Specifications for the 9900 SmartPro™ Transmitter

- **General**
  - o The device shall be a Georg Fischer Signet 9900 Transmitter.
  - o The device shall be modular design with a functional base unit.
  - o Optional output modules shall be field replaceable.
  - o The printed circuit boards shall be conformally coated or potted with an epoxy solution.
  - o The device shall have a Made in the USA product marking.
  - o The device shall adhere to EU RoHs and China RoHs directives.
  - o The device shall offer field, integral, and panel mounting options.
  - o The panel mount version shall have grooves for mounting clip on all four sides of the housing.
  - o The device shall have NEMA 4X, CE, and UL approvals/ratings.
  - o The device shall have removable terminal blocks for the wiring interface.
  - o The device shall provide an instrument certificate.
- **Power Requirements**
  - o **Inputs**
    - ▪ This device shall operate on loop power or 12 to 32 VDC from a DC power supply.
    - ▪ This device shall provide over-voltage protection for 1.5 times the max voltage rating for this device as well as reverse-voltage protection.
  - o **Outputs**
    - ▪ **Open Collector**
      - • Shall operate up to 30 VDC and have a maximum current rating of 50 mA.
    - ▪ **Relays**
      - • Each relay shall accept up to 30 VDC or 250 VAC and a maximum current of 5A.
    - ▪ **4-20 mA**
      - • The current loop outputs provided in this device shall comply with the ANSI-ISA 50.00.01 Class H Standard.
      - • This device shall allow the user to test or adjust the current outputs.
      - • This device shall allow a user-selectable current output value in case of error conditions.
    - ▪ **HART Communications**
      - • This device shall provide for digital communications via the HART Communications Protocol.

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- **User Interface**
  - **Display**
    - Shall provide a "dial-type" digital bar graph on the display.
    - Shall provide separate lines for the units, main and secondary measurements.
    - Shall allow for auto-sensing backlighting.
    - The display shall be protected by a shatter-resistant glass with UV coating.
  - **Keypad**
    - Shall provide a 4-button mechanical keypad with a membrane overlay and symbols for user input.
  - **Indicators**
    - The device shall have LED annunciators for the open collector and relay outputs as well as for internal system errors.
- **Configuration**
  - Shall provide a PC software program to allow the user to configure the device.
  - Shall provide a menu item allow the user to reset the system to factory settings.
  - Shall provide a means for the user to enter a 13-character custom label for the instrument type identification.
- **Input Types**
  - This device shall be used for, and not limited to, Georg Fischer Signet Flow, pH, ORP, Conductivity / Resistivity, Salinity, Temperature, and Level measurements.
  - This device shall be able to accept Signet's Digital (S3L) signals as well as open collector and AC frequency inputs.
  - This device shall be able to receive 4-20 mA signals as an input.
- **Output Types**
  - **Open Collector**
    - Shall allow for the NPN open collector output that can be used in a NPN or PNP configuration.
  - **Relays**
    - Shall allow for a total of 2 SPDT, Form C relays.
    - Shall allow for any measurement, such as primary or secondary, as a relay output source.
    - Shall allow for the following relay modes: Off, Low, High, Window (Inside/Outside), Volumetric Pulse, Totalizer Volume, Cyc High, Cyc Low, Proportional Pulse, PWM, and USP.
    - Shall allow for a hysteresis value, relay time delay, and relay test mode.
    - Shall be replaceable without having to replace the transmitter.

- o **4-20 mA**
    - ▪ This device shall offer isolated 4-20 mA outputs.
    - ▪ This device shall offer forward or reversible scaling.
    - ▪ This device shall offer passive 4-20 mA outputs.
- ▪ **Calibration**
    - o Shall provide a method for the user to perform a single or dual point calibration.
    - o Shall provide a method for the device to auto buffer recognition.
    - o Shall allow for users to reset the measurement('s) calibration.
    - o Shall provide a menu to allow the user to enter the last cal date.
    - o Shall provide the means to hold outputs during calibration.
- ▪ **Security**
    - o Shall provide a standard password.
    - o Shall provide an enhanced password/code that provides up to 10,000 unique codes.
- ▪ **Signal Conditioning**
    - o Shall provide user-selectable times for averaging the processed input signal.
    - o Shall provide a Sensitivity function that can override the averaging function if the user-specified set point is reached.