

WM-PC Series

Use & Care Manual

1. GENERAL INFORMATION

WM-PC plastic water meters use the multi-jet principle. Multiple ports around the main chamber are used to create several flows of water against the impeller. As the impeller rotates based on velocity of the water, a gear train moves the register dials. This meter is also available with pulse output (see pulse output details).

2. SPECIFICATIONS

Temperature: 105° F (40° C) maximum

Pressure: 150 PSI operating maximum

Materials:

Body & Couplings: FRP (fiber reinforced polymer)

Internals: Engineered thermoplastic

Magnet: Alnico

Accuracy: ± 1.5% (within normal flow rates)

Sensor: Reed switch

Maximum Current: 20 mA

Maximum Voltage: 24 VDC/VAC

Cable Length: 4.5' (1.35 m) standard (2,000' maximum run)

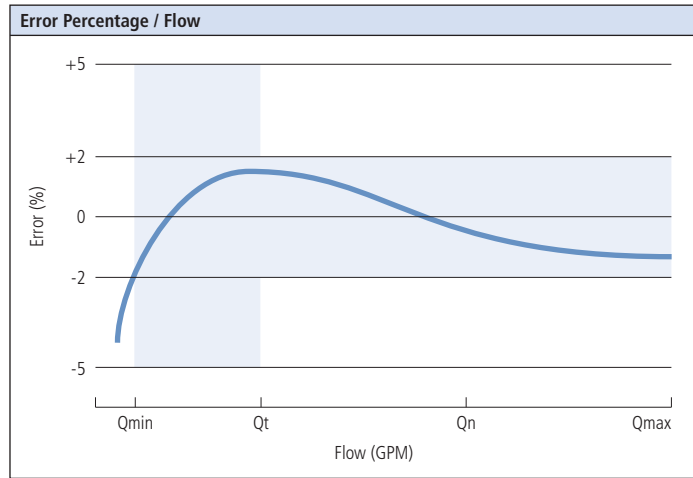


3. METER INSTALLATION

1. Completely flush the water line upstream of the meter to remove any possible dirt and debris.
2. Confirm that the inlet strainer is installed on the upstream side of the meter. Install the meter in the pipeline. Water meters must be installed horizontally with the register facing upwards.
3. Flow direction must match the arrow located on the meter body.
4. Once positioned and inline, slowly open any upstream valves to prevent damage to the meter.

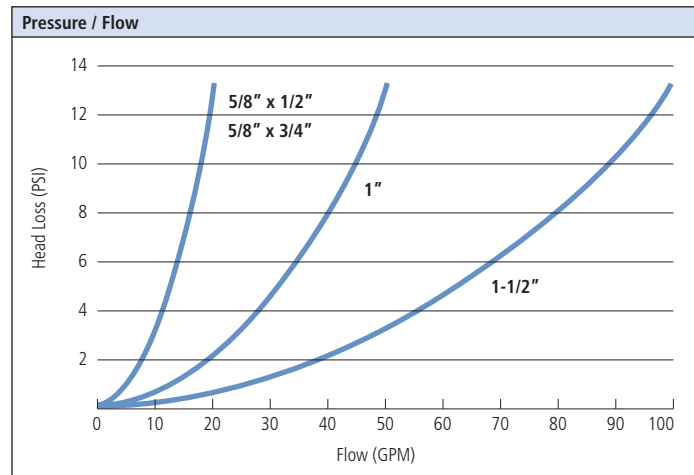
4. TECHNICAL DATA

Model No.	Size	Flow Rate (GPM)			Normal Flow (GPM)
		High	Continuous	Low	
WM-PC-050	5/8" x 1/2"	20	10	0.25	1-20
WM-PC-075	5/8" x 3/4"	20	10	0.25	1-20
WM-PC-100	1"	50	25	0.75	3-50
WM-PC-150	1-1/2"	100	50	1.50	5-100



5. ACCURACY CURVE

6. HEAD LOSS CURVES

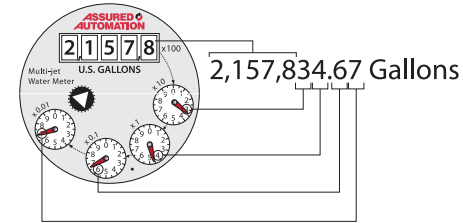


7. CALIBRATION

These new meters are produced in an ISO9001 certified production facility and are built in accordance with AWWA C708 standards for multi-jet meter accuracy.

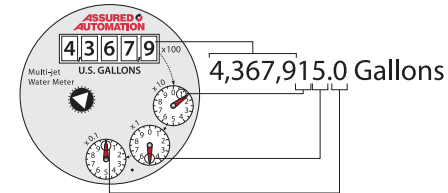
8. READING THE DIAL

Sizes 1/2", 3/4", & 1":



1. To read the meter, start with the register dials (21578).
2. Then add a single digit from each of the dials going in a clockwise direction and rounding each down (3, 4, 6, 7).

Sizes 1-1/2", & 2":



1. To read the meter, start with the register dials (43679).
2. Then add a single digit from each of the dials going in a clockwise direction and rounding each down (1, 5, 0).

9. PULSE OUTPUT

The magnet that is connected to a rotating dial on the face of the meter is detected by the Reed Switch sensor installed on the meter lens. Each time the magnet passes under the sensor, it turns on and off, which creates a pulse. The switch is a dry contact closure and does not require any power. Sensors are made for electronic control loads and should not be used to switch power loads or line voltages. Adherence to maximum current and voltage ratings is vital. This data can be found under the Specifications heading.

10. INLET STRAINER

An annual cleaning of the strainer is usually sufficient. If water condition calls for it, it can be cleaned more often. Removing the strainer and back-flushing will loosen trapped particulates.

11. WARRANTY

WM-PC water meter are warranted to perform to AWWA new meter accuracy standards, and for twelve months from the shipment date will be free from defects in materials and workmanship. If a meter fails to perform as warranted, Assured Automation will repair it free of charge subject to the terms of this warranty.

Assured Automation's liability under this performance warranty is expressly limited to the repair or replacement of the meter upon the customer's returning the complete meter prepaid to:

Assured Automation
19 Walnut Avenue
Clark, NJ 07066

This performance guarantee is not applicable to meters which have been damaged by aggressive water conditions, foreign matter in media, misapplication, willful misconduct, negligence, vandalism, act of God, improper installation, frost/freeze damage or using the meter outside of its specific operating parameters (especially temperature and flow ranges).

In no event shall Assured Automation be liable for incidental or consequential damages of any kind, including but not limited to loss of profits or revenue, loss of use, cost of capital, cost of substitute equipment, facilities or services, downtime costs, delays and claims of customers of the customer or other third parties.

KAL-D06

Miniature, Low Cost, LCD, 8 Digit Electronic Counter

Features

- 8 Digits Standard
- Meets NEMA 4X and IP65 Ratings
- Long Life (10 Year) Lithium Battery
- 10 kHz Count Speed
- Screw Terminal Block
- Slow Speed Input for Contact Closures
- High Speed Input for Sinking Inputs from a Max. of 18VDC Without Module
- Quadrature and High Voltage (10 to 240 V AC; 2 to 110V DC) Inputs Optional
- UL Listed

Description:

The KAL-D06 counters are small, lithium battery powered, totalizing counters that are panel mounted. The counters are designed as replacements for standard electro-mechanical counters. They use the latest custom CMOS technology and incorporate an 8 digit, 0.354" (9mm) high, LCD display.

It operates from a long life lithium battery (life 10 years) and can be operated from contact closure or high speed electronic devices. No separate alkaline batteries are required. The front reset button can be disabled if desired.

Specifications:

Battery: Non-replaceable Lithium battery, expected life of 10 years at 20°C

Display: 8 digit black LCD, Digit size 0.354" (9mm) high, leading zero blanking,

Backlight: backlight requires external 5V supply ($\pm 0.5V$ @ 20mA). 12V, 24V and 30V can be used with the use of an external resistor, see backlight wiring diagram for details and resistor values.

Reset: Panel or remote (can be disabled if desired)

Count Range: 0-99999999, rollover to 0

Temperature Range:

Operating: 14 to 140°F (-10 to 60°C)
Storage: -4 to 140°F (-20 to 60°C)

Battery Life: 10 years at 20°C (calculated)

Relative Humidity: 80% max. up to 31°C, decreasing to 50% max. at 40°C

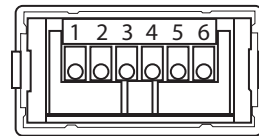
Connection: Finger-proof screw terminal for wires up to 0.06"² (1.5mm²)

Sealing: NEMA 4X/IP65; **Remove film from self adhesive gasket before use!** Overvoltage Category II, Pollution Fegree 2 (IEC 64)

Certifications: UL Listed

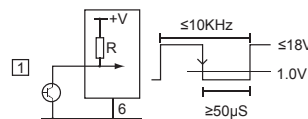


KAL-D06 Wiring:



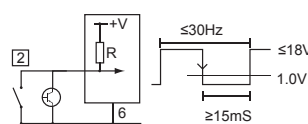
- 1 - High Speed Count Input
- 2 - Low Speed Count Input
- 3 - External Reset Input
- 4 - Direction Input
- 5 - External Power for Backlight
- 6 - 0V, Common

High Speed Count Input:



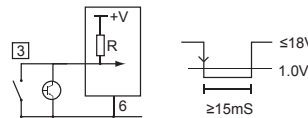
- Sink input NPN
- R = Internal resistor 3.3MΩ
- Max 18V, theshold 1V
- Negative edge trigger
- Max. 10kHz, min. 50μS

Low Speed Count Input:



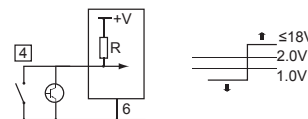
- Sink input NPN or contact closure
- R = Internal resistor 3.3MΩ
- Max 18V, theshold 1V
- Negative edge trigger
- Max. 30Hz, min. 15ms

External Reset Input:



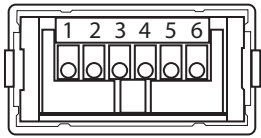
- Sink input NPN or contact closure
- R = Internal resistor 3.3MΩ
- Max 18V, theshold 1V
- Negative edge trigger
- Min. 15ms

Direction Input:



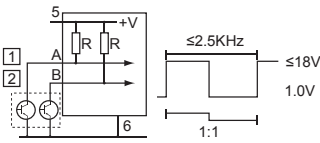
- Sink input NPN or contact closure
- R = Internal resistor 3.3MΩ
- UP: Not connected or >2V (logic 1), max 18V
- DOWN: Connected to common or <1V (logic 0)
- Direction signal must change >5μs before Count signal.

KAL-DQUAD06 Wiring



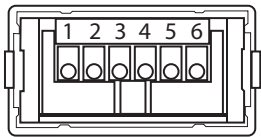
- 1 - Count Input A
- 2 - Count Input B
- 3 - External Reset Input
- 4 - Not used
- 5 - External Power for Backlight and Input Circuit
- 6 - 0V, Common

Quadrature Input:



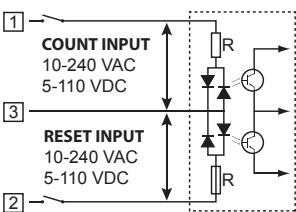
- Count Inputs A & B**
- Sink input NPN or push-pull signals, NOT source only
 - R = Internal resistor 3.3M Ω
 - Max. +V
 - Max. 2.5kHz
 - Mark to space ratio 1:1

KAL-D06AC/DC Wiring

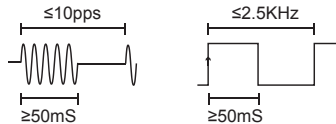


- 1 - High Voltage Count Input
- 2 - High Voltage External Reset Input
- 3 - Common for pins 1 & 2
- 4 - Direction Input
- 5 - External Power for Backlight
- 6 - 0V, Common for pins 4 & 5

High Voltage Input:

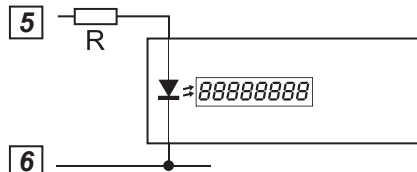


- High Voltage Count Input**
- Opto-isolated
 - R = Internal resistor 50k Ω
 - 10 - 240V AC $\pm 10\%$
 - 5 - 110V DC $\pm 10\%$
 - Max. 10 pulses per second
 - Min 50mS



- High Voltage Reset Input**
- Opto-isolated
 - R = Internal resistor 50k Ω
 - 10 - 240V AC $\pm 10\%$
 - 5 - 110V DC $\pm 10\%$
 - Min 15mS

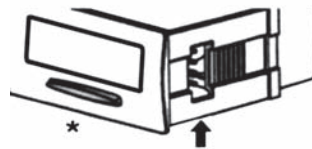
Backlight Wiring



- 5V: R = 0 Ω
- 12V: R = 360 Ω
- 24V: R = 1K Ω
- 30V: R = 1.2K Ω

External supply for backlight is 5 VDC @ 20mA
R = external resistor; see table next to diagram above.

Jumpers



● ● Front Panel Reset Enabled

● ● Front Panel Reset Disabled

● ● 88888888

● ● 8888888.8

● ● 888888.88

● ● 88888.888

How To Order:

- KAL-D06** 8 digit counter with 10 yr battery
- KAL-DQUAD06**..... 8 digit counter with 10 yr battery with Quadrature Input
- KAL-D06AC/DC** 8 digit counter with 10 yr battery with High Voltage Input

Accessories

- N7** - Explosion proof housing (see accessories section)
- E200** - Outdoor Enclosure (see accessories section)

Dimensions

