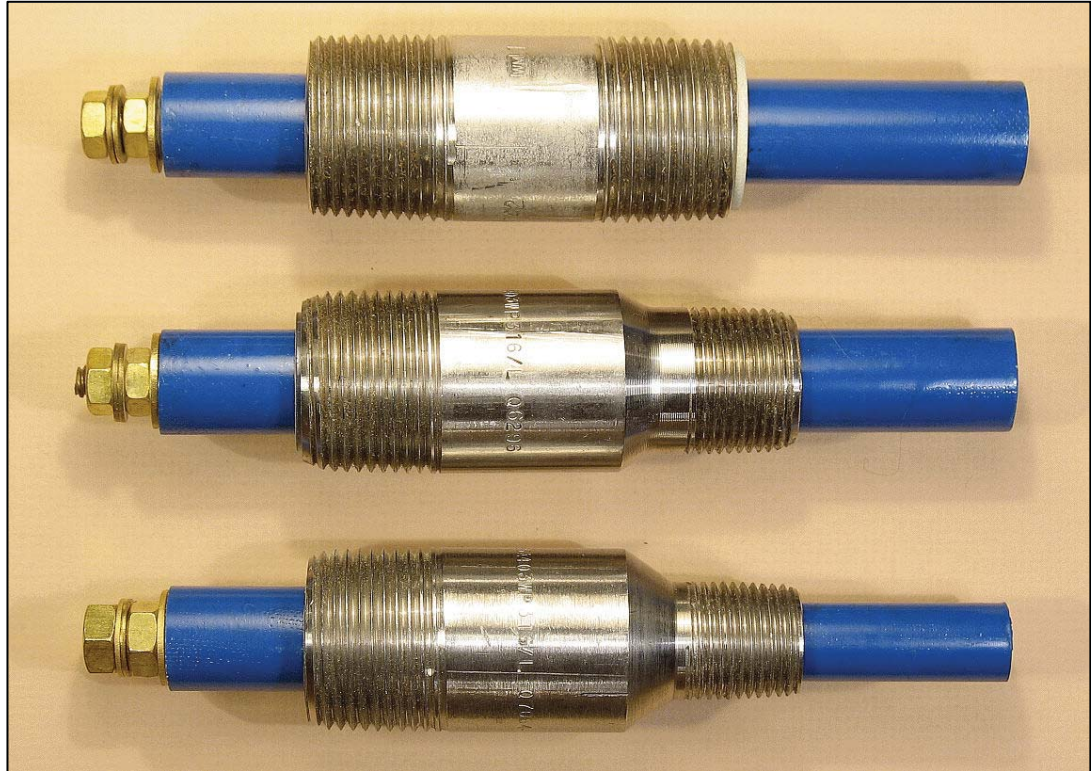


Heavy Duty Through-wall Reference Electrode

Model FH

Through-wall reference electrodes are used for measuring corrosion potential on the inside of condenser waterboxes, circulating pipes, tanks and vessels. These electrodes are installed by threading into a tapped hole on the wall; a junction box is typically attached to the other end to protect the wiring connections.



Model FH, with a glass reinforced epoxy (G-10 GRE) extension tube and a 316L stainless steel nipple, is designed for heavy duty usage. It can be used at pressures up to 75 psi (0.5 MPa) and at intermittent temperatures up to 210°F (98°C). Model FH is available in three size variations: **Model FH10** is threaded into a 1 inch NPT hole, **Model FH7** is threaded into a 3/4 inch NPT hole, **Model FH5** is threaded into a 1/2 inch NPT hole; all three variations have a 1 inch NPT thread on the termination side.

The temperature limits stated are those for the wetted materials of construction. Through-wall reference electrodes should not be used continuously at temperatures exceeding 110°F (45°C) because the reference potential will be significantly different from its value at ambient temperature and the electrode service life will be drastically shortened. This product will survive occasional brief temperature excursions up to the stated limits. For applications involving continuous exposure to temperatures over 110°F (45°C), our Process Vessel Reference Electrode, Model FE, is recommended.

www.edi-cp.com



electrochemical devices, inc.

Web: www.edi-cp.com **Email:** info@edi-cp.com

Tel: 617-484-9085 **Fax:** 617-484-3923

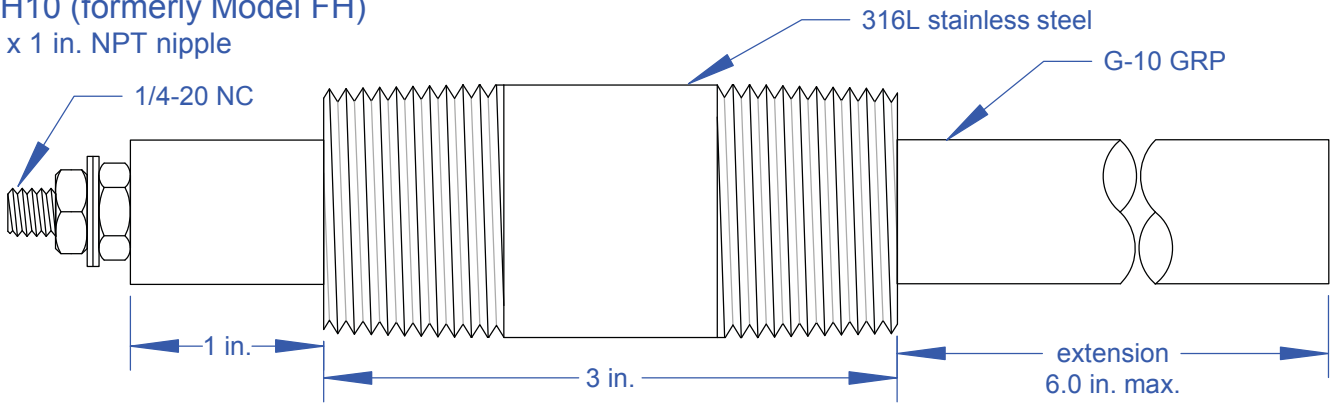
Address: P.O. Box 31; Albion, RI 02802-0031

*F Series
Through-Wall
Reference
Electrodes*

FH2b-04/13 © EDI 2013

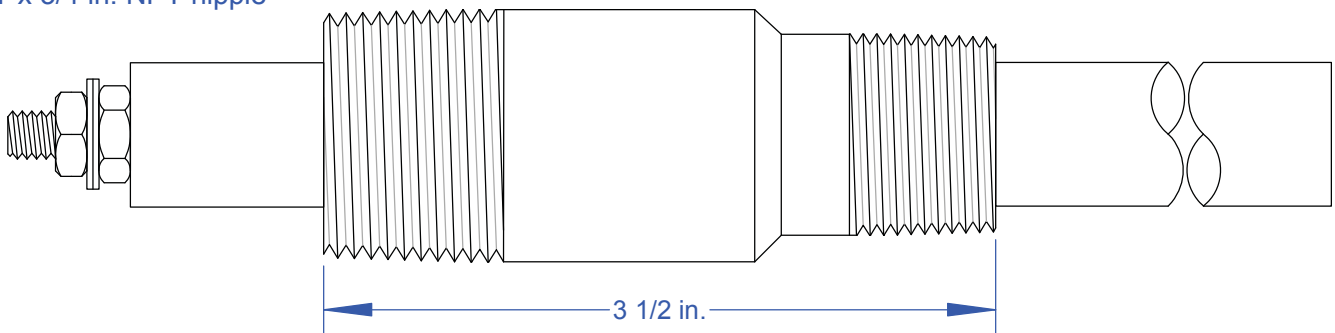
Model FH10 (formerly Model FH)

1 in. NPT x 1 in. NPT nipple



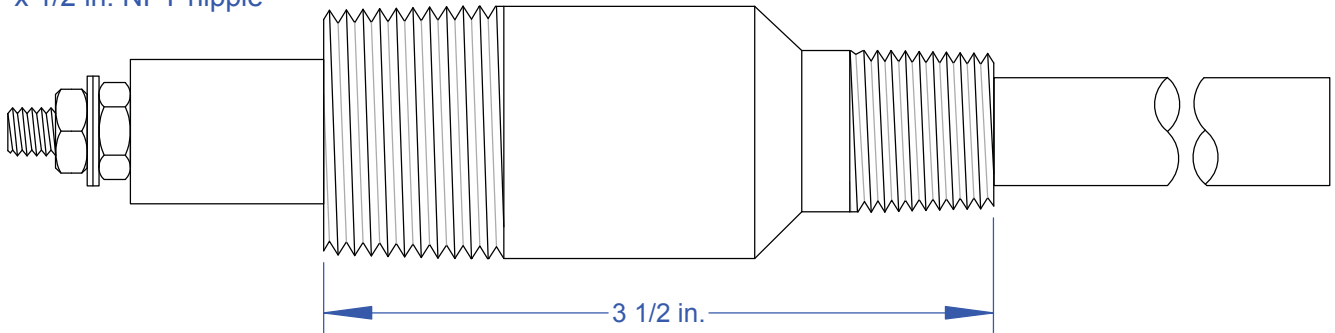
Model FH7 (formerly Model FX06A)

1 in. NPT x 3/4 in. NPT nipple



Model FH5 (formerly Model FX06B)

1 in. NPT x 1/2 in. NPT nipple



Specify as EDI Model FH z -xxx-n.n

where z = size code: 10, 7 or 5

xxx = element type:

AGG = sat. gelled Ag/AgCl

CUG = sat. gelled Cu/CuSO₄

AGD = open-type Ag/AgCl

ZIN = open-type zinc

and n.n = extension length, inches

Notes:

1. Standard termination is the stud end unless otherwise specified.
2. Stud end units are tested to 150 psi and pressure rated to 75 psi . Other pressure ratings are available on request.
3. Wire end units are rated to 50 psi.
4. Contact EDI sales office if extensions over 6 inches are required.

Heavy-duty through-wall reference electrode

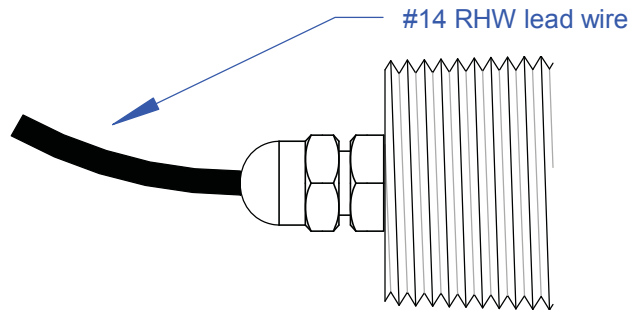
SCALE	FULL
DRAWN BY	FJA
DATE	05 APR 2013
DRAWING NUMBER	FHASY-3



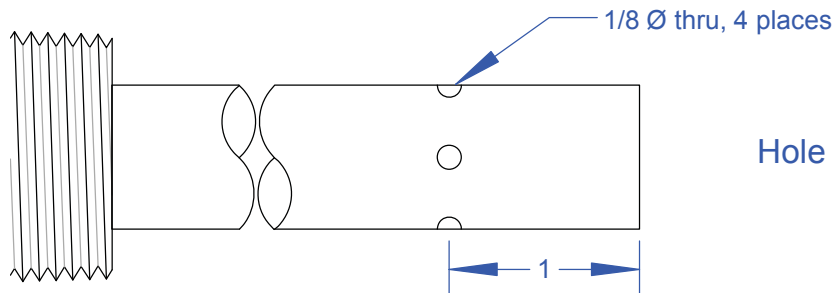
electrochemical devices, inc.
PO Box 31, Albion, RI 02802 401-333-6112

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2013



Optional wire end
 Lead wire length must be specified
 at time of order.
 Wire end units are pressure rated to
 50 psi.



Hole pattern for AGD and ZIN elements

Heavy-duty through-wall termination styles

SCALE	FULL
DRAWN BY	FJA
DATE	05 APR 2013
DRAWING NUMBER	FHAS-4



Through-wall Reference Electrodes

Installation – These instructions apply to all EDI F Series through-wall reference electrodes. Remove electrode from carton and record the serial number and QC test potential; these are located on the yellow tag attached to the lead wire. Remove the protective vinyl cap covering the membrane. Install the electrode so that the membrane is in full contact with the electrolyte. Electrodes with AGG or CUG in the model designation may be installed in any position; electrodes with AGD or ZIN in the model designation must be installed horizontally or with the open end facing upward to prevent air block. Take precautions to prevent the lead wire conductor from contacting any metal surfaces as this can cause permanent damage to the electrode.

Measurements - Potential measurements should be made using a voltmeter with input impedance in excess of 10 megohms. Use of meters or data loggers with lower input impedance may result in measurement errors.

Calibration - Reference electrodes are calibrated by measuring their potential against a second reference electrode of the same type while both electrodes are immersed in a beaker of potable water. The second electrode should be one which has been set aside specifically for calibration purposes. Alternatively, the electrode can be compared against a newly purchased field grade or laboratory reference which can be used as a standard.

Potentials of all EDI reference electrodes are within 5mV of each other at time of shipment. As reference electrodes age, their reference potential can shift to +/-20mV of their original value. If a larger shift is noted or if the potential is not stable, then the electrode should not be placed back in service. However, reference electrodes can often be rejuvenated by soaking them in the appropriate saturated salt solution*.

- * *Saturated salt solutions should be prepared using technical or laboratory grade chemicals in distilled or, preferably, deionized water. Add sufficient salt so that there is extra undissolved salt present in the solution. Use potassium chloride salt (KCl) with Ag/AgCl elements and copper sulfate salt (CuSO₄) with Cu/CuSO₄ elements.*

Conditions to avoid

- 1) Exposure to temperatures in excess of 130°F or below 20°F may damage the electrode.
- 2) Exposure to electrolytes containing chlorides (Cu/CuSO₄ references only), sulfides or other halides (Cu/CuSO₄, Ag/AgCl and Zn references)

Storage - Permanent reference electrodes may be stored for up to one year with the vinyl protective cap in place. The cap prevents the membrane from drying out. They should be stored indoors in a location not subject to large temperature variations. For long term storage, it is preferable to keep the uncapped reference immersed in a saturated salt solution or keep the capped reference immersed in water. If the electrodes cannot be stored immersed, then the cap should be removed every six months and the membrane moistened with a saturated salt solution.