selection of connection	Switch 1		Selection of sensor	
	1	2	Type	Switch 1 2 3
3-wire	■	■	Cu 10	■ ■
4-wire	□	□	Cu 25	■ □
			Cu 50	□ ■
			Cu 100	□ □

Selection of minimum input values	Switch 1			
	4	5	6	7
0 min				
- 0 °C	■	■	■	■
-10 °C	■	■	■	□
-20 °C	■	■	□	■
-25 °C	■	■	□	□
-30 °C	■	□	■	■
-40 °C	■	□	■	□
-50 °C	■	□	□	■
-60 °C	■	□	□	□
-70 °C	□	■	■	■
-80 °C	□	■	■	□
-90 °C	□	■	□	■
-100 °C	□	■	□	□
-150 °C	□	□	■	■
-200 °C	□	□	■	□
special range	□	□	□	□

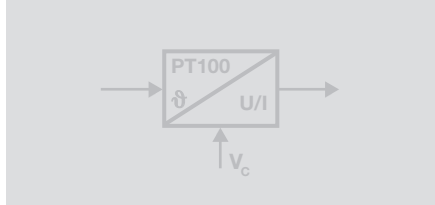
Selection of the measurement range	Switch 2				
	1	2	3	4	5
Span					
40 K	■	■	■	■	■
50 K	■	■	■	■	□
60 K	■	■	■	□	■
70 K	■	■	■	□	□
80 K	■	■	□	■	■
90 K	■	■	□	■	□
100 K	■	■	□	□	■
110 K	■	■	□	□	□
120 K	■	□	■	■	■
125 K	■	□	■	■	□
130 K	■	□	■	□	■
140 K	■	□	■	□	□
150 K	■	□	□	■	■
160 K	■	□	□	■	□
170 K	■	□	□	□	■
180 K	■	□	□	□	□
190 K	□	■	■	■	■
200 K	□	■	■	■	□
210 K	□	■	■	□	■
220 K	□	■	■	□	□
230 K	□	■	□	■	■
240 K	□	■	□	■	□
250 K	□	■	□	□	■
260 K	□	■	□	□	□
270 K	□	□	■	■	■
280 K	□	□	■	■	□
290 K	□	□	■	□	■
300 K	□	□	■	□	□
350 K	□	□	□	■	■
400 K	□	□	□	■	□
450 K	□	□	□	□	■
460 K	□	□	□	□	□

Selection of Output	Switch 2		Switching on the manual fine adjustment	
	6	7	man. adj.	Switch 1 8
0...10 V	■	□	man. adj.	8
0...20 mA	□	□	off	□
4...20 mA	□	■	on	■

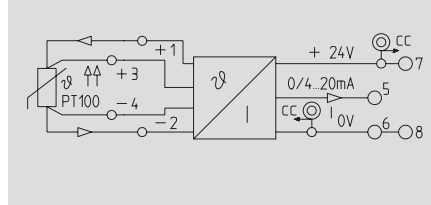
Selection of step set time	Switch 2	
	8	
Time of step response		
slow	■	■ = on
fast	□	□ = off

RTD, 4-wire converter

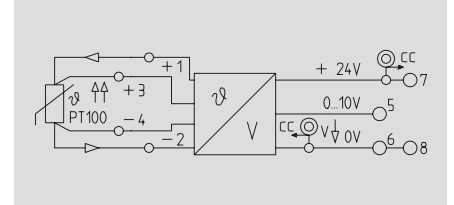
- 2-, 3- and 4-conductor system
- Adjustable temperature range
-200°C...+800°C
- Adjustable output range
- Power supply can be cross-connected using plug-in jumpers.
- No galvanic isolation between input and output circuits



PT100 / 4 0 (4)...20 mA



PT100 / 4 0...10 V



Technical data

Input
Sensor
Sensor supply
Output
Output voltage / Output current
Load impedance, voltage/current
General data
Supply voltage / Current consumption
Ambient temperature / Storage temperature
Accuracy
Approvals
Standards
EMC standards

PT100 / 2-/3-/4-wire
1.45 mA
0(4)...20 mA
≤ 500 Ω
24 V DC ± 20 % /
0 °C...+55 °C / -20 °C...+85 °C
100K ≤ MB < 600K: 0.1 %; MB ≥ 600K: 0.2 %; of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

PT100 / 2-/3-/4-wire
1.45 mA
0...10 V /
≥ 1 kΩ /
24 V DC ± 20 % /
0 °C...+55 °C / -20 °C...+85 °C
100K ≤ MB < 600K: 0.1 %; MB ≥ 600K: 0.2 %; of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
0.5 / 2.5	0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Screw connection	Tension clamp connection
0.5 / 2.5	0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Ordering data

Adjustable from -200...+800°C	Screw connection
Adjustable from -200...+800°C	Tension clamp connection
Special adjustment	Screw connection
Special adjustment	Tension clamp connection
0...100 °C	Screw connection

Type	Qty.	Order No.
WTS4 PT100/4 C 0/4-20mA	1	8432270000
WTZ4 PT100/4 C 0/4-20mA	1	8432280000
WTS4 PT100/4 C 0/4-20mA variabel	1	8432279999
WTZ4 PT100/4 C 0/4-20mA variabel	1	8432289999
WTS4 PT100/4 C 4-20mA 0...100C	1	8432270011

Type	Qty.	Order No.
WTS4 PT100/4 V 0-10V	1	8432240000
WTZ4 PT100/4 V 0-10V	1	8432250000
WTS4 PT100/4 V 0-10V variabel	1	8432249999
WTZ4 PT100/4 V 0-10V variabel	1	8432259999
WTS4 PT100/4 V 0-10V 0...100C	1	8432240001

Note

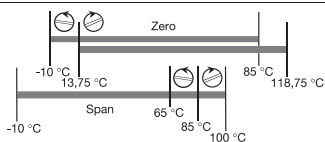
Cross-connectors for power supplies and markers - refer to WAVESERIES accessories

Specify temperature range for special calibrations.

Applications

Example for Zero and Span

Temperature adjustment:	
Tmin	-10 °C
Span	75...110 °C
Span	95 °C
Adjustment of Span	+ 25 %



Temperature coefficient	
Measurement range	≥ 200 K ≤ 200 ppm / °C (typ. 80 ppm / °C)
100K ≤ Measurement range < 200 K	≤ 225 ppm / °C (typ. 90 ppm / °C)
40K ≤ Measurement range < 100 K	≤ 450 ppm / °C (typ. 180 ppm / °C)

- Aids**
- Voltage supply 24 Vdc, 50 mA
 - Simulator for PT 100 or precision-resistance-decade
 - Ampere-/voltmeter which can be calibrated to an accuracy of >0.1% of the end value.

Switch position/setting options

Tmin	1	2	3	Span	4	5	6
0 °C	■	■	■	40 ... 50 °C	■	■	■
-10 °C	■	■	□	50 ... 75 °C	■	■	□
-20 °C	■	□	■	75 ... 110 °C	■	■	■
-40 °C	■	□	□	110 ... 165 °C	■	□	□
-60 °C	□	■	■	165 ... 245 °C	□	■	■
-80 °C	□	■	□	245 ... 360 °C	□	■	□
-100 °C	□	□	■	360 ... 540 °C	□	□	■
-200 °C	□	□	□	540 ... 800 °C	□	□	□
Output 1)	7			PT 100	8	9	10
0 ... 20 mA	□			2 - wire	■	■	■
4 ... 20 mA	■			3 - wire	□	□	□
				4 - wire	□	□	□

1) only modules with current output

■ = on
□ = off

WAVESERIES - PT100/RTD - signal converter

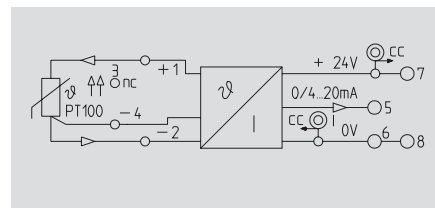
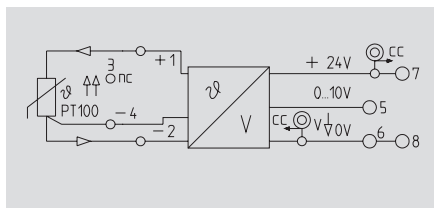
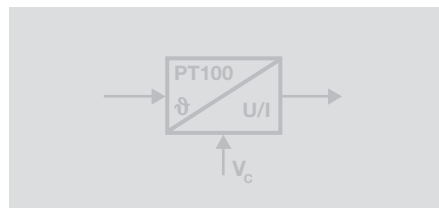
RTD, 3-wire converter

- 3-conductor system
- Adjustable temperature range
-200°C...+800°C
- Adjustable output range
- Power supply can be cross-connected using plug-in jumpers.
- No galvanic isolation between input and output circuits

PT100 / 3 0...10 V



PT100 / 3 0 (4)...20 mA



Technical data

Input
Sensor
Sensor supply
Output
Output voltage / Output current
Load impedance, voltage/current
General data
Supply voltage / Current consumption
Ambient temperature / Storage temperature
Accuracy
Approvals
Standards
EMC standards

PT100/3-wire
1.45 mA
0...10 V /
≥ 1 kΩ /
24 V DC ± 20 % /
0 °C...+55 °C / -20 °C...+85 °C
± 0.5 % of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

PT100/3-wire
1.45 mA
/ 0(4)...20 mA
/ ≤ 500 Ω
24 V DC ± 20 % /
0 °C...+55 °C / -20 °C...+85 °C
± 0.5 % of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Ordering data

Adjustable from -200...+800°C	Screw connection
Adjustable from -200...+800°C	Tension clamp connection
Special adjustment	Screw connection
Special adjustment	Tension clamp connection
0...100 °C	Screw connection

Type	Qty.	Order No.
WTS4 PT100/3 V 0-10V	1	8432090000
WTZ4 PT100/3 V 0-10V	1	8432130000
WTS4 PT100/3 V 0-10V variabel	1	8432099999
WTZ4 PT100/3 V 0-10V variabel	1	8432139999
WTS4 PT100/3 V 0-10V 0...100C	1	8432090001

Type	Qty.	Order No.
WTS4 PT100/3 C 0/4-20mA	1	8432150000
WTZ4 PT100/3 C 0/4-20mA	1	8432160000
WTS4 PT100/3 C 0/4-20mA variabel	1	8432159999
WTZ4 PT100/3 C 0/4-20mA variabel	1	8432169999

Note

Specify temperature range for special calibrations.

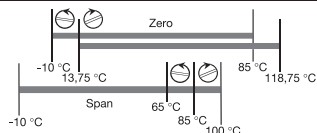
Cross-connectors for power supplies and markers - refer to WAVESERIES accessories

Applications

Example for Zero and Span

Temperature adjustment:

Tmin	-10 °C
Span	75...110 °C
Span	95 °C
Adjustment of Span	+ 25 %



Temperature coefficient

Measurement range ≥ 200 K ≤ 200 ppm / °C (typ. 80 ppm / °C)
 100K ≤ Measurement range < 200K ≤ 250 ppm / °C (typ. 100 ppm / °C)
 40K ≤ Measurement range < 100K ≤ 500 ppm / °C (typ. 200 ppm / °C)

Aids

- Voltage supply 24 Vdc, 50 mA
- Simulator for PT 100 or precision-resistance-decade
- Ampere-/voltmeter which can be calibrated to an accuracy of >0.1% of the end value.

Switch position/setting options

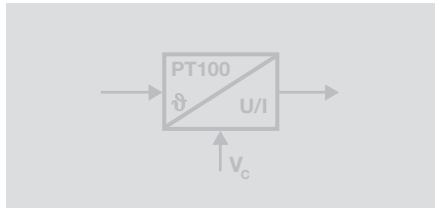
Tmin	1	2	3	Span	4	5	6
0 °C	■	■	■	40 ... 50 °C	■	■	■
-10 °C	■	■	□	50 ... 75 °C	■	■	□
-20 °C	■	□	■	75 ... 110 °C	■	□	■
-40 °C	■	□	□	110 ... 165 °C	■	□	□
-60 °C	□	■	■	165 ... 245 °C	□	■	■
-80 °C	□	■	□	245 ... 360 °C	□	■	□
-100 °C	□	□	■	360 ... 540 °C	□	□	■
-200 °C	□	□	□	540 ... 800 °C	□	□	□
Output 1)				PT 100			
Range	7			8	9	10	
0 ... 20 mA	□			2 - wire	■	■	■
4 ... 20 mA	■			3 - wire	■	■	■
				4 - wire	□	□	□

1) only modules with current output

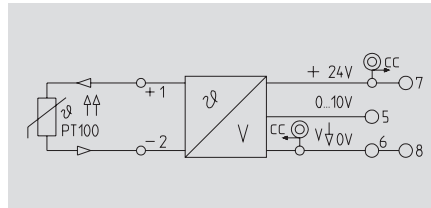
■ = on
□ = off

RTD, 2-wire converter

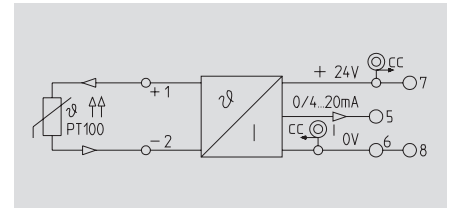
- 2-conductor system
- Adjustable temperature range
-200°C...+800°C
- Adjustable output range
- Power supply can be cross-connected using plug-in jumpers.
- No galvanic isolation between input and output circuits



PT100 / 2 0...10 V



PT100/2 0 (4)...20 mA



Technical data

Input
Sensor
Sensor supply
Output
Output voltage / Output current
Load impedance, voltage/current
General data
Supply voltage / Current consumption
Ambient temperature / Storage temperature
Accuracy
Approvals
Standards
EMC standards

PT100/2-wire
1.45 mA
0...10 V /
≥ 1 kΩ /
24 V DC ± 20 % / < 38 mA @ I _{OUT} = 20 mA
0 °C...+55 °C / -20 °C...+85 °C
± 0.5 % of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

PT100/2-wire
1.45 mA
/ 0(4)...20 mA
/ ≤ 500 Ω
24 V DC ± 20 % / < 48 mA @ I _{OUT} = 20 mA
0 °C...+55 °C / -20 °C...+85 °C
± 0.5 % of measuring range
cULus; CSA; CE
EN 50178, EN 60751, IEC751
EN 55011, EN 61000-6

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4

Ordering data

Adjustable from -200...+800°C	Screw connection
Adjustable from -200...+800°C	Tension clamp connection
Special adjustment	Screw connection
Special adjustment	Tension clamp connection
0...100 °C	Screw connection

Type	Qty.	Order No.
WTS4 PT100/2 V 0-10V	1	8432180000
WTZ4 PT100/2 V 0-10V	1	8432190000
WTS4 PT100/2 V 0-10V variabel	1	8432189999
WTZ4 PT100/2 V 0-10V variabel	1	8432199999
WTS4 PT100/2 V 0-10V 0...100C	1	8432180001

Type	Qty.	Order No.
WTS4 PT100/2 C 0/4-20mA	1	8432210000
WTZ4 PT100/2 C 0/4-20mA	1	8432220000
WTS4 PT100/2 C 0/4-20mA variabel	1	8432219999
WTZ4 PT100/2 C 0/4-20mA variabel	1	8432229999
WTS4 PT100/2 C 4-20mA 0...100C	1	8432210011

Note

Specify temperature range for special calibrations.

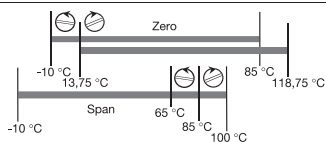
Cross-connectors for power supplies and markers - refer to WAVESERIES accessories

Applications

Example for Zero and Span

Temperature adjustment:

Tmin	-10 °C
Span	75...110 °C
Span	95 °C
Adjustment of Span	+ 25 %



Temperature coefficient

Measurement range ≥ 200 K ≤ 200 ppm / °C (typ. 80 ppm / °C)
 100K ≤ Measurement range < 200K ≤ 250 ppm / °C (typ. 100 ppm / °C)
 40K ≤ Measurement range < 100K ≤ 500 ppm / °C (typ. 200 ppm / °C)

Aids

- Voltage supply 24 Vdc, 50 mA
- Simulator for PT 100 or precision-resistance-decade
- Ampere-voltmeter which can be calibrated to an accuracy of >0.1% of the end value.

Switch position/setting options

Tmin	1	2	3	Span	4	5	6
0 °C	■	■	■	40 ... 50 °C	■	■	■
-10 °C	■	■	□	50 ... 75 °C	■	■	□
-20 °C	■	□	■	75 ... 110 °C	■	■	■
-40 °C	■	□	□	110 ... 165 °C	■	□	□
-60 °C	□	■	■	165 ... 245 °C	□	■	■
-80 °C	□	■	□	245 ... 360 °C	□	■	□
-100 °C	□	□	■	360 ... 540 °C	□	□	■
-200 °C	□	□	□	540 ... 800 °C	□	□	□

Output 1)	7	PT 100	8	9	10
Range					
0 ... 20 mA	□		2 - wire	■	■
4 ... 20 mA	■		3 - wire	■	■
			4 - wire	□	□

1) only modules with current output

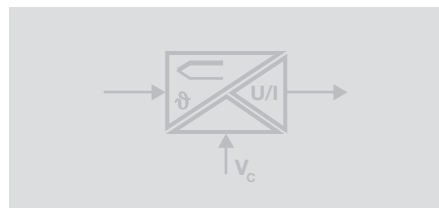
■ = on
□ = off

WAVESERIES - Thermocouple signal converter, configurable

Thermo converter type:

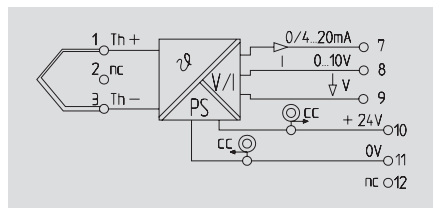
K,J,T,E,N,R,S,B

- 3-way isolation
- Internal cold-junction compensation
- Power supply can be cross-connected using plug-in jumpers.
- Suitable for insulated and uninsulated thermocouples
- WAVETOOL software offers configuration help, download at www.weidmueller.com



PRO Thermo

UL Class I, Div. 2



Technical data

Input

Sensor
Temperature input range

Output

Output voltage / Output current
Load impedance, voltage/current
Offset current / Offset voltage
Line resistance in measuring circuit
Wire break detection
Fine adjustment
Status indicator

General data

Supply voltage
Power consumption
Step response time
Current-carrying capacity of cross-connect.
Ambient temperature
Storage temperature
Default setting
Approvals

Insulation coordination

Standards
EMC standards
Rated voltage
Impulse withstand voltage
Insulation voltage
Overvoltage category
Pollution severity
Clearance & creepage distances

Dimensions

Clamping range (nominal / min. / max.) mm²
Length x width x height mm

Note

Ordering data

	Screw connection
	Tension clamp connection

Note

Accessories

Thermo element (IEC 584) type: K,J,T,E,N,R,S,B

-200...+1820 °C

0...10 V / 0(4)...20 mA

≥ 1 kΩ / ≤ 600 Ω

max. 100 μA / max. 0.05 V

50 Ω

LED flashing (output value: > 20 mA, >10 V)

± 5% (switchable)

Module active: LED on/ wire breakage: LED flashing/

Error: LED off

24 V DC ± 25 %

800...850...950 mW at I_{out} = 20 mA

Without filter: max. 1.4 s; with filter: max. 7.5 s

≤ 2 A

0 °C...+55 °C

-20 °C...+85 °C

Type K; 0...1000°C; 4...20mA; filter: off; man. calibration: off

cULus; cULusEX; GL; CE

EN 50178, EN 60584, IEC 584

EN 55011, EN 61000-6

300

4 kV

2 kV_{eff} / 5 s

III

2

≥ 3 mm

Screw connection

2.5 / 0.5 / 2.5

92.4 / 17.5 / 112.4

Tension clamp connection

1.5 / 0.5 / 2.5

92.4 / 17.5 / 112.4

Type

WAS5 PRO Thermo

WAZ5 PRO Thermo

Qty.

1

1

Order No.

8560720000

8560730000

Cross-connector for power supplies and markers – refer to Accessories

Select of thermocoupler

Typ	SW1		
	1	2	3
K	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
J	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Selection of minimum temperature

t _{min}	SW1						
	4	5	6	7			
0°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
-10°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
-20°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
-30°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-40°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-50°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-100°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-150°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-200°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
+50°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
+100°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
+150°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
+200°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
+250°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
500°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Special range	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Selection of temperature span

Span	SW2				
	1	2	3	4	5
100°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
150°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
200°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
300°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
350°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
400°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
450°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
550°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
600°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
650°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
700°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
750°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
800°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
850°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
900°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
950°C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1000°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1050°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1100°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1150°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1200°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1250°C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1300°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1350°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1400°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1450°C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1500°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1600°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1700°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1800°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Selection of output

Output	SW2	
	6	7
0...10V	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0...20mA	<input type="checkbox"/>	<input type="checkbox"/>
4...20mA	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Switching on the manual fine adjustment

man. adjust.	SW1
	8
off	<input type="checkbox"/>
on	<input checked="" type="checkbox"/>

Switching on the filter function

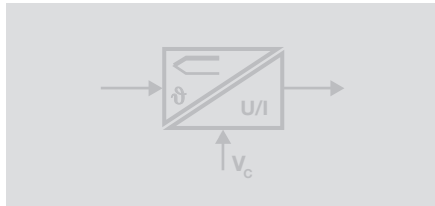
Filter	SW2
	8
off	<input type="checkbox"/>
on	<input checked="" type="checkbox"/>

Temperature coefficient

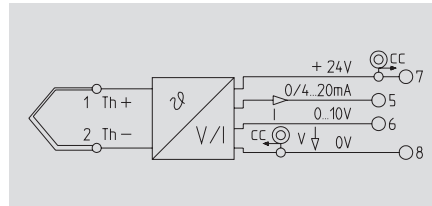
K -200°C...-150°C	± (5K + 0,1% of set range)
-150°C...1200°C	± (3K + 0,1% of set range)
1200°C...1372°C	± (4K + 0,1% of set range)
J -200°C...-150°C	± (4K + 0,1% of set range)
-150°C...1200°C	± (3K + 0,1% of set range)
T -200°C...-150°C	± (5K + 0,1% of set range)
-150°C...400°C	± (3K + 0,1% of set range)
E -200°C...-150°C	± (4K + 0,1% of set range)
-150°C...1000°C	± (3K + 0,1% of set range)
N -200°C...-150°C	± (6K + 0,1% of set range)
-150°C...1300°C	± (3K + 0,1% of set range)
R -50°C...200°C	± (10K + 0,1% of set range)
200°C...1760°C	± (6K + 0,1% of set range)
S -50°C...200°C	± (10K + 0,1% of set range)
200°C...1760°C	± (6K + 0,1% of set range)
B 50°C...250°C	± (25K + 0,1% of set range)
250°C...500°C	± (10K + 0,1% of set range)
500°C...1820°C	± (6K + 0,1% of set range)

Thermo converter type:
K,J,T,E,N,R,S,B

- No calibration necessary
- Internal cold-junction compensation
- Output signal selectable
- Power supply can be cross-connected using plug-in jumpers.
- Suitable for insulated thermocouples
- No galvanic isolation between input and output circuits



Thermo Select



Technical data

Input	
Sensor	Thermo element (IEC 584) type: K,J,T,E,N,R,S,B
Temperature input range	-200...+1820 °C
Output	
Output voltage / Output current	0...10 V / 0(4)...20 mA
Load impedance, voltage/current	≥ 1 kΩ / ≤ 500 Ω
Temperature coefficient	± (200 ppm from the span + 0.075 K/K)
Step response time	With filter: 1.1 s; without filter: 6 s
Wire break detection	LED flashing (output value: > 20 mA, >10 V)
General data	
Supply voltage	24 V DC ± 20 %
Current consumption	< 38 mA @ I _{out} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Ambient temperature	0 °C...+55 °C
Storage temperature	-20 °C...+85 °C
Approvals	cULus; CSA; CE
Insulation coordination	
Standards	EN 50178, EN 60584, IEC 584
EMC standards	EN 55011, EN 61000-6

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

Screw connection	WTS4 THERMO	1	8432300000
Tension clamp connection	WTZ4 THERMO	1	8432310000

Note

Accessories

Cross-connector for power supplies and markers – refer to Accessories

Switch position/setting options

SW 1				SW 2					
Type	1	2	3	Span	1	2	3	4	5
K	■	■	■	100 °C	■	■	■	■	■
J	□	■	■	150 °C	■	■	■	■	■
T	■	□	■	200 °C	■	■	■	■	■
E	□	□	■	250 °C	■	■	■	■	■
N	■	■	□	300 °C	■	■	■	■	■
R	■	■	□	350 °C	■	■	■	■	■
S	■	□	□	400 °C	■	■	■	■	■
B	□	□	□	450 °C	■	■	■	■	■
SW 1				SW 2					
Tmin	4	5	6	7	600 °C	■	■	■	■
0 °C	■	■	■	■	650 °C	■	■	■	■
-10 °C	■	■	■	□	700 °C	■	■	■	■
-20 °C	■	■	■	■	750 °C	■	■	■	■
-30 °C	■	■	■	□	800 °C	■	■	■	■
-40 °C	■	■	■	■	850 °C	■	■	■	■
-50 °C	■	■	■	□	900 °C	■	■	■	■
-100 °C	■	■	■	■	950 °C	■	■	■	■
-150 °C	■	■	■	□	1000 °C	■	■	■	■
-200 °C	■	■	■	■	1050 °C	■	■	■	■
+50 °C	■	■	■	□	1100 °C	■	■	■	■
+100 °C	■	■	■	■	1150 °C	■	■	■	■
+150 °C	■	■	■	□	1200 °C	■	■	■	■
+200 °C	■	■	■	■	1250 °C	■	■	■	■
+250 °C	■	■	■	■	1300 °C	■	■	■	■
+500 °C	■	■	■	■	1350 °C	■	■	■	■
SW 2				Output 6 7					
0 - 10 V	■	□	■	■	1400 °C	■	■	■	■
0 - 20 mA	□	■	■	■	1450 °C	■	■	■	■
4 - 20 mA	□	■	■	■	1500 °C	■	■	■	■
Filter 8									
off				□					
on				■					

■ = on
□ = off

Temperature coefficient	
K	-200 °C...-150 °C ± (5K + 0,1% of set range)
	-150 °C...1200 °C ± (3K + 0,1% of set range)
	1200 °C...1372 °C ± (4K + 0,1% of set range)
J	-200 °C...-150 °C ± (4K + 0,1% of set range)
	-150 °C...1200 °C ± (3K + 0,1% of set range)
T	-200 °C...-150 °C ± (5K + 0,1% of set range)
	-150 °C...400 °C ± (3K + 0,1% of set range)
E	-200 °C...-150 °C ± (4K + 0,1% of set range)
	-150 °C...1000 °C ± (3K + 0,1% of set range)
N	-200 °C...-150 °C ± (6K + 0,1% of set range)
	-150 °C...1300 °C ± (3K + 0,1% of set range)
R	-50 °C...200 °C ± (10K + 0,1% of set range)
	200 °C...1760 °C ± (6K + 0,1% of set range)
S	-50 °C...200 °C ± (10K + 0,1% of set range)
	200 °C...1760 °C ± (6K + 0,1% of set range)
B	50 °C...250 °C ± (25K + 0,1% of set range)
	250 °C...500 °C ± (10K + 0,1% of set range)
	500 °C...1820 °C ± (6K + 0,1% of set range)

WAVEANALOG PRO Frequency

Settings help, for any input and output values

Setting the input range using the DIP switches (doesn't require a frequency generator):

There are 2 different methods:

1. Lower measuring frequency = 0 Hz

- Choose operating mode “= ... fmax”
S2.3 = 0 and S2.4 = 0
- Set the upper measuring frequency using DIP switches S1 and S2.1, S2.2 (see table)
- That's all!

2. Lower measuring frequency ≠ 0 Hz

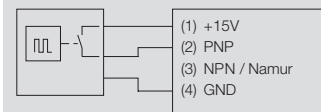
- First the lower measuring frequency must be saved.
Select mode “save fmin”.
S2.3 = 1 and S2.4 = 0.
Set the frequency using DIP switches S1 and S2.1, S2.2 (see table)
To save the frequency, briefly connect the module to the power supply.
- Select mode “fmin ... fmax”
S2.3 = 0 and S2.4 = 1
- Set the upper measuring frequency using DIP switches S1 and S2.1, S2.2 (see table).
- That's all!

Adjusting the input range using a frequency generator:

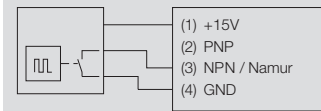
- Select the switch setting for saving the frequency: S2.1 = 0, S2.2 = 1, S2.3 = 1 and S2.4 = 1
- Apply min. frequency to the module
- Connect the module to the power supply
- The LED lights up when the input frequency is being measured. If the LED goes off, the frequency has been saved and the module can be disconnected from the power supply again.
- Repeat with max. frequency: S2.1 = 1, S2.2 = 0, S2.3 = 1 and S2.4 = 1
- Select special range: S2.1 = 1, S2.2 = 1, S2.3 = 1 and S2.4 = 1

Connection configuration for the sensors

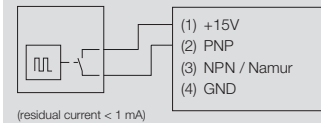
3-wire initiator with PNP output



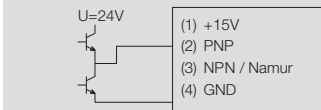
3-wire initiator with NPN output



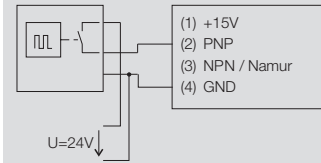
2-wire initiator



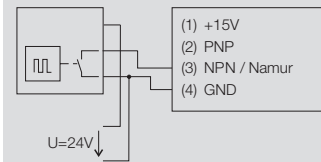
Push pull output cascade



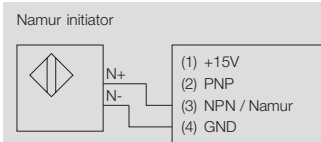
3-wire initiator with PNP output and external supply



3-wire initiator with NPN output and external supply

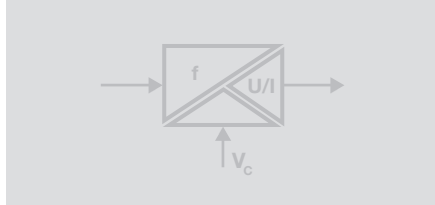


Namur initiator



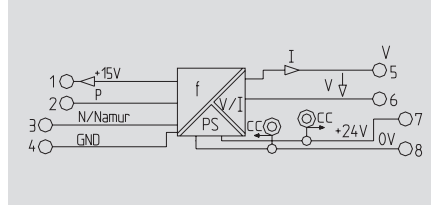
f/DC isolator/converter

- 3-way isolation
- Max. input frequency: 100 kHz
- Input and output ranges adjustable via DIP switch
- No calibration necessary
- Programmable custom range
- WAVETOOL software helps with configuration. Download at www.weidmuller.com



PRO Frequency

UL Class I, Div. 2



Technical data

Input	
Sensor	
Rated input level	
Output	
Output voltage / Output current	
Load impedance, voltage/current	
Offset current / Offset voltage	
Status indicator	
General data	
Supply voltage	
Power consumption	
Accuracy	
Temperature coefficient	
Step response time	
Ambient temperature	
Storage temperature	
Approvals	
Insulation coordination	
Standards	
EMC standards	
Rated voltage	
Impulse withstand voltage	
Insulation voltage	
Overvoltage category	
Pollution severity	
Clearance & creepage distances	
Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

	Screw connection
	Tension clamp connection
Note	

Accessories

Cross-connector for power supplies and markers – refer to Accessories

2-, 3-wire PNP/NPN, Namur initiator, push-pull step		
Threshold/hysteresis: Namur: approx. 1.7 mA/approx. 0.2 mA; NPN: approx. 6.5 V/approx. 0.2 V; PNP: approx. 6.7 V/approx. 0.5 V		
0...10 V / 0(4)...20 mA		
≥ 1 kΩ / ≤ 600 Ω		
max. 100 μA / max. 0.05 V		
Green LED		
24 V DC ± 25 %		
Max. 1.6 W at I _{OUT} = 20 mA		
< 0.2% of output range		
Max. 200 ppm/K of output range		
360 ms + 2 times the period time of input frequency		
0 °C...+55 °C		
-20 °C...+85 °C		
cULus; cULusEX; CE		
EN 50178 (secure separation)		
EN 55011, EN 61000-6, EN 61326		
300 V		
6 kV		
4 kV _{eff} / 5 s		
III		
2		
≥ 5.5 mm		
Screw connection Tension clamp connection		
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5	
92.4 / 12.5 / 112.4	92.4 / 12.5 / 112.4	
Type	Qty.	Order No.
WAS4 PRO Freq	1	8581180000
WAZ4 PRO Freq	1	8581190000

Selecting the operating mode		
Operating mode	Switch 2	3 4
0 ... fmax	<input type="checkbox"/>	<input type="checkbox"/>
fmin ... fmax	<input type="checkbox"/>	<input checked="" type="checkbox"/>
saving fmin	<input checked="" type="checkbox"/>	<input type="checkbox"/>

f = (A+B) x C

Selecting the frequency				
A	Switch 1			
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Selecting the frequency				
B	Switch 1			
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0.9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

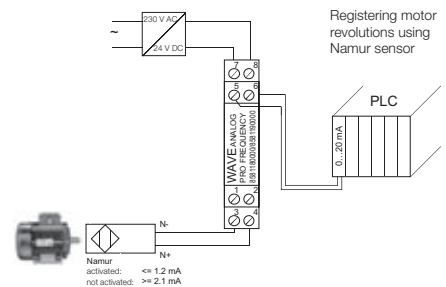
Selecting the frequency		
C	Switch 2	
x1	<input type="checkbox"/>	<input type="checkbox"/>
x10	<input type="checkbox"/>	<input type="checkbox"/>
x100	<input checked="" type="checkbox"/>	<input type="checkbox"/>
x1000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Selecting the output				
Output	Switch 2			
0...10 V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0...20 mA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4...20 mA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0...5 V	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Special range (frequency generator is required)				
Function	Switch 2			
save min. frequency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
save max. frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
select special range	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

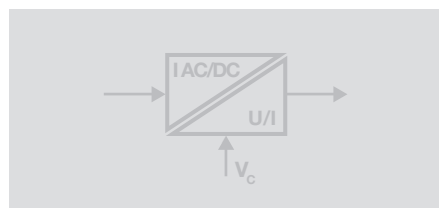
■ = on
□ = off

Application

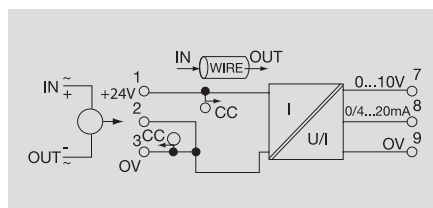


Analogue output

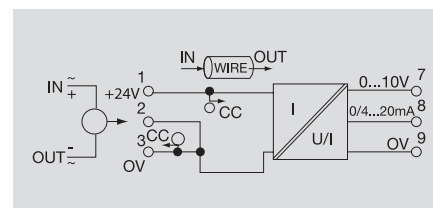
- Galvanic isolation between input / output
- Input and output ranges adjustable via DIP switch



5/10 A AC/DC



20/25/30 A AC/DC



Technical data

Input	
Input current	0...5 A AC/DC / 0...10 A AC/DC
Input frequency	0...2 kHz (True RMS)
Max. current	Depends on wire cross-section
Voltage of measuring circuit	400 V AC, > 400V AC depending on wire insulation
Sensor	Hall sensor (internal)
Diameter of cable feed-through	8 mm
Output	
Output current / Output voltage	0(4)...20 mA / 0...10 V
Offset current	max. 150 µA
Output signal limit	Approx. 13 V or 24 mA
Load impedance, voltage/current	≥ 1 kΩ / ≤ 600 Ω
Step response time	typ. 700 ms
Accuracy	1 % FSR
Temperature coefficient	≤ 650 ppm/K
Status indicator	LED ON: OK; FLASHING: signal out of range; LED OFF: Error
General data	
Supply voltage	24 V DC ± 10 %
Current consumption	50 mA @ I _{OUT} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Ambient temperature / Storage temperature	0 °C...+50 °C / -20 °C...+70 °C
Default setting	0.5 A, 4...20 mA
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Pollution severity	2
Overtoltage category	III
Clearance & creepage distances	≥ 5.5 mm
Insulation voltage	4 kV _{eff} / 5 s
Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection		Tension clamp connection			
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5		
92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4		
Type		Qty.		Order No.	
WAS2 CMA 5/10A uc		1		8526610000	
WAZ2 CMA 5/10A uc		1		8526620000	

Screw connection		Tension clamp connection			
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5		
92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4	92.4 / 22.5 / 112.4		
Type		Qty.		Order No.	
WAS2 CMA 20/25/30A uc		1		8545830000	
WAZ2 CMA 20/25/30A uc		1		8545840000	

Ordering data

Screw connection	
Tension clamp connection	

Type	Qty.	Order No.
WAS2 CMA 5/10A uc	1	8526610000
WAZ2 CMA 5/10A uc	1	8526620000

Type	Qty.	Order No.
WAS2 CMA 20/25/30A uc	1	8545830000
WAZ2 CMA 20/25/30A uc	1	8545840000

Note

Accessories

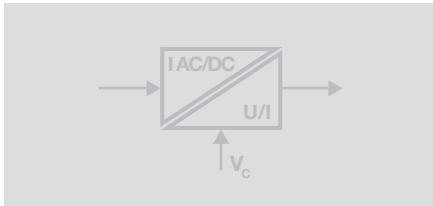
Cross-connectors for power supplies and markers – refer to Accessories

Cross-connectors for power supplies and markers – refer to Accessories

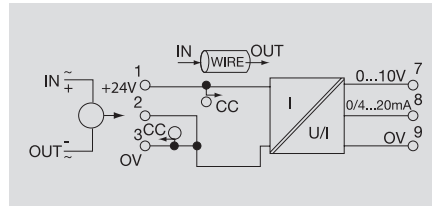
Cross-connectors for power supplies and markers – refer to Accessories

Analogue output

- Galvanic isolation between input / output
- Input and output ranges adjustable via DIP switch



40/50/60 A AC/DC



Technical data

Input	
Input current	0...40 A AC/DC / 0...50 A AC/DC / 0...60 A AC/DC
Input frequency	0...2 kHz (True RMS)
Max. current	Depends on wire cross-section
Voltage of measuring circuit	400 V AC, > 400V AC depending on wire insulation
Sensor	Hall sensor (internal)
Diameter of cable feed-through	8 mm
Output	
Output current / Output voltage	0(4)...20 mA / 0...10 V
Offset current	max. 150 µA
Output signal limit	Approx. 13 V or 24 mA
Load impedance, voltage/current	/ ≤ 600 Ω
Step response time	typ. 700 ms
Accuracy	1 % FSR
Temperature coefficient	≤ 650 ppm/K
Status indicator	LED ON: OK; FLASHING: signal out of range; LED OFF: Error
General data	
Supply voltage	24 V DC ± 10 %
Current consumption	50 mA @ I _{OUT} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Ambient temperature / Storage temperature	0 °C...+50 °C / -20 °C...+70 °C
Default setting	0...50 A, 4...20 mA
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Pollution severity	2
Overvoltage category	III
Clearance & creepage distances	≥ 5.5 mm
Insulation voltage	4 kV _{eff} / 5 s

Screw connection		Tension clamp connection	
2.5 / 0.5 / 2.5		1.5 / 0.5 / 2.5	
92.4 / 22.5 / 112.4		92.4 / 22.5 / 112.4	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

Screw connection
Tension clamp connection

Type	Qty.	Order No.
WAS2 CMA 40/50/60A uc	1	8513330000
WAZ2 CMA 40/50/60A uc	1	8526590000

Note

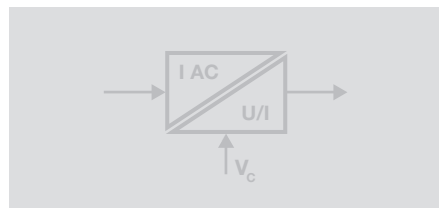
Accessories

Cross-connectors for power supplies and markers – refer to Accessories
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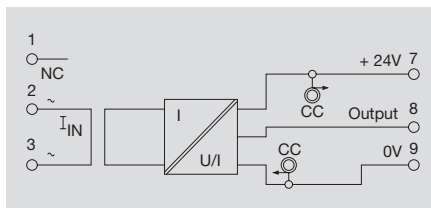


Analogue output

- Galvanic isolation between input / output
- Input and output ranges adjustable via DIP switch

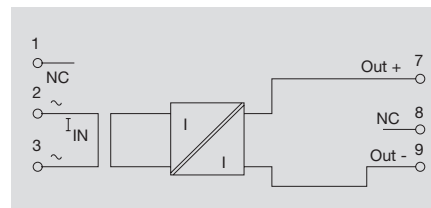


1/5/10 A AC



1/5/10 A AC 4...20 mA

Loop-powered



Technical data

Input	
Input current	0...1 A AC / 0...5 A AC / 0...10 A AC
Input frequency	50...60 Hz
Max. current	100 A for 1s
Voltage of measuring circuit	250 V AC
Sensor	Transforming (internally)
Output	
Output current / Output voltage	0(4)...20 mA / 0...10 V
Offset current	max. 100 µA
Output signal limit	Approx. 13 V or 24 mA
Load impedance, voltage/current	/ ≤ 600 Ω
Step response time	typ. 700 ms
Accuracy	0.5 % FSR
Temperature coefficient	≤ 200 ppm/K
Status indicator	LED ON: OK; FLASHING: signal out of range; LED OFF: Error
General data	
Supply voltage	24 V DC ± 10 %
Current consumption	40 mA @ I _{OUT} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Ambient temperature / Storage temperature	0 °C...+50 °C / -20 °C...+70 °C
Default setting	0...5 A AC, 4...20 mA
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Pollution severity	2
Overvoltage category	III
Clearance & creepage distances	≥ 5.5 mm
Insulation voltage	4 kV _{eff} / 5 s

Screw connection		Tension clamp connection	
2.5 / 0.5 / 2.5	72 / 22.5 / 92.4	1.5 / 0.5 / 2.5	72 / 22.5 / 92.4

Screw connection		Tension clamp connection	
2.5 / 0.5 / 2.5	72 / 22.5 / 92.4	1.5 / 0.5 / 2.5	72 / 22.5 / 92.4

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

Screw connection	WAS1 CMA 1/5/10A ac	1	8523400000
Tension clamp connection	WAZ1 CMA 1/5/10A ac	1	8523410000

Note

Accessories

Cross-connectors for power supplies and markers – refer to Accessories

Type	Qty.	Order No.
WAS1 CMA 1/5/10A ac	1	8523400000
WAZ1 CMA 1/5/10A ac	1	8523410000

Note

Cross-connectors for power supplies and markers – refer to Accessories

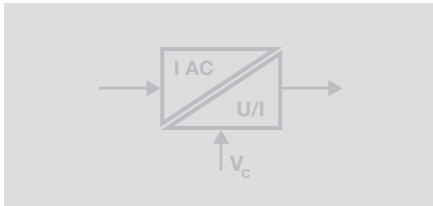
Type	Qty.	Order No.
WAS1 CMA LP 1/5/10A ac	1	8528650000
WAZ1 CMA LP 1/5/10A ac	1	8528660000

Note

Cross-connectors for power supplies and markers – refer to Accessories

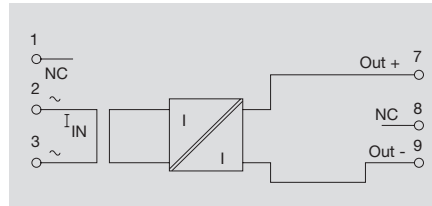
Analogue output

- Galvanic isolation between input / output
- Input and output ranges adjustable via DIP switch
- No calibration required
- ATEX II 3 G nL IIC T4
- UL Class I, Div.2



1/5/10 A AC 4...20 mA

Loop-powered



Technical data

Input	
Input current	0...1 A AC/ 0...5 A AC/ 0...10 A AC
Input frequency	50...60 Hz
Max. current	100 A for 1s
Voltage of measuring circuit	250 V AC
Sensor	Transforming (internally)
Output	
Output current / Output voltage	Current loop /
Offset current	max. 100 µA
Output signal limit	Approx. 24 mA
Load impedance, voltage/current	/ ≤ 600 Ω
Step response time	typ. 700 ms
Accuracy	0.5 % FSR
Temperature coefficient	≤ 200 ppm/K
Status indicator	LED ON: OK; FLASHING: signal out of range; LED OFF: Error
General data	
Supply voltage	13...30 V DC
Current consumption	
Current-carrying capacity of cross-connect.	
Ambient temperature / Storage temperature	0 °C...+50 °C / -20 °C...+70 °C
Default setting	0...5 A AC, 4...20 mA
Approvals	cULus; CE; cULusEX; ATEX
Insulation coordination	
Standards	EN 50178 (secure separation)
EMC standards	EN 55011, EN 61000-6
Rated voltage	300 V
Impulse withstand voltage	6 kV
Pollution severity	2
Overvoltage category	III
Clearance & creepage distances	≥ 5.5 mm
Insulation voltage	4 kV _{eff} / 5 s

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
72 / 22.5 / 92.4	72 / 22.5 / 92.4

Ordering data

	Screw connection
	Tension clamp connection

Type	Qty.	Order No.
WAS1 CMA LP 1/5/10A EX	1	8975590000
WAZ1 CMA LP 1/5/10A EX	1	8975610000

Note

Accessories

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Cross-connectors for power supplies and markers – refer to Accessories
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CMA - Current monitoring

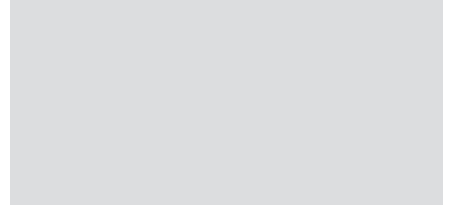
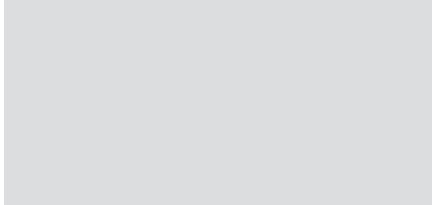
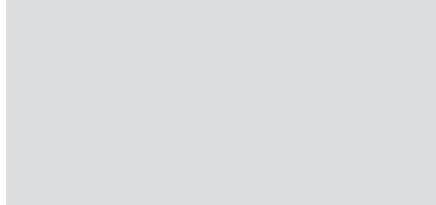
Analogue output

- Max. conductor diameter 35 mm
- Can be mounted side by side
- For mounting on TS 35 rail

CMA 100/5 A



CMA 250/5 A



Technical data

Input
Input current
Input frequency
Max. current
Voltage of measuring circuit
Diameter of cable feed-through
Output
Output current
Load impedance, voltage/current
Accuracy
General data
Ambient temperature
Storage temperature
Approvals
Insulation coordination
Insulation voltage

100 A AC
Class 1: 50...60Hz
Class 1.5: 16...400Hz
Thermal current $I_{th} > 3$ kA
600 V _{eff} (non-insulated wire)
35 mm
5 A AC
/ ≤ 600 Ω
Class 1 / 1.5; residual current factor < 5
-5 °C...+40 °C
-40 °C...+85 °C
GOSTME25; CE
4 kV _{eff} / 1 min.

250 A AC
Class 1: 50...60Hz
Class 1.5: 16...400Hz
Thermal current $I_{th} > 3$ kA
600 V _{eff} (non-insulated wire)
35 mm
5 A AC
/ ≤ 600 Ω
Class 1 / 1.5; residual current factor < 5
-5 °C...+40 °C
-40 °C...+85 °C
GOSTME25; CE
4 kV _{eff} / 1 min.

Dimensions	
Clamping range (nominal / min. / max.)	
Length x width x height	mm
Note	

Clamping yoke connection (secondary)
50 / 78 / 90.5

Clamping yoke connection (secondary)
50 / 78 / 90.5

Ordering data

Clamping yoke connection (secondary)

Type	Qty.	Order No.
CMA 100/5A	1	8662140000

Type	Qty.	Order No.
CMA 250/5A	1	8664570000

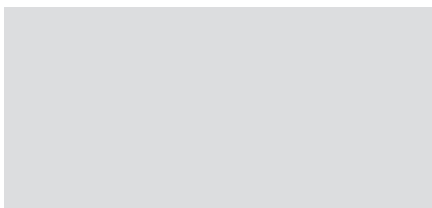
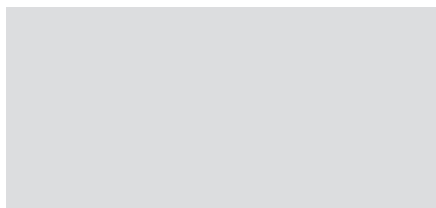
Note

Accessories

Analogue output

- Max. conductor diameter 35 mm
- Can be mounted side by side
- For mounting on TS 35 rail

CMA 500/5 A



Technical data

Input
Input current
Input frequency
Max. current
Voltage of measuring circuit
Diameter of cable feed-through
Output
Output current
Load impedance, voltage/current
Accuracy
General data
Ambient temperature
Storage temperature
Approvals
Insulation coordination
Insulation voltage

500 A AC
Class 1: 50...60Hz
Class 1.5: 16...400Hz
Thermal current $I_{th} > 3$ kA
600 V _{eff} (non-insulated wire)
35 mm
5 A AC
/ ≤ 600 Ω
Class 1 / 1.5; residual current factor < 5
-5 °C...+40 °C
-40 °C...+85 °C
GOSTME25; CE
4 kV _{eff} / 1 min.

Dimensions	
Clamping range (nominal / min. / max.)	
Length x width x height	mm
Note	

Clamping yoke connection (secondary)
50 / 78 / 90.5

Ordering data

Clamping yoke connection (secondary)

Type	Qty.	Order No.
CMA 500/5A	1	8664580000

Note

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Accessories

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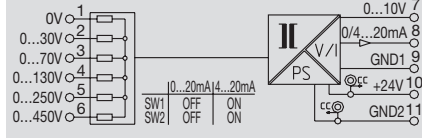
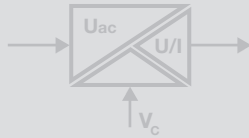
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WAVESERIES - Voltage monitoring

Analogue output

- 3-way isolation
- Max. measuring voltage 450 V AC_{eff}
- Output ranges selectable via DIP switch
- No calibration necessary

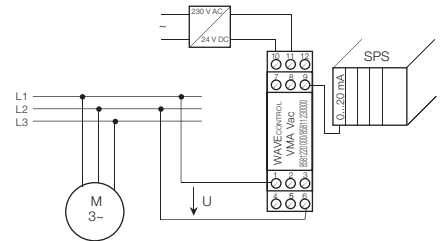
VMA V AC



Technical data

Input	0...30 / 0...70 / 0...130 / 0...250 / 0...450 V AC
Input voltage	40...400 Hz sinus
Input frequency	45 / 100 / 180 / 270 / 475 V AC (briefly)
Max. voltage	
Output	0...10 V / 0(4)...20 mA
Output voltage / Output current	max. 0.02 V / max. 40 µA
Offset voltage / Offset current	≥ 1 kΩ / ≤ 600 Ω
Load impedance, voltage/current	1,3 % (40...60 Hz) typ. 1 %; 2% (70...400 Hz) typ. 1,5 %
Accuracy	≤ 250 ppm/K
Temperature coefficient	< 300 ms
Step response time	Green LED
Status indicator	
General data	
Supply voltage	24 V DC ± 25 %
Current consumption	40...30...24 mA @ I _{out} = 20 mA
Current-carrying capacity of cross-connect.	≤ 2 A
Default setting	0...10V / 0...20mA
Ambient temperature / Storage temperature	0 °C...+50 °C / -20 °C...+70 °C
Approvals	cULus; CE
Insulation coordination	
Standards	EN 50178
EMC standards	EN 61000-2-6, EN 61000-6, EN 61326
Rated voltage	supply/output: 300 V; input/output, supply/output: 600 V
Impulse withstand voltage	Supply/output: 4 kV; input/output, supply/output: 6kV
Insulation voltage	4 kV _{eff} / 5 s
Overvoltage category	III
Pollution severity	2
Clearance & creepage distances	Supply/output: 3 mm; input/output, supply/output: 5.5 mm

Application



Dimensions

Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm

Note

Screw connection

2.5 / 0.5 / 2.5
92.4 / 22.5 / 112.4

Tension clamp connection

1.5 / 0.5 / 2.5
92.4 / 22.5 / 112.4

Ordering data

Screw connection
Tension clamp connection

Type	Qty.	Order No.
WAS2 VMA V ac	1	8581220000
WAZ2 VMA V ac	1	8581230000

Note

Accessories

Cross-connector for power supplies and markers – refer to Accessories