

RAILWAYS Range

Monobloc Dialogue

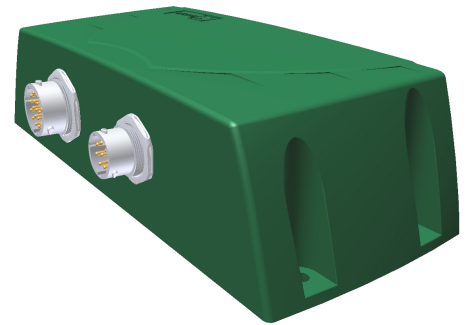
ERES81

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## DESCRIPTION

The ERES81 is a short-range transceiver (less than 1 meter) that operates at a frequency of 13.56 MHz. It is a mono-block device with built-in antenna, equipped with two circular connectors. Based on inductive transmission, it dialogs with a second identical device facing it in ground/aboard data exchange applications (railway applications). Through an RS 422 serial link (8 pins connector), it sends the received data from the transceiver facing to a control equipment, and receives from it the data to be transmitted to the facing device. A second connector (19 pins) brings together the inputs/outputs TOR (all or nothing). Three to four ERES outputs can be ordered by the other ERES and conversely (to refer to the user manual). Frames preregistered and selectionnables by the inputs can also be programmed via the serial link RS 422 by means of a software tool.

ERES81 can function indifferently with any or the two connected connectors.



### Reference of order: ERES81 1307 or ERES81 1308

ERES81 1307 and ERES81 1308 are functionally identical and completely interchangeable. They are not differentiated that by the type of central processing unit used. The extension 1307 or 1308 is to be specified only for applications requiring a redundancy while avoiding the defects risks of common mode.

### Compatibility:

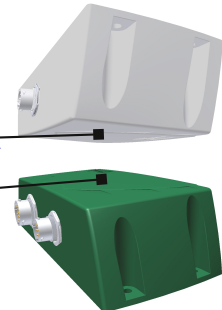
ERES81 functions in couple with one of the following apparatus: ERES81, ERCP81.

## FUNCTIONAL DATA

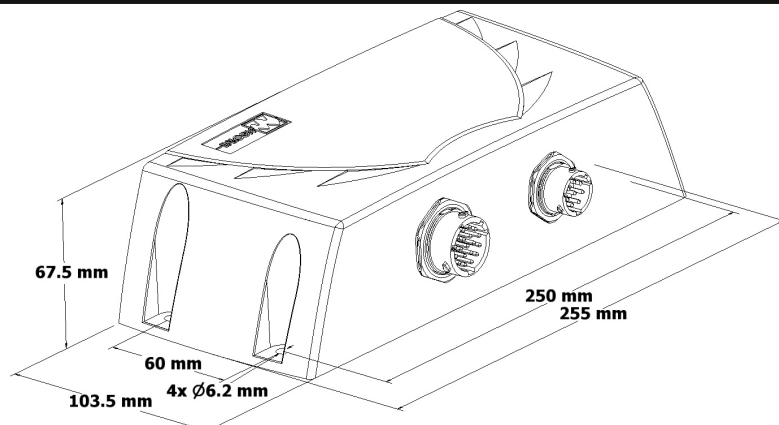
The monobloc dialogue function in face to face with an other apparatus, to see the representation opposite (e.g.: with a ERES81 on the ground):

ERCP81  
(lower face)

ERES81  
(higher face)



## DIMENSIONS



## TECHNICAL SPECIFICATIONS

		min	nom	max	unit
<b>Radio frequency dialog</b>					
S <sub>n</sub>	Nominal Range <sup>(1)</sup>		800		mm
S <sub>R</sub>	Recommended range <sup>(1)(2)</sup>	100		600	mm
L <sub>SR</sub>	Transmission zone length S <sub>Rmax</sub> <sup>(1)(2)</sup>	500			mm
D <sub>ER</sub>	Distance between 2 ERESs on ground	2400			mm
	Carrier frequency		13,56		MHz
	Total exchange time of radio frequency messages		2,1 + 0,138 N <sup>(3)</sup>		ms

(1) : with a metallic environment as indicated in the last page

(2) : Validity condition: maximum angular offset:  $\pm 20^\circ$ , and lateral:  $\pm 200$  mm

(3) : N = Total number of bytes exchanged

**Power supply**

Ual	DC (including ripple)	21	24	29	V
	Consumption @ 24 V			250	mA
	Protection against reverse polarity		protected		-

**RS 422 Serial link**

	Transmission speed		19200		Bauds
	Impedance line (internal adaptation)		120		$\Omega$
	Accidental connections to the other pins		protected		-

**Inputs : opto isolated, polarized, one common**

	Logical 1 level	15	24	29	V
	Logical 0 level			5	V
	Maintenance time for validation of the inputs (0 or 1)	250			ms
	Input impedance		5000		$\Omega$
	Protection against reversed polarity		protégé		-

**Outputs : opto isolated , isolated between each other, non polarized, voltage free, normally opened**

	Switching voltage			29	V
	Switching current			250	mA
	Residual resistance	8		10	$\Omega$
	Short circuit of the load		protected		-

**Insulation groups**

1	Power, RS 422 serial link , input « mode »				-
2	Inputs I1, I2, I3, I4, input common				-
3	Output O1 (2 leads)				-
4	Output O2 (2 leads)				-
5	Output O3 (2 leads)				-
6	Output O4 (2 leads)				-
7	Output « presence » (2 leads)				-
8	Connector bodies, cable shields				-
	Insulation voltage between each group	2			kVeff
	Insulation resistance between each group @ 500V	10			M $\Omega$

**Environment**

	Operating temperature	-25		+70	$^\circ\text{C}$
	Storage temperature	-40		+85	$^\circ\text{C}$
	EMC	EN 50121-3-2 & EN 50121 -4			-
	Shocks and vibrations (mounting on a bogie or sleepers)	NF F05-510, EN 50155			-
	Flammability grade	NF F16 101, EN 60950			-
	Protection rating	IP 67			-

**Boîtier**

	Weight		2200		g
	Enclosure material		PA6 (Polyamide 6)		-
	Coating		Polyuréthane		-

## CONNECTIN

□ **Recommended cables:**

○ **Serial link cable**

- 6 to 8 conductors :
  - 2 or 4 conductors for power supply
  - 2 twisted pairs with a line impedance of 120 Ω for the RS-422 link( adaptation inside the unit).
- 1 overall shield; it must be in contact over 360° to the metallic cable connector housing
- Connection of conductors to the cable connector by crimping; wire cross section: : 0.5 to 1.5 mm<sup>2</sup>
- Outer diameter of the cable: see § accessories
- Length: 1200 m max

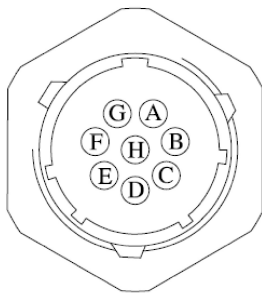
○ **Input/Output cable**

- 19 conductors
- 1 overall shield; it must be in contact over 360° to the connector body
- Connection of conductors to the cable connector by crimping; conductor cross section: : 0.5 to 1.5 mm<sup>2</sup>
- Outer diameter of the cable: 10 to 14.5 or 13.5 to 18 mm (see § accessories)

□ **Connection:**

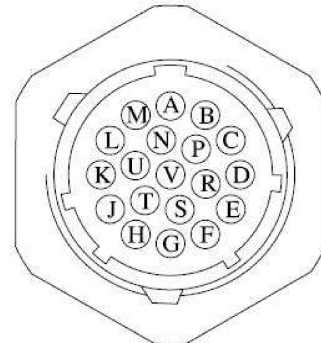
Pin side view of the male receptacle (or wiring side view of the female plug)

Serial link connector	
Pin	Assignment
A	U <sub>PWR</sub> Power supply
B	Tx+
C	Rx+
D	0 V Ground
E	Tx-
F	Rx-
G	U <sub>PWR</sub> Power supply
H	0 V Ground



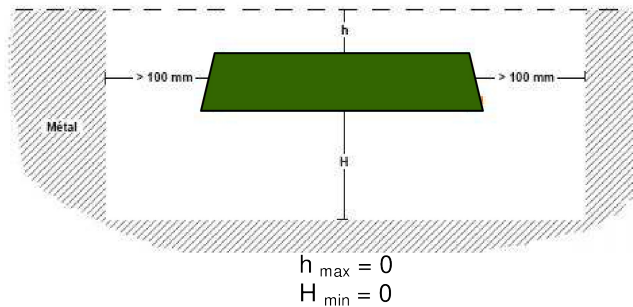
Input/output connector	
Pin	Assignment
A	Sortie « Présence » (1)
B	Input I1
C	Input I2
D	Input Inputs common
E	Input I3
F	Input I4
G	Output O1
H	Output O1
J	Output O2
K	Output O3
L	Output O4
M	Output « Présence » (1)
N	Output O4
P	Input « Mode » (2)
R	0 V Ground
S	U <sub>PWR</sub> Power supply
T	Output O2
U	Output O3
V	0 V Ground

(1): active when 2 ERES communicate  
 (2) : To be connected to a 0V pin (R or V) to select "master" mode.



## MOUNTING SPECIFICATIONS

- **Metallic environment:**



- **Fixing:**

Fixing will be carried out by 4 screws M5 (not provided). Lost length under head: 5 mm.

- **Important:**

Minimum distance between two ERES81: 2400 mm.

## ACCESSORIES (to order separately)

- ▶ 8-pin connector,  $\varnothing$  cable 8 to 12.5 mm, ref. SOURIAU: UTO6128SH (shell), RC16M23K (pin sockets), UTOS12JCSL (backshell and clamp)
- ▶ Metallic protective cap for 8-pin connector, ref. SOURIAU: UTO12DC(G).
- ▶ 19-pin connector,  $\varnothing$  cable 13.5 to 18 mm, ref. SOURIAU: UTO61619SH (shell), RC16M23K (pin sockets), UTOS16JCSL (backshell and clamp)
- ▶ Metallic protective cap for 19-pin connector, ref. SOURIAU: UTO16DC(G).