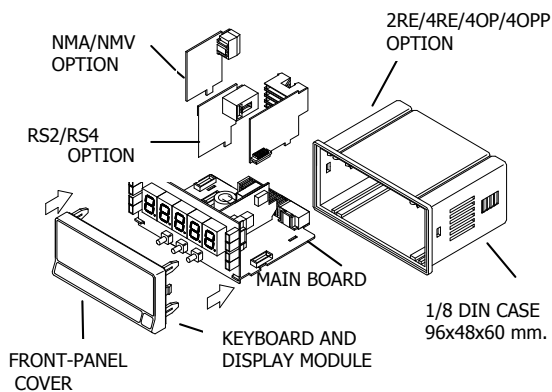


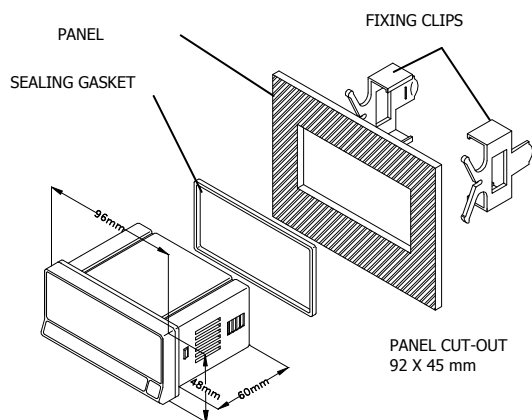
DESCRIPTION

- The MICRA-E model is an instrument that admits AC and DC voltage signals up to 600V or current signals up to 5A directly or up to 9999 through an external shunt
- **Eco** Function: Energy saving up to 45 %
- Easily scalable in required engineering unit.
- Programmable by keyboard or via teach method.
- Colour display programmable, Micra-E let you choose between green, amber or red colour assignable to measure, programming or alarm activation.
- Dynamic change of the display color (red-amber-green) for example when reaching a pre-selected value
- 3 Inputs with 16 logic functions programmable.
- 2 Brightness levels for display.
- Total or partial configuration lockout.
- Peak and valley memory.
- Power supply: 85-265 Vac MICRA-E or 10,5-70 Vdc MICRA-E6.
- Communications protocols ASCII, ISO1745, MODBUS-RTU.
- Totally configurable from PC (free software).
- Programmable filter (10 levels)
- Internal resolution A/D ± 15 bits, Sigma-Delta type.

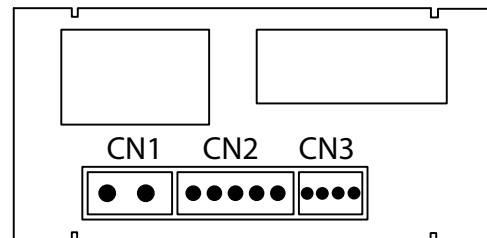
STRUCTURE



DIMENSIONS AND MOUNTING



CONNECTIONS



| CN1 | POWER SUPPLY | |
|---------|---------------|---------------|
| PIN | DC VERSION | |
| 1 | VDC | |
| 2 | VDC | |
| CN2/CN3 | INPUT SIGNAL | LOGICAL INPUT |
| 1 | COMMON | COMMON |
| 2 | SHUNT / 2V | INPUT 1 |
| 3 | 200 mA | INPUT 2 |
| 4 | 1/ 5 A | INPUT 3 |
| 5 | 20/200/ 600 V | |

CODIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Model | Description |
|---|---|---|---|---|---|---|---|---|---------|---|
| F | D | 6 | | | | - | | | | |
| | | | 1 | | | | | | MICRA-M | TYPE OF INPUT Universal input $\pm 10V$, $\pm 20mA$, ± 15 , 30, 150mV, Pt100, Thermocouple type J, K, & T, Potentiometer 200 to 100k Ω with transmitter power supply 24Vdc - 60mA |
| | | | 2 | | | | | | MICRA-D | Counter, Tachometer, Chronometer & frequency magnetic pickup, NAMUR sensor encoder, PNP, NPN, AC/DC voltage & current input |
| | | | 3 | | | | | | MICRA-E | 2, 20, 200, 600V AC/DC & 50, 60, 100mV AC/DC voltage, 200mA, 1 & 5AAC/DC current |
| | | | 1 | | | | | | | POWER SUPPLY 85-265 Vac - 50/60Hz / 100-300 Vdc 21-53 Vac / 10-70 Vdc |
| | | | 6 | | | | | | | |
| | | | 0 | | | | | | | ALARM Without |
| | | | 1 | | | | | | 2RE | 2 alarm relay outputs 8A (High and low) |
| | | | 2 | | | | | | 4RE | 4 alarm relay outputs (5A) |
| | | | - | 0 | | | | | | RE-TRANSMISSION OUTPUT Without |
| | | | - | 1 | | | | | NMA | 1x 4-20mA current re-transmission output |
| | | | - | 2 | | | | | NMV | 1x 0-10V voltage re-transmission output |
| | | | 0 | | | | | | | MODBUS COMMUNICATION Without |
| | | | 1 | | | | | | RS2 | RS232 MODBUS communication |
| | | | 2 | | | | | | RS4 | RS485 MODBUS communication |

OPTIONS

The MICRA-E models can accept up to 3 simultaneous options; output option 2RE, 4RE, 4OPP or 4OP; communication option RS2 or RS4 and analogical option NMV or NMA:

- 2 SPDT Relays rating 8 A @ 250 V AC / 150 V DC
Ref..... **2RE**
 - 4 SPST Relays rating 5 A @ 277 V AC / 125 V DC
Ref..... **4RE**
 - 4 NPN Outputs rating 50 mA @ max. 50 V DC
Ref..... **4OP**
 - 4 PNP Outputs rating 50 mA @ max. 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.
- Isolated analogue output 4-20 mA
Ref..... **NMA**
 - Isolated analogue output 0-10 V
Ref..... **NMV**

STANDARD FUNCTIONS

• 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).

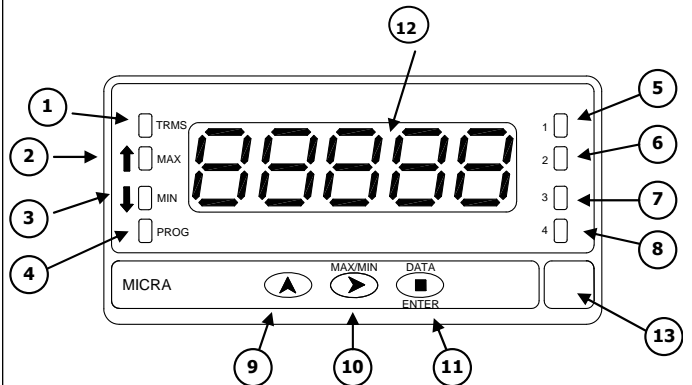
• RESET PEAK AND VALLEY MEMORY

The peak and valley memories can be reset back to their default values by pressing the MAX/MIN key for 3 seconds, taking into account that the reset value of these memories is the current value of the display when the reset is carried out. 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 |
|-------------|----|------------------------------------|--|
| TRMS | 1 | AC measurement indication | - |
| MAX | 2 | Display shows peak value | - |
| MIN | 3 | Display shows valley value | - |
| PROG | 4 | - | PROG mode activated |
| DISPLAY | 12 | Measured value displayed | Displays programming parameters |
| Key ▲ | 9 | | Increments the value of the flashing digit |
| MAX/MIN key | 10 | Recalls peak/valley values | Moves to the right |
| Tecla ENTER | 11 | Enters in PROG mode. Displays data | Accepts data. Advances program |
| Etiqueta | 13 | Engineering unit | |
| LED 1 | 5 | Output 4 activated | Programming output 4 |
| LED 3 | 6 | Output 3 activated | Programming output 3 |
| LED 2 | 7 | Output 2 activated | Programming output 2 |
| LED 1 | 8 | Output 1 activated | Programming output 1 |

Logic Programmable 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 functions available 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 one of the 16 functions listed on the following pages.

(*) Factory configuration.

| N° | Function | Description | Activation |
|----|----------------------|---|--------------|
| 0 | Deactivated | None | None |
| 1 | Deactivated | None | None |
| 2 | Deactivated | None | None |
| 3 | PEAK | Displays the peak value. (MAX.) one pulse brings back to normal reading | Low level |
| 4 | VALLEY | Displays the valley value. (MIN) one pulse brings back to normal reading | Low level |
| 5 | RESET PEAK/VALLEY | Perform a reset of the peak or the valley, depending on which is being displayed. | Falling edge |
| 6 | HOLD | Freeze the display while all the outputs remain active | Low level |
| 7 | PRINT | Sends the display value to the printer | Falling edge |
| 8 | Deactivated | None | None |
| 9 | Deactivated | None | None |
| 10 | ASCII | Sends the last four digits to a MICRA-S. | Falling edge |
| 11 | BRIGHTNESS | Change the display brightness from Hi to Low | Low level |
| 12 | SETPOINT VALUE | Displays the selected setpoint value (see diagram next page) | Low level |
| 13 | False Setpoints | Simulates that the instrument has a four setpoints option installed (4RE) | Low level |
| 14 | PRINT MAX | Sends the MAX value to the printer | Falling edge |
| 15 | PRINT MIN | Sends the MIN value to the printer | Falling edge |
| 16 | Remote keypad | The three logic inputs act as a remote keypad | Edge |

SPECIAL FUNCTIONS

- Return to the factory configuration.
- Programmable color change display
- Total or partial lockout of the configuration by code.

ACCURACY

- Temperature coefficient.....100ppm/°C
- Warm-up time15 minutes

FUSES (DIN 41661) Recommended (not incl.)

- MICRA-EF 0.2A/ 250V
- MICRA-E6F 2A/ 250V

POWER SUPPLY

- UNIVERSAL.....85 – 265 Vac
100 – 300Vdc
- LOW VOLTAGE.....10,5 – 70 Vdc
22 – 53 Vac
- Consumption 5 W without options, 8 W max.

A/D CONVERSION

- Technique Sigma-Delta
- Resolution ±15 bits
- Rate20/s

FILTERS

Filter P (1 to 9)

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

DISPLAY

- Range -19999/ 19999
- Digits...5 LED of 14mm Programmable colour (Red, Green, Amber)
- LEDs 8, functions and outputs status
- Display refresh rate.....20/ s
- Overflow indication *-oUEr, oUEr*

ENVIRONMENTAL

- Operating temperature.....-10 °C to +60 °C
- Storage temperature -25 °C to 80 °C
- Relative humidity <95% to 40 °C
- Max. Altitude2000 m

MECHANICAL

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

ORDERING REFERENCES

- **85-265 V AC 50/60 Hz and 100-300 V DC. MICRA-E**
- **21-53 V AC 50/60 Hz and 10,5-70 V DC .. MICRA-E6**

INPUT SIGNAL

Volts DC

| Range | Accuracy (*) | Input impedance | Resolution |
|-------|------------------|-----------------|------------|
| 2 V | 0.05% L ± 0.3 mV | 100 kΩ | 0.1 mV |
| 20 V | 0.05% L ± 3 mV | 1 MΩ | 1 mV |
| 200 V | 0.05% L ± 30 mV. | 1 MΩ | 10 mV |
| 600 V | 0.05% L ± 0.3 V | 1 MΩ | 0.1 V |

Volt AC

| Range | Accuracy (*) | Input impedance @ 50 Hz | Resolution |
|-------|-----------------|-------------------------|------------|
| 2 V | 0.3% L ± 0.3 mV | 75 kΩ | 0.1 mV |
| 20 V | 0.3% L ± 3 mV | 850 kΩ | 1 mV |
| 200 V | 0.3% L ± 30 mV | 850 kΩ | 10 mV |
| 600 V | 0.3% L ± 0.3 V | 850 kΩ | 0.1 V |

Current DC

| Range | Accuracy (*) | Input impedance | Resolution |
|--------|-------------------|-----------------|------------|
| 200 mA | 0.1 % L ± 0.05 mA | 0.75 Ω | 0.01 mA |
| 1 A | 0.1 % L ± 5 mA | 0.014 Ω | 1 mA |
| 5 A | 0.1 % L ± 5 mA | 0.014 Ω | 1 mA |
| 50 mV | 0.1 % L ± 0.1 mV | 1.8 MΩ | 0.01 mV |
| 60 mV | 0.1 % L ± 0.1 mV | 1.8 MΩ | 0.01 mV |
| 100 mV | 0.1 % L ± 0.1 mV | 1.8 MΩ | 0.01 mV |

Current AC

| Range | Accuracy (*) | Input impedance @ 50 Hz | Resolution |
|--------|-------------------|-------------------------|------------|
| 200 mA | 0.3 % L ± 0.05 mA | 0.75 Ω | 0.01 mA |
| 1 A | 0.3 % L ± 5 mA | 0.014 Ω | 1 mA |
| 5 A | 0.3 % L ± 5 mA | 0.014 Ω | 1 mA |
| 50 mV | 0.3 % L ± 0.1 mV | 1.5 MΩ | 0.01 mV |
| 60 mV | 0.3 % L ± 0.1 mV | 1.5 MΩ | 0.01 mV |
| 100 mV | 0.3 % L ± 0.1 mV | 1.5 MΩ | 0.01 mV |

(*)

- 15 minutes warmup.
- Accuracy at 25 °C ±5 °C
- 10- 75 % R.H non condensing.

(**)

- 15 minutes warmup.
- Accuracy at 25 °C ±5 °C
- 10- 75 % R.H non condensing.
- 45 Hz -400 Hz sine wave input.
- 3% to 100 % of range.
- Crest Factor: 3 ±(0.2% +10 Digits)
- Crest Factor: 5 ±(1% + 20 Digits)
- 40 HZ-10 kHz range: ±(1% +20 Digits)

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