

TRANSPARENT TECHNOLOGIES



E-Reg / E-Reg-R
Electronic Register
With optional Embedded Radio
Operations Manual

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Transparent Technologies reserves the names T2, E-Reg, E-Reg-R, M2w and UDA.
References are made to Sony®, Clie™ and Palm©.

Version

E-Reg Version 01.00

October 2010



E-Reg
E-Reg-R

Electronic
Register
With
Embedded
Radio

*Installation &
Operations
Manual*

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OVERVIEW

E-Reg

Electronic Register

The E-Reg is the water industry's new standard for register performance. The E-Reg offers maximum register resolution, a multitude of standard features, on-board datalogging and a variety of AMR and SCADA output options, including an embedded T2 M2w AMR radio.

The E-Reg is designed for all environments and incorporates the largest battery available for AMR/utility applications. The E-Reg can be deployed on any Metron Spectrum or Enduro model and can be configured for USG, Ft3 or m3 billing units.

Register Features

- 8-digit Display with Configurable Decimal Point
- Total or Flowrate Display
- Test Mode for Meter Testing
- Measuring Unit Indication
- Flowrate Unit Indication
- Forward & Reverse Flowrate Indication
- Permanent "Under-Glass" ID Label w/Barcode



Options

- Embedded Spread Spectrum Radio w/Integral Antenna (shown above)
- 3-Wire AMR (C-D-G) Output
- Pulse (switch) Output
- SCADA (4-20mA) Output
- Valve Control (switch) Output

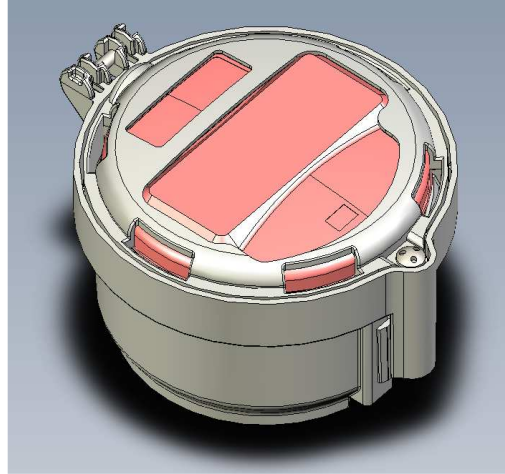


E-Reg Packaging

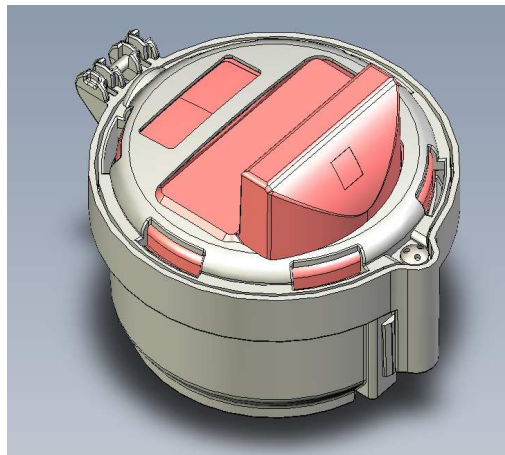
The E-Reg is housed in a polycarbonate shell with multiple levels of waterproofing.

The housing is assembled with a UV-cure adhesive which provides the first level of environmental protection. The register and radio electronics are 100% encapsulated in a dielectric gel for 100% moisture protection. Finally, all cable entry/exit points are sealed with gel grommets to protect against long-term moisture penetration.

The product label indicates a model number with a corresponding the FCC identifier.



E-Reg



E-Reg-R



Basic Specifications

Materials

Inner Housing: Polycarbonate
UV-protected
Sealing: Self-Healing Dielectric Gel

Environmental

Temperature: -4°F to +176°F
-20°C to +80°C
Humidity Range: 100% (waterproof)
Rating: IP68 (Fully submersible)

Battery: Replaceable
19.0 A-hr D-cell

Battery Life: Up to 15 years

Optional Embedded M2w Radio

Transmission: One-Way
Config/Datalogging: Two-Way
(unregulated)

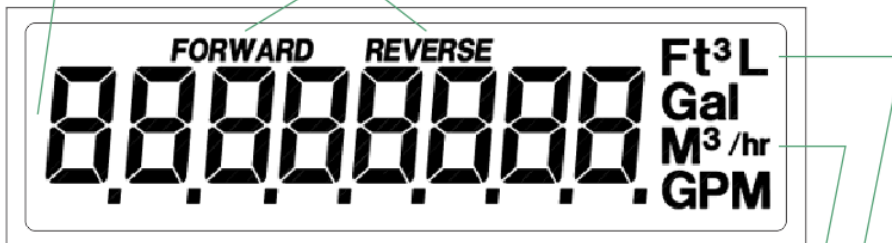
Regulatory: FCC 15.247



E-Reg LCD Display

Large 8-digit Display with Configurable Decimal Pt.

Forward and Reverse Flow Indication



GPM or m3/hr Flowrate Units

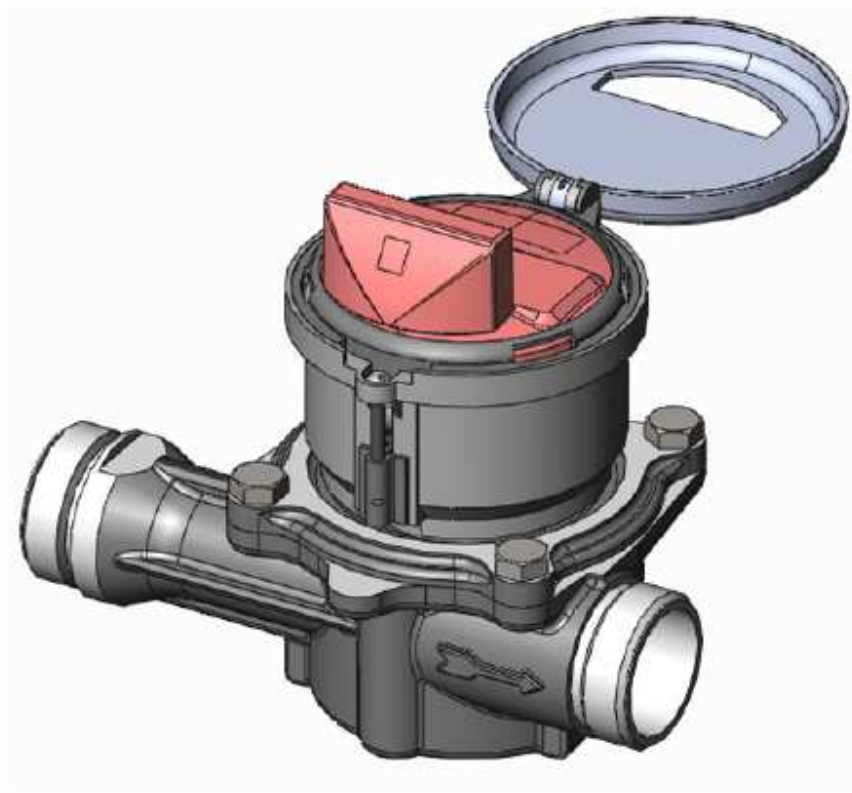
Configurable Measuring Units



INSTALLATION & WIRING

Installation

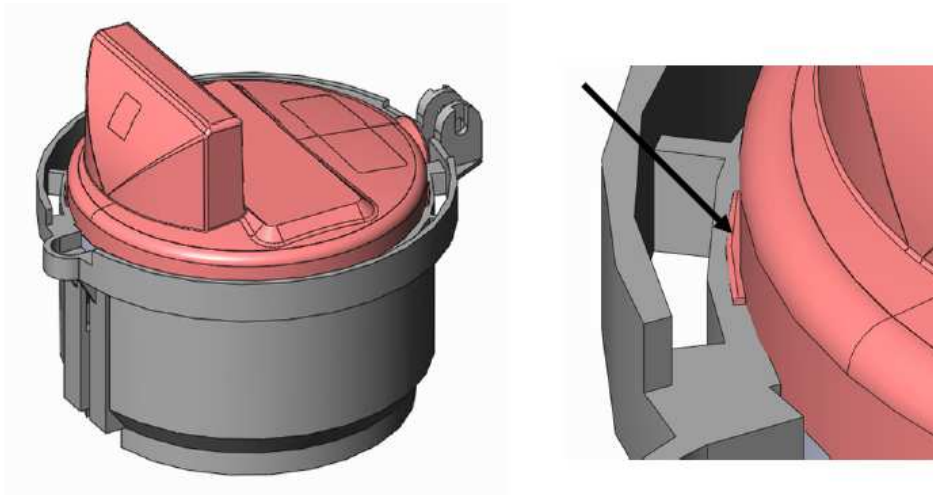
The E-Reg is designed for all environments and can be installed either in indoor or outdoor environments. The register is attached to the Metron water meter with a plastic housing as shown below.





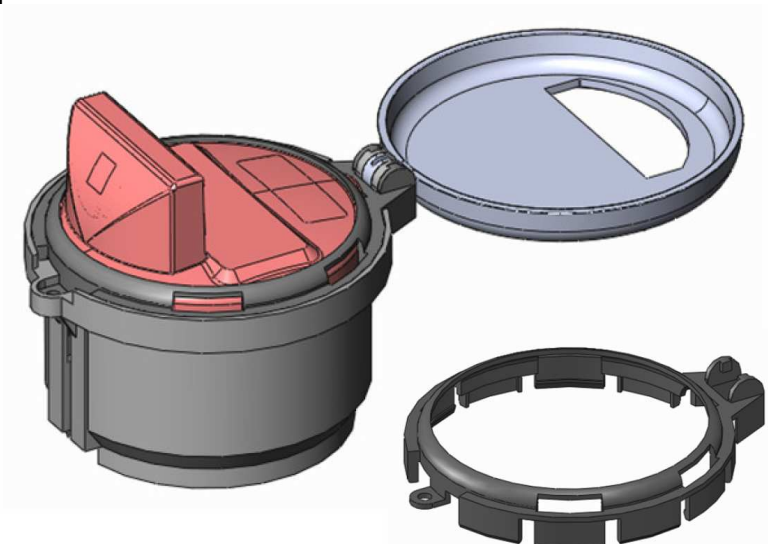
Step 1

Fit the E-Reg inside the bottom housing as shown. The tabs will keep the E-Reg from slipping downward.



Step 2

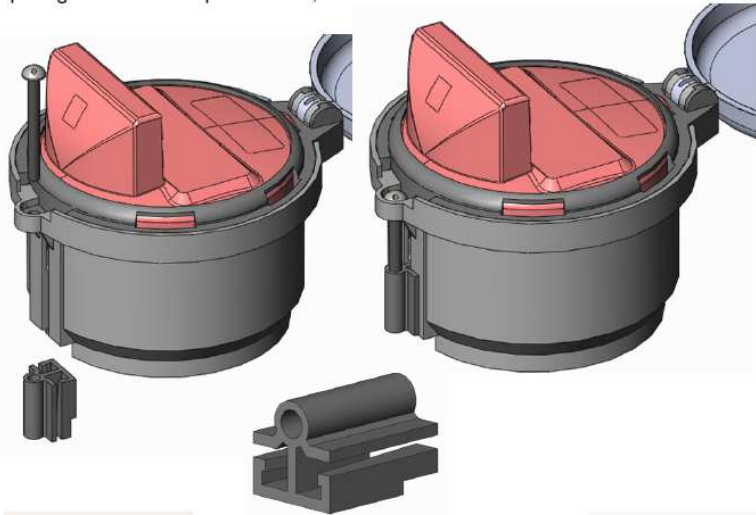
Place the top housing over the E-Reg and press downward until the top housing clicks into place.





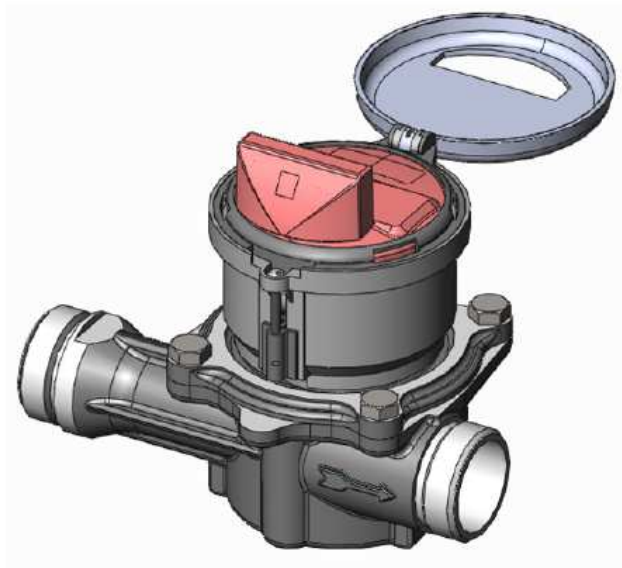
Step 3

Start the screw into the separate slide crimp as shown below. The slide crimp will secure the bottom and top housings together. Do not fully tighten the screw at this point.



Step 4

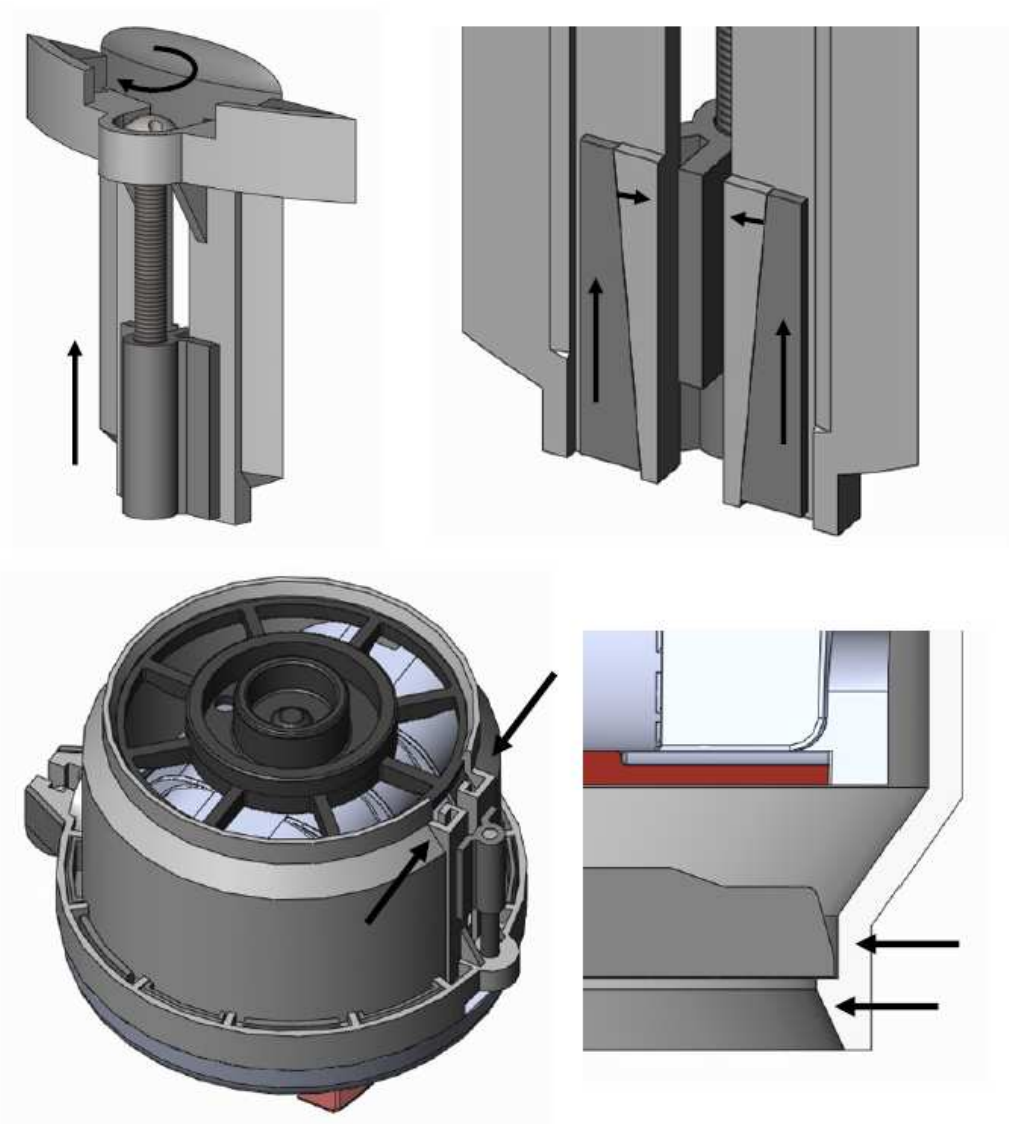
Place the E-Reg assembly on the water meter. Any MP3 or MP5 meter will have either a brass or plastic register plate for the attachment.





Step 5

Once the E-Reg assembly is loosely attached to the water meter, continue tightening the screw. The tightening will contract the bottom housing so the assembly is securely attached to the water meter.





Radio Option

The E-Reg can be supplied with a optional M2w radio (E-Reg-R). This radio will be fully embedded within the E-Reg housing. The antenna is an integral circuit board that extends approximately 1 inch above the face of the E-Reg.

There are no connections or wiring for the embedded M2w radio.



2



3

OPERATION

To be completed



BATTERY

The E-Reg has a battery with an anticipated battery life of 15 years

Battery Specifications

Mfg: Vitzrocell
Type: Thionyl Lithium Chloride
Size: D-cell
Capacity: 19.0 A-hr

Battery Life

All battery calculations include an environmental impact factor and use a baseline of regular function usage (PDA reads, datalogging, etc.)

With the optional M2w radio, the E-Reg's transmit period is directly related to the battery life of the radio. The RF transmission is the largest power consumer and thus drives battery life.

Check with Transparent Technologies for a detailed battery life calculation based on specific configurations.





APPENDIX

FCC Information

Information to user. - The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Special accessories.

(a) Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors, are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e., shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge, at the time of purchase. Information detailing any alternative method used to supply the special accessories shall be included in the application for a grant of equipment authorization or retained in the verification records, as appropriate.

The party responsible for the equipment, as detailed in §2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of the text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

(b) If a device requiring special accessories is installed by or under the supervision of the party marketing the device, it is the responsibility of that party to install the equipment using the special accessories. For equipment requiring professional installation, it is not necessary for the responsible party to market the special accessories with the equipment. However, the need to use the special accessories must be detailed in the instruction manual, and it is the responsibility of the installer to provide and to install the required accessories.

(c) Accessory items that can be readily obtained from multiple retail outlets are not considered to be special accessories and are not required to be marketed with the equipment. The manual included with the equipment must specify what additional components or accessories are required to be used in order to ensure compliance with this part, and it is the responsibility of the user to provide and use those components and accessories.

(d) The resulting system, including any accessories or components marketed with the equipment, must comply with the regulations.



FCC Definitions

Class A digital device. A digital device that is marketed for use in a commercial, industrial or business environment, exclusive of a device which is marketed for use by the general public or is intended to be used in the home.

Class B digital device. A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments. Examples of such devices include, but are not limited to, personal computers, calculators, and similar electronic devices that are marketed for use by the general public.

NOTE: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as a Class B device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The provisions of paragraphs (a) and (b) of this section do not apply to digital devices exempted from the technical standards under the provisions of §15.103.