

ISOMAG TM

The friendly magmeter

MS 600

POLYPROPYLENE SENSOR



**LIGHT "WEIGHT" SENSOR COMPLETELY IN
POLYPROPYLENE**

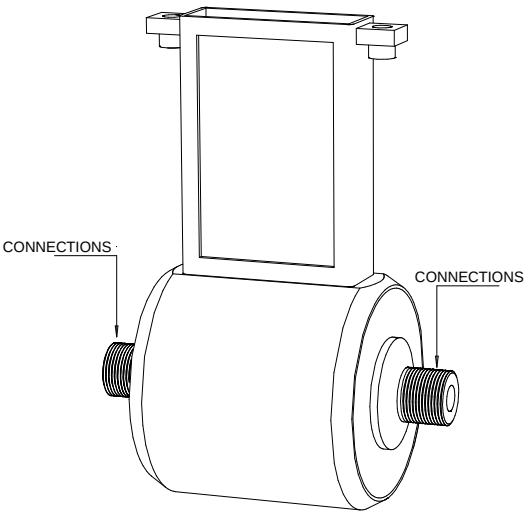
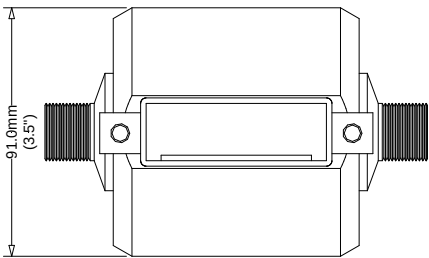
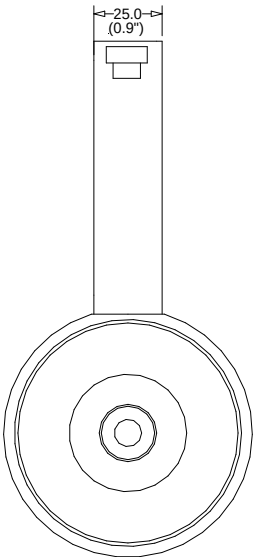
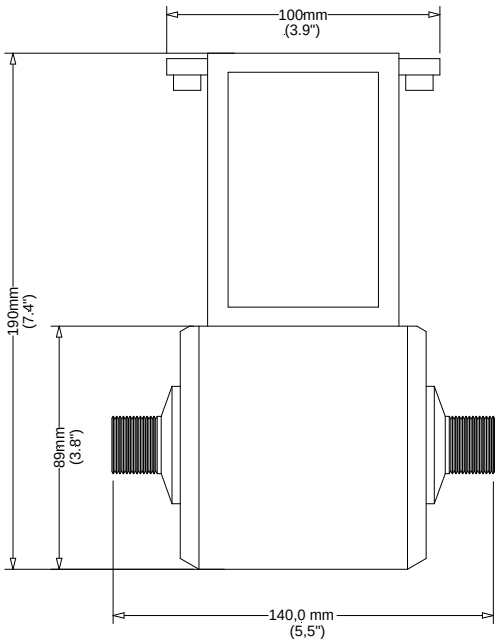
The manufacturer guarantees only English text.
Available on our web site: www.isomag.eu

ISOIL 
INDUSTRIA
The solutions that count

TECHNICAL DATA

Body material	☐ Polypropylene
Nominal Diameter	☐ DN 3 ÷ 20
Nominal Pressure	☐ 1600 kPa
Process connections	☐ Threaded UNI 338 ☐ Threaded NTP ☐ Other on request
Vacuum resistance	☐ 10 Kpa absolute at 60 °C
Connections material	☐ Polypropylene
Liquid temperature	☐ - 0°C ÷ 60°C
Lining material	☐ Polypropylene
Gasket material	☐ FPM ☐ EPDM
Electrodes material	☐ AISI 316L ☐ Hastelloy C ☐ Platinum – rhodium ☐ Titanium ☐ Tantalum ☐ Other on request
Version/ Protection rating	☐ Compact – IP 67 ☐ Separate (max 20m) – IP 68 ☐ Separate (max 500m) with pre-amp IP 67 (IP 68 optional)
Accuracy	☐ See table below

OVERALL DIMENSIONS

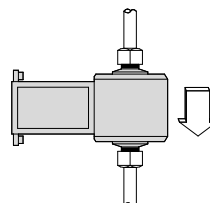
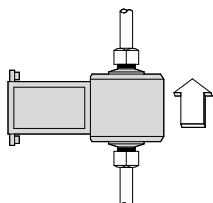


CONNECTIONS GAS/NPT

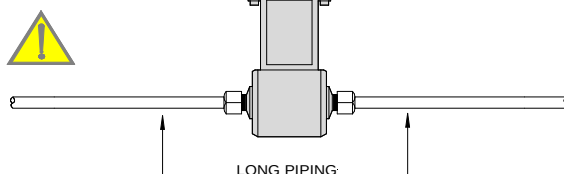
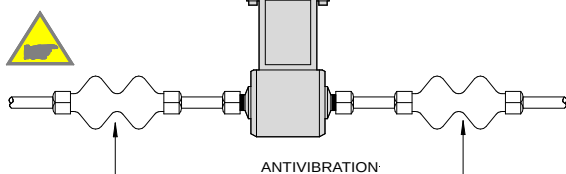
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
CONNECTIONS	1/4"	3/8"	1/2"	3/4"	1"

INSTALLATION RECOMMENDATIONS

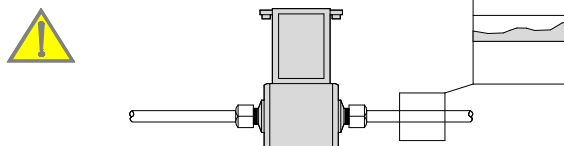
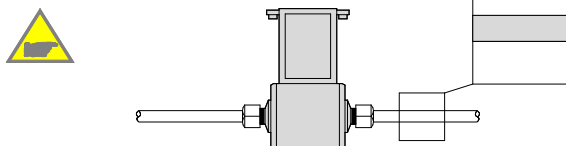
In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer



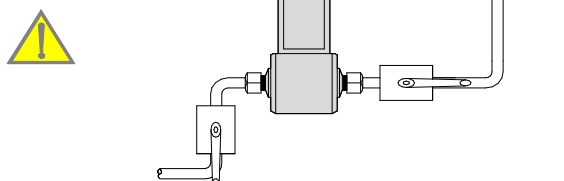
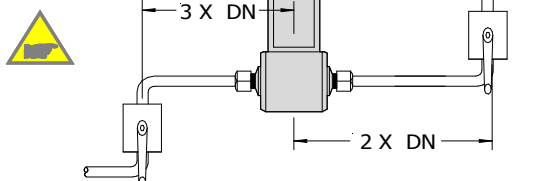
For installations in long pipe lines, please use anti vibration joints



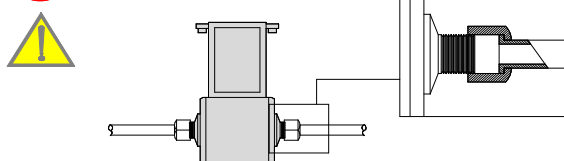
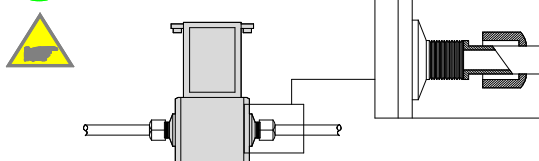
Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty



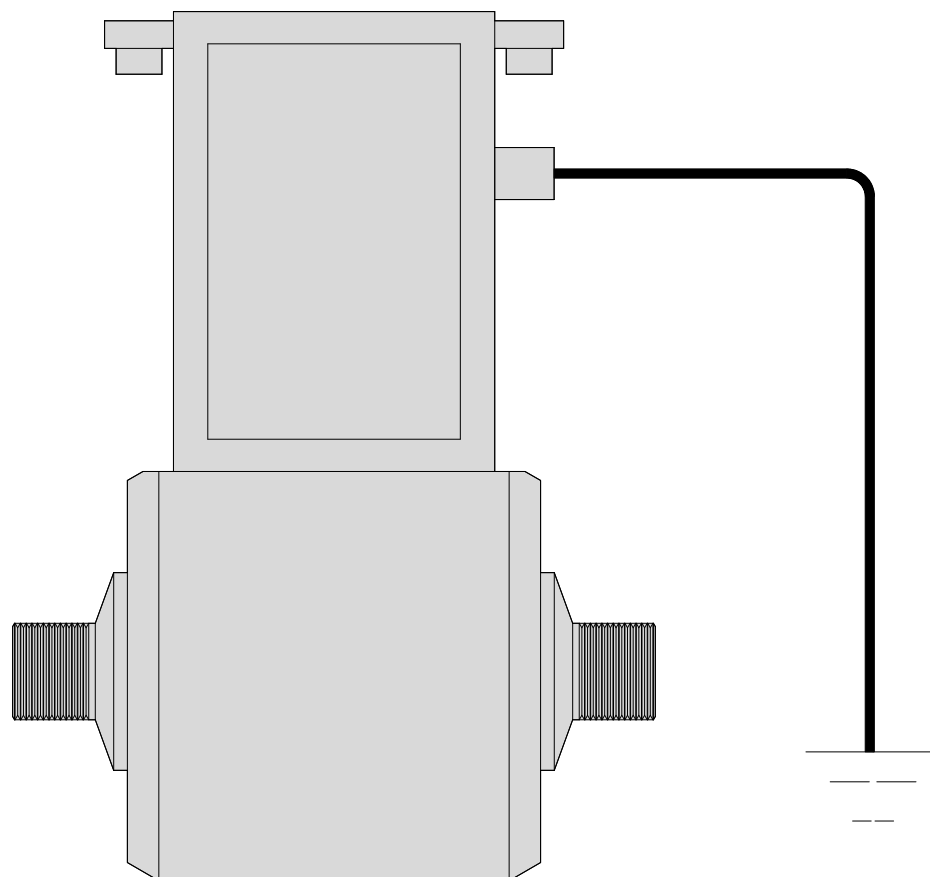
Install the sensor away from bends and hydraulic accessories and hydraulic accessories



Avoid positioning flange and counter flanges by tightening the nuts.

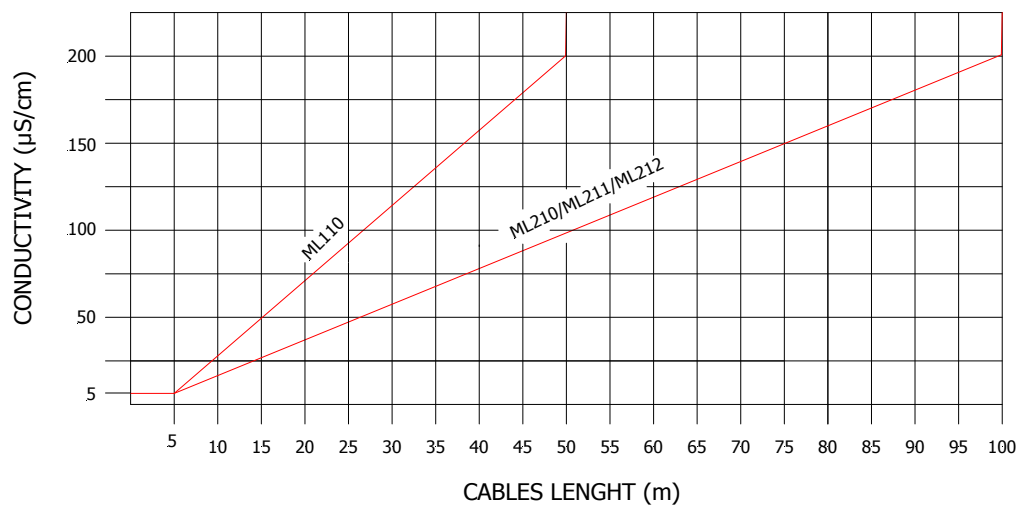
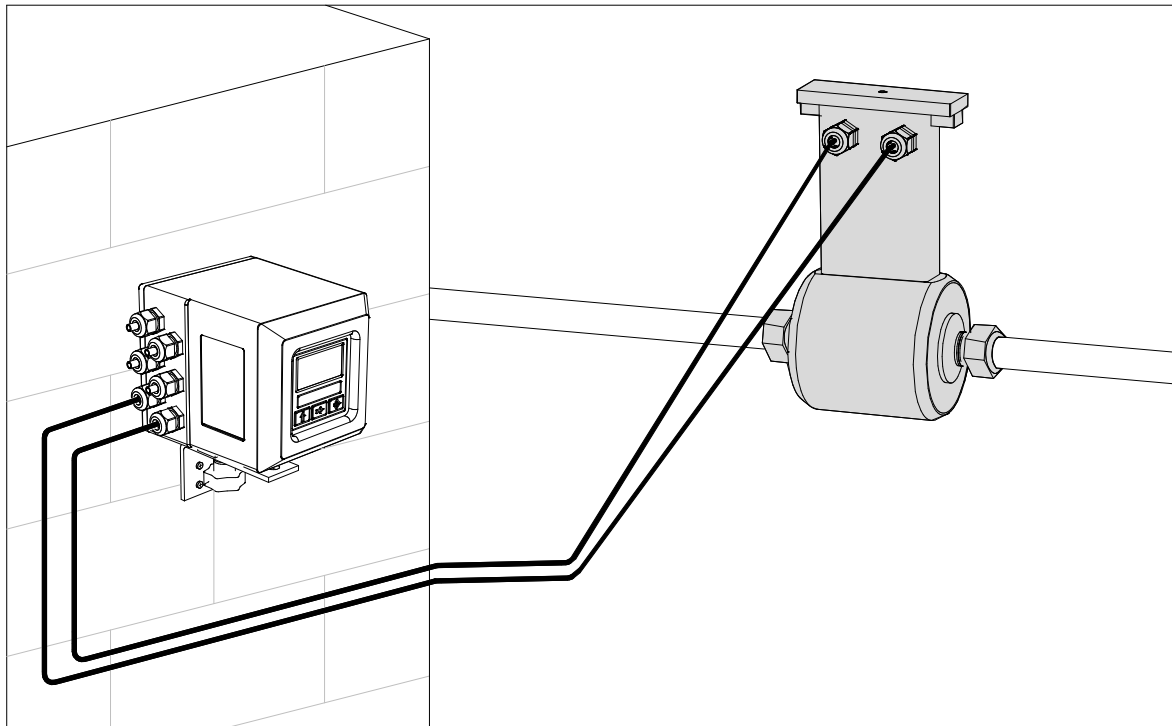


SENSOR GROUNDING



For the correct operation of the meter the sensor and liquid must be equipotential. ALWAYS connect sensor and converter to the ground.

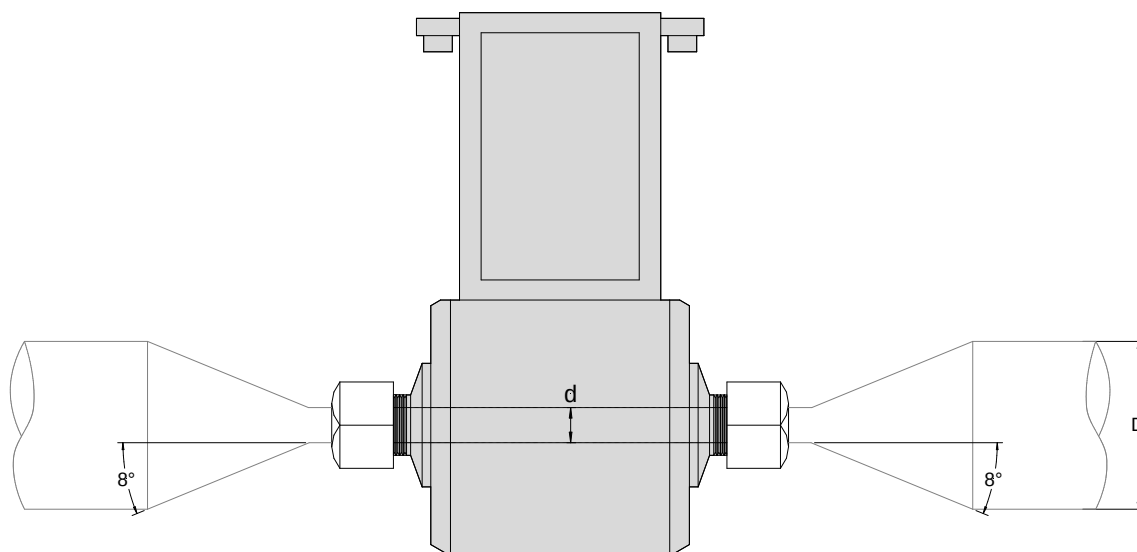
SEPARATE VERSION



Notes:

- It is recommended to install the connection cables away from, or protect against sources of electromagnetic noise.
- The minimum conductivity of the liquid medium to ensure correct functionality of the empty pipe detection is 20 µS/cm

PRESSURE LOSS CALCULATION (CONES 8° ANGLES)



$$\Delta p = \left[0.10 + 0.20 \left(\left(\frac{d}{D} \right)^{-2} - 1 \right)^2 \left(\frac{d}{D} \right)^4 \right] \left(\rho \frac{u^2}{2} \right)$$

Where:

Δp = Pressure loss in [Pa]

ρ = Fluid density [kg/m^3] typical value $\rho = 1000 [\text{kg} / \text{m}^3]$

d = sensor diameter [m]

D = pipe diameter (greater than sensor diameter) [m]

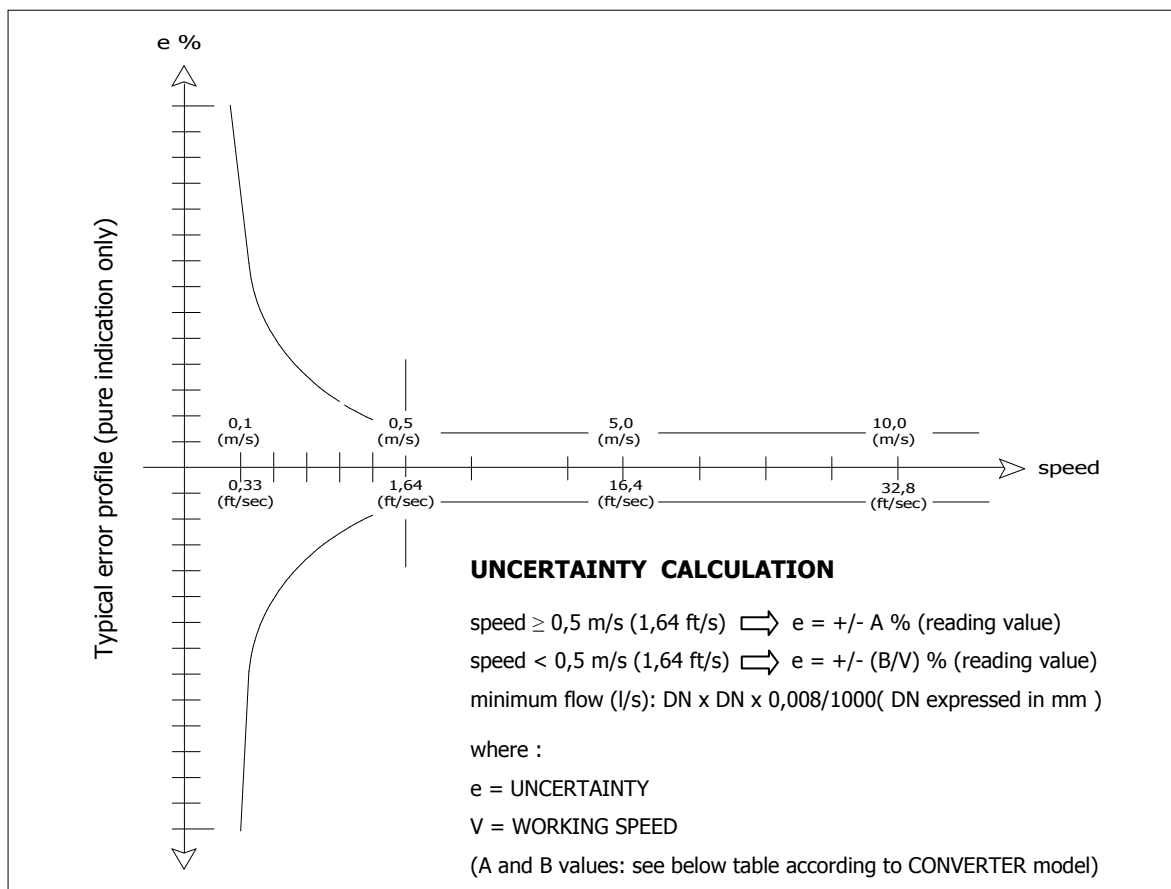
u = Mean flow velocity in sensor diameter [m/s]

Calculation examples Δp [mbar]								
$\frac{d}{D} \backslash u$	1 [m/s]	2 [m/s]	3 [m/s]	4 [m/s]	5 [m/s]	6 [m/s]	7 [m/s]	8 [m/s]
0.5	1.1	4.3	9.6	17.0	26.6	38.3	52.1	68.0
0.6	0.9	3.6	8.2	14.6	22.7	32.7	44.6	58.2
0.7	0.8	3.0	6.8	12.2	19.0	27.4	37.2	48.6
0.8	0.6	2.5	5.7	10.1	15.7	22.7	30.9	40.3
0.9	0.5	2.1	4.8	8.6	13.4	19.3	26.3	34.3

Note :

- $\rho = 1000 [\text{kg} / \text{m}^3]$ as goodness approximation of water density in common use.
- Inner diameter of sensor is used for d , express in meters.
- Indeed pressure loss equation is dimensionally correct in [Pa]. The equation results in table are show in [mbar].

ACCURACY TABLE



AC/DC POWERED CONVERTERS

ML 51			ML 110 – STD			ML 110 – SA*			ML210/211/212			ML4F1		
A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)
0,5	0,25	0,82	0,8	0,4	1,31	0,4	0,2	0,66	0,4	0,2	0,33	0,4	0,2	0,33

* SPECIAL ACCURACY

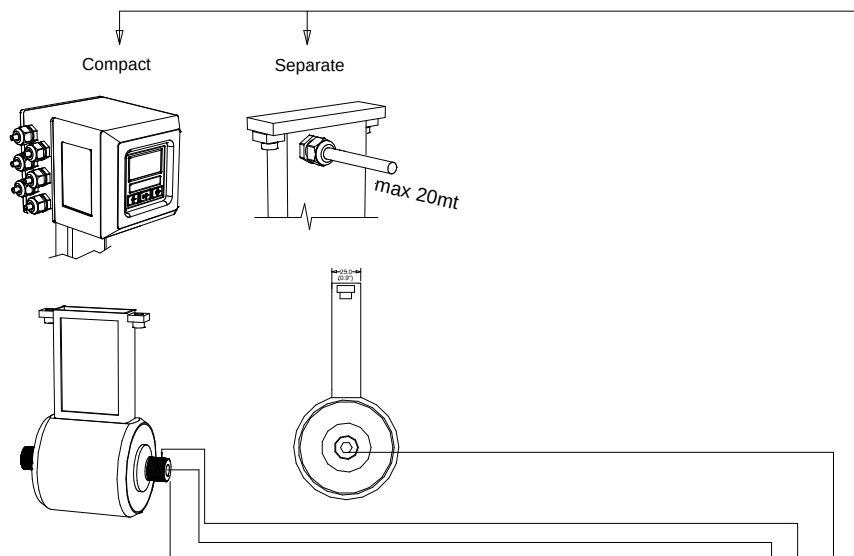
FLOWIZ™ BATTERY POWERED CONVERTERS

ML 250			ML 252		
A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)
0,5	0,25	0,82	0,5	0,25	0,82

Reference conditions :

- ☐ Constant flow rate during the test
- ☐ Pressure: >30 Kpa
- ☐ Flow condition : fully developed flow profile
- ☐ Zero stability +/- 0,005 %

HOW TO ORDER



MS 600	Nominal Diameter - Lining - Measuring range
P03	DN3 (1/8 "), PP lining, measuring range 0.. 10 / 0...250 l/h
P06	DN6 (1/4 "), PP lining, measuring range 0...40/0...1000 l/h
P10	DN10 (3/8 "), PP lining, measuring range 0..120/0...3000 l/h
P15	DN15 (1/2 "), PP lining, measuring range 0.. 240/0...6000 l/h
P20	DN20 (3/4 "), PP lining, measuring range 0.. 500/0...12500 l/h
Gasket material (internal tightness)	
1	O-Ring : FPM
2	O-Ring : EPDM
4	O-Ring : FFKM
9	O-Ring : other O-Ring
Process connection type	
A	UNI 338
B	NPT
Z	Other fittings
Number and electrodes material	
2	n. 4 (2 measure + 2 for ground) electrodes in AISI 316L
4	n. 4 (2 measure + 2 for ground) electrodes in Hastelloy C
5	n. 4 (2 measure + 2 for ground) electrodes in Titanium
6	n. 4 (2 measure + 2 for ground) electrodes in Tantalum
7	n. 4 (2 measure +21 for ground) electrodes in Platinum/Rhodio
0	other
Version - Protection rate	
A	Compact version, IP67 protection rate, liquid maximum temperature 60 °C
B	Separate version , maximum length see table, remember to added the cables cost, protection rate IP68 (standing immersion with 1,5 m of head water)
F	Separate version with N° 2 connectors IP 68 suitable for C015/16 for fast cable connections (max 20 m-ADD THE COST)
G	Separate version with N° 1 connectors IP 68 suitable for C018 for fast cable connections (max 20 m-ADD THE COST)
M	Compact version, IP67 protection rate , with the possibility to turn the converter 90°

MS 600	P20	1	A	1	A
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EXAMPLE OF ORDER CODE

The manufacturer reserves the right to make design improvements without notice.