



MALEMA

CORIOLIS MASS FLOW METERS



ULTRASONIC FLOW METERS



VORTEX FLOW METERS



PADDLE WHEEL FLOW METERS



PTFE/PFA FLOW SWITCHES



*Next Generation
Flow Meters and Flow Controllers*

CORIOLIS MASS FLOW METERS (non-invasive)



U.S. Patent : 8,404,076
8,887,578
9,677,921

Japanese Patent : 5,602,884
6,257,772

CPFM-8800

MODEL	FLOW RANGE	MODEL / ZERO OFFSET STABILITY
8803-1	12 to 1,500*(g/min)	8803-1 0.36(g/min)
8803-2	15 to 4,000*(g/min)	8803-2 0.45(g/min)

*Pressure drop at Max. Flow range = 10 PSI on water (1cP)

ACCURACY
Accuracy = $\pm \{1\%$ of rate + Z.O.S.}

CONNECTION TYPES
Tube ends, Flare, Pillar

OUTPUT
4 - 20mA
Pulse
Local Display

WETTED MATERIAL
PFA - available in all models

APPLICATIONS

- Highly corrosive chemicals
- Slurry and Chemicals containing bubbles
- Fluids with varying density and viscosity
- CMP slurries or solutions containing solid contents
- Surfactants

FEATURES

- Mass flow calibration is fluid independent eliminating the need to calibrate on different fluids
- Accuracy is unaffected by flow regime (e.g., laminar or turbulent flow) or variations in flow velocity profile.
- Operates and measures two-phase flow conditions with gas volumetric void functions in excess of 30%.

ULTRASONIC FLOW METERS (non-invasive)



M-2700

TUBE SIZES / FLOW RANGES

- 1/4" 0 to 3.0 L/Min
- 3/8" 0 to 4.0 L/Min
- 3/8" 0 to 8.0 L/Min
- 1/2" 0 to 20.0 L/Min

CONNECTION TYPES

Tube ends and other custom options

WETTED MATERIAL

PFA

ACCURACY

+/- 1% of Reading

OUTPUT

- 4 - 20mA
- 0 - 10 VDC
- Pulse
- Display

APPLICATIONS

LIQUID DELIVERY SYSTEMS FOR

Ultra pure liquids, DI Water, Slurry,
Harsh Chemicals, Aerated Liquids

M-2111

TUBE SIZES / FLOW RANGES

- 1/4" 0 to 3.0 L/Min
- 3/8" 0 to 8.0 L/Min
- 1/2" 0 to 20.0 L/Min
- 3/4" 0 to 50.0 L/Min
- 1" 0 to 80.0 L/Min

CONNECTION TYPES

Tube ends and other custom options

WETTED MATERIAL

PFA

ACCURACY

+/- 1% of Reading

OUTPUT

- 4 - 20mA
- 0 - 10 VDC
- Pulse
- Display

ULTRASONIC FLOW METERS

- FAST RESPONSE
- HANDLES ENTRAINED BUBBLES
- CORROSION RESISTANT
- SUITABLE FOR SLURRY AND CHEMICALS



U.S. Patent : 6,055,868
& 5,974,897

U.S. Patent No:6,055,868
& 5,974,897

M-1500MB

TUBE SIZES / FLOW RANGES

1/8" 0 to 600 ml/min
1/4" 0 to 3000 ml/min

CONNECTION TYPES

Tube ends and other custom options

WETTED MATERIAL

PFA

ACCURACY

+/- 2% of Reading

OUTPUTS

0 - 10 VDC
4 -20mA

M-1500P

TUBE SIZES / FLOW RANGES

1/8" 0 to 600 ml/Min

CONNECTION TYPES

Tube ends and other custom options

WETTED MATERIAL

PFA

ACCURACY

+/- 2% of Reading

OUTPUT

4 - 20mA
0 - 10 VDC
Pulse(frequency)
Pulse (Volume)

BENEFITS

- NO MOVING PARTS
- FOR ULTRA PURE WATER AND CHEMICALS
- SIMPLE AND COMPACT
- LOW PRESSURE DROP
- LINEAR OUTPUT

VORTEX AND PADDLE WHEEL FLOW METERS



VF-8100

TUBE SIZES / FLOW RANGES

3/8" 0.4 to 4.0 L/Min
 1/2" 2.0 to 20.0 L/Min
 3/4" 5.0 to 50.0 L/Min
 1" 10.0 to 100.0 L/Min

CONNECTION TYPES

Tube, Flare, Pillar

WETTED MATERIAL

PFA

OUTPUT

4-20mA

Pulse

Local Display

VF-8200

TUBE SIZES / FLOW RANGES

3/8" 0.5 to 4.0 L/Min
 1/2" 2.0 to 16.0 L/Min
 3/4" 4.0 to 40.0 L/Min
 1" 10.0 to 150.0 L/Min

CONNECTION TYPES

RC / Other options available

WETTED MATERIAL

PPS

OUTPUT

4-20mA

Pulse

Local Display

M-10000

TUBE SIZES / FLOW RANGES

1/4" 0.1 to 5.0 L/min
 3/8" 1.0 to 30.0 L/Min
 1/2" 4.0 to 50.0 L/Min
 3/4" 20.0 to 115.0 L/Min
 1" 38.0 to 225.0 L/Min

CONNECTION TYPES

FNPT, Flare

BODY MATERIALS*

Celcon, PTFE, 316SS

ACCURACY

±1% of Full Scale

OUTPUTS

0 - 10 VDC

4 - 20 mA

Pulse (frequency)

Alarm

BENEFITS

- NO MOVING PARTS
- FOR ULTRA PURE WATER AND CHEMICALS
- CE-MARKING
- SIMPLE AND COMPACT
- LOW PRESSURE DROP
- LINEAR OUTPUT

FLOW SWITCHES - FIXED SET POINT TYPE



M-61-F / M-62-F

Fixed Flow Switch

SET POINT RANGE

300 to 55000 sccm air
10 to 1600 mL/min water

CONNECTION SIZES

1/4", 3/8"

CONNECTION TYPES

Flare

WETTED MATERIAL

PFA, PTFE

ACCURACY

±10% of Set Point

OUTPUTS

SPST
SPDT

M-50

SET POINT RANGE

50 to 5000 sccm air
1 to 170 mL/min water

CONNECTION SIZES

1/8", 1/4"

CONNECTION TYPES

FNPT

BODY MATERIALS*

Acrylic, Aluminum,
Polypropylene,
PTFE, 316SS

ACCURACY

±10% of Set Point

OUTPUTS

SPST
SPDT

M-60

SET POINT RANGE

300 to 55000 sccm air
10 to 1600 mL/min water

CONNECTION SIZES

1/4"

CONNECTION TYPES

FNPT

BODY MATERIALS*

Acrylic, Aluminum,
Polypropylene,
PTFE, 316SS

ACCURACY

±10% of Set Point

OUTPUTS

SPST
SPDT

M-64

SET POINT RANGE

1 to 70 NL/min air
0.4 to 28 L/min water

CONNECTION SIZES

3/8", 1/2"

CONNECTION TYPES

FNPT

BODY MATERIALS*

Aluminum, Polypropylene,
PTFE, 316SS

ACCURACY

±10% of Set Point

OUTPUTS

SPST
SPDT

M-701

SET POINT RANGE

1 to 20 L/min water

CONNECTION SIZES

3/4"

CONNECTION TYPES

FNPT

BODY MATERIALS*

Polypropylene

ACCURACY

±10% of Set Point

OUTPUTS

SPST
SPDT

*see data sheet for list of wetted materials

FIELD ADJUSTABLE FLOW SWITCHES AND RELIEF VALVES



M-100

SET POINT RANGE
20 to 60000 sccm air
1 to 950 mL/min water

CONNECTION SIZES
1/8", 1/4"

CONNECTION TYPES
FNPT

BODY MATERIALS*
PTFE, 316SS

ACCURACY
±10% of Set Point

OUTPUTS
SPST
SPDT

M-200

SET POINT RANGE
1 to 50 scfm air
0.2 to 20 L/min water

CONNECTION SIZES
3/8", 1/2", 3/4"

CONNECTION TYPES
FNPT

BODY MATERIALS*
Acrylic, Aluminum, PTFE, 316SS

ACCURACY
±10% of Set Point

OUTPUTS
SPST
SPDT

M-200-F

Adjustable Flow Switch

SET POINT RANGE
1 to 50 scfm air
0.45 to 20 L/min water

CONNECTION SIZES
3/8", 1/2", 3/4"

CONNECTION TYPES
Flare

WETTED MATERIAL
PFA, PTFE

ACCURACY
±10% of Set Point

OUTPUTS
SPST
SPDT

M-VF-F

Pressure Relief Valve

SET POINT RANGE
20 to 70 psig

CONNECTION SIZES
1/4", 3/8"

CONNECTION TYPES
Flare

WETTED MATERIAL
PFA, PTFE, PVDF, and
Fluorocarbon or Perfluorelastomer

ACCURACY
±2% of Set Point

*see data sheet for list of wetted materials

CORIOLIS MASS FLOW CONTROLLERS

- IMMUNITY TO ENTRAINED GAS UP TO 30% BY VOLUME
- RESPONSE INDEPENDENT TO PHYSICAL & CHEMICAL PROPERTIES



U.S. Patent : 8,404,076
8,887,578
9,677,921

Japanese Patent : 5,602,884
6,257,772

CMFC-9000 / CMFC-5000

Integrated closed loop controller for chemical and slurry applications

TUBE SIZES

1/4" and 3/8"

FLOW RANGES

Starting from 5 g/min to 5000 g/min

ACCURACY

+/- 1.5% of Set Point or +/- 3 g/min
(whichever is larger)

CONNECTION TYPES

Tube ends, Flare, Pillar

WETTED MATERIAL

PFA/PTFE or PFA/Pt cured silicone

INPUT / OUTPUTS

4 - 20mA, 0 - 10 VDC

APPLICATIONS

- Highly corrosive chemicals
- Slurry and Chemicals containing bubbles
- Fluids with varying density and viscosity
- CMP slurries or solutions containing solid contents
- Surfactants

ULTRASONIC FLOW CONTROLLERS

- **FAST RESPONSE**
- **HANDLES ENTRAINED BUBBLES**
- **CORROSION RESISTANT**
- **SUITABLE FOR SLURRY AND CHEMICALS**



MFC-8100

Integrated Closed Loop Flow Controller
for Chemical and Slurry Applications

TUBE SIZES / FLOW RANGES

1/4" or 3/8" : 5mL/min to 5 L/min

CONNECTION TYPES

Tube ends, Flare, Pillar

WETTED MATERIAL

PFA/PTFE or PFA/Pt cured silicone

ACCURACY

+/- 1% of Set Point or +/- 2 mL/min
(whichever is larger)

INPUT / OUTPUTS

0 - 10 VDC

4 -20mA

*An Optional shut off valve can be integrated.

LFC-7000

Integrated Closed Loop Flow Controller
for Chemical and Slurry Applications

TUBE SIZES / FLOW RANGES

1/4" or 3/8" : 5mL/min to 5 L/min

CONNECTION TYPES

Tube ends, Flare, Pillar

WETTED MATERIAL

PFA/PTFE or PFA/Pt cured silicone

ACCURACY

+/- 1% of Set Point or +/- 3 mL/min
(whichever is larger)

INPUT / OUTPUTS

0 - 10 VDC

4 -20mA

*other models available with flow
ranges up to 40 L/min.

MALEMA INTERCONNECT INTERLOCK DEVICE

- DETECTS LEAKS IN VALVE SEALS AND PREVENTS CROSS CONTAMINATION OF THE FLUIDS



U.S. Patent 8,997,789. Other Patents Pending.

MIID

FEATURES

- All High-purity PTFE and PFA construction of the wetted components
- Integrated design for compact, space savings installation
- Designed for minimal head loss
- Field configurable flare connections [Inlets and Outlets can be configured as either 1/4" or 3/8" flare nipples] allowing for simplified retrofit installation and reduced inventories
- Valve components tested to over 10,000,000 cycles in DIW (over 1,050,000 in Slurries)
- Valve Cv = 0.8
- Built-in leak detection & monitoring

BENEFITS

- Improves tool up time by preventing cross contamination from occurring
- Provides early indication of unreliable valve operation ensuring that the bulk supplies cannot be contaminated during unplanned or unexpected pressure fluctuations occurring during normal operations.

* For more details contact factory.

DISPENSE VERIFICATION METER

- VERY HIGH ACCURACY ON INDIVIDUAL DISPENSES
- QUICK RESPONSE



U.S. Patent No:8,185,237 & 8,467,900

MDM-3000

FEATURES

- Directly reports dispensed volume from micro-liter to liter
- Analog output and two user-specified alarm limits
- Transducer, electronics and software that easily integrates into existing dispense system

BENEFITS

- Improves users capability to measure and monitor important process variables
- Instant verification of "out-of-spec" dispense
- Eliminates wasteful chemical use
- Improves product yield
- Reduces labor associated with manual gravimetric or volumetric dispense verifications

* For more details contact factory.

Malema endeavors to provide its customers with state-of-the-art flow and pressure measurement and closed-loop flow control products. We support these endeavors with a multi-faceted engineering team that specializes in providing custom solutions to meet customer requirements.

Our goal is to maintain lasting and satisfying customer relationships by delivering a quality product at a competitive price and lead-time.

In addition to high-purity products, Malema has a complete line of industrial products which can be viewed at www.malema.com

Headquarters USA
MALEMA SENSORS, USA
1060 S. Rogers Circle
Boca Raton, FL 33487
Toll Free: +1-800-637-6418
Office: +1-561-995-0595
Fax:+1-561-995-0622

Western Region Office, USA
MALEMA SENSORS CALIFORNIA
2329 Zanker Road
San Jose, CA 95131
Office: +1-408-970-3419
Fax:+1-408-970-3426

Asia Pacific Headquarters
MALEMA SINGAPORE PTE LTD
35 Marsiling Industrial Estate Road 3
#02-06, Singapore 739257
Office: +65-6482-3533
Fax:+65-6484-4231

MALEMA SENSORS INDIA PVT LTD
3rd & 4th Floor, No. 1433,
Pipeline Road,
Mahalakshmi Puram,
Bangalore - 560086
Office: +91-80-23499361 / 62

MALEMA SENSORS KOREA
Cheongmyeong Towntel 808-ho,
Cheongmyeong - RO 7
Yeongtong-Gu
Suwon-City, Gyeonggi-Do,
Korea 443-470
Office: +82-31-203-1065
Fax:+82-31-203-5065

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