

RAILWAYS Range

Monobloc Reader

MOL81 485 1312
MOL81 485 1337

www.balogh-rfid.com

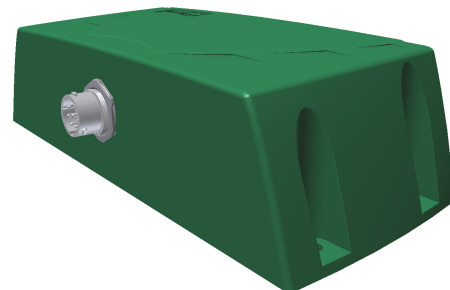
DESCRIPTION

The MOL81 is a short range transceiver specially designed for railways applications. All in one device with integrated antenna, it will most often be used for on-board equipment which is placed on the outside under the mobile body, the contents of the OMR-type radio frequency identification tags, placed along the track between the rails. Using a RS 422-type serial link, it will send the gathered data to a control device (programmable controller or embedded calculator ...) to ensure a localization function in real time or upon arriving at the terminal.

Dual frequency system, the MOL81 incorporate a 125 kHz transmitter without modulation for tags remote power and a 6,78 MHz receiver for data coming from the tag. The MOL 81 has an auto-test system that can be activated by a request through serial link. It also provides two parallel outputs, one of them ensuring that the 125 kHz emitter is functioning correctly, and the other indicates the "presence" of the tag.

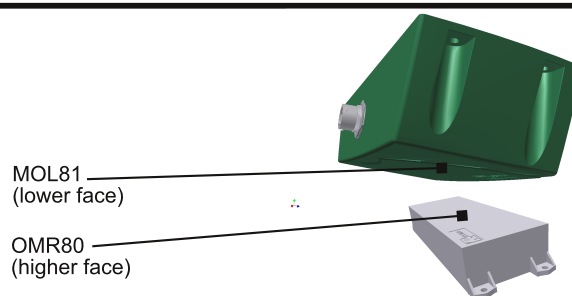
MOL81 485 1312 : Multipoint RS 485 serial link – MODBUS® RTU.

MOL81 485 1337 : Multipoint RS 485 serial link – MODBUS® RTU – To be fixed on metallic plate.

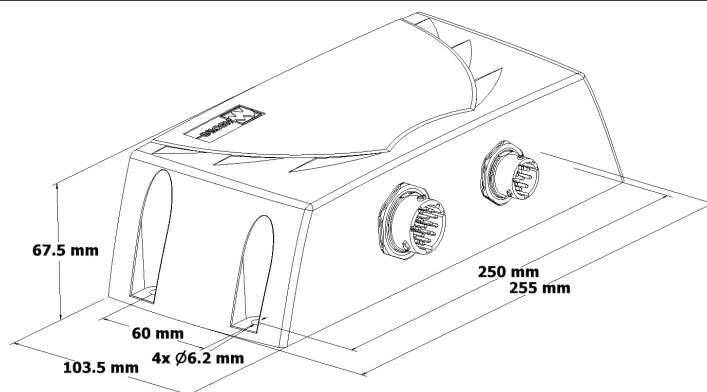


FUNCTIONAL DATA

The beacon OMR80 can be read by a MOL81, as shown in the picture opposite.



DIMENSIONS



TECHNICAL SPECIFICATIONS

	Min.	Nominal	Max.	Unit
Radio frequency communication				
Nominal range		800		mm
Recommended range (with OMR80) = Sr	100		600	mm
Length of transmission area at Sr max ⁽¹⁾	800			mm
⁽¹⁾ Validity condition : maximum angular offset, $\pm 20^\circ$, and lateral, $\pm 200\text{mm}$				
Emission frequency		125		kHz
Reception frequency		6.78		MHz
Reading time		1.02		ms
Power supply				
DC power supply (ripple included)	21	24	29	V
Power consumption @ 24 V		600	1000	mA
Protection against reverse polarity		protected		—
RS 422 serial link				
Data rate		19200		bps
Accidental connections to other pins		protected		—
Output “emission 125 kHz O.K.”				
High level output voltage @ $I_{OH} = 10\text{ mA}$ @ $I_{OH} = 50\text{ mA}$		21		V
		15		V
Low level output voltage			0.5	V
Continuous output current			50	mA
Short-circuits of the load		protected		—
Insulation group				
Power supply, parallel outputs, serial link				—
Connector body, cable shielding				—
Insulation voltage between each group	500			Veff
Insulation resistance between each group (@ 500 V)	10			MΩ
Environment				
Operational temperature	-25		+70	°C
Storage temperature	-40		+85	°C
Electromagnetic compatibility according EN 50121-3-2&EN 50121-4		conform		—
Shocks and vibrations according to EN 50155		installation on bogies or sleepers		—
Fire and smoke according to NF-F16101 / NF-F16102		conform		—
Railway environment according to EN 50155		conform		—
Water protection rating		IP67		—
Enclosure				
Enclosure material		PA6 (Polyamide 6)		—
Weight		2400		g
Coating		Polyurethane		—

CONNECTING

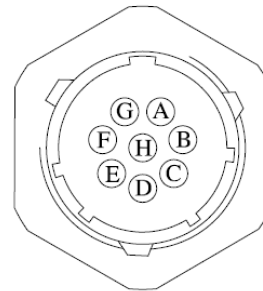
Recommended cable:

- 6 or 8 wires:
 - Power supply : 2 wires
 - Outputs : 2 wires
 - S 485 or 422 serial link : 1 or 2 twisted pairs, 120 line impedance (note 1)
- Overall shield; it must be in contact over 360° to the metallic cable connector housing
- Conductors connected by crimping, wire cross section : 0.5 to 1.5 mm²
- Outer diameter of cable: 8 to 12.5 mm (see § accessories)
- Length: 1200 m max

Connection:

Pin	MOL81 422	MOL81 485
A	Power supply : (U _{pwr})	Power supply : (U _{pwr})
B	RS 422 output : (Tx+)	Impedance matching:(note1)
C	RS 422 input : (Rx+)	RS 485 : (A)
D	Common : (0V)	Common : (0V)
E	RS 422 output : (Tx-)	Impedance matching:(note1)
F	RS 422 input : (Rx-)	RS 485 : (B)
G	« Presence » output	« Presence » output
H	« 125 kHz O.K » output	« 125 kHz O.K » output

(note 1) MOL81 422 : line impedance matching done inside the device.
MOL81 485 : line impedance matching to be made if necessary by connecting pins B and E together.



Pin side view of the male receptacle or wiring side view of the female plug

MOUNTING SPECIFICATIONS

Metallic environment:




Fig. 1

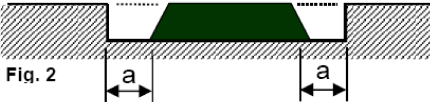


Fig. 2

To keep the range characteristics:

- The MOL 81 must be fixed on a metallic plate exceeding at least 10 cm (a) from all the device sides (fig.1).
- Beyond this surface, a support may be made with a depth equal or inferior to the height of MOL 81 (fig. 2)

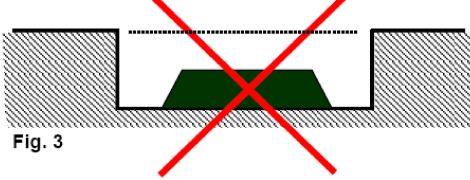


Fig. 3

Fixing:

Fixing will be carried out by 4 screws M6 (not provided).

Important:

Minimum distance between two readers: 2 m.

ACCESSORIES (to order separately)

- 8-pin female plug for a Ø 8 to 12,5 mm cable, *ref:* 495XXB4554.