

#### Step 4: Ethernet Connection and Console Configuration

When you connect the RJ45 connector, a visible effect on the board is the lighting of the red **LAN STATUS** LED monitoring the Ethernet connection. If it blinks, it means some network activity is sensed.

X3 is delivered with DHCP enabled: in case the DHCP server does not respond, the terminal takes the default IP address 169.254.x.y, where x and y may change dynamically.

For versions(\*) with non-touchscreen display & without keyboard, if the current IP address is not known or not reachable you must always disconnect power supply and main battery, open the terminal, extract the micro-SD and insert it into a PC to be able to edit the [Ethernet] section of the PARAMETERS.TXT file in order to change the IP settings, then put the micro-SD back in its slot and power the terminal again: all remaining settings could then be performed directly from the terminal's HTTP web server pages.

On standard versions, instead, the MAC address and the current IP settings can be easily checked and modified by entering the supervisor menu: just double-tap the time shown in the upper part of the display to access the operator password prompt screen. The default password "00000" is already preset, with the cursor on the first digit and the remaining digits masked with asterisks, thus you just have to press **↵** (Enter) 5 times to access the supervisor menu. The main menu contains 9 items: "Info", "Ethernet", "Biometrics", "Display", "Time & Date", "Usb", "Wifi", "GPRS", "Power Off" (Note: after 30 seconds of inactivity, X3 automatically exits from supervisor menu). You can scroll to the previous / next items using the **▲** / **▼** icons on the right. Select a menu item by tapping it and then use the **✓** icon at the bottom right to proceed. Select "Info" to see all information relevant to the basic terminal configuration, including firmware version, MAC address, IP settings, main battery status. To change the IP settings (DHCP mode, local IP, Subnet Mask and Gateway IP) select "Ethernet" and then each parameter individually. To adjust the screen brightness select "Display". To manually set date and time select "Time & Date". In each screen you can use the **<** icon at the top left to abort, go back to the previous screen and finally exit the supervisor menu, or the **✓** icon at the bottom right to confirm and go back to the previous screen.

It's also possible to easily discover all remote X3 terminals in a network, since they still reply to incoming low-level Ethernet commands (TMC-UDP packet type "6") **X** and **h**, respectively by sending the current IP configuration (in the usual EtherLite compatible format, with the first line reporting the fw version as **Vnnx**) and the MAC address. By sending these commands in broadcast mode all AXESS TMC terminals, including X3, will be found and identified..

#### Step 5: Relay Connection

X3 is provided with 1 relay, which can commutate a maximum load of 1A @ 30V **~**, on both normally open (**NO**) and normally closed (**NC**) contacts on the **M1** extractable screw connector (see board picture).

**Notice:** for all inductive loads (e.g. electric locks) we always recommend to use a power supply separated from that of the terminal, and to put, in parallel to their contacts and the nearest possible to them, a 50V varistor (or VDR) to protect X3 from possible overvoltage spikes.

#### Step 6: Advanced Configuration

Advanced configuration can be done in the following ways:

- 1) By uploading .TXT text files from any FTP client software (e.g. FileZilla) to the terminal memory
- 2) By connecting to the HTTP web server home page of the terminal with a standard web browser
- 3) Directly through an HTTP client software

Method 1 is the main way to communicate with the terminal from a software: you just need an FTP client to send configuration .TXT files with a predefined format. Method 2 is the most intuitive from the user point of view, since it allows to configure the terminal by means of a graphical user interface menu featured by the terminal HTTP web server home page ([http://<terminal\\_IP\\_Address>](http://<terminal_IP_Address>)).

**Notice:** the sole user name recognized by the system with access rights to the advanced configuration is "admin", and the password initially assigned to the "admin" user is "admin" again. Once you access the HTTP menu with these credentials, you can then change the password if you want (the change applies to both FTP and HTTP accesses).

Method 3 is an alternative way to method 1 for automating the terminal configuration from a software, but the HTTP client solution it's more likely used to receive online transactions and send replies. This standard way of communication replaces the custom TMC-UDP protocol used on the previous generation Zucchetti AXESS terminals.

Please refer to the "**931 X3 User's Manual-ENG-XX**" for further details.



# 931 X3

## Terminals with Ethernet interface

### For Time & Attendance and Access Control Applications

Standard models part numbers: (characters in bold are fixed)

p/n **931-0mx-nn** X3  
m: model 2=Standard; 3=With non-touchscreen display & without keyboard(\*)  
x: wireless options 0=None; 1=GPRS Modem with internal antenna;  
2=GPRS Modem with external antenna; 3=WIFI Module  
nn: integrated reader 60=Proximity 125KHz H4102 compatible + 13,56MHz Mifare (also Desfire) R&W & ISO14443A mono; 61=Like '60' but bidirectional; 14d=Proximity 13,56MHz Mifare (also Desfire) R&W ISO14443A/B & ISO15693 mono; 15q=Proximity LEGIC R&W Advant or Prime mono; 16SE=Proximity 13,56MHz HID iClass SE; 16SEap=Proximity 125KHz HID Prox + 13,56MHz HID iClass SE; 20=None

External optional fingerprint readers part numbers:

p/n **905-010-nnG** FingerBox fingerprint reader for X3  
nn: sensor technology 50=Suprema capacitive; 40=Suprema optical

#### Hardware features

##### CPU & Memory:

ARM Cortex-M3, 32-bit, 180MHz, 512KB Flash + 8MB RAM, internal removable micro-SD flash memory card

##### Console:

- Graphic 4.3" TFT display, 480x272 pixels, with resistive touch-screen (except versions\*); Multi-tone buzzer
- 10 numeric keys + 2 function keys membrane keyboard (except versions\*)
- External FingerBOX fingerprint reader available as an option (1:N & 1:1 modes, 9590 templates max)

**Connections:** 1 external USB 2.0 host port for memory keys

##### Communication ports:

- Ethernet 10/100 on RJ45 connector, PoE 802.3af A&B compliant (not to be connected to the telephone line)
- Protocols: TCP/IP, HTTP (default port 80), HTTPS (default port 443, client only), FTP (default port 21).
- Default IP (if DHCP server not responding): 169.254.x.y (dynamic)
- Secondary (on molex connector) and external (on screw block) readers: Clk&Data / serial TTL or RS232 / Wiegand / Barcode
- Supported barcode standards: Code39, Interleaved 2/5, EAN8, EAN13, Code128
- 3-wires Serial RS232 on screw block for printer connection, as an alternative to the external reader
- Versions with integrated GPRS Modem or WIFI module (inhibits the usage of Ethernet RJ45 port and external reader / printer)

##### Input / Output:

- 1 N.O. or N.C. relay max 1A @ 30V **~**; 2 dry contacts digital inputs, for gate management only
- It can manage on RS485 line up to 8 optional slave devices, whose typology depends on the selected communication protocol: NET92: 914 NeoMAX expansion boards, each with connectors for 1 reader in Clk&Data, 2 relays and 2 digital inputs
- SPP: FD-NeoMAX and FD-NeoMAX2 expansion boards, FD-RFID4/K and FD-RFID5/K proximity readers with integrated numeric keypad, Ax- RF and FD-RALL proximity readers, Ax-Bio and XFinger biometric readers, FD-X1/X2 and FD-Door enslaved terminals, Mesh Box wireless repeaters for RS485.

Remote I/O devices (on the slaves) may be added to the local ones to manage up to a maximum of 8 independent gates (swing doors or turnstiles)

**Power Supply:** 10.48V **~**. The power adapter must be of SELV type, separated by parts subjected to dangerous voltage by means of a safety transformer, and its output must be protected from short circuits and overloads (2A max). Consumption: 300 / 400mA@12V **~** (typical/max)

**Batteries:** Main - 4,8V 600mAh NiMH with integrated PTC protection on extractable 2-pins molex connector (see board picture) for an autonomy of about 1 hour with the embedded RFID reader only; Clock backup - 3V 225mAh Lithium, CR2032 Button model

**Warning:** internal NiMH batteries should not exceed 50°C. Danger of explosion if the battery is replaced with another one of the wrong type. Batteries must be disposed of as required by the European directive 2006/66/C.

##### Physical data:

- Casing: LURAN® SC, IP55 V0 environmental protection Dimensions: 120 x 132 x 52mm (H x W x D) Weight: 350 g

##### Environment:

Temperature range: working: -10°..+50° storage: -25°..+55° Humidity: 0-100% (no barcode)

**NOTE: Do not install in places which can be under direct rain or sunshine.**



This device conforms to all the standards of the CE mark only if the installation and user instructions contained in this document are followed correctly.

DC Voltage  
CE European Union Conformity Mark

P/N 19310001

## Introduction

X3 is the web-based access control and time & attendance terminal that combines a compact and elegant design with reliability and robustness (IP55), which makes it suitable for any working environment.

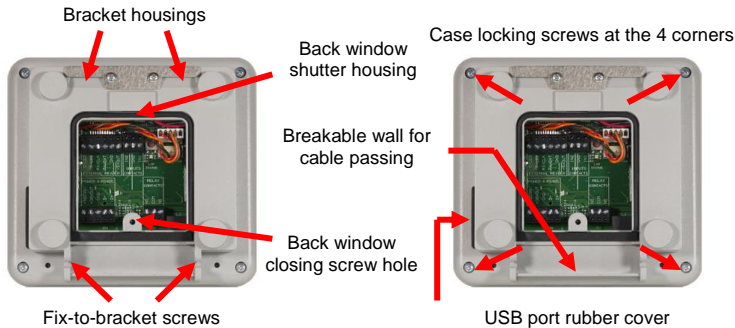
For those of you that already know the old generation AXESS TMC terminals (e.g. TRAX+G), X3 is different in both the way it is configured and the way it communicates, and it works similarly to all the new generation terminals (e.g. X1/X2): with X3, custom DLLs and SDKs are not needed, as it works with standard protocols (HTTP and FTP) and standard text files. The TMC-UDP protocol is not used with X3 (with just one exception, see **Step 4**).

On X3 the file system is on a removable micro-SD card. The micro-SD card size is some GB, so you can store on the terminal memory a huge number of transactions and authorized users. Since all transactions, access control tables and configuration files are text files stored in the micro-SD card, in the event of terminal failure you can simply plug the micro-SD of the damaged terminal in a new X3 and the host application won't even realize that the terminal has been replaced: the only thing that changes is the MAC address.

X3 can be configured with several parameters and tables, something that can be done entirely via FTP or via web. With any web browser you can in fact define the access control policies, users and cards, time zones, reason codes and manage controlled gates. On the other hand, X3 is not programmable in any way (no scripts like PROCs nor programming like 'C' or .NET), so its built-in functions cannot be extended by the user: should you need to manage complex transactions, please consider our programmable terminals.

## Step 1: Opening and Mounting

In order to fix X3 to the wall you should use the metal bracket provided, which fits the special housings on the back and can be fixed with two lateral screws at the bottom (see picture 1).



Picture 1

Picture 2

Picture 3

In this way you can easily remove the whole terminal from the wall and access all the external connections by simply removing the back window shutter (see picture 1), without the need to fully open the case: this is necessary only should you access the micro-SD slot. In this case, to open the X3 case you should unscrew the 4 screws at the 4 corners on the back of the terminal (see picture 2). At this point you can leverage the indentations along the upper and lower edges of the front case of the terminal (see picture 3), in such a way to be able to separate it from the back case by pulling it perpendicularly to its surface.

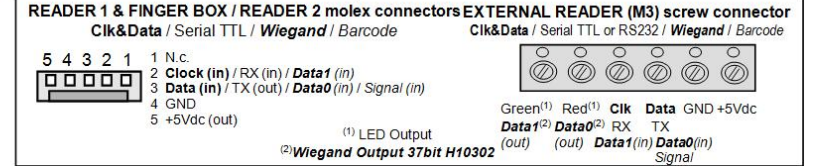
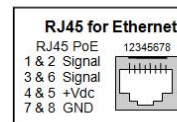
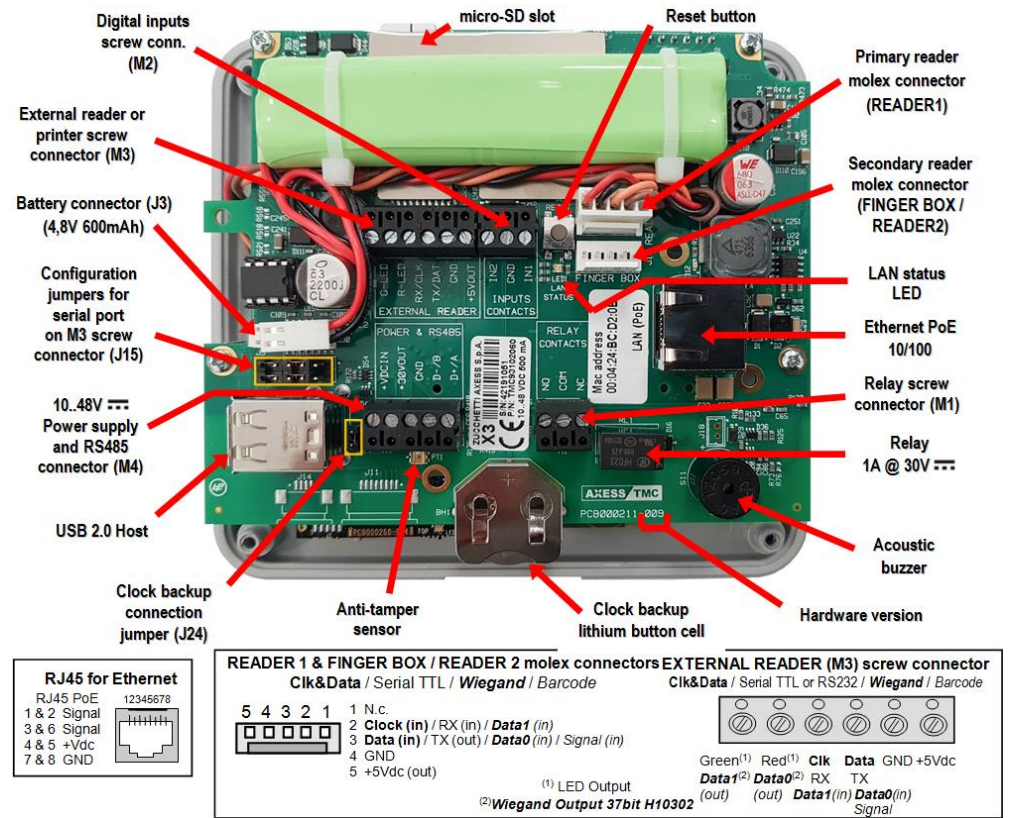
Once performed all the connections, we recommend to close the back window shutter again to keep the IP55 protection. To allow cables passing you may remove one or more sections of the breakable plastic wall at the bottom of the case (see picture 2).

## Step 2: Power Supply, Batteries and main connections

X3 may be supplied either with a 10.48 V  $\equiv$  power adapter (which should be connected to the +VDCIN and GND pins of the M4 extractable screw connector - see the board picture - it doesn't work inverting the poles) or via PoE (Power over Ethernet, IEEE802.3af), type A "end-span" (directly from the switch) or type B "mid-span" (using two of the four pairs of the Ethernet cable not used by data signals). Look carefully at the connectors labels in the picture and consider the proper orientation when inserted.

**Notice:** in order to comply with the rules relevant to the CE mark, it is necessary to pass the power supply cable (or the Ethernet cable in case of PoE) through a ferrite core, which is provided with the device.

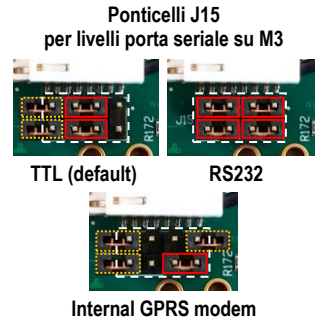
**Warning:** X3 is supplied with the main battery unconnected and normally discharged. So, the first thing to do is to connect the battery package (which is fixed to the board) to the special J3 2-poles connector located in the left side of the board. Also the flat lithium button cell for the internal clock backup, even if provided already mounted, at the first usage is actually circuit-disconnected to save its charge: it is then necessary to move the special J24 jumper (see the board picture) to the position shown here beside.



Only after having performed such operations (also through the back window, without the need to open the case) you can then proceed powering the terminal.

When Mains or PoE is connected, the main battery is automatically charged. A complete fast recharge takes up to 18 hours. Fully charged batteries allow a maximum operation of about 1 hour in stand-by mode with the embedded RFID reader only.

**Important Note:** when X3 is installed where environment temperature may be higher than 40°C, please consider placing the battery outside to avoid internal battery overheating. Alternatively you can leave the battery inside the terminal but unconnected and use a UPS as power source for the terminal power supply.



## Step 3: Turning on the terminal

A properly powered terminal turns on automatically. The system startup takes about 20 seconds with static IP (a few more seconds should be necessary to wait for the DHCP server reply). To reboot X3 you must enter the supervisor menu (except versions<sup>(\*)</sup>, see **Step 4**) and select the "Power Off" option (the same option also allows to switch off the terminal, but only if it's currently working on batteries), or shortly press the RESET button on the board (see above picture). If it turns off on batteries, X3 can be turned on again by pressing any key (except versions<sup>(\*)</sup>), for whom the timed switch off should be disabled). During startup, the firmware version is shown, then the Ethernet configuration (5 seconds each screen), and finally the main stand-by screen with default time & date and direction icons settings. **Warning:** on standard versions, before proceeding remember to remove the screen protection film, which otherwise would compromise the resistive touch screen usability. If necessary, you can perform a new touch-screen calibration rebooting the terminal and holding any key during the reboot process.