

User guide

SCIEL **READER IP2**

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Ref. SCIBT68B



- Powerful "Active RFID gateway" for your Ethernet local network
- Compact and robust aluminium housing dedicated for the industrial applications
- Integrated PoE feature for the SCIEL READER IP2
- Multiples IP protocols supported for the network management with your LAN network



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1 MAIN SPECIFICATIONS

	TECHNICAL SPECIFICATIONS
External power supply	9-48 VDC
Average current	@9V 120mA @12V 90mA @24V 55mA @48V 40mA
Frequency	433,92 MHz (868MHz version: SCIEL READER IP2H)
Receiving range	Customizable with a software command
Operating temperature	-20°C to +60°C
Supported IP protocols (network admin)	Data Transfer: TCP/IP, UDP/IP, Telnet Communication and network management: ARP, ICMP, SNMP, DHCP, BOOTP, TFTP, AutoIP, HTTP
Settings	Device Installer software (IP network settings) & ETER configuration software (Active RFID settings) running under Windows XP, W7, W8
RFID Antenna connector	SMA-F
Supply connector	DC supply jack: 2.1 mm Pluggable terminal block, with a 3.81 mm pitch
LED indicators	Power (yellow), frame receipt (blinking yellow) Ethernet network presence (blue) On the Ethernet module: network speed (green), network communication (yellow)
Housing	Aluminum with anti-oxydation paint – 98 x 64 x 36 mm
Waterproof IP Level	IP52
Standards	EN 301 489 - 3 : 2002 V1.4.1 ; EN 300 220 - 2007 : V2.1.2 ; CE ; RoHS certified
Output interface	Ethernet 10Base-T or 100Base-TX (auto-sensing) Open Collector output (0.1A, 30V)
PoE function	Fully Compliant IEEE 802.3af PD Interface
Ethernet connector	RJ45 Ethernet
Accessories	1.5m RJ45 cable included SMA-M BNC antenna converter included Mini straight RFID 433MHz antenna included Male Power Supply removable connector included DIN RAIL mounting clip – DIN CLIP01 (not included)



2 PACKING INFORMATION

The packaging of the SCIEL READER IP2, reference SCIBT68, contains:

- The SCIEL READER IP2 itself, packed in a ESD plastic bag
- Its 1.5m RJ45 Ethernet cable
- A 433MHz RFID mini antenna
- A SMA-male to BNC-female adapter







Figure 2: The SCIEL READER IP2 and its RJ45 Ethernet cable



Figure 3: 433MHz RFID mini antenna and SMA-M to BNC-F adapter



3 PHYSICAL INFORMATION



Figure 4: SCIEL READER IP connectors

3.1 Antenna connector

The external antenna connector is a Female SMA connector with a 50Ω impedance. This connector is factory mounted on the front side on the housing, but can also be mounted on the back side.

To change the antenna connector's side:

- 1. **Open the housing** by unscrewing the 4 top screws, and **remove the main board** and its two screws. For more details on these operations, see 3.5 and 3.6, figures 7 and 8.
- 2. **Remove the plastic plug** that hides the rear mounting hole (surrounded with red)
- 3. Remove the SMA plug (unscrew the nut)
- 4. Place the plastic plug in the front hole.
- 5. Mount the SMA plug in the rear hole.
- 6. **Ensure the UFL connector** (surrounded with yellow) is plugged correctly.
- 7. **Mount the main board back** and **close the housing**. Be careful not to tighten the screws too hard, it could make damages.





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3.2 3 pins terminal block wiring



Pin	Description
Out	Relay out (open collector)
G	Ground – Supply negative
+	Supply positive

The Out pin can be controlled:

- By sending the instruction [OK0000LL], the relay is turned on for 4 seconds.

- By contextual stack length (number of tags in the detection field): the relay is turned on until the number of tags in the detection field is higher or equal to the number of expected tags (see commands 26/27 in the MCHD "Reader Communication & setup protocol" file on our website).

3.3 Power supply and Power Over Ethernet (POE)

The reader is compatible with a POE supply.

There are some securities to allow connecting power supplies to the DC jack, 3 pins connector and POE simultaneously.

If a correct voltage (9V < V+ < 48V) is present on DC jack or 3 pins block, the reader will use it and disable POE.

In this case, if DC power is removed, the reader will NOT be supplied until POE restarts.



Figure 6: Reader mounted on a DIN rail with POE supply





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3.4 LED Indicators



LED number Color		Description	State
1	Vellew	Power Supply present	Permanently lighting
I	renow	Data transmission	Blinking
2	Blue	Reader is connected to an active network	Permanently lighting
2	Croop	Network speed = 10Mpbs	OFF
3	Green	Network speed = 100Mbps	Permanently lighting
4	Yellow	Network communication	Permanent/Blinking

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3.5 Reset button



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To **reset the Ethernet module** to factory settings, **plug a power supply** into the reader, and **press the Reset button** for 10 seconds. It does NOT reset the reader itself!

Figure 9: Reset button surrounded by the red rectangle

To access the Reset button, you have to unscrew the 4 screws on the top of the housing, as shown on the image alongside.



Image 10: 4 screws to be unscrewed

3.6 DIN rail mounting

The SCIEL Reader IP2 can be mounted on a standard DIN rail.

To do this, you need our DIN CLIP 01 accessory, a screwdriver and a 3mm hex key. Open the reader's housing by unscrewing the 4 screws on the top (see image above).



Figure 11: Main board's screws

First, unplug all the power supplies and other cables from the reader.

Unscrew the 2 screws that block the main board.



Figure 12: DIN rail screws

Remove carefully the main board and pick the 2 screws up. Keep them for the following operations

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Remove the washer on the 2 screws of the previous step. Keep them for later use.

Reassemble the whole unit. Don't tighten the main board's screws too hard, otherwise you could **make dammages** !

Place the DIN CLIP 01 accessory as shown on the image alongside, and screw it.

Now the reader can be mounted on a standard DIN rail.

Image 13: DIN rail mount

4 READER'S OPERATING MODE

4.1 Physical setup

1. Plug an antenna on the female SMA. You can use the included SMA-Male -> BNC-Female adapter. If your antenna has a BNC plug.

- If you want to use an external DC power supply, plug it in the DC jack or wire it to the pins 'G' (ground) and '+' (positive) of the 3 pins block.
- 3. Plug the RJ45 cable to your local network and to the Ethernet plug of the reader.



Figure 14: Readers's LEDs working

For the following, refer to 3.4 LED Indicators.

The reader's yellow LED must be on (blinking or permanent): that means the reader is correctly supplied. The reader's blue LED must be on too: that means the network is working. These two LEDs are surrounded by a red rectangle in the image above.



4.2 Software setup

You will need two software:

- 4. Device Installer: <u>http://www.lantronix.com/support/downloads/?p=DEVICEINSTALLER</u>
- 5. ETER: https://elainnovation.com/eter-.html

For this document, we used *Device Installer* v4.4.0.0 and *ETER* v3.0.1. Some things might change if you use different versions.

Install them on your computer, then you can follow the procedure below.

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4.2.1 Setup the Lantronix Ethernet module



Figure 15: Main page - Device Installer

Open Device Installer, then click the Search button.

It will search for every Lantronix device on your network: the SCIEL READER IP2 is interfaced with a Lantronix module.



2 Lantronix DeviceInstaller 4.4.0.0	-	-				
File Edit View Device Tools Help						
🔎 Search \ominus Exclude 🔇 Assign IP	🔑 Search \ominus Exclude 🔌 Assign IP					
E - Lantronix Devices - 1 device(s)	User Name	User Group	IP Address	Hardware Address	Status	
H → SS Connexon reseau sans fil (192, 168.0, 139) ⊕ ← xPico			192.168.0.124	00-80-A3-93-71-2B	Online	

Figure 16: Device Installer after clicking Search

In the right part of the window, you can find the reader's IP address and MAC address.

From this step, if you know what you do and want to keep the Ethernet module with factory settings (auto IP, 9600 bauds RS232, no security ...), you can go to 4.2.2 Setup and test the reader with ETER.

Double-click on the name of the Lantronix module. It's the one surrounded by a red rectangle in the image above.

2					
File Edit View Device Tools Help					
🔎 Search 🤤 Exclude 🔌 Assign IP 🚳 Upgi	rade				
E- 📲 Lantronix Devices - 1 device(s)			n		
⊡	Aeload Details				
xPico - firmware v6.8.0.2		Property	Value		
192.168.0.124		Name	xPico		
		DHCP Device Name			
		Group			
		Commonto			

Figure 17: Full details page for the Lantronix module

You should see a page with many details about the Lantronix Ethernet module. Select the *Web Configuration* tab (surrounded with red).



Figure 18: Lantronix configuration page

Click the Navigate to button (surrounded with red).



Le serveur 192.168.0.124 à l'adresse (null) requiert un nom d'utilisateur et un mot de passe.				
Avertissement : ce serveur requiert que votre nom d'utilisateur et votre mot de passe soient envoyés de facon non sécurisée (authentification de				
base sans conr	nexion sécurisée).			
	Nom d'utilisateur			
	Mot de passe			
	Mémoriser ces informations			

Figure 19: Authentication to Ethernet module

You should be asked for authenticating.

If your reader is set to factory settings, just click OK or press Enter on your keyboard.

Else, if you have already set a password that you don't remember, you can reset the Lantronix module by pressing the *Reset* button for more than 10 seconds (refer to 3.5 *Reset button*) and restart the procedure from 4.2.1 Setup the Lantronix Ethernet module.



Figure 20: Lantronix module configuration page

This is the main configuration page for the Ethernet module.

Unless you have very specific needs, you will only use two tabs: *Network* and *Serial Settings*, both surrounded with red.



4.2.1.1 Network tab

Device Details Web Configu	uration Telnet Configuration	
< 🔁 🛞 Address: htt	p://192.168.0.124/secure/ltx_conf.htm	
LANTRO	NI <mark>X</mark> °	Firmware Version: V6.8.0.2 MAC Address: 00-80-A3-93-71-2B
盘		Network Settings
Network		
Server	Natural Mader Wined Only a	
Serial Tunnel	Network Mode: Wired Only 👻	
Channel 1	IP Configuration	
Serial Settings	Obtain IP address	automatically
Connection	Auto Configuration	n Methods
Configurable Pins	BOOTP:	le Enable 🔘 Disable
Apply Settings	DHCP:	le Enable 🔘 Disable
	AutoIP:	🖲 Enable 🔵 Disable
Apply Defaults	DHCP Host Name:	
	Ose the following	IP configuration:
	IP Address:	192.168.0.124
	Subnet Mask:	255.255.255.0
	Default Gateway:	0.0.0.0
	DNS Server:	0.0.0.0
	Ethernet Configuration	
	Auto Negotiate	
	Sneed	100 Mbns 10 Mbns
	Dupley:	
	Duplex.	
		UK Done!

Figure 21: Network page

With the SCIEL READER IP2, the only mode available is Wired Only, so you can't change it.

The main feature of this page is the choice between automatic and fixed IP address.

If you want to use a fixed IP, just tick the Use the following IP configuration box (surrounded with red) and fill the fields below it.

For example, you can set them as in the image above.

Once you filled all the useful fields, click OK.

It should say "Done !".

Then click on Apply Settings, surrounded with yellow.



Figure 22: Loading message

You should see the loading screen above. Wait for it to finish. The browser goes back to the main configuration page.

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4.2.1.2 Serial Setting tab

Device Detaile Web Config	Juration Talast Configuration
G 🔁 🐨 Address: htt	tp://192.168.0.124/secure/ltx_conf.htm
LANTRO	Firmware Version: V6.8.0.2 MAC Address: 00-80-A3-93-71-2B
<u>ଜ</u>	Serial Settings
Network	
Server	Channel 1
Serial Tunnel Hostlist	Disable Serial Port
Channel 1	Port Settings
Serial Settings	Protocol: RS232 Flow Control: None
Configurable Pins	Baud Rate: 115200 ▼ Data Bits: 8 ▼ Parity: None ▼ Stop Bits: 1 ▼
Apply Settings	
	Pack Control
	Enable Packing
Apply Defaults	Idle Gap Time: 12 msec 📼
	Match 2 Byte Sequence: O Yes O No Send Frame Immediate: Yes O No
	Match Bytes: 0x 00 0x 00 Send Trailing Bytes: None One Two (Hex)
	Flush Mode
	Flush Input Buffer Flush Output Buffer
	With Active Connect: O Yes O No With Active Connect: Yes O No
	With Passive Connect: O Yes O No With Passive Connect: Yes O No
	At Time of Disconnect: O Yes O No At Time of Disconnect: Yes O No
	OK Done!

Figure 23: Serial Settings page

The main parameter on this page is the Baud Rate, surrounded with red.

To change it, you must follow the two steps below in the order!



1. **Change the SCIEL CARD's serial speed** with *ETER* software by sending the command: [13xxRR].

Replace xx by the value you need and RR by your reader's ID. For more details, refer to 4.2.2 Setup and test the reader with ETER and 4.3 Configuration commands list.

2. Change the Lantronix module's speed after changing the SCIEL CARDS's one.

If you modify the module's speed before, it won't be able to communicate with the SCIEL CARD nor tell it to use the new speed.

In this case, the backup action is to reset the Ethernet module. To do it, please refer to the chapter 3.5.

To apply the new settings, click OK, then Apply Settings and wait for it to finish.



4.2.2 Setup and test the reader with ETER

ETER is an abbreviation for ELA Terminal. It's designed to communicate with ELA's readers using serial protocols.



Figure 24: ETER v3.0.1

In the black rectangle, you can enter the commands to send to the reader. They will only be sent if the communication port is open.

To configure the serial or IP port, click *Config.* See the image below for more details. Click *Connect* to open the serial ports and start communicating with the reader.

		~
Connection Cor	figuration	
Connection Ty	pe	
C Serial	Port:	COM2 -
	Speed:	9600 👻
	Parity:	0 (None) 👻
	Stop bits:	1 stop bit 👻
	Control:	0 (Off)
Rec. Bu	iffer Length:	Set RTS Set DTR
(• Ib	IP Address: IP Port:	192 . 168 . 0 . 124 10001
	ОК	Cancel

Figure 25: ETER -> Config

When you click on *Config* (*Figure 24*), a setting window shows up (*figure above*).

Tick the IP box and enter the reader's IP address (see red rectangle).

Click OK, then Connect (Figure 24) to start the communication.

If you reader receives some tags and is set to online mode (factory set), you will see the tags' frames printed on the screen.

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4.3 Configuration Command List

For a complete list of the ELA's commands, refer to our Software Datasheet MCHD: *Reader Communication & setup protocol*, available on our website : <u>Reader communication protocol - Software Datasheet</u>

All commands have the same syntax:

[AABBCC]

- A command starts by '[' and finishes by ']'
- *"AA"*: Command number
- *"BB"*: Command parameter
 - hex characters for commands A1 and A3
 - 2 hex characters for all other commands
- "CC": Reader ID
 - o Broadcast to all readers: 00

If the reader understands the command, it will answer [OKAABBCC].

If you want to get some help about a command, replace the closing bracket 'J' by '?'.

The more important command is: [990101].

It shows the list of all the commands available for the reader, and the actual value for the corresponding parameters.

You can see below a sample line from the [990101] command:



For example, if you want some help about the speed command, send [130000?, you will get the answer alongside.

To get the actual speed of the SCIEL CARD, you must send [120001]. It will answer [120001] because we are at 9600 bauds.

To set the SCIEL CARD's speed to 115200 bauds, you must send [130401]. The reader will answer [OK130401], but you won't see it because the Lantronix module is still at 9600 bauds, so it won't understand the SCIEL CARD's message (this is a particular case; usually you will get the answer message because the speed stays the same)

------RS232 Serial Speed------Serial port Communication Speed. get: [12xx01] set: [13xx01] -00h 9600 Bauds -01h 19200 Bauds -02h 38400 Bauds -03h 57600 Bauds -04h 115200 Bauds ------



5 MECHANICAL SPECIFICATIONS

5.1 2D drawings



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6 REFERENCES AND VERSIONS

MODEL	REFERENCE P/N	SPECIFICATIONS
SCIEL READER IP2	SCIBT68	9-48VDC - 433.92 Mhz
SCIEL READER IP2H	SCIBT84	9-48VDC - 868 Mhz
DIN CLIP 01	ACIOM70	DIN RAIL Kit

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7 STANDARDS

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



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8 DOCUMENT VERSION

VERSION	DATE	AUTHOR	CHANGES
01A	09/12/14	CZ	First UK document version
03A	11/22/16	LA	Reference updated: SCIBT68B
04A	10/09/18	LA	Change on table page 3: Supported IP protocols (network admin)

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STATUS	DRAFT	CORRECTION	FINAL
			Ó
DISTRIBUTION LEVEL	CONFIDENTIAL	LIMITED	GENERAL
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