

**SR-EC® WATER METERS**
**DISPLACEMENT TYPE MAGNETIC DRIVE COLD WATER METERS**  
 1-1/2" (DN 40mm) and 2" (DN 50mm) Sizes
**DESCRIPTION**

**APPLICATIONS:** Measurement of cold water where flow is in one direction; in residential, commercial and industrial services.

**CONFORMANCE TO STANDARDS:** Invensys SR-EC Water Meters meet the requirements of NSF Standard 61 and comply with ANSI/AWWA Standard C700-latest revision. Each meter is tested to insure compliance with AWWA standards.

**CONSTRUCTION:** Invensys SR-EC Water Meters consist of three basic components: maincase; measuring chamber; and permanently, hermetically-sealed register. Maincases are of standard Bronze C84400 alloy which has been coated internally and externally with a durable, corrosion-resistant fusion-bonded epoxy with either flanges or internally threaded spuds. Measuring chambers are of Rocksyn®, a corrosion-resistant thermoplastic material.

**SEALED REGISTER:** Permanently, hermetically sealed; proven magnetic drive design; with integral tamper-proof locking device. Guaranteed for 25 years. The standard register includes a straight-reading, odometer-type totalization display; a 360° test circle with center sweep hand; and a low flow (leak) detector. Gears are self-lubricating, molded plastic for long life and minimum friction. The hermetic sealing of the register eliminates dirt and moisture, tampering, and lens fogging problems.

No change gears are required for accuracy calibration. Encoded-type remote reading systems are available for all SR Water Meters. (See back of sheet for additional information.)

**TAMPERPROOF FEATURES:** Removing the register to obtain free water is prevented by a locking device inside the meter. Removing the register requires a special tool that is available only to water utilities.

**MAGNETIC DRIVE:** The unique design of the direct magnetic drive is a positive, reliable, dependable drive coupling, proven in millions of SR Water Meters.

**OPERATION:** Water flows through the meter's strainer and into the measuring chamber where it operates the piston. The piston, which moves freely, oscillates around a central hub, guided by the rubber-coated division plate.

A drive magnet, incorporated in the piston, rotates around the outside of the hermetically sealed register well and magnetically drives the "follower" magnet sealed within the well. The "follower" magnet drives a crank connected to the register gear train, which translate the number of piston oscillations into volume totalization units displayed on the register face.

**MAINTENANCE:** Invensys Sealed Register Water Meters are engineered to provide long-term value and virtually maintenance-free operation because of their design simplicity and interchangeability of modules. Invensys SR Water Meters are easy to repair, even without removing the maincase from the installation.

**CONNECTIONS:** Tailpieces/Companion Flanges for installing the meters on a variety of pipe and sizes are available as an option. For flanged meters, the use of a Smith-Blair Model 926 Flanged Coupling Adapter is recommended to facilitate the installation and any future removal of the meter from the line.

**SPECIFICATIONS**1-1/2" SR®  
(DN 40mm)2" SR®  
(DN 50mm)

Shown with ECR register

<b>SERVICE</b>	Measurement of cold water with flow in only one direction.
<b>NORMAL OPERATING FLOW RANGE<sup>①</sup></b>	1-1/2" (DN 40mm) size: 5 to 100 gal/min. (1.1 to 23.0 m³/h) 2" (DN 50mm) size: 8 to 160 gal/min. (1.8 to 36.0 m³/h)
<b>ACCURACY</b>	100% ± 1.5% of actual thruput
<b>LOW FLOW REGISTRATION</b>	1-1/2" (DN 40mm) size: 95% at 1-1/2 gal/min. (0.35 m³/h) 2" (DN 50mm) size: 95% at 2 gal/min. (0.45 m³/h)
<b>MAXIMUM PRESSURE LOSS</b>	1-1/2" (DN 40mm) size: 11.4 psi at 100 gal/min. (0.8 bar at 23.0 m³/h) 2" (DN 50mm) size: 12.1 psi at 160 gal/min. (0.8 bar at 36.0 m³/h)
<b>MAXIMUM OPERATING PRESSURE</b>	150 psi (10.0 bar)
<b>MEASURING ELEMENT</b>	Oscillating piston
<b>REGISTER<sup>③</sup></b>	Straight reading, hermetically sealed, magnetic drive with low flow indicator.
<b>REGISTRATION<sup>③</sup></b>	100,000,000 gallons, 100 gallon/sweep hand revolution 10,000,000 cubic feet 10 cubic feet/sweep hand revolution 100,000 m³ 0.1 m³/sweep hand revolution
<b>METER CONNECTIONS<sup>②</sup></b>	1-1/2" (DN 40mm) size: two bolt oval flanged spuds or 1-1/2" (DN 47.80mm) internal pipe threads 2" (DN 50mm) size: two bolt oval flanged spuds or 2" (59.61mm) internal pipe threads (Threads are taped pipe, internal type, conforming to ANSI B1.20.1 or ISO R-7 if specified. Flanges are AWWA 125 pounds [PN 10 bar] class.)
<b>MATERIALS</b>	Maincase—Bronze coated with fusion-bonded epoxy Measuring chamber—Rocksyn—standard Magnets—ceramic and Alnico Strainer—Thermoplastic Trim—Stainless Steel Casing bolts—Stainless Steel

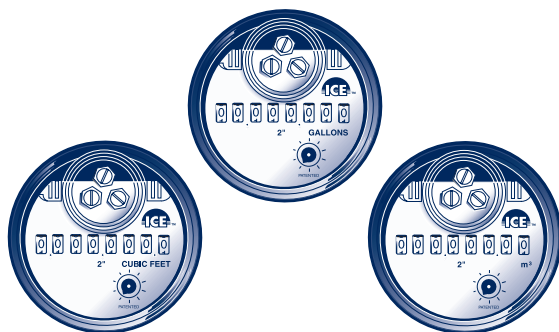
① Maximum rates listed are for intermittent flow only. Maximum continuous flow rates as specified by AWWA are:

1-1/2" (DN 40mm) size: 50 gal/min (11.0 m³/h)

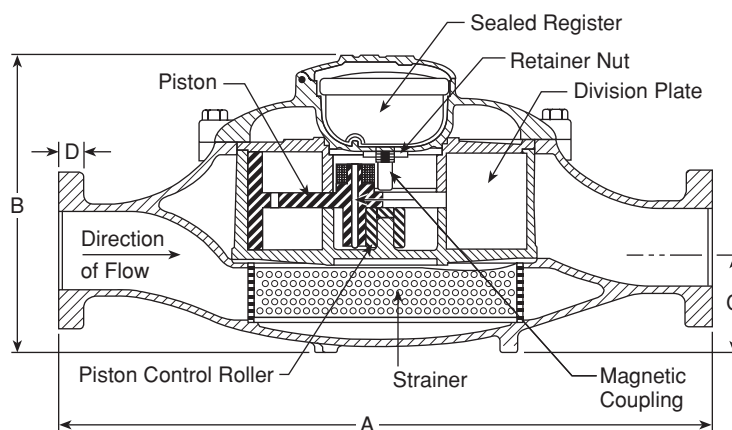
2" (DN 50mm) size: 80 gal/min (18.0 m³/h)

② Flanged spuds are standard for 1-1/2" (DN 40mm) and 2" (DN 50mm) size meters and will be furnished unless otherwise specified. Internal tapped pipe threads only are supplied for ISO meters.

③ See AMR Systems Register datasheet AMR-275 for details specifications.



2" AMR System Dials Shown



## Dimensions and Net Weights

Meter Size	Connections	A	B	C	D	Width	Bolt Circle	Number of Bolts	Bolt Size	Net Weight <sup>①</sup>
1-1/2" (DN 40mm)	Flanged	13 (330mm)	6-7/8 (175mm)	2-21/32 (68mm)	5/8 (16mm)	8-3/4 (222mm)	4 (102mm)	2	5/8 (16mm)	26 lbs. (12 kg)
	Screwed	12-5/8 (322mm)	6-7/8 (175mm)	2-21/32 (68mm)	N/A <sup>②</sup>	8-3/4 (222mm)	N/A <sup>②</sup>	N/A <sup>②</sup>	N/A <sup>②</sup>	23 lbs. (10.5 kg)
2" (DN 50mm)	Flanged	17 (432mm)	7-17/32 (192mm)	2-5/8 (67mm)	5/8 (16mm)	9-11/16 (246mm)	4-1/2 (115mm)	2	3/4 (19mm)	42 lbs. (19 kg)
	Screwed	15-1/4 (388mm)	7-17/32 (192mm)	2-5/8 (67mm)	N/A <sup>③</sup>	9-11/16 (246mm)	N/A <sup>③</sup>	N/A <sup>③</sup>	N/A <sup>③</sup>	37 lbs. (17 kg)

① Rocksyn® measuring chamber.

Meter is available with either flanged or screwed end connections. Flanged end meter illustrated to show oval flange and bolt pattern.

End connection threads:

② 1-1/2" (DN 40mm)—1-1/2" N.P.T. Internal Threads or 1-1/2" ISO R-7 International Threads, if specified

③ 2" (DN 50mm)—2" N.P.T. Internal Threads or 2" ISO R-7 International Threads, if specified.

## Remote Reading Systems—For use with all sizes of Invensys Water Meters

All Invensys AMR systems work with the same absolute encoder Electronic Communications Registers (ECR), enabling the utility to mix and match or easily move from one system to another without changing registers for each.

**The TouchRead® Automated Meter Reading and Billing System**—is a multi-purpose encoder remote system suitable for indoor and/or outdoor use. The ECR Register uses a wired connection between the meter and an outside remote for inside set meters—or a pitlid mounted module, enabling underground meters to be read automatically without opening the meter box or vault. All wired connections and terminals of the TouchRead PitLid (TR/PL) modules and registers are fully sealed at the factory using a special process to ensure protection from water infiltration. The connection terminals of ECR/WP registers are also factory sealed.

Meters equipped for TouchRead System reading can be read with a visual reading device, stand alone AutoGun, and/or reading gun with an AutoRead HandHeld Device. For more information on TouchRead System equipment refer to bulletins AMR-TR, AMR-401, AMR-403, AMR-312 and EXSUMHH.

**PhonRead® AMR**—is a reliable telephone based call-in system that does not require batteries for operation. It also does not require equipment to be installed at telephone company facilities. PhonRead Meter Interface Units

(MIU) automatically call "in" to the utility office for transferring meter reading data from the meter site to a PC. PhonRead is a transparent AMR system that does not interfere with customers' telephone service. For more information refer to bulletins AMR-PR and AMR-302.

**RadioRead® AMR**—uses superior Direct Sequence Spread Spectrum modulation to provide reliable, safe and virtually interference free radio-based transmission of reading data from underground or inside-set meters that are equipped with Meter Transceiver Units (MXU). A choice of meter reading options is available. A radio frequency hand-held device (RF-HHD) can be used by a meter reader on foot. The RF-HHD can also be used to collect readings from TouchRead equipped meters, or for manual meter reading entries. A more powerful Vehicle Transceiver Unit (VXU) can be used in any car or truck to read meters while on the move. (A dedicated meter reading vehicle is not required.) For more information refer to bulletins AMR-RR, AMR-301 and AMR-303, and AMR-401.

**MultiRead® Port Expanders**—can provide the capability to connect multiple ECR equipped meters to a single PhonRead MIU or RadioRead MXU to save the utility time and money for installations such as apartment complexes and shopping centers. Refer to bulletin AMR-305, AMR-306 and AMR-308.



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