

# ACT20P Strain gauge transmitter for reading load cells

**The ACT20P Bridge converts strain gauge measurement signals to standard analogue signals.**

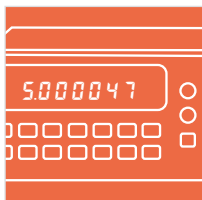
The ACT20P family offers the customer precise and functional signal converters in a compact design. The ACT20P bridge is the first product from this new line of signal converters.

Load cells, or so-called force transducers, are used for weighing all types of industrial products. Most of these are made of a metallic spring bellow. The spring deformations are recorded by a strain gauge and converted into a mV signal. The ACT20P Bridge reads these signals and converts them to a standard signal 0(4) – 20 mA or 0 – 10 V. This secure separation also protects against counterfeit signals. A control signal at the tare input can be used to set the empty weight.

## Features

- Adjust to load cells using the push button
- Easy tare calibration using the integrated control input
- Intelligent pluggable connection method
- The release lever simplifies maintenance and enables the connection to be unplugged without any wire damage.
- Integrated captive coding with the unique „auto-set“ function





### Exact measurement

The input with 6-conductor connection and very high accuracy (0.05 % of the measurement range) enables precise signal processing.



### Conversion

Conversion of the bridge voltage in standardised analogue signals.



### Tare calibration

Simple calibration of the empty (tare) weight can be done on-site by using the button under the front plate or with an external connection via a PLC output.



### On-site calibration

Simple and reliable calibration on-site. The ACT20P Bridge is adjusted to the different load cells by means of a push button behind the hinged panel.



### Protection

Protection against noise from the field. The 3-way isolation separates the input, the voltage supply and the output with 5.7 kV isolation voltage.



### ACT20P Bridge

Strain gauge transmitter  
for reading load cells

# ACT20P – Strain gauge transmitter for reading from load cells

## ACT20P bridge – Strain gauge transmitter for reading from load cells

### General

The ACT20P Bridge is a DIN rail mounted, signal conditioner for industrial measuring bridges. It provides a precise excitation voltage for the bridge, and converts the input measurement to an isolated current/voltage signal. Strain gauge transmitter are used for various measurements like weight, force, tension, pressure, torque, and deflection.

### Bridge excitation supply

Voltage sense connections are provided so that the excitation voltage can be measured at the bridge. Known as 'remote sensing' this method compensates for cabling and contact resistance errors. It is recommended for all new installations or where an upgrade is possible. Remote sensing wiring requires three twisted pairs.

### TARE adjustment

The installed strain gauge is normally subjected to an initial load independent of the measurement taken. The TARE connection allows you to correct for this initial loading by operating a switch. Alternatively there is a button on the front of the unit (under the front cover) that performs the same function. Press for two seconds to correct for the initial load (the 'CAL HI' LED will light for one second).

### Gauge factor

Every strain gauge has a 'gauge factor' which gives the output voltage at full-scale for a one volt excitation voltage (given in mV/V). You multiply this by the bridge excitation voltage to get the output voltage when the gauge is fully loaded. For example, a load cell with 10V excitation and 2mV/V gauge factor will give 20mV when fully loaded. The meaning of a 20mV output depends on the type of the strain gauge. If it was designed to measure 0-1000Kg then 20mV indicates a 1000Kg load.

### Setup

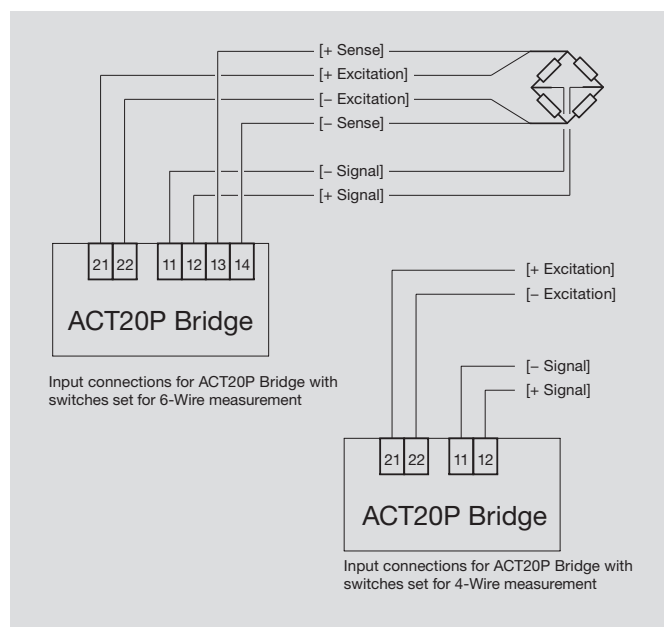
The ACT20P Bridge has internal switch settings that determine the excitation voltage (5V or 10V) and Input range limits. Select the appropriate settings from the table below. Once you have set the DIP switches, you simply calibrate the unit to the input and output range for your application.

### Calibration

There are three options for calibrating the ACT20P Bridge:

- Bench calibrate using a bridge simulator (if you know the gauge factor)
- Calibrate on-site by loading the actual installed strain gauge
- Bench calibrates using a mV source (if you know the gauge factor).

For more information please read the manual from the web page: [www.weidmueller.com](http://www.weidmueller.com)

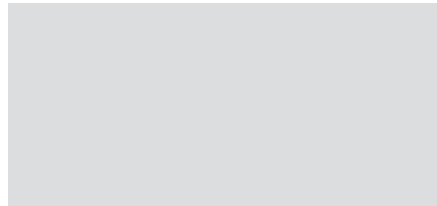
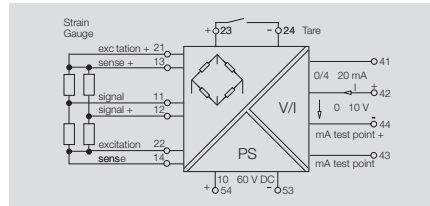


**Configurable**

Strain gauge transmitter for reading from load cells

- 3-way isolation
- Supply for measuring bridges up to 4 x 350 Ω
- Simple calibration of the tare weight using external switch or PLC input
- Input and output ranges adjustable via DIP switch

**ACT20P-BRIDGE-S**



**Technical data**

**Input**

Type	Resistance measuring bridge
Bridge sensitivity	1.0 mV / V to 5.0 mV / V
Input measurement range	± 10 mV / ± 20 mV / ± 30 mV / ± 50 mV (adjustable)
Input resistance	> 1 MΩ
Sensor supply	120 mA @ 10 V (= 4 x 350 Ω bridge resistors)
Bridge supply voltage	5 V or 10 V

**Output**

Type	Voltage and current output (configurable)
Output voltage / Output current	0 ...11 V (adjustable) / 0...22 mA (adjustable)
Load impedance, voltage/current	600 Ω / 1 kΩ

**General data**

Supply voltage	10...60 V DC
Power consumption	3 W @ 24 V DC
Linearity	Typically ± 0.05% of signal range
Repeat accuracy	± 0.05% of signal range
Humidity	10...90 % (no condensation)
Temperature coefficient	typ. 0.005 % / °C
Long-term drift	0.1 % / 10,000 h
Step response time	< 400 ms (10...90 %)
Ambient temperature / Storage temperature	-40 °C...+70 °C / -40 °C...+85 °C
Approvals	cULus; CE

**Insulation coordination**

Standards	EN 50178 (secure separation)
EMC standards	EN 61326
Rated voltage	300 V <sub>eff</sub>
Impulse withstand voltage	4 kV (1.2/50 μs)
Pollution severity	2
Overvoltage category	III
Insulation voltage	5.7 kV (input / output, input / supply)

**Dimensions**

Clamping range (nominal / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

**Note**

**Screw connection**

Clamping range (nominal / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

**Dimensions**

Clamping range (nominal / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

**Note**

**Front panel DIP Switch settings**

Switch	Action if On	Action if Off
1	10 V Excitation	5 V Excitation
2	mA Output	Voltage Output
3	10 mV Span	Turn off for other ranges
4	20 mV Span	
5	30 mV Span	
6	50 mV Span	
7	4-wire Measurement	6-wire Measurement
8		

**Connections**

Terminal	Signal	
11	Signal -	Input signal
12	Signal +	
13	Sense +	Bridge Excitation Voltage
14	Sense -	
21	Excitation +	
22	Excitation -	
23	Tare +	External Tare switch
24	Tare -	
41	mA Output -	Output signal
42	Output +	
43	mA Test Point -	
44	Voltage Output -	
44	mA Test Point +	Power Supply
54	+	
53	-	

**Ordering data**

Ordering data	Screw connection
---------------	------------------

Type	Qty.	Order No.
ACT20P-BRIDGE-S	1	1067250000

**Note**

**Accessories**

Accessories	
-------------	--