AcuFlow
Metering Pumps & Systems

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IVAX - Intelligent Verification & Control System

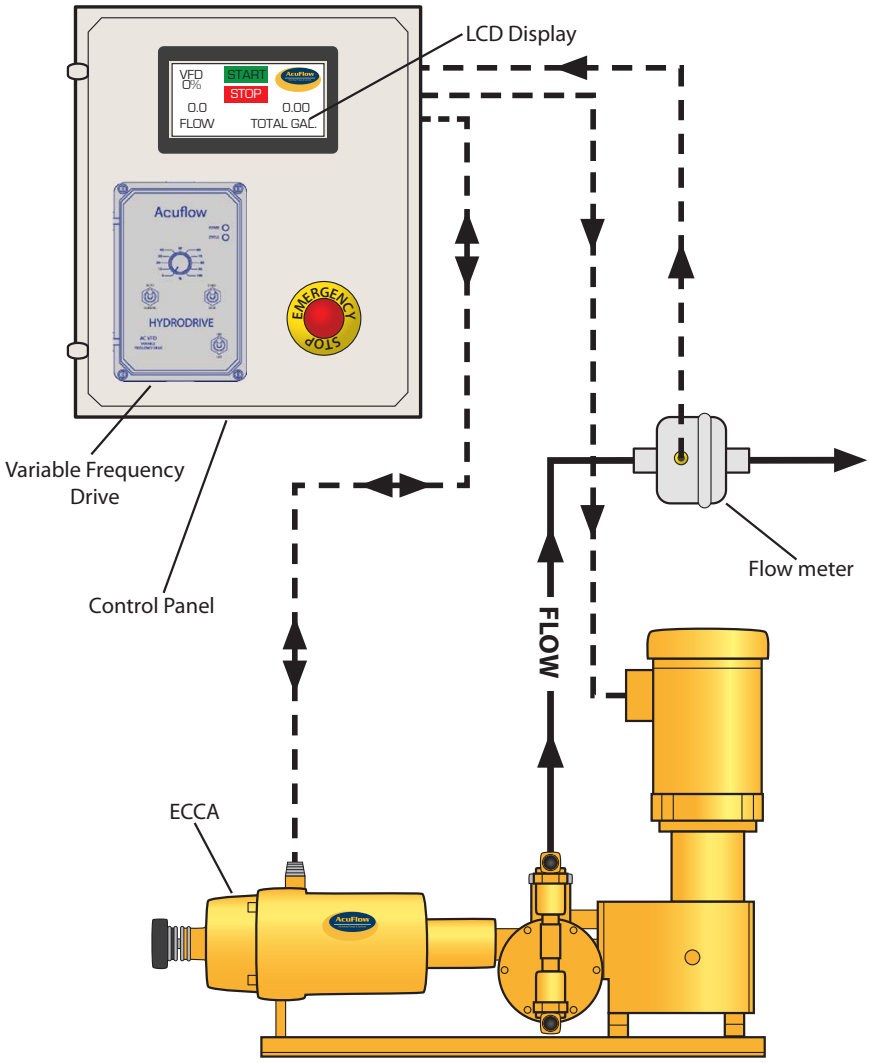
AcuFlow's Intelligent Verification and Control System (IVAX)

Controlling an Acuflow chemical metering pump can be done by controlling the capacity of the pump via the electrical capacity control actuator (ECCA), the speed of AC motors via the Variable Frequency Drive (VFD) or DC motors via SCR. The ECCA and the VFD have a 4-20 mA signal input and feedback output. The major components of the IVAX are the HMI/PLC, the Magmeter, the ECCA, and the VFD. Customers can choose to control the pump via the VFD, the ECCA or both.

Advantages

- Positive flow verification.
- Flow rate adjustment based upon actual (not theoretical) flow measurement.
- No false reading when flow is interrupted by air gap or air lock.
- Handle a variety of chemicals.
- Ability to be controlled remotely and wirelessly
- Able to produce flow logs over time.
- NEMA-4 enclosure.

Based on customer input, we found that verifying the correct operation of each pump is a difficult task. Currently, this is done manually. Doing this manually is a very boring, repetitive task which is prone to errors. With IVAX, all of this can be done automatically without any errors. It is even possible to maintain an automatic log to verify events back in time.



Main Components

CONTROL PANEL:

- Emergency Stop push button.
- NEMA 4 Enclosure contains all the electrical components. (NEMA 7 Optional)
- IVAX can be used with any pump.
- IVAX provides accurate reading of flow.

HMI/PLC:

- 4.3" Graphical touch screen multicolor / TFT Color Display.
- HMI/PLC floating point support, Bar graph, Built in RTC.
- HMI/PLC ladder editor with powerful instruction set.
- HMI/PLC communication ports:
  - One / Two serial ports to connect PLC at RS232 / 422 / 485 levels / Printer / Programming Port
  - One USB (device) port as Programming Port
  - One USB (host) port to connect USB memory drive
  - One optional Ethernet port to connect PLC / Programming Port / Remote monitoring.
- HMI/PLC Dual port communication supported for units with two serial ports.
- IP66 Screen design. CE, UL approved. RoHS compliant.
- HMI/PLC Trending (Real Time & Historical).
- HMI/PLC User defined Function keys to support various tasks.

FLOW METER:

- No moving parts in Magmeter.
- Requires no straight pipe.
- Magmeter has Pulse and/or 4-20 mA output
- Chemical and corrosion resistant Magmeter. Electrodes do not come in contact with the chemical.
- Magmeter Insensitive to fluid density and fluid viscosity changes.
- Magmeter suitable for pulsating flow.

VFD AND ECCA:

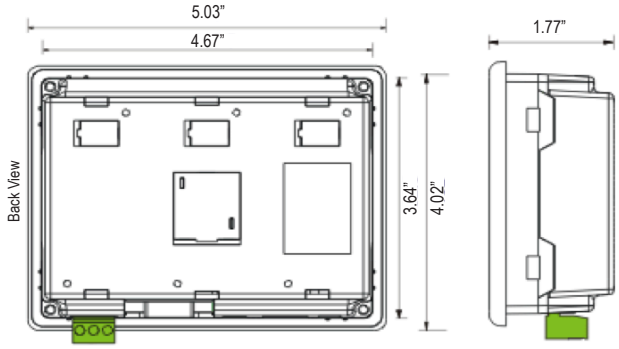
- Not included, but required for operation.
- See back for details.

HMI/PLC

Specifications:

Power	+ 24V DC ±15%
Bezel	IP66 rated Touch Screen
Operating Temperature	0 to 50 C
Storage Temperature	-20 to 80 C
Humidity	10% to 85% (Non condensing)
Communication Ports	One / Two serial ports** (RS232 / RS422 / RS485 levels supported)
USB Device Port	As programming and monitoring port
USB Host port	Supports USB Memory drive
Ethernet Port	For connecting to a PLC, programming of FlexiPanels, a third party device, Drive or remote monitoring (10 / 100 MBPS).
Type of LCD	Multicolor backlight / TFT Color TouchScreen
Supported Colors	32K for Color TFT LCD
Isolation	Isolation between communication and power ports is 500 V DC for 1 Min.

Dimensions:



Communication Ports:

FlexiPanels have up to two serial communication ports. Both ports can be used for the programming of FlexiPanels, printing screens (alphanumeric data), connecting to third party serial devices (barcode readers, temp scanners etc.) or connecting to a PLC or drive. Dual port feature is supported for FlexiPanels models having 2 serial ports. User can configure these serial ports to connect 2 different devices supporting different protocols, such as PLC / Drives / DCS / SCADA etc.

Ethernet Port:

FlexiPanels support optional Ethernet port (Modbus TCP/IP). It can be used to connect to a PLC and monitor machine / process status from remote location. The Ethernet port can also be used for remote Program upload / download in FlexiPanels. Wireless control is achievable by using a bridge to Wi-Fi.

MagMeter

Specifications:

Pipe Size		3/4" , 1/2" , 3/8" , 1/4"
Materials	Body	PVDF
	Electrodes	PVDF carbon fiber-filled
	Ground	PVDF carbon fiber-filled
	Housing	HDPE with glass fiber
	Fittings (FlareTek)	PVDF
	Adapters (NPT)	Polypropylene or PVDF
	O-Rings (for NPT)	EPDM or Viton
Temperature	Ambient	0˚ to 130˚ F (-18˚ to 54˚ C)
	Fluid	32˚ to 200˚ F (0˚ to 93˚ C)
Pressure		150 psi
Flow Range	-075	20 GPM Max. (0.2 GPM cut off)
	-038	3 GPM Max. (0.03 GPM cut off)
Accuracy	-075	+/- 1% plus +/- 0.005 GPM of reading across rated range
	-038	+/- 1% plus +/- 0.002 GPM of reading across rated range
Output Signal		Optocoupled current sinking or current sourcing pulse output: 30 Vdc, 5 mA max4-20 mA current loop: 7 Vdc plus load voltage drop min; 50 Vdc max
	-075	PE102-075: 500 pulses/liter (1892 pulses/gallon),
	-038	PE102-038: 1,000 pulses/liter (3785 pulses/gallon).
Power		10-15 Vdc, 150 mA (linear power supply recommended)
Conductivity		>20 microSiemens
Empty Pipe Detection		Hardware/software, conductivity-based
Environmental		NEMA 4X standard; IP 66 Splashproof standard

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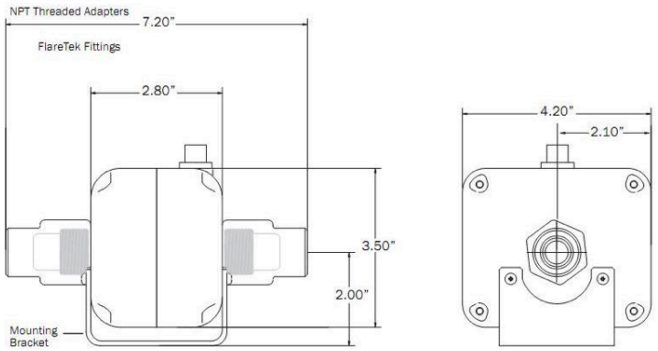
MagMeter (cont.)

General Information:

The PE102 magmeter is designed for low-flow chemical injection or difficult-to-meter applications with pulsating metering pumps in 3/4" to 1/4" pipe/tube. The housing is made of sturdy splash proof HDPE plastic. With no moving parts, the PE102 can handle fluids containing particulate matter without clogging or jamming, keeping maintenance at a minimum. With no metallic parts (100% PVDF body and PVDF carbon fiber-filled electrodes), the meter is corrosion-resistant and compatible with a wide range of chemicals. Accuracy is maintained with conductive fluids (>20 micro Siemens) of varying viscosities and densities.

Dimensions:



Variable Frequency Drive

Features:

- Motor Overload Protection
- 200% Starting Torque
- Electronic Inrush Current Limit
- Short Circuit Protection
- Regeneration Protection
- Slip Compensation with Boost
- Ride Through Power Interruptions
- Diagnostic LEDs
- 100% Holding Torque at 0 RPM
- Barrier Terminal Block
- NEMA-4X / IP-65 Enclosure

See the VFD brochure for detailed information...

ECCA

Features:

- Computer compatible.
- Solid state electronics.
- Compact design.
- ±0.5% position accuracy.
- Rapid response time.
- Wiring leads are fully encapsulated.

See the ECCA brochure for detailed information...

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The Most Complete Line of Metering Pumps

S 900 - 0 to 3.0 GPH, 0 to 3000 PSI
S 1000 - 0 to 62 GPH, 0 to 3000 PSI
S 2000 - 0 to 112 GPH, 0 to 1800 PSI
S 3000 - 0 to 482 GPH, 0 to 700 PSI
S 4000 - 0 to 3530 GPH, 0 to 3500 PSI

Corrosion Resistant Materials

316 Stainless Steel, Alloy 20, Hastelloy C, PVC, PVDF, PTFE

ChemInjector Chemical Systems

Complete customized chemical system
Uninterrupted Consistent Chemical Delivery
Perfectly matched accessories
Controls that are user-friendly and digitized
All components proven to work well together
Easy to operate, maintain and service
No downtime with parts availability

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