



Analogue signal converter



This device has been designed to adjust signals between UVR controllers and third party devices or industrial sensors.

It can be used to convert different signal levels or current into voltage and vice versa. Thanks to input filters, PWM signals can also be converted into analogue values.

- Conversion of 0-10 V signal into a 0-24 V signal
- Conversion of 0-10 V signal into a 0-20 mA current
- Freely usable level converter (input: 0-10 V or 0-20 mA), converts input into a voltage signal with a transfer ratio that can be adjusted using two potentiometers and a jumper
- Conversion of a PWM signal (500 Hz to 1 kHz/10 V) into a 0-10 V signal

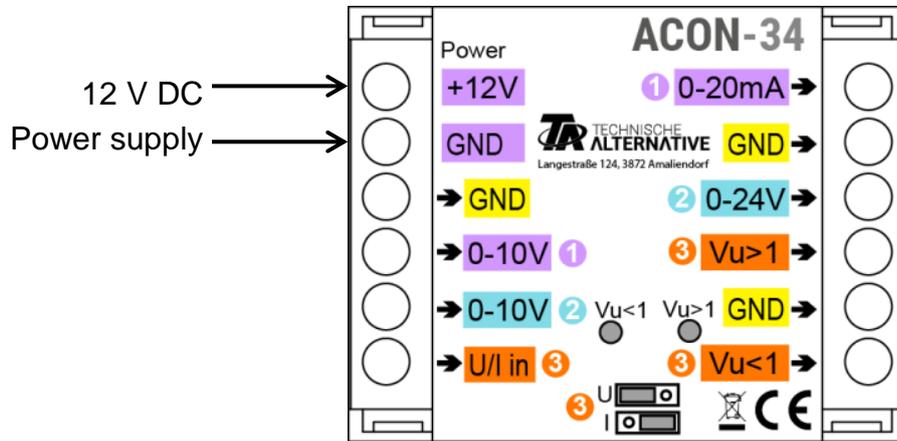
Power supply +12 V

The converter is supplied by the 12 V connection of a freely programmable controller or by an external power supply unit (12 V).

Regardless of the connection, the PCB is protected against short circuits for one minute.

A resettable fuse (0.5 A) is installed internally upstream of the supply input.

With no output load, the device typically draws a standby current of 6 mA.



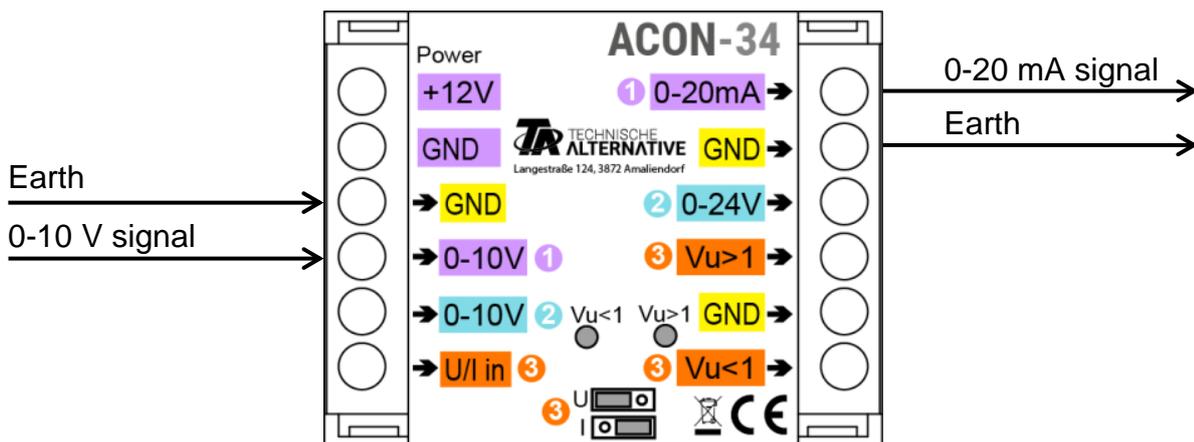
1. 0-10 V to 0-20 mA converter

In addition to the 0-10 V signal, a current of 4-20 mA is also a standard interface.

This level converter generates current that is proportional to the input voltage.

The minimum current of 4 mA is not generated and must be achieved by programming the 0-10 V source accordingly.

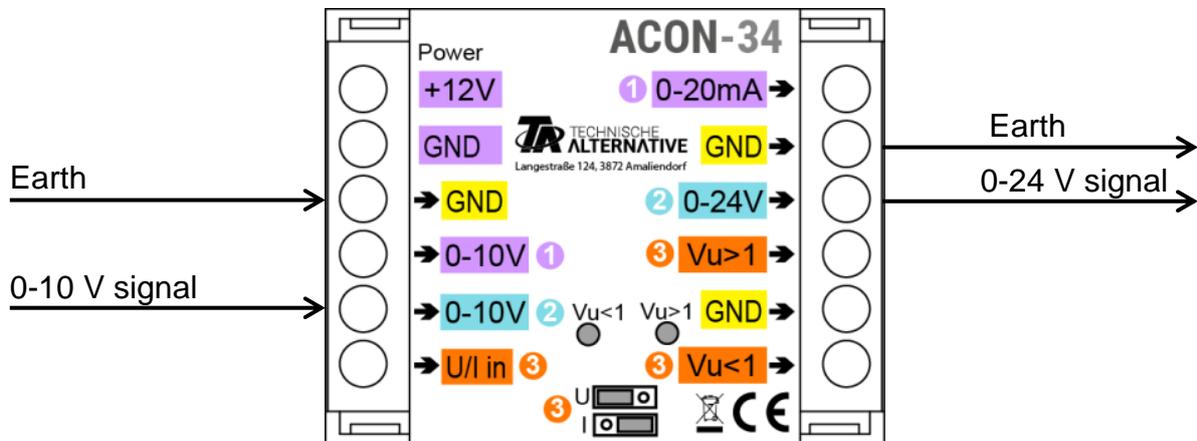
Accuracy +/- 0.5 mA



2. 0-10 V to 24 V converter

Some boiler manufacturers use a 0-24 V signal in their products, which this converter supplies.

Accuracy +/- 0.5 V at an internal resistance of the boiler controller of > 3 k Ω



3. Freely adjustable level converter

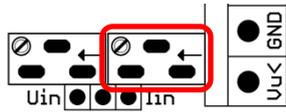
The third input makes it possible to divide or amplify the input signal. The input signal can be a 0-10 V voltage **or** 0-20 mA current (depending on jumper position); the output signal is **always** a voltage.

3.1 Input signal – 0-10 V voltage

The jumper must be in position "U".

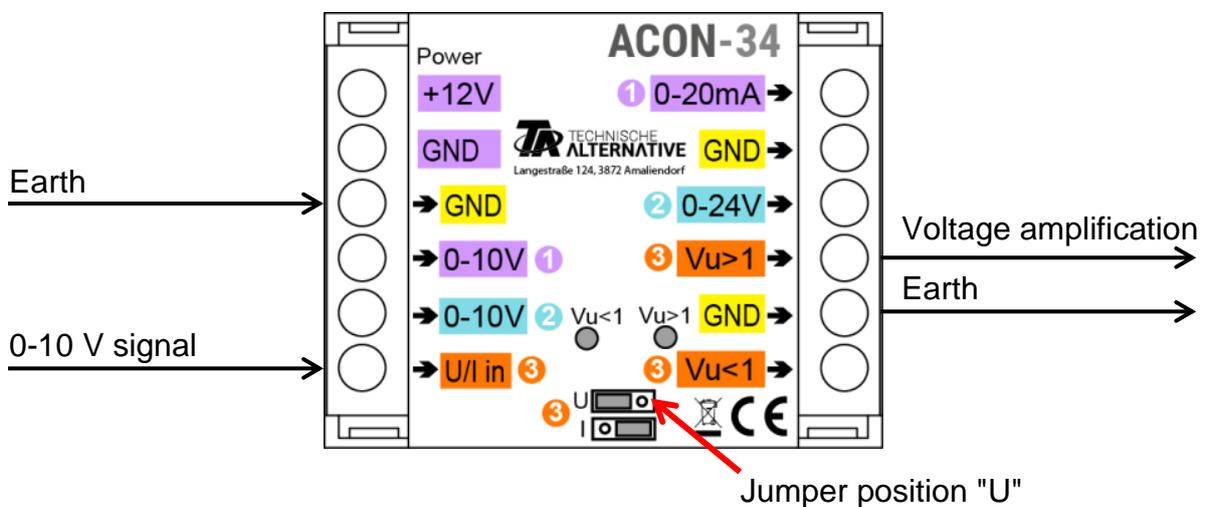
3.1.1. Voltage amplification

The output supplies **1 to 5 times** the value of the input signal.



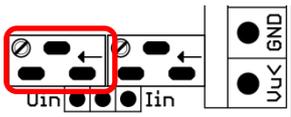
The amplification factor is set at the right-hand potentiometer. The potentiometer setting must be established by taking measurements with a multimeter.

Please note that the output signal is limited to approx. 25 V even at higher amplification levels.

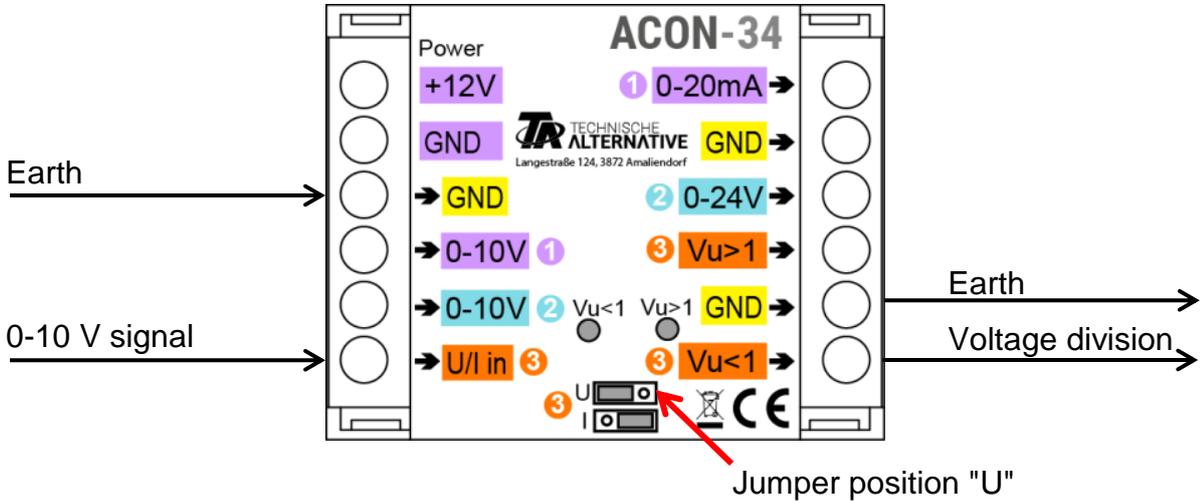


3.1.1. Voltage division

The output supplies **1 to 0.2 times** the value of the input signal.



The division value is set at the left-hand potentiometer. The potentiometer setting must be established by taking measurements with a multimeter.



3.2 Input signal – 0-20 mA current

The jumper must be in position "I".

The input signal is issued as a multiple or divisor of the 2.2 V voltage

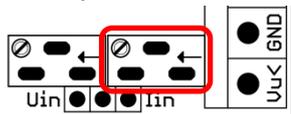
3.2.1. Current amplification

The output signal is **1 to 5 times** the value of 2.2 V.

Example: Amplification by a **factor of 5**

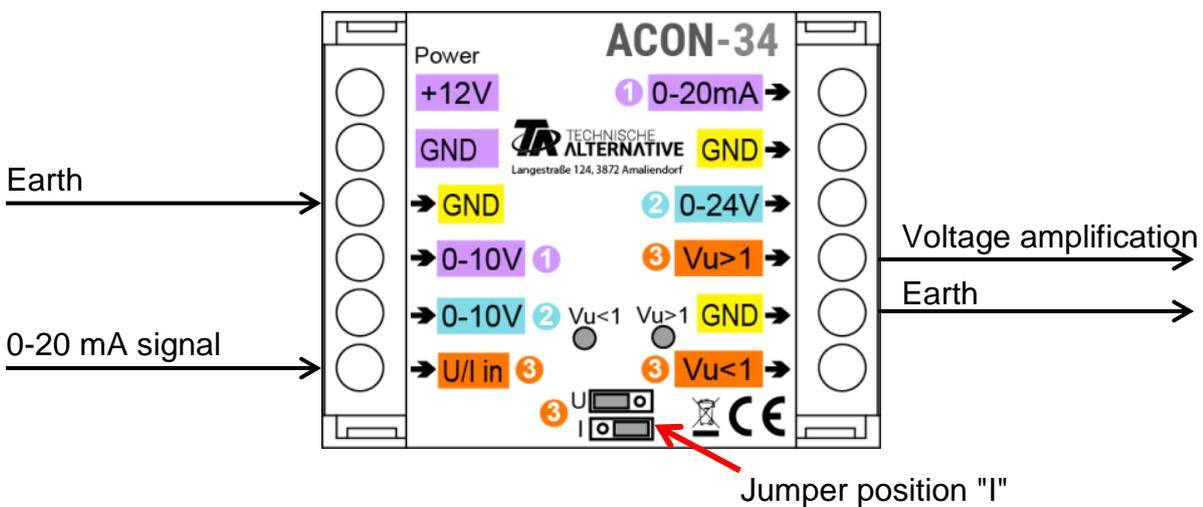
A **20 mA** input signal (maximum value) is issued as 5 times the 2.2 V voltage, i.e. as **11.0 V**.

An input value of **10 mA** would be issued as **5.5 V**.



The amplification factor is set at the right-hand potentiometer. The potentiometer setting must be established by taking measurements with a multimeter.

Please note that the output signal can be greater than 10 V if amplified by a factor of 5.

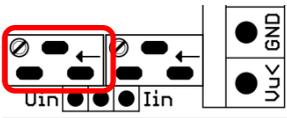


3.2.2. Current division

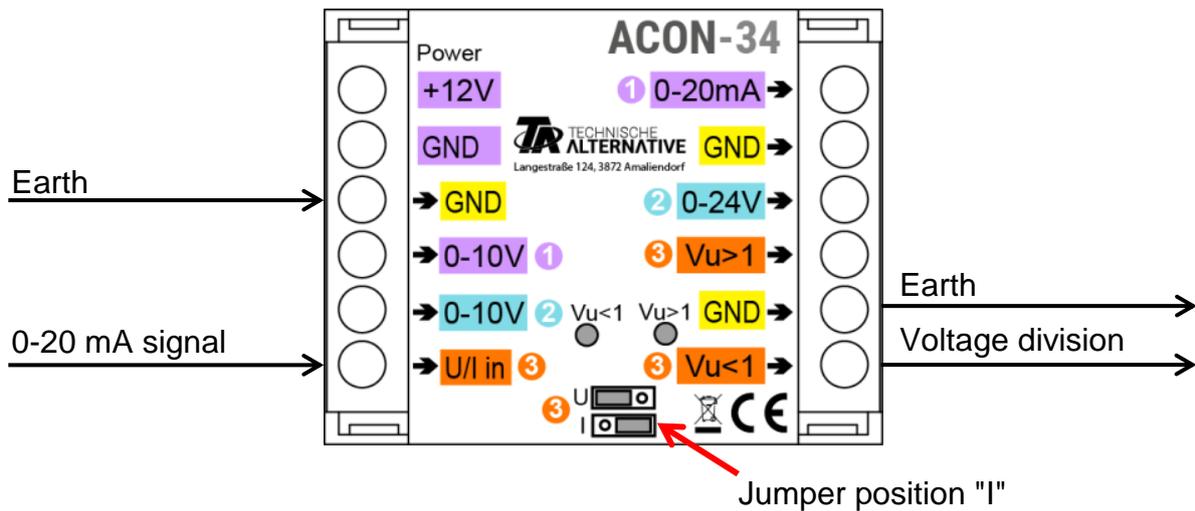
The output signal is **1 to 0.2 times** the value of **2.2 V**.

Example: Division by a **factor of 0.2**

A **20 mA** input signal (maximum value) is issued as one fifth of the 2.2 V voltage, i.e. as **0.44 V**. An input value of **10 mA** would be issued as **0.22 V**.



The division value is set at the left-hand potentiometer. The potentiometer setting must be established by taking measurements with a multimeter.



PWM signals

All inputs have input filters which enable PWM signals to be captured. Instead of capturing the 0-10 V voltage, the analogue converter can therefore also capture PWM signals and issue them accordingly (0-20 mA, 0-24 V, $V_u > 1$, $V_u < 1$).

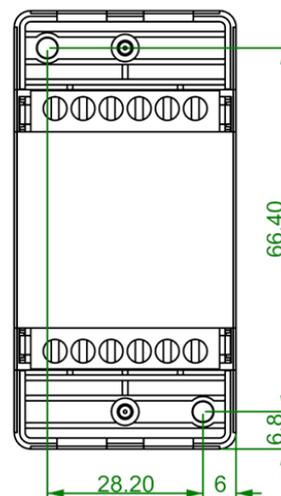
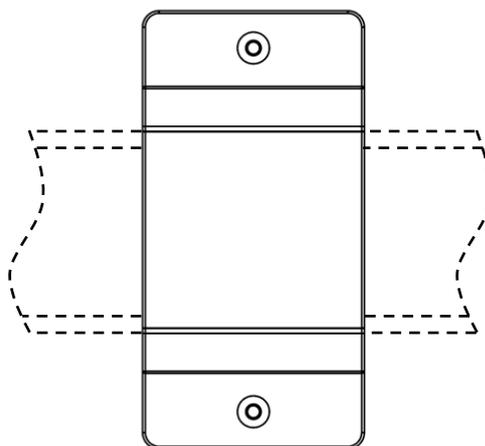
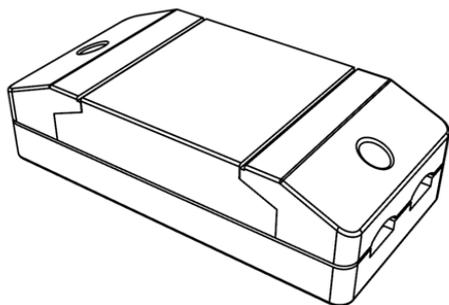
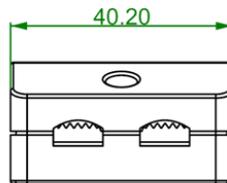
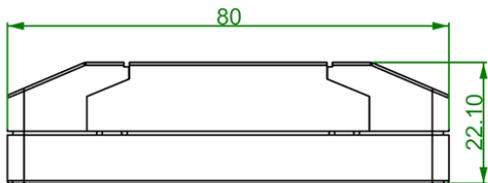
Example:

50 % PWM signal at input 3 (**U/I in**), jumper position "U", amplification = 1
 -> output signal at output 3 **$V_u > 1 = 5.0 V$**

Outputs

A maximum current of 20 mA per output is permitted. However, in the case of all outgoing signal cables and voltage output jointly, the total load current must not exceed 40 mA. All specifications provided only apply under this condition.

Dimensions in mm



Top-hat rail installation
(support rail TS35 to
standard EN 50022)

Technical data	
Input resistance of all stages at 0-10 V	Approx. 50 k Ω
Output impedance of all stages	50 Ω
Terminal area	Max. 1.5 mm ²
IP rating	IP 40
Max. ambient temperature	45 °C

Subject to technical modifications

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