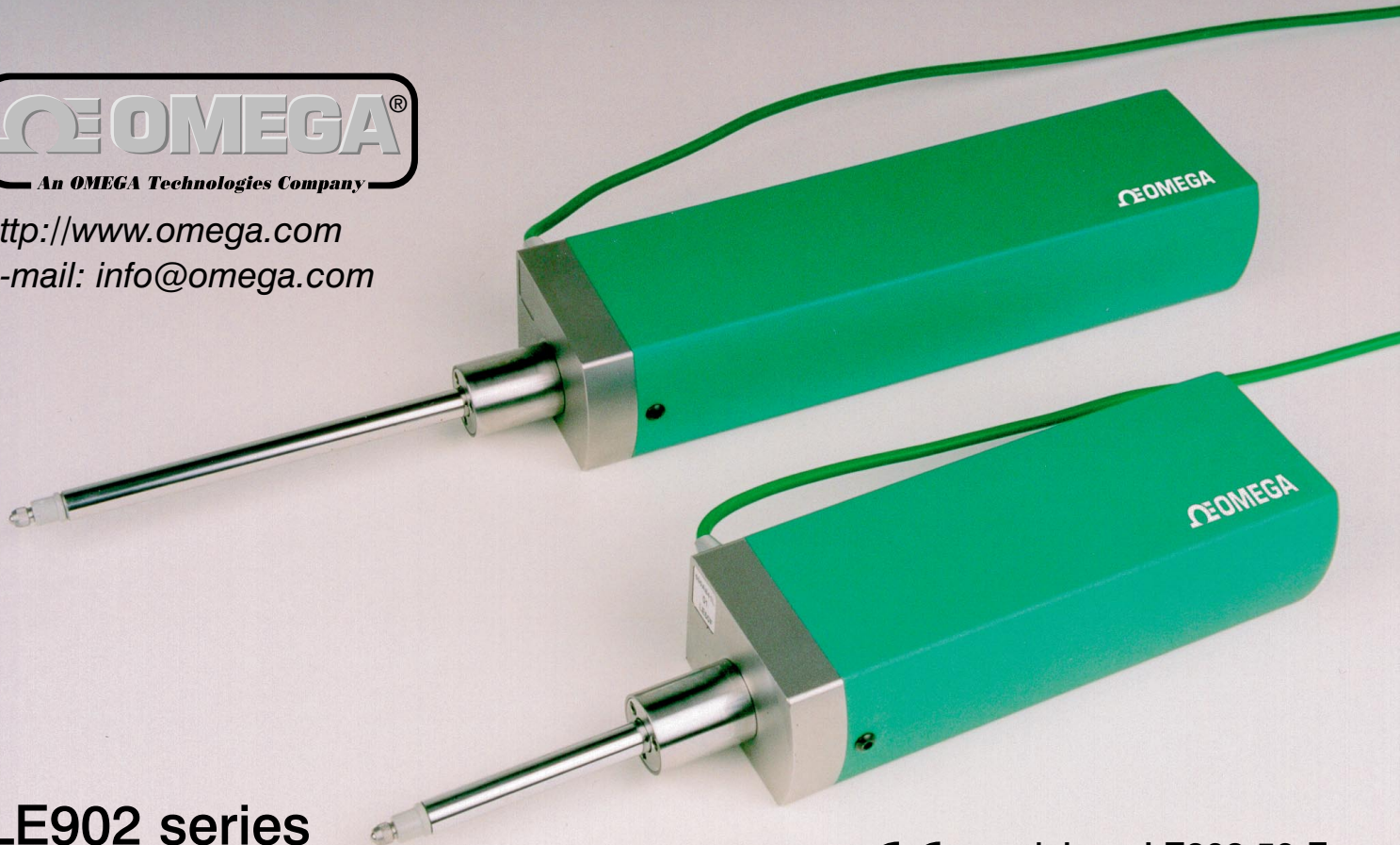




<http://www.omega.com>
e-mail: info@omega.com



**LE902 series
user manual**



model no. LE902-50-F
LE902-100-F

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Servicing North America:

USA: One Omega Drive, Box 4047
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Canada: 976 Bergar
Laval (Quebec) H7L 5A1
Tel: (514) 856-6928 FAX: (514) 856-6886
e-mail: info@omega.ca

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Tel: (31) 20 6418405 FAX: (31) 20 6434643
Toll Free in Benelux: 0800 0993344
e-mail: nl@omega.com

Czech Republic: ul. Rude armady 1868, 733 01 Karvina-Hranice
Tel: 420 (69) 6311899 FAX: 420 (69) 6311114
Toll Free: 0800-1-66342
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: info@omega.de

United Kingdom: One Omega Drive, River Bend Technology Centre
ISO 9002 Certified Northbank, Irlam, Manchester
M44 5EX, England
Tel: 44 (161) 777-6611 FAX: 44 (161) 777-6622
Toll Free in the United Kingdom: 0800-488-488
e-mail: info@omega.co.uk

It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct, but OMEGA Engineering, 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.

1.0: Index

Section	Title	Page	Section	Title	Page
1.0	Index	1	5.0	Mechanical Installation	7
2.0	Safety summary	2	6.0	Operation	9
3.0	Handling and maintenance	3	7.0	Specification	10
4.0	Linear Encoder Connection	5	8.0	Connections	11
4.1	Connection to a Digital Readout	5	9.0	Outline Drawings	12
4.2	Connection to PC or Digital Readout via Orbit Network	6		Warranty/Disclaimer	

2.0: Safety Summary

Terms in this Handbook

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

Symbols in this manual



This symbol indicates where applicable cautionary or other information is to be found.

WARNINGS:

Do not operate in an explosive atmosphere

To avoid explosion, do not operate this equipment in an explosive atmosphere.

NOTES:

This equipment contains no user serviceable parts

This equipment must be returned to Omega for all servicing and repair (see section 10.0).

Low Voltage

This equipment operates at below the SELV and is therefore outside the scope of the Low Voltage Directive.

3.0: Handling & Maintenance

The Omega range of Linear Encoders are precision instruments and should be handled with care. Where possible the Linear Encoder should be stored in its protective box when not being used.

These Linear Encoders are designed to be maintenance free. No oiling of the shaft is necessary. Contacts with solvents should be avoided. Any attempt to dismantle the Linear Encoder will invalidate the warranty.

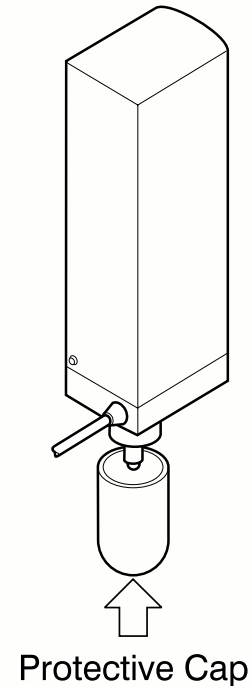
3.0: Handling & Maintenance (continued)

Replacing the probe tip

1. Unscrew tip.
2. Install new tip.
3. Hand tighten tip.

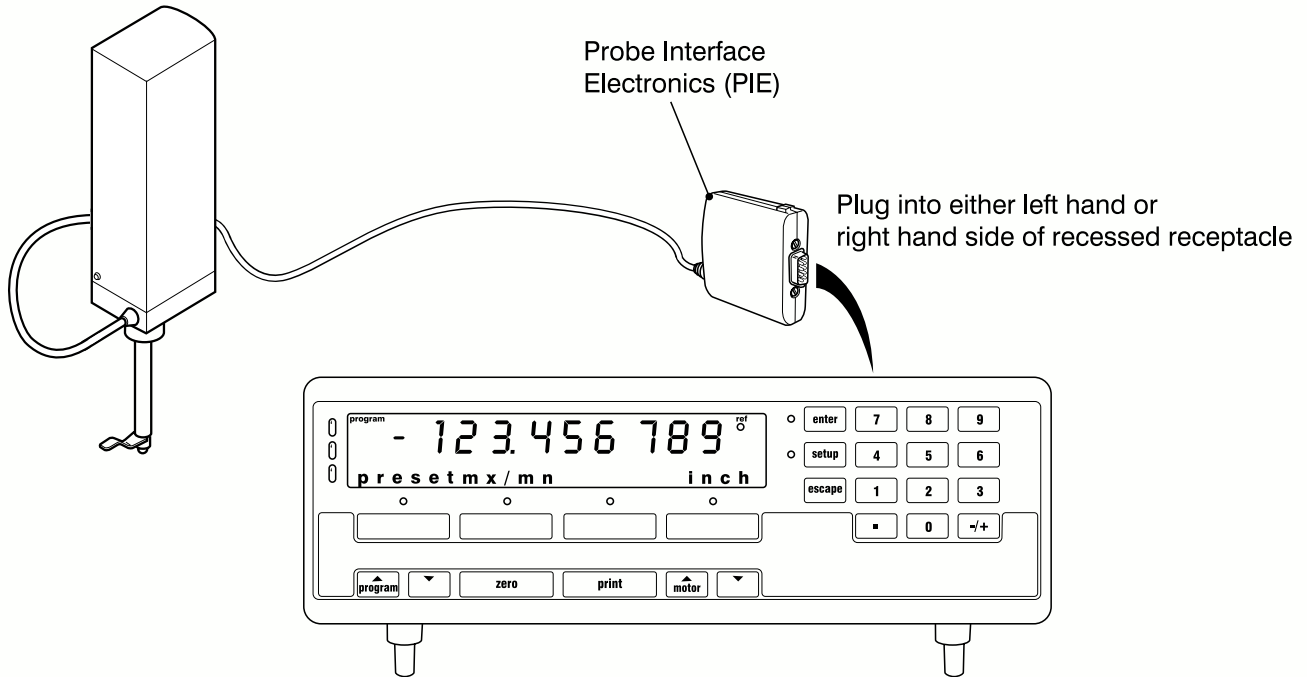
Care during transportation

To prevent damage caused by a sudden accidental extension or retraction of the shaft, it is recommended that the protective flexible cap is fitted over the ball tip and mounting spigot prior to transporting the encoder.



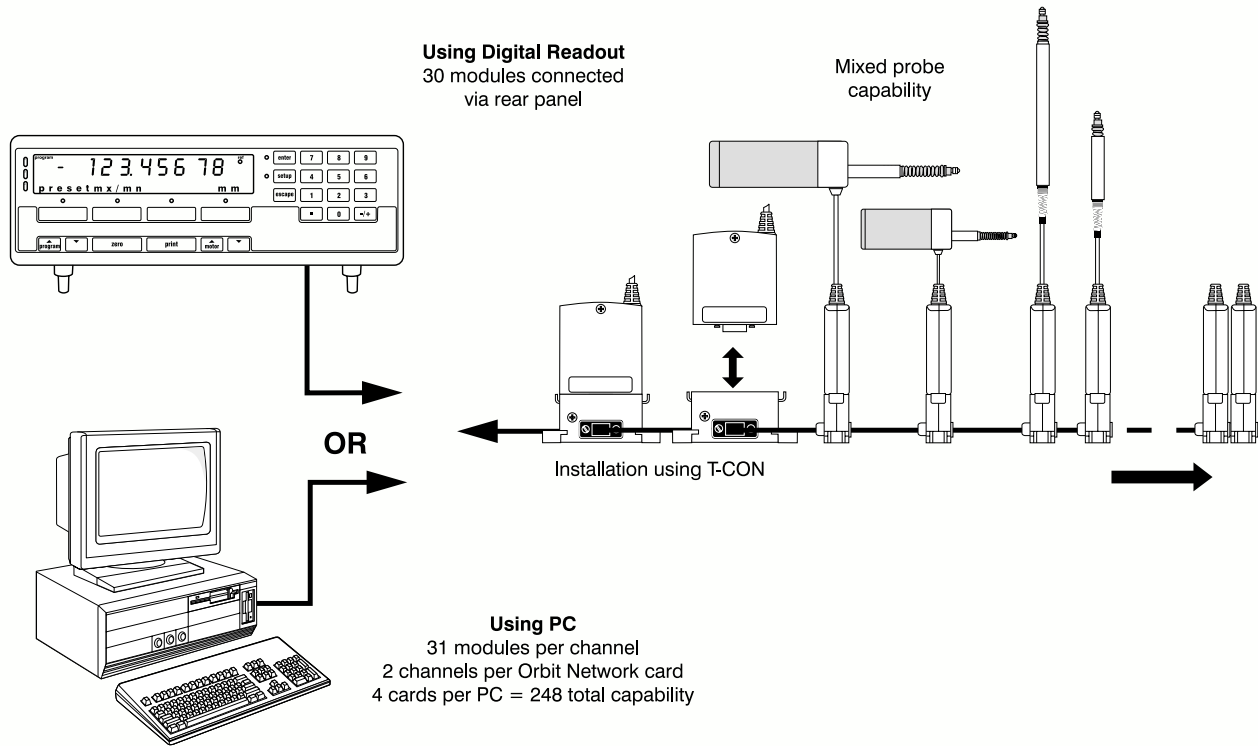
4.0: Linear Encoder Connection

4.1: Connection to Digital Readout

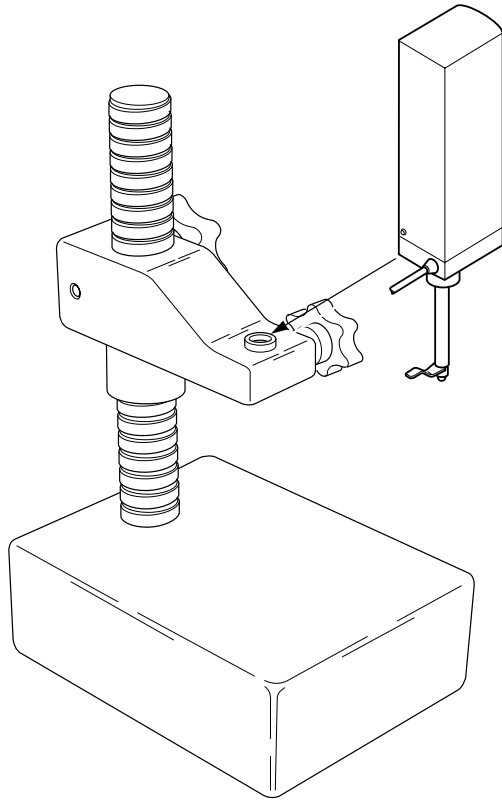


4.0: Linear Encoder Connection (Continued)

4.2: Connection to a PC or Digital Readout via Orbit Network



5.0: Mechanical Installation



CAUTIONS:

Ensure that the probe is not subjected to over-travel, or side loading at the tip.

When mounting the Linear Encoder avoid distortion of the bearing assembly by over-tightening of mounting screws.

Notes:

It is important to ensure that the probe is perpendicular to measuring table to avoid introducing cosine errors.

Do not use excessive torque when tightening gauge stand knobs.

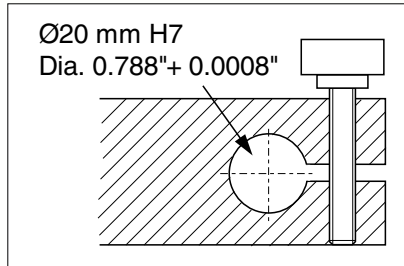
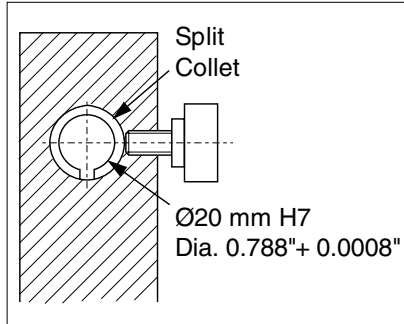
Keep cable away from moving parts to avoid wear.

Protect against shock loading or impact.

5.0: Mechanical Installation (continued)

Clamping Configurations

When mounting Linear Encoder do not over tighten clamp screws.



Recommended maximum tightening torque

Where d = screw dia mm

$$= \frac{0.28d \left(\frac{P}{\pi d} + 0.15 \right)}{1 - \left(0.15 \frac{P}{\pi d} \right)}$$

P = screw pitch mm

assuming a 'V' form thread and 0.15 coefficient of friction.

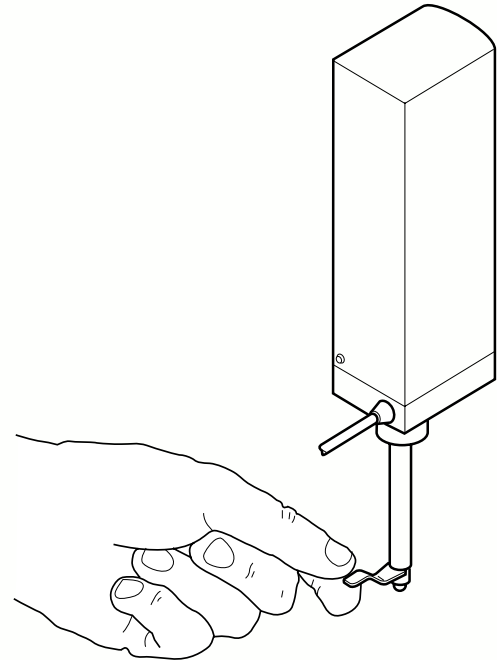
Mounting collet available as an accessory:

Part No. 207251

6.0: Operation

Finger Lift

Snaps over probe tip enabling tip to be lifted without transferring heat to shaft.



7.0: Specification

Model	LE902-50	LE902-100
Stroke	50.8mm (2.0")	101.6mm(4.0")
Resolution	0.05 μ m (2 millionths inch)	
Accuracy	\pm 1 μ m (40 millionths inch)	
Reference temp	20°C (68°F)	
Slew rate	0.5 m/sec (1.5 ft/sec)	
Operating attitude	Vertically upright or coupled	
Gauging forces: (typical at mid stroke)		
Downwards	115gm (4.0 oz)	
Upwards	N/A	
Horizontal	N/A	
Max side load	100gm (3.5 oz)	
Cable length	2m / 6.5 feet	
Temp range		
- Operating	0° to 50°C (32° to 122°F)	
- Storage	-20° to +70°C (-4° to 158°F)	

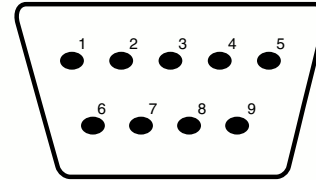
IP Rating	Probe	IP40
	Interface	IP53
	Electronics	
Mounting	20mm (0.7874 in) g6/H7	
Tip thread size	M2.5x6 deep	
Supply Voltage	5V \pm 0.25VDC	
Supply Current (max)	60mA	
Serial Communications Baud Rate	9600 Baud or 187.5K Baud	
Serial Communications Protocol	Orbit Network Protocol	
Maximum Reading Rate	1000 readings/sec	
EMC	EN50081-1 & EN50082-1	

7.0: Specification

8.0: Connections

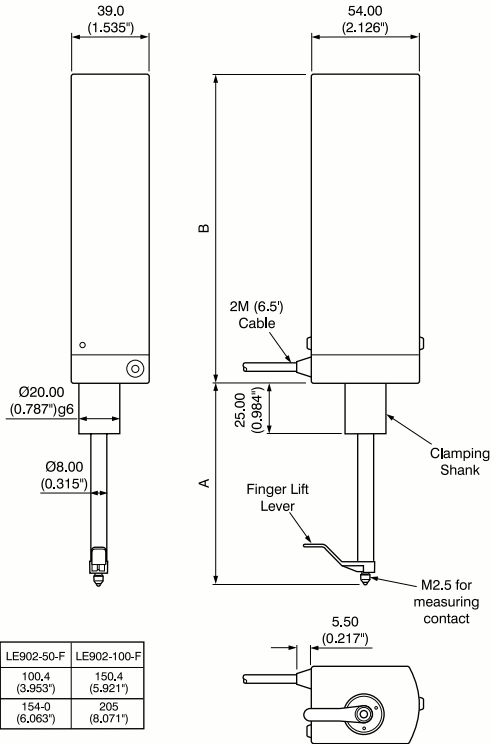
PIE Pin assignment

Pin	Function
1	(none)
2	RS485(A)
3	RS485(B)
4	0V
5	0V
6	+5V
7	+5V
8	+5V
9	0V



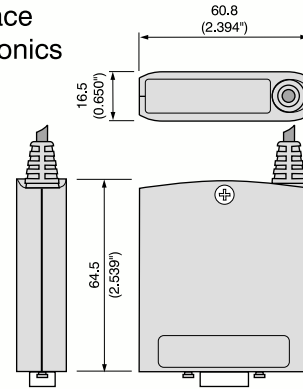
PIE can be fitted directly into the back of the Digital Readout or linked into the 'Orbit' Network using the stackable T-CON connectors.

9.0: Outline Drawings

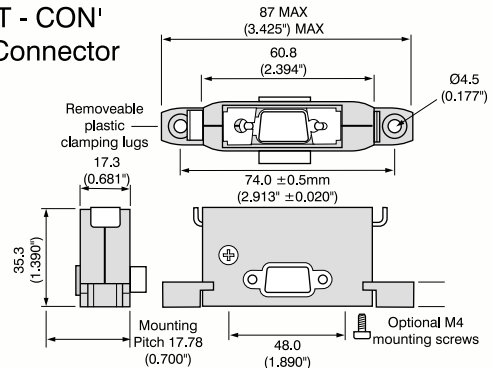


	LE902-50-F	LE902-100-F
A	100,4 (3.953")	150,4 (5.921")
B	154-0 (6,063")	205 (8,071")

Interface Electronics



'T - CON' Connector



WARRANTY/DISCLAIMER

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 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 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, EXPRESS 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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- Industrial Water & Wastewater Treatment
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