

# Radio communication devices

## Z-LINK / S-LINK

### ***GENERAL FEATURES***

#### **Functioning**

The Z-Link modules represents a communication systems for data acquisition and transmission in the process control and industrial / civil automation. Based on an UHF modem radio, Z-Link is able to communicate with Z-PC line modules through ModBUS protocol. Z-Link represents a new platform communication in radio frequency. Transmission is manage without any command, the transreceiving module store automatically and transmit it, talking with all the nodes of the net.

#### **Highlights**

- High immunity to the RF disturbs
- Supply by battery or solar panels
- Low hardware and installation costs
- Transparent to the ModBUS protocol

#### **Main features**

- Speed transmission 100 Kbps
- Frequency 434 – 868 MHz
- Communications interfaces RS232/RS485
- Irradiated power 10 mW
- Max. advised power 100 m
- Half Duplex connection
- License free

#### **Serial transmission data**

Z-Link transmits at 100 Kbps. The codifies system assures redundancy and doesn't lose some data. In particular data exchange is based on the transparency concepts and simultaneous flow. The radiomodem behaves itself like a virtual serial cable and once shaped it remains in listens to on the radio duct and the prechosen serial input. Communication system with two or more Z-Link is explained with the characters shipment to the serial input and the characters acceptance on the arrive from the escape in half-duplex modality, that is without to transmit and to receive at the same time. It will be task of the management programs to organize the datas so that the radio duct comes occupied from a single device for time, and in the transmission / reception transitions it comes observed a suitable waiting period.

#### **Applications**

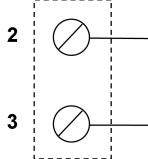
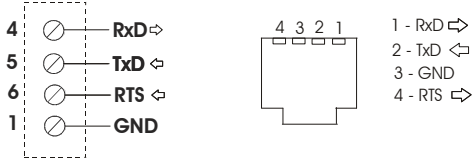
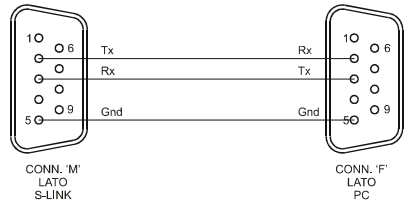
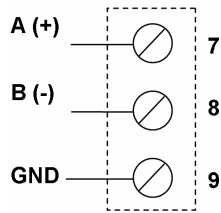
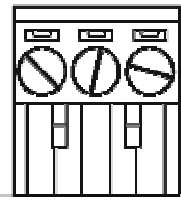
Z-Link is the ideal instrument for data transmission in severals applications:

- Innovative management of utilities (es. integrated water cycle)
- Building management services
- Integrated architectures
- Monitoring and control of not critical processes

## TECHNICAL SPECIFICATIONS

		Z-Link (DIN guide transceiver module)	S-Link (Portable transceiver module)
<b>USE</b>		Transceiver module UHF for the wireless communication between module and control system Z-PC.	Portable model of the transmitter-receiver.
<b>COMMUNICATIONS</b>	<b>Interfaces &amp; Operating</b>	<ul style="list-style-type: none"> <li>▪ RS232</li> <li>▪ RS485</li> <li>▪ Half-duplex communication (between devices the dialogue happens in alternated way)</li> </ul>	<ul style="list-style-type: none"> <li>▪ RS232</li> <li>▪ RS485</li> <li>▪ Half duplex communication</li> </ul>
	<b>ModBUS RTU protocol</b>	Yes	Yes
	<b>Frequency</b>	434 (868) MHz	434 (868) MHz
	<b>Irradiated power</b>	10 mW	10 mW
	<b>Speed communication</b>	100 Kbps	100 Kbps
	<b>Coverage</b>	100 m	100 m
	<b>Connectivity</b>	32 nodes	32 nodes
	<b>Software functions &amp; regulations</b>	<ul style="list-style-type: none"> <li>• Programming flash for others protocols</li> </ul>	<ul style="list-style-type: none"> <li>• Programming flash for others protocols</li> </ul>
<b>ELECTRICAL FEATURES</b>	<b>Supply</b>	<ul style="list-style-type: none"> <li>▪ 10..18 – 21,5..28 Vdc</li> <li>▪ 8,5..14 – 17..20 Vac</li> <li>▪ (50-60 Hz)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Power source 230 Vac</li> </ul>
	<b>Power consumption</b>	2,5 W	
	<b>Frontal status signaling - LED</b>	<ul style="list-style-type: none"> <li>▪ Power supply</li> <li>▪ Data transmission</li> <li>▪ Data receiving</li> <li>Fault</li> </ul>	<ul style="list-style-type: none"> <li>▪ Power supply</li> <li>▪ Data transmission</li> <li>▪ Data receiving</li> <li>Fault</li> </ul>
<b>THERMOMECHANICS FEATURES</b>	<b>Operating temperature</b>	0..+55 °C	0..+55 °C
	<b>Storage temperature</b>	-20..+70 °C	-20..+70 °C
	<b>Max humidity</b>	90% a + 40 °C	90% a + 40 °C
	<b>Connections</b>	Screw-fit removable terminals for wires up to 2,5 mm <sup>2</sup>	Cable 2,5 mm <sup>2</sup> / jack DB9-F
	<b>Antenna connections</b>	Standard connection SMA	Standard connection SMA
	<b>Assembly</b>	DIN guide 35 mm 46277	Portable / for table
	<b>Dimensions (mm)</b>	17,5 x 100 x 112	25 x 68 x 125
	<b>Case</b>	Nylon 6 filled with 30% fibreglass – self extinguishing V0	ABS
	<b>Hot swapping</b>	yes	
	<b>Weight</b>	200 g	200 g
<b>ACCESSORIES &amp; OPTIONS</b>		<ul style="list-style-type: none"> <li>■ Directive Antenna with license for radio coverage more than 1 Km</li> <li>■ Alternative frequencies (es.: 868 MHz)</li> <li>■ Power supply 24 Vac</li> </ul>	<ul style="list-style-type: none"> <li>■ Directive Antenna with license for radio coverage more than 1 Km</li> <li>■ Alternative frequencies (es.: 868 MHz)</li> </ul>
<b>STANDARDS CE</b>		<ul style="list-style-type: none"> <li>■ EN 50081-2, EN 55011, EN 50082-2, EN 61000-2-2/4, EN 50140/141, EN 61010, ETSI 300-328 -</li> </ul>	<ul style="list-style-type: none"> <li>■ EN 50081-2, EN 55011, EN 50082-2, EN 61000-2-2/4, EN 50140/141, EN 61010, ETSI 300-328-</li> </ul>

## ELECTRICAL CONNECTIONS

	Z-Link	S-Link								
<b>Power supply</b>	<p>Important: verify bridges position 12 before to supply</p> 									
<b>RS232</b>		<p style="text-align: center;">SCHEMA CAVETTO DI CONNESSIONE</p> 								
<b>RS485</b>	<p>RS-485 (HALF/FULL-Tx)</p>  <table border="1" style="margin-top: 10px; width: 100%;"> <thead> <tr> <th>Clamp</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">7</td> <td>A(+) RS485 (HALF o Tx in FULL D.)</td> </tr> <tr> <td style="text-align: center;">8</td> <td>B(-) RS485 (HALF o Tx in FULL D.)</td> </tr> <tr> <td style="text-align: center;">9</td> <td>GROUND</td> </tr> </tbody> </table>	Clamp	Function	7	A(+) RS485 (HALF o Tx in FULL D.)	8	B(-) RS485 (HALF o Tx in FULL D.)	9	GROUND	<p style="text-align: center;"><b>CONNETTORE RS485 VISTA DALL'ALTO</b></p> <p style="text-align: center;">GND B- A+</p> 
Clamp	Function									
7	A(+) RS485 (HALF o Tx in FULL D.)									
8	B(-) RS485 (HALF o Tx in FULL D.)									
9	GROUND									
<p><b>Note.</b> Z-LINK and S-LINK modules are designed in order to work with module that they have a response time greater than 3 ms.</p>										

## BRIDGES FORMULATION

Bridges	State	Condition
J2*	Closed	Power supply from 10 Vdc to 18 Vdc - (8,5 Vac-14 Vac)
J2*	Opened	Power supply from 21,5 Vdc to 28 Vdc - (17 Vac- 20Vac)
J4	Opened	Any instrument on 485
J4	Closed	120 ohm on 485
J1	BC closed	Normal functioning
J1	AB closed	Flash programming







\* absent on S-Link

## **STATUS INDICATOR**





<b>Colour</b>	<b>Lighted when...</b>
GREEN	Z-Link is in receiving radio
RED	Z-Link parity error (only in 9 bit mode).
YELLOW	Z-Link is in transmission radio

## **DIP-SWITCH CONFIGURATION**








### Functioning mode selection

1	2	3
On  Off 	On  Off 	On  Off 
Service mode. ON = only emitting by radio gate (*)	Beacon mode. ON = only emitting of short variable messages (*)	Test mode. ON = fixed replay of a test message (*)









### Time-out selection

4	4
On  Off 	On  Off 
TX timeout during; ON = 3 mS (3 ms of default)	TX timeout during, OFF = 12 mS





### Parity type & transmission bit selection

5	5	6	6
On  Off 	On  Off 	On  Off 	On  Off 
ON = pair	OFF = uneven	ON = 9 bit (**)	OFF = 8 bit

### Baud rate selection

7 - 8	7 - 8	7 - 8	7 - 8
On  Off 	On  Off 	On  Off 	On  Off 
19.200 bps	9.600 bps	2.400 bps	115.200 bps

### Serial selection

9 - 10	9 - 10
On  Off 	On  Off 
RX on RS232	RX on RS485

## Notes

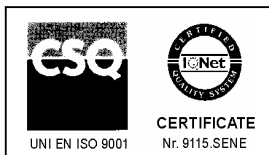
(\*): normally not used

- (\*\*)
- 9 bit setup it means 8 bit reserved for datas and 1 bit for the parity. If we chose setting 9 bit, the card expects to receive information from the PC with the parity type (even or uneven) set up on switch 5. If the card receives from PC a character with not consistent parity, the chip accept it and forwards it, but it marks the fault igniting the red LED. In order to cancel the error signalling it is necessary to act on switch 6, setting up also for a moment modality 8 bit. Such operation can be executed while the card is in function, and does not determine the real passage to the operation with 8 bit.
  - You notice yourself that the signalling of which over bit comes only managed for the 9bit. Using 7 bit plus parity falls back in the normal transparent operation to eight bit. During reception radio the card does not execute some verification of the parity, but it is limited to add a bit of corrected parity to that it has reconstructed reading the flow of give to you. In such a way, the PC always receives and however 9 words of bit with parity in compliance with how much chosen one with switch the 5.

## **STANDARDS CE**

Devices has been tested in compliance with CE directives::

- EN 50081-2 EMC – Standard of generic emission, Part 2 – Industrial atmosphere
- EN 50082-2 EMC – Standard generic immunity, Part 2 – Industrial atmosphere
- **Radio frequency transmission.** Technical norm ETSI 300-328 imposes not to irradiate with one advanced power E.I.R.P. to the 10 mW (equivalent to 10 dBm).



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