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- Load Cells & Pressure Gauges
- Displacement Transducers
- Instrumentation & Accessories

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- Air Velocity Indicators
- Turbine / Paddlesheel Systems
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- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

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- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
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- pH, Conductivity & Dissolved Oxygen Instruments
OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a “Basic Component” under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:
1. P.O. number under which the product was PURCHASED.
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:
1. P.O. number to cover the COST of the repair,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

The information contained in this document is believed to be correct but OMEGA Engineing, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice. WARNING: These products are not designed for use in, and should not be used for, patient connected applications.
The Proper Installation & Maintenance of TX801F.

MOUNTING.
(1) Mount in a clean environment in an electrical cabinet on 35mm symmetrical mounting rail.
(2) Do not subject to vibration or excess temperature or humidity variations.
(3) Avoid mounting in cabinets with power control equipment.
(4) To maintain compliance with the EMC Directive the TX801F must be mounted in a fully enclosed metal, electrical cabinet, with appropriate input / output entry points, cabling, and filtering.

WIRING.
(1) A readily accessible disconnect device and overcurrent device must be incorporated in the power supply wiring.
(2) All cables should be good quality overall screened INSTRUMENTATION CABLE with the screen earthed at one end only.
(3) Signal cables should be laid a minimum distance of 300mm from any power cables.
(4) For 2 wire current loops, 2 wire voltage signals or 2 wire current signals, Austral Standard Cables B5102ES is recommended. For 3 wire transmitters Austral Standard Cables B5103ES is recommended.
(5) It is recommended that you do not ground current loops and use power supplies with ungrounded outputs.
(6) Lightning arrestors should be used when there is a danger from this source.
(7) Refer to diagrams for connection information.

COMMISSIONING.
(1) Once all the above conditions have been carried out and the wiring checked apply power to the TX801F loop and allow five minutes for it to stabilize.
(2) If the output of the transmitter is fluctuating, follow the procedures outlined in ‘Input Programming; Contact Closure Selection’, ‘Voltage Input Range Selection’, and ‘Impedance Matching’.
(3) Take a low (approx. 10%) and a high (approx. 90%) reading of the variable being measured by the transmitter. Adjust for any difference using the Zero and Span trimpots in the top of the TX801F enclosure with a small screwdriver until the two levels agree. (Clockwise to increase the output reading and anti-clockwise to decrease the output reading.)

MAINTENANCE.
(1) Repeat (3) of COMMISSIONING.
(2) Do it regularly - at least once every 12 months.

TX801F Programmable Isolating Frequency Transmitter.

Features.
- Field Programmable Input and Output Ranges.
- Bi-Polar Output Ranges.
- Fast Response Time, Allowing Accurate Control.
- Impedance Matching on Input.
- Contact Closure Selection.
- Crystal Locked Period Measurement.
- Input to Output Isolation 1.0kV.
- High Accuracy 0.1%.
- Universal AC/DC Power Supply.
- Compact DIN Rail Mount Enclosure.
- Available Standard or Special Calibration.

PI-F Specifications.
Frequency Input 2 Wire Sine / Square / Pulse, Uni-polar / Bi-polar. (Signals < 2Vpp Bipolar Only.)
- Minimum Input Signal = 15mVpp
- Maximum Input Signal = 100Vpp
- Field Programmable Span From 0.4Hz to 40kHz. (60Hz Max. for Contact Input.)
- Adjustable Input Impedance From 100Ω to 100kΩ
- Open Collector Output, Limited to 12Vdc @ 10mA.
- Time-out to 0% after: 200÷(Frequency X Prescale) sec.
- Transmitter P/S 12Vdc±5% Common to COM. (Terminal 4.)
- Max Load = 30mA
Output
- Voltage Field Programmable From 500mVdc to ±12Vdc.
- Maximum Output Drive = 10mA.
- Field Programmable From 1mA to 10mA.
- Universal P/S - Standard High (H) 70~270Vac and 80~380Vdc; 50/60Hz; 4VA.
- Standard Mid (M) 24~80Vac and 20~90Vdc; 50/60Hz; 4VA.
- Low Voltage (L) 8~30Vac and 8~30Vdc; 50/60Hz; 4VA.
- Circuit Sensitivity <±0.001%/V FSO Typical.
- Accurate to <±0.1% FSO Typical.
- Linearity & Repeatability <±0.1% FSO Typical.
- Ambient Drift <±0.01%/C FSO Typical.
- Noise/Immunity 125dB CMRR Average. (1.0kV Peak Limit.)
- R.F. Immunity <1% Effect FSO Typical.
- Isolation Voltage 1.0kVac/dc Input to Output for 60sec.
- Response Time 1/(FREQUENCY x PRESCALE) + 0.2sec. Typical. (Except Time-out to 0%.)
- Operating Temperature 0~70C.
- Storage Temperature -20~80C.
- Operating Humidity 90%RH Max. Non-Condensing.
- Construction Socket Plug-In Type With Barrier Terminals.

Note 1. Specifications based on Standard Calibration Unit, unless otherwise specified.
Note 2. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification.
No liability will be accepted for errors, omissions or amendments to this specification.
### Notes:
- **S5-1 Contact Closure Selection.** 
  - Enter the Span gain value into the appropriate Span DIP switch. DIP switches and trim pots are accessed by removing the small rectangular lid on the top of the TX801F enclosure.

### Input Frequency Programming Table

<table>
<thead>
<tr>
<th>INPUT FREQUENCY</th>
<th>S3-Span</th>
<th>S4-Span</th>
<th>S5-Funct</th>
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<tbody>
<tr>
<td>0-4Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0-5Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-1Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-2Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-4Hz</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-5Hz</td>
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<tr>
<td>0-1Hz</td>
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<tr>
<td>0-2Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-4Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-5Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-1Hz</td>
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<tr>
<td>0-2Hz</td>
<td>0</td>
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<tr>
<td>0-4Hz</td>
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<tr>
<td>0-5Hz</td>
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<td>0-1Hz</td>
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<tr>
<td>0-2Hz</td>
<td>0</td>
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<tr>
<td>0-4Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-5Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>0-1Hz</td>
<td>0</td>
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<tr>
<td>0-2Hz</td>
<td>0</td>
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<tr>
<td>0-4Hz</td>
<td>0</td>
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<tr>
<td>0-5Hz</td>
<td>0</td>
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<td>0-1Hz</td>
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<td>0-2Hz</td>
<td>0</td>
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<td>0-4Hz</td>
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<td>0-5Hz</td>
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<td>0-1Hz</td>
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<td>0-2Hz</td>
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<td>0-4Hz</td>
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</tr>
<tr>
<td>0-1Hz</td>
<td>0</td>
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</tr>
<tr>
<td>0-2Hz</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Span Gain = 12000**

Gain Value 1 2 4 8 16 32
S3 Switch No. 1 2 3 4 5 6
S4 Switch No. 1 2 3 4 5 6

**e.g.** If a gain value of 280 is required, put DIP Switch S3 - No. 4 & No. 5, and DIP switch S4 - No. 3 ON, and all the other DIP switches OFF. (i.e. Gains of 8 + 16 + 256 = 280)

### Contact Closure Selection

For contact closure inputs such as reed switches and relay contacts, put S5-1 ON. This will limit the maximum input frequency to 6Hz. For particularly noisy contacts it might be necessary to place a 1µF non-polarised metal film capacitor directly across the contacts to suppress noise. Ensure the voltage rating of the capacitor is more than the voltage across the contacts. (Minimum of 16V)

### Voltage Input Range Selection

For low voltage input signals < 2Vpp (eg. from a paddle wheel) S5-4 should be put in the ON position. For voltage input signals ≥ 2Vpp S5-4 should be put in the OFF position.

### Impedance Matching

For noisy inputs use the trim pot marked 'I.M.' to tune the input impedance to equal the source impedance.

For voltage input signals > 2Vpp S5-4 should be put in the OFF position.

### P-I-F Output Range Programming Table

<table>
<thead>
<tr>
<th>Output Range (V)</th>
<th>S1-Span</th>
<th>S2-Span</th>
<th>S3-Span</th>
<th>S4-Span</th>
<th>S5-Span</th>
<th>S6-Span</th>
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</thead>
<tbody>
<tr>
<td>0-50mV</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>0-1V</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>0-2V</td>
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<tr>
<td>0-4V</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>0-5V</td>
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<td>6</td>
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<td>6</td>
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</tbody>
</table>

**Examples of Input Connection.**

- **Pulsed Sensor**
- **Reed Switched Transducer, etc.**
- **2 Wire Prox. Transducer, etc.**
- **3 Wire NPN Prox. Transducer, etc.**

### Termination Options

- **Input 1/ Output 2**
- **Power** 8-24V
- **DC Power** 5V
- **AC Power** 110V
- **Frequency Input** 2-4Hz
- **Current Input** 0-10mA

### TX801F H1 Power Supply Link Settings

**Power Supply Link Settings**

1. **H1 Link for High: 70–270Vac / 80–380Vdc**
2. **M Link for Mid: 24–80Vac / 20–90Vdc**

**Notes:**
- 1H is approx 4cm (1 1/2") behind the 'H' trimpot.
- 2/ Exceeding voltage ranges may damage the unit.
- 3/ Ensure the enclosure label is correctly labelled for the link position.
- 4/ Adjust H1 jumper with a pair of needle nose pliers.
- 5/ Low Voltage Power Supply version is fixed, and has no link. This must be ordered separately.