ESPAÑOL

CONTROLADOR DE PROCESOS con WEBSERVER y MQTT
FICHA TÉCNICA 2/5

FRANÇAIS

AFFICHEUR POUR LE CONTRÔLE DE PROCES avec WEBSERVER et MQTT
FICHE TECHNIQUE 6/9

ENGLISH

DIGITAL PANEL METER for PROCESS CONTROL with WEBSERVER and MQTT
DATA SHEET 10/13

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DESCRIPTION

The MICRA-M MAX is a digital panel meter that incorporate efficient data transfer through Web Server, Rest API, Mobile App and MQTT.

Main Features:

- Accepts a wide variety of input signals: Process (mA, V), Temperature (Pt100 probe, thermocouples J, K, T, N), or Load cells (mV/V, mV).
- Sensor output excitation of 24V/10V/5V@60mA.
- Easily scalable to required engineering units for linear and non-linear (10-point) processes.
- Run/Peak/Valley reading toggled by front or remote keyboard.
- Tare set by front or remote keyboard.
- Programmable colour display (green, amber, or red) assignable to measure, programming, or alarm activation and 2 brightness levels.
- 3 Digital inputs with 12 programmable logic functions.
- 2 or 4 alarm optional output (relay or open-collector NPN/PNP).
- Analog optional output (0-10V or 4-20mA).
- Total or partial configuration locking.
- Universal Power Supply 85-265V AC (MICRA-M MAX) or Low voltage supply 10,5-70V DC (MICRA-M6 MAX).

Communication Features:

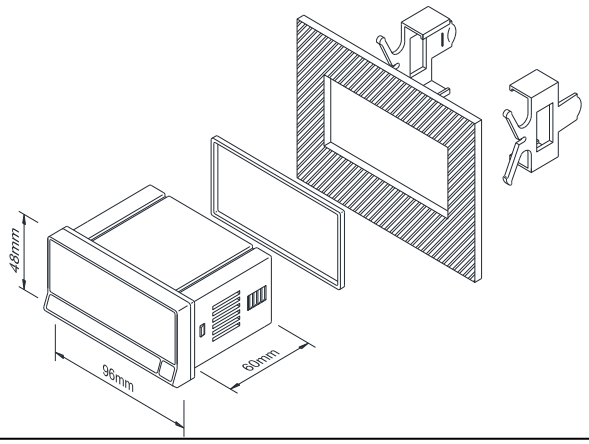
- Bluetooth and Ethernet port included in basic MICRA-M MAX model.
- DITEL Connect: Free Mobile App for device configuration.
- DITEL API: Available Web API and Rest API for on-demand data access and device configuration.
- DITEL Cloud: Include MQTT optional subscription* for continuous data access.
- Optional backward compatibility with ASCII, ISO1745, MODBUS-RTU protocol.

** First three months free*

DIMENSIONS and MOUNTING

Dimensions..... 96 x 48 x 60 mm (1/8 DIN).
OrifPanel cut-off..... 92 x 45 mm.
Weight ..... 150g.
Case material ..... Polycarbonate s/ UL 94 V-0

The instrument has a sealing gasket and two fastening clamps for both front and rear fixing on the panel.

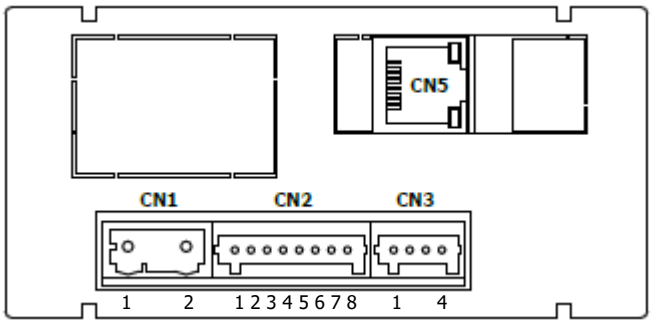


ORDER REFERENCES

Universal power supply .....**MICRA-M MAX**
Low voltaje power supply .....**MICRAX-M6 MAX**

WIRING

Rear view



CN1	POWER SUPPLY	
PIN	AC VERSION	DC VERSION
1	AC (L)	DC
2	AC (N)	DC

CN2	INPUT SIGNAL			
	PROCESS	TEMPERATURE		LOAD CELL
		Pt100	TC	
1	-EXC 24V			-EXC 10/5V
2	+EXC 24V			
3				+EXC 10/5V
4		Pt100 A COMMON		
5	+mA			
6	+V			
7		Pt100 B	+TC	+mV
8	-V/-mA	Pt100 B	-TC	-mV

CN3	LOGIC FUNCTIONS
1	COMMON
2	INPUT 1
3	INPUT 2
4	INPUT 3

CN5	ETHERNET	RJ45
1	+ Data transmission	+ Tx
2	- Data transmission	- Tx
3	+ Data reception	+ Rx
6	- Data reception	- Rx
4,5,7,8	Not Connected	N.C.

OPTIONS

The **MICRA-M MAX** models can accept up to 3 simultaneous options; output option 2RE, 4RE, 4OPP or 4OP; communication option RS2, RS4 (ETHERNET option is built-in), and analogical option NMV or NMA:

• 2 Relays SPDT 8 A @ 250 V AC / 24 V DC
Ref **2RE**

• 4 Relays SPST 5 A @ 250 V AC / 30 V DC
Ref **4RE**

• 4 Outputs NPN 50 mA @ máx. 50 V DC
Ref **4OP**

• 4 Outputs PNP 50 mA @ máx. 50 V DC
Ref **4OPP**

The setpoints are independently programmable for HI / LOW action and time delay or hysteresis operation.

• RS232C communication output, 1200 to 19200 baud
Ref **RS2**

• RS485 communication output , 1200 to 19200 baud
Ref **RS4**

Serial communication protocols: standard, ISO1745 and MODBUS RTU.

ETHERNET communication output (included in MICRAMAX)

Communication protocol: MODBUS TCP/IP.

• Isolated analog output 4 -20 mA
Ref ..... **NMA**

• Isolated analog output 0 -10 V
Ref ..... **NMV**

STANDART FUNCTIONS

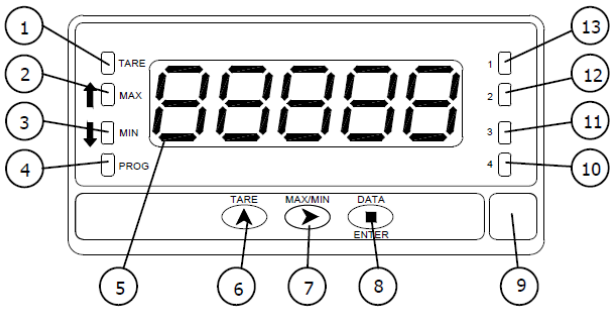
• TARE
The tare operation is accomplished by pushing the TARE key on the front panel or by applying a low level signal to the corresponding logic input at the CN3 connector.
The tare memory is cleared to zero by a constant push of 3 seconds of the TARE key (also at connector CN3).

• PEAK AND VALLEY
The instrument detects and memorizes the max. and min. values reached for the variable after the last reset (peak and valley).
To display the peak value, press the MAX/MIN key. The second push makes the display calls up the valley value (also at connector CN3).

• RESET PEAK AND VALLEY MEMORY
The peak and valley memories can be reseted to current display value by pressing the MAX/MIN key for 3 seconds.
The same function is available at the CN3 connector.

• HOLD
The hold function is only accessible from the CN3 connector.
The hold condition (display frozen) is maintained as long as the corresponding logic input is kept at "0" level.

FRONT-PANEL FUNCTIONS



MODE		RUN	PROG
TARE	1	Indicates tare in the memory	-
MAX	2	Indicates peak displayed	-
MIN	3	Indicates valley displayed	-
PROG	4	-	Indicates programming mode
DISPLAY	5	Displays the input variable	Displays programming parameters
TARE key	6	Takes on the display value as tare	Increments the value of the flashing digit
MAX/MIN key	7	Recalls peak/valley values	Moves to the right. **Pairing Bluetooth**
ENTER key	8	Enters in PROG mode. Displays data	Accepts data. Advances program
Label	9	Measurement unit	
LED output 4	10	Activation output 4	Programming output 4
LED output 3	11	Activation output 3	Programming output 3
LED output 2	12	Activation output 2	Programming output 2
LED output 1	13	Activation output 1	Programming output 1

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Programmable Logic Functions (CN3)

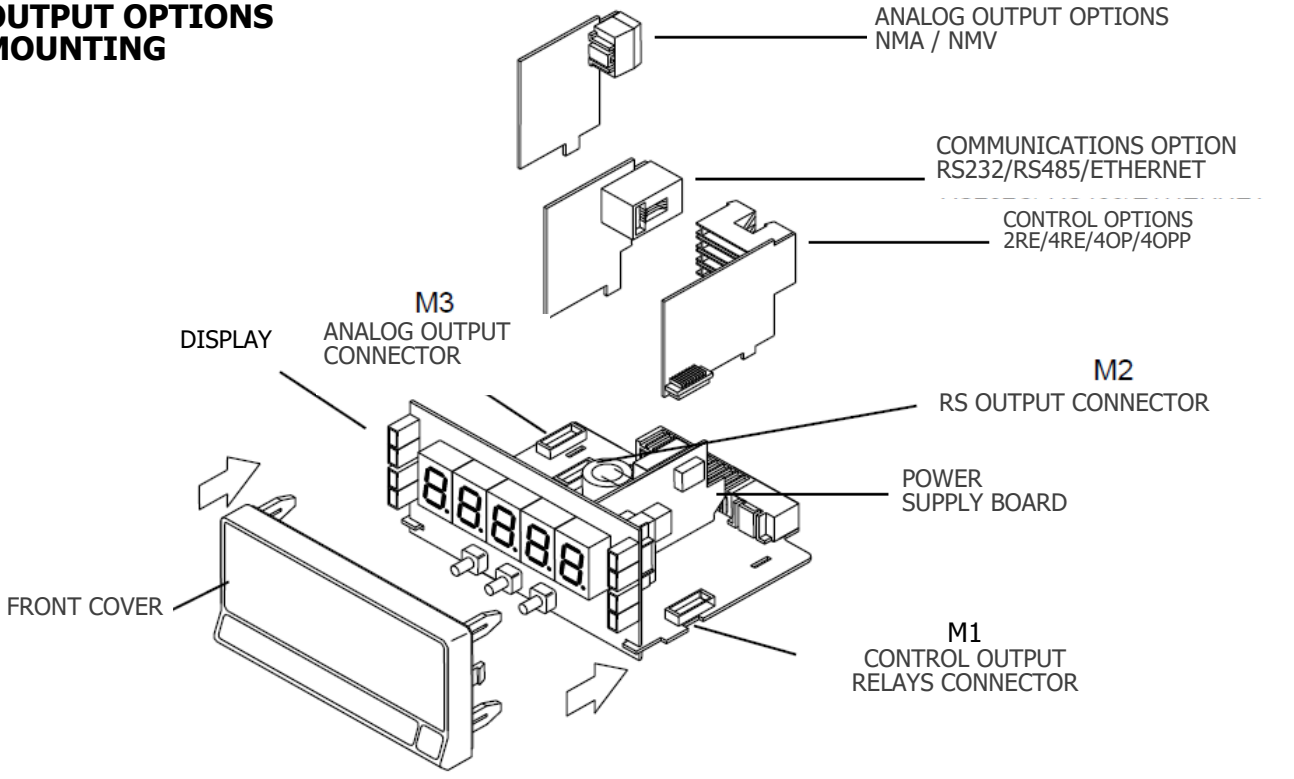
The rear connector CN3 provides 3 user programmable optocoupled inputs that can be operated from external contacts or logic levels supplied by an electronic system.

Three different functions may be then added to the available functions from the front-panel keys. Each function is associated to one of the CN3 connector pins (PIN 2, PIN 3 and PIN 4) and is activated by applying a falling edge or a low level pulse to the corresponding pin with respect to common (PIN 1).
Each pin can be assigned to one of the functions listed below.

(*) Factory settings

	Function	Description	Activation
0	Deactivated	None	None
1	TARE (*)	Adds the current display value to the tare memory and sets the display to zero.	Falling edge
2	TARE (*) RESET	Adds the tare memory to the display value and clears the tare memory	Falling edge
3	LIST RESET	Performs a reset of the peak or the valley, depending on selection	Falling edge
4	SEE LIST	Displays peak value (MAX.), valley value (MIN.), tare value, net value (NET) or gross value (GROSS) depending on selection.	Low level
5	PRINT LIST	Sends to the printer depending on selection MAX., MIN, TARE, SET1, SET2, SET3 or SET4 value.	Falling edge
6	HOLD (*)	Freezes the display while all the outputs remain active	Low level
7	BRIGHTNESS	Cambia el brillo del display a Hi o Low	Low level
8	DISPLAY COLOR	Changes the display brightness from Hi to Low	Low level
9	SETP PROG/TARE	Configures Setpoints or Tare depending on Selection List (TARE, SET1, SET2, SET3 and SET4)	Falling edge
10	False Setpoints	Simulates that the instrument has a four Setpoints option installed	Low level
11	Keyboard emulation	(Input 1= ENTER, Input 2= SHIFT, Input 3= UP).	Low level
12	RESERVED		

OUTPUT OPTIONS MOUNTING



TECHNICAL CHARACTERISTICS

SPECIAL FUNCTIONS

Return to the factory configuration.
Programmable display colour change.
Total or partial lockout of the configuration by code
Webserver and Bluetooth for MICRAMAX configuration
DITEL Connect (to download APP for Smartphone)
MQTT Ditel Cloud (to store data in the cloud)

API Rest : MICRA-M MAX APP (specifications)
MICRA-M MAX APP for configuration
MICRA-M MAX PHP APP (communications)

ACCURACY

Temperature coefficient 100ppm/ºC
Warm-up time ..... 15 minutes

FUSES (DIN 41661) Recommended (not incl.)

MICRA-M MAX ..... F 0.5A/ 250V
MICRA-M6 MAX ..... F 2A/ 250V

POWER SUPPLY

UNIVERSAL ..... 85 – 265 V AC
100 – 300V DC
LOW VOLTAGE ..... 10,5 – 70 V DC
22 – 53 V AC
Consumption ..... 5 W without options, 8 W max.

A/D CONVERSION

Technique ..... Sigma-Delta
Resolution .....±15 bits
Rate 20/s

FILTERS

Filter P
Cut-off frequency .....from 4 Hz to 0.05 Hz
Slope ..... 20 dB/decade

DISPLAY

Range ..... -19999/ 39999
Digits ..... 5 tricolor LED of 14mm
Programmable colour (Red, Green, Amber)
LEDs .....4 for functions and 4 for outputs
Display refresh rate
Process/Load cell ..... 20 /s
Pt100 ..... 20 /s
TC ..... 10 /s
Overflow indication ..... ***-oUER,oUER***

ENVIRONMENTAL

Indoor use
Operating temperature ..... -10 ºC to +60 ºC
Storage temperature ..... -25 ºC to 80 ºC
Relative humidity ..... <95% to 40 ºC
Max. Altitude ..... 2000 m

MECHANICAL

Dimensions ..... 1/8 DIN case, 96x48x60 mm
Weight 135g
Case material .....UL 94 V-0 polycarbonate
Sealed front panel IP65

INPUT SIGNAL

Configuration .....differential asymmetrical

PROCESS	VOLTAGE	CURRENT
Input	±10 V DC	±20 mA DC
Resolution	1 mV	1 µA
Input impedance	1 MΩ	15 Ω
Excitation	24 V @ 60 mA, 10 V/5 V @ 60 mA	

LOAD CELL

Input .....±15mV, ±30mV, ±150 mV
Max. resolution ..... 1 µV
Input impedance ..... 100 MΩ
Excitation ..... 10 V @ 60 mA, 5 V @ 60 mA

POTENTIOMETER INPUT

Display resolution 0.001%
Input impedance ..... 1 MΩ
Excitation ..... 10 V @ 60 mA

TEMPERATURE

Cold junction compensation ..... -10ºC to 60ºC
Pt100 sensor excitation ..... < 1 mA DC
Max lead resistance ..... 40Ω /cable (balanced)
Unit selectable ..... (Celsius) / (Fahrenheit)
Resolution (selectable) ..... 0.1º / 1º
Offset programmable ..... -19.9º / +99.9º

Input	Temperature range
Thermocouple J (Fe-CuNi)	-150 to +1100 ºC -238 to +2012 ºF
Thermocouple K (NiCr-NiAl)	-150 to +1200 ºC -238 to +2192 ºF
Thermocouple T (Cu-CuNi)	-200 to +400 ºC -328 to +752 ºF
Thermocouple N (Cu-CuNi)	-150 to +1300 ºC -238 to +2372 ºF
Pt100.....	-200 to +800 ºC -328 to +1472 ºF

ERROR INDICATIONS

OPEN CIRCUIT OR SHORTCIRCUIT ERROR

Pt100, TC, Load cell (open) ..... " - - - - - "
Load cell, mA (short) ..... " - - - - - "

ZERO INPUT ERROR ('InErr'=Yes)

Process indication, load cell ..... " - - - - - "
Input signal limits ..... ±0.1% FS

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