

Multipoint Systems



The Series 9000MP Multipoint Systems are designed to measure air and gas flow in systems where two or more sensing points are required due to large cross-sectional areas. The typical Series 9000MP Multipoint System includes one or more Series 9000MP Probe and a Series 9600MP System Control Panel. The new APS air purge system and support for multiple C-Factors make the Series 9000MP your complete solution.

Technology

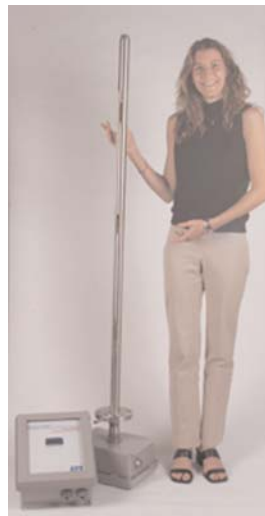
The 9000MP flow transmitter probe assembly is the heart of the system. The probe assembly consists of two or more flow sensors (maximum of 12 sensors per probe) mounted in a 1½" OD probe shaft. Each sensor is matched to its own bridge board and is individually calibrated and linearized. The bridge board and microprocessor for each sensor are mounted outside of the flow duct in an enclosure at the end of the probe shaft.



The voltage output from each sensor and bridge board set is sent to its own microprocessor board for accurate linearization of the flow rate signal. The linearized output signals from the multiple sensors in

the probe are then averaged by the summer/averager module. Typically, the probe assembly's averaged output signal is transmitted to the remote system control panel for grand averaging with the signals from other probe assemblies. However, flow transmitter assemblies may be specified with either one average output signal and/or individual signals to allow individual sensor readings at the system control panel.

The Series 9601MP system control panel is housed in a 12" x 10" NEMA 4X fiberglass enclosure. This enclosure holds the power supply, the summer/averager board (required for systems with multiple probe assemblies), and a microprocessor board for control of the overall system output signal, and can be located from as little as a few feet to as much as thousands of feet from the transmitter probe assemblies.



the control panel provides the power for the probe assemblies over a four wire electrical connection. The flow transmitter sends its signal to the control panel over a 4-20 mA signal loop. This method requires a four wire connection per probe assembly (power supply positive, power ground, 4-20 mA average output and return). The control

panel provides two analog output signals (0-5 VDC and 4-20 mA) linearized proportionally to the grand average flow rate, as well as RS232/485 digital interfaces for communication with a PC running EPICommunicator software. The 4-20 mA grand average output can drive up to 1200 ohms.

Air Purge System

The Eldridge Air Purge System (APS) provides a means of cleaning the sensors in applications where particulates cause problems. A stainless steel tube is



mounted on the downstream side of the probe support with a pair of outlet holes positioned at each sensor. The tube is connected to a tap located on the mounting flange. After basic installation of the multipoint system is complete, a pressurized gas line (typically compressed air) is connected to the tap. The gas is released at set intervals by the user to clean the sensor surface of any accumulated particulates. The frequency and duration of the the purging gas stream can be controlled by the Master-Touch software or externally by the customer.



(NOTE: All photos shown with optional Air Purge System)

Multipoint Systems

Specifying a Series 9000MP Multipoint System

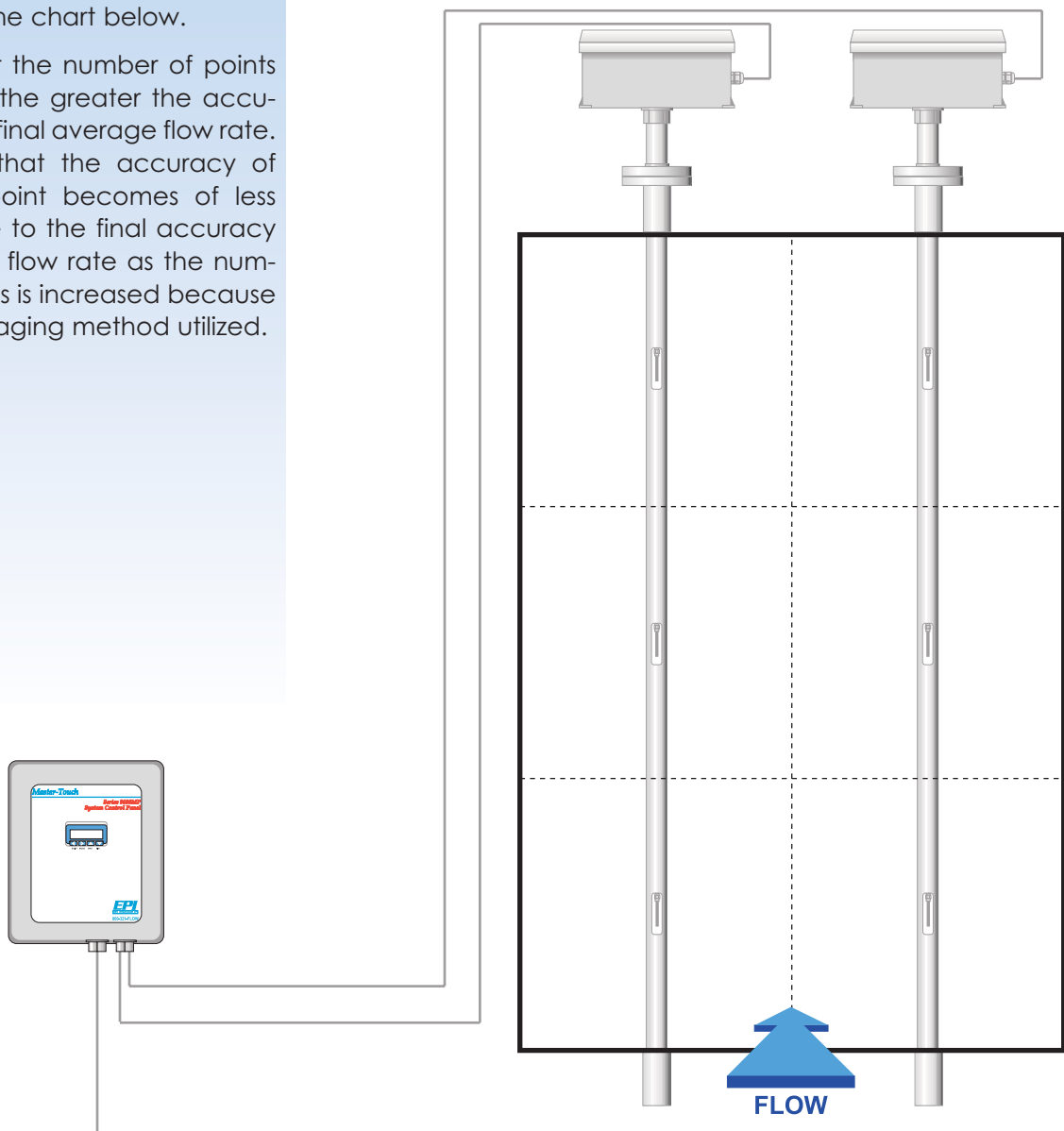
The chart to the right is a guideline for how many traverse points are suggested for a circular duct. Once the average flow rate is determined, the factory can specify the minimum number of sensors in a Series 9000MP Multipoint System. If the point of average flow cannot be determined, then a simple rule is to specify the number of points based on the chart below.

The greater the number of points measured, the greater the accuracy of the final average flow rate. Also note that the accuracy of any one point becomes of less importance to the final accuracy of the total flow rate as the number of points is increased because of the averaging method utilized.

Duct Diameter	Suggested Number of Probes	Suggested Sensors per Probe	Total Number of Sensors
8" – 18"	1	2	2
18" – 24"	1	4	4
24" – 36"	2	2	4
36" – 60"	2	4	8

Larger Ducts and Stacks – Consult factory for configuration options.

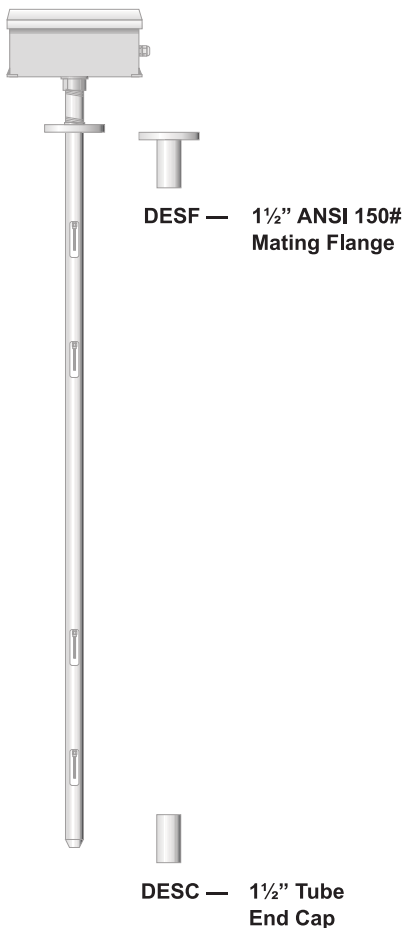
Rectangular Ducts – Allow one to two square feet per point. Fewer traverse points may be used if a careful study shows that uniformity of flow exists.



Series 9600MP System Control Panel



Series 9000MP Multipoint Probe with mounting hardware



DESFC — All mounting hardware
NOTE — DESF & DESC must be welded
to user's duct or pipe

Specifications

Linear signal output	0-5 VDC & 4-20 mA
Relay Output	Two 1-amp, user-selectable alarm functions
Signal Interface	RS232 & RS485
Accuracy, including linearity (Ref.: 21°C)	±[1.0% of Reading + (0.5% + .02%/°C of Full Scale)]
Repeatability	±0.2% of Full Scale
Sensor response time	1 second (time constant per step change)
Turn down ratio	100:1 minimum (but not less than 150 SFPM)
Electronics temperature range	0°–50°C (32°–122°F); extended temperature optional
Gas temperature range	-40°–66°C (-40°–150°F); extended range available, consult factory
Gas pressure effect	Negligible over ± 10% of absolute calibration pressure
Pressure rating maximum	Ambient pressure standard; higher pressures, consult factory
Input power requirement	24VDC @ 250mA per sensor 115 VAC 50/60 Hz optional 230 VAC 50/60 Hz optional
Series 9000/9600MP power requirements	5 watts or less per sensor
Series 9600MP enclosure	NEMA 4X fiberglass, 10" x 12" x 6"
Series 9000MP probe enclosure	NEMA 4X fiberglass, 8" x 10" x 4"
Wetted materials	316 Stainless Steel
Standard temperature & pressure (STP)	70°F & 29.92" Hg (Air .075 lb./cubic foot)
NIST traceable calibration	Standard

Series 9000MP

Model*	Description
9001MP-06-01-XX"-DESFC	Probe assembly with 1 sensor and hardware
9002MP-06-01-XX"-DESFC	Probe assembly with 2 sensors and hardware
9003MP-06-01-XX"-DESFC	Probe assembly with 3 sensors and hardware
9004MP-06-01-XX"-DESFC	Probe assembly with 4 sensors and hardware
9005MP-06-01-XX"-DESFC	Probe assembly with 5 sensors and hardware
9006MP-06-01-XX"-DESFC	Probe assembly with 6 sensors and hardware
9007MP-06-03-XX"-DESFC	Probe assembly with 7 sensors and hardware
9008MP-06-03-XX"-DESFC	Probe assembly with 8 sensors and hardware

* (XX" equals probe length)
-APS Air Purge System option (added to part number)

Series 9601MP

Model	Description
9601MP-133-1210-DC24	System Control Panel with 24 VDC input power
9601MP-133-1210-AC115	System Control Panel with 115 VAC input power
9601MP-133-1210-AC230	System Control Panel with 230 VAC input power