3/4" High Precision Flow Meter

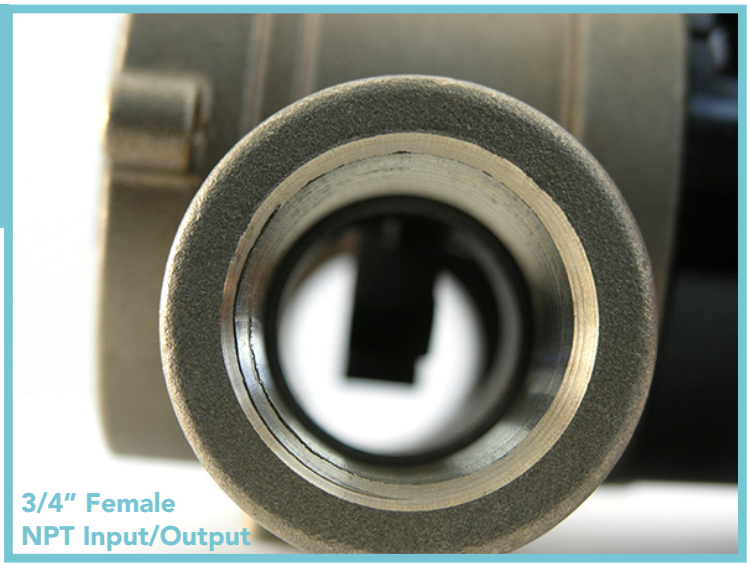
V 2.0

Features

- High accuracy Flow Meter (+/- 5%)
- See through front panel for visual inspection
- Minimum flow rate 19 L / min (5 GPM)
- Maximum flow rate 114 L / min (30 GPM)
- Max operating pressure 1378.95 KPA (200 PSI)
- Weighs 796.5g
- Operating temperature
- -29° C to 100° C (-20° F to 212° F)
- Max viscosity 200 SSU
- 3 lead cable 71.1cm (28") long
- Food safe
- Diesel safe
- Kerosene safe
- Gasoline safe

Materials

Body: Brass
Rotor Pin: Ceramic
Paddle Wheel: Polypropylene Sulfide
Front Panel: Polysulfone
O-ring: Viton



3/4" Female
NPT Input/Output

3/4" Flow Meter

Description

The 3/4" Paddel Wheel Flow Meter is an extremely accurate flow meter of moderate complexity. This flow meter requires specific timing and calculations to provide meaningful data. All of which is described in this datasheet.

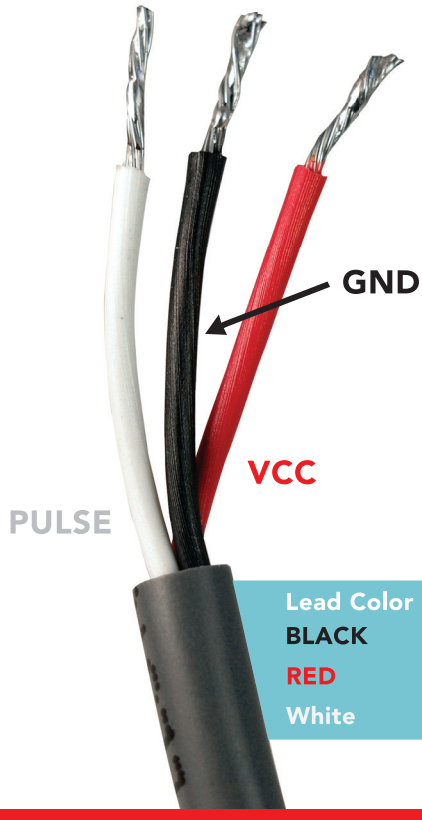
The 3/4" Flow Meter provides the user with extremely reliable readings for flow rates from 19 L/min (5 GPM) up to 114 L / min (30 GPM).

Wiring

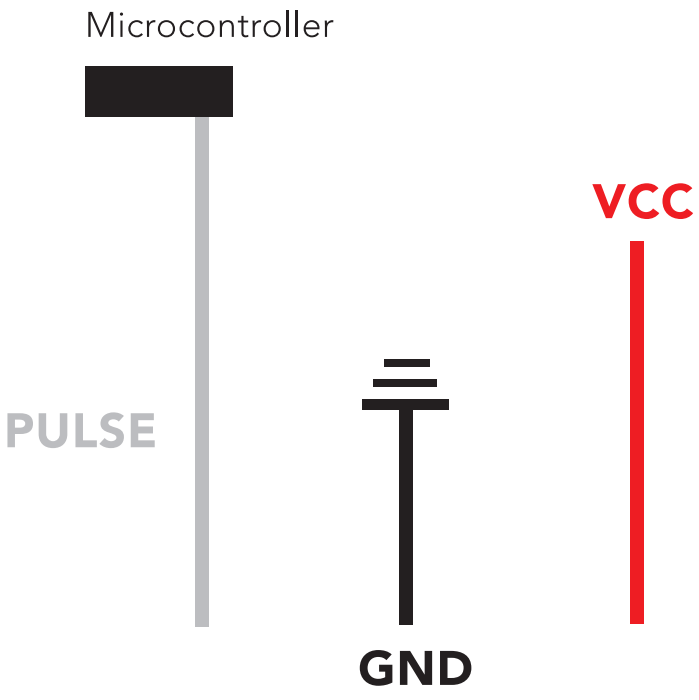
The 3/4" Flow Meter has an 71.1 (28") cable, that terminates with three tinned leads.

Current consumption no load 8 mA

Max current consumption 70 mA



Lead Color	Function
BLACK	GND
RED	VCC 3V to 24V
White	PULSE



REVERSING THE POLARITY WILL DESTROY THE FLOW METER

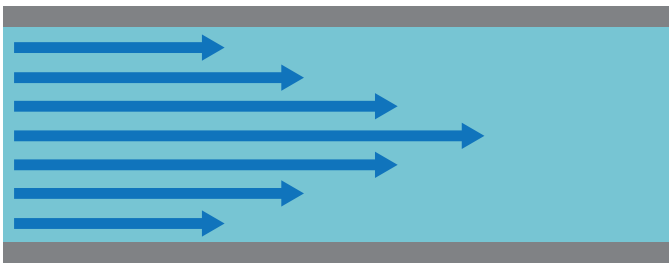
Pre-filter requirements

If water with particulate matter will be passing through the flow meter a pre-filter of at least 80 microns must be used. Not using a pre-filter can cause the paddle wheel blades to become jammed. Jammed paddle wheel blades will not damage the flow meter however, it will not be possible to get accurate flow readings until the blockage has been cleared.

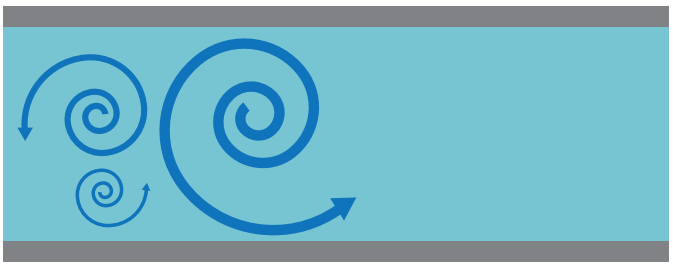
Laminar flow

Laminar flow can be thought of as the opposite of turbulent flow. In order for the flow meter to work properly liquid entering the flow meter should have a streamlined laminar flow. Achieving laminar flow is not hard to do. Simply allow for 20cm (8") of straight pipe just before the liquid enters the flow meter.

Turbulent liquid entering the flow meter can cause inaccuracies in flow rate monitoring.



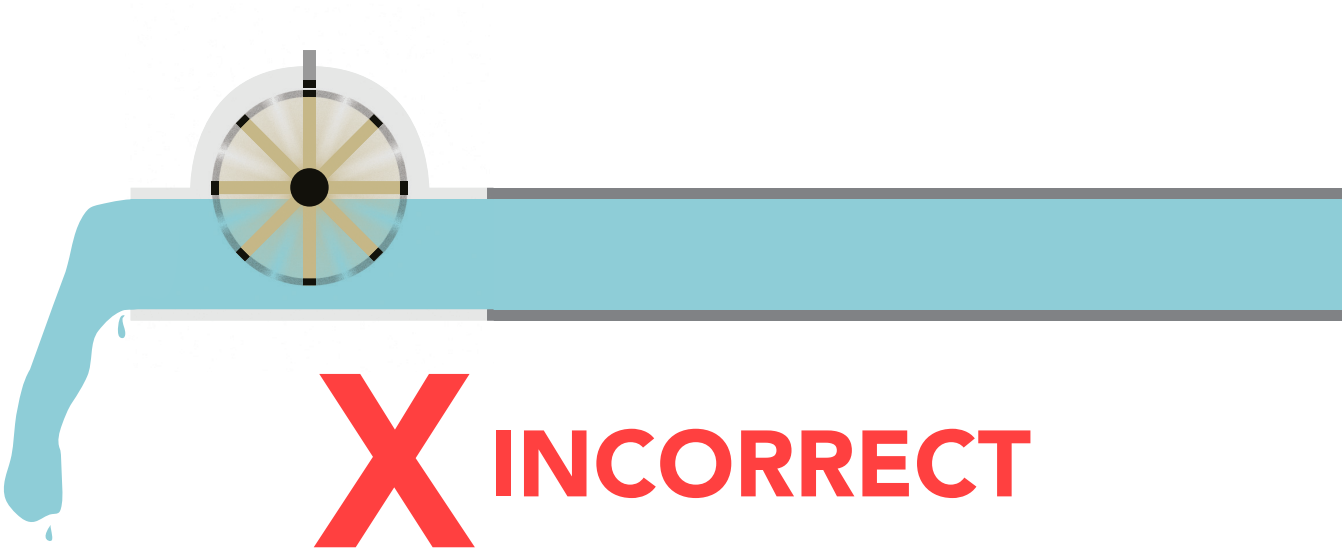
Laminar flow

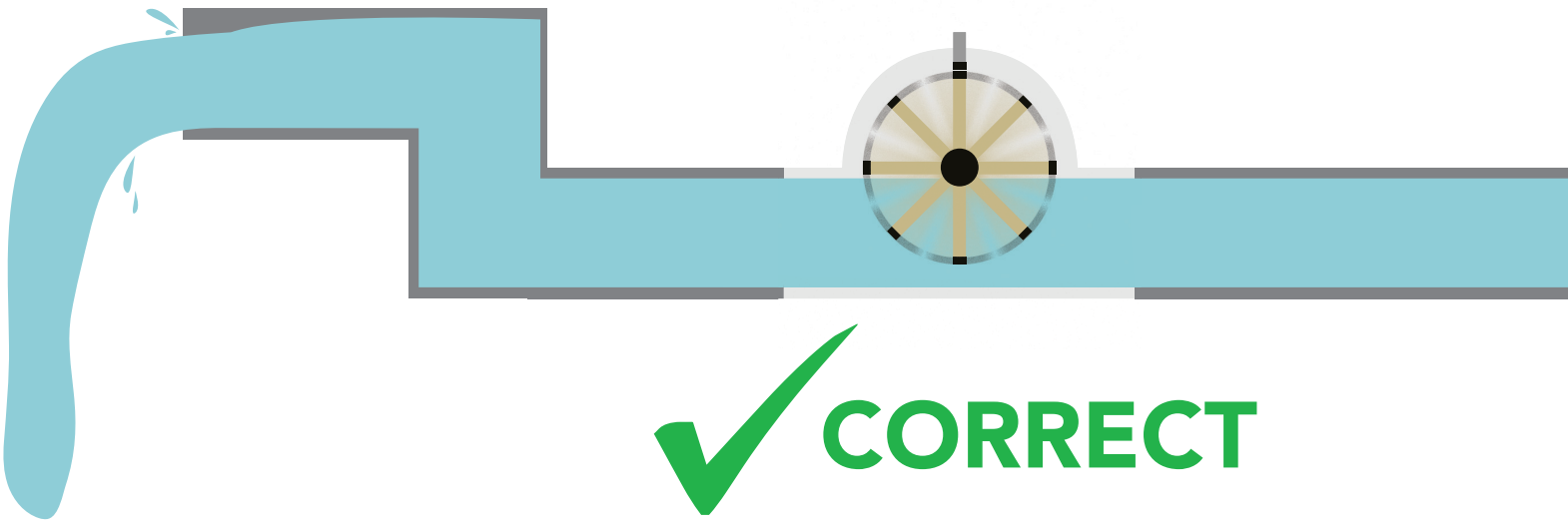


Turbulent flow

Liquid exiting the flow meter

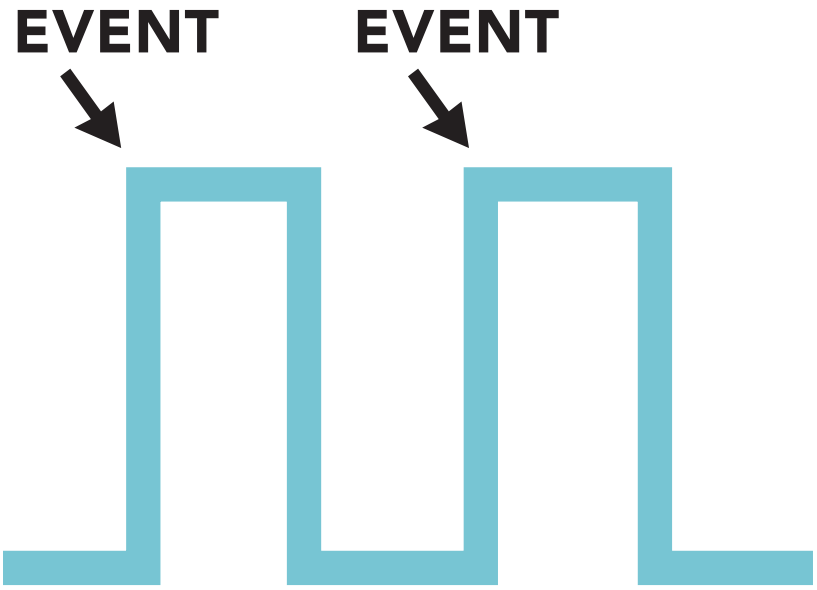
Liquid should not be permitted to simply fall out of the flow meter. This would let air enter the device and lead to inaccurate readings.





Data output

The white lead from the 3/4" flow meter will output a square wave frequency from 0 – 200+ Hz. The amplitude of the frequency will always equal VCC. A single pules is a rising edge followed by a falling edge.



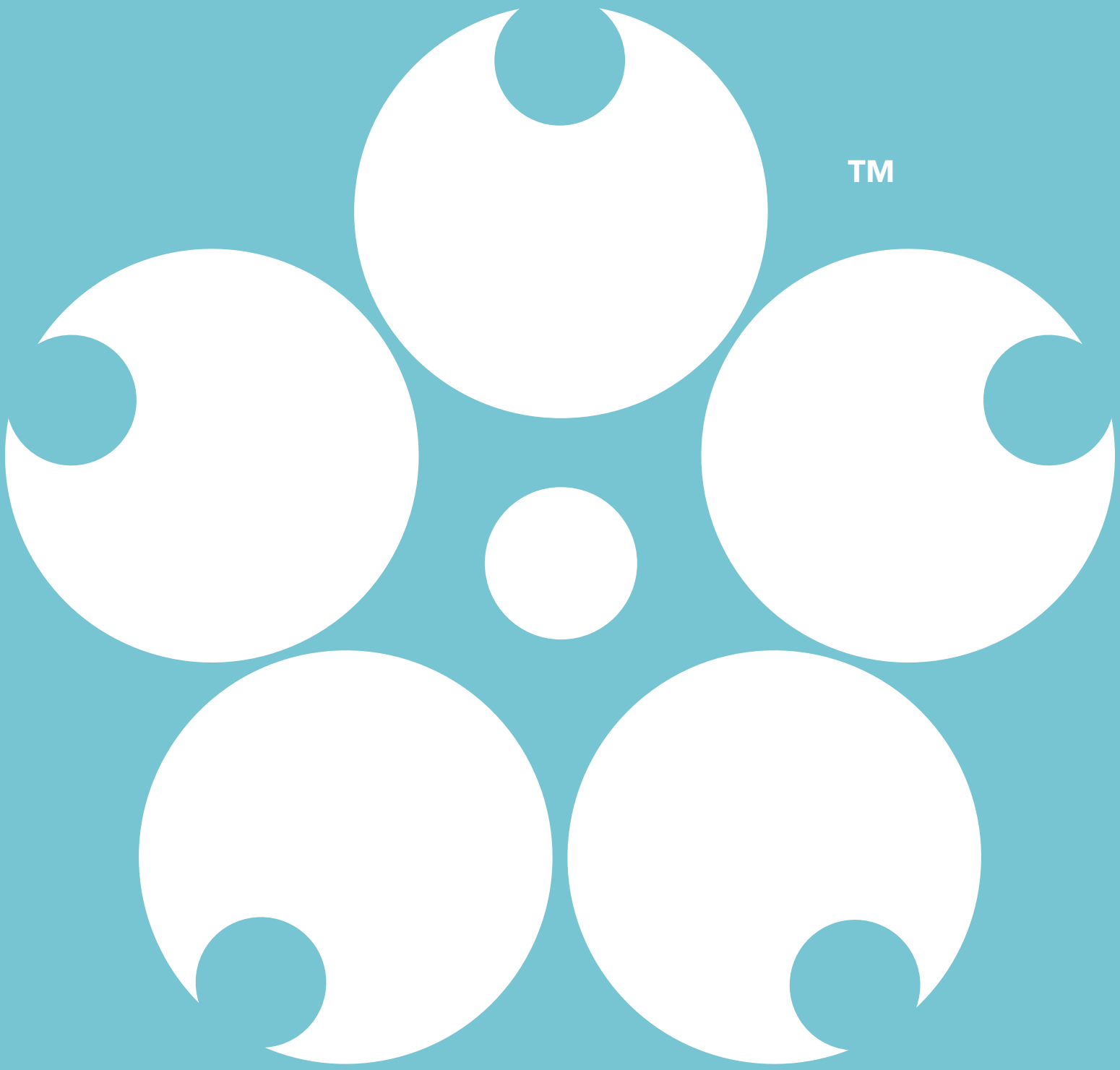
The amount of liquid moving through the flow meter is quantified by the frequency that the flow meter outputs. This is known as the flow meters K-factor.

A single pulse does not represent a fixed volume a liquid.

K-factor

GPM	LPM	Output Frequency – Hz
5	19	24
10	38	61
15	57	93
20	76	128
25	95	163
30	114	196

LPM = 0.5536 x [Hz] + 5.1462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