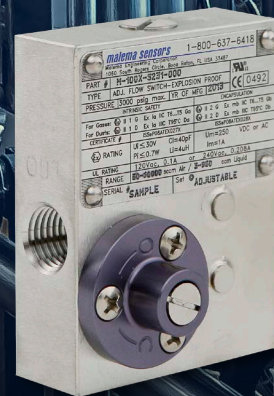


# M-100X Series

Explosion Proof Adjustable Set Point Flow Switches



Where Innovation Flows



The M-100X Series is an extremely sensitive explosion-proof flow switch. This has been engineered to monitor vital sample flow parameters for instrumentation in process control and inert blanket gases. It is used as an auxiliary alarm monitor for flow meters and is ideally suited for applications when installed on a by-pass for determination of filter plugging.

Available in 1/8" FNPT and 1/4" FNPT sizes with Stainless Steel as material options, the M-100X Flow Switches offer a water flow range of 17 to 2,000 CCM and air flow range of 400 to 65,000 SCCM.

## Operation

The magnetic piston rests at the bottom of the switch with no flow present. Once flow is established, the piston moves upward responding to a by-pass flow and actuates the reed switch. The by-pass flow is controlled by a manual adjusting screw controlling the variable orifice. When flow decreases, the piston moves downward and the reed switch deactuates. Universal mounted units are installed with a spring which resets the piston.

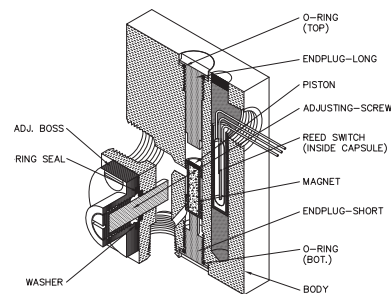
\* with applications featuring gases, ranges may vary.

## Applications

- Gas and liquid analyzers
- Atmosphere furnaces
- CVD tools
- Vacuum systems

## Features

- Field adjustable
- For liquids and gases
- Extremely accurate and sensitive
- Low pressure drop
- UL recognized for hazardous location
- ATEX and IECEx Certified for intrinsic safety and encapsulation and dust environment
- Community Europe complaint



M-100X in 316SS



## Specifications

Set Point Accuracy	± 10% maximum
Repeatability	2%
Hysteresis	± 15 - 30%
Body Material	316 Stainless Steel Other materials available on request
Piston Material	Stainless Steel
Endplugs	Stainless Steel
O-ring options	FKM FFKM PTFE
Adjustment Screw (wetted area)	PTFE
Spring	Stainless Steel
Port Sizes	1/8" FNPT 1/4" FNPT
Reed Switch Data (Electrical Ratings) Reed Switch	3 Watts SPDT (Hermetically Sealed) UL Recognized. File E47258. Operating Temperature -40°C to 125°C
Switching Voltage	170 VDC
Breakdown Voltage	200 VDC
DC Resistive	3 Watts
AC Resistive	3VA
Switching Current	0.25 A
Carrying Current	0.5 A

## Installation

The standard switch has to be mounted vertically in the position shown on the previous page. Models suitable for universal mounting positions are available on request. Adequate filtration and sealing procedures should be used when mounting in flow lines.

## Electrical

SPDT	120 V ac 10 V dc 24 V dc	0.1 A general purpose 0.25 A resistive 0.1 A resistive
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## Pressure and Temperature Rating

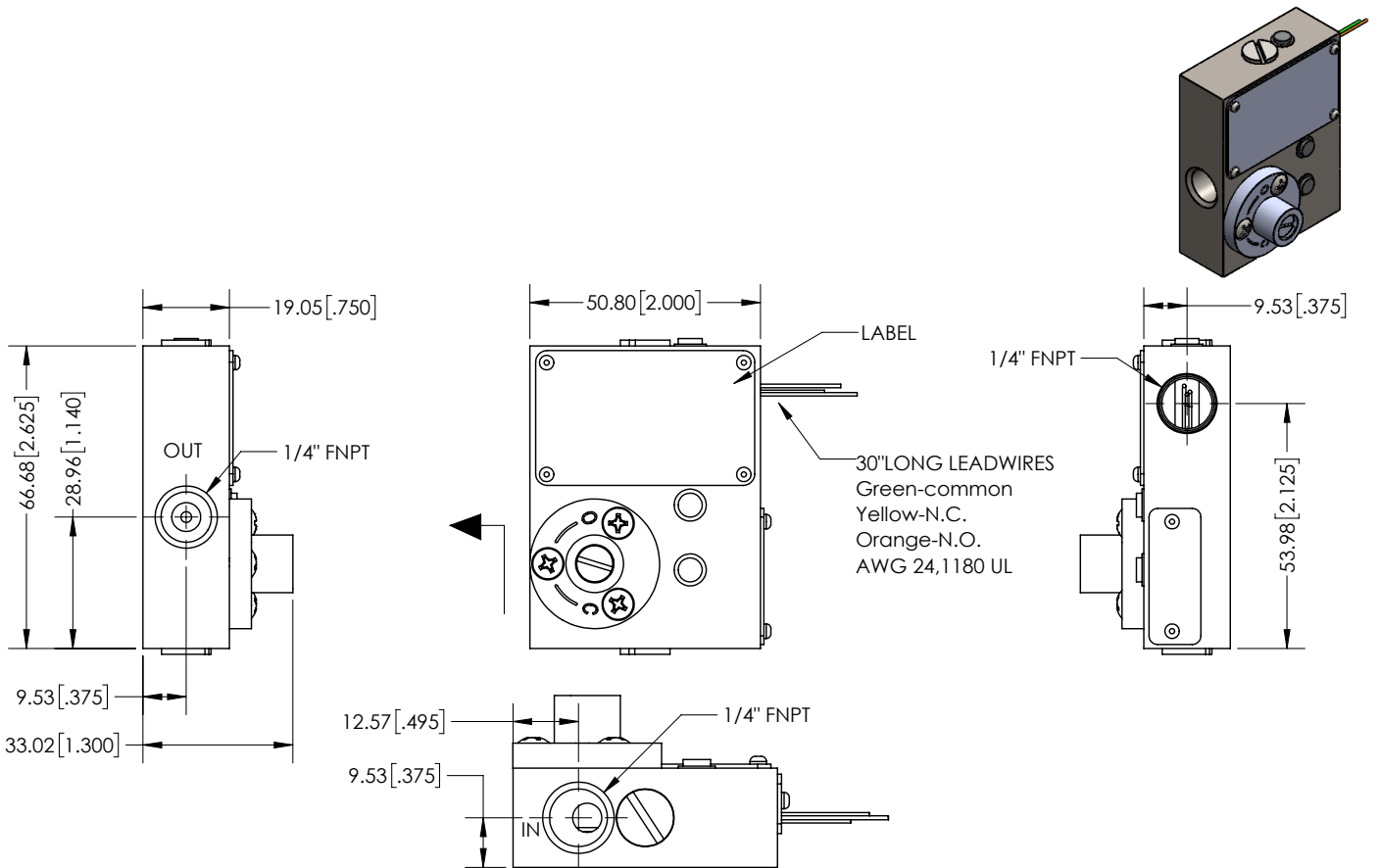
Body Material	Max. Pressure (psi)	Max. Temperature °C/ °F
316SS	3,000	149/300

## Cv at typical set points

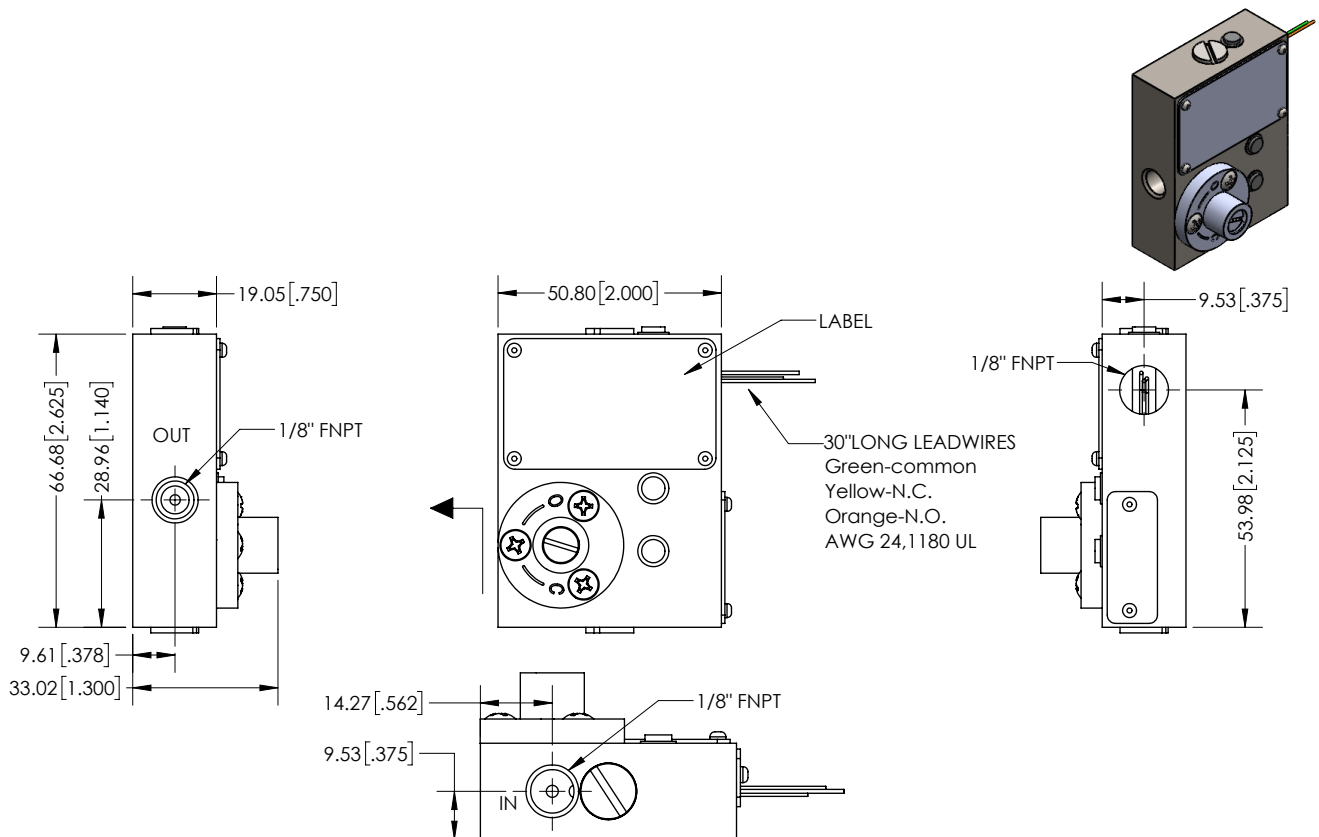
Contact factory for pressure drop and Cv data.

# Dimensional Drawings

Illustrated is the M-100X with 1/4" ports




Illustrated is the M-100X with 1/8" ports




# Certifications

- UL and Canadian UL Recognized for use in USR, CNR - Class I, Groups A, B, C and D; Class II, Groups E, F and G, all divisions (applicable to M-100X, M-50X and M-60X), under UL File # E153446
- UL and Canadian UL Recognized for use in USR, CNR - Class I, Groups C and D; Class II, Groups E, F and G, all divisions – (applicable to M-200X), under UL File # E153446
- ATEX Certification for Intrinsic Safety and Encapsulation (under DEMKO 19 ATEX 2278X and DEMKO 19 ATEX 2270X)

(Refer to control drawing for additional details)

 II 1 G Ex ia IIC T6...T3 Ga

 II 1 D Ex ia IIIC T80°C ... T150°C Da

 II 2 G Ex mb IIC T3 Gb

 II 2 D Ex mb IIIC T150°C Db

- IECEX Certification for Encapsulation and Intrinsic Safety (under IECEx UL 13.0067X and IECEx UL 13.0065X)

(Refer to control drawing for additional details)

 ia IIC T6...T3

 ia III C T80...T150°C Da

 mb IIC T3 Gb

 mb IIIC T150°C Db ( -40°C to +145°C)

- CE Mark: All EX flow switches are CE certified per ATEX Directie 2014/34/EU

Electrical Parameters
Um = 250 V and Im = 1 A

Electrical Parameters
Ui ≤ 30 V
Pi ≤ 0,7 W
Ci = 40pf
Li = 4 μH

Ambient temperature range	Temperature class for Gas	Temperature class for Dust
- 40 °C to + 60 °C	T6	T95°C
- 40 °C to + 75 °C	T5	T95°C
- 40 °C to + 117 °C	T3	T140°C
- 40°C to + 149 °C	T3	T175°C

## Ordering Information

Model	Port Size, Connection type	M-100X adjustable range for water at 70°F	M-100X adjustable range for Air at 14.7 PSIA and 70°F	Part number		
		Min-Max (CCM)	Min-Max (SCCM)	M-100X with FKM Seals	M-100X with FFKM Seals	M-100X with PTFE Seals
M-100X	1/8" FNPT Low Flow Range	17 - 300	400 - 10,000	M-100X-S130-120-S001	M-100X-S130-121-S001	M-100X-S130-123-S001
	1/8" FNPT Standard Range	35 - 1,300	700 - 45,000	M-100X-S131-120-S001	M-100X-S131-121-S001	M-100X-S131-123-S001
	1/4" FNPT Standard Range	50 - 2,000	1,000 - 65,000	M-100X-S232-120-S001	M-100X-S232-121-S001	M-100X-S232-123-S001

- Note:
- Air Range mentioned above is referenced at 14.7 PSIA and 70°F
  - Water Range mentioned above is referenced at 70°F.
  - Material compatibility choices are solely the responsibility of the end user.
  - Specifications are subject to change without notice.
  - **For M-100X with custom set point for liquid as well as for gas flow applications, please contact factory with the application information as needed in the Malema Flow Switch application questionnaire.**



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