

1 YEAR
WARRANTY



Ω OMEGA® **User's Guide**

Shop online at
omega.com®

e-mail: *info@omega.com*

For latest product manuals:
omegamanual.info



PE14
Electrically Insulated
14mm Probe



OMEGAnet® Online Service
omega.com

Internet e-mail
info@omega.com

Servicing North America:

U.S.A.:
ISO 9001 Certified

Omega Engineering, Inc. One Omega Drive, P. O. Box 4047
Stamford CT 06907-0047 USA
Toll-Free: 1-800-826-6342
FAX: (203) 359-7700

Tel: (203) 359-1660
e-mail: info@omega.com

Canada:

976 Bergar
Laval (Quebec), Canada H7L 5A1
Toll-Free: 1-800-826-6342
FAX: (514) 856-6886

TEL: (514) 856-6928
e-mail: info@omega.ca

For immediate technical or application assistance:

U.S.A. 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®

Mexico:

En Espanol: 001 (203) 359-7803
info@omega.com.mx

FAX: (001) 203-359-7807
e-mail: espanol@omega.com

Servicing Europe:

Benelux:

Managed by the United Kingdom Office
Toll-Free: 0800 099 3344
FAX: +31 20 643 46 43

TEL: +31 20 347 21 21
e-mail: sales@omega.nl

Czech Republic:

Frystatska 184
733 01 Karviná, Czech Republic
Toll-Free: 0800-1-66342
FAX: +420-59-6311114

TEL: +420-59-6311899
e-mail: info@omegashop.cz

France:

Managed by the United Kingdom Office
Toll-Free: 0800 466 342
FAX: +33 (0) 130 57 54 27

TEL: +33 (0) 161 37 29 00
e-mail: sales@omega.fr

Germany/Austria:

Daimlerstrasse 26
D-75392 Deckenpfronn, Germany
Toll-Free: 0 800 6397678
FAX: +49 (0) 7056 9398-29

TEL: +49 (0) 7059 9398-0
e-mail: info@omega.de

United Kingdom:

ISO 9001 Certified

OMEGA Engineering Ltd.
One Omega Drive, River Bend Technology Centre, Northbank
Irlam, Manchester M44 5BD England
Toll-Free: 0800-488-488
FAX: +44 (0)161 777-6622

TEL: +44 (0)161 777-6611
e-mail: sales@omega.co.uk

It is the policy of OMEGA Engineering, Inc. 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 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, human applications.

PE14 **ELECTRICALLY INSULATED** **14mm PROBE**

USER'S MANUAL

**NOTE: ETL SAFETY RATING ONLY APPLIES TO THE
HHB400 SERIES SYSTEMS**



PE14

Please read this manual carefully and thoroughly before using this product.

INTRODUCTION

Thank you for purchasing a PE14 Electrically Insulated Probe for your HHB400 Series Wireless Recording Video Inspection System. Please read this user's manually thoroughly and carefully before using the product.

The PE14 is a unique, electrically insulated, far-focus camera-tipped probe that gives the HHB400 system it is attached to an ETL safety rating of CAT III 1000V, CAT IV 600V.

! WARNING !

Omega Engineering does not advise and bears no responsibility for use of the PE14 probe with any system other than the HHB400.

Working in concert with a HHB400, the PE14 makes it safe to inspect two kinds of environments:

1. Any area or enclosure where you would expect to find electrical wiring. Examples include junction and distribution boxes, circuit breaker panels, electrical cabinets, equipment chassis and enclosures, and motor control centers. Whether the wiring is exposed or hidden, it represents a potential hazard to anyone operating a video camera scope with a conventional probe with a metal exterior.
2. Any area or enclosure where you would *not* expect to find electrical wiring, but exposed wiring nevertheless may be present. Examples include attics, crawl spaces, rafters, ducts and basements of houses—in short, any area that is too inaccessible, confined or dark to be visible to the naked eye. Such areas may contain electrical hazards created by age (worn insulation, e.g.) or structural modifications.

The PE14 makes it possible to inspect electrically hazardous areas (as well as safe areas) using the capabilities and

features of a HHB400 Series system. The probe has many applications in the automotive/boat/aircraft repair, plumbing, construction, restoration and HVAC/R industries.

KEY FEATURES

- Attachment to HHB400 Series video camera scope gives entire system an ETL safety rating of CAT III 1000V, CAT IV 600V
- Flexible-obedient design lets user bend probe into different shapes and hold them to facilitate inspection of different areas
- 14mm diameter enables use in close quarters
- Wide depth of field of 1 in. (25mm) to infinity for clarity at all distances
- Adjustable LED lights inside probe tip illuminate dark spaces
- Water, dust, oil and scratch-resistant to IP67 standard

SAFETY INSTRUCTIONS

!WARNING

- DO NOT attach the PE14 to the handle of any video inspection system other than the HHB400. Doing so does NOT upgrade the ETL safety rating of that unit. Doing so also voids the warranty of the PE14.
- If you have attached any of the three included probe tip accessories (the 45° mirror, the magnetic pickup, or the pickup hook), to the PE14, DO NOT use it to inspect any equipment or area known or suspected to contain “live” electrical wiring. Doing so could cause an explosive short-circuit that could cause serious equipment damage or personal injury.
- Before using the PE14 probe, carefully inspect it for any cuts, nicks or abrasions in its insulation. If you detect any flaws, discard the probe and purchase a new one. **It is extremely important to inspect the probe for flaws before each and every use.**

WHAT'S IN THE BOX

The PE14 comes in a box with a package of three probe tip accessories (a 45° mirror, a magnetic pickup, and a pickup hook) and this user's manual.

ATTACHING THE PROBE

To attach the PE14 probe to the handle (grip) of a DCS400 Series system, first roll the rubber insulation back from the connector end of the probe. Then line up the probe's alignment key with the flat on the coupling of the HHB400's probe connector (left photo below). Push the two ends together until they mate. To secure the connection, turn the collar of the probe connector (right photo below). Finally, roll the yellow insulation forward until it covers both joined metal connectors. Make sure to extend the insulation until it reaches the grip's plastic housing (bottom figure).



To detach the probe, reverse the process: After rolling back the insulation, turn the collar counterclockwise and pull the PE14 straight out from the HHB400 probe connector.

USING THE PROBE

To use the probe, follow the operating instructions for the HHB400 found in its user's manual. Before using a HHB400 system with a PE14, read the Safety Instructions section of this manual.

SPECIFICATIONS

Type	Flexible-obedient
Length	3.28 ft. (1m)
Diameter	14mm (0.55 in.)
Camera Light Source	2 high-intensity white LEDs
Camera Field of View	60°
Camera Depth of Field	1 in. (25mm) to infinity
Camera Resolution	640 x 480 pixels (still images); 320 x 240 pixels (video)
Certifications	Water, dust, oil and scratch-resistant to IP67 standard ETL CAT III 1000V, CAT IV 600V (only when used with HHB400 Series system)
Tensile Strength	>12mPa
Breakdown Voltage	715kV/m
Electrical Volume Resistivity	1 x 10 ¹⁴ Ω-cm
Operating Temperature	-50° to 257°F (-45° to 125°C) @<80% relative humidity
Weight	9.5 oz. (269g)

OPERATING AND MAINTENANCE TIPS

- Please read the Safety Instructions on p. 4 carefully.
- The probe is flexible to help you operate in hard-to-reach areas. Never insert or bend it by force, and never over-bend any part of the probe. To avoid permanently damaging the delicate wires and optics inside the probe, keep its bending radius above 2 in. (50mm).
- Never use the probe or camera head to modify surroundings or to clear pathways or clogged areas.

- The camera head and its cover are waterproof, but not acid-proof or fire-proof. Do not touch acidic, corrosive or hot materials or they will ruin the camera head's protective plastic. Never place the camera head in contact with corrosive or oily places or high temperature objects.
- When inspecting a vehicle, shut off the engine. Metal and liquid under the hood may be hot. Don't get oil or gas on the camera head.
- Cover the camera-tipped end of the probe with the protective rubber cap when not using it.

NOTES:

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; mis-application; 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.

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 the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED 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 2012 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.

Where Do I Find Everything I Need for Process Measurement and Control? **OMEGA...Of Course!**

Shop online at omega.comSM

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 Gages
- ☑ Load Cells & Pressure Gages
- ☑ Displacement Transducers
- ☑ Instrumentation & Accessories

FLOW/LEVEL

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

pH/CONDUCTIVITY

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

DATA ACQUISITION

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

HEATERS

- ☑ 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

M5155/0612