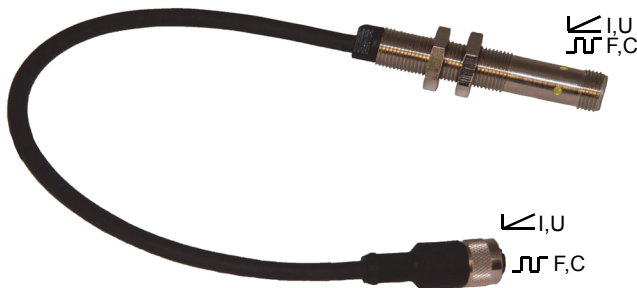


Product information

LABO-W...I / U / F / C

**Signal converter
LABO-W...I / U / F / C**



- Signal converter for looping into the sensor line
- Conversion of voltages, currents or frequencies into current, voltage, frequency or pulse signals
- 16-bit microcontroller
- Linearized
- Numerous configurable parameters
- A parameter can be set locally
- Affordable

Characteristics

The LABO-W signal converters are designed for the measurement of sensor signals and their conversion into standard signals (current 4..20 mA, voltage 0..10 V, frequencies up to 2 kHz, pulse signals). For this purpose, they have a powerful 16-bit microcontroller in their compact housing.
 The standard versions are designed such that currents, voltages and frequencies which are common for industrial applications can be measured.
 They have a 20 cm long breakout cable and thus can be easily looped into the sensor line.

Special designs for other signals and plug connections are available on request.
 The measured signals are filtered as desired and linearised, then represented in the desired manner at the output.

The LABO electronics make various output signals available:

- Analog signal 0/4..20 mA (LABO-W...I)
- Analog signal 0/2..10 V (LABO-W...U)
- Frequency signal (LABO-W...F) or
- Quantity signal pulse / integral (LABO-W...C)

A model with switching output is also available.
 If desired, the range end value can be set to the presently existing measurement using teaching.

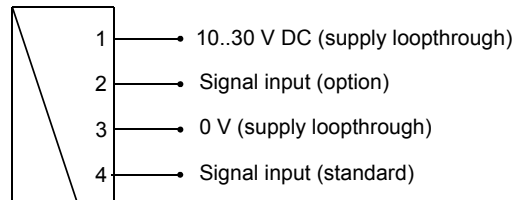
Technical data

Inputs and metering ranges	Strom 0..20 mA Voltage 0..10 V Frequencies 0..10 kHz others available on request
Measurement uncertainty	Typically ±0.1 % of full scale value
Operating temperature	0..+70 °C (other temperatures available on request)
Storage temperature	-20..+80 °C
Materials	Housing CW614N nickelled

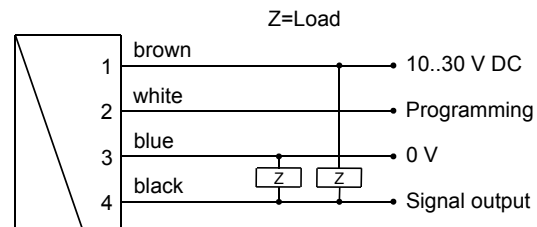
	Cable exit PA Cable PUR Plug insert PC Contacts CuZn, gold-plated
Supply voltage	10..30 V DC with voltage output 10 V: 15..30 V DC
Power requirement	< 1 W (for no-load output)
Sensor supply	Corresponds to supply voltage (others available on request)
Output data:	All outputs are resistant to short circuits and reversal polarity protected Current output: 4..20 mA (0..20 mA available on request) Voltage output: 0..10 V (2..10 V available on request) Output current max. 20 mA Frequency output: Transistor output "push-pull" $I_{out} = 100$ mA max. Pulse output: Transistor output "push-pull" $I_{out} = 100$ mA max. Pulse width 50 ms Pulse/quantity is to be stated
Display	Yellow LCD shows Operating voltage (LABO-W...I / U) or Output status (LABO-W...F / C) (rapid flashing = Programming)
Electrical connection	for round plug connector M12x1, 4pole Sensor-side: Cable bushing Supply side: Plug
Ingress protection	IP 67
Weight	approx. 0.02 kg
Conformity	CE

Wiring

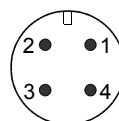
Sensor-side



Supply side



Connection example: PNP NPN



Before the electrical installation, it must be ensured that the supply

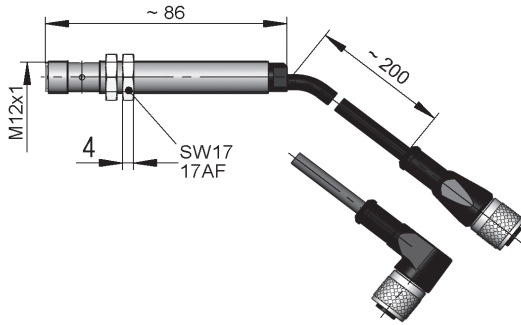
Product information

voltage corresponds to the data sheet.

It is recommended to use shielded wiring.

The push-pull output of the frequency or pulse output version can as desired be switched as a PNP or an NPN output.

Dimensions



Handling and operation

Installation

The signal converters are looped into the existing sensor line using the M12x1 plug connectors. The converter housing can be fixed in a 12 mm hole as necessary using the supplied lock nuts.

Note

The full scale value can be programmed by the user via "teaching". Requirement for programmability must be stated when ordering, otherwise the device cannot be programmed. The ECI-1 device configurator with associated software is available as a convenient option for programming all parameters by PC, and for adjustment. The teaching function is not available for the pulse output version.

Operation and programming

- The teaching process can be carried out by the user as follows:
- The measured value which is to be set is applied to the device.
 - Apply an impulse of at least 0.5 seconds and max. 2 seconds duration to pin 2 (e.g. via a bridge to the supply voltage or a pulse from the PLC), in order to accept the measured value.
 - When the teaching is complete, pin 2 should be connected to 0 V, so as to prevent unintended programming.

The devices have a yellow LED which flashes during the programming pulse. During operation, the LED serves as an indicator of operating voltage (for analog output) or of switching status (for frequency or pulse output).

To avoid the need to transit to an undesired operating status for the purpose of teaching, the device can be provided ex-works with a teach-offset. The teach-offset point is added to the currently measured value before saving. The offset point can be positive or negative.

Example: The end of the metering range should be set to 80 %. However, only 60 % can be achieved without problem. In this case, the device would be ordered with a "teach offset" of +20 %. At a flow rate of 60 % in the process, teaching would then store a value of 80 %.

There are many more parameters which can be programmed by the ECI-1 device configurator if necessary.

Ordering code

LABO - W - 1. 2. 3. 4. 5. S

○ = Option

1. Signal input	
I	Current input 0..20 mA
U	Voltage input 0..10 V
F	Frequency input 0..10 kHz
2. Sensor connection	
G	Cable socket, straight 200 mm
W	Cable socket, elbow 200 mm
3. Signal output	
I	Current output 4..20 mA
U	Voltage output 0..10 V
F	Frequency output
C	Pulse output
4. Programming	
N	Cannot be programmed (no teaching)
P	<input type="radio"/> Programmable (teaching possible)
5. Electrical connection	
S	For round plug connector M12x1, 4-pole

Required ordering information

For LABO-W...F:
Output frequency at full scale Hz
 Maximum value: 2000 Hz

For LABO-W...C:
 The quantity per pulse must be specified for the pulse output version. This describes the temporal integral of the measurement. In this connection, it is possible, for example, to assign a flow rate to the measurement by means of the linearisation function with the use of a flow rate meter and then deliver one pulse per measured flow volume.

Options

Power on delay period (0..99 s) s
 (time after applying power during which the outputs are not activated or set to defined values)

Further options available on request.

Accessories

- Round plug connector/cable
- Evaluation electronics OMNI-TA
- Device configurator ECI-1