

MISURATORI ELETTROMAGNETICI DI PORTATA SERIE  
ELECTROMAGNETIC FLOW METER SERIE'S

# ISOMAG *Millennium*

## CONVERTER MODEL ML 211

**MISURA DI 5 VARIABILI: PORTATA, ENERGIA, TEMPERATURA INGRESSO , TEMPERATURA USCITA,  $\Delta T$  .  
N° 2 INGRESSI AGGIUNTIVI DA PT 100 (A RICHIESTA DA PT 500 O PT 1000) ; MISURA BI-DIREZIONALE  
(PER CALORIE O FRIGORIE) , 2 TOTALIZZATORI PER L'ENERGIA**

FIVE VARIABLE MEASURED: FLOW RATE, THERMAL ENERGY, IN TEMPERATURE , OUT TEMPERATURE ,  $\Delta T$ .  
N° 2 ADDITIONAL INPUT FROM PT 100 (ON REQUEST FROM PT 500 OR PT 1000) ;BI-DIRECTIONAL MEASURE  
(TEMPERATURE WIDE TO NEGATIVE RANGE) ;2 ENERGY TOTALIZER (CALORIES OR FRIGORIES)



ML 211 A QUADRO  
211 PANEL MOUNTING VERSION



ML 211 VERSIONE A PARETE  
ML 211 WALL VERSION

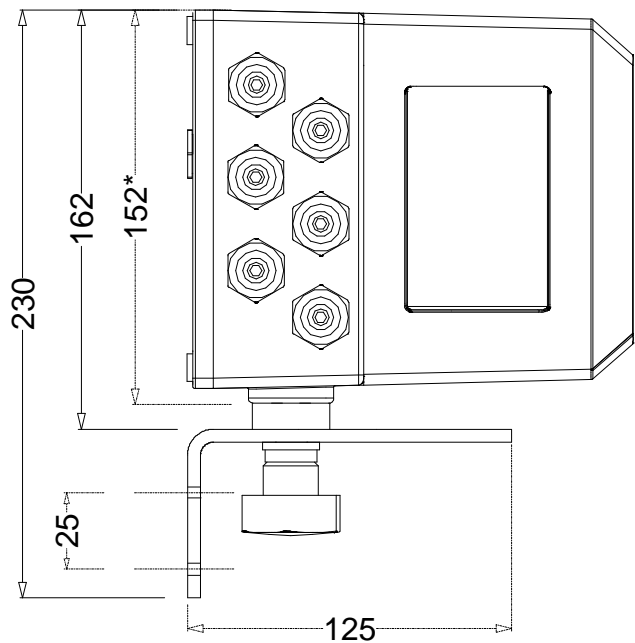
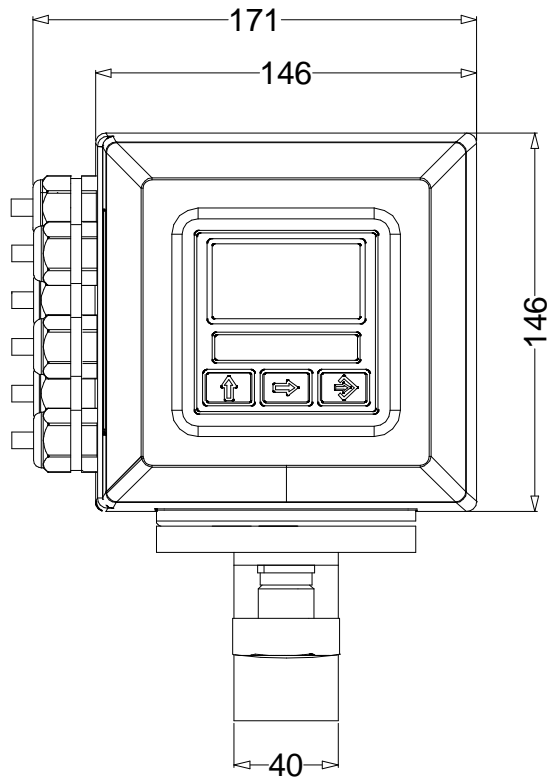
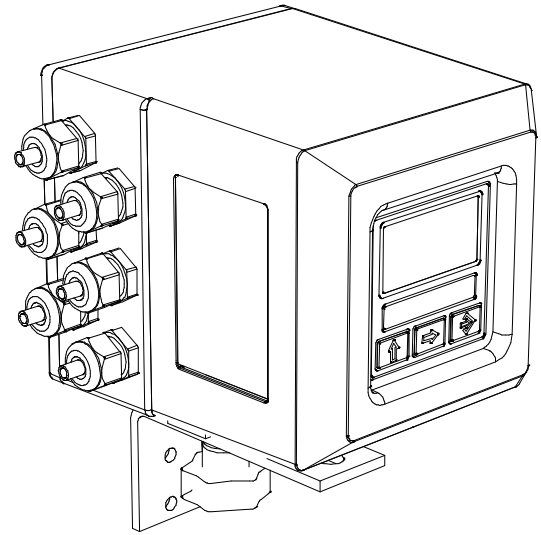
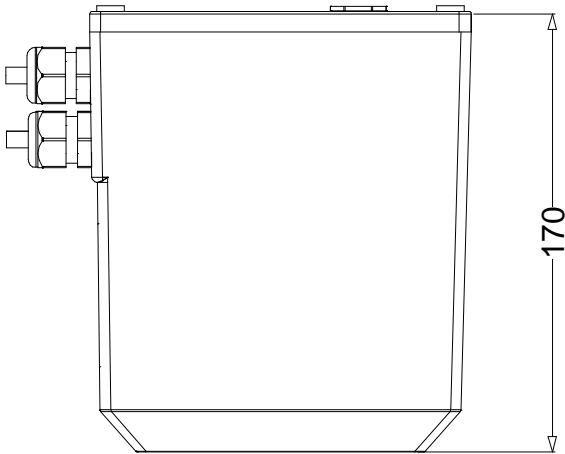
SPECIFICA TECNICA		Data Documento	15/10/03	Pagine	2 / 9
N° Documento	Rev.	Filling By	Checked By	Rif.	
STO84	01	<i>Kottan</i>	<i>[Signature]</i>	Prog.	
Title	Date	Date		Controllo Distribuzione Doc. Tecnici	
DATA SHEET ML211	06-10-04	06-10-04			

### DATI TECNICI / TECHNICAL DATA

<b>Materiale custodia</b> Material box	<input type="checkbox"/> Alluminio pressofuso verniciato / Painted aluminum die casting <input type="checkbox"/> AISI 304 / SS AISI 304
<b>Dimensioni</b> / Dimension	<input type="checkbox"/> 140 X 140 X 160 mm
<b>Protezione</b> / Protection rate	<input type="checkbox"/> IP 67
<b>Cavi connessione Sens. / Press.</b> Conn. sensor cable/ Cable gland	<input type="checkbox"/> CABLE C015 - C016 / N° 6 PRESS – CABLE GLAND PG 11
<b>Temperatura ambiente/ Amb.</b> Temperature	<input type="checkbox"/> -20... +60°C / -4... +140 °F
<b>Display LCD</b>	<input type="checkbox"/> Display grafico 8 righe X 16 caratteri 128 X 64 pixel retroilluminato <input type="checkbox"/> Graphic display 8 lines x 16 Characters 128x64 pixel with back light
<b>Tastiera di programmazione</b> Programming keyboard	<input type="checkbox"/> N°3 tasti a membrana / 3 membrane keys
<b>Uscita impulsi / frequenza</b> Pulse / frequency output	<input type="checkbox"/> N°2 , 1250 Hz, 100mA, 40 Vdc (12,5 KHz Opz. / Opt.)
<b>Uscita corrente</b> / Current output	<input type="checkbox"/> N°1 , 0/4...20mA – RL=100W (+1 Opz. / Opt. )
<b>Ingresso digitale</b> / Digital input	<input type="checkbox"/> N°1 , Funzione programmabile / programmable function
<b>Uscita allarme</b> / Alarm output	<input type="checkbox"/> N°2 , Funzioni programmabili / programmable function
<b>Data logger</b>	<input type="checkbox"/> 32 valori + 64 eventi allarme / 32 values + 64 alarm events ( STANDARD )
<b>Misura bidirezionale</b> Bi-directional	<input type="checkbox"/> Sì / Yes
<b>Doppio campo</b> / Dual range	<input type="checkbox"/> Sì / Yes
<b>Valore di F.S.</b> / FS value	<input type="checkbox"/> 0,4...10m/s
<b>Interfaccia di comunicazione</b> Communication Interface	<input type="checkbox"/> RS 485 (RS232 Opz. / Opt. ) / Profibus DP ( Opz. / Opt. )
<b>Funzione di autodiagnosi</b> Diagnostic funct.	<input type="checkbox"/> Sì / Yes
<b>Rilevazione tubo vuoto</b> Empty pipe detect.	<input type="checkbox"/> Sì / Yes
<b>Separazione galvanica</b> Galvanic isolation	<input type="checkbox"/> Tutti gli ingressi e le uscite sono separati tra loro e dall'alimentazione fino a 500 V <input type="checkbox"/> All the inputs / outputs are galvanically isolated from power supply up to 500 V
<b>Memorizzazione dati</b> Data storage	<input type="checkbox"/> In mancanza di alimentazione i dati vengono memorizzati in una Eeprom <input type="checkbox"/> Eeprom stored measuring values on power failure
<b>Presenza programmazione</b> Programming plug in	<input type="checkbox"/> Presa protetta per collegamento PC o terminale portatile <input type="checkbox"/> Protected plug in for connection to PC or hand terminal
<b>Sensori di temperatura</b> Temperature sensors	<input type="checkbox"/> PT100 4 fili / 4 wire ( PT500/PT1000 opt. )
<b>Funzione Dosaggio</b> Bacth function	<input type="checkbox"/> Sì / Yes
<b>Certificazione CE</b> CE certification	<input type="checkbox"/> Strumento certificato CE / Instrument with CE certificate <input type="checkbox"/> classe I, IP 67, categoria d'installazione II / class I, IP 67, category of installation II
<b>Incertezza delle misure</b> Measurements tolerance	<input type="checkbox"/> Portata ( volume ) = ±0,05% v.l. / Flow rate (volume) = ±0,05% v.l. <input type="checkbox"/> Potenza ( energia ) = ±0,05% v.l. /Power (energy) = ±0,05% v.l. <input type="checkbox"/> Out 4/20 mA = ± 0,08 % v.l. <input type="checkbox"/> Out Frequenza = ± 0,08% v.l. / Frequency Out = ± 0,08% v.l.
<b>Ripetibilità</b> / Ripetibility	<input type="checkbox"/> Migliore dello 0,01% / Better than 0,01%
<b>Altitudine</b> / Altitude	<input type="checkbox"/> da -200 m a 6000 m / - 656 up to 19680 ft
<b>Range umidità</b> / Humidity Range	<input type="checkbox"/> 0÷100% (IP 67)
<b>Alimentazione</b> / Power supply	<input type="checkbox"/> 90÷265 Vac – 45÷60 Hz; 10÷63Vdc/15÷45 Vac-45÷66Hz; 10÷25 Vdc
<b>Consumo max</b> / MAX Consumption	25VA 23VA 21W
<b>Algoritmo di calcolo</b> Algorithm of calculus	<input type="checkbox"/> EN1434 - Energia/Energy <input type="checkbox"/> EN 60751 – Temperatura / Temperature

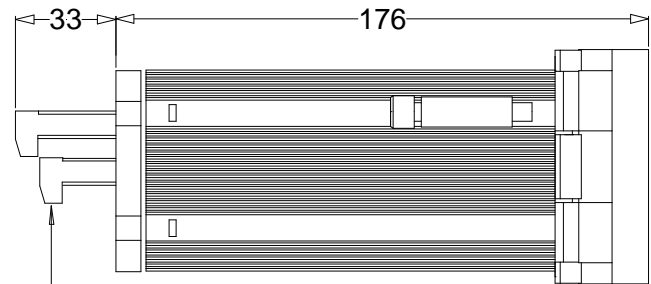
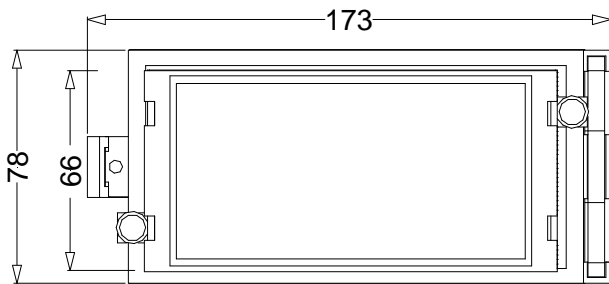
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STO84	01	<i>Kottanil</i>	<i>[Signature]</i>	Prog.	
Title	Date	Date		Controllo Distribuzione Doc. Tecnici	
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**DIMENSIONI D'INGOMBRO / OVERALL DIMENSIONS**  
**( VERSIONE COMPATTA- PARETE / WALL-COMPACT VERSION )**

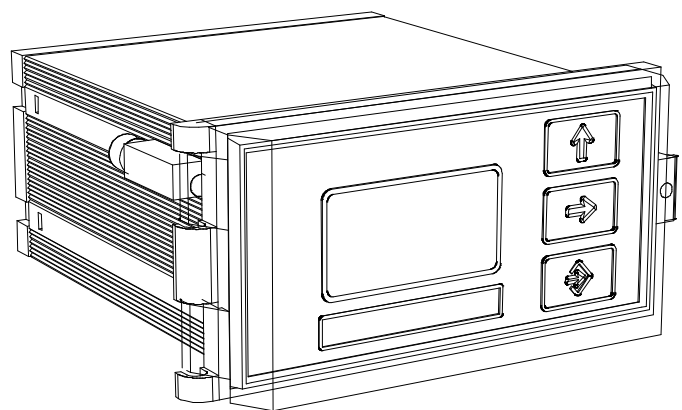
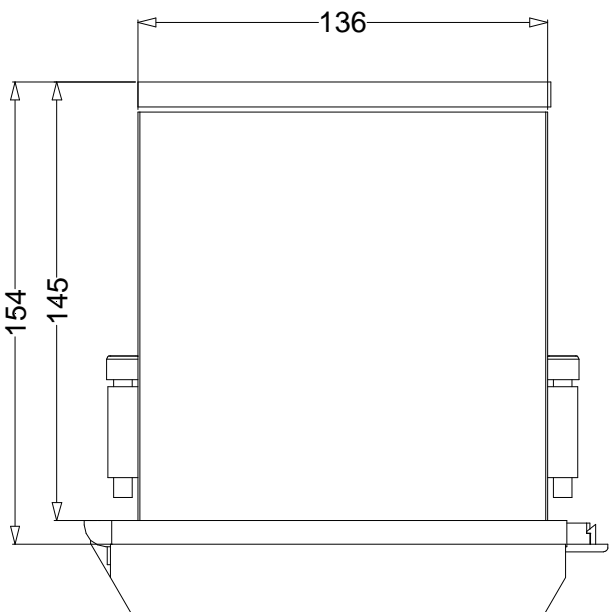


152\* : DIMENSIONE VERSIONE COMPATTA  
 COMPACT VERSION DIMENSION

**DIMENSIONI D'INGOMBRO / OVERALL DIMENSIONS**  
( **VERSIONE A QUADRO / PANEL MOUNTING VERSION** )



MORSETTI / TERMINAL BLOCK



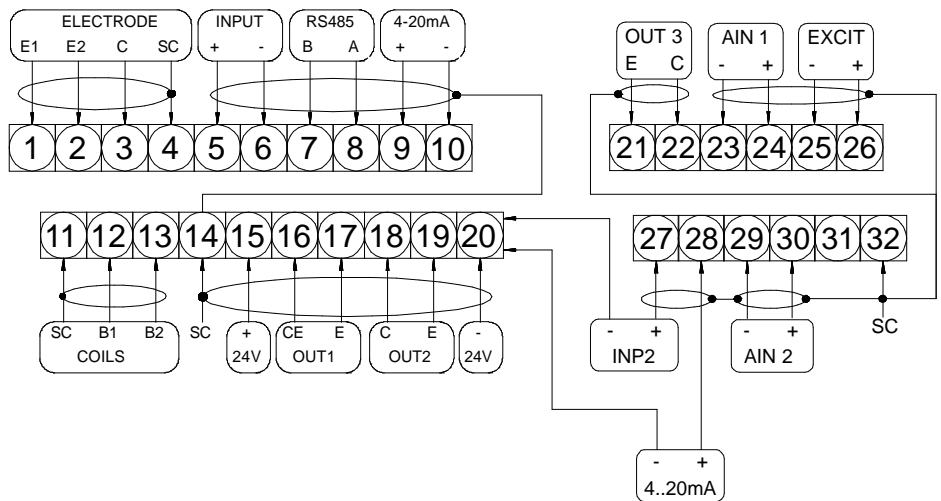
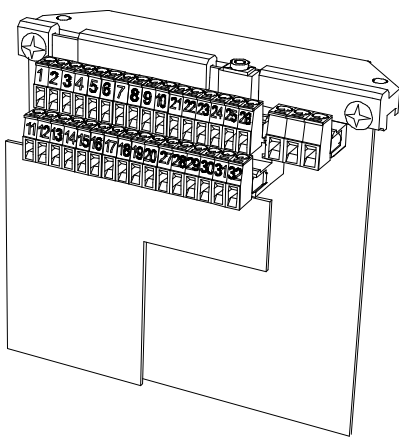


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Title	Date	Date	Controllo Distribuzione Doc. Tecnici		
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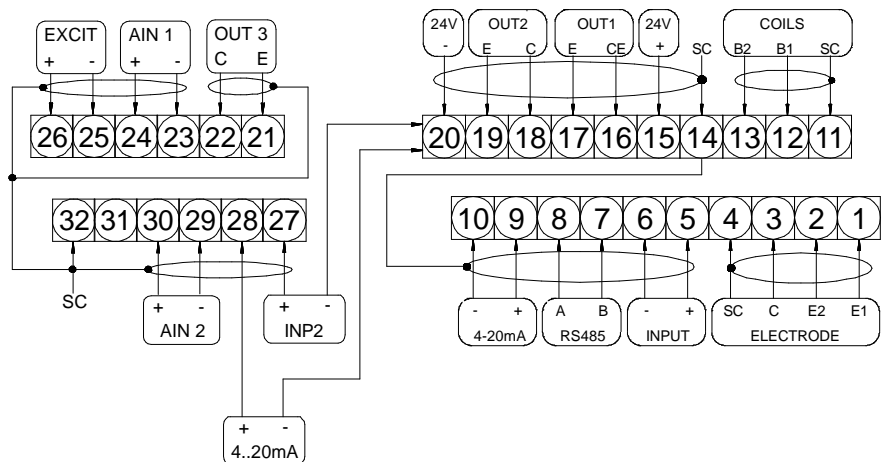
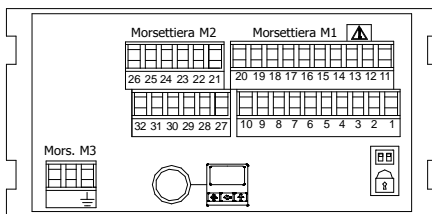
## CONNESSIONI ELETTRICHE / ELECTRICAL CONNECTIONS

### MORSETTIERE / TERMINAL BOARD

#### VERSIONE COMPATTA/SEPARATA - COMPACT/SEPARATE VERSION



#### VERSIONE QUADRO / PANEL VERSION



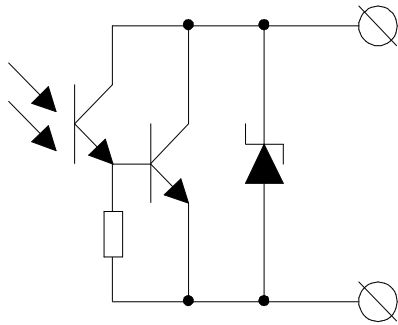
#### LEGEND:

- 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

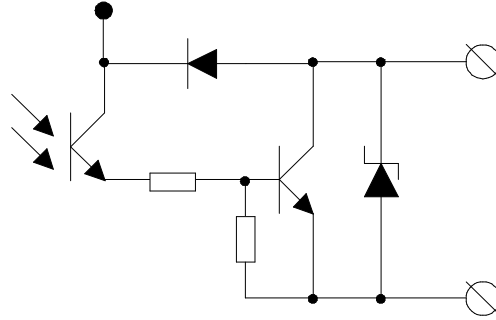
SPECIFICA TECNICA		Data Documento	15/10/03	Pagine	7 / 9
N° Documento	Rev.	Filling By	Checked By	Rif.	
STO84	01	<i>Kottan</i>	<i>[Signature]</i>	Prog.	
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## INGRESSI-USCITE : SCHEMI ELETTRICI / INPUT-OUTPUT : ELECTRICAL SCHEMA

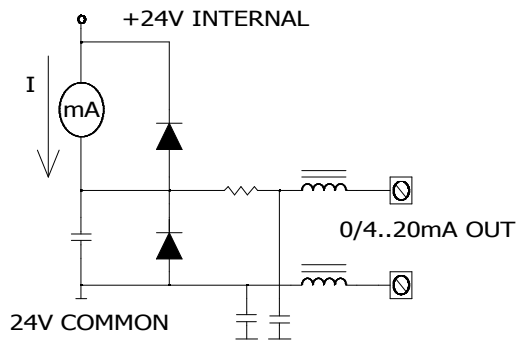
### STANDARD DIGITAL OUT



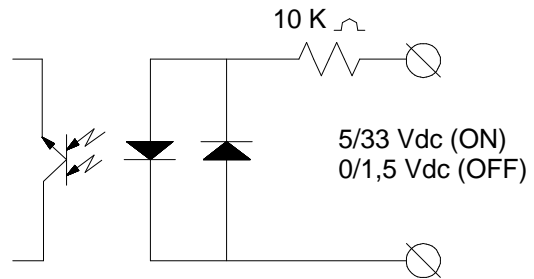
### HIGH FREQUENCY DIGITAL OUT ( OPT. )



### STANDARD ANALOG OUT

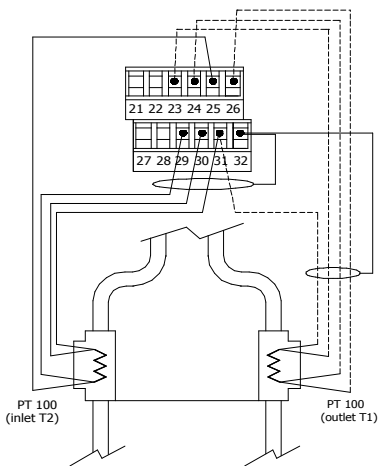


### STANDARD DIGITAL INPUT

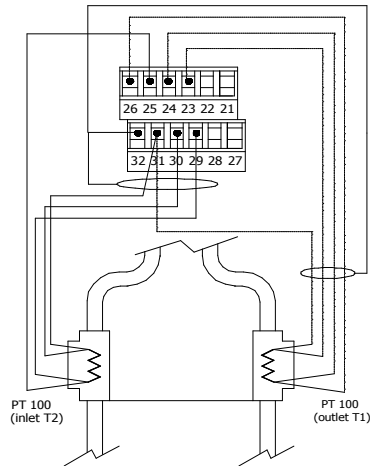


## COLLEGAMENTO TERMOSONDE / TEMPERATURE PROBES CONNECTIONS

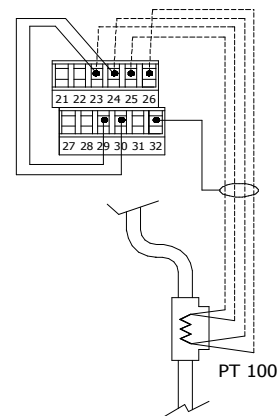
TERMINAL BLOCK M2  
WALL/COMPACT VERSION  
TEMPERATURE PROBES CONNECTIONS



TERMINAL BLOCK  
M2 PANEL VERSION  
TEMPERATURE PROBES CONNECTIONS



TERMINAL BLOCK M2  
WALL/COMPACT VERSION  
TEMPERATURE PROBES CONNECTIONS



SPECIAL APPLICATION :  
DENSITY COMPENSATION  
FOR MASS MEASUREMENT



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**ESEMPIO DI PAGINA MENU' DI CONFIGURAZIONE/SAMPLE OF PAGE OF CONFIGURATION MENU'**

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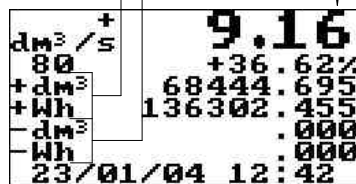
0-QUICK START
VSE= l/s 5.0000
Fs2=MW 0.00010
Imp1= m³ 0.00100
Tpull=ms 0050.00
Frg2=Hz 01000.00
FsDeltaT="C 100
F.s.Temp="C 120
    
```

**ESEMPI PAGINE DI VISUALIZZAZIONE / SAMPLE OF VISUALIZATION PAGE**

Flow rate value

Reverse volume/energy totalizer

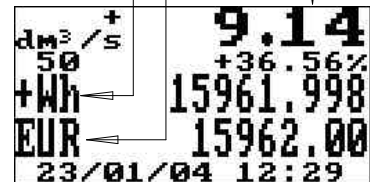
Direct volume/energy totalize



Flow rate value

Currency value

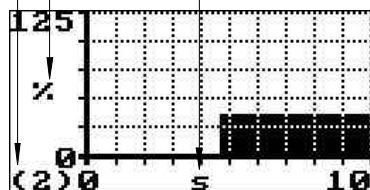
Direct thermal energy totalizer



Time scale (see Pos. 3.1)

% full scale thermal power

Scale 2= thermal power



Thermal power visualization

% thermal power bar graph

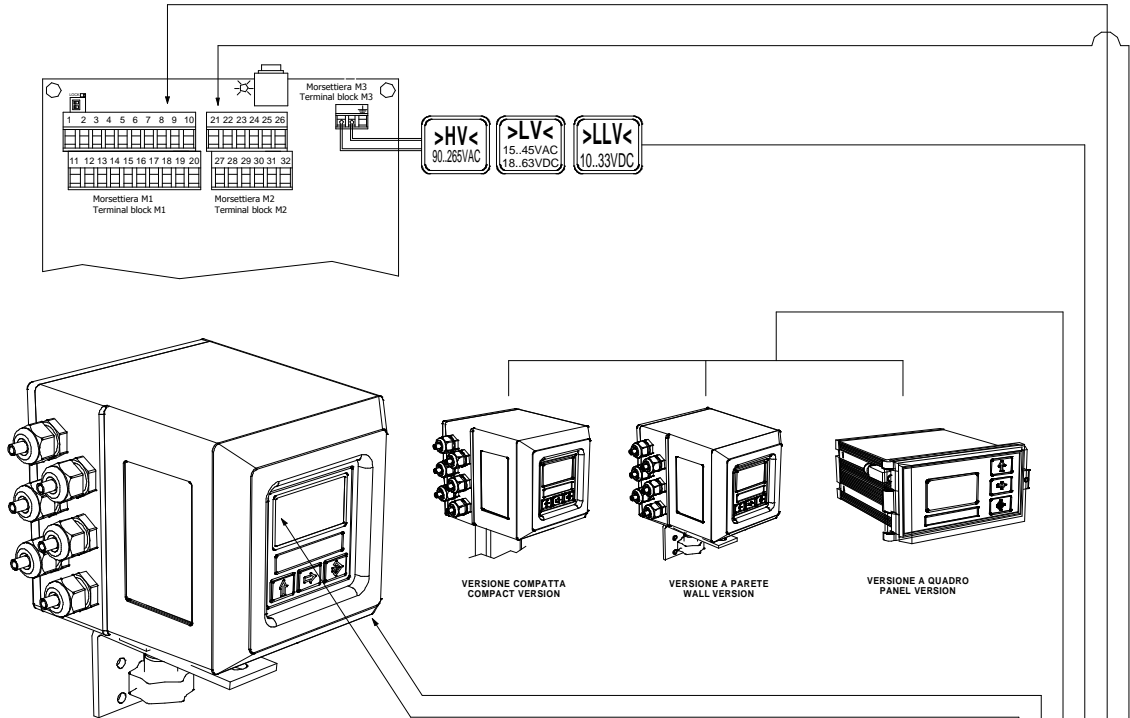
Unit of measure

Flow direction





## COME ORDINARE / HOW ORDER



<b>ML 211</b>	<b>Display</b>	
<b>A</b>	Versione cieca senza display e tastiera di programmazione	/ Blind version without display and keyboard
<b>B</b>	Versione con display grafico LCD WSTN a matrice a punti 128 x 64, da 8 righe per 16 caratteri (retroilluminato a LED) con tastiera di programmazione (a 3 tasti)	/ Graphic LCD WSTN back light display execution, point matrix 128 x 64, 8 line each of 16 characters and 3 programming keys
<b>Materiale custodia convertitore - Classe di protezione / Housing material - Protection rate</b>		
<b>0</b>	Custodia in Alluminio pressofuso Verniciata colore RAL6028, classe di protezione IP67	/ Painted aluminum die casting (painted RAL6028), protection rate IP67
<b>1</b>	Custodia in Aisi 304 Elettrolucidato	/ Aisi 304 Electro-polish
<b>2</b>	NORYL UL 94 V-0 autoestinguente NERO (SOLO VERSIONE F) IP 54	/ NORYL UL 94 V-0 black (ONLY "F" VERSION) IP 54
<b>3</b>	NORYL UL 94 V-0 autoestinguente NERO (SOLO VERSIONE F) + Coperchio frontale trasparente IP 65	/ NORYL UL 94 V-0 BLACK (ONLY "F" VERSION) +TRANSPARENT FRONTAL COVER IP 65
<b>Versione / Version</b>		
<b>A</b>	Versione compatta, con sensore MS... (massima temperatura del liquido 100 °C)	Compact version with sensor MS.... (liquid maximum temperature 100 °C)
<b>B</b>	Esecuzione separata da campo per accoppiamento a sensori MS ..., completa di accessori di montaggio, in Acciaio Carbonio (verniciato RAL6028)	Separate version for wall mounting, complete with mounting accessories in Carbon Steel (painted RAL6028)
<b>F</b>	Esecuzione separata per montaggio a incasso (a quadro) secondo DIN 43700, per accoppiamento a sensori MS ..., dimensioni 72 x 144	Separate version for front panel mounting according DIN 43700, complete with mounting accessories, dimensions 72 x 144 mm
<b>Alimentazione / Power supply</b>		
<b>1</b>	Alimentazione : 90 ... 265 V 45/66 Hz	Power supply : 90 ... 265 V 45/66 Hz
<b>2</b>	Alimentazione : 18...63 V dc / 15...45 V ac - 45...66 Hz	Power supply : 18...63 V dc / 15...45 V ac - 45...66 Hz
<b>3</b>	Alimentazione : 10 ... 35 V dc	Power supply : 10 ... 35 V dc
<b>9</b>	Alimentazione : altre	Power supply : other
<b>Uscita analogica / Analog output</b>		
<b>A</b>	Senza uscita analogica 0/4 ... 20/22 mA	Without Analogue output 0/4...20/22 mA
<b>B</b>	Uscita analogica 0/4 ... 20/22 mA	Analogue output 0/4...20/22 mA
<b>Interfaccia Seriale / Serial Interface</b>		
<b>1</b>	Senza Interfaccia Seriale	Without Serial Interface
<b>2</b>	Interfaccia Seriale RS485	RS485 Serial Interface
<b>Moduli aggiuntivi / Additional module</b>		
<b>H</b>	ME210; n. 2 ingressi per Pt100+1 INPUT ON/OFF	ME210; n. 2 Pt100 input+ 1 ON/OFF INPUT
<b>I</b>	ME211; n. 2 ingressi per Pt100 + 2a uscita 0/4...20 mA+1 INPUT ON/OFF	ME211; n. 2 Pt100 input + additional 0/4...20 mA output+ 1 ON/OFF INPUT
<b>L</b>	ME212; n. 2 ingressi per Pt100 + 2a uscita 0/4...20 mA+1 INPUT ON/OFF	ME212; n. 2 Pt100 input + add. 0/4...20 mA out+1 ON/OFF INPUT+ n. 1 ON/OFF OUT
<b>M</b>	ME220; n. 2 ingressi per Pt100 + 2a uscita 0/4...20 mA+ 1 INPUT ON/OFF+ n. 1 OUT on/off	ME 220 : d. logger r. t. c. ; 128K record : F.R. .tot.+; date/time )
<b>N</b>	ME 221 : d. logger r. t. c. ; 128 Krecord : port. tot.+; data/ora ; n° 1 RS 232	ME 221 : d. logger r. t. c. ; 128 Krecord : F.R. .tot.+; date/time ; n° 1 RS 232
<b>O</b>	ME 222 : d. logger r. t. c. ; 128K record : port. tot.+; data/ora ; n° 1 RS 232, n° 1 RS 485+1 A.I.	ME 222 : d. logger r. t. c. ; 128K record : F.R. .tot.+; date/time ; n° 1 RS 232, n° 1 RS 485+1 A.I.
<b>P</b>	ME210 + ME 220	ME210 + ME 220
<b>Q</b>	ME211 + ME 220	ME211 + ME 220
<b>R</b>	ME212 + ME 220	ME212 + ME 220
<b>S</b>	ME210 + ME 221	ME210 + ME 221
<b>U</b>	ME 100 ; modulo Profibus DP + MODULO ME 210	ME 100 ; modulo Profibus DP + MODULO ME 210
<b>Z</b>	Altro	Other

ML 211 B 0 A 1 B 2 A

ESEMPIO DI CODICE PER L'ORDINE / EXAMPLE OF CODE FOR ORDER

### ATTENZIONE/WARNING

I DATI POSSONO CAMBIARE SENZA ALCUN PRAVVISIO/THE ABOVE DATA CAN BE CHANGED WITHOUT NOTICE