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The background of the page features a dynamic splash of water, with a dark, shadowed area on the left and a bright, sunlit area on the right, creating a sense of movement and freshness. The water droplets are captured in mid-air, with some appearing as sharp, crystalline shapes and others as soft, blurred trails.

ELECTROMAGNETIC FLOWMETERS

The measurement principle of electromagnetic flowmeters (EMF) is based on Faraday's law of induction. EMF can accurately measure the flow of any electrically conductive liquid, even those with low conductivities (starting from 5 $\mu\text{S}/\text{cm}$).

Typical applications include:

- Water industry: revenue metering, district metering, water abstraction, leakage detection
- Irrigation
- Wastewater industry: transport networks, sewage treatment plants, sludges
- Food & beverage industry: mixing, dosing and filling of drinks under hygienic conditions, filling systems applications
- Chemical industry: acids, alkalis, dosing applications, abrasive or corrosive mediums
- Pulp & paper industry: pulp, pastes, sludges and other caustic mediums, liquor, additives, bleaches, colourants
- Metal & mining industry: mediums with a high solid content, like ore or excavator mud

Highlights:

- Minimal or no inlets/outlets
- All Euromag flowmeters are wet-calibrated
- Large choice of liner materials suitable for potable water, wastewater, chemicals, and solids
- Maintenance free
- Suitable for use in custody transfer applications
- Measurement is independent of the flow profile and solid contents
- Zero-point stability regardless of changes in medium properties
- Nominal sizes DN 6 to DN 2.000
- Field verification with minimized cost for the installation

Sensors



MUT2200EL



MUT2300



MUT1000EL



MUT1100J



MUT2400EL



MUT500



MUT4000



MUT2100F



MUT1222



MUT2770



MUT2660

Converters & Electronics



MC608



MC406



Data transmission



Field Vericator

SENSOR MUT2200EL



The electromagnetic flowmeter for all applications

MUT2200EL sensors represent the state of the art of Euromag International production for water cycle and process applications.

APPLICATIONS:

- Water treatment
- Water distribution
- Industrial waste water
- Industrial processes
- Slurries
- Irrigation
- Pumping stations
- Dams
- Mining

FEATURES:

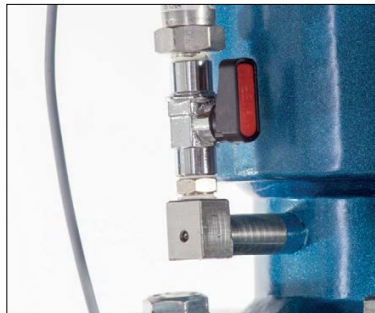
- High accuracy and wide flow rate range measurement
- Bi-directional measure
- Empty pipe electrode supplied as a standard (\geq DN50)
- Coupled with any Euromag converters
- Pressure port integrated (on request)
- In house wet calibration for all diameters (up to DN2000)
- Robust, fully welded and potted construction
- Standard solution for the widest range of industrial applications
- Certified for use in Ballast systems
- External coating for marine environment or subsoil installation. Optional paint certified for C4 class environment
- Wide choice of materials for housing and flanges including SS304 and SS316

REFERENCE STANDARDS:

- Custody transfer (MID MI-001, OIML R49)
- EN/IEC 60529, IP68 for permanent immersion in water up to 1.5 m
- Drinking water approvals, WRAS, FDA and DM174 approvals
- Atex - IECEx (separate version)
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

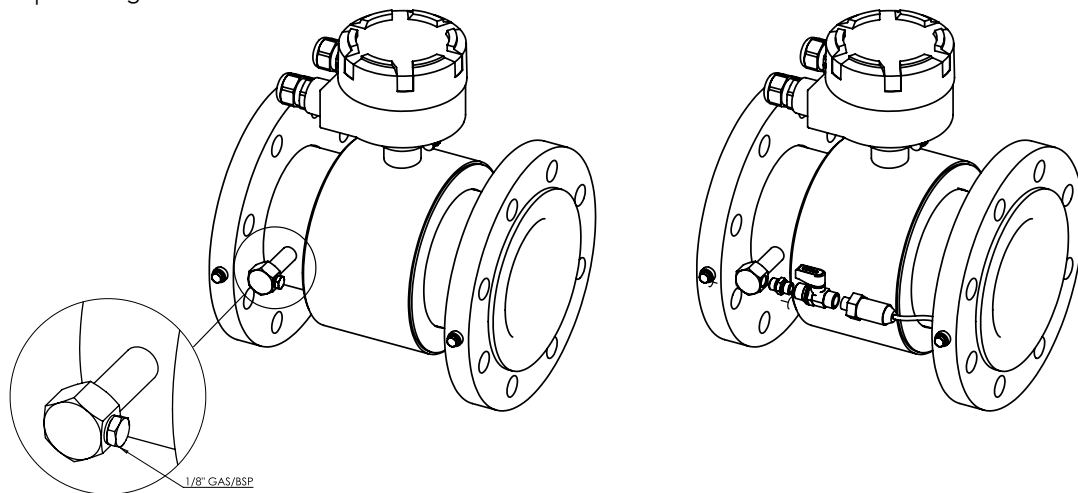
GENERAL FEATURES:

Flow tube material	AISI 304 (std), AISI 316																
Flanges material	Carbon steel painted (std), AISI 304, AISI 316																
Electrodes material	Hastelloy C (std), Titanium, Tantalum, Platinum																
Internal lining and liquid temperature	Internal lining									Liquid temperature							
	PTFE									Standard -40 /+130°C (up to +180° on request)							
	Ebonite									-40°C / +80°C							
Available sizes	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
	pollici	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
	mm	450	500	600	700	800	900	1000	1200	1300	1400	1500	1600	1700	1800	2000	
	pollici	18"	20"	24"	28"	32"	36"	40"	48"	52"	56"	60"	64"	68"	72"	80"	
Flange standards available	EN1092-1, ANSI 150, ANSI 300, ANSI 600, ANSI 900, DIN 2501, BS 4504, AS 2129 (TABLE D - E - F), AS 4087, ISO 7005-1, KS 10K																
Protection Degree	IP68 1,5 m continuous immersion (EN 60529)																
Compatible converters	MC608 A/B/R/P/I, MC406																
Electrical connections	Cable glands M20 x 1.5 + terminal block + sealing resin																



TECHNICAL DRAWINGS

Pressure port integrated



SENSOR MUT2300



Designed for the toughest applications

Thanks to its unique design of the flowtube, the MUT2300 is the optimum solution for water and wastewater applications.

APPLICATIONS:

- Measure of potable or reflow water
- Distribution, municipal water
- Industrial waste water
- Overnight applications with very low flow rate
- Industrial process liquids, slurries and concretes
- Installation in small places without straight distances
- Leakage detection
- Fiscal measures
- Irrigation

FEATURES:

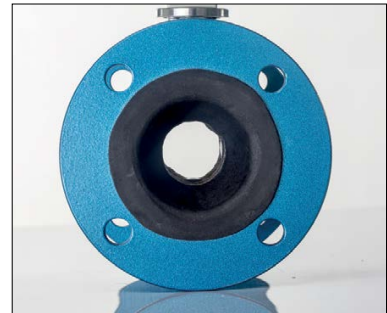
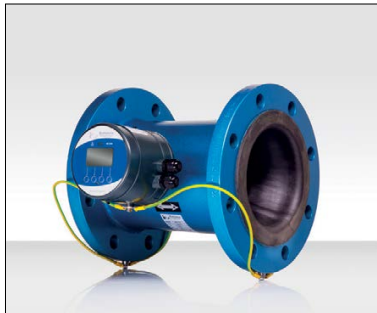
- U0-D0 installation: extreme flexibility on the flowmeter position
- Measure of extremely low flow rates, even in problematic applications and "night flows" or low season
- Neglectable pressure drop
- No moving parts
- Empty pipe electrode supplied as a standard (\geq DN65)
- Bi-directional measure
- Coupled with any Euromag converters
- In house wet calibration for all diameters
- Robust, fully welded and potted construction
- Engineered for very demanding applications
- External coating for marine environment or subsoil installation. Optional paint certified for C4 class environment
- Wide choice of materials for housing and flanges including SS304 and SS316

REFERENCE STANDARDS:

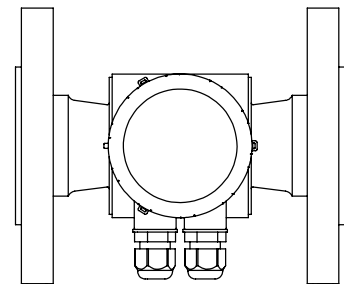
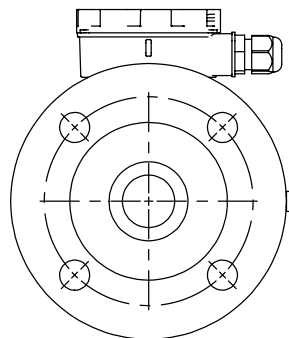
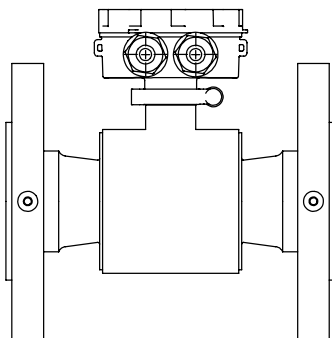
- Custody transfer (MID MI-001, OIML R49)
- EN/IEC 60529, IP68 for permanent immersion in water up to 1.5 m
- Drinking water approvals, WRAS, FDA and DM174 approvals
- Atex - IECEx (separate version)
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

GENERAL FEATURES:

Flow tube material		AISI 304 (std), AISI 316									
Flanges material		Carbon steel painted (std), AISI 304, AISI 316									
Available electrodes		AISI316L (standard), Hastelloy C, Titanium, Tantalum, Platinum									
Internal lining		Ebonite									
Liquid temperature		-40°C / + 80°C									
Available diameters	mm	50	65	80	100	125	150	200	250	300	
	inches	2"	2½"	3"	4"	5"	6"	8"	10"	12"	
Standard flanged connections		EN1092-1 PN 16, ANSI 150									
Flanged connections on request		AS 2129 (Table D, E, F), AS 4087 (PN 16, 21), KS10K, others on request									
Standard operation pressure		21 bar									
Pressure drop class		DN<80 ΔP10 (< 0,10 bar)					DN≥80 ΔP16 (< 0,16 bar)				
Installation requirements/conditions		U0-D0									
Protection Degree		IP68 permanent submersion at 1,5 m (EN 60529)									
Convertes compatibility		MC608A/B/R/P/I, MC406									
Electrical connections		Cableglands M20 x 1.5 + terminal box + sealing resin									



TECHNICAL DRAWINGS



SENSOR MUT1000EL



The wafer electromagnetic flowmeter

MUT1000EL sensors represent an excellent solution for their price-performance ratio.

APPLICATIONS:

- Water treatment
- Waste water industry
- Mining
- Industry

FEATURES:

- Easy and time-saving installation
- Less mechanical resistance
- External coating for marine environment or subsoil installation. Optional paint certified for C4 class environment
- Wide choice of materials for housing including SS304 and SS316
- Robust, fully welded and potted construction
- Empty pipe electrode supplied as a standard (\geq DN50)
- Bi-directional measure
- Coupled with any Euromag converters
- In house wet calibration for all diameters

REFERENCE STANDARDS:

- Custody transfer (MID MI-001, OIML R49)
- EN/IEC 60529, IP68 for permanent immersion in water up to 1.5 m
- Drinking water approvals, WRAS, FDA and DM174 approvals
- Atex - IECEx (separate version)
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

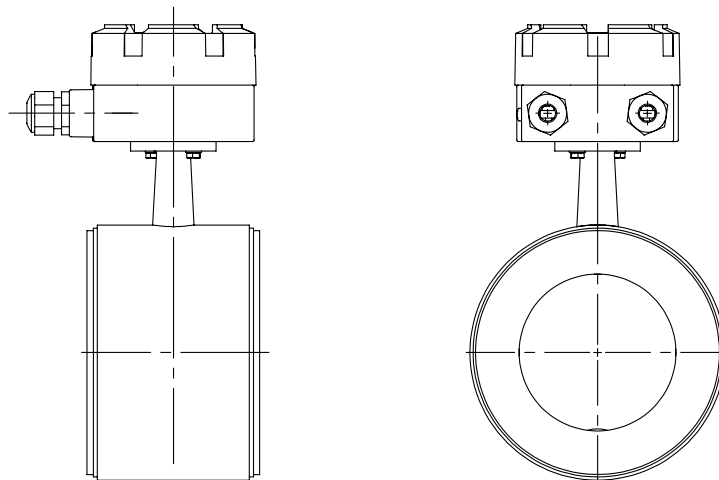
GENERAL FEATURES:

Available diameters	mm	25	40	50	65	80	100	125	150	200	250	300
	inches	1"	1 1/2"	2"	1 1/2"	3"	4"	5"	6"	8"	10"	12"
Joints: coupling flanges	EN1092-1, ANSI 150, ANSI 300, ANSI 600, ANSI 900, DIN 2501, BS 4504, AS 2129 (TABLE D - E - F), AS 4087, ISO 7005-1, KS 10K											
Maximum pressure	40 bar for diameters ≤ DN150						16 bar for diameters > DN150					
Internal lining and liquid temperature [1]	Internal lining						Liquid temperature					
	PTFE						Standard -40 /+130°C (up to +180° on request)					
	Ebonite						-40°C / +80°C					
Degree of protection	IP68 continuous immersion at a 1,5 m (EN 60529)											
Compatible converters	MC608 A/B/R/P/I, MC406											
Electric connections	Cable glands M20 x 1.5 + terminal block + sealing resin											

[1] Compact version Tmax 80°C.



TECHNICAL DRAWINGS



CERTIFICATION NSF/ANSI 61



Certified to
NSF/ANSI 61

Recognized by regulatory agencies at the local, state, federal and international level, NSF certification demonstrates that a product complies with all standard required by the certification. NSF conducts periodic facility audits and product testing to verify that the product continues to comply with the standard. NSF's programs include testing and certifying drinking water treatment products, flowmeters, water filters, commercial foodservice equipment and a wide array of consumer products.



SENSOR MUT2200US



Certified to
NSF/ANSI 61

The electromagnetic flowmeter
for all applications

MUT2200US sensors represent the state of the art of Euromag International production for water cycle and process applications.

For Technical features refer to MUT2200EL



SENSOR MUT2300US



Certified to
NSF/ANSI 61

Designed for the toughest
applications

Thanks to its unique design of the
flowtube, the MUT2300US is the
optimum solution for water and
wastewater applications.

For Technical features refer to MUT2300



SENSOR MUT1000US



Certified to
NSF/ANSI 61

The wafer electromagnetic
flowmeter

MUT1000US sensors represent an excellent
solution for their price-performance ratio.

For Technical features refer to MUT1000EL

SENSOR MUT1100J

CE



The electromagnetic flowmeter designed for irrigation

The perfect flowmeter designed for agricultural market

APPLICATIONS:

- Irrigation
- Water / Waste water industry
- Refrigerating systems
- Buildings and construction
- Fire fighting

FEATURES:

- Economic and ecologic solution – low investment and maintenance costs, very accurate measurement
- Flow tube made in PA6 with fiber glass resistant to aggressive liquids and fertilizers
- Light weight and compact dimensions
- Body protected with cataphoresis treatment, and fully potted
- Grounding rings not required thanks to the third electrode
- Temperature of the liquid between 0°C and + 80°C
- Bi-directional measure
- Coupled with any Euromag converters
- In house wet calibration for all diameters

REFERENCE STANDARDS:

- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

SENSOR MUT2400EL



The electromagnetic flowmeter designed for food industry

The flow sensor engineered for food industry applications, manufactured in stainless steel AISI 304 with internal lining in PTFE.

APPLICATIONS:

- Food & beverage
- Breweries and wineries
- Dosing and batching applications
- Chemicals
- Pharmaceutical
- Irrigation (extremely accurate measure of fertilizers)

FEATURES:

- Full range of process connections: Triclamp, DIN11851 or SMS1146
- Perfectly resistance to periodic sanitary cleaning
- Bi-directional measure
- Robust stainless steel construction, fully welded and potted
- Coupled to MC608A and MC608P converters
- In house wet calibration for all diameters
- Hygienic construction

REFERENCE STANDARDS:

- European directive 2014/32/EU MID (pending)
- EHEDG and 3A (pending)
- PTFE conform to WRAS, FDA
- Atex - IECEx (separate version)
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

SENSOR MUT500

CE



The electromagnetic flowmeter for small flows

MUT500 series are the most suitable for the measurement of the small flow rates, covering diameters from DN6 to DN20. Thanks to their materials, they are suitable for the use in the food industry.

APPLICATIONS:

- Pharmaceutical
- Chemicals
- Jams
- Chlorination

FEATURES:

- Flow tube in PTFE, case and connections in Stainless Steel
- Connections: Male Gas (std), Male NPT, Clamp, DIN 11851
- Bi-directional measure
- Coupled to all Euromag converters
- In house wet calibration for all diameters

REFERENCE STANDARDS:

- PTFE conform to WRAS, FDA
- IP 68 up to 1,5 m c.o.w.
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

GENERAL FEATURES:

DN (Size)		Connections		
		Male GAS (UNI ISO 228/1) / Male NPT	Clamp (BS4825*)	DIN 11851 (Male)
6	1/4"	3/8"	50,4 mm	DN 10
10	3/8"	1/2"	50,4 mm	DN 10
15	1/2"	3/4"	50,4 mm	DN 15
20	3/4"	1"	50,4 mm	DN 20

Nominal pressure	16 bar		
Liquid temperature (constant)	-20°C a +130°C [1]		
Degree of protection	IP68 continuous immersion at 1,5 m		
Converters compatibility	MC608A/P		
Parts in contact with the liquid	Flow tube: PTFE	Gasket: Viton [2]	Electrodes in AISI 316L**
Weight [3]	1,9 kg		

[1] For the compact version Tmax = 80°C

[2] Others on request.

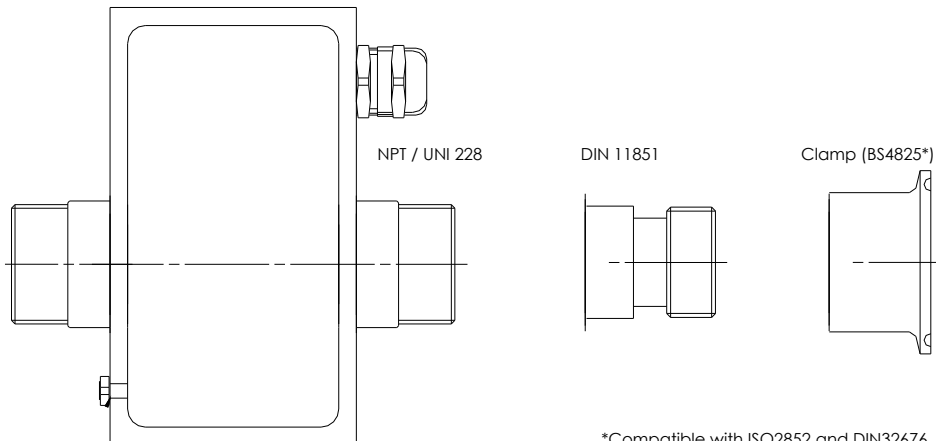
[3] Maximum weight of sensor without cables.

* Compatible con ISO2852 e DIN32676

** Hast C, Titanium on request



TECHNICAL DRAWINGS



*Compatible with ISO2852 and DIN32676

SENSOR MUT4000



Designed for the automotive industry

Encouraged by the R&D dept. of Automobili Lamborghini S.p.A., Euromag has developed a unique solution, designed primarily for the automotive market.

APPLICATIONS:

- Automotive

FEATURES:

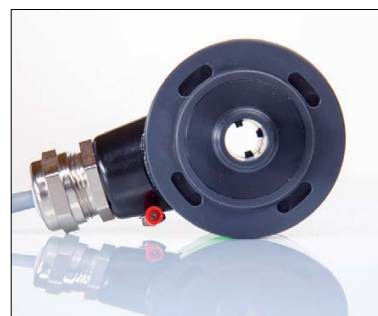
- Hose connections
- LEMO connectors – specific for automotive use
- Extremely light weight
- Compact size
- Extremely accurate at low flows
- No moving parts
- Closure in Carbon steel with cathoresis treatment
- Now also available a special version in Stainless Steel 304 for extremely rough conditions in test benches
- Coupled to MC608LB and MC608P converters
- In house wet calibration for all diameters
- FCA approved

REFERENCE STANDARDS:

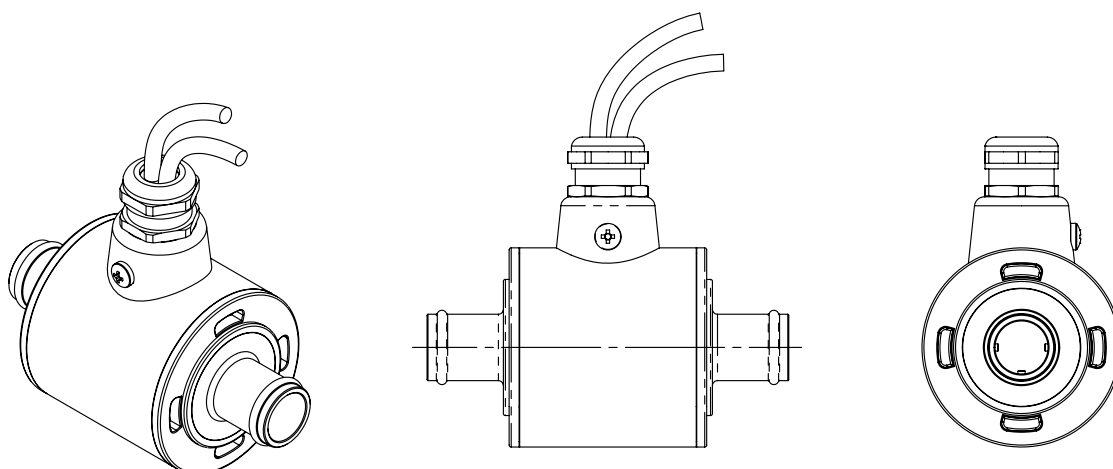
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

GENERAL FEATURES:

Temperature Rating	-25°C to +120°C		
Viscosity Range	Viscosity independent		
Accuracy and repeatability	0,2% ± 2mm/s		
Flow tube	PET or AISI304 depending on size		
Electrodes	AISI316 or HC depending on size		
Closure	Carbon steel with cataphoresys treatment		
Protection Rating	IP67 NEMA 6		
Connections	Hose fittings		
Connectors	Lemo – specific for automotive use		
Pressure class	PN10		
Suitable converters	MC608P – MC608LB		
Cable length	Cable CF240PUR 5mt (16.4 ft)	Cable CF240PUR 6,1mt (20 ft)	Cable CF240PUR 12,2mt (40 ft)
Options	Stainless Steel 304 body for extremely rough conditions		
Calibration Certificate	Included		
Software PC	Included		



TECHNICAL DRAWINGS



SENSOR MUT2100F

CE



The electromagnetic flowmeter with Victaulic® connections

MUT2100F is Euromag unique solution specifically developed for anti-seismic and fire protection systems.

APPLICATIONS:

- Fire fighting
- Building
- Construction
- Naval

FEATURES:

- Universal Victaulic® connection
- Very quick assembly (grooved pipe joining method)
- High performances materials
- Rilsan® Coating
- Protection from corrosion and chemical attacks
- Low permeability to humidity
- Weather proof
- High thermal resistance
- Vibrations absorption
- Exceptional abrasion resistance
- Exceptional shock resistance and extremely low friction coefficient
- High flexibility
- Maximum fluid temperature: 80°C.

REFERENCE STANDARDS:

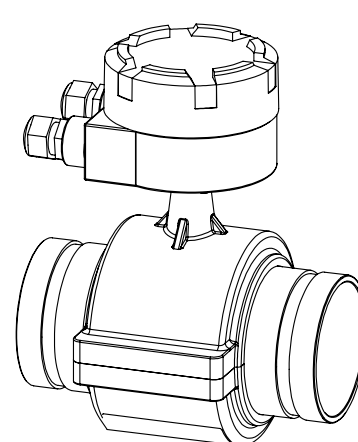
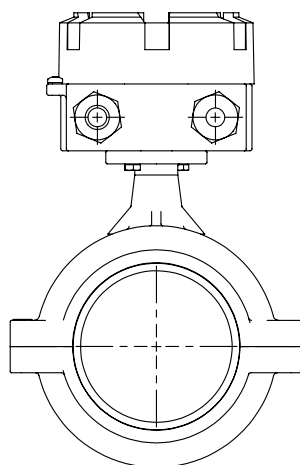
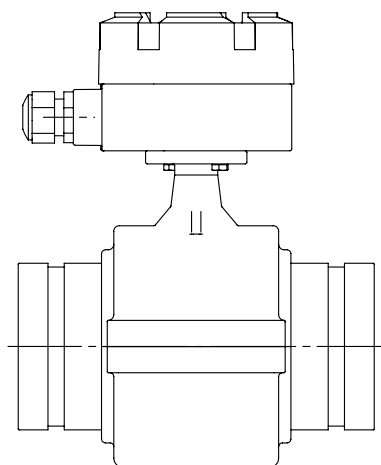
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

GENERAL FEATURES:

Available diameters	mm	50	80	100	150
	inches	2"	3"	4"	6"
Standard operation pressure	PN10 ... PN25				
Protection degree	IP67				
Converters compatibility	MC608 A/B/R				
Parts in contact with liquid	Rilsan®/ Hastelloy C				
Electrical connections	Cable glands M20x15 + terminal box + sealing resin				



TECHNICAL DRAWINGS



SENSOR MUT1222

CE



The electromagnetic insertion flowmeter

The new MUT1222 insertion flowmeter is available in three different sizes (Small, Medium and Large) and can be used as a portable or dedicated instrument, representing a cost effective alternative to full-bore meters.

APPLICATIONS:

- Water network management
- Leakage control
- District metering
- Flow surveys
- Flow profiling
- Checking on-site flowmeters
- Data capture reporting and analysis

FEATURES:

- Easy and quick to install
- "Hot tap" application: no need to stop the flow
- Maximum liquid temperature: 80°C
- Robust fully welded construction
- Pressure up to 20 bar
- Bi-directional measure
- Coupled to all Euromag converters
- In house wet calibration for all diameters
- Pressure port 1/8" GAS

REFERENCE STANDARDS:

- Atex - IECEx (separate version)



Transport case optional

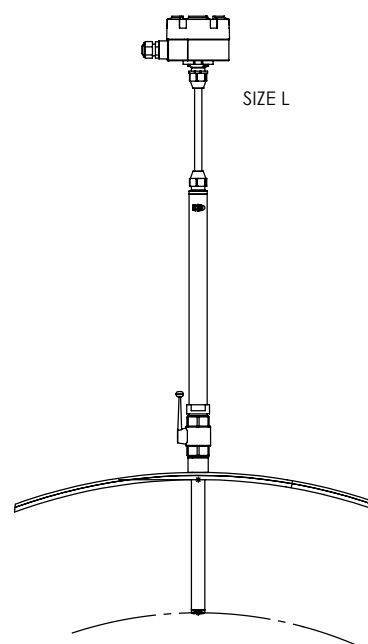
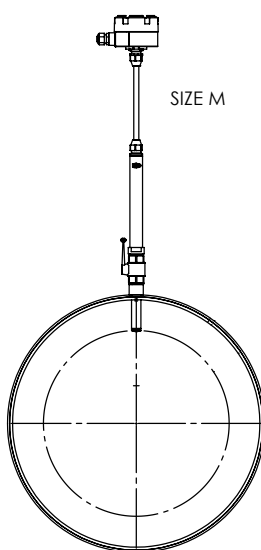
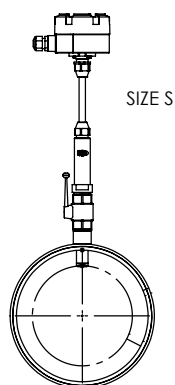
GENERAL FEATURES:

Size range	Size Small (S)	Size Medium (M)	Size Large (L)	
	DN 50...600	DN 200...1500	DN 450...2600	
Body material	AISI 304 Stainless Steel			
Hot Tap Valve	1" GAS		1" NPT	
Standard operating pressure	20 bar			
Temperature of liquid	-40 °C , +80 °C			
Protection Degree	IP68 for immersion at 1,5m (EN/IEC 60529)			
Converter compatibility	MC608, MC406			
Parts in contact with liquid	Head of sensor	Electrodes	Body	Valve
	POM	AISI 316L	AISI 304	Nichel Plated Steel*
Electric connections	Cable gland M20 x 1.5 + Terminal block + sealing resin			

* AISI 316 optional



TECHNICAL DRAWINGS



SENSOR MUT2770



The electromagnetic insertion flowmeter

MUT2770 sensors must be installed on empty pipes, through a 2" nozzle with a UNI 2278 counter flange to which connect the sensor.

APPLICATIONS:

- Water network management
- Leakage control
- District metering
- Flow surveys
- Checking on-site flowmeters
- Data capture reporting and analysis

FEATURES:

- Suitable to pipe diameter from DN80 up to DN4000
- Pressure up to 25 bar
- Bi-directional measure
- Coupled to all Euromag converters
- In house wet calibration for all diameters

REFERENCE STANDARDS:

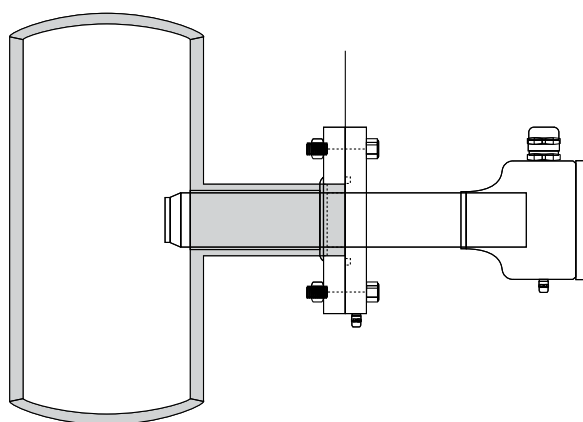
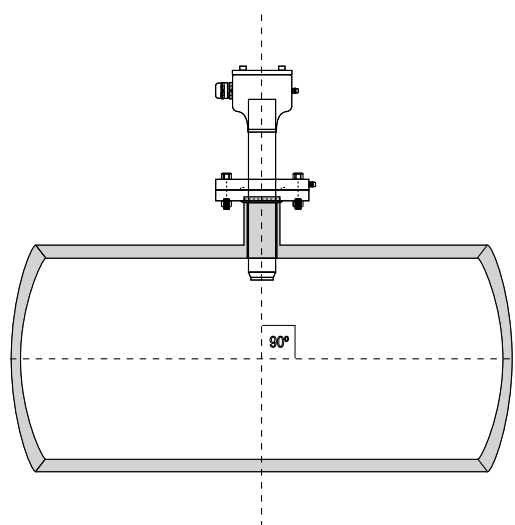
- EN/IEC 60529, IP68 for permanent immersion in water up to 1.5 m
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)

GENERAL FEATURES:

Size range	Minimum pipe diameter	80 mm	
	Maximum pipe diameter	2000 mm	
Available electrodes	AISI 316L		
Body material	AISI 304 Stainless Steel		
Head of sensor	POM		
Standard operating	25 bar		
Temperature of liquid	-40 °C , +80 °C		
Protection Degree	IP68 for immersion at 1,5m (EN/IEC 60529)		
Converter compatibility	MC 608, MC 406		
Parts in contact with liquid	Head of sensor	Electrodes	Sensor body
	POM	AISI 316	AISI 304
Electric connections	Cable gland M20 x 1.5 + Terminal block + sealing resin		



TECHNICAL DRAWINGS



SENSOR MUT2660

CE



The electromagnetic insertion flowmeter

MUT2660 sensors must be installed on empty pipes, through a 1.1/4" threaded brass muff, to be welded to the pipe to which connect the sensor.

APPLICATIONS:

- Water network management
- Leakage control
- District metering
- Flow surveys
- Checking on-site flowmeters
- Data capture reporting and analysis

FEATURES:

- Suitable to pipe diameter from DN80 up to DN500
- Pressure up to 10 bar
- Bi-directional measure
- Coupled to all Euromag converters
- In house wet calibration for all diameters

REFERENCE STANDARDS:

- EN/IEC 60529, IP68 for permanent immersion in water up to 1.5 m
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)
- Atex - IECEx (separate version)

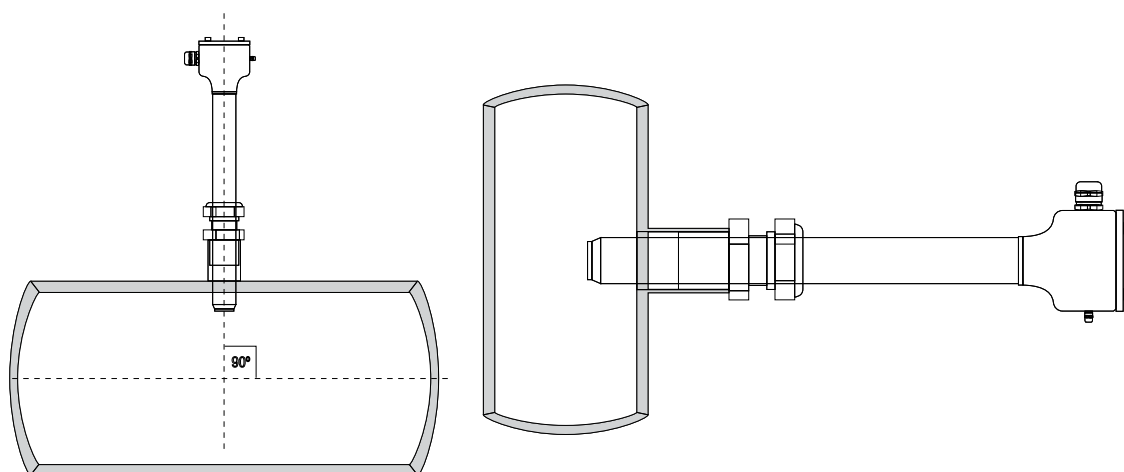
GENERAL FEATURES:

Size range	Minimum pipe diameter	80 mm	
	Maximum pipe diameter	500 mm	
Body material	AISI 304 Stainless Steel		
Head of sensor	POM		
Standard operating	10 bar		
Temperature of liquid	-40 °C , +80 °C		
Protection Degree	IP68 for immersion at 1,5m (EN/IEC 60529)		
Converter compatibility	MC 608, MC 406		
Total length [mm]	317		
Parts in contact with liquid	Head of sensor	Electrodes	Sensor body
	POM	AISI 316L	AISI 304 Stainless Steel
Electric connections	Cable gland M20 x 1.5 + Terminal block + sealing resin		
Weight [1]	2 kg		

[1] Maximum weight of sensor without cables in the separate version.



TECHNICAL DRAWINGS



CONVERTER MC608



The Hybrid electronic converter for all applications

The MC608 converter has been designed with the purpose of meeting all the requirements of modern water management systems through a flexible and hybrid electronic, mains powered, battery powered, or both.

APPLICATIONS:

- Abstraction and distribution
- District measurements
- Revenue and bulk metering
- Transport lines
- Irrigation
- Waste water and treatment
- Leak detection systems
- Any remote application with no access to mains power

FEATURES:

With advanced display information, on-site data collection and remote monitoring via GSM/GPRS network, the MC608 allows any customer to access all the information, easily and at no cost.

MC608A: Mains powered version 12/24 Vac dc or 90/264 Vac

MC608B: Battery powered, with a useful life of 6 years

MC608R: Rechargeable battery powered, with solar panel

MC608P: Panel version, with technopolymer case

MC608I: Stainless Steel case, for outdoor installation and extreme weather conditions

MC608LB: Dedicated version for MUT4000, with Lemo connectors for automotive application

- Communication with other instruments via: analog output 4-20 mA, frequency, pulse, RS485 Modbus
- 5 independent internal totalizer (2 positive, 2 negative, 1 NET)
- IrCOM communication
- 4 MB flash memory, 200,000 lines of data
- Hart protocol option available (only MC608A)
- Pressure and temperature reading modules
- GSM/GPRS module

REFERENCE STANDARDS:

- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)
- OIML R49-1:2013 - Class 2 (only MC608A)
- EN/IEC 60529, IP68

GENERAL FEATURES:

		MC608A	MC608P	MC608B	MC608R	MC608I
	Case	Aluminium IP68	Techno-polymer IP54	Aluminium IP68	Aluminium IP68	SS IP54
Power supply	90...264 Vac	√	√ ext. supp.			√
	12/24 Vac/dc	√	√			√
	Battery powered supply			√		√
	Rechargeable battery + solar panel				√	√
Installation	Compact	√		√	√	
	Separate	max 100m	max 100m	max 30m	max 30m	max 100m
Signals I/O	Analogue output 4-20mA	√	√	√ loop pow.	**	√
	Pulse output	√	√	√	√	√
	Hart protocol*	√	√			
	Programmable digital output	√	√		**	√
	Active frequency digital output 0-10 kHz	√	√		**	√
Serial Communication	IrCOM interface	√	√	√	√	√
	RS 485 - MODBUS RTU	√	√		**	√
Display	Graphic LCD display 128x64 pixels, 50x25mm visual area, backlit white colour	√	√	√	√	√
Programming	With push buttons on board of converter, by IrCOM interface or via RS485 and MODBUS RTU	√	√	√	√	√
Process	4 MB flash memory, 200,000 lines of data	√	√	√	√	√
Standards	Type approved OIML R49-1: 2013 - Class 2	√				
Temperature		Ambient: -20 ... +60 C° (-4 ... +140 F) Media -25 ... 80 C° (-13 ... +176 F) Storage -40 ... +70 C° (-22 ... +158 F)				
Flow units		ml, cl, dl, l, dal, hl, m3, in3, ft3, gal, USgal, bbl, oz				
Add on modules		GSM/GPRS Euromag Module Pressure (1) and temperature (2)				
Totalizers		5 (2 positive, 2 negative, 1 NET)				
Alarms and status		Status icon displayed and alarm logged in the datalogger				
Self-diagnostic		Alarms available: <ul style="list-style-type: none"> • excitation failure • empty pipe on the 4th electrode • high temperature • pulse overlapped • measurement error 				
External verification		Field verifier available for calibration verification and electronic status of sensor and converter				
Software for communication and programming		Commissioning (equal settings of meters) - Data print for documentation - Data export (CSV file) - Firmware update - Read instant flowrate - Read and write all non-volatile parameters - Download internal datalogger				

* Optional

** Only in recharge mode

CONVERTER MC406



The new battery powered electronic converter

The MC406 is the new high-efficiency, technologically advanced battery powered electronic converter from Euromag, combining high performances and dedicated applications solutions to a low cost of ownership.

APPLICATIONS:

- Irrigation
- Abstraction and distribution
- Revenue and bulk metering
- Waste water and treatment
- Leak detection systems
- Any remote application with no access to mains power

Combined to the Euromag MUT2300 sensor series, the MC406 is capable to read flow velocities starting from 0.015 m/s (MID-OIML R49 certified).

FEATURES:

- Also available with 12/24Vdc power supply
- Compact (horizontal or vertical) or Separate (up to 30 meters of cable)
- Coupled to Full bore sensors up to DN600 - Insertion meters
- 5 independent internal totalizer
- Pressure and temperature reading modules
- Built-in datalogger with over 100.000 data lines capacity
- GSM/GPRS
- RS485 Modbus output
- Bluetooth module

REFERENCE STANDARDS:

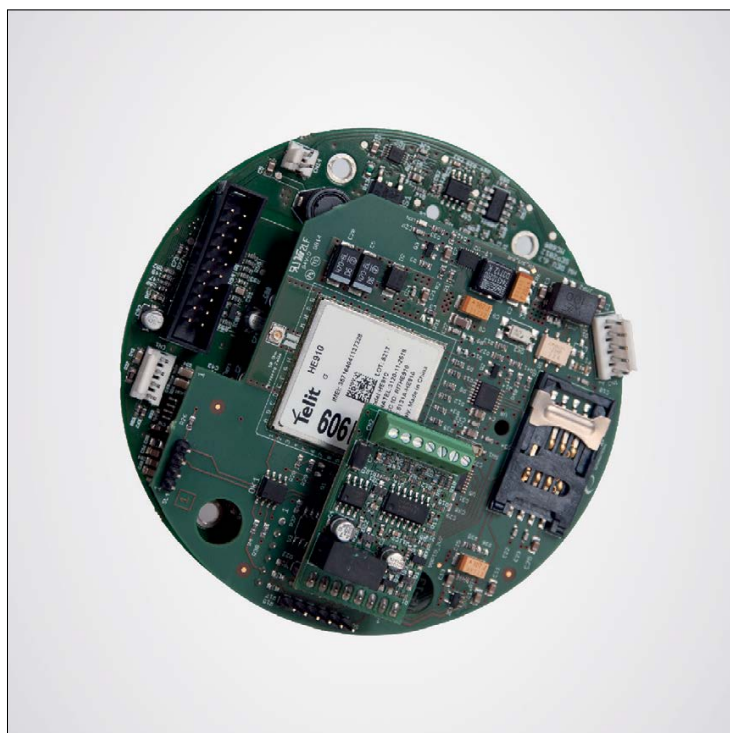
- Custody transfer (MID MI-001, OIML R49) - 2014/32/EU
- 2014/35/EU – EN 61010-1:2013 (LVD)
- 2014/30/EU – EN 61326-1:2013 (EMC)
- EN/IEC 60529, IP68 (compact vertical version)

GENERAL FEATURES:

Transmitter type	Battery powered - 2 x D Cell 3,6 V * - 12/24Vdc optional
Battery life	Lithium battery pack up to 10 years
Accuracy	0,2 % +/- 2 mm/s - insertion sensors 2% of rate +/- 2mm/s
Temperature	Ambient: -20 ... +60 C° (-4 ... +140 F) Media -25 ... 80 C° (-13 ... +176 F) Storage -40 ... +70 C° (-22 ... +158 F)
Enclosure	Technopolymer case with aluminum bottom on compact vertical version. IP 68. Remote wall mount bracket in carbon steel zinc plated
Cable entries	4X PG9 Glands I/O - 2X M20 x 1.5. Glands junction box in remote version
Custody transfer	Type approved OIML R49-1 2013 / EN 14154 MID EN-ISO 4064 - Certificate n. T10713
Conformity	EMC: EN 61010 - LVD: EN 61326 ; EN/IEC 60529 IP68
Sensor type	Full bore up to DN 600 - Insertion meters
Flow velocity range	0,015 m/s up to 10 m/s
Sampling rate	Standard mode 1 / 5 Hz up to 1 / 60 Hz (default 1 / 15 Hz) max 3,125 Hz
Installation	Integral (compact) or remote with factory mounted sensor cable in 5 m (16,4 ft) up to 30 m (98,4 ft)
Digital filters	Damping - cut-off (0,05 m/s default) - bypass - peak cut
Display and keys	LCD display - Index, menu, and symbols icons for dedicated information 4 Push buttons to access all functions Totalizer informations can be displayed with 8 digits + 5 decimal digits and overflow counter
Displayed informations	Live flowrate Total positive totalizer (T+) Total negative totalizer (T-) Partial positive totalizer (P+) Partial negative totalizer (P-) Net totalizer (NET) Time & date Converter temperature Process pressure and temperature (if available) Parameters corresponding code and value
Flow Units	m, m ³ , l, ML, ft ³ , GAL
Outputs	2 pulses passive outputs (MOS), individual galvanically isolated - clean contact Maximum load +/- 35V DC, 100 mA short circuit protected. 4...20mA loop powered optional. RS485 Modbus output optional.
Communication	Integrated Euromag IrComm interface. Bluetooth module optional.
Datalogging	100,000 lines of data with a frequency of log between 1 minute and 120 minutes (default 15 minutes)
Add on modules	GSM/GPRS Euromag Module Pressure (1) and temperature (2) Energy metering ready
Totalizers	5 (2 positive, 2 negative and 1 net)
Date and time	Yes
Data protection	Password available, automatic firmware check and recover during the update
Alarms and status	Status icon displayed and alarm logged in the datalogger
Self diagnostic	Alarms available: <ul style="list-style-type: none"> • excitation failure • empty pipe on the 4th electrode • empty pipe on the measuring electrodes • high temperature • battery level • pulse overlapped • wet electronic board
External verification	Field vericator available for calibration verification and electronic status
Software for communication and programming	Commissioning (equal settings of meters) - Data print for documentation - Data export (CSV file) - Firmware update - Read instant flowrate - Read and write all non volatile parameters - Download internal datalogger - View instrument event logger

* Lithium batteries are subject to special transportation regulations according to United Nations "Regulation of Dangerous Good", UN 3090 and UN 3091. Special transport documentation is required to observe these regulations. This may influence both transport time and cost

DATA TRANSMISSION GSM/GPRS INTEGRATED SYSTEM



The Euromag integrated GSM/ GPRS wireless system

An innovative, simple, universally compatible and consistently effective method for delivering, monitoring and managing realtime data from anywhere. Instant alerts help to respond to flow anomalies and intervene immediately.

visit www.euromagdata.com

The system is compatible with MC608A/B/I and MC406 for continuous monitoring in any type of application related to water (i.e. irrigation, distribution, pumping stations). It is also an excellent solution for monitoring consumption.

FEATURES:

- **Simple:** easy to use and user-friendly programming
- **Effective:** sends your data anywhere everywhere to SMS, E-mail (with or without attachment), web (www.euromagdata.com)
- **Cost and time efficient:** maximize productivity relying on latest mobile technology and reducing costs of data collection
- **Universal:** compatible with SIM cards of all GSM carriers, worldwide (5 band modem)
- **Complete:** flow, pressure, temperature; all information always under control
- **Reactive:** real data and alarms in real time
- **Compact:** all in one, no extra modules attached
- **Safe:** sensor and converter can be placed in a safe place such as underground pits, with only the antenna running out.

The flow data, together with pressure and temperature, can be forwarded to any recipient specified by the customer without the need for proprietary or complicated software:

- via SMS
- via email, as plain text or with .csv attachment
- via the site www.euromagdata.com, via private and secure access

Intervals in sending/receiving data and any alerts are customizable (day, week, month) and values are, registered constantly.

FIELD VERIFICATOR



A portable unit that can be used as a diagnostic and condition-monitoring tool

The Field verificator is a portable unit that can be used as a diagnostic and condition-monitoring tool, both for sensors and converters. It checks on-site meter's performance without the need to stop the flow, avoiding extra cost for installation and removal of the flowmeter.

FUNCTIONALITY:

- Simulates the electromagnetic sensor and captures the converter's measure through RS485 interface
- Measures the converter's excitation current
- Stores the converter's settings on netbook as a reference for future tests or alignment of the converter
- Transfers calibration factor between converters allowing minimum error
- Performs a functional test on converter's I/O
- Calibrates the 4-20 mA output
- Verifies sensor's integrity through a dedicated motherboard

FEATURES:

- Robust plastic case housing
- Stand-alone, powered by internal battery
- Totally automed and easy to use
- Power supply and wiring test connectors fixed on aluminium plate
- Supporting plate for electronic motherboard installation



ULTRASONIC FLOWMETERS

Euromag ultrasonic transit time flowmeters use two sensors, set opposite each other in the measuring tube. Each sensor can alternately transmit and receive ultrasonic signals, while simultaneously measuring the signal transit time. As soon as the fluid in the tube starts to flow, the signals are accelerated in the direction of flow but delayed in the opposite direction. The differential transit time, measured by the two sensors, is directly proportional to the flow rate.

Typical applications include:

- Water industry: revenue metering, district metering, water abstraction, leakage detection
- Wastewater industry: transport networks, sewage treatment plants
- Metal & mining industry: mediums with a low solid content

Highlights:

- For stationary or temporary flow measurements
- For retrofitted installation without interrupting the process
- Aggressive fluids can be measured without any problems, even under high pressure
- Suitable for pipes made of plastic, steel, cast iron or composite materials (lined/unlined)
- For pipe diameters up to DN6000
- Long service life, no abrasion or corrosion from the fluid
- No moving parts, minimum maintenance and upkeep
- Free pipe cross-section, no pressure loss
- Measurement independent of pressure, density, temperature, conductivity and viscosity (for homogeneous fluids)

Flowmeters



ES2000 WALL MOUNT



ES2000 HAND HELD



X100P

FLOWMETERS

EUROSONIC2000

WALL MOUNT



Fixed installation ultrasonic transit time flowmeter

The Eurosonic 2000 flow meter is based on clamp-on transit-time flow measurement principle.

APPLICATIONS:

- Potable water
- Sewage (with limited particle content)
- Seawater
- Wastewater
- Discharge water
- Other liquids used in industrial applications

It covers a wide range of pipe sizes and materials, thanks to 3 different sizes of transducers: S2 (DN15-DN100), M2 (DN50-DN700) and L2 (DN300-DN6000).

FEATURES:

- Economic, non-intrusive, flow measurement
- Simple installation
- No pressure drop
- Velocity, volumetric and totalized flow
- Data logger
- Digital output configurable
- 4...20 mA output
- RS 485

FLOWMETERS

EUROSONIC2000

HAND HELD



Portable installation ultrasonic transit time flowmeter

The Hand Held is a battery-powered ultrasonic flow meter with the capability of a full-size flow meter.

APPLICATIONS:

- Potable water
- Sewage (with limited particle content)
- Seawater
- Wastewater
- Discharge water
- Other liquids used in industrial applications

It covers a wide range of pipe sizes and materials, thanks to 3 different sizes of transducers: S2 (DN15-DN100), M2 (DN50-DN700) and L2 (DN300-DN6000).

FEATURES:

- Carefully designed for portability and ease of use
- Economic, non-intrusive, flow measurement
- Simple installation
- No pressure drop
- Velocity, volumetric and totalized flow
- Lightweight and long operating time

FLOWMETERS EUROSONIC X100P



Ultrasonic transit time flowmeter High performances

The X100P is fully digitalized, easy-to-use portable flowmeter. It can be used also to check the performance of field flowmeters and to compare their performance.

APPLICATIONS:

- Any type of liquids with less than 30% solids or bubbles
- Clean Liquids, Municipal Water, De-Ionized Water
- Acids, Benzene, Diesel, Alcohol
- Milk, Beer, Crude Oil
- Waste Water, Lime Stone Slurries, Manure

FEATURES:

- Battery operated up to 10 hours operations
- Transit-Time ultrasonic DSP technology
- Water proof model
- Principle AR Mode, Transit-Time
- Accuracy $\pm 1.0\%$, RD, $\pm 0.5\%$ with dual path
- Measuring Pipe Size 20 ~ 3000 mm
- Measuring Velocity Range $\pm 0.02 \sim \pm 12.0$ m/sec
- Turn Down Ratio 500:1
- Sensitivity 0.003 m/sec
- Datalogger 8 Mbytes (500,000 loggers)
- Operating Temp Flow Computer $-20 \sim +60^{\circ}\text{C}$ Transducers $-40 \sim +120^{\circ}\text{C}$
- Power AC 110~220V, free voltage
- 1 path, or dual path or 2 channel functions
- IP67 Connectors
- Submersible IP68 Transducers
- Touch Key programming + Remocon
- Rugged case IP67
- Large Color LCD Display
- Pulse Output
- Analog Output
- Relay Output for total

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Disclaimer: While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.

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