

# ISOMAG ™

THE FRIENDLY MAG METER

CONVERTER

# ML 211

HEATING COUNTER



MEASURING OF 5 VARIABLES: CAPACITY, ENERGY, INPUT TEMPERATURE,  
OUTPUT TEMPERATURE,  $\Delta T$ ;  
N° 2 INPUTS ADDED FROM PT 100 (FROM PT 500 OR PT 1000 IF REQUIRED);  
BIDIRECTIONAL MEASURE (FOR CALORIES or FRIGORIES);  
2 ENERGY TOTALIZERS

The manufacturer guarantees only English text.  
Available on our web site: [www.isoil.com](http://www.isoil.com)

ISOIL   
INDUSTRIA

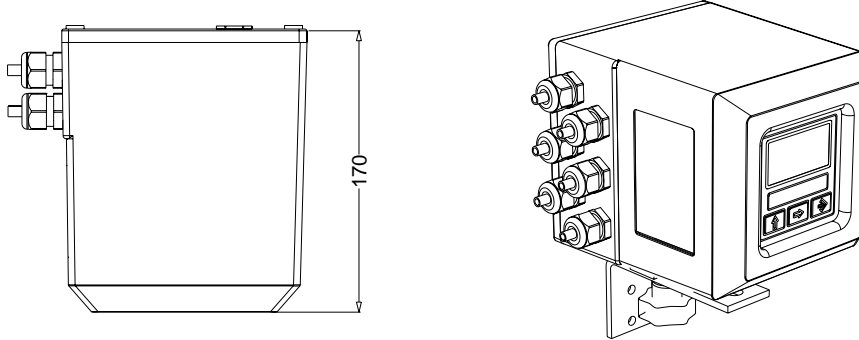
*The solutions that count*

## TECHNICAL DATA

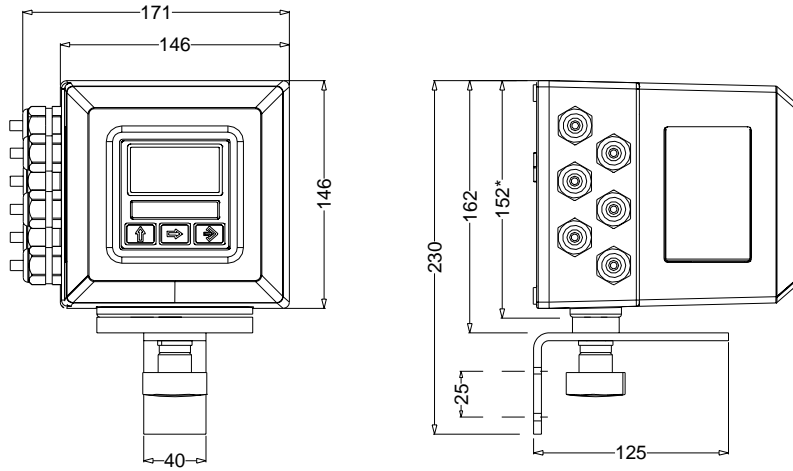
Material box	<input type="checkbox"/>	Painted aluminium die casting		
	<input type="checkbox"/>	SS AISI 304		
Dimensions	<input type="checkbox"/>	140 X 140 X 160 mm		
Protection rate	<input type="checkbox"/>	IP 67		
Conn. sensor cable/Cable gland	<input type="checkbox"/>	CABLE C015 - C016/N° 6 – CABLE GLAND PG 11		
Amb. Temperature	<input type="checkbox"/>	-20... +60°C / -4... +140 °F		
LCD Display	<input type="checkbox"/>	Graphic display 8 lines x 16 Characters 128x64 pixels with back light		
Programming keyboard	<input type="checkbox"/>	3 membrane keys		
Pulse/frequency output	<input type="checkbox"/>	N°2 , 1250 Hz, 100mA, 40 Vdc (12,5 KHz Opt.)		
Current output	<input type="checkbox"/>	N°1 , 0/4...20mA – RL=1000Ω (+1 Opt. )		
Digital input	<input type="checkbox"/>	N°1 , programmable function		
Alarm output	<input type="checkbox"/>	N°2 programmable function		
Data logger	<input type="checkbox"/>	32 values + 64 alarm events (STANDARD)		
Bi-directional	<input type="checkbox"/>	Yes		
Dual range	<input type="checkbox"/>	Yes		
FS value	<input type="checkbox"/>	0,4...10m/s		
Communication Interface	<input type="checkbox"/>	RS 485 / MODBUS ( Opt. ) Profibus DP ( Opt. )		
Diagnostic funct.	<input type="checkbox"/>	Yes		
Empty pipe detect.	<input type="checkbox"/>	Yes		
Galvanic isolation	<input type="checkbox"/>	All the inputs/outputs are galvanically isolated from power supply up to 500 V		
Data storage	<input type="checkbox"/>	Eeprom values storing system in case of power failure		
Programming plug in	<input type="checkbox"/>	Protected plug in for connection to PC or hand terminal		
Temperature sensors	<input type="checkbox"/>	PT100 4 wire (PT500/PT1000 opt.)		
Batch function	<input type="checkbox"/>	Yes		
CE certification	<input type="checkbox"/>	Instrument with CE certificate		
	<input type="checkbox"/>	Class I, IP 67, category of installation II		
Measurements tolerance	<input type="checkbox"/>	Flow rate (volume) = ±0,05% v.l.		
	<input type="checkbox"/>	Power (energy) = ±0,05% v.l.		
	<input type="checkbox"/>	Out 4/20 mA = ± 0,08 % v.l.		
	<input type="checkbox"/>	Frequency Out = ± 0,08% v.l.		
Repeatability	<input type="checkbox"/>	Better than 0,01%		
Altitude	<input type="checkbox"/>	From -200 m a 6000 m/- 656 up to 19680 ft		
Humidity Range	<input type="checkbox"/>	0÷100% (IP 67)		
Power supply	<input type="checkbox"/>	90÷265 Vac – 45÷60 Hz; 10÷63Vdc/15÷45 Vac-45÷66Hz; 10÷25 Vdc		
MAX Consumption		25VA	23VA	21W
Algorithm of calculus	<input type="checkbox"/>	EN1434 - Energy		
	<input type="checkbox"/>	EN 60751 - Temperature		

# OVERALL DIMENSIONS

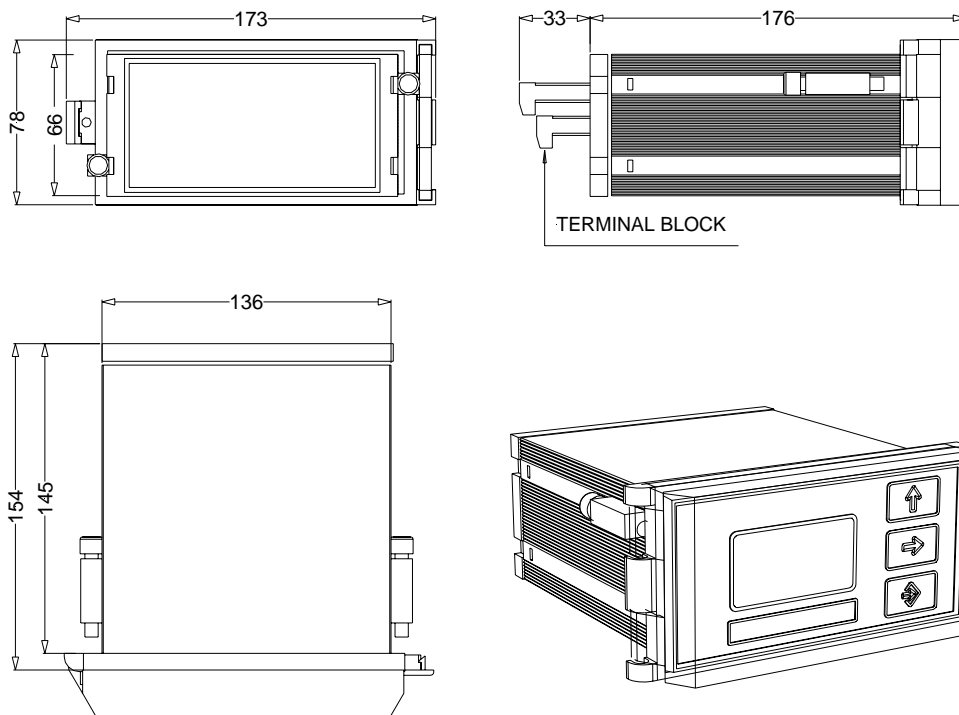
## COMPACT VERSION



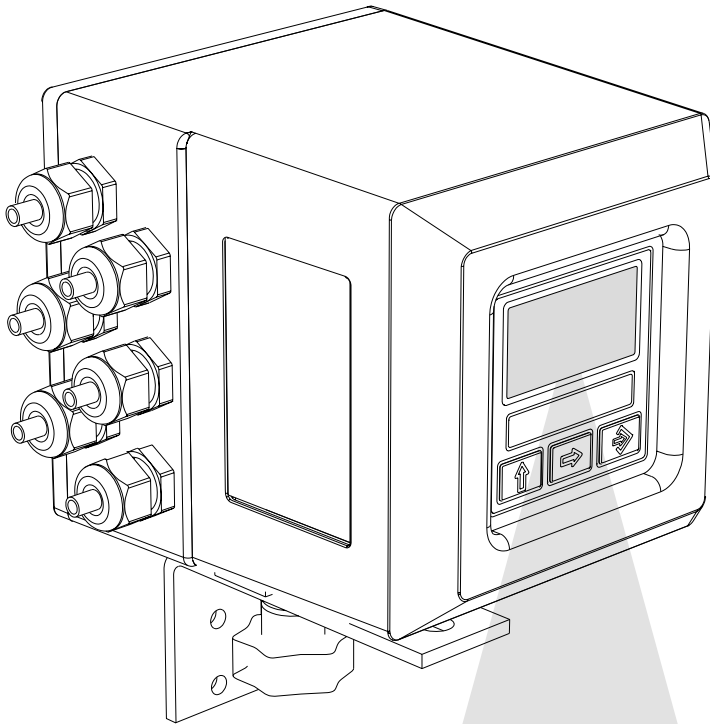
## SEPARATE VERSION



## PANEL VERSION



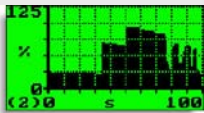
# VISUALIZATION PAGES



Flowrate, speed values and graph



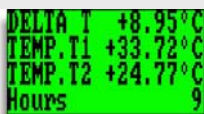
Thermal energy : full scale and graph



Flowrate graph



Thermal energy value with a currency function enabled

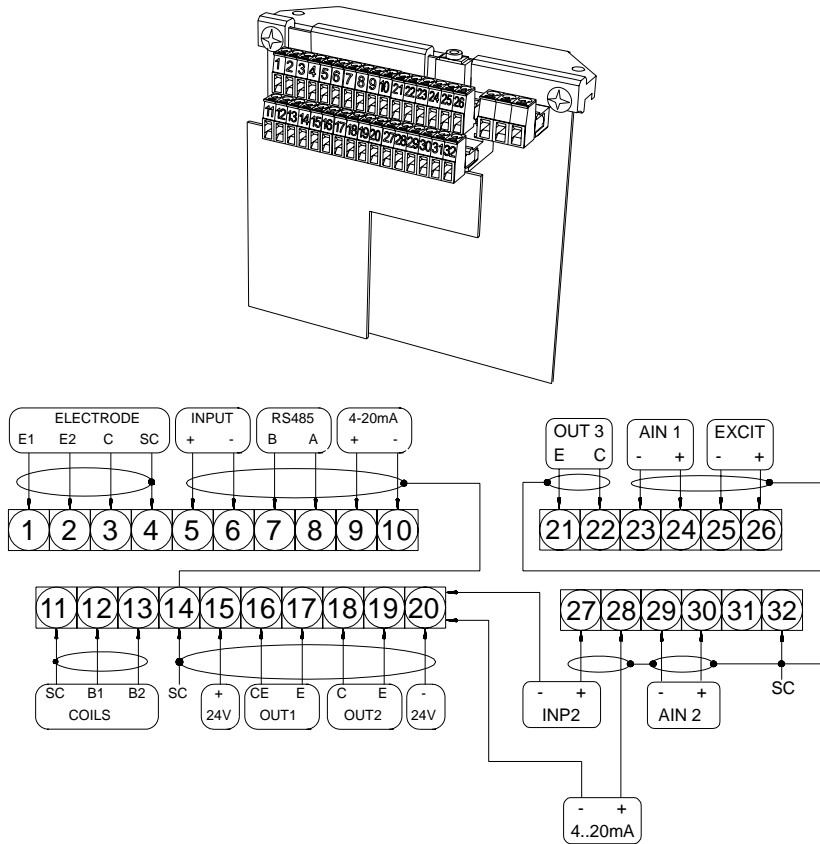


Temperature values

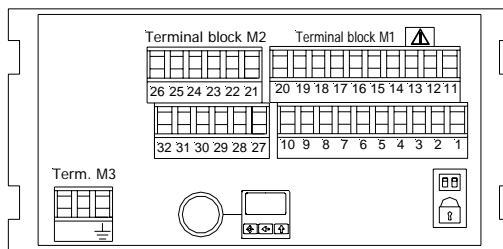
**Different possibilities of visualization with the simple pressure of a key**

# ELECTRICAL CONNECTIONS

## TERMINAL BLOCK: COMPACT/SEPARATE VERSION

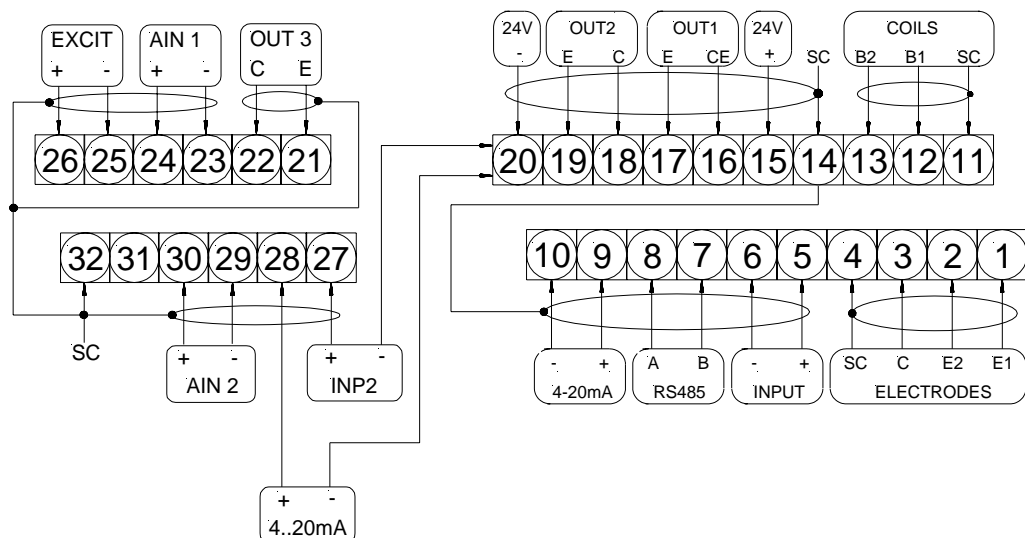


## TERMINAL BLOCK: PANEL VERSION

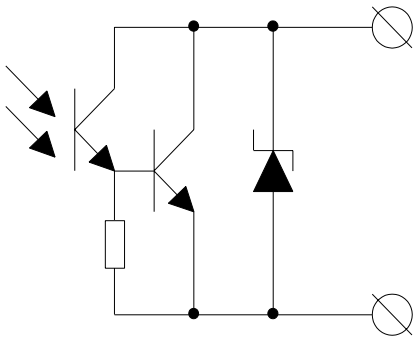


**LEGEND:**

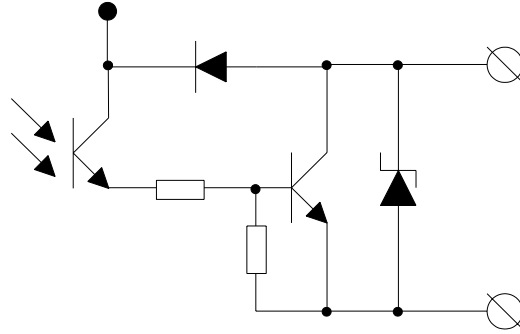
- SC: Cable shield
- C: COLLECTOR of the on/off out
- E: EMITTER of the on/off output
- AIN1: Input of temp. probe n. 1
- AIN2: Input of temp. probe n. 2
- EXCIT: Power supply for temp. probes



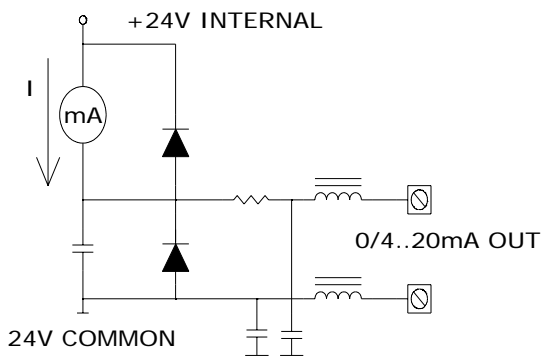
ON/OFF STANDARD OUTPUT



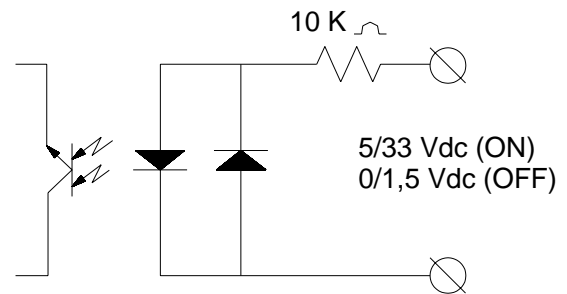
ON/OFF HIGH FREQUENCY OUTPUT (OPT.)



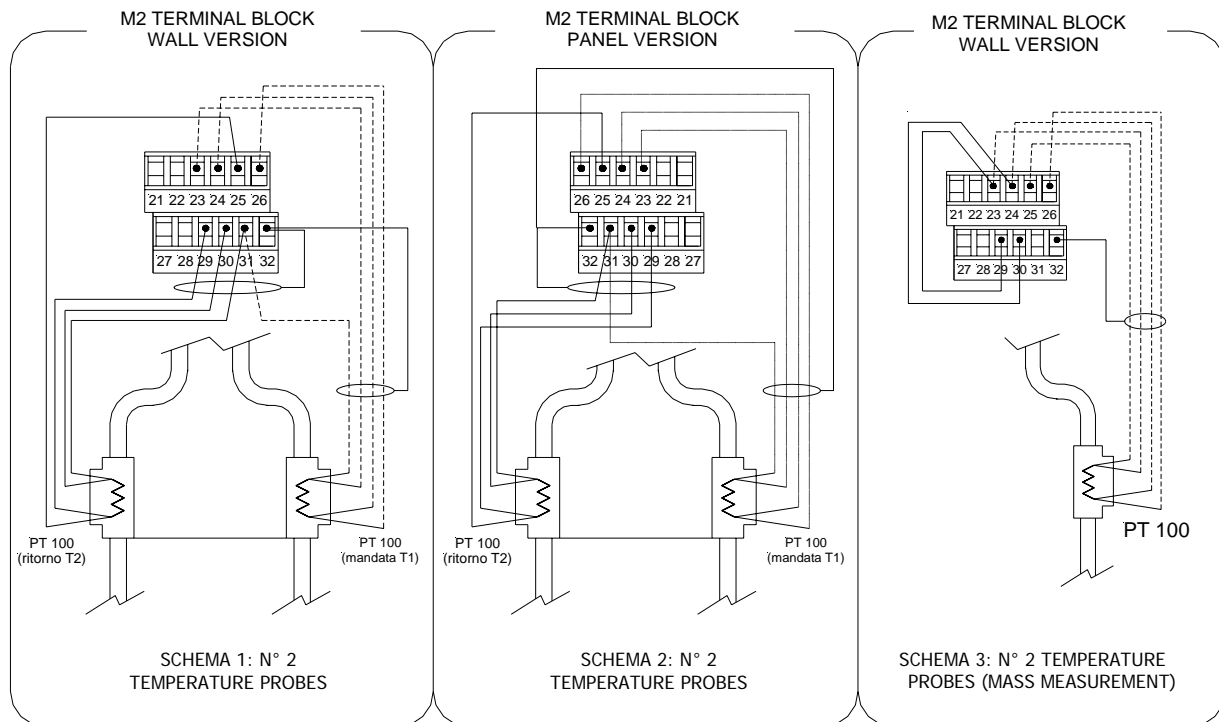
STANDARD ANALOGICAL OUTPUT



STANDARD DIGITAL INPUT



TEMPERATURE PROBES CONNECTIONS



# FUNCTIONS

```

MAIN MENU
1-Sensor
2-Scales
3-Measure
4-Alarms
5-Inputs
6-Outputs
7-Communication
8-Display
9-Data logger
10-Diagnostic
11-Internal data

1-SENSOR
ND=mm 00032
KA= +01.0080
Sens.type= 000
Ins.position= 0
KL=+101 +02.1500
KL=-101 +02.1500
Cable len.=m 000
E.P.detect= OFF
Autozero cal.
E.P.calibr.
    
```

```

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2-SCALES
Fs1=dm³/s 5.0000
Fs2=kW 20.0000
Tot.MU=dm³ 1.000
En.MU=kWh 1.000
Pls1=dm³ 1.00000
Pls2=dm³ 1.00000
Tpls1=ms 0050.00
Tpls2=ms 0050.00
Frg1=Hz 1000.00
Frg2=Hz 1000.00
FsDeltaT=°C 100
F.s.Temp=°C 120
Pres.T1=bar 02.0
Pres.T2=bar 02.0
Mass units=
Sg=kg/dm³ 01.0000
    
```

```

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3-MEASURE
Iconst=s 0001.0
Filter=s 0.1
Skip thr=% 010
Peak thr=% 125
Cut-off=% 05.0
DT min.=°C 01.0
Meas.side= T2
Autocal.= OFF
E.saving= OFF
    
```

```

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4-ALARMS
Max thr=% 000
Min thr=% 000
Pwr max=% 000
Pwr min=% 000
DT max=% 000
DT min=% 000
T1 max=% 000
T1 min=% 000
T2 max=% 000
T2 min=% 000
Hyst.=% 03
E.p.thr.= 250
MA v.fault=% 000
    
```

```

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5-INPUTS
I+ RESET= ON
P+ RESET= ON
I- RESET= OFF
P- RESET= ON
Puls.reset= OFF
Count lock= ON
Calibration= OFF
Inp.2= OFF
    
```

```

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6-OUTPUTS
Out1= #1 IMP+
Out2= SIGN
Out3= OFF
Duty cycle1=% 50
Duty cycle2=% 50
Out mA1=4:22 FLOW
Out mA2=4:22 FLOW
    
```

```

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7-COMMUNICATION
IF2 prot.= DPP
RS232 prot.= DPP
Address= 000
RS485 bps= 19200
RS232 bps= 4800
Rem.addr.= 000
Remote u.conn.
    
```

```

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8-DISPLAY
Language= EN
D.rate=Hz 1
Contrast= 7
Date/time= OFF
Quick start= OFF
Tot.modif.= OFF
Net total.= OFF
Reset video= OFF
Currency= ON
Curr.decim.= 2
EUR/dm³+ 1.00000
EUR/dm³- 1.00000
    
```

```

MAIN MENU
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10-Diagnostic
11-Internal data

9-DATA LOGGER
1992/05/10 15:03
Acquisition= ON
Interval=h 24
Display data
Display events
Disp.min/max
Clear data
Clear events
Reset min/max
    
```

```

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```

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10-DIAGNOSTIC
Calibration
Self test
Simulation= OFF
    
```

```

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11-INTERNAL DATA
L2 keycode=00000
Lock level= 3
Load fact.pres.
Load user pres.
Save user pres.
Hours= 000077
Ign.cal.err= OFF
KS= +1.0000
    
```

```

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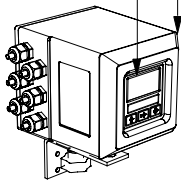
```

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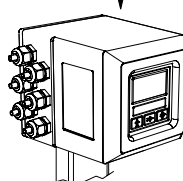
# HOW TO ORDER

<b>ML 211</b>	<b>Display</b>
<b>A</b>	Blind version without display and keyboard
<b>B</b>	Graphic LCD WSTN back light display execution, point matrix 128 x 64, 8 line each of 16 characters and 3 programming keys
<b>Housing material - Protection rate</b>	
<b>0</b>	Painted aluminum die casting (painted RAL6028) ,protection rate IP67
<b>1</b>	Aisi 304 Electro-polish
<b>2</b>	NORYL UL 94 V-0 black ( ONLY "F" VERSION ) IP 54
<b>3</b>	NORYL UL 94 V-0 BLACK ( ONLY "F" VERSION )+TRANSPARENT FRONTAL COVER IP 65
<b>Version</b>	
<b>A</b>	Compact version with sensor MS... (liquid maximum temperature 100 °C)
<b>B</b>	Separate version for wall monting, complete with mounting accessories in Carbon Steel (painted RAL6028)
<b>F</b>	Separate version for front panel mounting according DIN 43700, complete with mounting accessories, dimensions 72 x 144 mm
<b>Power supply</b>	
<b>1</b>	Power supply : 90 ... 265 V 45/66 Hz
<b>2</b>	Power supply : 18...63 V dc / 15...45 V ac - 45...66 Hz
<b>3</b>	Power supply : 10 ... 35 V dc
<b>9</b>	Power supply : other
<b>Analogue output</b>	
<b>A</b>	Without Analogue output 0/4...20/22 mA
<b>B</b>	Analogue output 0/4...20/22 mA
<b>Serial Interface</b>	
<b>2</b>	RS485 Serial Interface
<b>3</b>	Modbus protocol over RS485
<b>Additional module</b>	
<b>H</b>	ME210; n. 2 Pt100 input+ 1 ON/OFF INPUT
<b>I</b>	ME211; n. 2 Pt100 input + additional 0/4...20 mA output+ 1 ON/OFF INPUT
<b>L</b>	ME212; n. 2 Pt100 input + add. 0/4...20 mA out+1 ON/OFF INPUT+ n. 1 ON/OFF OUT
<b>P</b>	ME210 + ME 220
<b>Q</b>	ME211 + ME 220
<b>R</b>	ME212 + ME 220
<b>S</b>	ME210 + ME 221

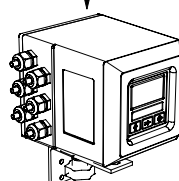
ML 211 B 0 A 1 B 2 A EXAMPLE OF CODE ORDER



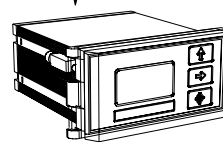
ML 211



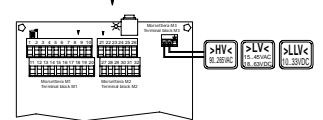
COMPACT VERSION



SEPARATE VERSION



PANEL VERSION



PCB BOARD

In accordance with a continuous evolution of the Product, the company reserves the right to modify without warning the information contained in this document