

SECTION 16220

OPTICAL FLOW SWITCH LEVEL DETECTORS

PART 1 GENERAL

1.01 SCOPE

- A. The contractor shall furnish and install all discrete position-indicating optical flow switches as shown on the drawings and as required for a complete and properly operating system.

1.02 REFERENCES

- A. NFPA® 820 – Standard for Fire Protection in Wastewater Treatment and Collection Facilities 2008 Edition

PART 2 PRODUCTS

2.01 OPTICAL FLOW SWITCHES, TRANSCEIVERS, AND POWER SUPPLY

- A. The optical flow switches shall use fiber optic cable to transmit a beam of light from a transmitter in the control panel to a non-corrosive housing where the beam makes and breaks depending on the tilt of the lever arm on the check valve. The receiver in the control panel shall detect the presence or absence of light and operate a relay in the receiver. The optical flow switch shall have no electrical components or metallic wires that could cause arcs and sparks in an explosive atmosphere.
- B. The optical flow switch shall be mercury and lead free and shall be made of all safe, recyclable materials. The optical flow switch housing shall be aluminum. It shall be a simple robust device designed for many years of dependable service. The transceivers (transmitter and receiver combination) shall be din rail mounted units capable of connection to 1 optical flow switch. Provide one transceiver for every optical flow switch. The fiber optic cable shall be custom made for the optical flow switch and shall consist of dual plastic fibers with an overall specially blended sheath for flexibility. No special tools or experience shall be required for connection of the optical cable to the transceivers. The optical flow switch shall have an ambient air standby operating temperature rating of –15 to +155C (-25 to +70C).
- C. The transceivers shall operate in ambient temperatures of –15 to +130F (-25 to +55C). The transceivers shall operate at 12 VDC and shall be protected against accidental polarity reversal. The system shall operate in the visible and infrared light region with wavelengths between 400 and 1200 nm. The output relays in the receivers shall have the capability of being connected normally open or normally closed. The transceivers shall have a green led power-on light and red led lights on each channel indicating that the light

beam is being received – optical flow switch tilted up. The transceivers shall power-on through snap-together connection to optical flow switch power supply.

- D. The optical flow switch power supply shall have an operating voltage of 120VAC in and 12VDC out to each linked transceiver. One power supply shall have the capabilities of linking up to 5 transceivers.
- E. The optical flow switches, light link transceivers, and light link power supply shall be the Optical Flow Level Detection System by Cox Research and Technology, Inc., Baton Rouge, La. The light link transceiver shall be model TR-3, the power supply shall be model PS-2 and the optical flow switch shall be Opti-Flow model FS-1.

2.02 OPTICAL FLOW SWITCH CABLE EXTENSIONS (IF REQUIRED)

- A. The sheathed optical flow switch cable shall be brought from the check valve arm to a separate junction box. Inside of the junction box, splices to the cable shall be made to individual fibers which shall be installed in conduit to the control panel. Splices shall be made with vendor supplied plastic splices. Splices shall use thumb screws and shall not require special skills or polishing. The individual fibers shall be identical to the fibers that are in the sheathed cable. The individual fibers shall be a clear plastic optical fiber with a polyethylene sheath.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The contractor shall install the optical flow switches and accessories in accordance with the manufacturers instructions and as shown on the drawings.

3.02 STORAGE

- A. All equipment shall be stored in a weather protected location.

END OF SECTION