

The i-flow™ series integrated flow control is designed as an all in one closed loop flow control system. Fast, repeatable and accurate flow control in a compact package. The i-flow™ is ideal for blending, dispensing or metering of DI water and aggressive aqueous media. Using dual diaphragms and PTFE, TFM and PFA materials of construction, the i-flow™ provides protection for ultra pure process applications.

Flow ranges: .4-4 l/min., 2-20 l/min. in H₂O



i-flow™ Flow Controller with Vortex Flowmeter

Accurate, Reliable and Repeatable Performance

- Proportional flow controller with KVF flowmeter
- Patented metering technology
 - High resolution
 - Linear flow characteristics
 - Dual diaphragms
- Reliable vortex flow sensing technology
 - Repeatability
 - No moving parts
- Integrated closed loop flow control
- Closed loop flow control up to 80°C
- Industry standard input and output options
- Accurately control blending and dispensing of chemicals
- Compact design for easier integration
- Materials of construction for
 - High purity applications
 - Aggressive chemical applications
- Rapid response for improved accuracy of flow rates

controller

Operation

The *i-flow*TM is easy to operate. Simply connect the *i-flow*TM into your DIW or process flow stream. Insure that there is sufficient pressure* available at the maximum flow rate desired. The *i-flow*TM uses a customer supplied process flow signal (4-20 mA, 0-5 VDC or 0-10 VDC) in addition to an analog signal from the KVF flow sensor. Comparing these signals and employing the PID control, the *i-flow*TM makes adjustments to the flow rate. The *i-flow*TM provides for a fast and accurate response to changing pressures and set-points throughout its range.

For applications requiring continuous flow settings but with on/off conditions the *i-flow*TM provides a HOLD function. This HOLD function keeps the flow controller at the desired position while the process flow is stopped. When flow is again required the HOLD can be removed allowing the *i-flow*TM to control the desired flow set point.

**Minimum pressure required may vary based on flow range.*

Specifications

MATERIALS

- Wetted parts:
PTFE, TFM and PFA
- Non-wetted parts:
PVDF, PVC, Viton and polypropylene

OPERATING

- Typical response time: < 3 sec ($\pm 1\%$ set point)
- Accuracy: $\pm 2\%$ FS
- Repeatability: $\pm 0.6\%$ FS
- Reliability: 3 million cycles
- Viscosity Range: 0.9-3 cp
- Process temp: 10-80°C *
- Ambient temp: 20-40°C *
- Duty cycle: 100%
- Process pressure:

0.3-2.4 l/min.	10-60 psig
0.5-4 l/min.	10-60 psig
2-16 l/min.	20-60 psig
4-40 l/min.	20-60 psig

ELECTRICAL

- Input power: 24 VDC, 1.5 amp peak
- Input signal (Polarity insensitive)

4-20 mA
1-5 VDC
1-10 VDC

For other input signals, consult factory
- Output signal:

4-20 mA (Isolated, loop powered)
1-5 VDC
1-10 VDC
- Terminations: 24 AWG, Multi-Strand Wire

- *Electrical enclosure purge require for ambient temp. >30°C or process temp. >40°C, 3 psi max*

Consult factory for additional information on purge requirements.

Configuration Options

CONNECTIONS

- 3/8", 3/4", 1" Tube
- 3/8", 3/4", 1" Pillar Super 300[®]
- 3/8", 3/4", 1" Fine Thread Flare

Consult factory for other connection types and sizes

Ordering Information

To order, select from options below.

Contact Futurestar for information on additional flow ranges and custom configurations.

Complete Part Number = 3V•Flow Range•Connection Type•Control Signal•PID•Cable Length

(Example: 3VMF-1PA)

<i>i-flow</i>TM with vortex flowmeter	3V
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FLOW RANGE CONNECTION SIZE	L	0.3 - 2.4 l/min.	3/8"
	N	0.5 - 4. l/min	3/8"
	T	2 - 16 l/min.	3/4"
	W	4 - 40 l/min.	3/4"

CONNECTION TYPE <i>female inlet, male outlet</i>	F	Flare	
	S	Pillar Super 300	
	T	Tube	Tube option only available on inlet

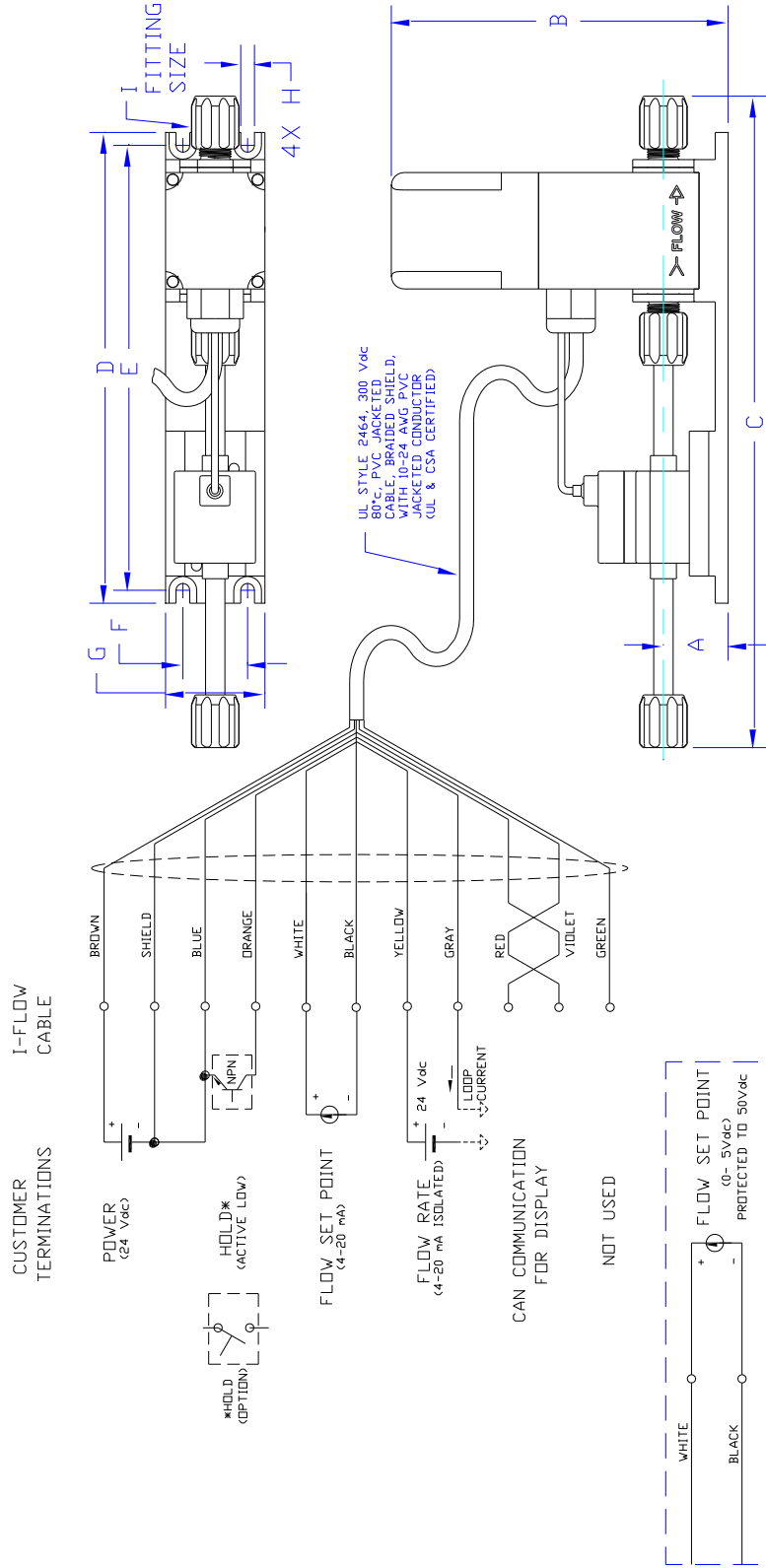
CONTROL SIGNAL	1	4-20 mA	Optional 3 point calibration
	2	1-5 VDC	Standard 2 point calibration
	3	1-10 VDC	Standard 2 point calibration
	4	4-20 mA	Standard 2 point calibration

PID OPTION	S	Stable	Constant pressure: facilities, pressurized or centrifugal pump supply
	P	Pulsed	Pulsating pressure: irregular supply, diaphragm pump
	D	Dual	Dual pressure: constant and pulsed PID—requires ICM for operation

CABLE LENGTH	A	6' pigtail PVC shielded electrical cable	
	B	12' pigtail PVC shielded electrical cable	
	C	30' pigtail PVC shielded electrical cable	

*Consult factory for part number as well as other optional sizes.

Installation Drawings



NOTES:
 1. NON-ISOLATED FLOW RATE OUTPUT SIGNAL.
 2. IMPEDANCE OF CUSTOMER'S INPUT MODULE SHOULD BE GREATER THAN 360K.

DIM	A	B	C	D	E	F	G	H	I
M	1.25	6.51	12.50	9.10	8.60	1.25	1.92	.275	3/8
U	1.25	6.51	12.50	9.10	8.60	1.25	1.92	.275	1/2
X	1.25	6.51	12.50	9.10	8.60	1.25	1.92	.275	3/4

VORTEX INSTALLATION DWG REV D

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