

Isolated analog expansion module: 3 input, 1 output , and RS485 Modbus RTU

MD-AN3

GALVANIC INSULATED

MD-AN3 is the acquisition module with 3 analog inputs configurable and 1 proportional output 0 to 10V. The analog inputs are individually configurable in volts, mA, the input S1 allows the direct acquisition of a probe Pt100 2 / 3 wire. All sections of the MD-AN3 are galvanically isolated from each other.



FUNCTIONING

The acquired values are linearized and placed in a scale before being made available in the local network via RS-485 Modbus RTU protocol. **MD-AN3** is fully configurable from the operator using programming tool **MD-3 UTILITY**.

MD-AN3 diagnostics the out of range sensor status , open sensor or in short circuit. The status is displayed with a flashing LED for every probe.

FRONT PANEL

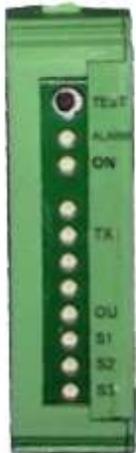
The correct supply of TC-2 is signaled by the LED ON. The Alarm LED is red, indicating the alarm caused by out of range of one of the probes, in this situation, the S1-S3 LED flashes indicating the specific probe failure.

MD-AN3 has the function of test, pressing the specific button to activate the test cycle, lasting a few seconds, during which it commanded, gradually, the output proportional to the value% minimum to value% maximum. The test ends with the sequential lighting of the leds.

SIGNALS

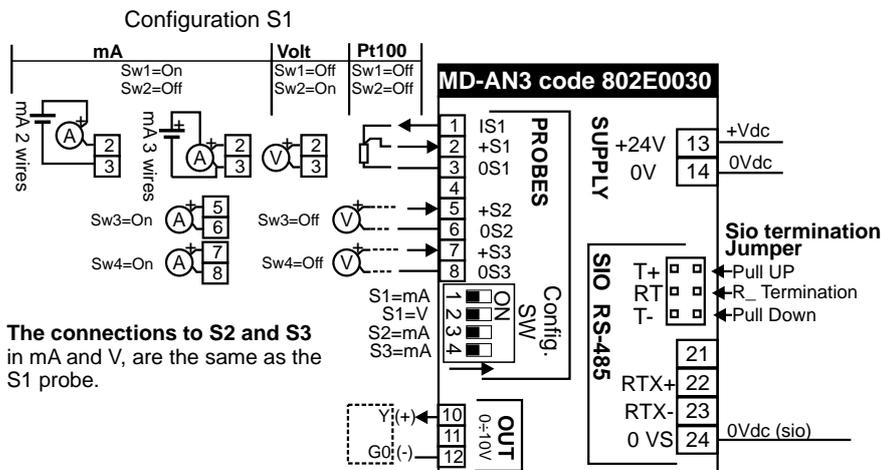
The **TX / RX led** lights in the presence of data exchange on serial port. The **OU LED** blinks proportionally to the percentage of controlled analog output.

The **S1-S3 leds** bright indicate that the relative input is enabled, the flashing indicates out of range of S1-S3 sensor.



- ← TEST key
- ← Alarm
- ← Power ON
- ← Tx/Rx S.I.O.
- ← Analog output
- ← State of analog inputs

WIRING



The connections to S2 and S3 in mA and V, are the same as the S1 probe.

Power supply: Connect the positive voltage (+) to terminal [13], negative (-) to terminal [14]. When reversing the power supply, MD-AN3 not turn on.

SIO serial line termination: when the device is started or terminator line jumper all poles

Serial communication RS-485: use a shielded twisted pair of compliance with EIA RS-485, EIA RS-422, using a pair for the signal 0VS. The screen will be grounded at only one point on the LAN.
Recommended cable type: *Belden 9842*
Maximum Line Attenuation: *6 dB Maximum*
Line Capacity: *100 nf*
Maximum length: *1200 m*
Line Impedance: *100 to 120 ohms*

0-10V Output: control signal for the actuator (fan, inverter, servo control) is isolated from the rest. For connection use the shielded cable to the good performance. To lay the same requirements apply for probes

Probes/transducers inputs: (terminals 1 to 8): Best performance are measured by connecting the sensor with shielded cable, the cable away from laying cables used to control inductive loads (relays and contactors, etc..). Do not lay probes cables along cables connected to loads with voltage > 50 Vac. The screen must be grounded at one point as close as possible to the module.

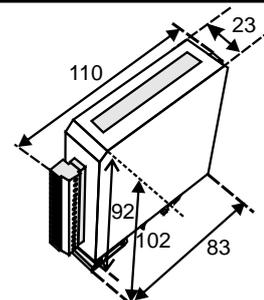
MECHANICAL CHARACTERISTICS

CONNECTIONS: disconnect terminals, cable size: 0.25±0.5mm²

Enclosure protection: IP 30;
Connections protection: IP 10
FLAMMABILITY CLASS: UL 94,V0
VIBRATION: IEC68 part 2-6; IEC68 part 2-27

MOUNTING: for internal cabinet on DIN/Omega rail
DIMENSIONS: H 102 xL 22.5 D 110 mm
WEIGHT: Approximately 80 g

OVERALL DIMENSIONS



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PER LA QUALITÀ CERTIFICATO DA DNV
UNI EN ISO 9001:2008

ELECTRICAL SPECIFICATIONS

Power supply: 24Vdc (18-36Vdc) Ripple 10% max
Absorption: .2 W (Max), Insulation 1KVdc
AD conversion: sigma delta
Measurement resolution: 15 bits + sign
Accuracy +/- 0.2% FS.
Acquisition Pt100: from -100 to 300 ° C
Conversion time: 0.5 seconds for all probes
Analog output: from 0 to 10V on 10Kohm, precision + / -0.1 V
Insulation: 1kV dc
Serial communication: RS-485 half duplex
Insulation: 1kV dc

ENVIRONMENTAL SPECIFICATIONS

OPERATING TEMPERATURE: from 0°C to 60°C
STORAGE TEMPERATURE: from -20°C to 80°C
OPERATING R.HUM.: 95% Rh@ 60°C, not condensing, 24 hours
STORAGE R.HUM.: 95% Rh@ 60°C, not condensing, 96 hours

MODBUS RTU communication

Communications port settings:
Start bit=1; Data bit = 8;Parity check= None Stop bit=1; Baud rate: 9.600-38.400 bps

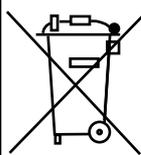
The data is read using the Modbus Table 03 shows the data and their absolute address (dec)

DIGITAL INPUTS			
dec	offset (Hex)	Name	Decimal
400.000	0	Test key	0
400.001	1	Power Fail	0
DIGITAL OUTPUTS			
dec	offset (Hex)	Nome	Decimal
404096	1000	ALARM	0
ANALOG INPUTS			
dec	offset (Hex)	Nome	Decimal
412.288	3000	S1 value	1
412.289	3001	S2 value	1
412.290	3002	S3 value	1
ANALOG OUTPUTS			
dec	offset (Hex)	Nome	Decimal
416.384	4000	Analog output control	1

ORDER CODES

Codes	Descriptions
802E0030	MD-AN3 3 in + 1 out + RS485 Modbus
TUTLMDA3	Programming Kit for MD-AN3, includes: MD-AN3 Utility program for Windows PC, Insulated converter Rs485/USB, extension cables, documentation.
002EP020	Programming tables / data acquisition Modbus Rtu
002EM030_ENG	Instruction manual

Document code: 002EM030_ENG; Instruction manual review: b); 15/06/2009



This product complies with Directive EU 2002/96/EC. At the end of life, the device must be treated separately from household waste and given to the public system of separate collection for electrical and electronic equipment. The holder is responsible for the provision of equipment in the appropriate collection points.

Electrical safety

Conforms to Low Voltage Directive:
CEI EN 61010-1, IEC 61010-1; upd. 2001/11, 2°
Pollution degree: 2 (II)
Installation category (2) II
Degree of Protection: Class 2



This product complies with the requirements of directives 89/336/CEE and its amendments and Legislative Decrees n. 476/92 and n. 615/96 relating to electromagnetic compatibility for industrial environments
EMISSION CEI EN 61000-6-4 (10/02)

WARRANTY
The devices supplied to you are covered by WARRANTY for 24 months as of the registration date, which can be decoded from the identification plate on the device. The warranty consists in repairing the devices free-of-charge (labor and spare parts) that arrive at our laboratory by carriage forward. Since the user can program the device, the manufacturer is relieved of any liability for injury/damage to persons/property due to incorrect programming operations or to the improper use of the device. The replacement of the device or repairs for faulty parts of the device is subordinated to the unquestionable decision of the manufacturer. Limits: the warranty conditions do not apply to defects other than those deriving from materials or assembly. In particular, for instance, the warranty does not cover damages caused by the improper use of the device such as: incorrect power supply, servicing negligence or installing the device in environmental conditions that differ from those indicated in the technical data. The WARRANTY does not cover supplied parts or components that are subject to wear. The WARRANTY right on the product will be voided if the purchaser does not comply with the payment terms agreed upon. Claims. Any dispute as to the nature and quality of goods or services supplied must be made by registered letter or by fax within the peremptory period of 2 calendar weeks after delivery. After that date the product or service will be considered as definitively accepted. For any dispute relating to the sale, interpretation or execution of our contracts, will lie with the Court of Bologna in the case of several parts, or incidental causes activation of guarantees.

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