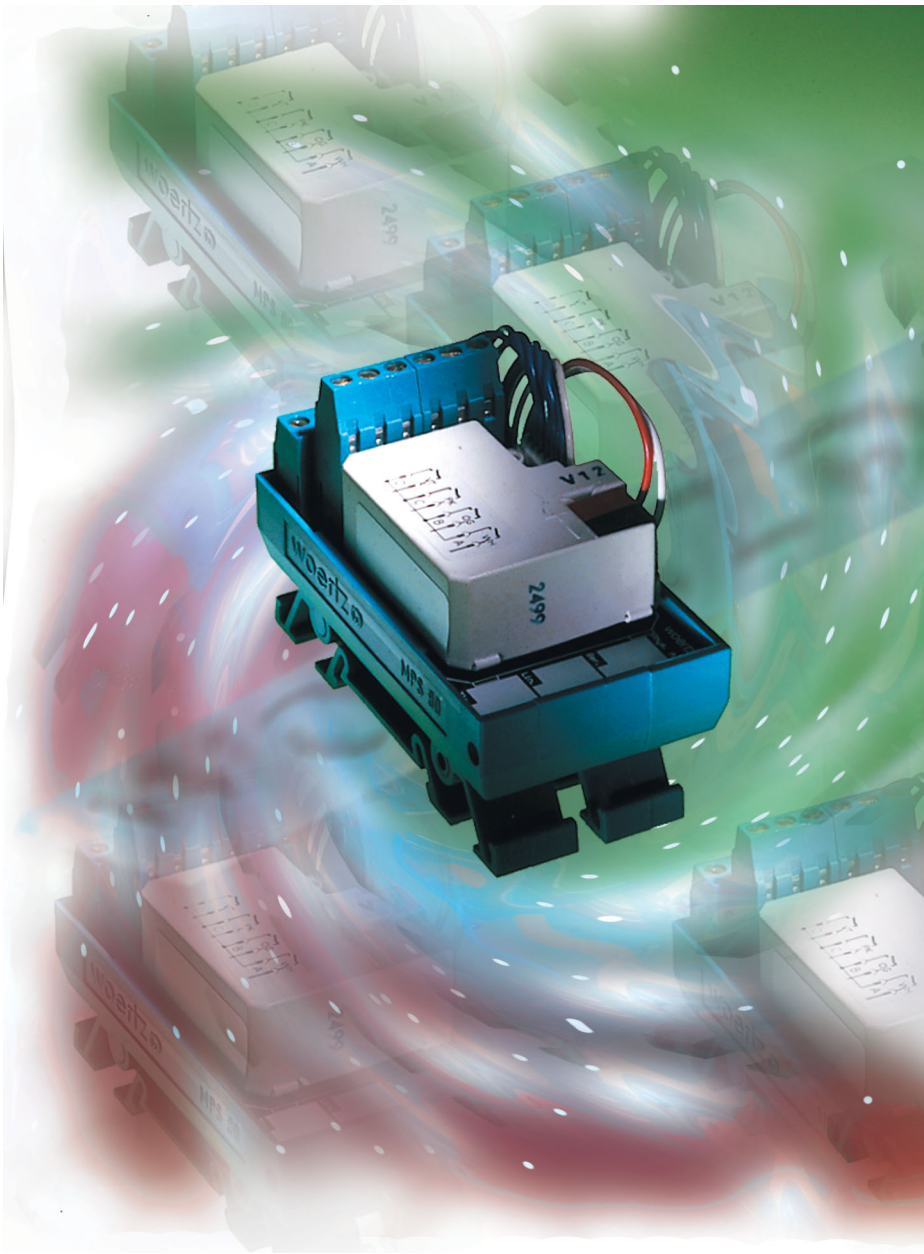
woertz




# APPLICATIONS

Woertz AG
Hofackerstrasse 47, P.O. Box 948, CH-4132 Muttenz 1, Switzerland
Tel. + +41 61 / 466 33 33, Fax + +41 61 / 461 96 06
http://www.woertz.ch

Woertz-USA
151 Discovery Drive, Unit 111
Colmar PA 18915
Tel. (215) 997 8855, Fax (800) 522-3868
http://www.woertz-usa.com, e-mail: woertz1@erols.com

# Modules for specific applications

## Introduction

This brochure contains modules with specific functions belonging to none of the other module series.
For instance there are analog converters designed for:

- converting potentiometer or temperature sensor values into analog voltages,
- isolation of analog signals (0-10 V, 0-20 mA, 4-20 mA)
- adding or subtracting voltages, etc.

Interface converters which convert full duplex from RS232 to RS485 and vice versa also belong to this range of modules. Another example is the inverter module for digital signals.

Our do-it-yourself modules with general PCB with or without solder tags suit applications where discreet components need to be integrated in a system. They can easily be clipped onto DIN rail and interfaced over PCB terminals. Modules for EIB interfaces are also available.

Mounting switches on DIN rail is possible thanks to our space saving switch terminals.

Our range of modules for specific applications is so wide that it was not possible to show the whole range in this brochure. We are therefore pleased to provide you a service adapted to your requirements. If you need a special module with defined features or you would like to exchange an existing unit, we are able both to develop and manufacture the module you need.
Please contact us, we would be pleased to help you.

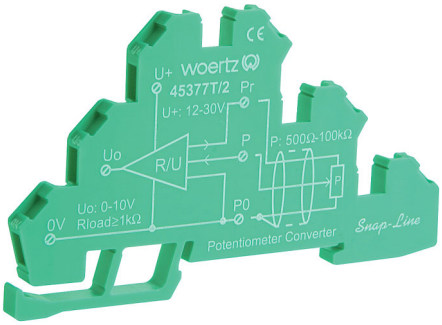
## Properties

- 3-wire potentiometer / 0-10V converter
- Not isolated (common negative terminal)
- Integrated low-pass filter suppresses disturbance
- Output protected against overvoltage and short-circuit
- Wide supply voltage range
- Wide range of potentiometers
- LED indicating on-state
- On request: 2-wire version, higher accuracy, wider temperature range

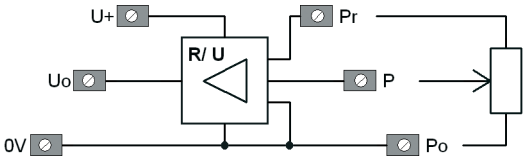
## Accessories

| | |
|---|---|
| 30407T | End barrier |
| 30403 | Compatible 3-level terminal |
| 30413RO | Cross connection 20-pole red |
| 30413BL | Cross connection 20-pole blue |
| 30790 | Cross connection 10-pole grey |
| 81535/x | Insulated cross connections w. screws x = 2, 3, 4, 5, 10 poles |
| 30411, 12 | Isolation strip red, blue |
| 80247, 48 | Test plug red, black |
| 35455/55xx | Labels for custom use RB / 5 x 5 |

## Technical data ($T_a$ = 25°C)




45377T/2




| | |
|---|---|
| **Supply** | |
| Supply voltage | 12 - 30 V DC |
| Supply current (without load) | 40 mA (at U + = 24 V)<br>30 mA (at U + = 12 V) |
| **Converter** | |
| Potentiometer range | 500 Ω - 100 kΩ<br>(higher resistance possible with lower accuracy) |
| Output voltage | 0 - 10 V |
| Conversion error | < 0.5 % (50 mV) (typ. < 0.2%) |
| Minimum load | 1 kΩ |
| Low-pass filter | 10 Hz |
| Output protection | 11 V |
| Reference voltage for potentiometer | 5 V |
| **General data** | |
| Operating temperature range | 0°C up to + 45°C |
| Rated cross section of connecting terminals | 2.5 mm² (AWG 24 - 14) |
| Max. torque | 0.4 Nm |
| Size W x H x D (from rail) | 5.08 x 86.5 x 44 mm |

## Order numbers

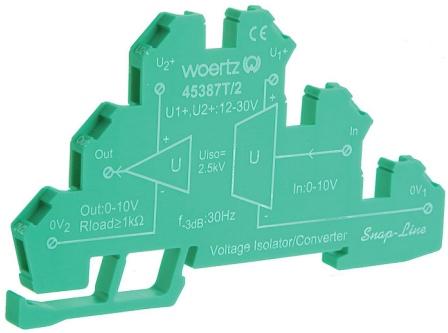
45377T/2

# Analog converter / Filter / Isolator

## SnapLine U/U and I/U separation converter, output: 0-10V

### Properties

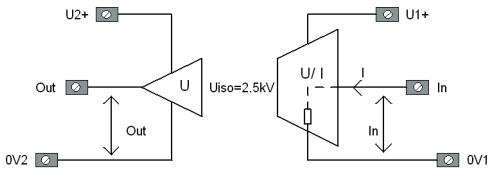
- 5.08mm Snap-Line terminal with an integrated isolation amplifier
- Industrial standard inputs: 0 - 20 mA, 4 - 20 mA and 0 - 10 V. Output: 0 - 10 V
- Standard version with low pass filter for suppression of 50-60 Hz and other noise
- Fast (F) version with a cut frequency of about 20kHz for high speed applications
- Wide supply voltage range
- High isolation voltage




45387T/2

### Accessories

| | |
|---|---|
| 30407T | End barrier |
| 30403 | Compatible 3-level terminal |
| 30413RO | Cross connection 20-pole red |
| 30413BL | Cross connection 20-pole blue |
| 30790 | Cross connection 10-pole grey |
| 81535/x | Insulated cross connections w. screws x = 2, 3, 4, 5, 10 poles |
| 30411, 12 | Isolation strip red, blue |
| 80247, 48 | Test plug red, black |
| 35455/55xx | Labels for custom use RB / 5 x 5 |




### Technical data ($T_a$ = 25°C)

| | Input 0 - 10 V | Input 0 - 20 mA | Input 4 - 20 mA |
|---|---|---|---|
| **Supply** | | | |
| Supply voltage (input and output) | 12 - 30 V DC | 12 - 30 V DC | 12 - 30 V DC |
| Supply current input ($U_1$ + = 24 V) | max. 20 mA | max. 20 mA | max. 20 mA |
| Supply current output ($U_2$ + = 24 V), without load | max. 5 mA | max. 5 mA | max. 5 mA |
| **Converter** | | | |
| Input range | 0 - 10 V DC | 0 - 20 mA | 4 - 20 mA |
| Output voltage range | 0 - 10 V DC | 0 - 10 V DC | 0 - 10 V DC |
| Input impedance | 1 MΩ | 47 Ω | 47 Ω |
| Conversion error | < 0.5 % (50 mV) (typ. < 0.2 %) | < 0.5 % (50 mV) (typ. < 0.2 %) | < 0.5 % (50 mV) (typ. < 0.2 %) |
| Min. output load | 1 kΩ | 1 kΩ | 1 kΩ |
| Cut frequency of standard version | 30 Hz | 30 Hz | 30 Hz |
| Cut frequency of fast version (F) | 20 kHz | 20 kHz | 20 kHz |
| Overvoltage protection at the output | 11 V | 11 V | 11 V |
| Input / output dielectric strength | 2.5 kV | 2.5 kV | 2.5 kV |
| Input / output creepage distance | 1.5 mm | 1.5 mm | 1.5 mm |
| **General data** | | | |
| Operating temperature range | 0°C up to +45°C | 0°C up to +45°C | 0°C up to +45°C |
| Rated cross section of connecting terminals | 2.5 mm² (AWG 24 - 14) | 2.5 mm² (AWG 24 - 14) | 2.5 mm² (AWG 24 - 14) |
| Max. torque | 0.4 Nm | 0.4 Nm | 0.4 Nm |
| Size W x H x D (from rail) | 5.08 x 86.5 x 44 mm | 5.08 x 86.5 x 44 mm | 5.08 x 86.5 x 44 mm |
| **Order numbers** | | | |
| Standard version | **45387T/2** | **45388T/2** | **45389T/2** |
| Fast version | **45387T/2F** | **45388T/2F** | **45389T/2F** |

### On request

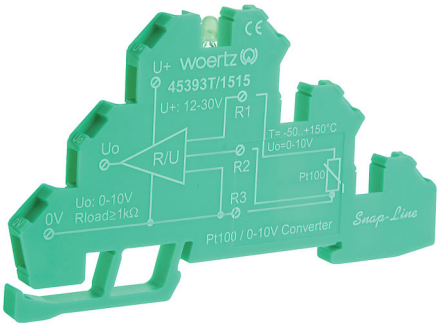
Other input and output voltages and higher accuracy



woertz

## Properties

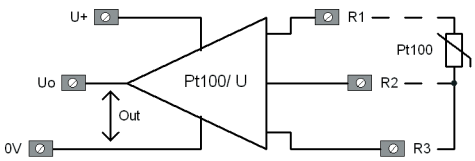
- 5.08mm SnapLine terminal with a Pt100/U Converter 0-10V.
- Integrated low pass filter for suppression of 50-60 Hz and other noise.
- Low current through the sensor reduces self heating
- Wide supply voltage range
- If a 2-wire sensor is used: connect R2 and R3 together.




**45393T/1515**

## Accessories

| | |
|---|---|
| 30407T | End barrier |
| 30403 | Compatible 3-level terminal |
| 30413RO | Cross connection 20-pole red |
| 30413BL | Cross connection 20-pole blue |
| 30790 | Cross connection 10-pole grey |
| 81535/x | Insulated cross connections w. screws x = 2, 3, 4, 5, 10 poles |
| 30411, 12 | Isolation strip red, blue |
| 80247, 48 | Test plug red, black |
| 35455/55xx | Labels for custom use RB / 5 x 5 |




## Technical data ($T_a$ = 25°C)

| | |
|---|---|
| **Supply** | |
| Supply voltage | 12 - 30 V DC |
| Supply current (Pt100 connected) | max. 25 mA (U+ = 24 V) |
| **Converter** | |
| Temperature range | see table below |
| Output voltage | 0 - 10 V |
| Sensor current (approx.) | 1 mA |
| Conversion error | < 0.5 % (50 mV) (typ. < 0.2 %) |
| Min. output load | 1 kΩ |
| Low pass filter cut frequency | 12 Hz |
| Overvoltage protection at the output | 12 V |
| **General data** | |
| Operating temperature range | 0°C up to +45°C |
| Rated cross section of connecting terminals | 2.5 mm² (AWG 24 - 14) |
| Max. torque | 0.4 Nm |
| Size W x H x D (from rail) | 5.08 x 86.5 x 44 mm |

## Order numbers

| | |
|---|---|
| -50°C up to +150°C | **45393T/1515** |
| -50°C up to +50°C | **45393T/155** |
| -20°C up to +60°C | **45393T/126** |
| 0°C up to +50°C | **45393T/005** |
| 0°C up to +100°C | **45393T/0010** |
| 0°C up to +150°C | **45393T/0015** |
| 0°C up to +200°C | **45393T/0020** |
| 0°C up to +300°C | **45393T/0030** |
| 0°C up to +600°C | **45393T/0060** |

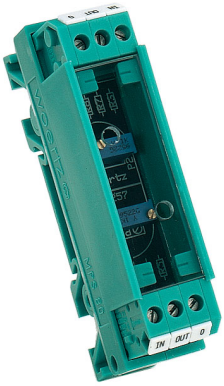
## On request

Other temperature range, higher accuracy, other sensors (eg. Pt1000)

# Potentiometer modules

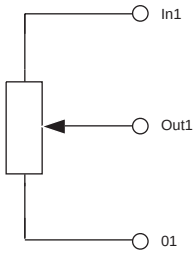
## Properties

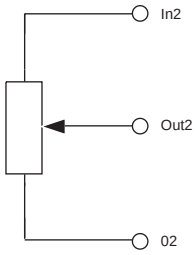
- Two independent trimming potentiometers
- Permissible dissipated power($P_{max}$) applies to the whole potentiometer: for parts, decrease proportionally the power.
- $U_{max} = \sqrt{(P_{max} * R_{nom})}$
- $I_{max} = \sqrt{(P_{max} / R_{nom})}$



45257B/102

45258B/102




## Technical data

| | Trimming potentiometer 25 turns | Trim. potentiometer: single turn, angle of rotation 270° |
|---|---|---|
| Number of channels | 2 | 2 |
| Potentiometer | 25 turns | 270° angle of rotation |
| Power of potentiometer | 0.5 W / 70°C | 1 W / 40°C |
| Tolerance | ± 10 % | ± 20 % |
| Operating temperature | -55°C up to +125°C | -40°C up to +125°C |
| Temperature coefficient | 100 ppm / K | 200 ppm / K |
| Size W x H x D | 20 x 83 x 43 mm | 20 x 83 x 49 mm |
| Adjustment of potentiometer | With screw-driver No. 0 | With screw-driver No. 2 or manually. |

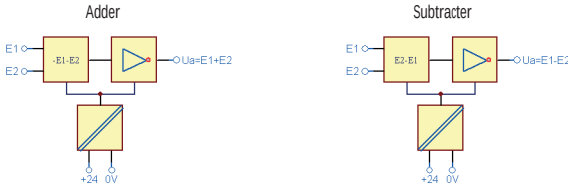
## Order numbers

| | | |
|---|---|---|
| 50 Ω | 45257B/500 | |
| 100 Ω | 45257B/101 | 45258B/101 |
| 200 Ω / 220 Ω | 45257B/201 | 45258B/221 |
| 500 Ω / 470 Ω | 45257B/501 | 45258B/471 |
| 1 kΩ | 45257B/102 | 45258B/102 |
| 2 kΩ / 2.2 kΩ | 45257B/202 | 45258B/222 |
| 5 kΩ / 4.7 kΩ | 45257B/502 | 45258B/472 |
| 10 kΩ | 45257B/103 | 45258B/103 |
| 20 kΩ / 22 kΩ | 45257B/203 | 45258B/223 |
| 50 kΩ / 47 kΩ | 45257B/503 | 45258B/473 |
| 100 kΩ | 45257B/104 | 45258B/104 |

## Properties

- Two independent adders or subtracters on one module
- LED indicating supply voltage
- Isolated supply voltage


45249Q/1




45249Q/1 45249Q/2

## Technical data

| | |
|---|---|
| Number of channels | 2 |
| Inputs per channel | 2 |
| Supply voltage | 24 V DC (23 - 27 V DC) |
| Input voltage | 0 ... 10 V |
| Input impedance | 10 kΩ |
| Max. output voltage | 10 V |
| Accuracy | ± 2 %, ± 20 mV |
| Load current | max. 10 mA |
| Limit frequency | 6 kHz |
| Operating temperature range | -20°C up to +40°C |
| Size L x W x H (from rail) | 40 x 83 x 65 mm |

## Order numbers

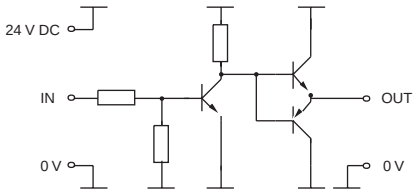
| | |
|---|---|
| Adder | **45249Q/1** |
| Subtracter | **45249Q/2** |

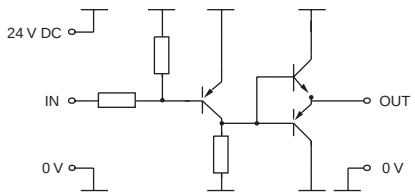
## Properties

- Used as logical state inverters
- Available in two versions: for PNP or NPN (open collector) sensors

45215A/1

45215A/2




## Technical data

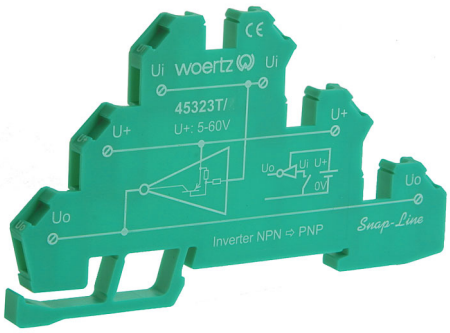
| | Active positive input | Active negative input |
|---|---|---|
| Number of channels | 5 | 5 |
| Rated voltage | 12 - 60 V DC | 12 - 60 V DC |
| On voltage | 6 V DC | $U_{rated}$ - 6 V DC |
| Off voltage | 2 V DC | $U_{rated}$ - 2 V DC |
| Max. frequency | 10 kHz | 10 kHz |
| Input impedance | > 100 kΩ | > 100 kΩ |
| Output current per channel | 20 mA | 20 mA |
| Size W x H x D | 50 x 83 x 44 mm | 50 x 83 x 44 mm |
| | For PNP proximity switches or any output with an active positive signal; i.e. if the input at the inverter module is open, the logical output state will be “1”. | For NPN proximity switches or any output with an active negative signal; i.e. if the input at the inverter module is open, the logical output state will be “0”. |

## Order numbers

| Active positive input | Active negative input |
|---|---|
| 45215A/1 | 45215A/2 |

## Properties

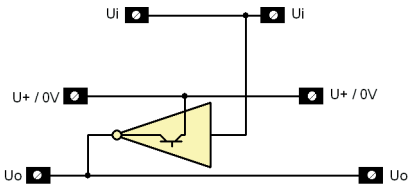
- In terminal housing, 5.08 mm wide
- Easy 2-wire configuration
- Open collector output
- Suitable as proximity switch inverter: PNP/NPN or NPN/PNP
- Wide supply voltage range
- High input resistance
- Can be used as power driver interface for CMOS or TTL circuits

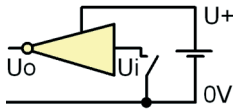



45323T/NP

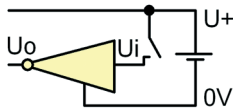
## Accessories

| | |
|---|---|
| 30407T | End barrier |
| 30403 | Compatible 3-level terminal |
| 30413RO | Cross connection 20-pole red |
| 30413BL | Cross connection 20-pole blue |
| 30790 | Cross connection 10-pole grey |
| 81535/x | Insulated cross connections w. screws x = 2, 3, 4, 5, 10 poles |
| 30411, 12 | Isolation strip red, blue |
| 80247, 48 | Test plug red, black |
| 35455/55xx | Labels for custom use RB 5 x 5 |




45323T/NP
NPN to PNP




45323T/PN
PNP to NPN

## Technical data ($T_a$ = 25°C)

| | |
|---|---|
| Supply voltage ($U_N$) | 5 - 60 V DC |
| **Output** | |
| Voltage drop over output switch (i = 30 mA) | 1 V |
| Max. transmission frequency (res. load, DC = 50%, i = 30 mA) | 5 kHz |
| Max. output current, sink (45323T/PN) or source (45323T/NP) | 100 mA |
| **Input** | |
| Min. input impedance | 12 kΩ |
| Voltage between Ui and U+/0V terminals for secure on level (i = 10mA) | > 2.5 V |
| **General data** | |
| Max. terminal current | 10 A |
| Operating temperature range | -40 °C up to + 70 °C |
| Rated cross section of connecting terminals | 2.5 mm² (AWG 24 - 14) |
| Max. torque | 0.4 Nm |
| Size L x W x H (from rail) | 5.08 x 86.5 x 44 mm |

## Order numbers

| | |
|---|---|
| "0 V" to "U+" out inverter (NPN to PNP) | **45323T/NP** |
| "U+" to "0 V" out inverter (PNP to NPN) | **45323T/PN** |

## On request

Higher voltage range, higher output current or other input impedance

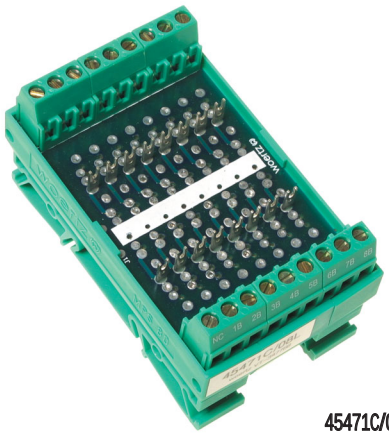
# Do-it-yourself modules with general PCB

## 4 poles and 8 poles

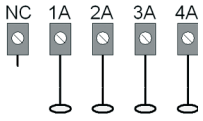
### Properties

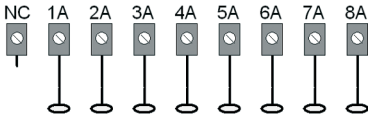
- Modules with a general PCB for customer equipped electronic components
- For service voltages > 42 VDC the modules have to be provided with a cover (protection against accidental contact)
- With solder tags: the mounting of electronic components can be made rapidly and professionally
- Without solder tags: components can be soldered from the top side without removing the base (double-sided printed circuit board).
  A common source connection (com) is available
- Module with marking area
- On request: solder tags with common connection (distance of 0.5 inch)

45471C/04



45471C/08L




### Accessories

| | |
|---|---|
| 30413RO | Cross connection 20-pole red |
| 30413BL | Cross connection 20-pole blue |

### Technical data

| | 4-pole | 8-pole |
|---|---|---|
| **Versions without cover** | | |
| Operating voltage | max. 42 V DC | max. 42 V DC |
| Load current | max. 8 A | max. 8 A |
| Mounting hole diameters | 1 mm. resp. 1.3 mm | 1 mm. resp. 1.3 mm |
| Rated cross section of connecting terminals | 2.5 mm² | 2.5 mm² |
| Distance between the solder tags | 1.1 inch (27.94 mm) | 1.1 inch (27.94 mm) |
| For components with a pin spacing of | 0.2 - 1.6 and 1.8 inch | 0.2 - 1.6 and 1.8 inch |
| Size W x H x D (from rail) | 30 x 83 x 40 mm | 50 x 83 x 40 mm |
| **Versions with cover** | | |
| Operating voltage | up to 250 V AC | up to 250 V AC |
| Load current | max. 8 A | max. 8 A |
| Mounting hole diameters | 1 mm, resp. 1.3 mm | 1 mm, resp. 1.3 mm |
| Rated cross section of connecting terminals | 2.5 mm² | 2.5 mm² |
| Distance between the solder tags | 1.1 inch (27.94 mm) | 1.1 inch (27.94 mm) |
| For components with a pin spacing of | 0.2 - 1.6 and 1.8 inch | 0.2 - 1.6 and 1.8 inch |
| Size W x H x D (from rail) | 30 x 83 x 40 mm | 50 x 83 x 40 mm |

### Order numbers

| | | |
|---|---|---|
| Without solder tags | **45471C/04** | **45471C/08** |
| With solder tags | **45471C/04L** | **45471C/08L** |
| Without solder tags, with cover | **45471B/04** | **45471B/08** |
| With solder tags, with cover | **45471B/04L** | **45471B/08L** |



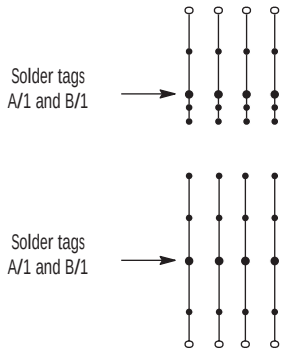
woertz

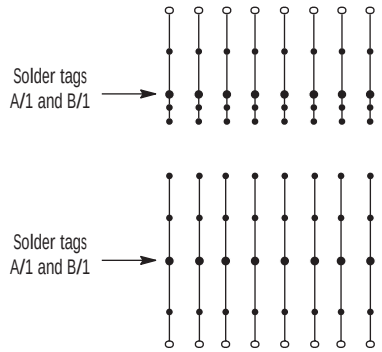
## Properties

- To fit out with electronic components
- At voltages higher than 42 V DC, modules must be protected by means of a cover
- For the version fitted with solder tags, it is possible to weld components without removing the cover


45124A/1


45125B




## Technical data

| | | 4-pole | 8-pole |
|---|---|---|---|
| Operating voltage | without cover | up to 42 V DC | up to 42 V DC |
| | with cover | up to 250 V AC | up to 250 V AC |
| Admissible load | | max. 8 A | max. 8 A |
| Rated cross section of connecting terminals | | 2.5 mm² | 2.5 mm² |
| Diameter of borings | | 1.0 mm (1.3 mm) | 1.0 mm (1.3 mm) |
| Size W x H x D | | 30 x 83 x 44 mm | 50 x 83 x 44 mm |
| Distance between borings | | 10.2 / 12.7 / 15.2 / 17.8 / 20.3 / 22.9 / 25.4 / 27.9 / 30.5 / 34.4 / 36.9 / 39.5 / 47.1 mm | 10.2 / 12.7 / 15.2 / 17.8 / 20.3 / 22.9 / 25.4 / 27.9 / 30.5 / 34.4 / 36.9 / 39.5 / 47.1 mm |
| Distance between solder tags | | 30.5 mm | 30.5 mm |

## Order numbers

| | 4-pole | 8-pole |
|---|---|---|
| Without solder tags | | 45125A |
| With solder tags | 45124A/1 | 45125A/1 |
| Without solder tags, with cover | | 45125B |
| With solder tags, with cover | 45124B/1 | |

# Mounting modules

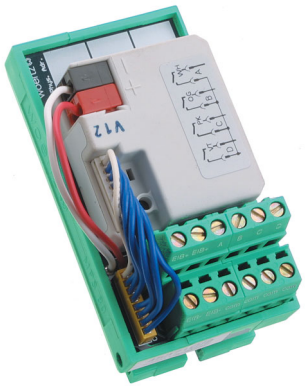
for quadruple EIB pushbutton units (not delivered with the module)

## Properties

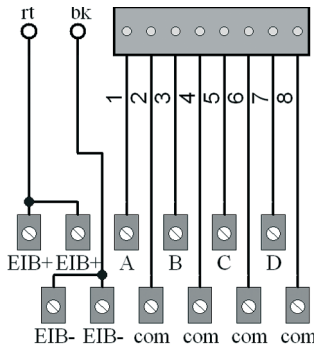
- Cost saving way of mounting an EIB push button interface on rails according to EN 60715 TH 35-7.5 and EN 60715 TH 35-15
- Wiring over screw terminals with white printing
- Two bus terminals enable bus lines to be easily connected in case of several interfaces
- With white marking areas for addressing
- The programming button remain accessible even if several modules are placed side by side
- The modules may be covered by protecting plates with 45 mm standard opening
- The interfaces are mounted on the modules by means of adhesive tape and can be connected right away
- Delivered **without** EIB interface

## Accessories

45294/20 Marking label 10 x 20 mm
45294/30 Marking label 10 x 30 mm



45371C/2




## Technical data

| | |
|---|---|
| Compatible with following EIB interfaces | Siemens 5WG1 220-2AB01<br>ABB GHQ6050025R0001<br>GIRA 090 556 002<br>and further similar types |
| Connections | 8-pole push-on connector for pushbutton inputs and 2 wires for bus connection |
| Operating temperature (modules) | -40°C up to + 60°C |
| Rated cross section of connecting terminals | 2.5mm² |
| Size L x W x H (from rail) | 45 x 83 x 53 mm |

## Order numbers

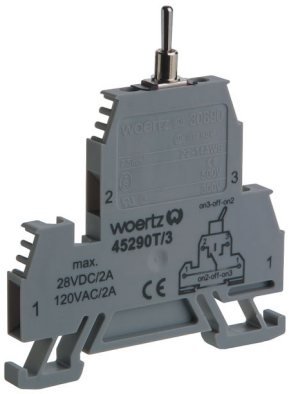
45371C/2

## Properties

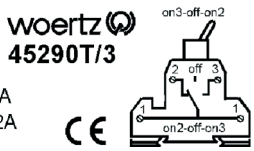
- 6 mm-wide terminals
- Available with ON-ON, ON-OFF-ON or ON-MOM function
- ON-ON version up to 3 A, ON-OFF-ON and ON-MOM versions up to 2 A
- Can be stacked
- An unlimited amount of switches can therefore be mounted on DIN rail
- Available with end barrier (No. 30892*)
- Cross connections available (Art. Nr. 30791)
- Marking feature by means of marking labels (to order separately)

## Accessories

| | |
|---|---|
| 30892 | End barrier |
| 30791 | Cross connection 10-pole grey |
| 3958/RBE6 | Marking strips and labels |




45290T/3


## Technical data

| | |
|---|---|
| Contacts | max. 3 A/120 V AC, 3 A/28 V DC (45290T/2) or 2 A/120 V AC, 2 A/28 V DC (45290T/3, 45290T/28)) |
| Contact material | Ag |
| Resistance of ON contacts | typ. 20 mΩ |
| Mechanical life expectancy | min. 30 000 cycles |
| Operating temperature range | -30°C up to +85°C |
| Rated cross section of connecting terminals | 4 mm² |
| To be clipped on | DIN 35 rail |
| Size L x W x H | 6 x 67 x 71 mm |

## Order numbers

| | |
|---|---|
| ON-ON | **45290T/2** |
| ON-OFF-ON | **45290T/3** |
| ON-MOM | **45290T/28** |

* Important! If high voltages are applied an end barrier (No. 30892) should be placed at the end of the terminal block for protection against accidental contact and to maintain a certain isolation distance.

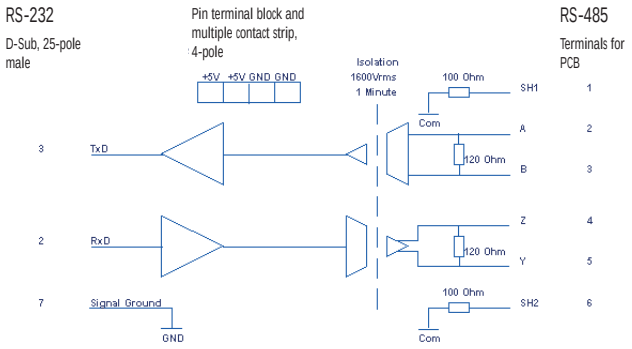
# RS232 - RS485 Converter, isolated

120 kBits/s full duplex

## Properties

- Can be clipped on mounting rails (DIN) to EN 60715 TH 35-7.5 and EN 60715 TH 35-15.
- 120 kBits/s full duplex
- 1600 Vrms isolation
- 5V supply

45489C/1




## Technical data

| | |
|---|---|
| **Supply data** | |
| Supply voltage range | 5 V DC +/- 10% |
| Supply current | about 100 mA |
| Connection | 4-pole PCB connector |
| **RS232 part** | |
| Connection | D-Sub, male, 25-pole |
| ESD | protected +/- 15 kV |
| **RS485 part** | |
| Connection | PCB terminals (6 poles) |
| Integrated termination resistance | 120 Ohm |
| Isolation test voltage | 1600 Vrms, 1 minute |
| **Communication** | |
| Speed | max. 120 kBits/s, full duplex |
| **General data** | |
| Size W x H x D | 60 x 83 x 45 mm |
| Rated cross section of connecting terminals | 2.5 mm² |
| Temperature range | 0 to 45°C |

## Order numbers

45489C/1



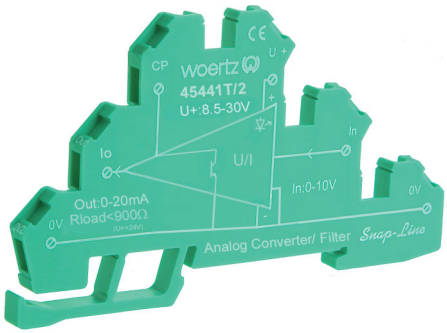
woertz

## Properties

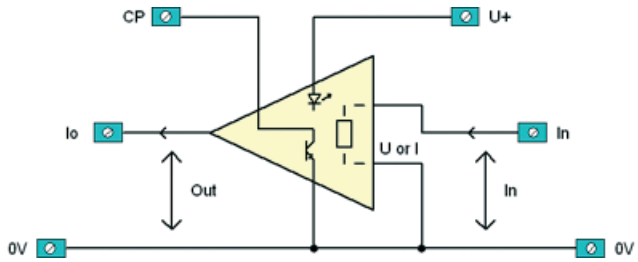
- 5.08 mm SnapLine converter with integrated, non isolated analog converter
- Industrial standard inputs: 0-20 mA, 4-20 mA or 0-10 V, output: 0(4)-20 mA
- Standard version with integrated low-pass filter for suppression of 50 - 60 Hz and other noise
- Alarm output for open output circuit (CP)
- Integrated LED indicating on state
- Wide supply voltage range
- High input impedance for voltage input, low input impedance for current input

## Accessories

| | |
|---|---|
| 30407T | End barrier |
| 30403 | Compatible 3-step terminal |
| 30413RO, BL | Cross connection 20-pole red, blue |
| 30790 | Cross connection 10-pole grey |
| 81535/x | Insulated cross connections w. screws x = 2, 3, 4, 5, 10 poles |
| 30411, 12 | Isolation strip red, blue |
| 80247, 48 | Test plug red, black |
| 35455/55xx | Labels for custom use RB 5 x 5 |




45441T/2




## Technical data

| | Input 0 - 10 V | Input 0 - 20 mA | Input 4 - 20 mA |
|---|---|---|---|
| **Supply** | | | |
| Supply voltage range | 8.5 - 30 V DC | 8.5 - 30 V DC | 8.5 - 30 V DC |
| Max. supply current (20mA load, U + = 24V) | 30 mA | 30 mA | 30 mA |
| **Converter** | | | |
| Input range | 0 - 10 V DC | 0 - 20 mA | 4 - 20 mA |
| Output | 0(4) - 20 mA | 0(4) - 20 mA | 0(4) - 20 mA |
| Input impedance | 100 kΩ | 100 Ω | 100 Ω |
| Conversion error | < 0.5 % (100 µA) (typically < 0.2 %) | < 0.5 % (100 µA) (typically < 0.2 %) | < 0.5 % (100 µA) (typically < 0.2 %) |
| Output load at U + = 24V | max. 750Ω | max. 750Ω | max. 750Ω |
| Output load at U + = 12V | max. 180Ω | max. 180Ω | max. 180Ω |
| Cut frequency of the low-pass filter | about 15 Hz | about 15 Hz | about 15 Hz |
| Output function CP (Current Present) | switch closes towards 0V, if output current > approx. 1 mA | switch closes towards 0V, if output current > approx. 1 mA | switch closes towards 0V, if output current > approx. 1 mA |
| Max. voltage / Min. load resistance at the CP output | 30V / 1kΩ | 30V / 1kΩ | 30V / 1kΩ |
| **General data** | | | |
| Operating temperature range | 0°C up to +45°C | 0°C up to +45°C | 0°C up to +45°C |
| Rated cross section of connecting terminals | 2.5 mm² (AWG 24 - 14) | 2.5 mm² (AWG 24 - 14) | 2.5 mm² (AWG 24 - 14) |
| Max. torque | 0.4 Nm | 0.4 Nm | 0.4 Nm |
| Size W x H x D (from rail) | 5.08 x 86.5 x 44 mm | 5.08 x 86.5 x 44 mm | 5.08 x 86.5 x 44 mm |

## Order numbers

| | | | |
|---|---|---|---|
| 0-20mA Output | **45441T/2** | **45442T/2*** | **45443T/2** |
| 4-20mA Output | **45444T/2** | **45445T/2** | **45442T/2*** |

* both current ranges included

## On request

Wider temperature range, other input or output ranges, higher accuracy
Fast version (F) with higher cut frequency

# Notes

09.2002 / 1'500 E