



**Badger Meter**

# Recordall® Transmitter Register (RTR)

Model Dual RTR® for Recordall Compound Meters

## DESCRIPTION

The Dual Recordall Transmitter Register (RTR®) is designed for use with all Recordall Compound Meters to provide output compatible with ORION®, GALAXY®, Itron® ERT® and Badger Meter® approved technologies. Each unit incorporates a local six digit mechanical odometer register.

## OPERATION

The RTR provides a digital output based on Badger Meter's patented piezoelectric solid-state switch. This output has the characteristics of an open drain Field Effect Transistor (FET) and has no electrical contacts to stick, wear or corrode.

## RESOLUTION

Digital output from the RTR typically has resolution of 1/10th of the register test circle (resolution may vary in some cases). The electronic resolution table in this brochure lists minimum output resolution for all Recordall meter applications.

## MOUNTING

The RTR is compatible with Recordall compound meters.

## MAGNETIC DRIVE

Direct drive high-strength magnetic coupling through the meter body to the wetted magnets provides reliable and dependable register coupling.

## SEALED REGISTER

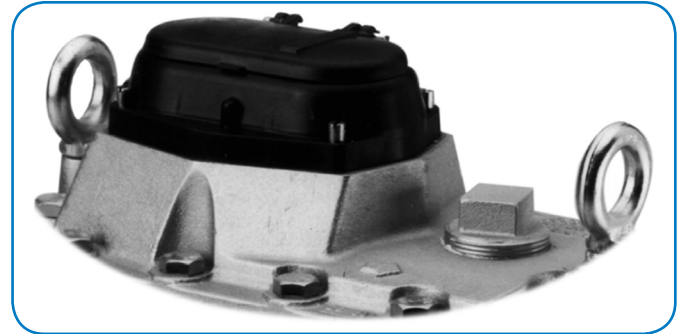
The RTR register consists of two separate (one low flow, one high flow) six-digit, straight-reading mechanical odometer totalizers (located in the six o'clock position), 360° test circles with sweep hands and flow finders to detect leaks. The register gearing is self-lubricating thermoplastic to minimize friction and provide long, reliable life. Permanent sealing eliminates moisture, dirt, and other contaminants. Each odometer has a separate leak detector.

## TAMPER-PROOF FEATURES

Customer removal of the RTR can be prevented with the use of the tamper seal screw.

## CONSTRUCTION

The housing of the RTR is constructed of a tempered glass lens top and a stainless steel bottom. Internal construction materials are thermoplastics for long-life and high reliability. The integrity of the adhesive seal joining the glass top to the metal base provide unmatched protection in water meter applications. A corrosion and tamper-resistant seal screw is provided to secure the RTR to the meter. The cover and shroud assembly are thermoplastic material.



## TEMPERATURE

Operating range is -40...120° F (-40...49° C). The water meter should not be subjected to temperatures below freezing.

## MOISTURE

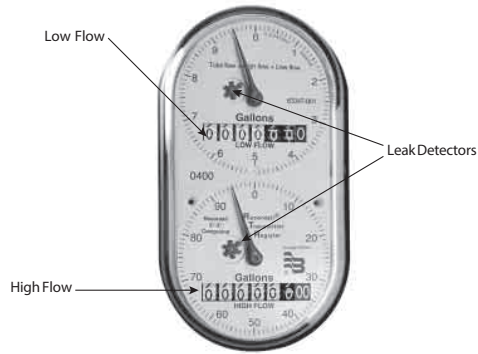
The RTR achieves true water resistance due to the adhesive technology used in the sealing process. Leak rates less than 10...6 cc/sec., as tested by a helium mass spectrometer, are comparable to a true hermetic seal. Due to this unique sealing process, the RTR exceeds all applicable requirements of AWWA Standard C707 regarding moisture intrusion. Register fogging and condensation are no longer an issue.

## WIRE CONNECTIONS

Compound RTRs use submersible, reusable connectors. A protective cap is provided when used as a local register.

## SPECIFICATIONS

<b>Transmitter/Register</b>	Two straight-reading, permanently sealed, magnetic drives
<b>Unit of Measure</b>	U.S. gallons, cubic feet, cubic meters, clearly identified on register face
<b>Number Wheels</b>	Two sets of six with 3/16" high numerals
<b>Test Circle</b>	360° circle with ten major increments with ten divisions each
<b>Humidity</b>	5...100% condensing
<b>Temperature</b>	-40...120° F (-40...49° C) (RTR)
<b>Output Signal Characteristics</b>	NPN open collector transistor (FET)
<b>Visual Resolution</b>	1/100th of test circle
<b>Electronic Resolution</b>	1/10th of test circle
<b>On-State Resistance</b>	7.5 Ohms @ 77° F (25° C)
<b>Power Source</b>	External
<b>Maximum Switching</b>	30V DC @ 1 mA @ 77° F (25° C)
<b>Maximum Power Dissipation</b>	0.4 Watts continuous @ 77° F (25° C)



## OPERATING CHARACTERISTICS

The RTR has an output equal to 1/10th of the meter test circle with the characteristics of an open drain FET. The on-state condition is a solid-state switch closure. Off-state condition is an open circuit. Powered by an external source, the RTR has a maximum rating of 30V DC at 1 mA at 77° F (25° C).

## ELECTRONIC RESOLUTION

The minimum resolution of the Compound RTR is:

Size	US Gallons	Cubic Feet	Resolution Meters Cubed (m <sup>3</sup> )
2 in.	10	1	0.1
3 in.	10	1	0.1
4 in.	100	10	1
6 in.	100	10	1

## ELECTRONICS

The piezoelectric switch circuit board in the RTR is completely sealed against moisture by a conformal coating, and potted in place to assure protection from humidity.

## ELECTRICAL

The electronic circuitry is designed to provide immunity to electrical surges and transients per IEC801-2, IEC801-4 Severity Level 4.

## Making Water Visible®

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