

# PROGRAMMABLE HOT WIRE ANEMOMETER & CONTROLLERS

MHWAM-Series

## Introduction:

**MHWAM** series of hot wire anemometer /controllers are available in more than 100 different modes, virtually offering solutions to linear flow measurement/control for linear flow measurement for any gaseous/liquid flow rate i.e. 1.0 micro meter/ minutes to kilo.meter/ minutes. These flow meters are offered in material like SS-316 (ceramic/Teflon coating), polypropylene, derelin etc to make up with corrosion, thermodynamical and other pertinent physical parameters of fluid/gas under measurement. On account of above, these flow meters are first choice for medical diagnostic, agro, biomedical, petrochemical, automobile, organic/inorganic chemical, milk plant, sugar, textiles, beverages, water management/treatment, academic and defense.

**Operating Principle: Anemeter operates in two different principles namely as under.....**

### Constant Current Mode:

In the constant current mode, a constant current flows through the wire, which is exposed to the flow velocity. The wire attains an equilibrium temperature resulting from the balance between internal heat generation due to electrical resistance and the convective heat loss from the wire to the moving fluid. The wire temperature must adjust itself to changes in the convective losses until a new equilibrium temperature is obtained. Since the convection coefficient is a function of the flow velocity, the equilibrium wire temperature is a measure of the velocity. The wire temperature can be measured in terms of its electrical resistance to display a linearize linear flow rate.

**Constant Temperature Mode:** In the constant-temperature mode, the current through the wire is adjusted to maintain a constant film temperature. Based on the energy balance current required to maintain the wire at a constant temperature, is proportional to the convective heat loss and can therefore be used to measure the flow velocity.

$$\alpha + b \cdot v_f^c = \frac{I^2 R_{ref} [1 + \alpha (T_w - T_{Ref})]}{A_w (T_w - T_f)}$$

$$= g(T_w, T_f)$$

## Specification of Hotwire anemometer and controller

flow range <100,000.0 mpm

Model	Range Meter/min	Pulse/D.C./Pulse Frequency Range	Burdon	Accuracy Restricted to Resolution level	Resolution Quantified/ optional	Voltage/current source Volt/current/optional As demanded	INTERFACE
MMWAM-9999990101	10.0/5.0 -999999	0-50K.Hz	< 100 micro-kel	99.99999%	5 count	015 VOLTS/001.0 A	RS-232USB
MMWAM-9999990401	10.0/5.0 -999999	0-50 k.Hz	< 100 micro kel	99.99999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM -9999990102	05.0/1.0 -999999	0-50K.Hz	< 100 micro-kel	99.99999%	5 count	015 VOLTS/001.0 A	RS-232/USB
MMWAM-9999990402	05.0/1.0 -999999	0-50 k.Hz	< 100 micro kel	99.99999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM-9999991002	05.0/1.0 -999999	0-50K.Hz	< 100 micro-kel	99.99999%	5 count	100 VOLTS/001.0 A	RS-232/USB
MMWAM-9999992002	05.0/1.0 -999999	0-50 k.Hz	< 100 micro kel	99.99999%	5 count	200 VOLTS/001.0 A	RS-232/USB
MMWAM-9999992003	05.0/1.0 -999999	0-50 k.Hz	< 100 micro-kel	99.99999%	5 count	200 VOLTS/010.0m A	RS-232/USB

## SPECIFICATION OF DIGITAL HOT WIRE ANEMOMETER & CONTROLLER SPECIFICATION:

Operating voltage 220 volts/28 volts D.C.  
 Flow range; as in data sheet  
 Excitation frequency n.d.  
 Probe: hore wire mounted on S.S. Tube with 360 degree rotational stability.  
 Accuracy 98% of set point  
 Repeatability 100 percent  
 Response time 10000 count/10 milli-sec  
 Interface Signal 0.0-12.0 volts D.C.(proportional to flow range  
 Flow range 10.0 LPM – 100.0 kilo LPM  
 Step down ratio 1:50(1:100)  
 Flow tube material SS-316/Brass/DERELIN with option of flange coupling  
 Electrode material SS-316/Has-alloy  
 Control option Flow rate/totalization control against set point  
 Multi flow synchronized control (interactively)  
 Display 3½ & 4½ digit red glow LED/LCD display  
 Controller size 5x5x8"



FLOW COMPUTER-MHWAM-0800

## MOTORON SEMICONDUCTORS CORPORATION

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**PROGRAMMABLE HOT WIRE ANEMOMETER & CONTROLLERS**

MHWAM-Series

Specification of Hotwire anemometer and controller

flow range &lt;100,000.0 milli.pm

Model	Range Milli.Meter/min	Pulse/D.C./Pulse Frequency Range	Burdon	Accuracy Restricted to Resolution level	Resolution Quantified/ optional	Voltage/current source Volt/current/optional As demanded	INTERFACE
MMWAM-9999990101b	10.0/5.0 -999999	0-50K.Hz	< 100 micro-kel	99.999999%	5 count	015 VOLTS/001.0 A	RS-232/USB
MMWAM-9999990401b	10.0/5.0 -999999	0-50 k.Hz	< 100 micro kel	99.999999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM -9999990102b	05.0/1.0 -999999	0-50K.Hz	< 100 micro-kel	99.999999%	5 count	015 VOLTS/001.0 A	RS-232/USB
MMWAM-9999990402b	05.0/1.0 -999999	0-50 k.Hz	< 100 micro kel	99.999999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM-9999991002b	05.0/1.0 -999999	0-50k.Hz	< 100 micro-kel	99.999999%	5 count	100 VOLTS/001.0 A	RS-232/USB
MMWAM-9999992002b	05.0/1.0 -999999	0-50 k.Hz	< 100 micro kel	99.999999%	5 count	200 VOLTS/001.0 A	RS-232/USB
MMWAM-9999992003b	05.0/1.0 -999999	0-50 k.Hz	< 100 micro-kel	99.999999%	5 count	200 VOLTS/010.0m A	RS-232/USB

Specification of Hotwire anemometer and controller

flow range &lt;100,000.0 micro.m/min

Model	Range Micro-Meter/min	Pulse/D.C./Pulse Frequency Range	Burdon	Accuracy Restricted to Resolution level	Resolution Quantified/ optional	Voltage/current source Volt/current/optional As demanded	INTERFACE
MMWAM-9999990101c	10.0/5.0 -999999	0-50K.Hz	< 100 micro-kel	99.999999%	5 count	015 VOLTS/001.0 A	RS-232/USB
MMWAM-9999990401c	10.0/5.0 -999999	0-50 k.Hz	< 100 micro kel	99.999999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM -9999990102c	05.0/1.0 -999999	0-50K.Hz	< 100 micro-kel	99.999999%	5 count	015 VOLTS/001.0 A	RS-232/USB
MMWAM-9999990402c	05.0/1.0 -999999	0-50 k.Hz	< 100 micro kel	99.999999%	5 count	040 VOLTS/001.0 A	RS-232/USB
MMWAM-9999991002c	05.0/1.0 -999999	0-50k.Hz	< 100 micro-kel	99.999999%	5 count	100 VOLTS/001.0 A	RS-232/USB
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MMWAM-9999992003c	05.0/1.0 -999999	0-50 k.Hz	< 100 micro-kel	99.999999%	5 count	200 VOLTS/010.0m A	RS-232/USB

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