



SCIEL READER R High range active RFID reader with integrated relay

Ref. SCIBT27B



« Hand-Free »: automatic contactless reading system without any operation on our Active RFID Tags

Active RFid

Active radio-frequency identification

- Adjustable receiving range
- Supported protocols for Access Control: output' selection compliant with Wiegand 26 bits or Clock & Data protocols
- RS232, RS485 or USB communication ports
- Internal relay with dry contact user-definable activation mode
- Configuration and management with ERM software running on PC
- EMC: this product complies with the standard I-ETS 300-683 on the electromagnetic emissions.



Specifications					
External Power Supply	12 VDC (7VDC to 18VDC)				
Average Current	20 mA or 34 mA if relay activated				
Frequency	433,92 MHz +/- 150KHz				
Receiving Range	Adjustable				
Access Control Protocol	Wiegand 26 bits	Data Clock			
	D0 - D1	Data – Clock			
	26 bits	10 or 13 characters			
RS232 Interface	TX, RX and GND signals on internal connector – Selection by jumper				
RS485 Interface	Half ou Full Duplex. TX and RX signals on internal connector				
USB Interface	Internal connector USB 1.1				
Commands	 1 NO/NF dry contact: 0.5 A @ 125 VAC / 1 A @ 24 VDC Stand-alone mode: activated upon detection of one ID code and remains closed if one or more codes are within the reception area. On-line mode: activated by software command Software Configuration by "ERM" Configuration Tool 				
Connectors and Fixing system	Screw connectors on board – Cable through Gland connector – 4 internal mounting holes				
Antenna connector	Female BNC Connector for 433MHz external antenna				
Settings	ERM Configuration tool provided for PC running over Windows XP, VISTA, Windows 7				
DEL Indicator	Power, Relay activation				
Casing	Painted Aluminium : 95 x 54 x 35 mm - IP65 Waterproof				
Operating Temperature	-20°C to +60°C				
Standards	EN 301 489 – 3 : 2002 V1.4.1 ; EN 300 220 – 2007 : V2.1.2 ; CE Mark ; RoHS Certified				

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1.1 Connector A: power supply, relay, D&C protocol, Wiegand protocol

The reader is equipped with a 8-pin connector A for the external power supply, the WIEGAND or DATA CLOCK outputs and the relay's contacts contacts and with a 6-pin connector B for the serial link RS232 or RS485 Full Duplex.

Connector A's pin	D&C mode	Wiegand Mode
R	Relay NC	Relay NC
Т	Relay NO	Relay NO
C	Common	Common
CLK	Clock	D0
D1	Data	D1
Р	Presence	Presence
GND	GND	GND
12v	+ 12VDC	+ 12VDC

The WIEGAND or D&C outputs are based upon Open Collector.

The alarm system or the access controller connected to the reader must be equipped with Pull Up resistors (resistors mounted in parallel between the output and the controller's reference voltage at high level) mounted at its input (300Ohms min, VCC max). Imax = 100mA.

However, in case of the lack of resistors at the controller level, it may be feasible to program resistors at the reader's level.





The jumper J1 can be used to configure the voltage of pull up resistors.



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Picture: pull up's jumper in 5VDC mode



Picture: pull up's jumper in 12VDC mode

We strongly recommend that the pull-up resistors be soldered at the controller's level for a distance higher than 1 or 2 meters.

To remove manually the pull-up resistors R10 from the reader, mounted by default, please refer to the picture below.



Picture: R10 pull-up resistors





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Figure 2 : Example of Wiegand wiring with Pull Up resistors at the controller level

1.3 Jumper J2: internal relay command

The J2 jumper is used to configure the command of relay.

1.3.1 Stand-alone mode

When the reader is configured in the CONTEXTUAL mode and when the option Direct Command of Relay is activated, the detection of a defined quantity of tags in the detection field will activate automatically the relay.

When the last tag is out of the detection area and when the "leadtime before indicating the tag is of out of range" is exceeded (by default, defined at 6s), the relay is deactivated.

The relay can be managed by this way only with the CONTEXTUAL mode AND the Direct Command of Relay activated.



Picture: Jumper J2 in stand-alone mode



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1.3.2 Operating mode by software command « OK »

A specific software command can be used to activate the relay during 4 seconds roughly when this command is sent to the reader through the serial link (USB, RS485, RS232).

To maintain the relay as activated, the software command has to be transmitted in a quicker recurrence than the initial closing timing (4s not adjustable).

Please refer to our Software Datasheet MCHD: READER COMMUNICATION PROTOCOL AND SETUP COMMAND LIST.

The relay can be managed by this way only with the ON-LINE mode AND the Direct Command of Relay deactivated.



Picture: Jumper J2 in stand-alone mode

1.3.3 Presence Mode

The reader has to be configured in the CONTEXTUAL mode or in the ON-LINE mode AND the direct command of relay has to be deactivated.

Any detection of a tag in the detection field will activate the relay. The contact will be maintained closed until the tag's ID code will be received (around 100 to 200ms depending of the configured mode, WIEGAND or DATA&CLOCK respectively).

The relay can be managed by this way only with the ON-LINE mode or the CONTEXTUAL mode AND the output interface configured as RS232 + WIEGAND or RS232 + DATA&CLOCK.



Picture: jumper J2 in PRESENCE mode



1.4 Connector B: RS232, RS485 (422)

The reader contains a second connector B used for the serial link RS232 or RS485 Full Duplex.

Connector B's pin	RS232 mode	RS485 (RS422) mode	
485 R-		RX -	
Rx / 485 R+	RX	RX +	
Tx / 485 T-	ТΧ	TX -	
485 T+		TX +	
GND	GND	GND	
+5 OUT	+5VDC (30mA) output	+5VDC (30mA) output	

1.5 Jumper J3: RS232 or RS485 (422) mode

The jumper J3 is used to configure the serial link.



Picture: jumper J3 in RS232 Full Duplex mode

The table below shows the different configurations available in RS232, RS485 and RS422 mode:

Jumper J3	Configuration
Half 485 485 ON	RS232: Full duplex mode
Half 485 485 ON	RS485: Half duplex mode, 4 wires
Haif 485 485 ON	RS422: Full duplex mode
Half 485 485 ON	RS422: Half duplex mode + activate the « Half duplex » option (Command [CB0101] on ETER software) RS485: Half duplex mode, 2 wires





1.6 RS485 Network architecture on 2 wires and 4 wires

Cable network, 2 wires:



Cable network, 4 wires:



The 120Ω termination resistances are mandatory to complete the line impedance matching, they allow maximum control of signal reflection.

1.7 USB connector

The reader has an internal USB connector for the USB link and the direct power supply. An USB driver is available in our DOWNLOAD area to emulate the USB port as a RS232 communication port.





1.8 **DEL Indicators**



2 Reader's operating mode

2.1 Configuration Command List

Please refer to our Software Datasheet MCHD: READER COMMUNICATION PROTOCOL AND SETUP COMMAND LIST.

Furthermore, our Terminal software ETER is available to communicate in a serial mode with our reader. This software is available in our DOWNLOAD area.

9	ETER - ELA Terminal v2.0.8 –	X
	-Envoi Binaire	
	FFFFF5502010101C70340014858	Envoi
	FFFFF5502010101CD034001485E	Envoi
	23300D0A4348412C32322E3530303	Envoi
	323030392C2030312C2032312C203	Envoi
	Envoi ASCII	
	[990000]	Envoi
	[0A0000]	Envoi
	[0E0000]	Envoi
	[860000]	Envoi
	EP n*1 Config RAn*1 EP n*2 Config RAn*2 EP n*3 Config RAn*3 EP n*4 Config RAn*4	Config Config Config Config
	✓ Mode Lecteur Horodater Mode Binaire Mode Binaire	vatio
	Analyser	alonnage
	MCHD y	vegarde
	Co	nfigurer
	Enregistrer Déc	onnecter
at: Connecté Temps de Connexion: 00:00:13 192.16	68.0.123-10001 Mode: ASCII	

Image : ETER's main page



2.2 **Configuration by software**

Our configuration software tool, ERM, is available to configure our SCIEL READER R devices.

B		ELA R	eader M	lanage	er v2.0.	1 -		×
File (Configuration	Monitoring	?					
Readi	Reading Threshold 254 A					^		
Opera	Operating Mode					Online		
Outpu	it Type					RS232		
Tag's	Radio Frame F	ormat				24 bits (ID)		
Time o	delay before si	gnaling the tag is	out of rang	ge (seco	nds)	6		
Time o	delay before se	ending the tag list	(seconds)			10		
CRC						0		¥ .
<							>	_
Recei	iver Parameter	s						
			-					
					_			
Firmw	are Version :					Read	Write	
Serial I	Port COM3 ope	ning done	~					~
<			>	<			>	Ť
, F								
I∾ Op								
Ready					#	Port COM3 Ok	Receive	r 01

Image : ERM's main page

3 Example of accessory's wiring





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For 12Vdc device.

The light is turned on if at least 1 tag is detected in the defined detection area. To invert the light's state, you have to connect the light to R pin instead of T pin.

4 Mechanical specifications



5 References and versions

Model	Reference P/N	Specifications
SCIEL Reader R	SCIBT27B	12 VDC 433.92 Mhz
SCIEL Reader RU	SCIBT36	12 VDC 433.92 Mhz – USB cable directly mounted on the board
SCIEL Reader RM	SCIOM27	12 VDC 433.92 Mhz – Complete OEM board w/o housing
SCIEL Reader R24	SCIBT34B	24 VDC 433.92 Mhz
Sciel Reader RM24	SCIOM34B	24 VDC 433.92 Mhz - Complete OEM board w/o housing
Sciel Reader R24H	SCIBT88	24 VDC 868.35 Mhz

6 Standards

- EN 301 489 3 : 2002 V1.4.1 ; EN 300 220 2007 : V2.1.2
- CE Mark
- RoHS Certified