



Customer Bid Specifications  
for  
Two-Wire RF-Admittance Level Control

The point level control shall consist of four components: a two-wire 24 Vdc transmitter (electronic unit), a rugged NPT or flange-mounted sensing element, a three-terminal, interconnecting cable for remote mounting of sensing element from electronic unit, and a compatible receiver (customer or manufacturer supplied). The transmitter shall be suitable for mounting up to 150 feet from the sensing element. For specific applications, an optional integral electronics and sensing element design shall be available for simplified installation.

1. The sensing element shall be of rigid or flexible design and shall be rugged, and suitable for the temperature and pressure required. If required, the sensing element shall be abrasion-resistant and/or shall be made of a material that resists chemical attack. The sensing element shall be a three-terminal type, and there shall be no active electronics in the sensing element. The sensing element shall be furnished with a waterproof conduit that meets Nema 1-5, and 12 area classifications.
2. The transmitter (electronic unit) shall be a two-wire, 24 Vdc RF-Admittance type, with circuitry designed to ignore errors generated by coating "build-up" on the sensing element, and shall be immune to changes in product density and ambient temperature. The transmitter shall be compatible with user's PLC, microprocessor manufacturer's receiver.

Ambient temperature limits of the transmitter shall be -40°F to 140°F. Output shall be 4-10 mA in the alarm state and 15-25 mA in the normal state. A single, calibration control-point adjustment shall be provided. The transmitter shall be furnished fail-safe and be field-convertible for low level or high level. The transmitter operating response time shall not exceed 20 milliseconds and shall have an optional time delay adjustment with up to 90 seconds response time.

The transmitter shall be mounted in a weatherproof/explosionproof housing, which shall meet Nema 1-5 and 12 area classifications.

3. The coaxial interconnecting cable shall be a three-conductor, driven-shield type, up to 150 feet long, and shall be used to connect the sensing element to the electronic unit.

The two-wire point level system shall be a Drexelbrook Engineering Co. Series 506-6200-X with a compatible receiver.

4. The two-wire point level receiver shall be a compatible PLC, microprocessor or manufacturer's receiver (32-channel microprocessor receiver 6-point relay-output receiver, or single-channel relay-output receiver).

- 4.1 The 32-channel microprocessor receiver shall have input cards for the number of control points specified, expandable in groups of 8 up to 32 points. It shall have capability for continuous fault monitoring of the two-wire point level transmitter and the signal wiring. The receiver shall also have built-in self diagnostics.

The same receiver shall have a common alarm and a common fault output of 24 Vdc at 325 mA for all points. A single button shall be provided to acknowledge both outputs. Barrier-type circuits shall be built-in to provide an intrinsically safe output for field transmitters and wiring to the receiver, without requiring separate intrinsic safety barriers. Output wiring shall meet area classification Class I, Groups A, B, C and D, Class II, Groups E, F and G (Div. 1 and 2). For intrinsically safe output wiring, the power supply shall be furnished by the receiver manufacturer.

The receiver display shall be vacuum fluorescent, with two lines and 20 character spaces. The display shall show, for all active channels, points in operation, points in fault and points in alarm.

The receiver shall be rated for -40°F to 130°F, and transient protection on all input loops shall be 10 amps. The minimum power requirements for the receiver shall be 24 Vdc at 2 amps.

TTL and RS232/485 port outputs shall be furnished if specified, and all terminal boards shall have plug-in wiring connectors.

Receiver housing shall meet Nema 1-3, 5 and 12 area classifications [options: Nema 4 or Nema 4X].

The 32-point microprocessor receiver shall be a Drexelbrook Engineering Co. Series 601-3XXX-X.

- 4.2 The six-point relay output receiver shall provide DPDT relay contact closures for up to six two-wire point level control signals. The receiver shall include a 22 Vdc power supply and self-checking circuits for opens, shorts or equipment faults. Visible LEDs shall pinpoint the location of a fault. The receiver shall also include a common relay for fault monitoring.

The receiver shall require 120/230 Vdc, 50/60 Hz 18 Watts max. [options: 120 Vac or 24 Vdc] in power. DPDT outputs shall be rated at 120 Vac, 5A non-inductive, 3A inductive [options: 240 Vac, 5A non-inductive, 2A inductive or 24 Vdc, 5A non-inductive, 1A inductive up to 300 mH].

Receiver housing shall meet 1-3, 5 and 12 area classifications.

The six-point relay-output receiver shall be a Drexelbrook Engineering Co. 401-38XX-X.

- 4.3 The single channel, relay-output receiver shall provide two SPDT relay contact closures for a single two-wire point level control signal; one for level alarm and one for fault-malfunction alarm. The receiver shall include a 22 Vdc power supply that provides intrinsically safe loop power for the two-wire point level transmitter. The receiver circuitry shall also provide a self-checking status monitor for loop-fault alarms. Visible LEDs shall indicate relay conditions.

The receiver shall require 120 Vac, 50/60 Hz, 4 Watts (max.) [options: 230 Vac, 50/60 Hz, 4 Watts max.] in power. The SPDT outputs shall be rated at 120 Vac; 5A inductive, 3A non-inductive [option: 230 Vac; 5A inductive, 2A non-inductive].

The receiver housing shall meet Nema 1-4X, 5, 7 and 12 area classifications [option: explosionproof].

The single-channel relay output receiver shall be a Drexelbrook Engineering Co. 401-400-X.



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