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M-3785/0302

CE

User's Guide

OMEGA ENGINEERING, INC.
An OMEGA Technologies Company

http://www.omega.com
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TX802SG SERIES
TWO WIRE BRIDGE TRANSMITTER

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USA: One Omega Drive, Box 4047
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e-mail: canada@omega.com

For immediate technical or application assistance:

USA and Canada: Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA℠
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Benelux: Postbus 8034, 1180 LA Amstelveen, The Netherlands
Tel: (31) 20 6418405 FAX: (31) 20 6434643
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e-mail: nl@omega.com

Czech Republic: ul. Rude armady 1868, 733 01 Karvina-Hranice, Czech Republic
Tel: 420 (69) 6311627 FAX: 420 (69) 6311114
e-mail: czech@omega.com

France: 9, rue Denis Papin, 78190 Trappes
Tel: (33) 130-621-400 FAX: (33) 130-699-120
Toll Free in France: 0800-4-06342
e-mail: france@omega.com

Germany/Austria: Daimlerstrasse 26, D-75392 Deckenpfronn, Germany
Tel: 49 (07056) 3017 FAX: 49 (07056) 8540
Toll Free in Germany: 0130 11 21 66
e-mail: germany@omega.com

United Kingdom: 25 Swannington Road, P.O. Box 7, Omega Drive,
ISO 9001 Certified Broughton Astley, Leicestershire, Irlam, Manchester,
LE9 6TU, England M44 5EX, England
Tel: 44 (1455) 285520 Tel: 44 (161) 777-6611
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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.

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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.

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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The Proper Installation & Maintenance ofTX802SG.

MOUNTING.

(1) Mount in a clean environment in an electrical cabinet on DIN or EN 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 Directives the LPI-B is to be mounted in a fully enclosed steel cabinet. The cabinet must be properly earthed, with appropriate input / output entry points and cabling.

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) Once all the above conditions have been carried out and the wiring checked apply power to the TX802SG loop and allow five minutes for it to stabilize.
(2) Take a low (approx 10%) and high (approx 90%) reading of the variable being measured by the transducer supplying the signal to the TX802SG, and ensure that this agrees with the level being indicated by the PLC or indicator, etc, that the TX802SG is connected into. Adjust for any difference using the Zero & Span trimpots in the top of the TX802SG enclosure with a small screw driver, until the two levels agree. (Clockwise to increase the output reading and anti-clockwise to decrease the output reading.)

MAINTENANCE.

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

INPUT RANGES			
mV	**IR**	**mV**	**IR**
0~1mV	1	0~200mV	21
0~2mV	2	0~500mV	22
0~3mV	3	0~750mV	23
0~4mV	4	0~1000mV	24
0~5mV	5	2~6mV	25
0~6mV	6	5~10mV	26
0~8mV	7	15~20mV	27
0~10mV	8	30~35mV	28
0~12mV	9	30~40mV	29
0~15mV	10	30~45mV	30
0~20mV	11	30~60mV	31
0~25mV	12	50~80mV	32
0~30mV	13	100~200mV	33
0~35mV	14	-2~4mV	34
0~40mV	15	-4~6mV	35
0~50mV	16	-5~7mV	36
0~60mV	17	-10~20mV	37
0~75mV	18	-50~70mV	38
0~80mV	19	-100~300mV	39
0~100mV	20	-200~800mV	40
Special Input Range			Z

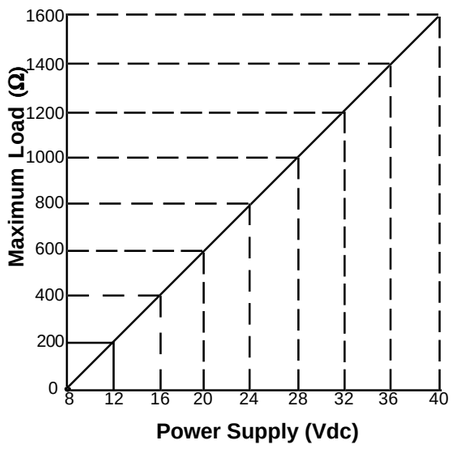
TX802SG: 2 Wire Bridge Transmitter.

Isolating Bridge Input to 4~20mA Output Loop Powered Transmitter.

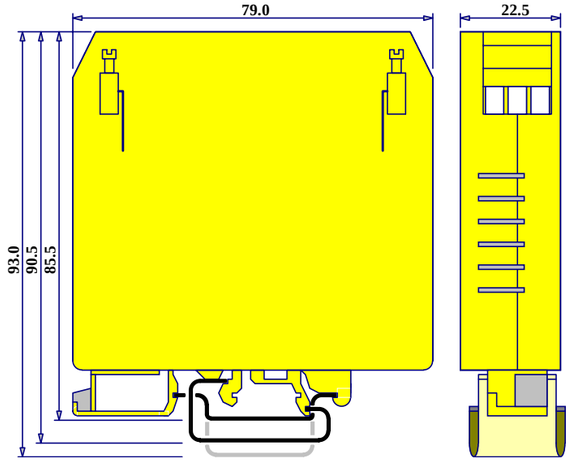
Features.

- **Field Programmable Bi-Polar Input Ranges.**
- **Isolated Input to Output 2.0kVDC.**
- **High Accuracy.**
- **40~200mV Output Test Signal.**
- **LED Indication of Loop Current.**
- **Selectable 3 Second Input Damping.**
- **Low Cost.**
- **Easy to Install.**
- **Compact DIN Rail Mount Enclosure.**
- **Available Standard or Special Calibration.**
- **Reverse Polarity Protection.**
- **Corrosion Proofed Circuit Board & Components by Isonel 642. (Except Terminals & DIP Switches.)**

Graph Of Maximum Load Versus Power Supply.



Enclosure Dimensions.



Quality Assurance Programme.

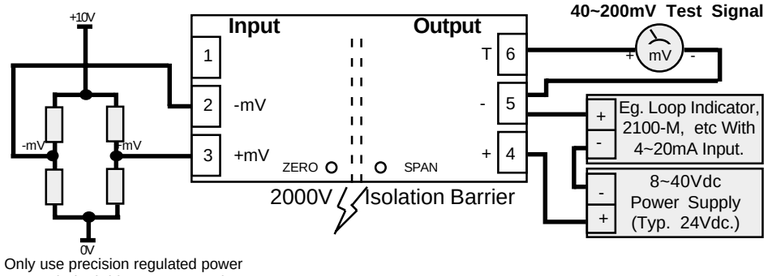
The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant the long term reliability of the instrument.

TX802SG Specifications.

Input	-mV	Field Programmable: 1~1000mVdc and Bipolar.
		Minimum Input Resistance = 1MΩ.
		Maximum Over-range = 30Vdc Continuous.
		3 Second Input Damping Selectable With S3-1.
Output	-mA	2 Wire 4~20mA. (Loop Powered.)
	-mV	40~200mV ∝ 4~20mA. (Indicative Test Signal Only.)
		Other Output Voltages Available. eg 1~5V.
Power Supply		8~40Vdc.
Supply Voltage Sensitivity		<±0.005%/V FSO.
Output Load Resistance		800Ω @ 24Vdc. (50Ω/V Above 8Vdc.)
Maximum Output Current		Limited to <28mA.
Accurate to		<±0.1% FSO Typical.
Linearity & Repeatability		<±0.1% FSO Typical.
Ambient Drift		<±0.02%/C FSO Typical.
Noise Immunity		125dB CMRR Average. (2.0kVac RMS Limit.)
R.F. Immunity		<1% Effect FSO Typical.
Isolation Voltage		2.0kVac/dc Input to Output for 60sec.
Response Time		200msec Typical. (10 to 90% 50msec Typical.)
Operating Temperature		0~70C.
Storage Temperature		-20~80C.
Operating Humidity		90%RH Max. Non-Condensing.
Construction		6.6 Polyamide Thermoplastic Rail Mount Enclosure.

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.

Examples of Input Connection.

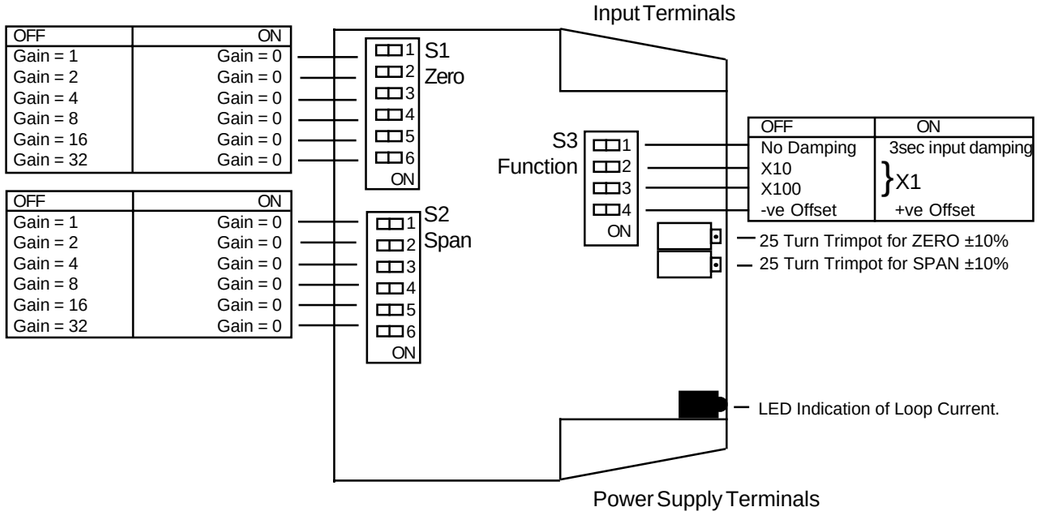


Note: Only use precision regulated power supply for bridge power supply.

Terminations.

Input	1	NC
	2	-mV
	3	+mV
Output	4	+mA
	5	-mA
	6	mV TEST

Plan View of TX802SG Adjustments.



TX802SG Input Programming.

If the input range is not listed in the programming table, use the following formulae to work out the Zero and Span DIP switch settings for gain.

Span Gain = $\frac{60 \text{ X Pregain}}{(\text{Signal High - Signal Low})}$

Zero Gain = $\frac{5 \text{ x Signal Low}}{\text{Pregain}}$

EFFECTIVE INPUT RANGE (i.e. Signal High - Signal Low.)	S3-2	S3-3	Pregain
1mV <= Range <= 10mV	0	0	1
10mV < Range <= 100mV	0	1	10
100mV < Range <= 1000mV	1	1	100

If Zero gain is: 1/ -ve Put S3-4 ON (Positive Offset)
2/ +ve Put S3-4 OFF (Negative Offset)

Notes: (a) Enter ranges as their mV value. eg. Enter 100mV as 100.
(b) Use the same pregain value in both the Span and Zero gain formulae.
(c) Enter the Zero or Span gain value into the appropriate Zero or Span DIP switch.

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

So if a gain value of 28 is required, put DIP switch No's 3, 4, 5 OFF (ie, gains of 4 + 8 + 16 = 28) and all the other DIP switches ON. Dip switches are accessed by seperating the two halves of the TX802SG enclosure

TX802SG Input Range Programming Table.

Notes: 1/ Switch status 1 = ON, 0 = OFF, X = DON'T CARE.
2/ Input ranges with '*' beside them require more adjustment with the Span trimpot.

INPUT RANGE	S1-Zero						S2-Span						S3-Function			
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4
0~1mV	1	1	1	1	1	1	1	1	0	0	0	0	SET TO '0' FOR NO DAMPING. SET TO '1' FOR 3sec DAMPING.	0	0	X
0~2mV	1	1	1	1	1	1	1	0	0	0	0	1		0	0	X
0~3mV	1	1	1	1	1	1	1	1	0	1	0	1		0	0	X
0~4mV	1	1	1	1	1	1	0	0	0	0	1	1		0	0	X
0~5mV	1	1	1	1	1	1	1	1	0	0	1	1		0	0	X
0~6mV	1	1	1	1	1	1	1	0	1	0	1	1		0	0	X
0~8mV*	1	1	1	1	1	1	1	1	1	0	1	1		0	0	X
0~10mV	1	1	1	1	1	1	1	0	0	1	1	1		0	0	X
0~12mV	1	1	1	1	1	1	1	0	1	1	0	0		0	1	X
0~15mV	1	1	1	1	1	1	1	1	1	0	1	0		0	1	X
0~20mV	1	1	1	1	1	1	1	0	0	0	0	1		0	1	X
0~25mV	1	1	1	1	1	1	1	1	1	0	0	1		0	1	X
0~30mV	1	1	1	1	1	1	1	1	0	1	0	1		0	1	X
0~35mV	1	1	1	1	1	1	0	1	1	1	0	1		0	1	X
0~40mV	1	1	1	1	1	1	0	0	0	0	1	1		0	1	X
0~50mV	1	1	1	1	1	1	1	1	0	0	1	1		0	1	X
0~60mV	1	1	1	1	1	1	1	0	1	0	1	1		0	1	X
0~75mV	1	1	1	1	1	1	1	1	1	0	1	1		0	1	X
0~80mV*	1	1	1	1	1	1	1	1	1	0	1	1		0	1	X
0~100mV	1	1	1	1	1	1	1	0	0	1	1	1		0	1	X
0~200mV	1	1	1	1	1	1	1	0	0	0	0	1		1	1	X
0~500mV	1	1	1	1	1	1	1	1	0	0	1	1		1	1	X
0~750mV	1	1	1	1	1	1	1	1	1	0	1	1		1	1	X
0~1000mV	1	1	1	1	1	1	1	0	0	1	1	1		1	1	X
2~6mV	1	0	1	0	1	1	0	0	0	0	1	1		0	0	0
5~10mV	0	1	1	0	0	1	1	1	0	0	1	1		0	0	0
10~15mV	1	0	1	1	0	0	1	1	0	0	1	1		0	0	0
10~20mV	1	0	1	1	0	0	1	0	0	1	1	1		0	0	0
10~30mV	0	1	0	1	1	1	1	0	0	0	0	1		0	1	0
30~45mV	0	0	0	0	1	1	1	1	1	0	1	0		0	1	0
30~60mV	0	0	0	0	1	1	1	1	0	1	0	1		0	1	0
50~80mV	0	1	1	0	0	1	1	1	0	1	0	1		0	1	0
100~200mV	1	0	1	1	0	0	1	0	0	1	1	1		0	1	0
-2~4mV	1	0	1	0	1	1	1	0	1	0	1	1		0	0	1
-4~6mV	1	1	0	1	0	1	1	0	0	1	1	1		0	0	1
-6~6mV	0	0	1	1	1	1	1	0	1	1	0	0		0	1	1
-10~20mV	0	1	0	1	1	1	1	1	0	1	0	1		0	1	1
-60~60mV	0	0	1	1	1	1	1	0	1	1	0	0		1	1	1
-100~300mV	0	1	0	1	1	1	0	0	0	0	1	1		1	1	1
-200~800mV	1	0	1	0	1	1	1	0	0	1	1	1		1	1	1