

# MDI - Digital Indicator / MIC - On/Off Controller



## ◆ Specification ◆

- Accuracy:** ±0.1% F.S. or ±1 count for CDC,VDC;  
±0.5% F.S. for Thermocouples;  
±0.25% F.S for others.
- Power supply:** 110/220 ±15% VAC  
(option: 12/24/48 VDC and other)
- Display:** 3.5 digits\* (0-1999) LCD/LED, size 0.5",  
3 digits (0-999), supper red LED, size 1.0" and 1.5".
- Analog output (option):** 4+20mA
- Output MIC-1(2):** 1 (2) relays N.O., 250VAC/5A
- Ambient Temp.:** -10 + +55 °C.
- Temp.stability:** 0.05% changes @10°C of ambient temp.
- Connection:** plug-in terminal on rear panel (see Tab.3)
- Enclosure:** plastic case
- Dimension:** W 96 x H 48 and depth D 118 mm.  
Panel cut-out 91 x 43 mm.
- MDI (LCD/LED, size 0.5")** for DC measurements  
and FLS have reduced depth D 60mm
- MDI (MIC) (LED, size 1.5"):**  
W 144 x H 72 x D 150 mm.  
Panel cut-out 138 x 66 mm.
- Mounting:** by frame with two screws. A metal  
holder for wall mounting is available.

\*There are two models MDI-4-CDC, MDI-4-VDC with display 4.5 digits (0-19999) LED, size 0.5".

## ◆ The front panel description ◆

- [1] LED's indicate activated output relay.
- [2] Push-buttons for display the set-point.
- [3] Potentiometers for setting set-points.
- [4] Units. [5] Display.
- [6] Display switch:  
upper position - set-point value of relay A,  
middle position -input value,  
lower position - set-point value of relay B.
- [7] Symbol "Minus".

MDI / MIC-P-3-07-E (3 pages)

## ◆ Description ◆

Digital Indicator **MDI** is used to display almost every electrical input-signal: voltage, current AC/DC, resistance, temperature sensors (PT-100 and thermocouples), frequency, velocity, level and flow sensors etc...

Digital Controller **MIC-1** provides one and **MIC-2** two C/O contacts. Set-point can be adjusted by one (two) multiturn potentiometers on the front panel.

**MDI** and **MIC** can be ordered with several kinds of displays (see Table 2):

**MDI/MIC** are with LCD/LED 0.5" display (3,5 digits);

**MDI-H1.0** has 1" supper red LED display (3 digits);

**MDI-H1.5 / MIC-H1.5** have 1.5" supper red LED display (3 digits).

Additional functions can be ordered as per Table 1.

Table 1

Model	Description
MDI (MIC...) - AVG... MDI (MIC...) - DF... MDI (MIC...) - DIV...	Mathematical function: average, division, difference, etc. Inputs: 4-20mA
MDI - LP	Powered by its input 4-20mA
MDI - MITWT-...	2 wire transmitter with display. Inputs: CDC/VDC / Pot/ R/ RTD

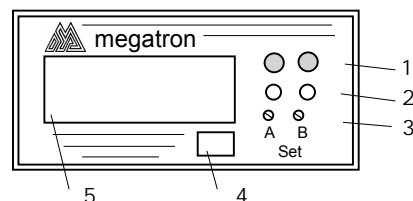
## ◆ Calibration ◆

The unit is calibrated according to customer requirements.

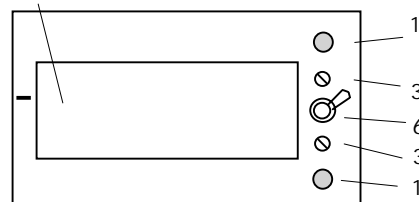
Output relays can be FSL ( activated above set-point and released under) or FSH (selected by a jumper).

Relay set-point can be adjusted by potentiometers Set A (MIC-1) and Set A,B (MIC-2) [3] located on the front panel :

- Hold push-button [2] ([6]) and adjust set-point by appropriate pot' [3]. See value on display [5]. Repeat calibration.



MIC-2-



MIC-2-1.5-

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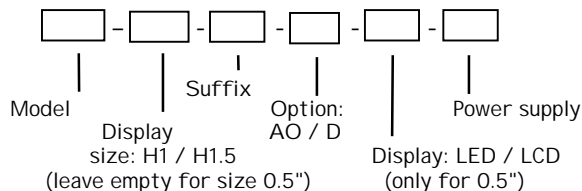
## ◆ Selection table ◆

Table 2

MEASURE- MENTS	Suffix	INPUT	DISPLAY		LED									
			MODEL	SIZE	LCD			0.5"		1"	1.5"			
					MDI <sup>1)</sup>	MIC		MDI	MIC		MDI	MDI	MIC	
						1 <sup>1)3)</sup>	2		1	2			1	2
Current DC <sup>4)</sup>	-CDC	4 ÷ 20 mA , Rin = 22 Ω	•	•	•	•	•	•	•	•	•	•	•	
Voltage DC <sup>4)</sup>	-VDC	0 ÷ 199.9 mV, 0 ÷ 199.9 V, Rin >10 MΩ up to 10V (Option: Rin >100 MΩ), Rin >1 MΩ above 10V	• <sup>5)</sup>	•	•	•	•	•	•	•	•	•	•	
Current AC	-CAC	0 ÷ 1A, 0 ÷ 5A; a conductor passes through current transformer	•	•	•	•	•	•	•	•	•	•	•	
Voltage AC	-VAC	0 ÷ 199.9 mV, 0 ÷ 199.9 V, Rin=10 MΩ up to 10 V, Rin=1 MΩ above 10V	•	•	•	•	•	•	•	•	•	•	•	
Temperature	-TC	Thermocouples J : 0 ÷ 600°C, K : 0 ÷ 1000°C	•	•	•	•	•	•	•	•	•	•	•	
	-RTD	-100 ÷ + 500°C	•	•	•	•	•	•	•	•	•	•	•	
Resistance	-POT	Pot. 0 ÷ 100 KΩ (3 wire)	•	•	•	•	•	•	•	•	•	•	•	
	-R	R = 0 ÷ 200 Ω (2 wire)	•	•	•	•	•	•	•	•	•	•	•	
Frequency,	- F	10 Hz ÷ 100 Khz	•	•	•	•	•	•	•	•	•	•	•	
Velocity	-RPM	Dry contact or Proximity switch NAMUR / NPN / PNP	•	•	•	•	•	•	•	•	•	•	•	
Flow	-FLS	Pulses from flow Impeler ( Magnetic Pickup )	•	•	•	•	•	•	•	•	•	•	•	
	-SRE	4-20mA proportional to differential pressure (square root extracting)	•	•	•	•	•	•	•	•	•	•	•	
Level	-KUB	KUBLER level resistance sensor	•	•	•	•	•	•	•	•	•	•	•	
Power for 2 wire transmitter	-TWL	4 ÷ 20 mA, R = 22Ω ( V <sub>Supply</sub> = 24 VDC)	•	•	•	•	•	•	•	•	•	•	•	

- Option: 1) -AO - analog output 4-20 mA or 0-10 V ( only for MDI . . . or MIC-1 . . . , 0.5" ).  
 2) -AOI - analog isolated output 4÷20 mA or 0÷10 V.  
 3) -D - output relay will operate after a delay ( only for MIC-1 . . . -LCD, 0.5" ).  
 4) Display 4.5 digits (0-19999) LED, size 0.5" ( only MDI -4-CDC, MDI -4-VDC ),  
 5) -VDC-HI - - option: up to 10 V - input resistance Rin>100 MΩ.

## ◆ Ordering information ◆



MDI - H1.5 - CAC - 220

MIC-1- RTD - AO - LCD - 220

Examples:

- ( MDI - CDC - LED - 24 )  
 ( MIC-1 -TC/K -LCD - 220 )  
 ( MDI - H1 - POT - 220 )  
 ( MIC-2 - H1.5 - RTD - 220 )  
 ( MDI - VDC - AO - LCD - 24 )



◆ Connection ◆

Table 3

<p><b>MDI - / CDC / VDC / Pot / RTD / R... (0.5" only)</b></p>	<p>Input and power connections for the MI C-1 and MI C-2 are the same as in the left column.</p> <p><b>MIC-1- ...</b></p>
<p><b>MDI - / CDC / VDC / TC / SRE ...</b></p> <p>+ - 0 ~</p>	<p><b>MIC-2- ...</b></p>
<p><b>MDI - / CAC / VAC ...</b></p> <p>0 ~</p>	<p><b>Options</b></p> <p>Additional connections for models including an option:</p>
<p><b>MDI - / Pot / RTD / R ...</b></p> <p>0 ~</p>	<p>... - <b>AO/AOI</b> ...</p> <p>+ -</p>
<p><b>MDI - / RPM / F ...</b></p> <p>□ ▭ - + 0 ~</p>	<p>... -... <b>VDC</b></p> <p>- +</p>
<p><b>MDI - FLS</b></p> <p>(0.5" only)</p>	<p><b>Examples</b></p> <p><b>MDI - F-AO-LCD-24</b></p> <p>□ ▭ - + + - - +</p>
<p><b>MDI - FLS -AO</b></p> <p>□ ▭ - +V + - 0 ~</p>	<p><b>MIC-2-DF-LED-220</b></p>
<p><b>MDI - TWL ...</b></p> <p>0 ~</p>	<p>Models from Table 1:</p> <p><b>MDI -LP</b></p>
<p><b>MDI - KUB ...</b></p> <p>0 ~</p>	<p><b>MDI -MITWT-...</b></p> <p>- +</p>
<p><b>MDI - DF- ...</b></p> <p>0 ~</p>	

