ISOMAG™

The friendly magmeter

FLOWIZ-P

Converter ML 150

MEASURE AND GPRS TRANSMISSION FOR :

- **PRESSURE/LEVEL (ALREADY INCORPORATED AND INTERNALLY CONNECTED)**
- **FLOW RATE FROM REMOTE PULSES**

Warranty conditions are available on this website:
www.isomag.eu only in English version

ISOIL INDUSTRIA
The solutions that count

TECHNICAL DATA

Suitable for	❑ Isomag PRESSURE SENSOR/Pulses from Woltman/Turbine/etc.
Dimensions	❑ See Drawing
Housing materials	❑ Painted Aluminium die casting (OPT. AISI304)
Ambient temperature	❑ -20...+70°C
Protection rating	❑ IP 67 ❑ IP 68 (OPTIONAL)
LCD Display	❑ Alphanumerical display: 2 lines x 16 characters NO back light
Keyboard	❑ 3 membrane keys
Pressure Connections	❑ Quick connector 1/8 " through rubber Tube ❑ Cable connections (max m 20)
Flow rate measure	❑ Input pulses supplied by internal battery , max 32 Hz (see page 3)
Pressure measure	❑ Input for Pressure sensor (0÷100 , 0÷1000 , 0÷2000 kPa)
Built-in Modules	❑ n°2 On/Off out + n°1 On/Off input, RS232 Serial Communication, GSM /GPRS (SMS/CSD system)
Data Logger	❑ Two Sets (1 Mbit). ▪ 8192 records collected at intervals of 1,2,3,5,15,30,60 minutes ▪ 256 records collected at the Measure Sample Rate ▪ Note: both sets of records contain Date/Time reference, Pressure expressed in Technical Units ❑ Recording of the last 64 alarm Events
Diagnostic functions	❑ Yes
Data storage	❑ EEprom, battery backup RAM
Programming plug in	❑ Protected plug in for connection to PC (IF2x)
CE certification	❑ Instrument with CE certificate
Accuracy/Repeatability	❑ See below
Power Supply (see details on Page 4)	❑ Standard: n°1 Lithium Battery size D not rechargeable, Life Time 5 Years using 15s Sampling Rate, 6 month with Continuous Sampling; Universal Power Supply 10÷400 Vdc, 15÷265 vac 44÷66 Hz; functioning also as mixed system network: Power Supply + Battery as backup. ❑ Optional: up to n°4/6 Lithium batteries (up to 10 years)
Power consumption	❑ 0.08W with battery, 0.1 W with Universal Power Supply

PRESSURE PROBE PERFORMANCE SPECIFICATIONS

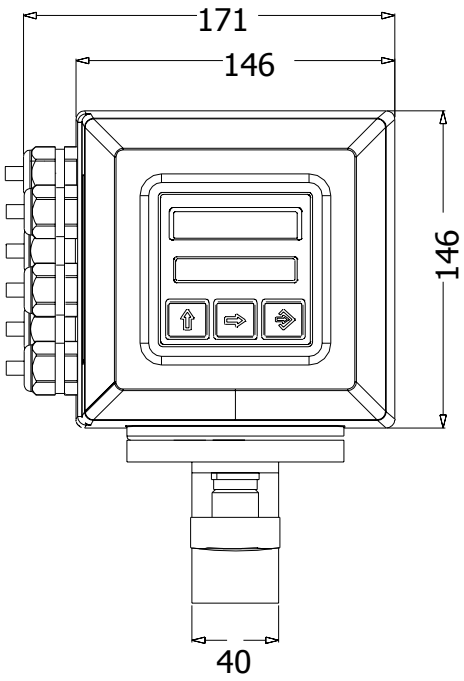
PARAMETER	UNITS	MIN	MAX	TYP	NOTE
Full Scale Output Span	mV	75	150	100	
Zero Pressure Output	mV	-1	1	0	1
Pressure Non Linearity	±%Span	-0.10	0.10		2
Pressure Hysteresis	±% Span	-0.05	+0.05	0.02	
Repeatability	±% Span			0.02	
Input Resistance	Ω	2000	4500	3500	
Output Resistance	Ω	4000	25000		
Temperature Error - Span	% Span	-0.75	+0.75		3
Temperature Error - Offset	% Span	-0.5	+0.5		3 & 4
Thermal Hysteresis - Span	% Span			0.05	3
Thermal Hysteresis - Offset	% Span			0.05	3
Long Term Stability - Span	±% Span/year			0.1	
Long Term Stability - Offset	±% Span/year			0.1	
Supply Current	mA	0.5	2.0	1.5	5
Output Load Resistance	MΩ	5			6
Insulation Resistance (50 VDC)	MΩ	50			7
Pressure Overload	Rated		3X		
Compensated Temperature Range	-20° — +85°				8
Operating Temperature Range	-40° — +125°				8
Storage Temperature Range	-50° — +125°				8
Media	Pressure Port Liquids and Gases compatible with 316L Stainless Steel				
Weight	500g				

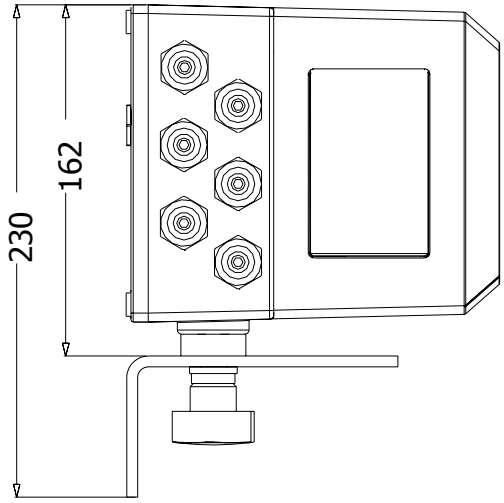
Notes:

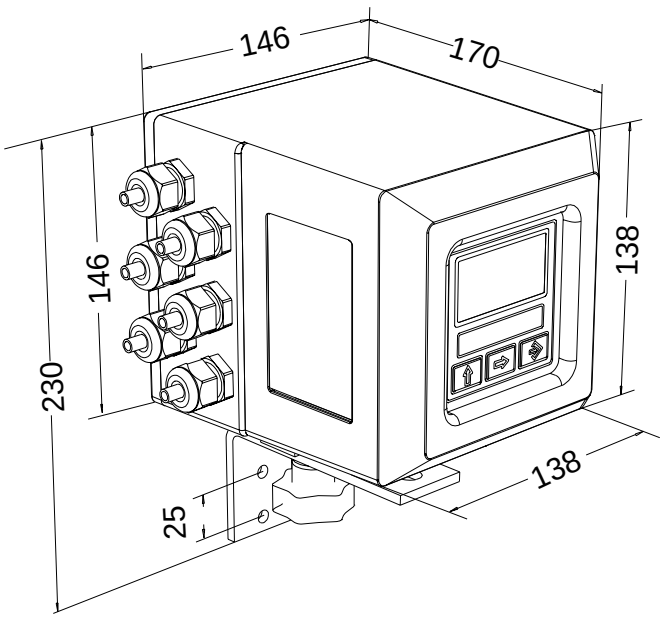
1. Measured at vacuum for absolute (A), ambient for gauge (G).
2. Best fit straight line.
3. Over the temperature range –20°C to +85°C with respect to +25°C.
4. 15 psi range sensors have an offset temperature error of ±0.75% (Max) from –20°C to +85°C.
5. Guarantees output / input ratiometricity.
6. Load resistance to reduce measurement errors due to output loading.
7. Insulation Resistance between case and sensing element.
8. Maximum temperature range for product with standard cable and connector is –20°C to +105°C.
9. For gauge units used at pressures below atmosphere, the span accuracy is not guaranteed.

All parameters specified at 1.5mA and at 25°C, after 10 second warm up, unless otherwise indicated. Unless specifically indicated, only those parameters indicated as tested are verified on each part. Parameters are specified for the compensated version only.

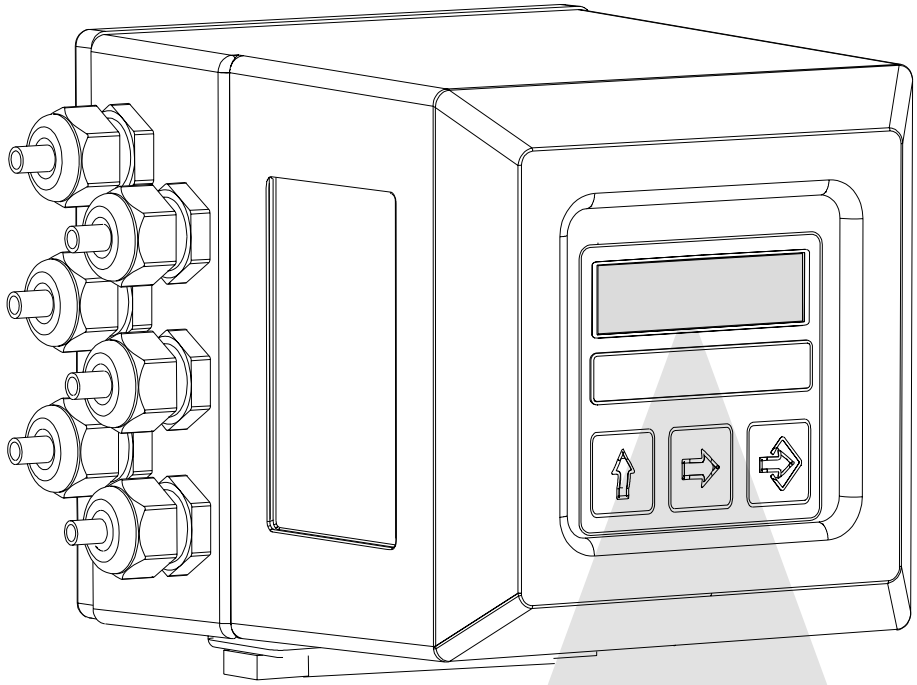
OVERALL DIMENSIONS

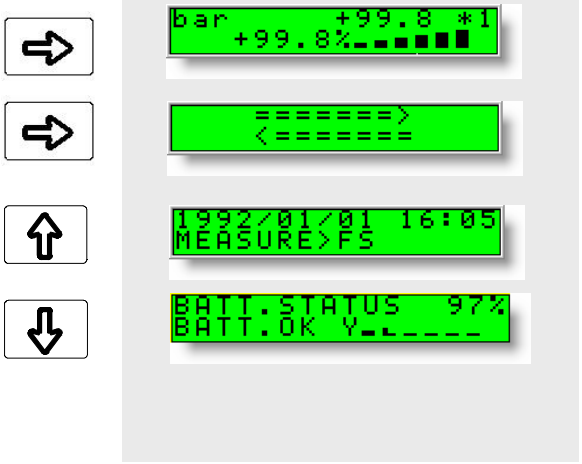






VISUALIZATION PAGES





Analogical Input visualization

Scrolling visualization of data

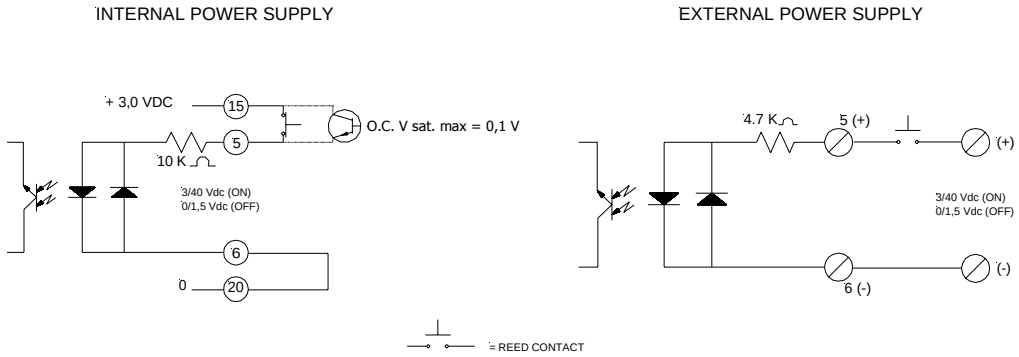
Alarm ON visualization

Battery status and signal network check

Different visualisation possibilities with the simple press of a key

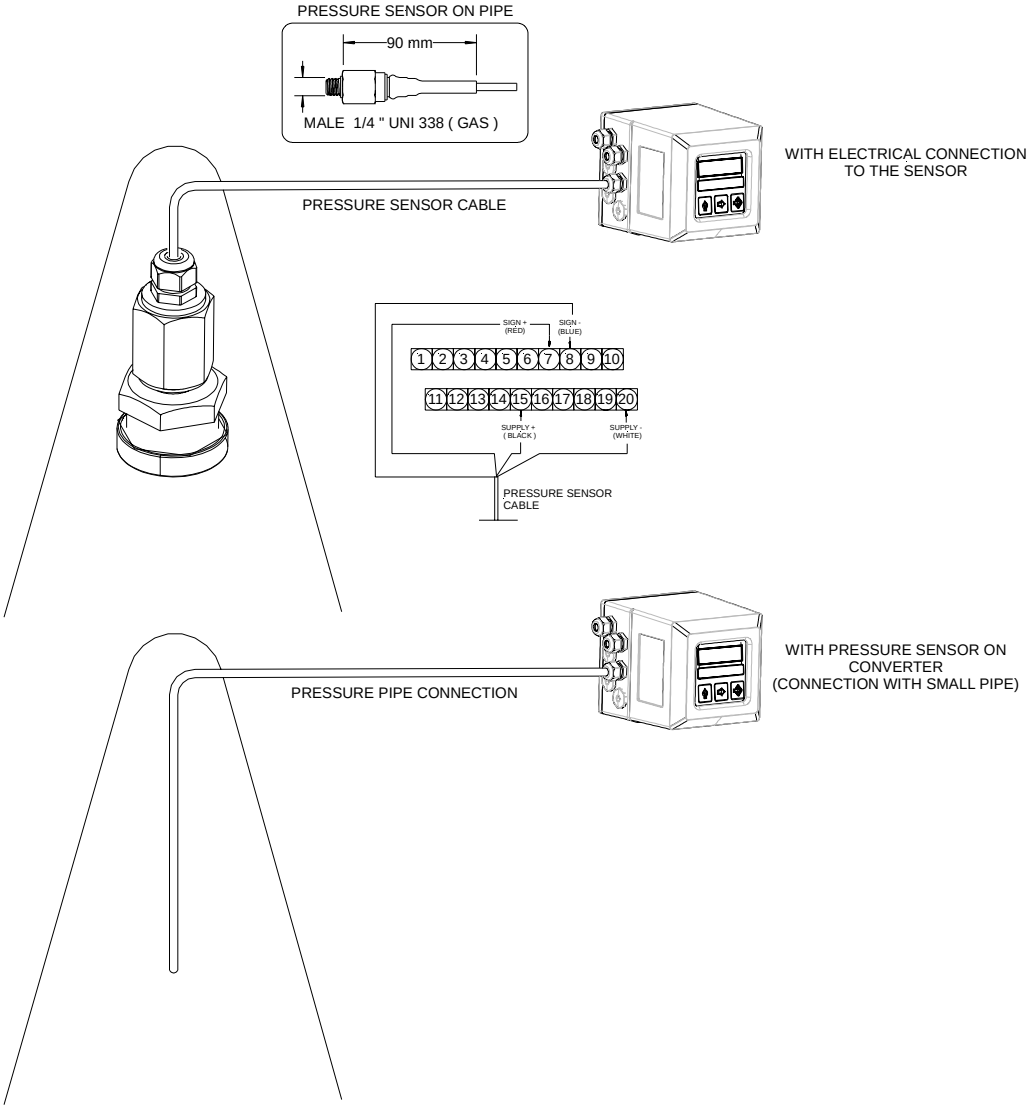
ELECTRICAL CONNECTIONS

PULSES INPUT



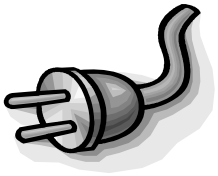
REMOTE PULSES (max Frequency = 32 Hz)

PRESSURE PROBE



POWER SUPPLY

MAIN POWER

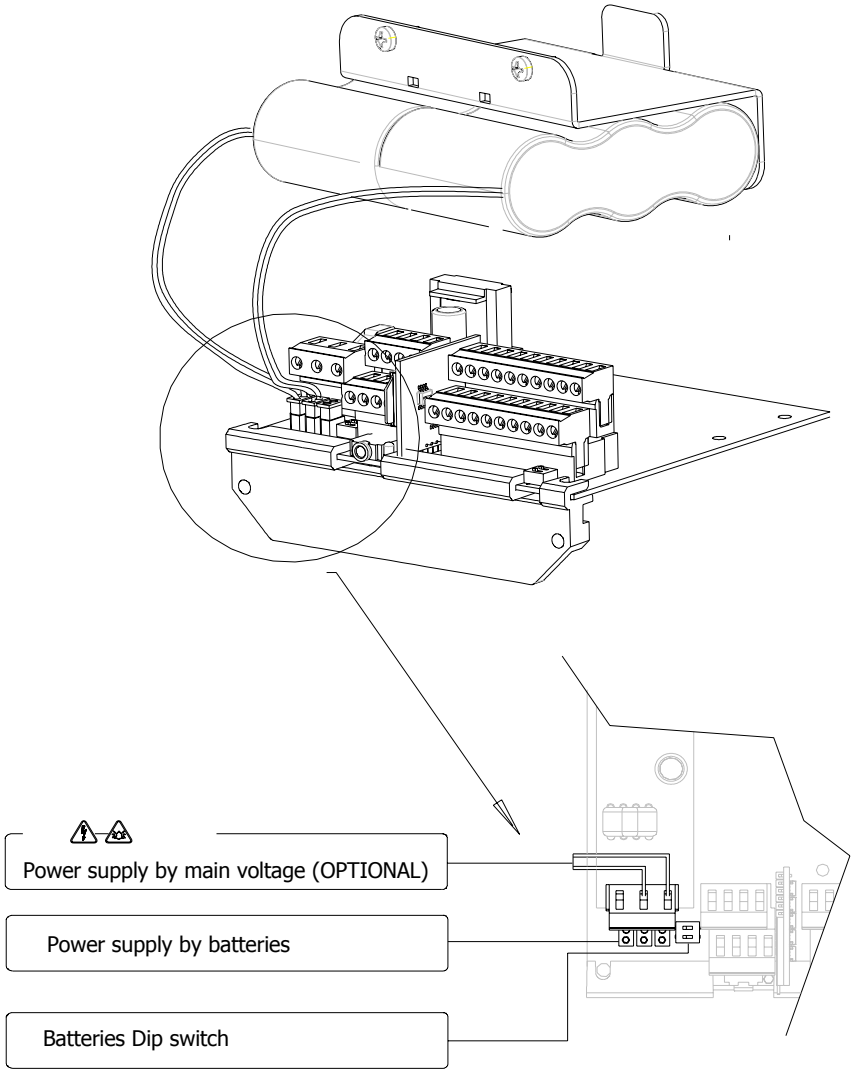


With mains power supply the batteries are automatically excluded and the converter always works at the maximum sampling rate (continuous sampling).

BATTERIES

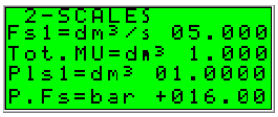
To avoid drawing the batteries in a very short period of time activate the 'Energy Saving' function and set the 'Measure Interval' to a set value.

POWER SUPPLY LAYOUT



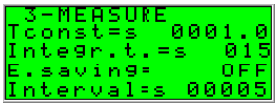
FUNCTIONS

MAIN MENU
2-Scales



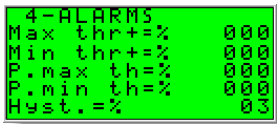
2.1* Full scale value measure set
2.2* Unit of measure and number of decimal totalizes
2.3* Pulse value on channel 1
2.4 Full scale value set for pressure measure

MAIN MENU
3-Measure



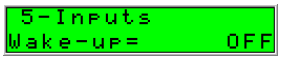
3.1* Time constant
3.2 integrating time for flow rate computation
3.3* Energy saving function enabling
3.4 Interval time of the measure when energy saving function is enabled (page 12)

MAIN MENU
4-Alarms



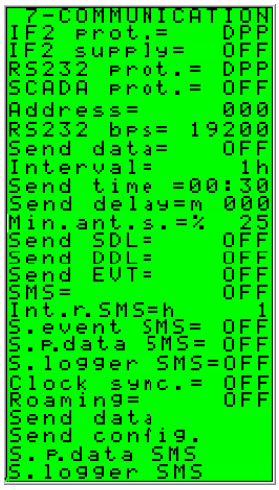
4.1 Maximum value alarm set for direct flow rate
4.2 Minimum value alarm set for direct flow rate
4.3 Maximum value alarm set for pressure
4.4 Minimum value alarm set for pressure
4.5 Hysteresis threshold set for the minimum and maximum flow rate alarms

MAIN MENU
5-Inputs



5.1* Wake up converter command

MAIN MENU
7-Communication



7.1 Choice of the communication protocol for the IF2 device
7.2 Factory purpose function
7.3 Choice of the communication protocol for the RS232 port
7.4 Enable SCADA protocol*
7.5 Address value of converter (range 0 - 255)
7.6 Speed of the RS232 output (possible choices: 2400, 9600, 19200, 38400 bps)
7.7 Enables the sending of emails*
7.8 Interval of e-mail sending*
7.9 Time of sending data*
7.10 Delay of data sending (USEFUL FOR SCADA SYSTEM)*
7.11 Minimum radio signal to allow the communications
7.12 Enables the sending of STATIC DATA LOGGER by e-mail*
7.13 Enables the sending of DINAMIC DATA LOGGER by e-mail*
7.14 Enables the sending of EVENTS by e-mail*
7.15 Enable the SMS operations*
7.16 Interval of SMS checking*
7.17 Enable the SMS over event*
7.18 SMS Process Data Send Enable*
7.19 Enables the sending of STATIC DATA LOGGER by SMS*
7.20 Enables clock synchronization with a specified server via the HTTP protocol*
7.21 Roaming enable*
7.22 Send data through e-mail immediately (according to settings of above functions)
7.23 Send config through e-mail immediately*
7.24 Send process data through sms immediately(according of above functions)*
7.25 Send data logger through sms immediately(according of above functions) *

* (Communication function group only) = see wireless specific manual supplied for more details

MAIN MENU
8-Display

```
 8-DISPLAY
Language=       EN
T+ reset
P+ reset
D.time=s       060
Quick start=  OFF
```

8.1 Choice of the language: EN= English, IT=Italian, FR= French, SP= Spanish
8.2* Total direct (positive) flow totalizer reset from keyboard
8.3* Partial direct (positive) flow totalizer reset from keyboard
8.4 Time for switch off display (shown with function 3.7 enabled)
8.5 Visualization of "Quick start menu"

MAIN MENU
9-Data logger

```
 9-DATA LOGGER
Acquisition=   ON
1992/01/06 23:14
T.zone=h    +00.0
Interval=m      1
Log T+=       OFF
Log T-=       OFF
Log FLOW=     OFF
Log AUX=      OFF
M.units=       ON
Separator=      ,
Disp.dyn.data
Display data
Display events
Disp.min/max
Clear dyn.data
Clear data
Clear events
Reset min/max
```

9.1* Automatic data logger enable
9.2* Date and time set
9.3 Set of Time Zone (Against GMT -12 to +12 hours)
9.4* Interval time for the data logging function: 1, 2, 3, 5, 15, 30, 60 minutes
9.5 Enables the sending of direct totalizer
9.6 Enables the sending of reverse totalizer
9.7 Enables the flow rate sending
9.8 Enables the sending of an auxiliary input (PRESSURE)
9.9 Enables the sending of measure units (technical units)
9.10 Choice of the separator character for CSV format ("," or ";")
9.11*Display dynamic data
9.12 Displaying of the data stored in the data logger
9.13 Displaying of the last 64 alarms stored in the data logger
9.14 Visualization function of minimum and maximum peak of flow rate
9.15 Logged dynamic data clearing function
9.16 Logged data clearing function
9.17 Reset all alarm events
9.18 Reset all minimum and maximum peak of flow rate stored

MAIN MENU
10-Diagnostic

```
10-DIAGNOSTIC
Self test
Simulation=   OFF
Stand-by
```

10.1* Enable the calibration of the converter
10.2* Converter auto-test
10.3* Flow rate simulation enabling

MAIN MENU
11-Internal data

```
11-INTERNAL DATA
L2 keycode=00000
Lock level=     3
N.batt.=        1
Load fact.pres.
Load user pres.
Save user pres.
Hours=     000015
```

11.1 Level 2 access code enter
11.2 Block level function can be set from 0 to 3
11.3 Number of batteries installed
11.4 Load factory data pre-set
11.5 Load user data saved
11.6 Save user data
11.7 Visualisation of the total operation hours of the converter (function not editable)

Note : all page number references are to the operating manual .

HOW TO ORDER

ML 150	Display
A	Blind version without display and keyboard
B	Alphanumeric LCD display 2 line, each of 16 characters and 3 programming keys

Housing material - Protection rate	
0	Painted aluminum die casting , protection rate IP 67 - MODULE AVAILABLE : 3-4-5-8
1	AISI304 housing, protection rate IP67 (DISPLAY NOT ROTABLE) MODULE AVAILABLE : 3-4-5-8
2	Painted aluminum die casting IP 68 1,5 meters under water (DISPLAY NOT ROTABLE) MODULE AVAILABLE : 7-9

Version	
B	Separate version for wall monting, complete with mounting accessoriesin Carbon Steel (painted RAL6028)
D	Separate version for wall monting, complete with mounting accessoriesin Stainless Steel (AISI 304)

Power supply	
0	N° 1 Lithium Battery - Without Universal
1	N° 1 LITHIUM BATTERY+ UNIVERSAL POWER SUPPLY
2	N° 4 LITHIUM BATTERY(1+1 OF 3 ELEMENTS PACK NECESSARY WITH ME 44) + UNIVERSAL
4	N° 6 LITHIUM BATTERY (N° 2 X 3 ELEMENTS PACK) - WITHOUT UNIVERSAL
5	N° 3 LITHIUM BATTERY (N° 1 OF 3 ELEMENTS PACK) - WITHOUT UNIVERSAL
6	n° 4 LITHIUM BATTERY(1+1 OF 3 ELEMENTS PACK NECESSARY WITH ME 44) -WITHOUT UNIVERSAL
7	WITHOUT BATTERY WITH UNIVERSAL POWER SUPPLY
8	WITHOUT BATTERY WITHOUT UNIVERSAL POWER SUPPLY

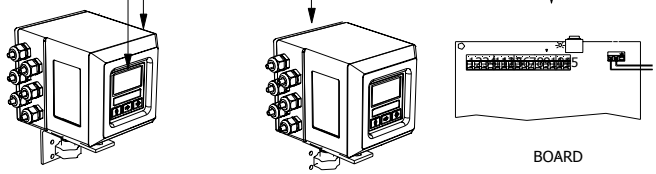
Input	
B	Pressure probe(to be specified the pressure span)for REMOTE PROBE VERSION (ADD THE PRICE, SEE RIGHT PRICE LIST)
C	Pressure probe(to be specified the pressure span)complete of 1/8" QUICK CONNECTOR FOR RUBBER TUBE MOUNTED ON CONVERTER
D	Pulses input (Max 32 Hz) from passive contact
E	Option C + D
F	OPTION B+D (ADD THE PRESSURE PROBE PRICE, SEE "XXACCREV00GEN-PRESSURE GAUGE" OF PRICE LIST)

Additional module	
4	RS 232 communication port
5	GPRS MODULE (Ant. on converter)+ETP+Flowiz Serv.
7	GPRS MODULE (Ant. 3 meters cable)+ETP+Flowiz Serv.

Special Features	
A	NONE
B	WITH ANTICONDENSING CAP

ML 150	B	0	B	1	B	4	5

EXAMPLE OF CODE FOR ORDER



BOARD

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

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