SR2700

Frequency Input Two-Wire Transmitter

FEATURES

- 4/20mA Output Proportional to Frequency Input
- Range is Established by Plug-In Range Card
- 10 Cards Provide Continuous Cover From 12.5Hz to 12800Hz Full Scale
- 20 : 1 Dynamic Range Below Full Scale - Useable to 0.6Hz
- 10 : 1 Range Cards Available For Faster Response - Useable to 1.25Hz
- Special Range Card Filters Available
- Test Points - Monitor Current Without Breaking Loop - .08" Probes
- Reverse Polarity Protected** - Surge Protector On Power Input

DESCRIPTION

The SR2700 is a flexible frequency input two-wire transmitter for Head or DIN rail mounting. It provides a 4 to 20 mA output proportional to the frequency of the input signal.

The input circuit is capacitor coupled so an AC signal imposed on a DC voltage can be measured. Sine or square wave AC signals may also be measured.

A pull-up resistor is provided so the input can be derived from a switch, contact closure, or an open collector NPN transistor such as an optical isolator.

A plug-in range card determines the operating frequency of the unit. 10 cards are available which cover the range from 12.5Hz to 12800Hz full scale. Each card covers a 2 to 1 range (i.e. 12800 to 6400 Hz). Full scale can be any frequency in the range of the card.

Filtering of the Frequency to DC converter signal allows a 20 to 1 dynamic range below the Range Card's lowest Full Scale frequency. (RC-20)

Range cards are also available with a 10 to 1 dynamic range below the Range Card's lowest Full Scale frequency. These Range cards provide a faster response time. (RC-10)

Optional special filters can be provided with a custom dynamic range below a selected Full Scale frequency. The filtering circuits are in the Range Card.

The Zero and Span controls are available on the top of the case.

Test points on the top of the case allow measuring the output current without breaking the loop.

The SR2700 is enclosed in an extruded aluminum case with an aluminum back plate. An optional clip is available for mounting the SR2700 on a DIN rail.

TYPICAL APPLICATIONS

Turbine flow meters
Paddle wheel flow meters
Rotating machinery speed
Conveyor speed.
Wind mill rotational speed
Frequency of AC from a generator

STANDARD RANGE CARDS	LOWEST USABLE FREQUENCY @ 5mV P-P Ripple		TIME TO REACH 95% OF NEW VALUE FOR A STEP CHANGE IN FREQUENCY	
	Dynamic Range		Dynamic Range	
Full Scale Frequency Ranges	20 / 1	10 / 1	20 / 1	10 / 1
12.5Hz to 25Hz	0.6Hz	1.25Hz	20S	6S
25Hz to 50Hz	1.25Hz	2.5Hz	5S	3S
50Hz to 100Hz	2.5Hz	5Hz	2.6S	1.5S
100Hz to 200Hz	5Hz	10Hz	1.3S	640mS
200Hz to 400Hz	10Hz	20Hz	640mS	320mS
400Hz to 800Hz	20Hz	40Hz	320mS	160mS
800Hz to 1600Hz	40Hz	80Hz	160mS	80mS
1600Hz to 3200Hz	80Hz	160Hz	80mS	40mS
3200Hz to 6400Hz	160Hz	320Hz	40mS	20mS
6400Hz to 12800Hz	320Hz	640Hz	20mS	10mS

SPECIFICATIONS

INPUT SIGNAL RANGE
  AC Voltage
    Amplitude
      30mV rms to 50V rms
  AC Voltage Imposed On DC Voltage
    Amplitude
      DC Voltage + Peak of AC Voltage
      is limited to 100V
  Pull-Up Resistor
    10Kohm to +5V
INPUT IMPEDANCE
    > 350K For Inputs < 10V P-P
    150K Ohms For Inputs > 10V P-P
OUTPUT
    4 TO 20mA
    Current Limited 22mA
LINEARITY
    ± 0.01% of Full Scale
ACCURACY
    ± 0.1% of Span
USEABLE RANGE
(Range Card Dependent)
  Full Scale - Any Range of Range Card
  Dynamic Range FS / 20 or FS / 10
  *** See Note 1**
RIPPLE & RESPONSE TIME
    See Chart Above
MAX LOAD RESISTANCE
    RLoad = (PS - 10V) / .02 Ohms
OPERATING TEMPERATURE
  -25C to 70C
  -13F to 158F
TEMPERATURE STABILITY
  ±0.004% / Deg C
POWER
    10 to 36VDC Polarity Protected **

Note 1

The useable range is a level where ripple on the output reaches a level of 5mV P-P. The range can be greater and is only limited by the amount of ripple which can be tolerated.

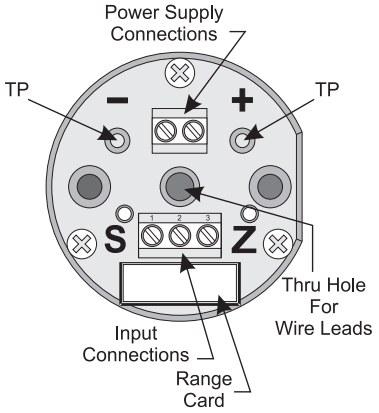
The filter is a 3 pole RC filter built into the Range Card.

Optional special filters are easy to implement and can be provided.

** Reverse polarity not protected when a meter is connected to test points.

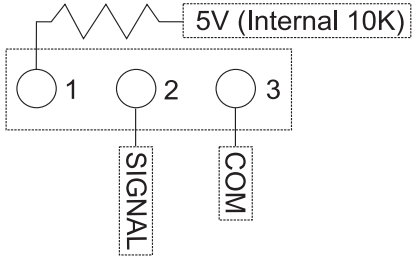
INSTALLATION

The two-wire transmitter is designed to be mounted on a flat surface, in a connection head, or on a DIN rail.



TERMINAL CONNECTIONS

Connect the power supply and signal leads as shown.



CALIBRATION

Install the desired Range card in the transmitter. The unit can be calibrated with any frequency on the Card as full scale.

If a load is connected to the transmitter, connect a current meter to the test points. The test points are across 2 silicon diodes. The current meter must drop less than .5V at 20mA or the current measurement may not be accurate. There is no polarity protection when the meter is connected to the test points.

If there is no load on the transmitter, connect the current meter in series with the negative power supply lead or connect the 2 power supply leads to the terminals and connect the current meter to the test points.

Before connecting the signal source or if connected, reduce the signal level to 0V. Adjust the ZERO control for 4.000mA. Apply the signal and set the frequency for Full Scale. Adjust the SPAN control for 20.000mA.

Reduce the signal level to 0V and verify the output is still 4.000mA.

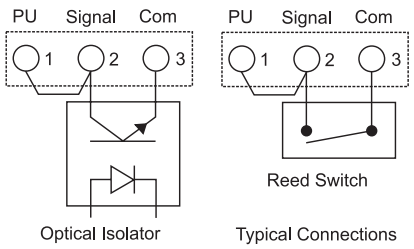
MOUNTING

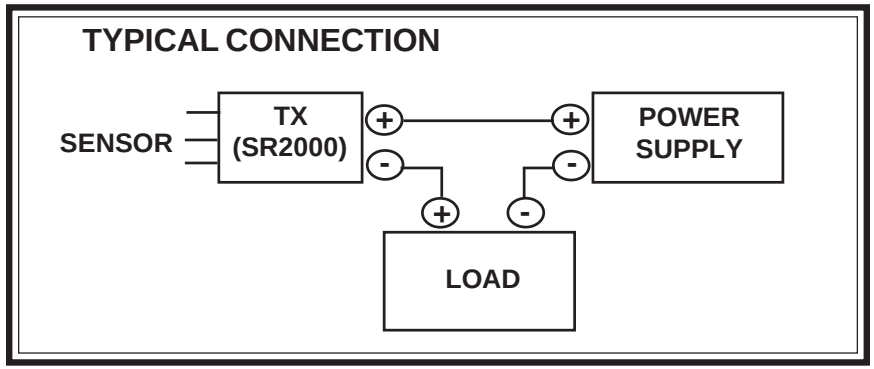
The SR2700 can be mounted in a connection head (TSH-A6L), explosion proof housing (XJAY), on a flat surface, or on a DIN rail with kit (DMP2000).

SIGNALS

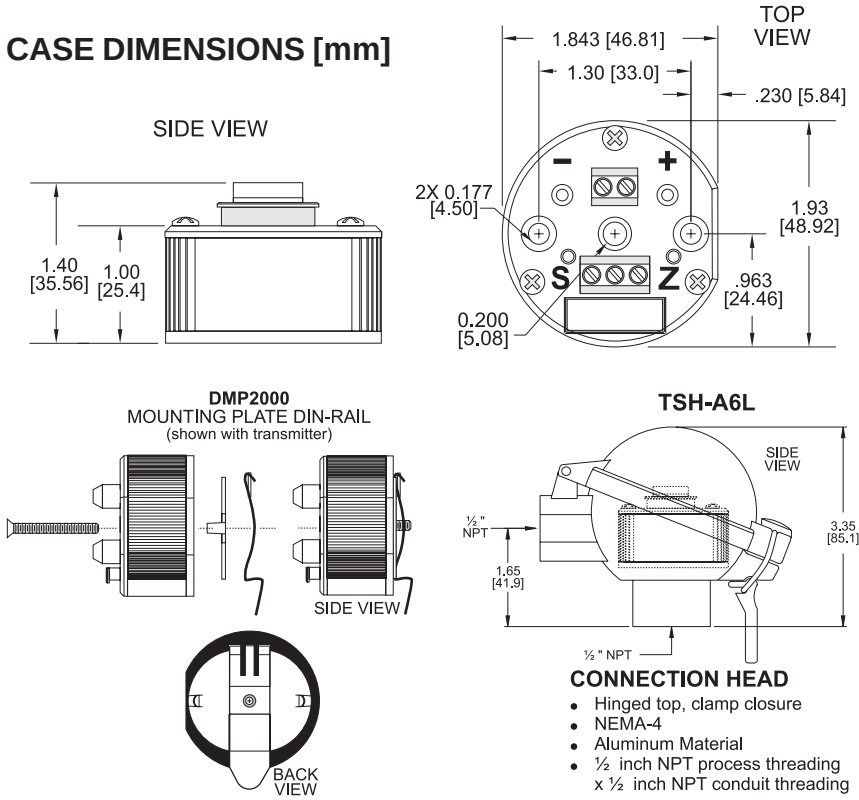
Signals can be sine waves, square waves, pulses, or signals which can utilize the 10K pull up resistor. AC signals can be imposed on a DC level.

PULL UP RESISTOR





CASE DIMENSIONS [mm]



CONNECTION HEAD

- Hinged top, clamp closure
- NEMA-4
- Aluminum Material
- ½ inch NPT process threading x ½ inch NPT conduit threading

 DWG#104497 1/12

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