T80 Universal Transmitter

S80 Intelligent Sensors

Presented by:

January 2012

ELECTRO-CHEMICAL DEVICES

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

HART COMMUNICATION PROTOCOL

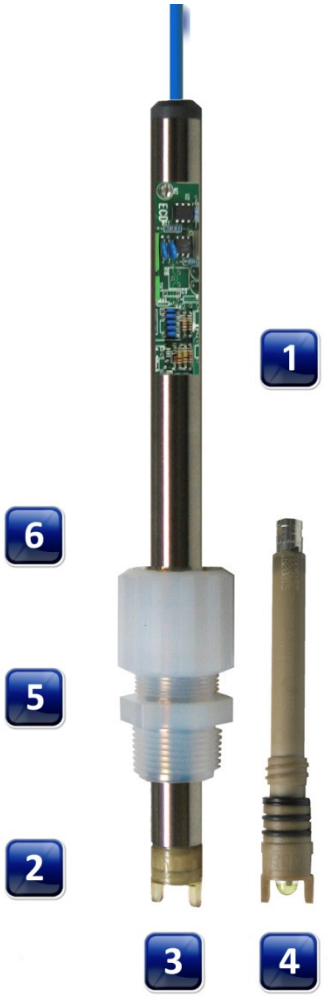
ECD

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

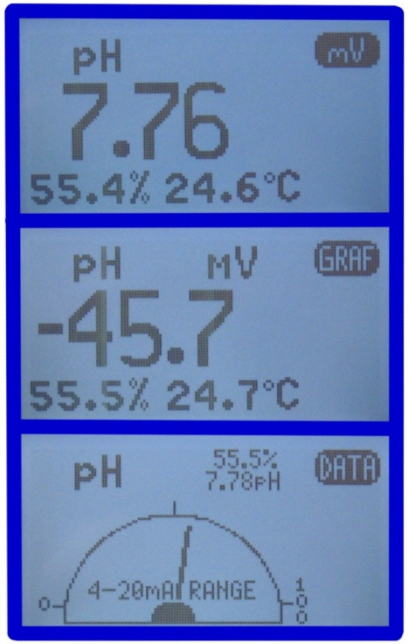
S80 Intelligent Sensors

- 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 Retractable designs
  6. Application Specific Materials of Construction



T80 Home Display

- 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

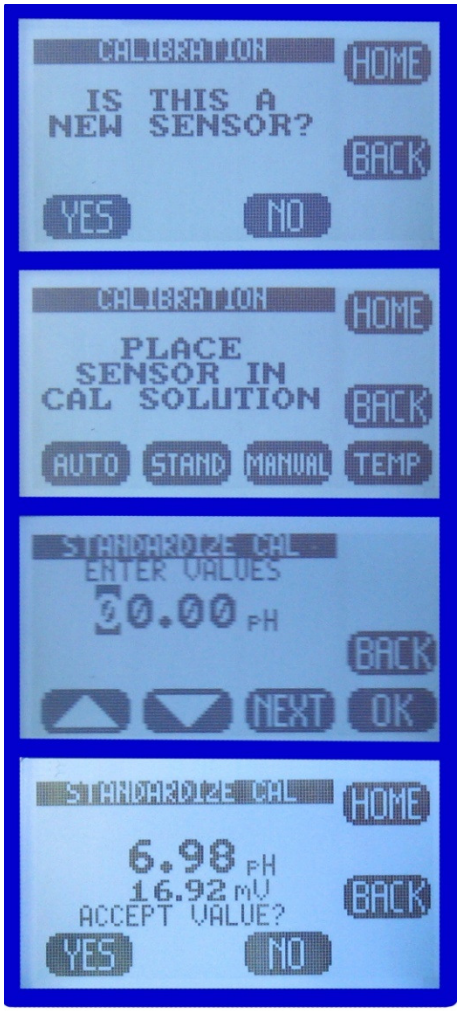


T80 Main Menu

- 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

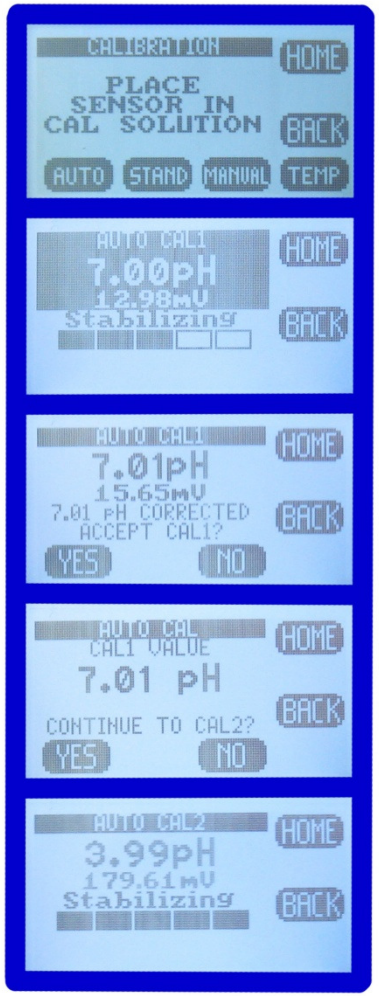
T80 Calibration

- 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



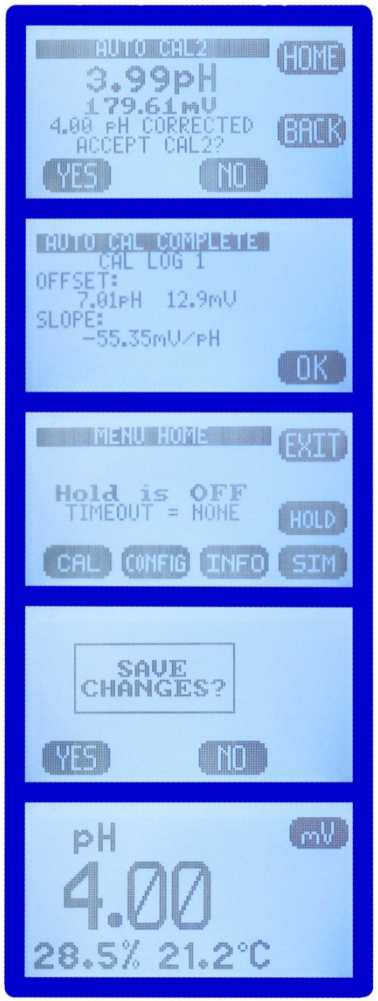
T80 Auto Calibration

- 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).



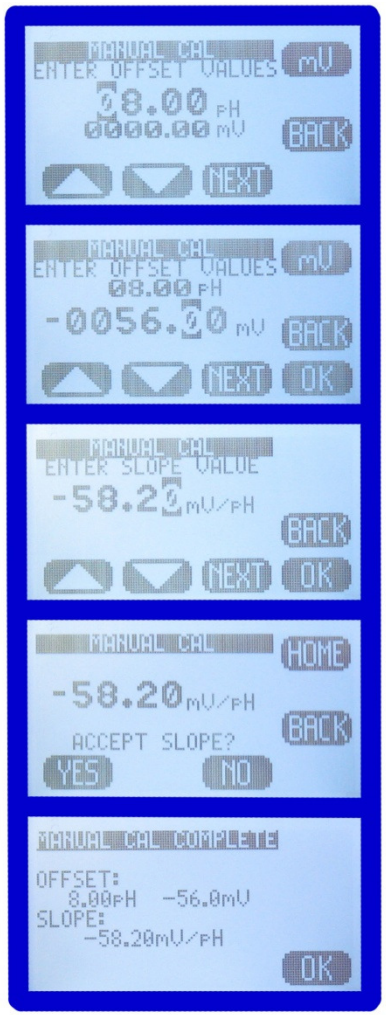
T80 Auto Calibration

- The 2nd 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



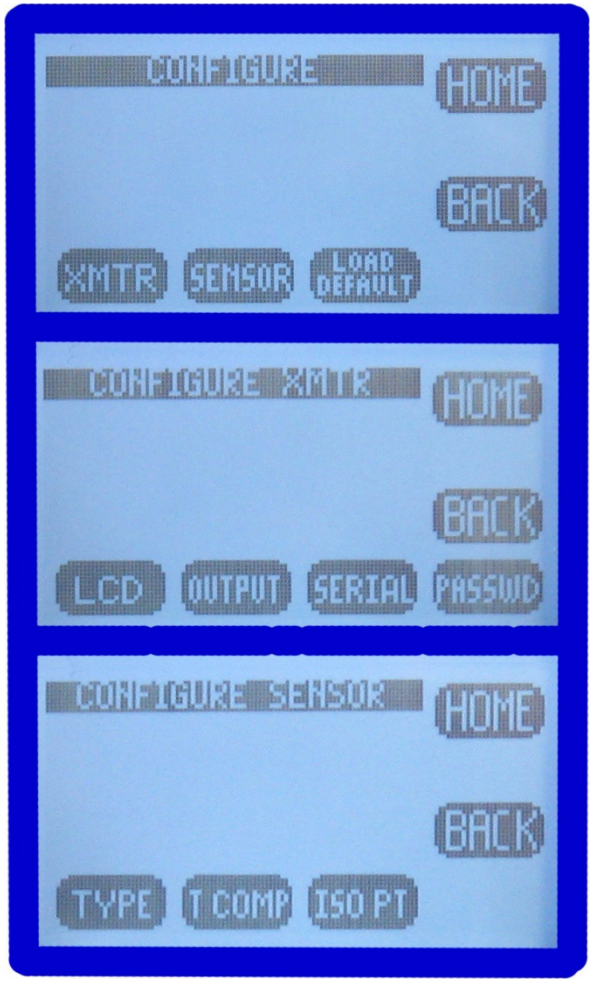
T80 Manual Calibration

- 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

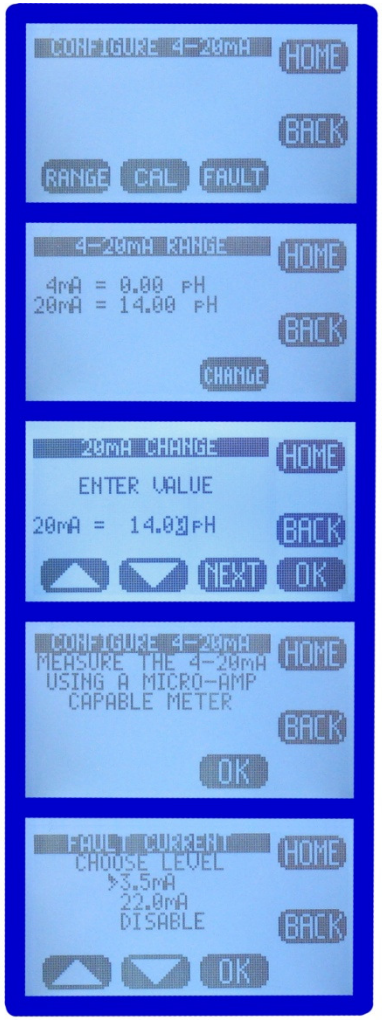


Configure the Display

- 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

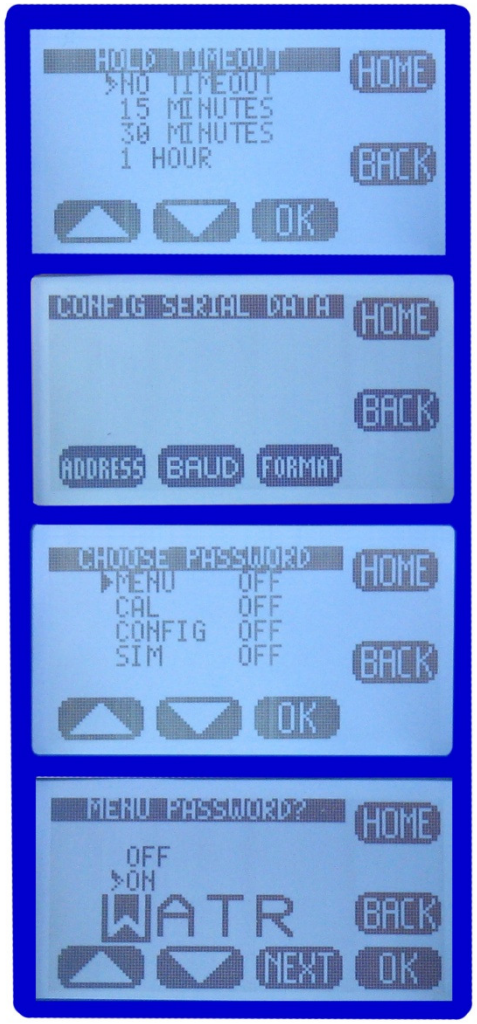


Configure Outputs - Relays

- 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

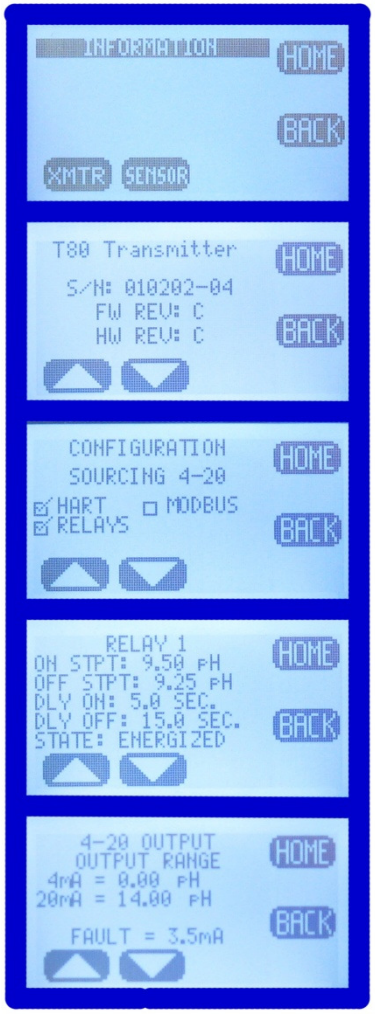
Hold, Serial, Password

- 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

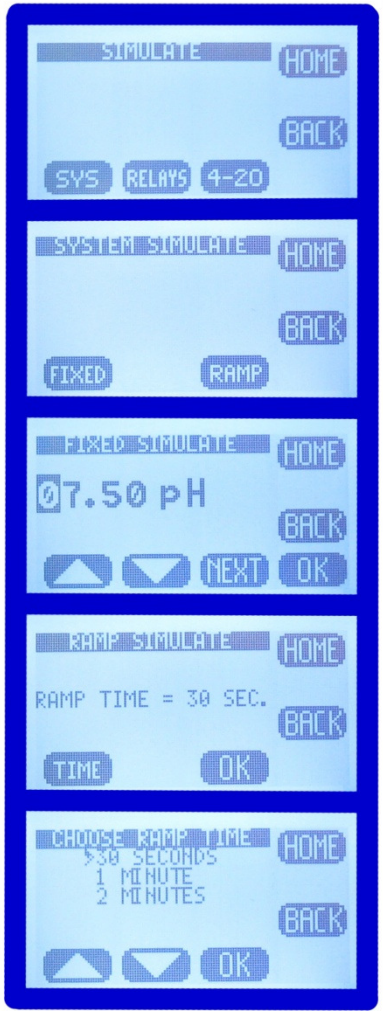


INFO – S80 Sensor

- Sensor INFO
  - Process Variable, serial #, Firm ware revision
  - Sensor's Range
  - Calibration Logs
    - Logs 1 – 3
    - Offset & Slope

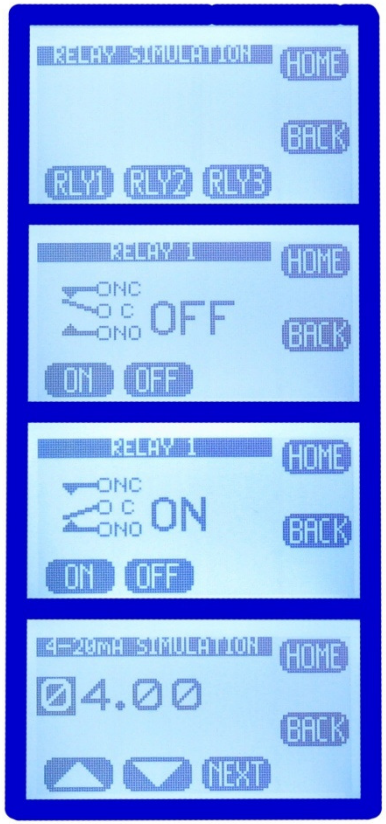
Simulation - System

- 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



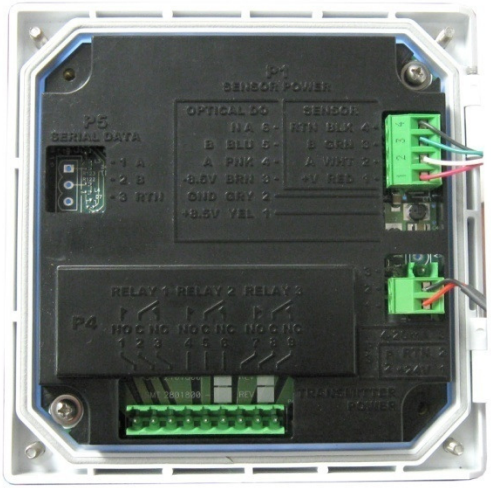
Simulation – Relays & 4-20 mA

- 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



Wiring and Power Board

- 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

Model T80 Part Number Guide

Model T80- Transmitter Part Number Guide					
Input	10 S80 Sensor, pH, ORP, pION, Conductivity, Resistivity, Turbidity and galvanic Dissolved Oxygen				
	20 Optical DO and Amperometric ppb DO Sensors (Triton® DO8 and DO9 sensors)				
	30 Internal Digital Converter/Preamp				
	Power Supply	-0 Loop Powered Transmitter			
		-1 24 VDC Powered Transmitter			
		-2 110/220 VAC powered Transmitter			
		Alarm Relays	0 No Relays		
			1 (3) Form 1C, 250 V 5A relays		
			Output	0 4-20 mA output and MODBUS RTU	
				1 HART®7	
				Mounting Hardware	-00 No Mounting Hardware
					-01 Universal Mount
					-02 Panel Mount
					-03 Handrail Mount
					-04 Sunshield Vertical Rail Mount
					-05 Sunshield Horizontal Rail Mount
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

Electro-Chemical Devices

Thank You,

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