Universal digital indicator MV31

MV31 is a universal high precision process digital indicator designed for a wide range of input sensors and signals. Five digits LED with 10mm height, allows to read the measurement values from big distant.

Characteristic:

- Compact 150x139,60x34 mm in ABS housing
- Large 5 digit LED display with 10mm height
- Status indication by LED's at front panel
- 85…264VAC or 10…36VDC power supply
- Full configurable via function keys on front panel or by PC via RS232 interface
- Max working and storage temperature 70 ^{0}C

Standard input/output:

- One universal analog input
- One contact digital input,
- Two Relay digital outputs with 230Vac / 3A

Flexible digital outputs function:

- Alarm-comparing value with Hysterezis
- Limit comparing with acknowledge signal
- One shot impulse with defined width
- Time before accept comparison.

Additional Optional modules:

- Galvanically isolated universal analog output
- Additional analog input
- RS485 Modbus RTU interface
- Two Relay digital outputs with 230Vac / 3A
- Digital isolated input module
- Sensor supply module

Measurement Functions:

- Wide range of input signal types software configurable, 24bit resolution and high accuracy
- User defined scaling of analog inputs in two points
- Correction algorithm of measurement in one or two points
- Advance Linearization table up to 10 points, with spline interpolation in between.
- Hold function
- Tare function
- Min/max memorizing function
- Hardware and software filtering
- Special working with one or two electrochemical sensor in auto calibration mode.

Optional Mathematic function

- Dew point [°C] in range -30ºC…+30ºC
- O_2 concentration [%] in range 10^{-29}… 100%
- Lambda value calculation function

Optional PC configuration software:

- "MV31-Settings" - PC based Windows 11/10/7/Vista/XP software for easy configuration and testing of MV31 device.

- Delivered with Isolated USB to RS232 converter to connect with MV31.

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Technical Data:

- **Analog inputs** (one standard and one optional)

1. Thermocouple input

Type		Measuring range	Measuring accuracy	resolution*
B	PtRh-Pt6%	250...1820°C	<1,5ºC	0.1ºC
C	W5%Re-W26%Re	0...2315°C	<1°C	0.1ºC
E	NiCr-CuNi	-200...1000°C	<1ºC	0.01ºC
J	Fe-CuNi	-210...1200°C	<1ºC	0.1ºC
K	NiCr-Ni	-200...1350°C	<1ºC	0.1ºC
L	Fe-CuNi DIN	-200...900°C	<1ºC	0.01ºC
M	NiMo/NiCo	-50...1410°C	<1ºC	0.1ºC
N	Nicrosil-Nisil	-200...1300°C	<1ºC	0.1ºC
R	PtRh-Pt13%	-50...1760°C	<1ºC	0.1ºC
S	PtRh-Pt10%	-50...1760°C	<1ºC	0.1ºC
T	Cu-CuNi	-200...400°C	<1ºC	0.01ºC
Cold junction sensor		-25ºC…+85°C	1,5ºC	0.1ºC
Temp. of ext. ambient sensor if TC is selected		- 100ºC…+200°C	-	-

In accordance with ASTM E230-98e1, E 988-96, DIN 43710-1985, ASTM E1751

Ambient temperature sensor is included

*Resolution is defined with 5 digits display. Real resolution is much greater.

2. RTD input (three or four wire connection)

Type	Measuring range	Measuring accuracy	resolution*
PT100, 3 or 4-wire	-200.0 ... 850.0 °C	0.5ºC	0.01ºC
PT1000, 3 or 4-wire	-200.0 ... 850.0 °C	0.5ºC	0.01ºC
KTY11-6	-50..150 °C	0.5ºC	0.01ºC
Potentiometer	0…630□	0.1%	0.001%
Potentiometer	0…5000□	0.1%	0.001%

In accordance with EN 60751

3. Additional analog inputs

Type	Measuring range	Measuring accuracy	resolution*
Voltage	-0.5V…+10V**	0.05%	0.1mV
Voltage	+-2V	0.05%	0.1mV
Voltage	+-125mV	0.05%	10µV
Voltage	+-30mV	0.2%	1µV
Current	-5mA…+25mA	0.05%	1µA
O_2[%] L or O_2 probe	10^{-29}…0.21%	1% of reading	Float point
Dew point	-30ºC…+30ºC	1%	0.02ºC
Lambda value	0.6…10.0	0.3%	0.001ºC

** Range of +-20V on demand

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- Analog inputs, process value

ADC Analog input resolution	24 bit
Sample period	0.5…1s
Input noise rejection (50/60Hz)	87dB
Digital filter	0…100s
Measurement correction	One or two point correction
Input impedance analog inputs	30MΩ
Input impedance analog input 10V range	100KΩ
Electrical isolation (analog output, RS-485, digital input, coil-contact of Relay outputs)	3000V

- **Digital inputs**

  One unisolated as standard, and two isolated optional.
  Those inputs can be used as control signal for special functions as Hold, Tare, Min/Max.

- **Outputs**

Type	Standard / option	Ratings	Max. Load	Resolution	Accuracy
Relay SPST-NO	2 standard + 2 optional	3A/250V	-	-	-
Current output	option	0mA…20mA 4mA…20mA	<400Ω	16 bit	0.2%
Voltage output	option	0V…+10V 2V…+10V	>2kΩ	16 bit	0.2%
Voltage output	option*	-10V…+10V	>2kΩ	16 bit	0.2%
Voltage output	option*	-1V…+1V	>200Ω	16 bit	0.2%
Voltage output	option*	-100mV…+100mV	>100Ω	16 bit	0.2%
Voltage output	option*	-25mV…+25mV	>100Ω	16 bit	0.2%
Sensor supply voltage	option	non-regulated 15V/30mA	>500Ω	-	-

*Possible with analog output module AOM2

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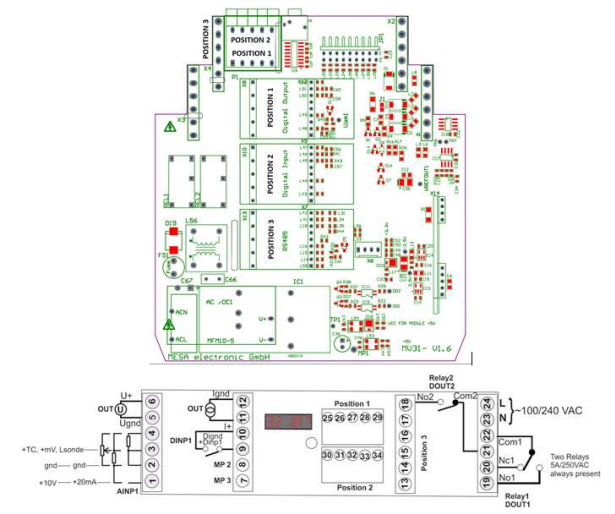
Electrical connection:
Screw type terminal blocks.



Positions of optional Modules:

- Digital Output module -> position 1
- Digital input module -> position 2
- RS485 module ->position 3
- Sensor supply module -> any position
- Analog Input module -> any position

Interface:

- RS232 available at the front side for connecting the device with PC.
  Needed additional accessories include:
  Isolated USB/RS232 converter, USB 2.0 Full Speed compatible, isolation voltage 2500V

- RS485/RS422 as option. Isolated interface for Modbus RTU protocol is additional module in position 3 and the outputs are on pins 13, 14, 15, 16, 17.

Power supply:
AC 85VAC…264VAC, 50-60Hz
OR
DC 10VDC…36VDC

Power consumption 10VA

Housing:
ABS housing for mounting on a DIN rail.
Dimensions 150x139,60x34

Protection:
IP20

Order number	Device name
24809	MV31 85.....265 VAC Universal measuring amplifier
24820	MV31 24 VDC Universal measuring amplifier
540-1310	MV31 Universal measuring amplifier on profile rail %O2

Additional options and accessories

244109	A005/MV31 - configuration software with isolated USB interface