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CE

User's Guide

TEMPERATURE

- Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- Wire: Thermocouple, RTD & Thermistor
- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

PRESSURE, STRAIN AND FORCE

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

FLOW/LEVEL

- Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine / Paddlesheel Systems
- Totalizers & Batch Controllers

pH/CONDUCTIVITY

- pH Electrodes, Testers & Accessories
- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

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- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
- Datalogging Systems
- Recorders, Printers & Plotters

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- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL

MONITORING AND CONTROL

- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments



<http://www.omega.com>
e-mail: info@omega.com

TX801DS SERIES PROGRAMMABLE ISOLATING DUAL SETPOINT ALARM UNIT



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WARNING: These products are not designed for use in, and should not be used for, patient connected applications.

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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.

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2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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2. Model and serial number of 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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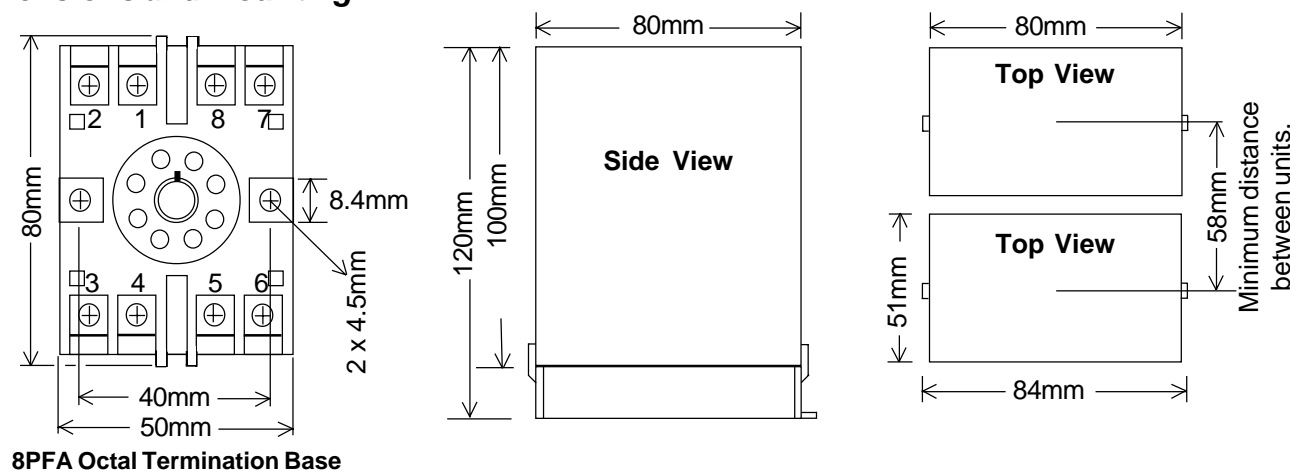
TX801DS Input Programming Table.

		S8-INPUT			
		1	2	3	4
Voltage Input	0~5V	0	0	1	0
	1~5V	0	0	1	1
	0~10V	0	0	0	0
	2~10V	0	0	0	1
Current Input	0~10mA	0	1	0	0
	2~10mA	0	1	0	1
	0~20mA	1	1	0	0
	4~20mA	1	1	0	1
	0~50mA	1	0	1	0
	10~50mA	1	0	1	1

Alarm Action Notes.

- (i) B relay is always the slave, copying the operation of A relay.
 - (ii) 'Slave Without Delay' means A & B relays switch simultaneous.
 - (iii) 'Slave With Delay' means B relay uses the 'B Time Delay'.
 - (iv) For Window Comparator and Differential alarms, A & B setpoints are interchangeable, but use the 'A Time Delay'.
 - (v) The PI-S can be configured as a single setpoint change over alarm unit when using alarm relay actions 'C', 'H', 'M', or 'R'.
 - Make A relay N.O., and B relay N.C.
 - Output terminal 2 & 5 must be externally linked.
 - Output terminal 1 becomes N.O.
 - Output terminal 6 becomes N.C.
 - Output terminal 2 & 5 become common.
- NOTE: In this change over mode, it is possible for both alarm relays to be in the same state, for a maximum of 100msec.

Dimensions and Mounting.



The Proper Installation & Maintenance of TX801DS.

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 PI-S is to be mounted in a fully enclosed metal cabinet. The cabinet must be properly earthed, with appropriate input / output entry points, cabling, and filtering.

WIRING.

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

COMMISSIONING.

- (1) Ensure that the unit has been set up for the correct:
 - {i} alarm relay options- alarm trigger points, time delays, N.O. / N.C.;
 - {ii} contact options: and high / low, window, differential, or slave alarm action. as per calibration information.
- (2) Once all the above conditions have been carried out and the wiring checked, apply the power to the TX801DS, and allow five minutes for the unit to stabilize.
- (3) Check the alarm trigger point by varying or simulating the input signal to the TX801DS. Check that the unit triggers at the correct setting and that the time delay is correct.

CAUTION: Before triggering the alarm unit, ensure that this will not cause any undesirable effects. It may be necessary to isolate the alarm relay action before checking the settings.

MAINTENANCE.

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

TX801DS Programmable Isolating Dual Set Point Alarm Unit.

Programmable Isolating DC Voltage or DC Current Input Dual Setpoint Alarm Unit.

Features.

- Field Programmable Input Ranges.
- Isolated Input to Output 1.6kV.
- High Accuracy.
- Universal AC/DC Power Supply.
- 0~100% Alarm Set Point Range.
- Dual Relay or SSR Drive Outputs.
- LED Indication of Relay Status.
- N.O. / N.C. Selectable Contacts.
- 0.2~30sec Adjustable Delay.
- High, Low, Window & Differential Selectable Alarms.



TX801DS Specifications.

Input	-Voltage	Field Programmable 0~5, 1~5, 0~10 & 2~10Vdc.	
		Minimum Input Resistance = 200kΩ.	
		Maximum Over Range = 200Vdc Continuous.	
	-Current	Field Programmable 0~10, 2~10, 0~20, 4~20, 0~50 & 10~50mA.	
		Maximum Input Resistance 20mA Ranges = 50Ω, Other mA Ranges = 100Ω.	
		Maximum Over Range = 80mAadc Continuous.	
Output	-Both Relays	Field Selectable, N.O. or N.C.	
		Field Selectable; Active on High or Low; Window Alarm; or Differential Alarm.	
	-SSR Drive	12V @ 20mA max.	
Alarm Setting Range		0~100% of Input Signal: 0~99% in 1% Increments, Using Two Ten-position Setpoint Switches and ±1% Using the Fine Adjustment Trimpot.	
Alarm Hysteresis		1% FSO Typical.	
Time Delay		0.2~30sec Nominal, Adjustable by a Single Turn Trimpot.	
LED Indication		Operates When Alarms are Active.	
Relays.	-Action	SPST.	
	-Contact Material	Silver Alloy	
	Rating	No. of Operations	Approved to Standard
	250Vac, 2A	2x10 ⁵	UL:E43028
	125Vac, 2A	2x10 ⁵	CSA:LR26550
	110Vdc, 0.3A		
	30Vdc, 2A		
	1/6hp, 250Vac		
	1/10hp, 125Vac		
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. (1.6kV Peak Limit).
R.F. Immunity	<1% Effect FSO Typical.
Isolation Voltage	1.6kVac/dc Input to Output for 60sec.
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.

Quality Assurance Programme.

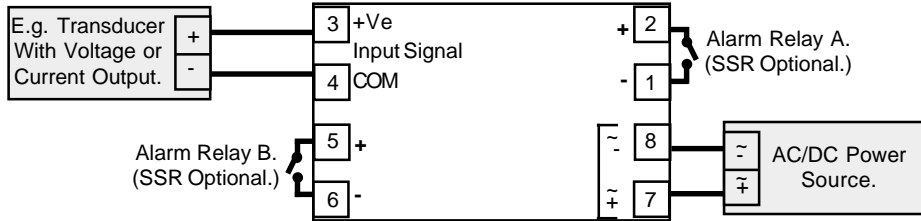
The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant long term reliability of the instrument.

Input Ranges		Alarm Relay Action			Contact Options				
Range	IR	Relay A	Relay B	AR	Relay		SSR		CO
					A	B	A	B	
0~5V	1	High Alarm	High Alarm	A	N.O.	N.O.			1
1~5V	2	High Alarm	Low Alarm	B	N.O.	N.C			2
0~10V	3	High Alarm	Slave Without Delay	C	N.C.	N.O			3
2~10V	4	High Alarm	Slave With Delay	D	N.C.	N.C			4
0~10mA	5	High Alarm	Inverted Slave With Delay	E			N.O.	N.O.	5
2~10mA	6	Low Alarm	High Alarm	F			N.O.	N.C	6
0~20mA	7	Low Alarm	Low Alarm	G			N.C.	N.O	7
4~20mA	8	Low Alarm	Slave Without Delay	H			N.C.	N.C	8
0~50mA	9	Low Alarm	Slave With Delay	I					
10~50mA	10	Low Alarm	Inverted Slave With Delay	J					
		Window Comparator	High Alarm	K					
		Window Comparator	Low Alarm	L					
		Window Comparator	Slave Without Delay	M					
		Window Comparator	Slave With Delay	N					
		Window Comparator	Inverted Slave With Delay	O					
		Differential	High Alarm	P					
		Differential	Low Alarm	Q					
		Differential	Slave Without Delay	R					
		Differential	Slave With Delay	S					
Special Input Range	Z	Differential	Inverted Slave With Delay	T					

Power Supply		PS
High Voltage Power Supply: 70~270Vac and 80~380Vdc		H
Mid Voltage Power Supply: 24~80Vac and 20~90Vdc		M
Low Voltage Power Supply: 8~30Vac and 8~30Vdc		L

Note: Power supply H is field selectable for M, and M for H. Power supply L must be ordered separately.

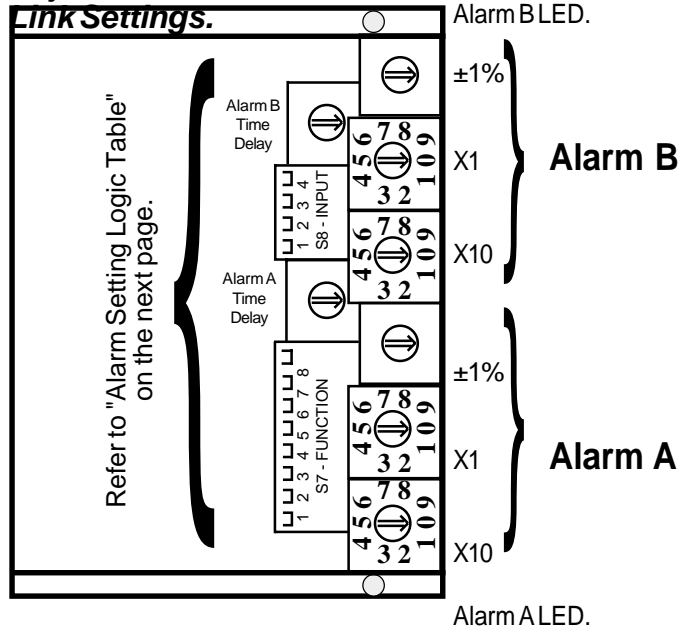
Examples of Input Connection.



Terminations

Alarm A:	1	RELAY
	2	A
Input	3	+Ve SIGNAL
	4	COM
Alarm B:	5	RELAY
	6	B
P/S	7	~AC/+DC
	8	~AC/-DC

Plan View of TX801DS Adjustments.



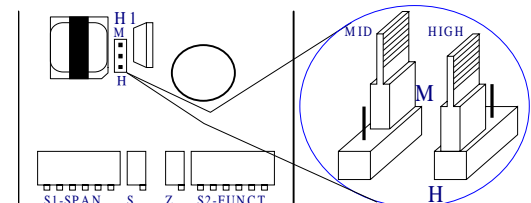
TX801DS H1 Power Supply

WARNING: High Voltages Maybe Present. Only adjust link with power disconnected.



H1	Power Supply Voltage Range
H	Link for High: 70~270Vac / 80~380Vdc
M	Link for Mid: 24~80Vac / 20~90Vdc

Notes:
 1/ H1 is approx 4cm (1½") behind the 'S' 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.



Setting Alarm Setpoints.

DIP switches and trim pots are accessed by removing the small rectangular lid on the top of the PI-S enclosure

Example. To set a 28% alarm setpoint:
 Set X10 to 2 (ie. 20%)
 Set X1 to 8 (ie. 8%) => Total = 28%

If finer than 1% alarm setpoint resolution is required, use the FINE trimpot shown in the 'Plan View of PI-S Adjustments'. Adjust the trimpot clockwise to increase the setpoint setting, and anti-clockwise to decrease the setpoint setting.

* Refer to page 'Alarm Action Notes' for more information.

Time Delay Settings.

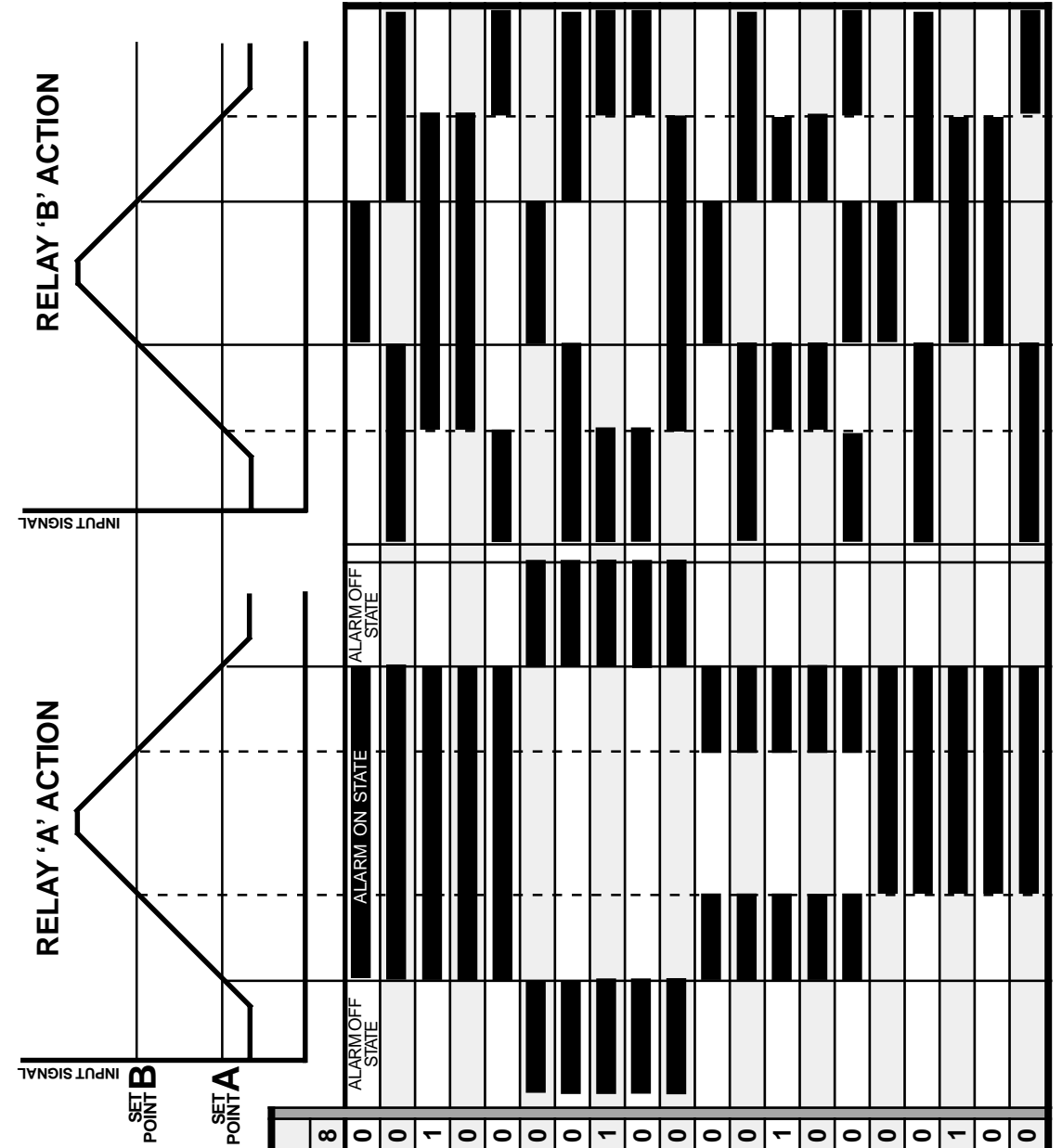
Fully clockwise = 30sec (maximum delay).

Fully anti-clockwise = 0.2sec (minimum delay).

Time delay is only active going INTO the alarm state.

There is no time delay coming out of an alarm state.

NOTE: The table below **DOES NOT** show time delays.



Alarm Setting Logic Table.

Alarm Relay Action	Alarm Relay B	S7 - Function
Alarm Relay A	High Alarm	1 2 3 4 5 6 7 8
High Alarm	High Alarm	1 1 0 1 1 0 1 0
High Alarm	Low Alarm	1 0 0 1 1 0 1 0
High Alarm	Slave Without Delay	1 0 0 0 0 1 1 0
High Alarm	Slave With Delay	1 1 0 0 0 1 1 0
High Alarm	Inverted Slave With Delay	1 0 0 0 0 1 1 0
Low Alarm	High Alarm	0 1 0 1 1 0 1 0
Low Alarm	Low Alarm	0 0 0 1 1 0 1 0
Low Alarm	Slave Without Delay	0 0 0 0 0 1 1 0
Low Alarm	Slave With Delay	0 1 0 0 0 1 1 0
Low Alarm	Inverted Slave With Delay	0 0 0 0 0 1 1 0
Window Comparator	High Alarm	0 1 1 1 1 0 1 0
Window Comparator	Low Alarm	0 0 1 1 1 0 1 0
Window Comparator	Slave Without Delay	0 0 1 0 1 0 1 1
Window Comparator	Slave With Delay	0 1 1 0 1 0 1 0
Window Comparator	Inverted Slave With Delay	0 0 1 0 1 0 1 0
Differential	High Alarm	0 1 1 1 1 0 0 0
Differential	Low Alarm	0 0 1 1 1 0 0 0
Differential	Slave Without Delay	0 0 1 0 1 0 0 1
Differential	Slave With Delay	0 1 1 0 1 0 0 0
Differential	Inverted Slave With Delay	0 0 1 0 1 0 0 0