

Register Output Versions

Water Works



The constantly growing penetration of automation and computerized data processing into water usage, in agriculture, industry and urban water supply systems and any other field where more is required than just the traditional mechanical register of water meters, creates a high demand for measuring instruments which are able to provide information about the flow.

Arad Water Meters equipped with output devices combine the high reliability of the hermetically sealed, magnetically driven register with a wide variety of output options.

All existing Arad Water Meters with magnetic registers can be easily upgraded to include output.

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Transducer Types - Description & Specifications

1. Reed Switch (EV) Sensor

A magnet activates this sensor. It acts as a "Dry Contact" and does not consume electric power. This is the most suitable sensor for "VOLUME" related functions and in such applications its operating life is practically unlimited (ca. 108 cycles).

Electrical specifications:

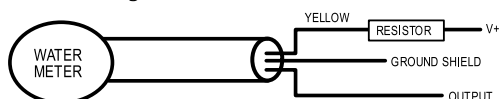
- a. Max. contact current - 50 mA
- b. Max. contact voltage - 48 V

2. Photo-Diode (EF) Sensor

This sensor combines an IR light source and a light sensitive diode in one package. Signals are created by letting the light pass through, or reflected from a rotating element in the register in an interrupted mode. It requires a constant supply of power.

Electrical specifications:

- a. Current supplies - 20•30 mA through a resistor (see following table for values).
Lead color code - yellow.
- b. Output - open collector.
Max. Load - 2 mA.
Lead color code - transparent.
- c. Circuit diagram:



- d. Recommended resistor values table:

VOLTAGE (V+)	RESISTOR VALUES	
	Ω	W
5	180	0.25
6	220	0.25
9	330	0.25
12	470	0.5
24	1000	1

NOTE: Correct polarity of the leads should be checked carefully to prevent damage of the sensor.

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Registers Types



1. VOLUME OUTPUT- Reed Switch

1.1 SINGLE VOLUME OUTPUT

A 3-pointer register with magnet installed on one of them.

Output definition: "Volume output". **Output type:** EV.

The reed switch sensor is installed in sealed transparent plastic cover that can be mounted on the register in any one of 3 positions facing the pointer with the magnet.

3 values of output are thus available in 1:10:100 ratios.



1.2 IP 68 SINGLE VOLUME OUTPUT

A 3-pointer register with a magnet installed on one of them.

Output definition: "Volume output". **Output type:** EV.

The IP68 configuration is a sealed structure that can be mounted on the register shroud in a WSTsb Bayonet configuration in any of 3 positions facing the pointer with the magnet. 3 values of output are thus available in 1:10:100 ratios.

Once assembled the IP68 configuration is fixed and sealed on the needed output.

IP68 standard means that the assembly is totally protected against dust and protected against long periods of immersion under pressure.



1.3 DOUBLE OUTPUT

A 3-pointer register with magnet installed on one of them.

Output definition: "volume output". **Output type:** EV-D.

The output device contains 2 reed switches.

All the components are sealed within a plastic module.

A unique feature of this unit is the immunity from conditions that might create false pulses due to back and forth fluctuations of standing water in pipe line containing air pockets, or where mechanical vibrations of the pipe exist.



2. VOLUME OUTPUT- Photo Diode

A 3-pointer register with a serrated wheel on the first pointer shaft for activating a photo-diode sensor.

Output definition: "Volume output". **Output type:** EF-P.

The serrated wheel has 10 "teeth" creating 10 signals per revolution, each signal represents 1/10 the full-scale value at this position in the register.



3. VOLUME OUTPUT- Optical Encoder (OE)

A 3-pointer register with a reflective half coated wheel on the first pointer shaft for activating a sensor.

Output definition: "Volume output". **Output type:** Open Drain.

The reflective wheel has a golden coloured coating on half of its area- creating one pulse per revolution output in a forward flow; there's no output in a reverse flow.

Each pulse presents one full-scale value at this position in the register.

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General Remarks Concerning the Various Types of Electrical Outputs

All the sensors are mounted on the register in a non-invasive mode.

All "Volume outputs" sensors of types EV and EV-D may be installed or replaced without disassembling the register.

Water Meter		Available Pulse Value & Sensor Type								
Model	Size	Liter				m3				
		0.1	1	10	100	1	10	100	1000	10000
Multijet M	15mm- 32mm		EV	EV	EV					
	40mm- 50mm			EV	EV	EV				
Carmel	15mm and 20mm		EV, OE	EV	EV					
Gladiator	15mm and 20mm		EV, OE	EV	EV					
Positive Displacement P	15mm and 20mm		EV	EV	EV					
Woltman WMR WSTsb	50mm- 80mm			EV, OE	EV, OE	EV, OE				
	100mm			EV, OE	EV, OE	EV, OE	EV, OE			
	150mm			EV, OE	EV, OE	EV, OE	EV, OE			
	200mm				OE	EV, OE	EV, OE	EV, OE		
	250mm-300mm					EV, OE	EV, OE	EV, OE		
Irrigation meter IRT	80mm- 100mm				EV	EV	EV			
	150mm- 250mm					EV	EV	EV		
Hydrometer BM/ BMA	40mm- 80mm			EV	EV	EV				
	100mm- 150mm				EV	EV	EV			
	200mm				EV	EV				
Dose-O-Mat	40mm- 100mm				EV	EV				
	KB/ KBA/ KBJ/ KBJA	150mm-200mm					EV	EV		
Fertilizer Meter Dishnon SF	15mm	EV	EV	EV	EV					

EV= Reed Switch

OE= Optical Encoder

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