T80 Universal Transmitter
S80 Intelligent Sensors

Presented by:
January 2012
T80 Universal Transmitter

- One Transmitter for Multiple Measurements
  - pH
  - ORP
  - Dissolved Oxygen
  - All Specific Ions
  - Conductivity
  - Resistivity
  - Turbidity
T80 Universal Transmitter

- Easy to Use
- Membrane Switch Navigation
- Simple Menu Structure
- Soft Key Menu Choices
- Easy to read 2 ¾” x 1 ½” LCD Display
T80 Universal Transmitter

- **Inputs:**
  - Any S80 Intelligent Sensor
  - Any standard pH sensor with solution ground using the optional T80 input card.

- **Outputs:**
  - 4-20 mA
  - MODBUS RTU on 24 VDC and 110/220 VAC instruments
  - Optional HART® 7
  - Optional 3 Alarm Relays

- **Power requirements:**
  - Loop Powered
  - 24 VDC @ 250 mW minimum
  - 110/220 VAC
S80 Intelligent Sensors

- New but Familiar
- Digital Communication with Transmitter
  - Sensor Type
  - Serial Number
  - Process Variable
  - Temperature
  - Calibration Data
- Waterproof, IP68 rated Industrial Detachable Cable Connection
6 Point Advantage

1. Intelligent Sensor
2. Common Configuration for all Measurements
3. Application Specific Cartridges
4. Economic and Easily Replaceable Cartridges
5. Submersible and Retractuable designs
6. Application Specific Materials of Construction
- **Three Home Screens**
  - **Data Screen**
    - Process Variable
    - % 4-20 mA range
    - Temperature
  - **mV Screen**
    - Raw mV signal from the sensor
    - % 4-20 mA range
    - Temperature
  - **Graphical Screen**
    - 3 choices, Line, Bar, Gauge
    - Process Variable
    - % 4-20 mA range
Press any Key Twice, except the Screen Key, within 1 second to enter the Main Menu

- CAL = Calibration
- CONFIG=Configuration
- INFO = Information
- SIM = Simulation
- HOLD = Output Hold Function
  - Toggles ON/OFF
  - Freezes the 4-20 mA and alarm relays
T80 Calibration

- **New Sensor?**
  - YES - Erases all 3 Calibration registers
  - NO - Saves to top register

- **Auto Calibration**
  - Two point Cal
  - Automatically recognizes the Calibration Solution

- **Standardize**
  - Single point adjustment

- **Manual**
  - User entry of the Offset and Slope for sensor

- **Temperature**
  - Temperature Adjustment
The Easy to use T80 prompts the user through the calibration.
- Press AUTO and Cal 1 and the T80 waits for a stable reading and then
- Suggests the value of the Calibration Standard
- Accept the value (YES) or enter a different value (NO)
- Continue to the next solution (YES) or end the calibration (NO).
The 2\textsuperscript{nd} standard solution is suggested when the sensor stabilizes.
Accept the value or enter a different one.
The Calibration Offset and Slope values are displayed.
Press OK to exit the Calibration Mode and Exit to leave the Menu.
Save the Changes to return to the Main Display.
Manual Calibration allows the Offset and Slope to be entered manually:
- Test an electrode in the shop and install it and enter the Cal Data in the field.

Enter the PV value, Press mV and enter the associated mV value.

Accept the entry and enter the slope value.

Accept the Slope, press OK, Exit and Save the changes.
T80 Configure

- **Configure Transmitter**
  - LCD – Display
    - Contrast °C/°F
  - OUTPUT
    - 4-20 mA, Relays
  - SERIAL
    - MODBUS or HART® addresses
  - PASSWORD
    - Set Level and Password

- **Configure Sensor**
  - Type of Sensor, pH, ORP...
  - Temp Compensation, %/°C
  - Isopotential point
Configure the Display

- **Display Set Up**
  - °C or °F
  - Slider for Contrast
  - Time Out for Back Light
- **Soft Keys - Text or Icons**
- **Line, Gauge or Bar Graphs**
  - Line graph duration
    - 1 minute, 15 minutes, 1 hour, 12 hours, 1 day, 2 days
- **Tag - 52 characters**
  - Tag On- Displays Tag in Home screen
  - Pop Up – Turns press twice screen ON/OFF
Configure Outputs - 4-20 mA

- Set The 4-20 mA RANGE
  - Default setting is the range of the sensor
  - Select 4 mA/20 mA, enter value
  - HOME, EXIT, SAVE

- Calibrate the Output
  - Transmitter sends out 4 mA signal
  - Enter measured value press OK
  - Transmitter sends out 20 mA signal
  - Enter measured value and press OK
  - Repeat as needed

- Choose 4-20 mA Fault Condition
  - 3.5 mA
  - 22 mA
  - Disable, none
Configure Outputs - Relays

- 3 Relays
  - SPDT, form 1C, 250 VAC, 5 Amp resistive maximum

- Choose Relay function
  - Alarm – Set Point
  - Fault – Failure Alarm
  - Disable – Inactivates relay and removes Icon from Home Display

- Configure Alarm set point
  - Set Point ON value
  - Set Point OFF, determines whether Hi/Lo set point
  - Delay Times, Amount of time the PV must stay above or below set point before activation
Hold, Serial, Password

- **Output → Hold**
  - Sets the Hold “Time Out” Function
- **Serial Configuration**
  - Address (MODBUS + HART®)
  - Baud (MODBUS only)
  - Format (MODBUS only)
- **Password Protection**
  - Choose Level
  - Enter 4 character password, case sensitive
  - Master Password in Manual
INFO – T80 Transmitter

- Transmitter INFO
  - Serial #, revision levels, Hardware Software
  - T80 Configuration
  - Relay configurations 1-3
  - 4-20 Configuration
INFO – S80 Sensor

- **Sensor INFO**
  - Process Variable, serial #, Firmware revision
  - Sensor’s Range
  - Calibration Logs
    - Logs 1 – 3
    - Offset & Slope
- **System Simulate**
  - T80 generates a signal equivalent to the PV signal
  - Enter Fixed Value
  - Ramp (↑ then ↓)
    - Cycles the Range from the low value to the high value and back.
    - Adjustable cycle time
    - Triggers Relays and varies 4-20 mA Out
Simulation – Relays & 4-20 mA

- Relay Simulation
  - Puts the Relays under manual control
  - Choose Relay and turn it ON or OFF
- 4-20 mA Simulation
  - Enter mA value for T80 to output
- That completes the Menus, CAL, CONFIG, INFO and SIM
Color Code and Connection type embossed into the protective Circuit Board cover

110/220 VAC Power Board
- AC In 24 VDC Out
- Optional preamp for mV+, mV-, TC, TC, SG input
T80 Universal Transmitter

- One Transmitter for All Measurements
- Loop Powered, 24 VDC or 110/220 VAC Options
- HART® 7 or MODBUS RTU
- With or without 3 Alarm Relays
<table>
<thead>
<tr>
<th>Model T80- Transmitter Part Number Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Alarm Relays</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Mounting Hardware</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Model T80- 10 -2 1 1 -01
S80 Intelligent Sensors

- Noise free digital Communication
- Calibrated sensors, Plug and Play
- Easy Maintenance
- IP68 Waterproof
- Detachable Cable
- The same Electrode Cartridges, Fittings and Hardware as the S10 and S17 sensors
Thank You,

Go to [www.ecdi.com](http://www.ecdi.com) for Data Sheets/ Instruction Manuals/ Presentations/ Press Release Packages

For over 30 years Electro-Chemical Devices (ECD) has been a recognized leader in industrial process instrumentation:

- Liquid analytical sensors, controllers, transmitters, analyzers and electrodes.

**Electro-Chemical Devices**
1681 Kettering
Irvine, CA 92614

Phone: +1-949-336-6060
Fax: +1-949-336-6064
email: sales@ecdi.com
web: [www.ecdi.com](http://www.ecdi.com)