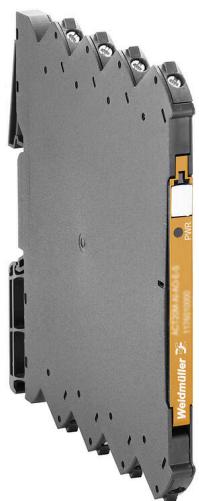


**ACT20M-AI-AO-S**

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergsstraße 26  
D-32758 Detmold  
Germany

[www.weidmueller.com](http://www.weidmueller.com)

**Product image, Similar to illustration****ACT20M: The slim solution**

- Safe and space-saving (6 mm) isolation and conversion
- Quick installation of the power supply unit using the CH20M mounting rail bus
- Easy configuration via DIP switch or FDT/DTM software
- Extensive approvals such as ATEX, IECEX, GL, DNV
- High interference resistance

**General ordering data**

|            |   |
|------------|---|
| Version    | Analogue isolating amplifier, Configurable, with sensor supply, Input : I / U, Output : I / U |
| Order No.  | <a href="#">1176000000</a>  |
| Type       | ACT20M-AI-AO-S  |
| GTIN (EAN) | 4032248970063   |
| Qty.       | 1 items   |

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## Technical data

## Approvals

## Approvals



|                         |                            |
|-------------------------|----------------------------|
| ROHS                    | Conform                    |
| UL File Number Search   | <a href="#">UL Website</a> |
| Certificate no. (cULus) | E337701                    |

## Dimensions and weights

|            |          |                 |             |
|------------|----------|-----------------|-------------|
| Depth      | 114.3 mm | Depth (inches)  | 4.5 inch    |
| Height     | 112.5 mm | Height (inches) | 4.4291 inch |
| Width      | 6.1 mm   | Width (inches)  | 0.2402 inch |
| Net weight | 80 g     |                 |             |

## Temperatures

|                                   |                            |                       |   |
|-----------------------------------|----------------------------|-----------------------|---|
| Storage temperature               | -40 °C...85 °C             | Operating temperature | -25 °C...70 °C                              |
| Humidity at operating temperature | 0...95 % (no condensation) | Humidity              | 40 °C / 93 % rel. humidity, no condensation |

## Probability of failure

|                                  |      |      |         |
|----------------------------------|------|------|---------|
| SIL in compliance with IEC 61508 | None | MTBF | 78572 a |
|----------------------------------|------|------|---------|

## Environmental Product Compliance

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| RoHS Compliance Status               | Compliant with exemption             |
| RoHS Exemption (if applicable/known) | 7a, 7cl                              |
| REACH SVHC                           | Lead 7439-92-1                       |
| SCIP                                 | 2f6dd957-421a-46db-a0c2-cf1609156924 |

## Input

|                           |   |                             |                                       |
|---------------------------|---|-----------------------------|---------------------------------------|
| Sensor                    | Voltage source, Current source, 2-wire transmitter (without own power supply) | Number inputs               | 1                                     |
| Sensor supply             | > 17 V DC at 20 mA  | Input voltage               | configurable, 0(2)...10 V, 0(1)...5 V |
| Input current             | configurable, 0...20 mA, 4...20mA   | Input resistance, voltage   | >500 kΩ                               |
| Input resistance, current | 70 Ω  | Voltage drop, current input | <1,5 V                                |

## Output

|                           |                                       |                        |   |
|---------------------------|---------------------------------------|------------------------|---|
| Number of outputs         | 1                                     | load impedance voltage | ≥ 10 kΩ                                   |
| Load impedance current    | ≤ 600 Ω, @ max 23mA                   | Type                   | active, connected control must be passive |
| Output voltage, note      | configurable, 0(2)...10 V, 0(1)...5 V | Output current         | configurable, 0...20 mA, 4...20 mA        |
| Cut-off frequency (-3 dB) | 100 Hz                                |                        |   |

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## Technical data

## General data

|                           |  |           |  |
|---------------------------|--|-----------|--|
| Accuracy                  | <0.05 % of measuring range                           |           |  |
| Protection degree         | IP20   |           |  |
| Supply voltage            | 24 V DC $\pm 30$ % at terminal or via CH20M rail bus |           |  |
| Step response time        | $\leq 7$ ms  |           |  |
| Mounting rail             | TS 35  |           |  |
| Temperature coefficient   | $\leq 0.01$ % / °C                                   |           |  |
| Delivery state            | Setting parameters                                   | Input     |  |
|                           | Configuration  | 0...20 mA |  |
|                           | Setting parameters                                   | Output    |  |
|                           | Configuration  | 0...20 mA |  |
| Nominal power consumption | 1.2 VA   |           |  |
| Configuration             | DIP switch   |           |  |
| Operating altitude        | $\leq 2000$ m  |           |  |
| Power consumption, max.   | 1.2 W  |           |  |
| Power consumption, typ.   | 0.84 W   |           |  |
| Delivery state            | Input: 0...20 mA // Output: 0...20 mA                |           |  |

## Insulation coordination

|                    |                    |                        |                |
|--------------------|--------------------|------------------------|----------------|
| EMC standards      | EN 61326-1         | Surge voltage category | II             |
| Pollution severity | 2                  | Galvanic isolation     | 3-way isolator |
| Insulation voltage | 2.5 kVeff / 1 min. | Rated voltage          | 300 Veff       |

## Data for Ex applications (ATEX)

|                       |                                       |                       |   |
|-----------------------|---------------------------------------|-----------------------|---|
| Marking               | II 3 G Ex nA IIC T4 Gc                | IECEx - gas labelling | Ex nA IIC T4 Gc, Standard: IEC 60079-0-15 |
| Installation location | Device installed in safe area, zone 2 |                       |   |

## Connection data

|   |                     |   |                     |
|---|---------------------|---|---------------------|
| Type of connection                      | Screw connection    | Tightening torque, min.                 | 0.4 Nm              |
| Tightening torque, max.                 | 0.6 Nm              | Clamping range, rated connection        | 2.5 mm <sup>2</sup> |
| Clamping range, min.                    | 0.5 mm <sup>2</sup> | Clamping range, max.                    | 2.5 mm <sup>2</sup> |
| Wire connection cross section AWG, min. | AWG 30              | Wire connection cross section AWG, max. | AWG 14              |

## EMC conformity and approvals

|               |            |           |             |
|---------------|------------|-----------|-------------|
| EMC standards | EN 61326-1 | Standards | IEC 61010-1 |
|---------------|------------|-----------|-------------|

## Part description

|                     |   |
|---------------------|---|
| Product description | The configurable DC isolating amplifier ACT20M-AI-AO-S isolates and converts analogue standard signals. An analogue input signal is linearly converted into an analogue output signal and galvanically isolated. The input can also be operated as an active current loop (the loop current is supplied by the device). The power supply is galvanically isolated from the input and output (3-way isolation) by means of direct wiring or the Weidmüller rail bus. The configurable DC isolation amplifier ACT20M-AI-2AO-S offers the same functionality, but has 2 galvanically isolated outputs (4-way isolation). |
|---------------------|---|

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 8.0    | EC002653    | ETIM 9.0    | EC002653    |
| ETIM 10.0   | EC002653    | ECLASS 14.0 | 27-21-01-20 |
| ECLASS 15.0 | 27-21-01-20 |             |             |

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## Technical data

## Tender specification sheets

| Long specification | Universal standard signal isolating amplifier<br>1-channel signal isolating amplifier in 6.1 mm width with external power supply, for transmitting and isolating analogue DC current signals 0/4 to 20 mA and voltage signals 0/2 to 10 V // 0/1 to 5 V. Add-on housing for TS35 rail mounting<br>Dimensions: L/W/H 114.3/ 6.1/ 112.5 mm<br>Screw connection / Nominal cross-section 2.5 mm <sup>2</sup><br>Protection degree: IP 20<br>Input 0/4...20 mA<br><br>0/2...10 V or 0/1...10 V<br>Output 0/4...20 mA<br><br>0/2...10 V or 0/1...5 V<br>Load resistance < 600 Ohm/ Strom/> 10 kOhm/ voltage<br>Transmission error < 0,05 % v. E.<br>Limit frequency 100 Hz<br>Auxiliary power 24 VDC +/- 30 %<br>Power loss approx. 0.8 W<br>Ambient temperature range -25 °C...+70 °C<br>Isolation EN 61010-1, 3-way isolation up to 2.5 kV AC/ DC of all circuits against each other<br>Test voltage 2.5 kV input against output against auxiliary power<br>Rated voltage 300 V AC/DC at overvoltage category II and pollution degree 2<br>Approvals cULus, FM Div2, ATEX Zone2, DNV, GL<br>Type ACT20M-AI-AO-S | Short specification | Universal standard signal isolating amplifier<br>1-channel signal isolating amplifier in 6.1 mm width with external power supply, for transmitting and isolating analogue DC current signals 0/4...20 mA and voltage signals 0/2...10V // 0/1...5 V. I/O signals are configured with DIP switches. |
|--------------------|---|---------------------|--|
|--------------------|---|---------------------|--|

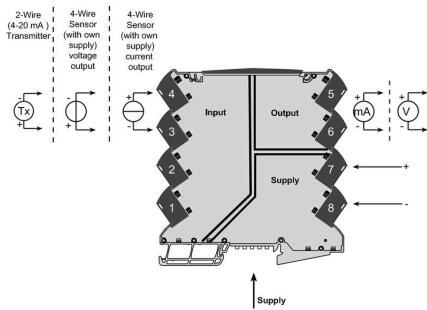
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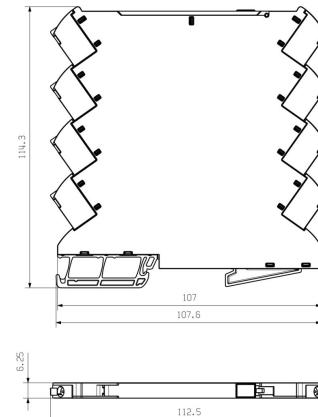
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## Drawings

## Connection diagram



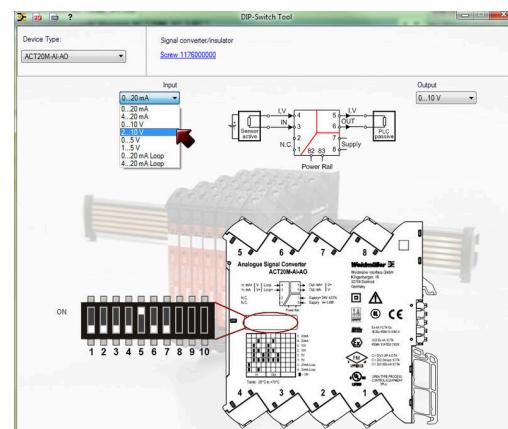
## Dimensional drawing



## DIP switch setting

| Range            | Input Setup |   |   |   | Output setup |   |   |
|------------------|-------------|---|---|---|--------------|---|---|
|                  | 1           | 2 | 3 | 4 | 5            | 6 | 7 |
| 0...20 mA        |             |   |   |   |              |   |   |
| 4...20 mA        |             |   |   |   |              |   |   |
| 0...10 V         |             |   |   |   |              |   |   |
| 2...10 V         |             |   |   |   |              |   |   |
| 0...5 V          |             |   |   |   |              |   |   |
| 1...5 V          |             |   |   |   |              |   |   |
| 0...20 mA (Loop) |             |   |   |   |              |   |   |
| 4...20 mA (Loop) |             |   |   |   |              |   |   |

■ = ON



Example of DIP switch setting with software tool



Additional power supply option via bus

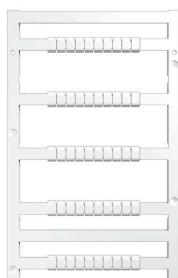
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## Accessories

## Blank



MultiFit is the Weidmüller marker system used for other makes of terminals. Similar to the Weidmüller Dekafix, the markers of the MultiFit family are available ready-for-use with standard printing.

We recommend to carry out a test with sample markers on the terminals used when using MultiFit for the first time.

- One marker, suitable for different makes of terminals.
- Ready-to-use markers with standard printing
- Blank markers for printing with the PrintJet CONNECT or Plotter
- Delivery of individually printed markers according to customer CAE data or specifications
- One marking system for all applications

For custom printing: Please send us a file of our labeling software M-Print PRO or M-Print PRO Online (without installation) for your labeling specifications.

## General ordering data

|            |                            |  |
|------------|----------------------------|--|
| Type       | MF 5/7.5 MC NE WS          | Version  |
| Order No.  | <a href="#">1877680000</a> | MultiFit, Terminal marker, 5 x 7.5 mm, Pitch in mm (P): 7.50 Adels |
| GTIN (EAN) | 4032248468270              | RKW, Phoenix, white  |
| Qty.       | 320 ST                     |  |

## ACT20 (incl. DIN rail bus &amp; powersupplies)



Power supply adapter modules for separate supply and distribution of the supply voltage: for the ACT20 series/ MICROSERIES signal converters.

The 22.5/6.1 mm wide power-feed modules are mounted directly adjacent to the analogue signal converters. Then the 24 VDC supply voltage is optionally bridged via the CH20M (ACT20-series) rail bus or simply bridged over using the pluggable ZQV 4N (MICROSERIES) cross-connectors.

The ACT20-Feed-In-PRO-S can also detect faults coming from any of the devices mounted on the CH20 bus mounting profile.

In the event of an error or fault, the integrated status relay sends a common alarm to the external controller. In addition, two power supply units (as primary and backup supply) can be connected to the ACT20 Feed-In PRO-S.

Two feed-in modules mounted to the CH20 bus mounting profile guarantee a 100% redundant power supply.

Three LEDs are used to show the status of the power supply and error messages.

The ACT20M-Feed-In PRO can also be used in Ex zone2 / Division2 applications.

## General ordering data

|            |                            |   |
|------------|----------------------------|---|
| Type       | ACT20-FEED-IN-BASIC-S      | Version   |
| Order No.  | <a href="#">1282490000</a> | Supply module, Distributes supply voltage to rail bus |
| GTIN (EAN) | 4050118072730              |   |
| Qty.       | 1 ST                       |   |

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## Accessories

## CH20M BUS SET - Kit



The integrated rail bus for the modular electronics housing system

When supplying, connecting or distributing within modular applications, the rail bus can replace the tedious individual wiring process with a flexible and uninterrupted system-wide solution.

The system bus is securely integrated within the 35-mm standard mounting rail. The SMD-bus contact block can be reflow-soldered so that it can be completely automatically processed during the component assembly. The resistant, gold-plated contact surfaces ensure a permanent and reliable contact for all housing widths.

- Unlimited scalability The integrated connection solution covers all system widths: from the 6-mm slice to the 67-mm large-area housing.
- Easy to service during installation It's easy to replace a module, even in existing modules groups – without any influence on the neighbouring modules.
- Universal integration The uninterrupted system bus is securely integrated within the 35-mm standard mounting rail.
- Maximum availability Five fully-galvanized and partially gold-plated twin-arched contacts are used to establish a permanent contact to the rail bus. THR solder flanges ensure that the connection to the circuit board is stable.

## General ordering data

| Type       | SAMPLE CH20M BUS 250MM     | Version   |
|------------|----------------------------|---|
|            | ...                        |   |
| Order No.  | <a href="#">1335150000</a> | Mounting rail bus system, Sample set, OMNIMATE Housing - series |
| GTIN (EAN) | 4050118138382              | CH20M, Width: 25.1 mm   |
| Qty.       | 1 ST                       |   |

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## Accessories

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The ACT20-Feed-In-PRO-S can also detect faults coming from any of the devices mounted on the CH20 bus mounting profile.

In the event of an error or fault, the integrated status relay sends a common alarm to the external controller. In addition, two power supply units (as primary and backup supply) can be connected to the ACT20 Feed-In PRO-S.

Two feed-in modules mounted to the CH20 bus mounting profile guarantee a 100% redundant power supply.

Three LEDs are used to show the status of the power supply and error messages.

The ACT20M-Feed-In PRO can also be used in Ex zone2 / Division2 applications.

## General ordering data

|            |                            |   |
|------------|----------------------------|---|
| Type       | SAMPLE CH20M BUS 250MM     | Version   |
|            | ...                        |   |
| Order No.  | <a href="#">1335140000</a> | Mounting rail bus system, Sample set, OMNIMATE Housing - series |
| GTIN (EAN) | 4050118138375              | CH20M, Width: 25.1 mm   |
| Qty.       | 1 ST                       |   |