Description

This transmitter will monitor general or localized corrosion (pitting) through a 4-20mA signal and HART® protocol in real time. The corrosion rate or a pitting factor is available as a standard 2-wire 4-20mA process variable. The probe is available in a three-electrode configuration with a wide selection of different probe types and electrode materials.

Function

The CorrTran™ instrument utilizes state-of-the-art algorithms and data analysis techniques to accurately measure corrosion rate or pitting. Harmonic distortion analysis (HDA) is applied to improve the performance of the industry accepted linear polarization resistance (LPR) technique used to measure corrosion rate. To further enhance the performance, an application specific Stern Geary variable (B value) can be stored in the transmitter. During the 7-minute measurement cycle, CorrTran also performs an automated electrochemical noise (ECN) measurement, which in combination with the corrosion rate data can provide a measurement of localized corrosion (pitting). At the completion of each measurement cycle, the respective corrosion rate or pitting value in the form of a 4-20mA/HART signal is produced and made available to the plant personnel.

Technical Data

Electrical
- Supply Voltage: 9-30VDC
- Rated Operating Voltage: 9VDC min. at max. loop current 2-wire (4-20mA)
- Max Load with 24VDC Power Supply: 680Ω with high alarm capability
- Linearity: 0.0015% non linear
- Resolution: 17 bit
- B Value (default): 25.6mV

Mechanical Properties

- Housing Protection: Type 4X
- Enclosure Material: Aluminum
- Process Connection: 3/4" NPT
- Weight (transmitter housing): 1.1 lb (500 g)
- Operating Temperature: -40°F to +158°F (-40°C to +70°C)
- Process Conditions Flow in Liquids (max.): 20 fps (6.1 m/sec.)
- Process Temperature (max.): 25°F (121°C)
- 316 Stainless Steel Probe Direct Mount: 60°F (26°C)
- Remote Mount: 150°F (65°C)
- Glass Epoxy Probe: 1500 psi (102 bar)
- Process Pressure: 100 psi (7 bar)

Electrode (See electrode materials guide)

- Optional Extended Cable for Remote Mounting

Information subject to change, consult factory for details. Date of issue 8/26/2004
CorrTran™—Product Data Sheet

Housing Dimensions and Connection Diagram

Housing Dimensions

NOTE:
- Standard lengths are 8", 12" and 18". Other lengths are available in increments of 0.5" or 10 mm. Minimum length is 7.0" or 170 mm and the maximum length is 30.0" or 770 mm. Insertion lengths for fixed probes are specified in 0.2" or 5 mm increments.
- All adjustable probes include a safety retaining bracket which must be used in all pressurized applications.

Connection Diagram

Setup

Corrosion Reading: Update time 7.2 min (fixed)

The adjustments and scaling can be done using a hand held HART® calibrator or Pactware™ software. See the table below for scaling information:

<table>
<thead>
<tr>
<th>General Corrosion Rate</th>
<th>Localized Corrosion (Pitting) Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.001 - 1.0</td>
</tr>
<tr>
<td>Min.</td>
<td>0.001 - 0.01</td>
</tr>
<tr>
<td>Max.</td>
<td>0.01 - 0.1</td>
</tr>
<tr>
<td>Default</td>
<td>0.1 - 1.0</td>
</tr>
<tr>
<td>Zero/Span Adjustments</td>
<td>Available with HART®</td>
</tr>
</tbody>
</table>

CorrTran™ — Product Data Sheet
Key To Model Number

**CMC**

- **Corrosion Type**
  - G - General Corrosion
  - P - Localized Corrosion (Pitting)

- **Process Connection**
  - N21 - 3/4" NPT, 316L
  - NPS - 3/4" NPT, nylon adj. fitting
  - A31 - 1" 150 lb flange
  - A32 - 1" 300 lb flange

- **Note:** Other connections are available, contact P+F for information

- **Measurement / Probe Material**
  - CB - Inches, 316L
  - CF - Inches, epoxy Glass
  - DB - mm, 316L
  - DF - mm, epoxy Glass

- **Probe Mounting**
  - A thru F (see table below)

- **Probe Length**
  - min: 7" (170 mm), max: 30" (770 mm) Probe lengths can be specified in .5" or 10 mm increments.

<table>
<thead>
<tr>
<th>Code</th>
<th>Inches</th>
<th>Code</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>070</td>
<td>7.0</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>075</td>
<td>7.5</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>256</td>
<td>25.6</td>
<td>660</td>
<td>660</td>
</tr>
<tr>
<td>300</td>
<td>30.0</td>
<td>770</td>
<td>770</td>
</tr>
</tbody>
</table>

- **Electrode Material**
  - OA thru OQ (see table below)

**Probe Mounting Guide**

- A Standard Direct Mount Fixed Stainless Steel
- B Standard Remote Mount Fixed Stainless Steel
- C Standard Direct Mount Adjustable Stainless Steel
- D Standard Remote Mount Adjustable Stainless Steel
- E Retractable* Remote Mount Adjustable Stainless Steel
- F Special* - - -

**Electrode Material Guide**

- **Key#**
- **UNS #**
- **Electrode Material**

Other materials are available upon request.
P+F offers a wide variety of HART multiplexers and termination boards for wiring to a PLC or DCS system. The multiplexers are available in 16 and 32 channel versions.

### 16-channel Multiplexer
- **KFD2-HMM-16**: 16-channel MUX master
- **KFD0-HMS-16**: 16-channel slave

### 32-channel Multiplexer
- **HIS2700**: 32-channel MUX
- **US-HI-311**: HART to RS 232 interface
- **US-HI-321**: HART to USB interface

### Intrinsically Safe Isolators and Signal Conditioner
Each CorrTran requires either a signal conditioner or an isolated IS barrier (see manual for details). Pepperl+Fuchs recommends the following isolators shown below.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Channel(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFD2-STC4-1</td>
<td>1-channel Non-IS signal conditioner</td>
<td></td>
</tr>
<tr>
<td>KFD2-STC4-1.20</td>
<td>1-channel 2-output Non-IS signal conditioner</td>
<td></td>
</tr>
<tr>
<td>KFD2-STC4-EX1</td>
<td>1-channel IS isolator</td>
<td></td>
</tr>
<tr>
<td>KFD2-STC4-EX2</td>
<td>2-channel IS isolator</td>
<td></td>
</tr>
<tr>
<td>KFD2-STC4-EX1.20</td>
<td>1-input 2-output IS isolator</td>
<td></td>
</tr>
<tr>
<td>KFU6-CRG-1.D</td>
<td>4-20 mA, Non-IS limit alarm</td>
<td></td>
</tr>
<tr>
<td>KFU8-CRG-EX1.D</td>
<td>4-20 mA IS limit alarm</td>
<td></td>
</tr>
</tbody>
</table>

### Surge Protection
For installations requiring surge or lightning protection, the following surge barriers can be used in conjunction with the isolators and signal conditioners listed above.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Channel(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-LB-1.30</td>
<td>1-channel SafeZap surge barrier</td>
<td></td>
</tr>
<tr>
<td>K-LB-2.30</td>
<td>2-channel SafeZap surge barrier</td>
<td></td>
</tr>
<tr>
<td>FN-LB-1</td>
<td>1-channel screw in type surge barrier for field mounting</td>
<td></td>
</tr>
<tr>
<td>P-LB-1</td>
<td>Single channel surge barrier for use with K-system isolators</td>
<td></td>
</tr>
<tr>
<td>P-LB-2</td>
<td>Dual channel surge barrier for use with K-system isolators</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Accessories
- **PW2-BASIC**: CorrTran interface demo software on CD-ROM
- **CMC-PMB-01**: Wall or pipe mounting bracket for remote mounted transmitters