SERIES

Monitor - transmitter with 8 configurable inputs and communication 1/4 DIN - 96 x 96 mm MLM line

This microprocessor-based instrument is able to acquire and monitor up to 8 process variables.
Each channel is configurable.
Two alarm Set points, freely configurable for every input, drive two common alarm relays.
The instrument is provided with serial communication for remote transmission of locally monitored values.

- **Accuracy:** 0,25
- **Input:** universal configurable (J, K, R, S, B, T, Pt100, mA, mV).
- **Measurement acquisition time:** 0,5 seconds for 8 channels.
- **Alarms:** 2 common relays to the 8 channels, but with 2 independent and configurable thresholds for each channel.
- **Simultaneous display** of measurement and Alarm Set point. Automatic channel scanning.
- **Serial Communication:** RS232C or 20 mA Current Loop.
- **Protection:** setting values and configuration stored in a non-volatile memory.
- **Front withdrawable.**
- **Dimensions:** 96x96 DIN, depht 210 mm.

E

Certified **ISO 9001**

ASCON spa
20021 Bollate - (Milano) Italy - Via Falzarego, 9/11 - Tel. +39 02 333 371 - Fax +39 02 350 4243
http://www.ascon.it e-mail info@ascon.it

General description

FUNCTION OF KEYS AND DISPLAYS

Digital displays

1 Display X: indicates the value of the monitored variable, expressed in engineering units.

2 Lower display: indicates the alarm Set point, expressed in engineering units.

3 Display Z: indicates the channel to which the display indications refer.

LED indicators

4 LEDs AL1 1...8: indicate the alarm condition of threshold "1" for each one of the eight channels.

5 LEDs AL2 1...8: indicate the alarm condition of threshold 2 for each one of the eight channels.

6 LED ERR: indicates inadvertent alteration of stored data.

Keys

7 Keys ▲ and ▼ : increase and decrease the displayed parameter "value".

8 Key ▶ : allows the sequential indication of the parameters on the displays.

9 Key Z : allows selection of the chosen channel or setting automatic channel scanning.

The monitor MLM is a small system able to monitor up to eight independent and configurable inputs.
The inputs are of differential type in order to increase common mode rejection and above all allow the connection of sensors not isolated between them as for instance thermocouples with earthed measuring junction.

INPUT (for each channel)

Suitable for temperature probes with thermocouple (T, J, K, R, S, B etc.) and resistance thermometer (Pt 100) as well as for normalized signals in mA or Volts. It is possible to configure the beginning and end of scale values for the latter. The two alarm Set points and the monitored value are therefore indicated in engineering units.

COMMON ALARMS

Two alarm thresholds activating the two relays common to all channels can be set on each channel.
It is possible to configure the control mode (active High or active Low) for each alarm. "System alarms" may thus be obtained which combine the conditions required for each channel.

LOGIC INPUT

In order to increase operational safety, a logic input is available for impeding the operator to alter set parameters.

SERIAL COMMUNICATION

The serial interface is either RS232C type or 20mA Current Loop, galvanically isolated. The latter version accepts the insertion of up to 64 controllers in a full duplex network. Transmission speed between 150 and 4800 BAUD is programmable as well as parity check.
At the request of the supervisor, the monitor channels can: transmit the value, receive and transmit the alarm Set points and the parameters.
A traffic concentrator is available for connecting a full-duplex network, up to 64 monitor channels, with a computer provided with a RS232-C serial port.

PROTECTIONS

All the parameters and configuration values are stored in a non-volatile memory for an unlimited period.
A watch-dog circuit and R.F.I. filters confer a high degree of immunity to the electrical noises present in industrial environments.

Technical data

INPUT

Except when otherwise specified, the following data is valid for every single control channel.

Common features

- Value acquisition time for 8 inputs: 0,5 sec.
- Linearization of temperature sensors: 64 segments.
- Differential inputs: the inputs of the 8 channels are not galvanically isolated between them, but the symmetry of each one ensures excellent common mode rejection.
- Safety: failure or short-circuiting of the input line is detected and signaled.
  For variations of the supply voltage from 85 to 264 V the measuring error is irrelevant.

For thermocouples

- Internal cold junction compensation.
- Line resistance: 150Ω max.
- Measurement accuracy: ± 0,25% @ 25°C ambient temperature.
- Measurement drift: <3μV/°C ambient temperature variation
  <5μV/10Ω line resistance variation.

For RTD's Pt100

- 2 or 3-wire connection.
- Line resistance: 20Ω max for 3-wire connection.
- Measurement accuracy: ± 0,2% @ 25°C ambient temperature.
- Measurement drift: <0,1°C/10°C ambient temperature
  <0,5°C/10Ω line resistance (3-wires)

DC current and voltage

- Input resistance: with current input: 10Ω
  with voltage input: 2MΩ
- Measurement accuracy: ± 0,2% @ 25°C ambient temperature.
- Measurement drift: <0,1%/20°C ambient temperature

ALARMS

Each control channel has two available alarms AL1 and AL2 with outputs Y4 and Y3 respectively, common to the other channels, energized in OR by all of them. It is possible to configure the control mode: Active High or Active Low for each output.
Outputs: 2 isolated N.O. contacts of 5A/250 Vac max.
Hysteresis: from 0,1 to 10,0% of the span.

SERIAL COMMUNICATION

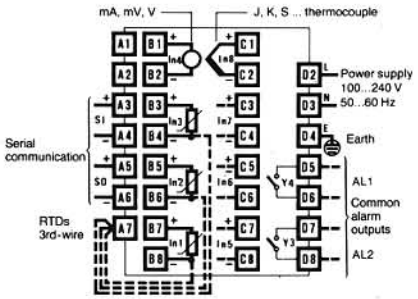
- Interface: RS232C, non-isolated or 20 mA Current Loop, passive, isolated.
- Dialogue: asynchronous and conversational.
- Message length: 5 characters in transmission and 6 in reception (of which the first is the address).
- Character length: 10 bits (of which 7 represent the ASCII character).
- Baud rate configurable between: 150, 300, 600, 1200, 2400 and 4800 bit/s.
- Parity: programmable - even, odd or excluded (8 bit ASCII characters).
- Number of addressable controllers: 64 max.

GENERAL DATA

- Power supply: 100...240 V, 48...63 Hz
  6VA max
- Isolation type: C according to VDE 0110.
- Climatic group: KWF according to DIN 40040
- Ambient temperature: 0...50°C max.
- Protection according to DIN 40050
  Front panel: IP54
  Cover box: IP20
  Terminal board: IP10
  Self-extinguishing material: 94V 1
- Weight: about 1,1 kg.
- Dimensions: 96x96, depth 210 mm.

Connections and fittings dimensions

CONNECTIONS

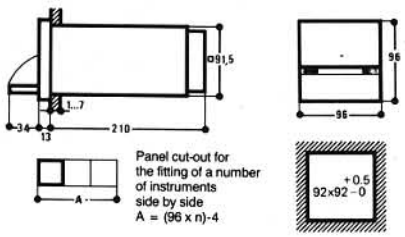


Supply: D2 and D3; D4 (earth)
Inputs (note 1): B1...B8 for inputs 1...4
C1...C8 for inputs 5...8
A7: Common RTDs 3rd-wire.
For a 2-wire connection, jump the negative terminal of the input to this terminal
Serial communication: A3 and A4 reception
A5 and A6 transmission
Common alarm Y4: D5 and D6 (AL1)
Common alarm Y3: D7 and D8 (AL2)

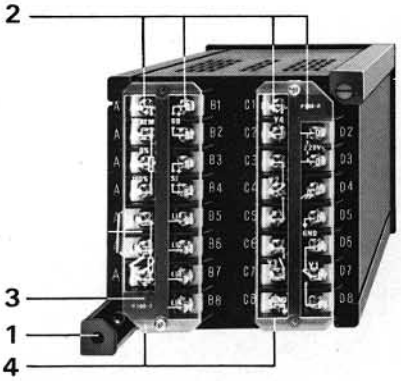
Note

1 - Inputs should be connected according to the selected configuration.
For simplification purpose, the drawing represents: 3 for RTD, 1 for thermocouple and 1 in voltage.

DIMENSIONS



TERMINAL BOARD



1 Fixing screws
2 4 terminal strips for screw 6,35 or faston connection
3 Cold junction compensator
4 Transparent protection plates with wiring diagram

Models and ordering information

To order, specify the model code and the configuration for every channel.

MODEL CODE: MLM - [ ] / [ ] - [ ]

Number of channels: 4 or 8

Serial communication
- None — 0
- RS232C — R
- 20 mA C.L. — P

Power supply
- 3 — 100...240 V, 50/60 Hz

CONFIGURATION CODE: Z [ ] / [ ] - [ ] / [ ] - [ ] - [ ]

Number of the channel (1) or channels with the same configuration

Setting type and control mode of "AL1"
- Active Low — 2
- Active High — 3
- Non active — 9

Setting type and control mode of "AL2"
- Active Low — 2
- Active High — 3
- Non active — 9

End of scale (3) up to 9999

Beginning of scale (3) from -999

Input and scale (2)

C1	Cu-Const. DIN	–200...300°C
F3	Fe-Const. DIN	0...600°C
J1	Fe-Const.	0...600°C
E1	Ni10%Cr-CuNi	0...900°C
N1	NiNiMo	0..1000°C
K2	NiCr-Ni	0..1200°C
S2	Pt10Rh-Pt	0..1600°C
R2	Pt13Rh-Pt	0..1600°C
B1	Pt30Rh-Pt6Rh	300..1700°C
P9	Pt100	–200....600 °C
P27	Pt100	–99,9..200,0°C
A4	0...20 mA linear configurable	
A5	4...20 mA linear configurable	
V7	0....1 V linear configurable	
V9	0...10 V linear configurable	

Note:

1 The configuration line must be repeated for every control channel, however, in order to abbreviate the ordering information, include in this square the numbers of channels having the same configuration. For instance, if the channels 3, 4, 5 and 6 have the same configuration, indicate Z3456/....

2 Calibration: inputs T/C according to IEC 546-1 (coincident with DIN 43760, except for the types Fe-Const. and Cu-Const.; calibration of inputs RTD according to DIN 43760.

3 The beginning and end of scale values are to be specified only for current or voltage inputs; the difference should be as great as possible and not less than 100 steps; it is also possible to configure the position of the decimal point on: xxx.x, xx.xx oppure x.xxx.

EXAMPLE OF ORDERING CODE

MLM-8/P-3;
Z123/2-3/K2;
Z45678/2-3/A5-0,0-300,0.

ACCESSORIES

- **SERIAL COMMUNICATION INTERFACE**
  for 64 ASCON controllers

Modelo: ALS — [ ] / [ ]

Power supply
- 100...240V, 50/60 Hz — 3
- 16...28V, 50/60 Hz — 5

Interface
- RS232 — 232
- RS422 — 422
- RS485 — 485

Panel or rear panel mount