



## ABSOLUTE ENCODER REGISTER SPECIFICATIONS

It is the preference of the utility to obtain an encoder-based remote metering system capable of providing digitally encoded meter information as described in the enclosed specification. Specifications for the required cold water meters can be found in the enclosed documentation. Bids should be submitted with detailed information on the features and benefits to the utility to adequately evaluate the proposed system. Proposals without adequate information may not be considered.

### DESCRIPTION - GENERAL

These specifications cover a self-contained encoder register metering system designed to obtain remote simultaneous water meter registration directly from the register odometer. The metering information shall be obtained through a remotely located receptacle using a compatible data capture system. The above system shall be configured as follows:

- Encoder meter register – direct mounting, encoded odometer wheels, digital data stream. Batteries or pulses are not allowed.
- Remotely mounted receptacle providing a communication link for the transmission of information from the register.
- Data acquisition equipment with which the above components can be interrogated. Such equipment shall be configured in two types:
  - A device that captures information and displays it visually to confirm correct system installation and wiring.
  - A device that is pre-programmed with route information and is capable of storing collected data in solid state memory.
  - This device shall also electronically transfer the data for use by the utility billing computer.

### ENCODER REGISTER UNIT

- **Registration**
  - The register shall provide a six-digit visual registration at the meter.
  - The unit shall, in a digital format, simultaneously encode the four, five, or six most significant digits of the meter reading for transmission through the remotely located receptacle or other AMR/AMI device.
  - The dial shall have a red center sweep test hand and shall contain 100 equally-divided graduations at its periphery. Register test rings shall be available for shop testing.
  - The register shall employ a leak detection indicator on the dial face.
  - Registers using pulse generation or conversion of pulses to digital output are not permitted. Batteries shall not be allowed.
  - The manufacturer will guarantee that the reading obtained electronically matches the mechanical odometer reading on the register and that the manufacturer will pay the difference at the current rate whenever a discrepancy appears.

### ■ **Mechanical Construction**

The registers should be manufactured in two different versions, one for inside set application and one for pit set.

### ■ **Inside Set Version**

- The unit must be constructed of high-strength polycarbonate and possess a hermetic sonic-weld seal. Registers for inside set applications should be oil-free designs.
- The register shall be attached to the meter case by a bayonet attachment. Fastening screws or nuts shall not be required. A tamperproof seal pin shall be used to secure the register to the maincase.
- The register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service.
- Provision shall be made in the register for the use of seal wires to further secure the register.
- Terminal screws must be accessible on the register for wire connection to the remote receptacle or a future AMR system. A permanently potted wire connection shall be available as an option.

### ■ **Pit Set Version**

- The unit must be constructed in a roll-sealed copper shell and glass lens assembly to provide a hermetic seal.
- The register shall be attached to the meter case by a bayonet attachment. Fastening screws or nuts shall not be required. A tamperproof seal pin shall be used to secure the register to the maincase.
- The register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service.
- Provision shall be made in the register for the use of seal wires to further secure the register.
- Terminal connections must be permanently potted so that the terminal cover cannot be removed.

### ■ **Electrical Construction**

- The number wheels used in the register assembly shall be provided with spring-type, bifurcated metal contacts to ensure data transmission.
- Connection shall be made to the register by three screw-type terminals sonically inserted into the register top. Access to the terminals shall be available to all register models, with the exception of a permanently potted version. A port cover shall be provided to cover the terminals after they have been wired.
- Digitally formatted data transmitted from the register shall incorporate a checksum character to verify correct information transmission and integrity. Data errors shall be indicated by the reading equipment.
- The absolute encoder register shall automatically detect between 2-wire and 3-wire register protocol.

### ■ **Meter Reading Information**

- The absolute encoder register shall provide to the reading equipment up to a six-digit meter reading. An identification number of up to ten digits shall be provided with each reading.
- The utility shall have the option to reprogram the internal register identification number an unlimited number of times.
- The absolute encoder register must have the capability to provide additional custom information to the reader. This information shall be programmed by the utility and have the ability to be reprogrammed at any time.

## REMOTE RECEPTACLE

### ■ Mechanical Construction

- Where indicated, a remote receptacle must be provided for attachment to a pit meter lid with another unit also designed for attachment by wall mounting.
- The materials employed shall be corrosion-resistant, resistant to ultraviolet degradation, unaffected by rain or condensation, and compatible with rugged service and long life.
- The pit receptacle shall be installed into the meter lid either using two screws provided by the utility or mounted in a single 1¾" hole while not extending more than 4½" into the pit.
- The pit-mounted receptacle shall be provided with a minimum length of six feet of wire connected and sealed at the receptacle without terminal exposure.
- The remote receptacle shall not contain a battery or data storage capability.

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