



BA670

Rail Mount Strain Gage Amplifier with **Auto-Zero**

Features

- Auto-zero any input signal up to 2mV/V in only 250ms
- Zero cycle triggers via external switch or via logic signal from PLC etc.
- Output current 4 to 20mA. Optional voltage output 0 to +10V
- Sensitivity per jumper selectable and adjustable by potentiometer
- Connect via screw terminals

Applications

- Strain measurement on machine parts with strain gages directly applied to it.
- Use with all strain gage sensors, i.e. force measurement, strain measurement
- Automatization with zero tracking
- Whenever zero adjustment should be quick and easy to do

Description

The BA 670 is an amplifier, designed to provide a signal conditioning for full bridge strain gage sensors. A internal voltage reference supplies the excitation voltage for a sensor. The zero adjustment is performed by digital controller with a wide adjustment range of $\pm 2\text{mV/V}$. This allows to run the zero-cycle via an external trigger signal from a switch or a PLC. The zero reading gets stored in a flash memory. It provides



direct connectivity to a range of analog input devices as required: PLC, Analog PC cards, displays and many other. The zero adjustment cycle takes only 250 ms. The trigger voltage can be anywhere between 10 Volt to 30 Volt. It is feasible to connect the Z input with the power voltage via a switch in order to trigger a zero cycle.

Connection

1	+U _B : Power (24VDC)
2	GND : Ground
3	+U _A : Analog out 4 - 20mA (optional 0 - +10V)
4	Z: Zero
5	-U _D : Signal -
6	+U _D : Signal +
7	+U _S : Excitation +
8	-U _S : Excitation -

Specifications:

Type	BA670	Unit
Accuracy class	0.1 (calibrated at 2mV/V respectively 3.5mV/V)	%
Input range (Input signal needed for full scale output. Range is selectable via jumper)	2; 1; 0.5 or variable ca. 0.5 to 1.9 optional: 3.5; 1.75; 0.875 or variable 0.8 to 3.3	mV/V mV/V
Bridge resistance	87 to 5000Ω (87Ω is equivalent to 4 x 350Ω parallel)	Ohms
Bridge excitation	5	V
Input impedance	>20 / 300pF	MΩ
Non-Linearity	<0,02	% F.S.
Temperature coefficient of zero	<0.2 typ. 0.05	% F.S.
Temperature coefficient of span	< 0.1; typ. 0,05	%
Bandwidth (-3dB Bessel Filter)	20; 100; 2500 (Standard bandwidth is 20 Hz)	Hz
Resolution	>20000 divisions	
Output		
Current output (Standard)	4 to 20	mA
Useable output range	3.8 to 29	mA
Load resistance	<300	Ω
Internal resistance	47	Ω
Optional voltage output	0 to +10V, 0 to +5V, 5±5V	V
Load resistance at voltage output	>=1000	Ω
Zero adjustment		
Tolerance	<1	%
Adjustment time	<250	ms
Zero control input	High: >10V (max. Power+)	V
Auto zero triggers at falling edge. High level must be present for a minimum of 4 ms.		V
Power supply	20 to 28	VDC
Operating range		
Power consumption	38mA, plus current into the full bridge	mA
Stored values	Last zero (stored in Flash memory)	
Operating temperature	-10...+65	°C
Storage temperature	-40...+85	°C
Dimensions (1 x w x h)	75 x 25 x 53	mm

Ordering examples

BA 670-A420-E2-F20 (=Standard unit. Output 4 – 20mA, Input 2mV/V, Filter 20Hz)

BA 670-A010-E3.5-F100 (=Output 0 – 10V, Input 3.5mV/V, Filter 100Hz)

A version that is adjusting „Zero“ to 12mA or 5Volt can be supplied. This version is used to measure bi-directional.

BA 670-A12 -E2-F100 (=Output 12 mA ±8mA, Input 2mV, Filter 100Hz)