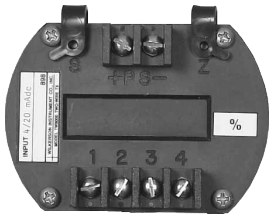
TW850X
FREQUENCY INPUT
TWO-WIRE
TRANSMITTER



The TW8500 produces a DC output current proportional to the frequency of its input. A two-wire transmitter, its output regulates tile current in a series loop while taking its operating power from the same current. Optional transformer input/output isolation is available.

DESCRIPTION

The TW8500 is connected in series between a source of DC power and a readout, controller or other receiving device. An internal voltage regulator feeds a controlled portion of the transmitter's current to its internal circuitry. The block diagram at the end of these instructions illustrates the transmitter's operation.

The input signal is amplified, clipped and fed to a frequency-to-DC converter IC in the preamplifier. The preamplifier's output is applied to a circuit which regulates the total current flowing through the transmitter and thus, through the series loop.

Input amplitudes from 30 mV to 500 V peak-to-peak, or from 10 mv to 170 V rms sine, may be accomodated by connecting the input terminals as shown in the table accompanying the block diagram.

The input may be any waveform and any duty cycle, and may contain a DC component up to ±30 volts (±250 volts on the high input range).

A built-in pullup resistor is provided to accommodate contact-closure or open-collector inputs.

An optional input/output isolator chops the regulated supply voltage, couples it through a transformer and rectifies the resulting output to provide isolated DC power to the preamplifier. The preamplifier's output also is chopped, transformer coupled and demodulated to drive the output current regulator. Transformer isolation allows separate grounding of, or even potential differences between, the input and output terminals.

The transmitter is protected by a gasketed, NEMA 4X glass-filled polyester housing and operates from -40 to +85°C.

MODEL NUMBERS

TW8500 Frequency Input, Nonisolated
TW8501 Frequency Input, Input/Output Isolated

OPTIONS

U All circuit boards conformal coated for protection against moisture.

CONTROLS

Zero and span controls (accessible through the top of the TW8500 housing) calibrate the output current. The display option is calibrated with separate zero and span controls, and range and decimal select switches, located inside the transmitter.

OUTPUT CALIBRATION

The TW8500 is shipped precalibrated. If there is a need to recalibrate, proceed as follows:

Connect the transmitter's output in series with a 24 volt DC power supply and a precision digital current meter per the "TYPICAL CONNECTION" shown in the BLOCK DIAGRAM. Connect the input to a precision frequency generator or other appropriate calibration source. Refer to the "INPUT CONNECTION" table accompanying the block diagram to determine the appropriate terminal connections. (The amplitude and waveform of your calibration source need not be the same as the input your transmitter will be measuring in use. Calibration accuracy is unaffected by amplitude and waveform.)

Set the input frequency to the low end of your range (usually zero) and adjust the "Z" (zero) control for the low-end output current (usually 4.00 or 10.00 mA). Increase the frequency to full scale and adjust the "S" (span) control for full-scale output (usually 20.00 or 50.00mA). Repeat, as the controls may interact slightly.

SPECIFICATIONS

Input Impedance

Voltage 1 megohm
(Low range: 10 kilohm)
Contact Closure
10 kilohm pull-up to 6.5 VDC

Output

4/20 mA (2-wire), 10-50 mA optional

Frequency Range:

Minimum 0 to 10 Hz
Maximum 0 to 5 KHz

Input Amplitude:

Minimum 30 mV pk-pk
Maximum 500V pk-pk

Maximum DC Component of Input:

± 30 VDC (High Range ±250 VDC)

Temperature Stability

±0.01% of span per °C

Power Supply

12 to 48 volts DC

Maximum Load Resistance

R max = (V supply - 12)/I out max

Supply Voltage Effect

0.01% of span max., 12 to 48 volts

Input/Output Isolation

600 V RMS (optional)

Temperature, Operating

-40 to 85°C (-40 to 185°F)

Environmental

NEMA-4X splashproof and corrosion resistant

MOUNTING

Mounting plate accessory DMP8500 allows the TW8500 to be mounted on a surface or in a 2¾ inch wide PVC track. Use the mounting plate as a template to locate and drill holes for surface mounting, then screw tile plate to the bottom of the transmitter using the #6 thread-cutting screws provided.

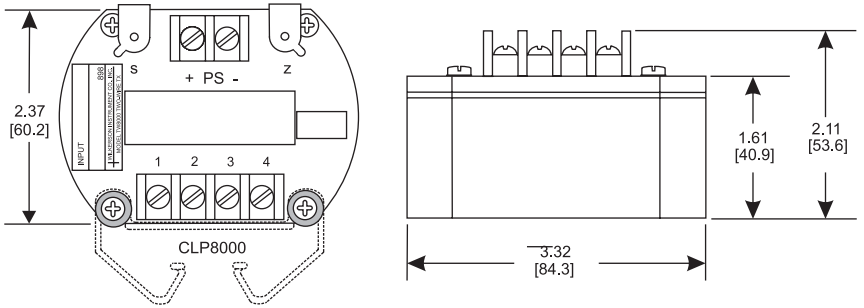
Spring retainer clip accessory CLP8000 (factory installed) holds the TW8500 in place inside a Killark HK Series Explosion-Proof Housing, or other housing with 3½ inch inside diameter.

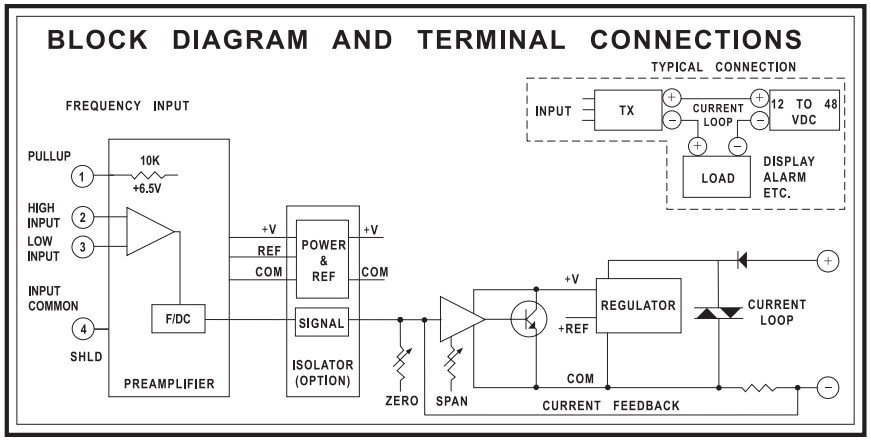
If you wish to provide your own mounting arrangements, use #6 type F thread-cutting screws or tap the bottom recesses with a #6-32 tap. The recesses are ½ inch deep.Exceeding this depth may damage the housing.

WARRANTY

The TW 8000 Series of products carry a limited warranty of 5 + 5 years. In the event of a failure due to defective material or workmanship, during the 5 year period, the unit will be repaired or replaced at no charge. For a period of 5 years after the initial 5 year warranty, the unit will be repaired, if possible, for a cost of 10 % of the original purchase price.

DIMENSIONS INCHES [mm]





INPUT CONNECTION		
Input Amplitude	Connect Input to Terminals:	Jumper:
Low: 30mV to 5V pk-pk 10mV to 1.7V rms sine	3 and 4	none
Med: 300mV to 50V pk-pk 100mV to 17V rms sine	2 and 4	none
High: 3V to 500V pk-pk 1V to 170V rms sine	2 and 4	3 and 4
Contact Closure or Open Collector	2 (+) and 4 (-)	1 to 2

NOTE: Do not connect input and output together, or ground both at once, unless your transmitter is isolated (TW8501).

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