

### FEATURES

#### Calculating functions:



- Minimum-/ Maximum selector
- Linearization

#### Freely configurable:

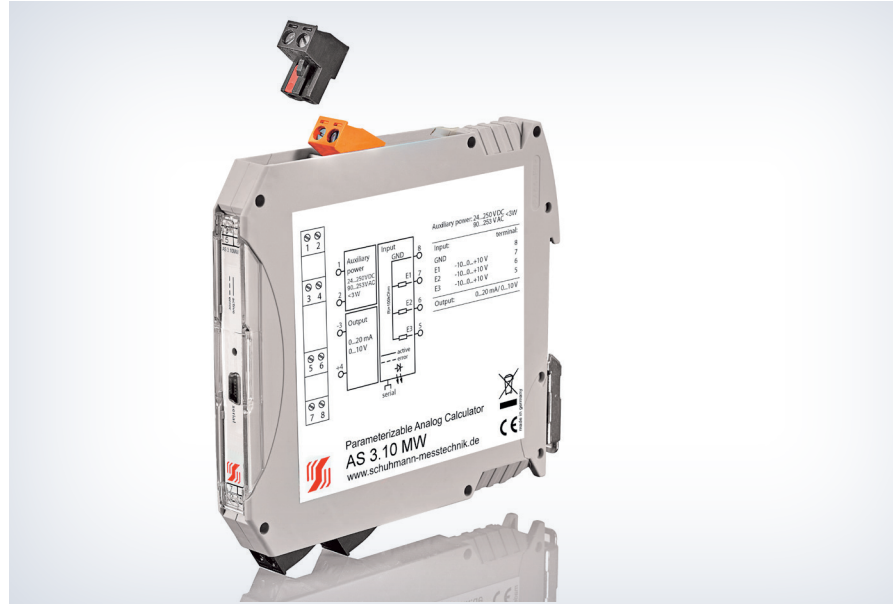
- 3 inputs  $\pm 10$  V
- 1 output 0(4)...20 mA/ 0(2)...10 V

#### Parameterization without auxiliary power via PC-interface

#### Wide range auxiliary power

24...250 V DC/ 90...253 V AC

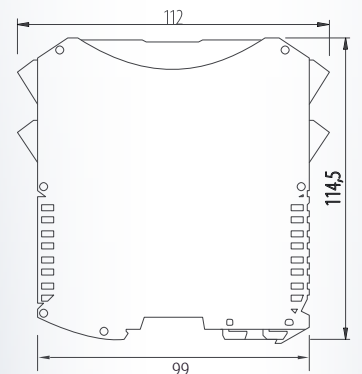
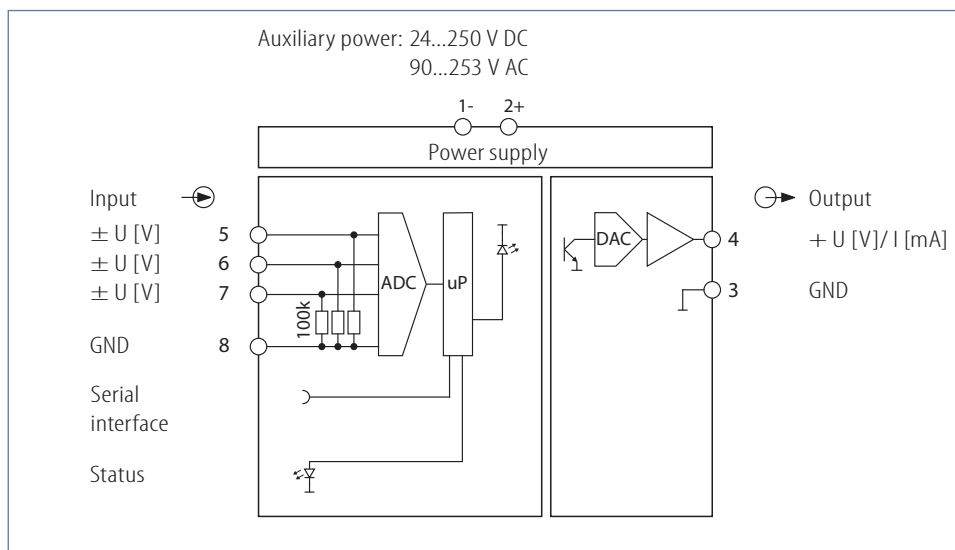
#### Galvanic 3-way isolation of 2,5 kV



### FUNCTION

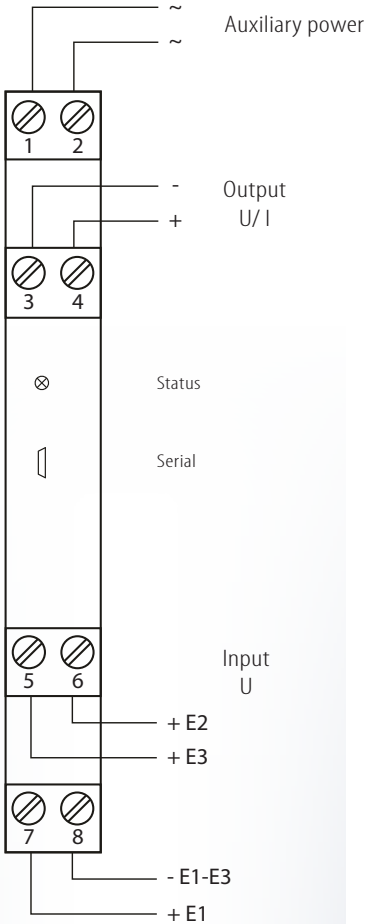
The Analog Calculator is used for calculations such as addition, subtraction and linearization of analog values which as a result have an analog signal in kind of a current or a voltage. Due to its customized setting of all individual input signals, the mode of calculation and the output signal the device has a large range of application. It is equipped with bipolar voltage inputs as well as a current and voltage output.

The AS 3.10 MW is being parameterized by the USB2 adapter in connection with KALIB-Software. The basic calculation units can be selected directly, linearizations are produced by a table of values and a polynomial calculation with optimization. Actual measured values of input and output can also be visualized.



# AS 3.10 MW

Connection diagram:



## Input:

I: DC voltage (bipolar): -10...0...+10 V; input resistance approx. 100 kΩ  
 connection: E1 = terminal 8 -, 7 +; E2 = terminal 8 -, 6 +; E3 = terminal 8 -, 5 +  
 Adjustable per input: range start, range end: -10,25...0...+10,25 V  
 Cut-Off-Min: on falling below this value is set as input  
 Cut-Off-Max: on exceeding this value is set as input  
 error limit Min: on falling below a defined fixed value is set as output  
 error limit Max: on exceeding a defined fixed value is set as output  
 evaluation of input between -100%...0%...+100%  
 (with -100%...0% ⇒ calculated inversion of input)

## Basic calculating:

output = E1 + E2 + E3  
 output = E1 × E2  
 output = E1 / E2  
 output = Min/ Max (E1, E2, E3) (minimum-/ maximum selector)

## Functions:

output = (E1 + E2) / E3  
 output = (E1 + E2) × E3  
 output = f (E1, E2, E3)  
 User-defined functions possible based on pairs of variates (linearization).  
 Other calculation functions on request.

## Output:

I: load-independent DC current: 0(4)...20 mA      permissible load max. 580 Ω  
 connection: terminal 3 -, 4 +

U: load-independent DC voltage: 0(2)...10 V      permissible load ≥ 1 kΩ  
 connection: terminal 3 -, 4 +

The minimum/ maximum limits for current and voltage output are freely selectable and adjustable in clear text. On exceeding or falling below the limits at the output, the specified limit is set at the output (only within the error limits at the input).

## Adjustment:

Measuring ranges and parameterization are adjustable in parameter data by KALIB-Software. You need a PC and the interface adapter USB2 with KALIB-Software.

## Display:

|             |                 |   |
|-------------|-----------------|---|
| LED status: | green, active   | input signals are in standard range, device ready for use         |
|             | green, flashing | input out of predetermined limits or exceeding of measuring range |

## Environmental conditions:

Storage temperature: -40...+70 °C  
 Operating temperature: 0...55 °C  
 Isolation voltage:  
 2,5 kV eff. 1 sec. input-output  
 2,5 kV eff. 1 sec. auxiliary voltage

## Auxiliary power:

Wide range: 24...250 V DC  
 90...253 V AC  
 < 3 W

Influence of auxiliary power: < 0,1 %

## Characteristics of transmission:

Transmission error: < 0,12 %  
 Resolution: 15 bit  
 Linearity error: < 0,1 %  
 Temperature error: < 100 ppm/ K  
 Load influence I: < 50 ppm  
 of final value  
 Load influence U: < 0,2 % at 1 kΩ load  
 Setting time: < 500 msec.

## Directive:

EMC Directive: 2014/30/EU\*  
 Low Voltage Directive: 2014/35/EU  
 \*minimum deviations possible during HF-radiation influence

## Mounting details:

Housing for top hat rail  
 Type of protection: IP 40 housing  
 IP 20 clamps  
 Mounting rail fixed according to  
 EN 50022-35 x 6,2 mm  
 Width: 12,5 mm  
 Weight: 108 g  
 Material: Polyamide PA  
 Flammability class: V0 (UL 94)  
 Approval: CE  
 Connection: plugg. screw clamps  
 0,14...2,5 mm<sup>2</sup>

**For safety reasons we recommend to mount the housing for top hat rail with a distance > 1 mm to each other. Please check parameter before initial operation!**

## Ordering information:

Type: **AS 3.10 MW** wide range  
 Accessories: USB2/ USB-Simulator with KALIB-Software, manual

Schuhmann GmbH & Co. KG  
 Römerstraße 2  
 D-74363 Güglingen  
 Tel. + 49 71 35 50 56  
 E-mail: info@schuhmann-messtechnik.de  
 www.schuhmann-messtechnik.de