

Strain Gauge Transmitter (v7) WT127

DESCRIPTION

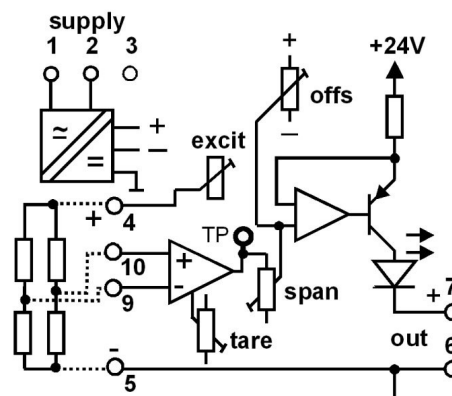
The WT127 is a 4-wire transmitter designed for inputs from any type of full bridge strain gauge such as loadcells or piezoresistive devices (pressure sensor). This transmitter combines an accurate excitation power supply and a millivolt pre-amplifier in one unit. Excitation voltage is front adjustable and will drive up to 4 loadcells (350Ω) in parallel at 10Vdc. The most common input mV-ranges are user selectable on the amplifier card by coding plugs. Final calibration is trimmed using the front accessible "OFFS" and "SPAN" 15-turn trim adjustments. The "OFFS" adjustment is used for fine tare trim and is non-interacting with the span adjustment if coarse tare is set correctly (tare = zero setting). The "OFFS" potentiometer can be wired out of the housing on request to provide remote tare adjustment. Front adjustments cover typically ±20% of range. Output signal is indicated by the green LED on front, which gives a clear indication of module function. Three user selectable response times including a fast 5mS are available. Response times slower than 500mS are optional. Input to output isolation is also available. RF and power transient protection is standard as it is with all APCS modules. Various power supply choices are available varying from 240Vac down to 8Vdc, all provide power isolation.



General Specifications

Size:	52 W x 70 H x 110 D (mm).
Housing material:	ABS.
Mounting:	DIN-Rail, gear plate.
Termination:	Screw terminals on front.
Weight:	0.300 kg.
Protection class:	IP40.
Standard span ranges:	User set using coding plugs 1mV, 2mV, 3mV, 5mV 7mV, 10mV, 12mV, 15mV, 20mV, 25mV, 30mV, 50mV, 60mV.
Special Span < 200mV:	User specify at time of ordering. The standard link ranges are still available.
Special Span > 200mV:	User specify at time of ordering. The standard link ranges are not available.
Input/output response:	5ms, 50ms or 500ms set using coding plug, 500ms factory default.
Input impedance:	>1MΩ.
Calibration accuracy:	0.1% of range.
Front 'OFFS' adjust:	±20% typical.
Front 'SPAN' adjust:	±20% typical.
Front 'TARE' adjustment:	-50...+100% of span
Repeatability and long-term stability:	<0.3% of range.
Power supply voltage fluctuation effect:	For ±10% fluctuation 0.5% of range
Ambient temperature operating range:	-10...+60°C.
Excitation voltage option 1:	Adjustable 1.2 - 5Vdc ±0.01V stability
• Load (Standard version)	40Ω minimum @ 5Vdc.
• Load (Isolated version)	50Ω minimum @ 5Vdc.
Excitation voltage option 2:	Adjustable 4 - 17Vdc ±0.01V stability
• Load (Standard version)	86Ω minimum @ 10Vdc.
• Load (Isolated version)	117Ω minimum @ 10Vdc.
Output loop drive:	20mA into 0 – 900Ω. 50mA into 0 – 360Ω.
Output load change effect:	<0.2% up to max. load.
Temperature effect:	Typically 0.02% of span per °C.
Power requirement	ac supply 4W, dc supply 3W.
Power supply isolation:	2kVrms.
Input/output isolation:	>2kVrms on isolated models.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1(EN 50081.1)

Block Diagram



Power Supply:

- 1 = 90-280Vac 50/60Hz (65-280Vdc). *) 6 = 8 - 60Vdc.
 *) 3 = 16-48Vac 50/60Hz (10-60Vdc) *) 9 = Other specify.

Input:

- *) 10 = Link selectable < 200mV. 12 = Isolated Link selectable < 200mV
 *) 11 = Specify span > 200mV. *) 13 = Isolated specify span > 200mV.

Output:

- 1 = 0 - 5V (50kΩ min). 5 = 0 - 50mA (360Ω max).
 2 = 0 - 10V (100kΩ min). 6 = 10 - 50mA (360Ω max)
 3 = 0 - 20mA (900Ω max). 7 = 0 - 10mA (1.8kΩ max).
 4 = 4 - 20mA (900Ω max). 8 = 1 - 5V (50kΩ min).
 *) 9 = Other specify.

Action:

- 1 = Direct. 2 = Reverse.

Excitation:

- *) 1 = 1.0 - 5.0Vdc. *) 4 = 1mA constant current.
 2 = 4.0 - 17.0Vdc. *) 9 = Other specify.

Options:

- 0 = None. *) 4 = Customised response time
 *) 1 = Remote tare (OFFS). (speed limited by input chosen).
 *) 3 = "Test" push button on front. *) 9 = Other specify.

*) = Price Extra.

Calibration Procedure

For units input codes 08 and 09 (e.g. WT127-108120) use drawing CP12762 (superseded by 10/11).
 For units input codes 10, 11, 12 and 13 (e.g. WT127-110120) use drawing CP12761.

Selection Guide Examples

$$\text{Range} = \frac{\text{Actual Load}}{\text{Capacity}} \times \text{Sensitivity} \times \text{Excitation}$$

1. Load cell of 1000 kg capacity, with 2mV/V sensitivity.
 Set up using 10Vdc excitation. Then if the "actual load" is 500 kg max., then

$$\text{Range} = \frac{500 \text{ kg}}{1000 \text{ kg}} \times 2 \text{ mV/V} \times 10 \text{ V} = 10 \text{ mV}.$$

2. If 1000 kg load cell has a 200 kg tare (tare = empty tank for example), with a 800 kg live load, then tare off the 200 kg and

$$\text{Range} = \frac{800 \text{ kg}}{1000 \text{ kg}} \times 2 \text{ mV/V} \times 10 = 16 \text{ mV}.$$

Note: Standard tare adjustment is 100% of range. eg. for 500 kg tare with 1000 kg load cell tare = 500 kg = range.

