

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.