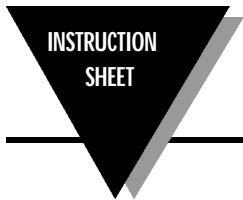




LCS Series

Load Bolts



M1165/1101

GENERAL DESCRIPTION

The OMEGA[®] LCS Series load bolts offer a unique alternative to conventional load cells. The required mounting configuration makes the LCS ideally suited for studying joint forces, separations, and design.

Features of the LCS Series include:

- o N.I.S.T. Calibration Certificate Included
- o Full Wheatstone Bridge Configuration
- o Bolt Diameters from 1/4" up to 1"
- o Accuracy of .060% Full Scale
- o Zero Offset Adjust

HOW LOAD CELLS WORK

Load cells have an output or sensitivity in mV/V. What this sensitivity/output represents is as follows:

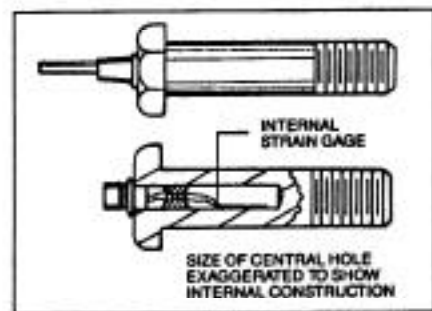
$$\begin{array}{l} \text{Change in Millivolt output} \\ \text{from zero load to the full} \\ \text{scale capacity of the load cell} \\ \text{(21.3 mV in this example)} \end{array} = \begin{array}{l} \text{Output/Sensitivity} \\ \text{(example 2.13 mV/V)} \end{array} \times \begin{array}{l} \text{excitation} \\ \text{(10.0 VDC)} \end{array}$$

No load cell has exactly zero millivolts at no load. Most cells have a small DC offset of a few millivolts, which is normal. In a no load situation, the Zero Offset Adjust (located in shrink wrap) may be used to trim the output to zero. To scale a system, the end-user simply scales the recorder/meter for a full scale change, then connects the load cell.

AVAILABLE MODELS

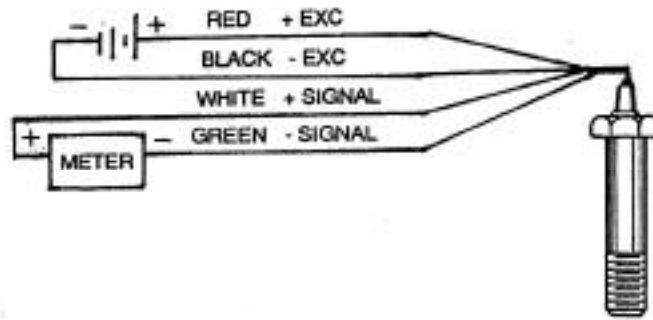
MODEL	BOLT SIZE UNC	LOAD CAPACITY	*AVAILABLE LENGTHS
LCS-1/4-[*]L	1/4"-20	2,070 lbs	1 1/4", 2"
LCS-3/16-[*]L	3/16"-18	3,410 lbs	1 1/4", 2"
LCS-3/8-[*]L	3/8"-16	5,040 lbs	1 1/4", 2"
LCS-7/16-[*]L	7/16"-14	6,910 lbs	1 1/4", 2"
LCS-1/2-[*]L	1/2"-13	9,220 lbs	1 1/4", 2"
LCS-5/8-[*]L	5/8"-12	11,800 lbs	1 1/4", 2"
LCS-3/4-[*]L	3/4"-11	14,700 lbs	2 1/2", 6"
LCS-7/8-[*]L	7/8"-10	21,700 lbs	2 1/2", 6"
LCS-7/8-[*]L	7/8"-9	30,000 lbs	3 1/2", 6"
LCS-1-[*]L	1"-8	39,400 lbs	3 1/2", 6"

*Insert available length from chart.



WIRING

10 VDC REGULATED SUPPLY



SPECIFICATIONS

RATED OUTPUT: 1 to 2 mV/V

EXCITATION: 10 VDC, 15 VDC maximum

ACCURACY: 0.60% Full Scale

LINEARITY: 0.50% FS

ZERO BALANCE: 5% FS, Zero Offset Adjust

CONSTRUCTION: Grade 8 bolt

ELECTRICAL: Teflon insulated with polyvinyl over stainless steel overbraid, 9 conductor, 30 AWG

CREEP: 0.03% (in 20 minutes)

OPERATING TEMPERATURE: 50 to 150°F

BRIDGE RESISTANCE: 350 ohms

HYSTERESIS: 0.25% FS

REPEATABILITY: 0.10% FS

THREADED LENGTH: 2 x Dia. + 1/4



OMEGAnet® On-Line Service
www.omega.com

Internet e-mail
info@omega.com

Servicing North America:

USA: ISO 9001 Certified
One Omega Drive, Box 4047
Stamford CT 06907-0047
Tel: (203) 359-1660
FAX: (203) 359-7700
e-mail: info@omega.com

Canada:
976 Bergar
Laval (Quebec) H7L5A1
Tel: (514) 856-6928
FAX: (514) 856-6886
e-mail: info@omega.com

For immediate technical or application assistance:

USA and Canada:
Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®
Customer Service: 1-800-622-2378 / 1-800-622-BEST®
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN®
TELEX: 996404 EASYLINK; 62968934
CABLE: OMEGA

Mexico:
En Español: (001) 203-359-7803
FAX: (001) 203-359-7807
e-mail: espanol@omega.com
info@omega.com.mx

Servicing Europe:

Benelux:
Postbus 8034, 1180 LAAMstelveen
The Netherlands
Tel: +31 (0)20 3472121 FAX: +31 (0)20 6434643
Toll Free in Benelux: 0800 0993344
e-mail: sales@omegaeng.nl

Germany/Austria:
Daimlerstrasse 26, D-75392
Deckenpfronn, Germany
Tel: +49 (0)7056 9398-0
FAX: +49 (0)7056 9398-29
Toll Free in Germany: 0800 639 7678
e-mail: info@omega.dl

Czech Republic:
Rudé armády 1868, 733 01 Karvina 8
Tel: +420 (0)69 6311899
FAX: +420 (0)69 6311114
Toll Free: 0800-1-66342 e-mail:
czech@omega.com

United Kingdom: ISO 9002 Certified
One Omega Drive
River Bend Technology Centre
Northbank, Irlam
Manchester M44 5BD
United Kingdom
Tel: +44 (0)161 777 6611
FAX: +44 (0)161 777 6622
Toll Free in United Kingdom:
0800-488-488
e-mail: sales@omega.co.uk

France:
9, rue Denis Papin, 78190 Trappes
Tel: +33 (0)130 621 400
FAX: +33 (0)130 699 120
Toll Free in France: 0800-4-06342
e-mail: sales@omega.fr

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.

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's 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.
OMEGA is a registered trademark of OMEGA ENGINEERING, INC.
© Copyright 2001 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.