

Model 4800 Load Cell Summing Transmitter



Description

The Model 4800 is an AC or DC powered Summing Transmitter for up to four load cells with output options of 0 to 20 mA and 0 to 10 V or 4 to 20 mA and 2 to 10 V. All input/output options are included on one board so there is no need to specify input/output parameters with the 4800.

The 4800 has a built in excitation supply capable of delivering up to 120 mA at 10 V, more than enough current to drive four 350 ohm load cells.

The 4800 offers three way isolation, input to output and power, eliminating unwanted ground loop problems. Overall accuracy over the normal room temperature range is excellent at $<\pm 0.1\%$ of full scale. The high gain, low drift and low temperature coefficient of the 4800 amplifier allows full scale live load signals as low as 5 mV to be amplified to 20 mA or 10 V with an overall accuracy of $\pm 0.1\%$.

Designed with large and very stable tare offset requirements in mind, the 4800 can tare off up to 80 % of the output of a 3 mV/V load cell (at 10 V excitation).

If high/low setpoint alarms/controls are desired, the 4800 board is laid out to accept Opto-22 output relays. Potentiometers are accessible to adjust the high and low trip points.

Features

- Summing of up to 4 load cells
- Complete strain gage bridge signal conditioner
- High gain, low drift, low temperature coefficient precision amplifiers, with low input current (10 pA typical)
- Wide input range from 5 mV to 50 mV full scale
- Very stable bridge balance with 80% tare offset capability
- 4-20 mA or 0-20 mA output
Capable of driving 1000 ohm loop
- 2 to 10 V or 0 to 10 V output
- Excitation supply capable of driving four load cells
 - Typical 0.001% temperature coefficient
 - Wide adjustment voltage range
 - Long distance remote sense capability
 - Very good line and load regulation
- Both AC & DC power capability
 - Surge voltage suppression
- Input, output and power three way isolation
- NEMA 4 enclosure for use in rugged environments

Application

- Precision weighing with load cells
- Process control add-on loops
- Can be used with all types of low output sensors

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Specifications

NOTE: Unless otherwise noted, specifications apply after half hour warm up at 23°C ±2°C ambient. Temperature Coefficients apply between 0°C and 55°C ambient.

ACCURACY	
10 to 35°C, at 10 V Excitation	Less than ±0.1%
Total Temperature Coefficient (TC)	0.0025%/°C typ.

ISOLATION	
AC or DC Powered - Three Way Isolated	
AC to Input and Output	750 VAC
DC to Input to Output	300 VDC 500 pF

AMPLIFIER SECTION	
Gain	
Input Range	5 mV to 50 mV Full Scale
Linearity	±0.01% of Full Scale
TC	0.0015 %/°C typ
Input Noise - 0.1 Hz to 10 Hz	2 µV PP
Tare Adjustment Range ; 3 Settings	-3 mV to +6.5 mV +6.5 mV to +16 mV (Equals 80% F.S. of 3 mV/V cell at 10V)
Temperature Coefficient	0.0015 %/°C typ.
Common Mode Rejection	100 dB Min.
Common Mode Input Voltage	+5 Volts Max.

OUTPUT	
Zero Selection	0 or 4 mA 0 or 2 V
Temperature Coefficient	0.001 %/°C typ.
Test Signal Output	Add 8 mA or 4 V to output
Current Output Span	
Current	0 or 4 to +20 mA Available 0 to -0.3 mA for zero monitor
Compliance Voltage	0 to +20 Volts Available 0 to -0.3 V for zero monitor
Loop Resistance	0 to 1000 ohms
Voltage Output Span	
Voltage	0 or 2 to 10 V Available -2 V to 10 V
Maximim Load Current	5 mA

OUTPUT	
Frequency Response	
2 Poll roll off	-3dB at 10 Hz (typ)
Response Time	
Rise Time 10% to 90%	35 mS
To 0.1% of final value	100 mS

COMPARATOR OUTPUT	
Optional with Opto22 I/O Module	
Comparative Voltage	0 to 10 V
Hysteresis Voltage	0.07 V typ.
Comparator Output	see the specification of OPTO22 output module
Input/Output Isolation	300 V

BRIDGE EXCITATION SUPPLY	
Voltage Adjustment Range	5 to 10 V
Temperature Coefficient	0.001% typ. at 10 V
Load Current	0 to 120 mA
Remote Sense for Excitation Supply	
Current Leads Volt Drop	max. 1 V drop
Sensing Leads Resistance	max. 1 kohm
Line Regulation	Less than 0.01%, typ. 0.002%
Load Regulation	Less than 0.03%, typ. 0.005%
Output Noise	1 mV RMS, typ.
120 Hz Bandwidth	

POWER INPUT	
LED power on indicator	
AC	115 V (90 to 130 V) / 230 V (180 to 260 V) 50/60 Hz, 10 W typ.
DC	11 to 30 V, 8W

ENVIRONMENT	
Operating Temperature	-25°C to +55°C
Storage Temperature	-25°C to +85°C

WEIGHT	
10.5 lb. (4.7 kg.)	

JUNCTION BOX	
10" L x 8" W x 4" H, NEMA 4 Box or NEMA 4X Stainless Steel Box	

TOTAL SIZE	
12.5" x 9" x 4.4" (318 mm x 229 mm x 112 mm)	

Model 4800 Ordering Information

MODEL	DESCRIPTION
4800	4800 Printed Circuit Board without NEMA Enclosure
4800-W4	4800 Printed Circuit Board with NEMA 4 Painted Enclosure
4800-WS	4800 Printed Circuit Board with NEMA 4 Stainless Steel Enclosure

Complete User's Manual available upon request.