



# Ω OMEGA™ User's Guide



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**NORWALK, CT MANCHESTER, UK**

**PRS-TMM12**  
**Integral Transmitter Style PRS**  
**Series Sanitary RTD Transducer**

# M-4913-L Instruction Manual for PRS-TMM12 Sanitary RTD Transducers



## GENERAL DESCRIPTION

The Omega PRS-TMM12 series transducers are designed as direct immersion instruments for use in Sanitary Clean-In-Place (CIP) systems, and are 3-A approved to standard 74-03. They include a Tri-Grip® flanged housing for easy installation into Food, Dairy and Biopharmaceutical systems that conforms to the dimensions for “Hygienic Clamp Ferrules” as specified in Part DT of ASME BPE-2007. An M12, 4-pin male connector provides a 4-20 milliamp connection to process control or monitoring equipment completes the assembly.



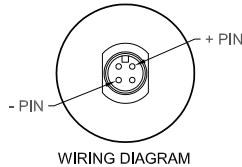
## PROCESS CONNECTION

The Omega PRS-TMM12 is normally supplied with a 1-1/2"-16AMP flange (other sizes are also available) so it can be easily installed into new or existing systems. A commercially available gasket is placed between the transducer and process connection, with a clamp used to complete the connection as shown above.

The transducers are made from 316L Stainless Steel, with wetted surfaces that have a surface finish of 32 microinches or better. Care should be exercised when handling the sensors so that the surface finish is not damaged during handling or installation.

## WIRING CONFIGURATION:

The sensing portion of the transducer consists of a probe stem containing a 3-wire PT100 Platinum RTD (Resistance Temperature Detector) that meets the resistance vs. temperature characteristics of the IEC 60751 ( $\alpha = .00385 \Omega / \Omega / ^\circ\text{C}$  nominal). The sensing element is connected to an Omega TX94A 4-20 milliamp transmitter which is located inside the housing. The M12 connector is connected to the +PS and -PS transmitter connections as shown in the following detail.



To connect the transducer to your instrumentation, simply install an M12 extension cable to the transducer's M12 connection noting the positive and negative pin locations above. The transmitter provides a 4-20 milliamp signal when connected to a constant voltage power supply. The transmitter will operate with an input voltage from 8 to 35 Vdc, 24 Vdc is recommended.

## Transmitter Zero and Span Adjustments:



## GENERAL DESCRIPTION

Disassembly (See Figure Above):

To access the transmitter inside the housing do the following:

1. Hold the housing and using a 1/2" wrench applied to the flats just below the connector, unscrew the cap from the housing in a counter clockwise direction.
2. The M12 connector in the cap is connected to the transmitter by two wires. Carefully move the cap away from the housing making sure to not pull the connector wires from the transmitter.

The transmitter is an Omega TX94A-1 or -2 depending on the ranging option specified. An instruction manual for the TX94A transmitter is included with each PRS-TMM12 transducer, please see that instruction manual for information

regarding wiring, calibration and troubleshooting of the transmitter.

Note: The plastic shell of the transmitter is removed during assembly of the PRS-TMM12 transducer due to space limitations. The sides and back of the transmitter are insulated with polyimide adhesive tape to isolate it from the sensor housing. If the transmitter is removed from the housing during calibration or servicing, check to insure that the transmitter continues to be isolated from the housing during re-assembly. Re-Assembly (See figure on page 1):

Re-assemble the housing as follows:

1. When re-assembling the cap to the housing, position lead wires to insure that they will not be pinched during replacement of the cap.
2. Check that the o-ring is in place as shown above.
3. Position the cap on the end of the housing, gently turn the cap clockwise until the threads engage (do not force).
4. Turn the cap until it is fully seated in the housing. The cap should turn freely until the o-ring seal reaches the top of the housing. A 1/2" wrench may be needed to complete the operation due to the resistance of the o-ring seal.

**Transducer Output Table:**

Transmitter Output in Milliamps								
Temp (°C)	Model TM1M12	Model TM2M12	Temp (°C)	Model TM1M12	Model TM2M12	Temp (°C)	Model TM1M12	Model TM2M12
-40	4.00		6	12.27	7.46	52		14.09
-39	4.18		7	12.45	7.60	53		14.23
-38	4.36		8	12.63	7.75	54		14.38
-37	4.54		9	12.81	7.89	55		14.52
-36	4.72		10	12.99	8.04	56		14.67
-35	4.90		11	13.17	8.18	57		14.81
-34	5.08		12	13.35	8.32	58		14.95
-33	5.26		13	13.53	8.47	59		15.10
-32	5.44		14	13.71	8.61	60		15.24
-31	5.62		15	13.89	8.76	61		15.39
-30	5.8		16	14.07	8.90	62		15.53
-29	5.98		17	14.25	9.05	63		15.68
-28	6.16		18	14.43	9.19	64		15.82
-27	6.34		19	14.61	9.33	65		15.96
-26	6.52		20	14.79	9.48	66		16.11
-25	6.70		21	14.97	9.62	67		16.25
-24	6.88		22	15.15	9.77	68		16.40
-23	7.06		23	15.33	9.91	69		16.54
-22	7.24		24	15.51	10.05	70		16.68
-21	7.42		25	15.69	10.20	71		16.83
-20	7.60		26	15.87	10.34	72		16.97
-19	7.78		27	16.04	10.49	73		17.12
-18	7.96	4.00	28	16.22	10.63	74		17.26
-17	8.13	4.14	29	16.40	10.77	75		17.41
-16	8.31	4.29	30	16.58	10.92	76		17.55
-15	8.49	4.43	31	16.76	11.06	77		17.69
-14	8.67	4.58	32	16.94	11.21	78		17.84
-13	8.85	4.72	33	17.12	11.35	79		17.98
-12	9.03	4.86	34	17.30	11.50	80		18.13
-11	9.21	5.01	35	17.48	11.64	81		18.27
-10	9.39	5.15	36	17.66	11.78	82		18.41
-9	9.57	5.30	37	17.84	11.93	83		18.56
-8	9.75	5.44	38	18.02	12.07	84		18.70
-7	9.93	5.59	39	18.20	12.22	85		18.85
-6	10.11	5.73	40	18.38	12.36	86		18.99
-5	10.29	5.87	41	18.56	12.50	87		19.14
-4	10.47	6.02	42	18.74	12.65	88		19.28
-3	10.65	6.16	43	18.92	12.79	89		19.42
-2	10.83	6.31	44	19.10	12.94	90		19.57
-1	11.01	6.45	45	19.28	13.08	91		19.71
0	11.19	6.59	46	19.46	13.23	92		19.86
1	11.37	6.74	47	19.64	13.37	93		20.00
2	11.55	6.88	48	19.82	13.51			
3	11.73	7.03	49	20.00	13.66			
4	11.91	7.17	50		13.80			
5	12.09	7.32	51		13.95			



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## DISCLAIMER

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.

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## 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.

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