

5 YEAR WARRANTY
CE RoHS

Ω OMEGA® User's Guide



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TXDIN1700 Universal DIN Rail



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Instruction Manual

TXDIN1700 Universal Signal Conditioner

IMPORTANT - CE & SAFETY REQUIREMENTS

This product is suitable for environment Installation category II pollution degree. The product is classed as "PERMANENTLY CONNECTED EQUIPMENT". Product must be DIN rail mounted, inside a suitable enclosure providing environmental protection to IP65 or greater. Dc supply must be derived from a local supply and not a distribution system. Max relay contact rating 240 V AC @ 1 A (30 V DC @ 1A). Any circuit connected to a contact must be fused with a 2 A (T) fuse. To maintain CE EMC requirements, input and supply wires must be less than 30 metres. The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair. This product must be installed by a qualified person. All electrical wiring must be carried out in accordance with the appropriate regulations for the place of installation. Before attempting any electrical connection work, please ensure all supplies are switched off.

ABSOLUTE MAXIMUM CONDITIONS (To exceed may cause damage to the unit):-

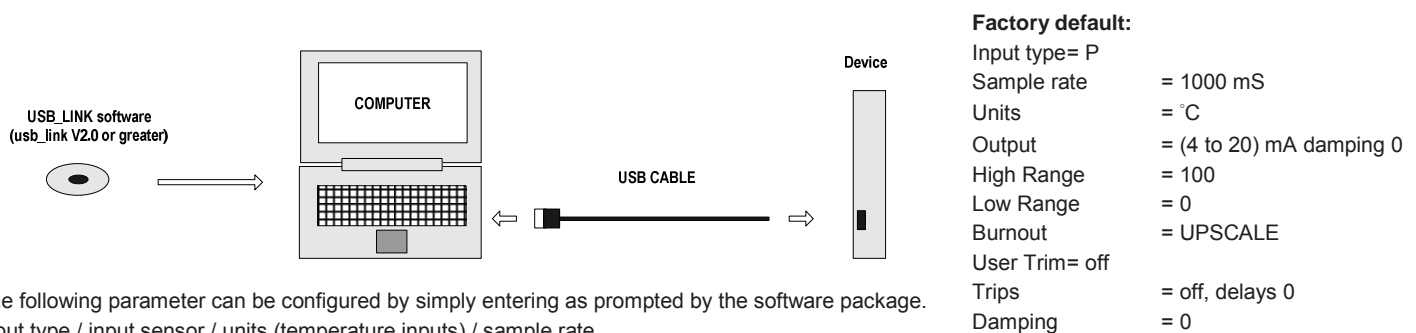
Supply Voltage	± 240 V dc ± 240 V ac (Protected for over voltage)
Input Voltage	± 24 V between any terminals
Input Current	± 50 mA between terminals
Output	30 V dc
Trips	(240 V ac @ 1 A, 30 V dc @ 1 A) non inductive
Ambient Temperature	(-30 to 75) °C
Humidity	(10 to 95) % RH (Non condensing)
External Supply	1 Amp anti surge fuse recommended

RECEIVE AND UNPACKING

Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

CONFIGURATION

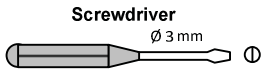
IMPORTANT During configuration the device takes its power from the USB port, therefore no power connection is required. The device can be configured whilst powered but the computer used must be isolated from the mains supply earth to avoid ground loop effects.



The following parameter can be configured by simply entering as prompted by the software package.
Input type / input sensor / units (temperature inputs) / sample rate
Scale input to process variable (process inputs only)
Analogue Output / Set Type voltage or current / scale output signal range / scale output to process
Set adjustable damping for both rising and falling output. Set correction for voltage output load.
Trip Outputs / Set action / Set setpoints / Set deadband / Set adjustable delay on and delay off
Set burnout direction on sensor failure or input overrange.
Set the function of the front panel user buttons to off, trim or configure. TAG number



USER TRIM



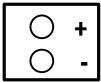
User trim function allows manual adjustment of the analogue output, this is useful for minor calibration adjustment or trimming out any sensor error, $\pm 5\%$ of range adjustment is available at both offset and span. Raise and lower buttons are provided on the front panel, of the transmitter, accessed using a 3 mm flat blade screwdriver. Insert the screw driver into the appropriate slot to operate the button. The button has a click action.

The transmitter will automatically detect the correct trim point (offset or span) based on the output signal. Offset will be trimmed when the current is in the offset band, span when the current is in the span band. No trim action occurs at any other current. Note this function needs to be selected by the software configuration tool before use. To lock setting after adjustment the operator can again use the tool to turn this function off, (select the option to save trim when downloading config).

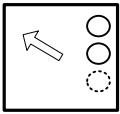
Digital mA meter



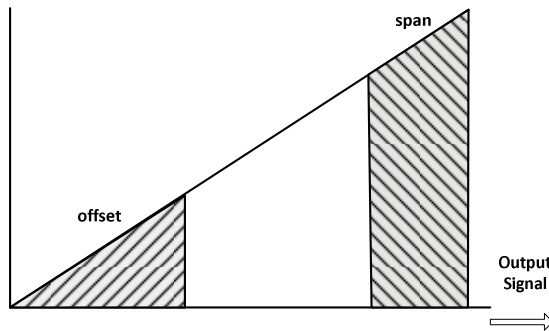
Supply



Input Simulator



or sensor



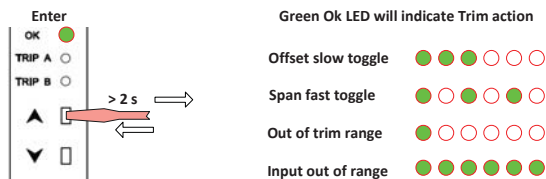
Range	Offset	Span
(4 to 20) mA	(3.8 to 6) mA	(18 to 22) mA
(0 to 20) mA	(0 to 2) mA	(18 to 22) mA
User mA	User low ± 2 mA (Min 0 mA)	High ± 2 mA (Max 24 mA)
(0 to 10) V	(0 to 1) V	(9 to 11) V
User V	User low ± 1 V (Min 0 V)	User High ± 1 V (Max 12 V)

METHOD

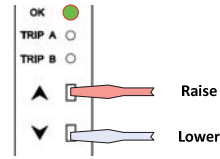
1.0 Connect transmitter to a suitable input simulator or sensor. Connect supply, connecting a digital meter to monitor output. Turn supply on, set input to offset/span calibration point.

IMPORTANT - IF PERFORMING TWO POINT CAL< ALWAYS CAL OFFSET FIRST.

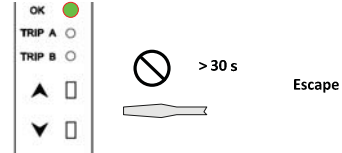
2.0 Enter trim menu by pressing "raise" button for > two seconds. When the trim menu is open the range LED will flash :-



3.0 Trim output current by pressing either the raise or lower button, single click to step advance, or press continuously to auto advance.



4.0 Once trim is complete allow 30 seconds with no button press, the transmitter will time out and return to normal operation.



SENSOR FAULT CONDITIONS

TC or RTD Input.

Analogue output.

On loss of the input signal the TXDIN1700 will go into burnout condition, this is selectable (high, low, or user).

Relay output.

The relays will trip (change state from the normal condition) on loss of the input signal, unless set to the off position.

Process Input.

Analogue output.

Loss of the input signal does not affect the output in the same way as with TC or RTD.

With process inputs a lost signal will be seen as a process value scaled to the equivalent of a zero electrical input.

If the process value is below the process low range the output will go to its low scale value (less approximately 10% of the output range)

Relay output.

Only with low alarm or low control will the relays trip (change state from the normal condition) on under range/loss of input signal.

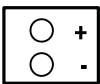
USER RANGE CONFIGURATION



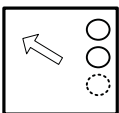
Screwdriver

Ø 3mm

Supply



Input Simulator



or sensor



This function allows two point manual configuration of the re-transmission current (voltage) at low and high range against a live input signal. This is useful for on-site configuration, example with a slide wire input the user manually positions the slide at both low and high positions and configure the unit to operate over the range. Configuration is achieved using either the raise (span) or lower (offset) buttons.

To operate this function must first be selected using the software configuration tool. The operator may lock this function (once set) by turning off the function.

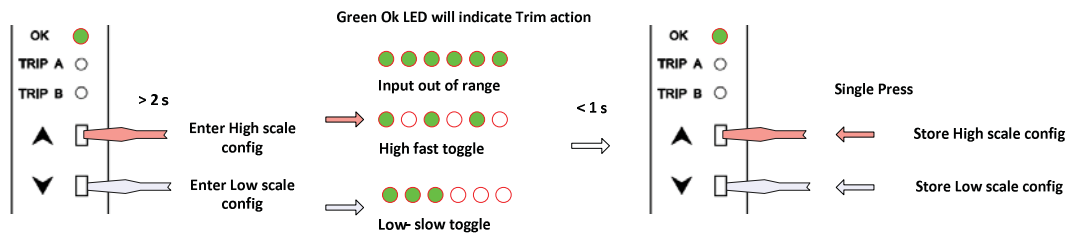
METHOD

1.0 Connect transmitter to a suitable input simulator or sensor. Connect supply, turn supply on, set input to either offset or span calibration point.

2.0 To enter configuration, set input to desired high or low setting and wait 10 seconds. Press and hold raise (high) or lower (low) button on for > 2 s to enter.

The ok LED will then start to flash at a slow rate (low) or fast rate (high).

3.0 Once the menu has been entered, quickly (within 1 second) apply a single press to the raise (high) or lower (low) button to store setting. To abort configuration, allow config to time out by not pressing buttons for 5 seconds.



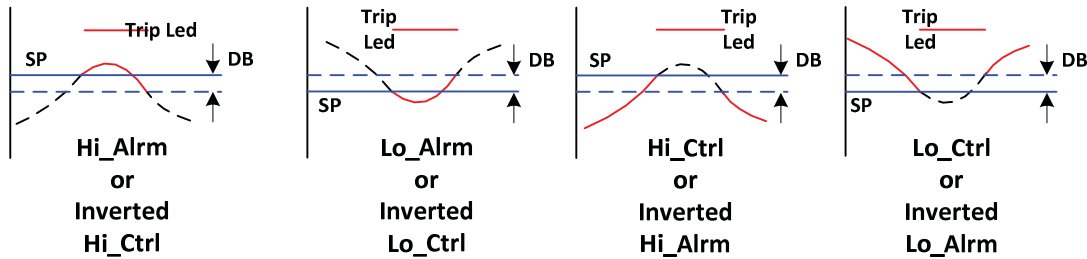
OUTPUT DAMPING

User adjustable damping of the analogue output is provided for both rising and falling signals. The adjustable range is (0 to 250) second for a (0 to 20) mA or (0 to 10) V swing.

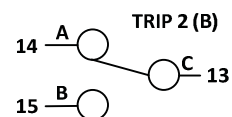
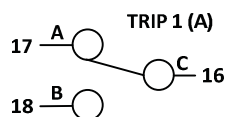
To calculate the maximum rate of change of the output signal divide 20 mA (10 V) by the damping setting, example if the damping is set to 100 seconds the mA output will change at a maximum rate of $(20/100) = 0.2 \text{ mA /Second}$. Use USB_LINK software to configure damping setting.

TRIP OUTPUTS

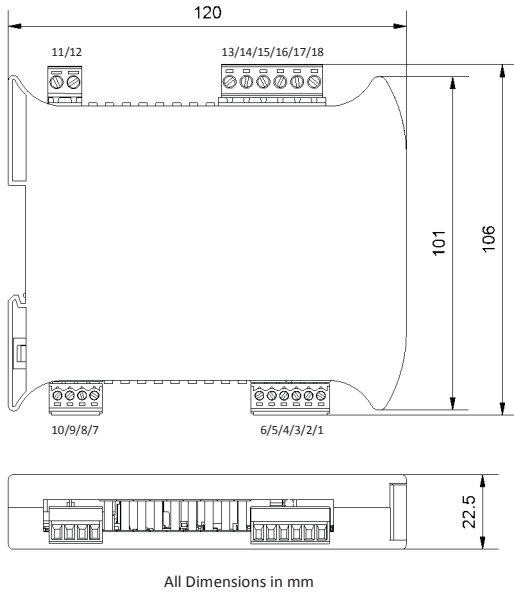
Dual trip change over contacts are available. The contacts are rated at 240 V ac 1 A (Non inductive) 30 V DC 1 A. An external snubber network is recommended when switching inductive circuits. Please ensure the snubber network is rated for the application. Four actions are provided, as detailed in the diagram below. The Alarm actions may also be used for inverted control applications, example the high alarm action can be used to control a cooling fan when used to control the temperature of a heat source. Adjustable setpoint and deadband are provided together with adjustable on and off delays for each trip. The delay range is (0 to 250) Seconds.



Action	Normal	Trip	Temperature Range Error	Power off
Hi_Alrm / Inverted Hi-Ctrl Lo_Alrm / Inverted Hi-Ctrl				
Hi_Ctrl / Inverted Hi_Alrm Lo_Ctrl / Inverted Lo_Alrm				



MECHANICAL INSTALLATION



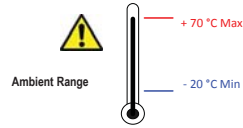
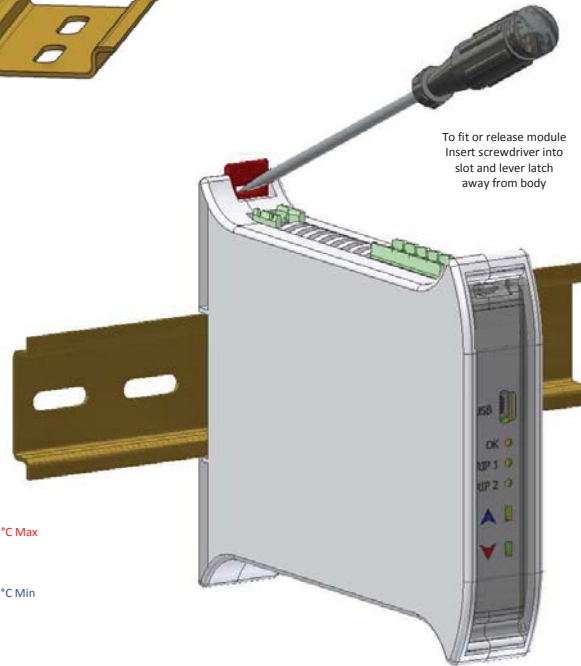
MOUNTING

- 1 Screwdriver
- 2 EN60715 DIN RAIL



Enclosure

Style DIN Rail Mount
 Material Blend PC/ABS self extinguishing
 Terminals Screw terminal
 Cable 2.5 mm Max
 Colour Grey



ELECTRICAL INSTALLATION

! TURN OFF SUPPLY BEFORE WORKING ON ANY ELECTRICAL CONNECTION

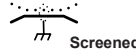
Screened Cable



Twisted Pair Cable



TC Compensation Cable



Screwdriver



INPUT CONNECTION

For cable length < 3 Metres no screen or twisted pair required.
 Thermocouple inputs must use correct compensation cable.
 PT100 inputs all three wires must be equal length (resistance).
 Max input cable length 30 metres.

ANALOGUE OUTPUT CONNECTION

For cable length < 3 metres no screen or twisted pair required.
 Use twisted pair or screened for current output (3 to 1000) metres.
 Voltage output use screened cables (3 to 30) metres, cable lengths > 30 metres not advised.

TRIP OUTPUT CONNECTION

Trip outputs are isolated from each other.
 Max switching current (1 A @ 240 V ac, 1 A @ 30 V dc)
 Non Inductive

SUPPLY CONNECTION
 Supply input is not polarity sensitive.
 Max supply 240 V ac or 240 V dc

Temperature

Process

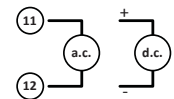
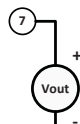
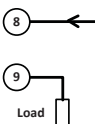
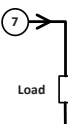
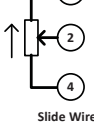
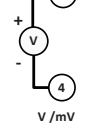
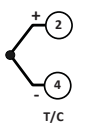
Current Internal Powered

Current Externally Powered

Voltage

TRIP 2(B)

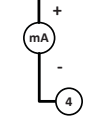
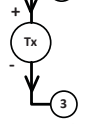
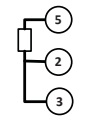
TRIP 1(A)



PT100

Transmitter

mA Sense



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **61 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **five (5) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, 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 having been 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 in which wear is not warranted, include but are 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 the company 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. Should any Product(s) be used in or with any nuclear installation or activity, medical application, 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. Purchase Order 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. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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