

# **eXware707T**

## Operating Instructions - PRELIMINARY



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# Table of Contents

Introduction	4
Safety Guide	5
1 Product Overview	6
2 Standards and Approvals	7
3 Technical Specifications	9
4 Technical Data	11
4.1 Dimensions	12
4.2 Safety instruction	12
4.3 Installation Procedure	12
5 Connections	13
5.1 Ethernet Port	14
5.2 Optional plugin module	15
5.3 Optional plugin module identification	16
6 Power Supply, Grounding and Shielding	17
7 Battery	18
8 Getting Started	19
9 System Settings	20
10 Unpacking and Packing Instructions	22



# Introduction

The operational guidelines described below is information which relates to the device, installation, transportation, storage, assembly, use and maintenance.

This Operating Instruction describes the main features of the Exor eXware707T. The Manual refers to the following models:

eXware707T    Embedded controller with 4 Ethernet port, Intel CycloneV FPGA SOC with TSN support, AWS IoT Greengrass certified

# Safety Guide

The manual contains safety standards that must be respected for the personal safety and to avoid damage. Indications of attention are divided into three levels of severity:

**DANGER:** indicates a failure to observe safety rules and such failure may cause death or serious injuries.



**ATTENTION:** indicates a failure to observe safety rules and that deficiency may cause damage.



**CAUTION:** indicates a failure to observe safety rules and that deficiency may cause defects to the equipment or inconsistencies.



# 1 Product Overview

With the combination of JMobile HMI, CODESYS PLC and Corvina Cloud security, eXware offers companies the chance to start at an uncomplicated level in IoT and yet allows enormous future expansion into more complex aspects of Industry 4.0. Speaking across the vast library of JMobile protocols as well as OPC UA to higher enterprise level control, the eXware is a true Plug and Use product. Straightforward wireless connectivity using the optional PLCM09 2G/3G modem.

- Compatible with Existing Installations
- Compatible with JMobile. Includes JM4web HTML5 access.
- Supports JMobile protocols including OPC UA server and client.
- Compatible with CODESYS V3. Supports network stacks and local I/O expandability
- Compatible with Corvina Cloud secure remote connectivity.
- Compatible with PLCM09 2G/3G modem.
- 4 Ethernet ports for network separation WAN/LAN.
- System settings by web browser.
- Linux-based open platform.
- TSN support.
- AWS IoT Greengrass.



## 2 Standards and Approvals

TBD

## 2 Standards and Approvals

### Product Identification

The product may be identified through a plate attached to the rear cover. You will have to know the type of unit you are using for correct usage of the information contained in the guide.

An example of this plate is shown in the figure below:

Note: the eXware703 label is used as an example for eXware Series



product model name	eXware707T
product part number	EXW707TU0P1
year/week of production	1945
serial number	AA00011LG000000561AA
version id of the product	121005B02201000
manufacturer address	Exor International S.p.A. Via Monte Fiorino 9 IT-37057 San Giovanni Lupatoto (VR)



## 3 Technical Specifications

<b>Back-up battery</b>	3V 50mAh Lithium, rechargeable, not user-replaceable, model VL2330.
<b>Fuse</b>	Automatic
<b>Flash</b>	4GB
<b>RAM</b>	1GB
<b>Hardware clock</b>	Clock/Calendar with back-up battery
<b>Accuracy RTC (at 25°C)</b>	<100ppm

### *Environmental conditions*

<b>Operating temperature (surrounding air temperature)</b>	-20 ÷ +60°C (vertical installation) Plug-in modules and USB devices may limit max temperature to +50°C	EN 60068-2-14
<b>Storage temperature</b>	-20 ÷ +70°C	EN 60068-2-1 EN 60068-2-2 EN 60068-2-14
<b>Operating and storage humidity</b>	5 ÷ 85 % RH not-condensing	EN 60068-2-30
<b>Vibrations</b>	5 ÷ 9 Hz, 7 mm <sub>p-p</sub> 9 ÷ 150 Hz, 1 g	EN 60068-2-6
<b>Shock</b>	± 50 g, 11 ms, 3 pulses per axis	EN 60068-2-27
<b>Protection class</b>	IP20	EN 60529

### *Electromagnetic Compatibility (EMC)*

<b>Radiated disturbance test</b>	Class A	CISPR 22 CISPR 16-2-3
<b>Electrostatic discharge immunity test</b>	8 kV (air electrostatic discharge) 4 kV (contact electrostatic discharge)	EN 61000-4-2
<b>Radiated, radio-frequency, electromagnetic field immunity test</b>	80 MHz ÷ 1 GHz, 10V/m 1,4 GHz ÷ 2 GHz, 3 V/m 2 GHz ÷ 2.7 GHz, 1 V/m	EN 61000-4-3
<b>Burst immunity test</b>	± 2 KV dc power port ± 1 KV signal line	EN 61000-4-4
<b>Surge immunity test</b>	± 0,5 KV dc power port (line to earth) ± 0,5 KV dc power port (line to line) ± 1 KV signal line (line to earth)	EN 61000-4-5
<b>Immunity to conducted disturbances induced by radiofrequency field</b>	0.15 ÷ 80 MHz, 10V	EN 61000-4-6
<b>Power frequency magnetic field immunity test</b>	Enclosure, 50/60Hz, 30A/m	EN 61000-4-8

## 3 Technical Specifications

### **Voltage dips, short interruptions and voltage variations immunity test**

Port: AC mains; Level:  
100% duration: 1 cycle and 250 cycles (50Hz);  
1 cycle and 300 cycles (60Hz);  
40% duration: 10 cycles (50Hz);  
12 cycles (60Hz);  
70% duration: 25 cycles (50Hz);  
30 cycles (60Hz);  
Phase: 0°-180°

Test executed on the 230Vac side of the Exor International S.p.A. Power Supply EN 61000-4-11

Port: DC mains; Level:  
0% duration: 10ms 20 spaces by 1s

Test executed on the 24Vdc of the EUT EN 61000-4-29

## 4 Technical Data

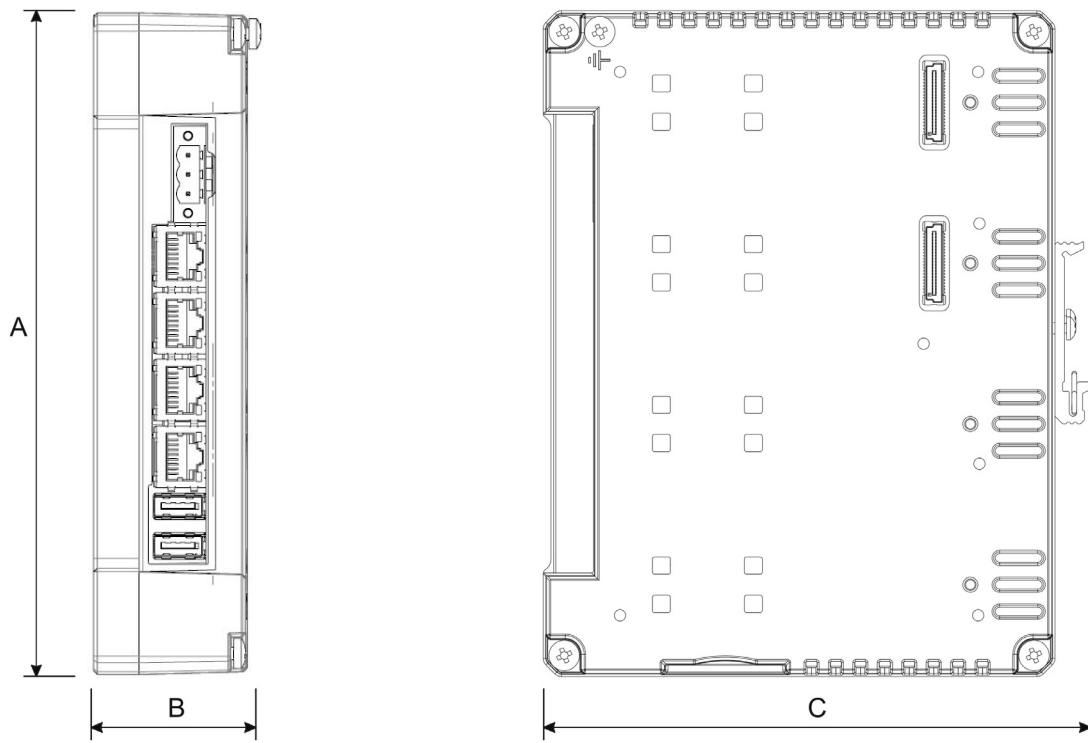
Model	eXware707T
<b>Flash</b>	4GB
<b>SD card slot</b>	yes
<b>RAM</b>	1GB
<b>Ethernet port</b>	4 10/100/1000Mb
<b>USB port</b>	2 Host interface version 2.0 max. 150mA
<b>Expansion slot</b>	2 Optional Plugin
<b>Battery</b>	rechargeable
<b>Real Time Clock</b>	yes
<b>Voltage</b>	24Vdc (*)
<b>Current rating (at 24VDC)</b>	0.50A
<b>Weight</b>	0.7 Kg

(\*) 10-32Vdc

For applications requiring compliance with EN 61131-2 and specifically in reference to 10 ms voltage dips, the power supply range voltage is 18-32Vdc.


# 4 Technical Data

## 4.1 Dimensions



MODEL	A	B	C
eXware707T	174mm/6.85"	44mm/1.73"	144mm/5.67"

## 4.2 Safety instruction

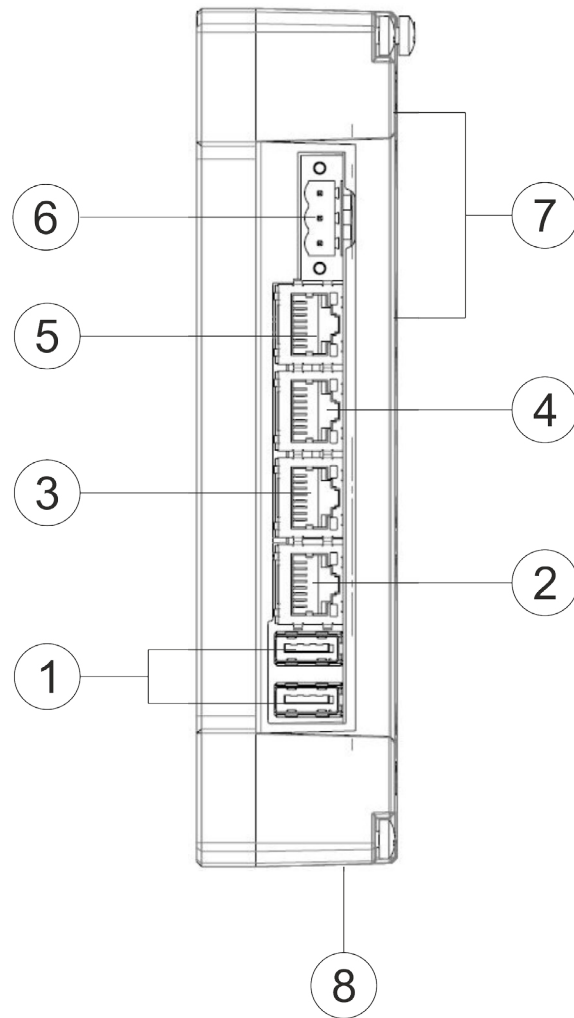
 For all installation notes, please refer to the Installation Guide provided with the product.

## 4.3 Installation Procedure

The eXware707T must be mounted on a TS35 DIN rail

# 5 Connections

eXware707T



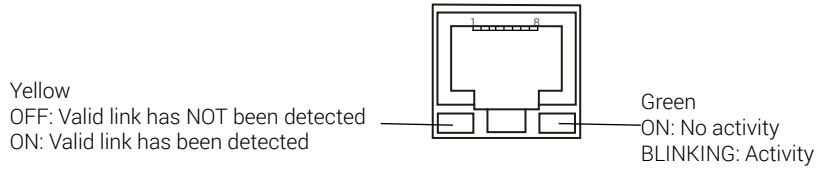
**Fig. 5.1**

- 1. USB Port V2.0, max 150 mA - for maintenance only
- 2. Ethernet Port (10/100/1000Mb)
- 3. Ethernet Port (10/100/1000Mb)
- 4. Ethernet Port (10/100/1000Mb)
- 5. Ethernet Port (10/100/1000Mb)
- 6. 2x Expansion slot for Plugin module
- 7. Power Supply
- 8. SD Card Slot

# 5 Connections

## 5.1 Ethernet Port

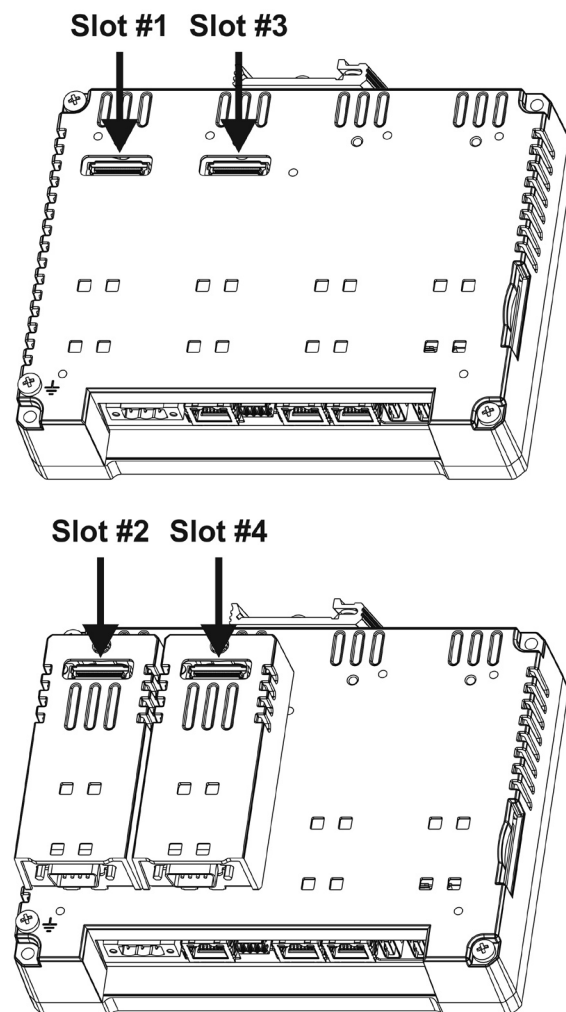
The Ethernet port have two status indicators. Please see description in figure.



# 5 Connections

## 5.2 Optional plugin module

eXware Series panels have several optional plugin module, multiple modules configurations are possible.



Slot#2 and Slot#4 are available only if plugin module has the "bus extension connector".

Each slot carries three communication channels:

- 1 serial interface
- 1 CAN interface
- 1 SPI interface
- 1 2G/3G interface

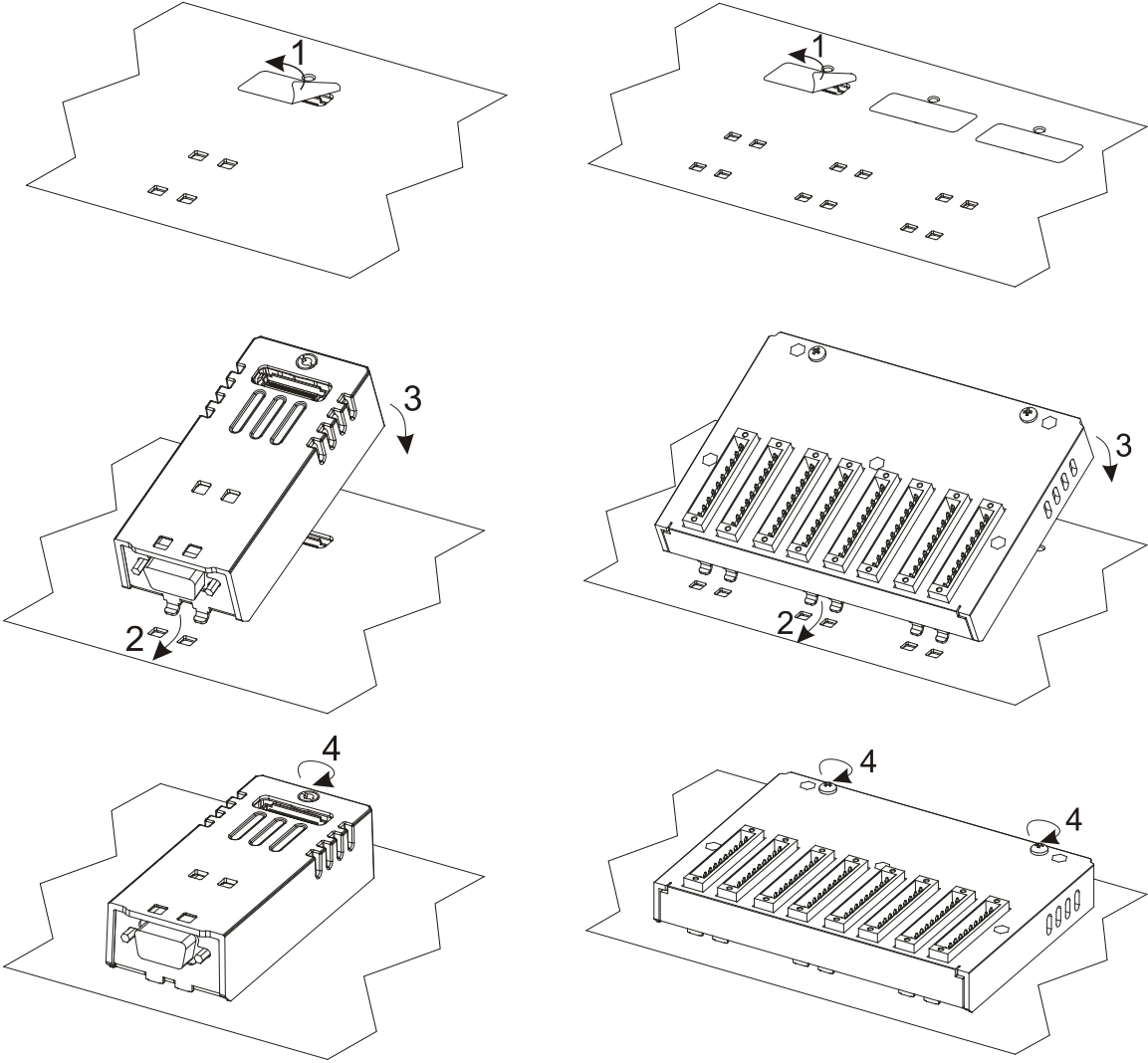
Note: It is not possible to stack two modules that are using the same type of interface.

# 5 Connections

## 5.3 Optional plugin module installation procedure

PLCM

PLI003





# 6 Power Supply, Grounding and Shielding

The power supply terminal block is shown in the figure below.

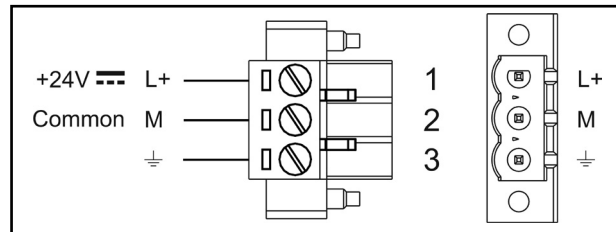


Fig. 6.1

3 conductor 1,5mmq wire size minimum, minimum temperature conductor rating 105°C.

**Note:** Ensure that the power supply has enough power capacity for the operation of the equipment.

The unit must always be grounded to earth with 1,5mmq wire size minimum. Grounding helps limit the effects of noise due to electromagnetic interference on the control system.

Earth connection will have to be done using either the screw or the faston terminal located near the power supply terminal block. A label helps identify the ground connection. Also connect to ground the terminal 3 on the power supply terminal block.

The power supply circuit may be floating or grounded. In the latter case, connect to ground the power source common as shown in figure (see below) with a dashed line.

When using the floating power scheme, note that the panes internally connects the power common to ground with a 1MΩ resistor in parallel with a 4,7nF capacitor.

The power supply must have double or reinforced insulation.

The suggested wiring for the power supply is shown below.

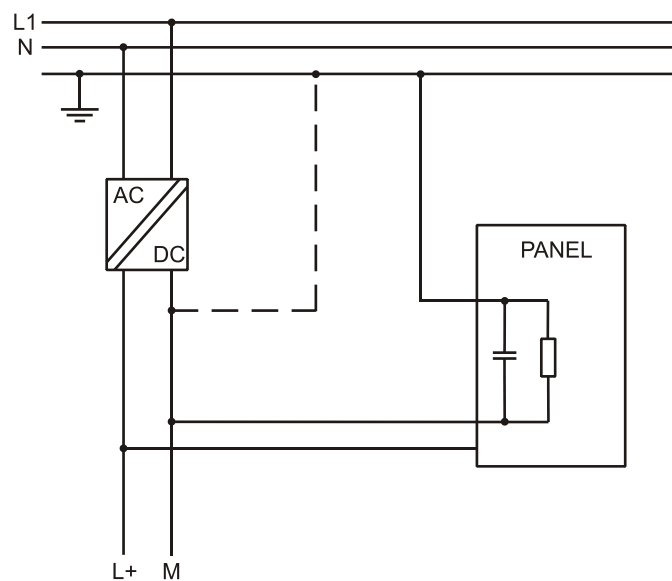


Fig. 6.2

All the electronic devices in the control system must be properly grounded. Grounding must be performed according to applicable regulations.

# 7 Battery

These devices are equipped with rechargeable Lithium battery, not user-replaceable.  
The following information is maintained by the battery:

- hardware real-time clock (date and time)

**Charge:**

At first installation must be charged for 48 hours.

When the battery is fully charged, it ensures a period of 3 months of data back-up at 25°C.

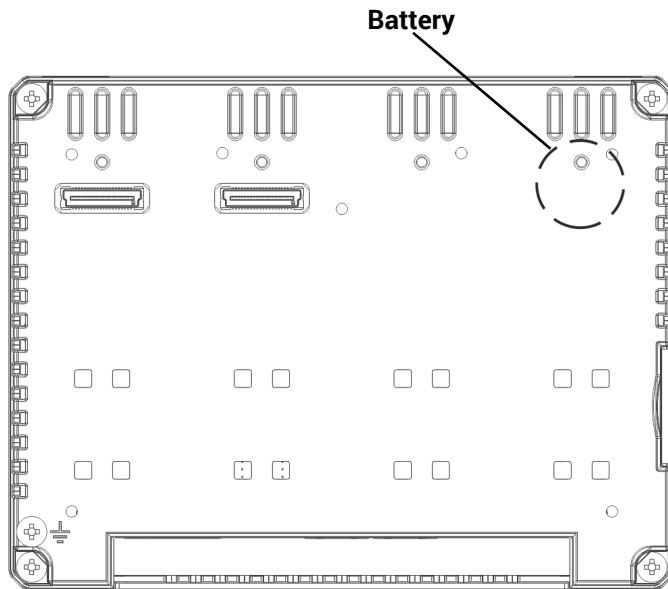


Fig. 7.1: eXware707T

**ATTENTION** Dispose of batteries according to local regulations.

**ATTENTION** This device cannot be disposed of as a domestic waste but according to WEEE European Directive 2012/19/EU





## 8 Getting Started

Delivery configuration of software in eXware Series products is based on a loader. You may use the services of the loader to install applications on the device such as JMobile runtime. Use System Settings to activate Cloud Service.

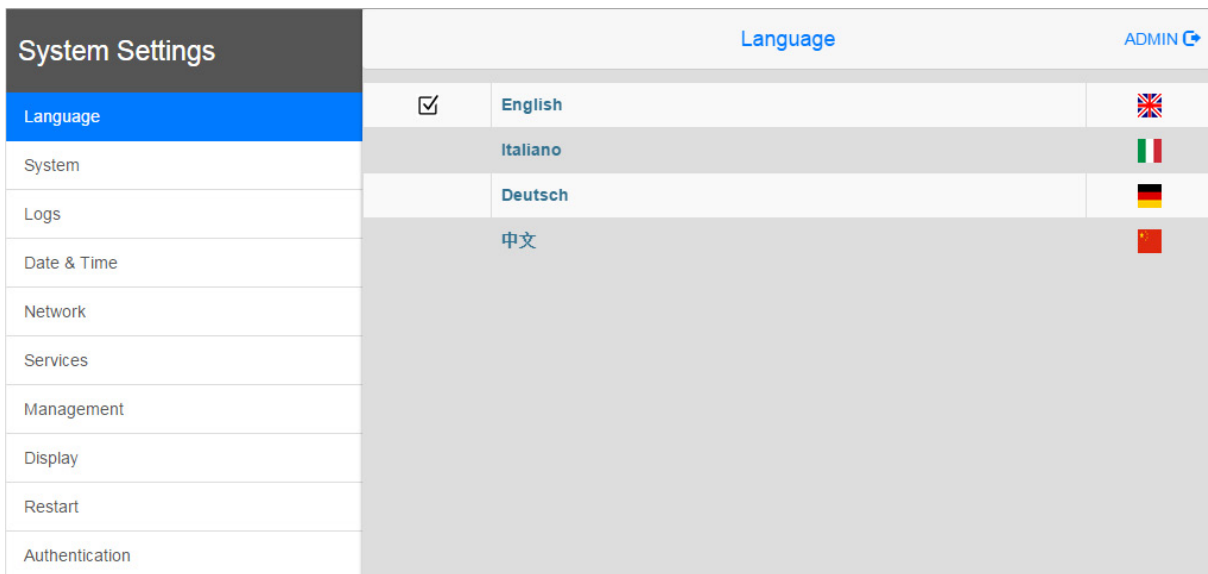
JMobile Studio version V2.6 or higher is required. JMobile Studio is a software tool that must be properly installed on a computer running Microsoft Windows.

There are two options to transfer a JMobile application project to an eXware device:

- |          |   |
|----------|---|
| Ethernet | Connect the eXware to the computer with an Ethernet network. In JMobile Studio select the command Run/Download to target. You may have to ensure that the proper firewall policy has been configured in the computer to allow JMobile Studio to access the network. |
| USB      | Create an Update Package using JMobile Studio and copy it to a USB Flash drive.   |

# 9 System Settings

eXware Series products have a system settings interface to allow configuration of system options. The user interface of System Settings is based on HTML pages accessible remotely using a Web browser Chrome v44 or higher at port 443. To connect enter the address `https://IP/machine_config` where IP is the IP address of the eXware device. Default username is "admin", default password is "admin". Use navigation menu on left side of the screen to browse through available options.



The active item of menu is highlighted on the left side of the screen. The right side shows related information and settings.

System Settings has two modes of operation:

- User Mode** JMobile runtime or Cloud Service is running or the device is in "factory default" status.
- System Mode** JMobile runtime or Cloud Service is not running or the device has a software failure. System Mode includes all options available in User Mode and additionally includes commands dedicated to system upgrade and recovery not available when running in User Mode.

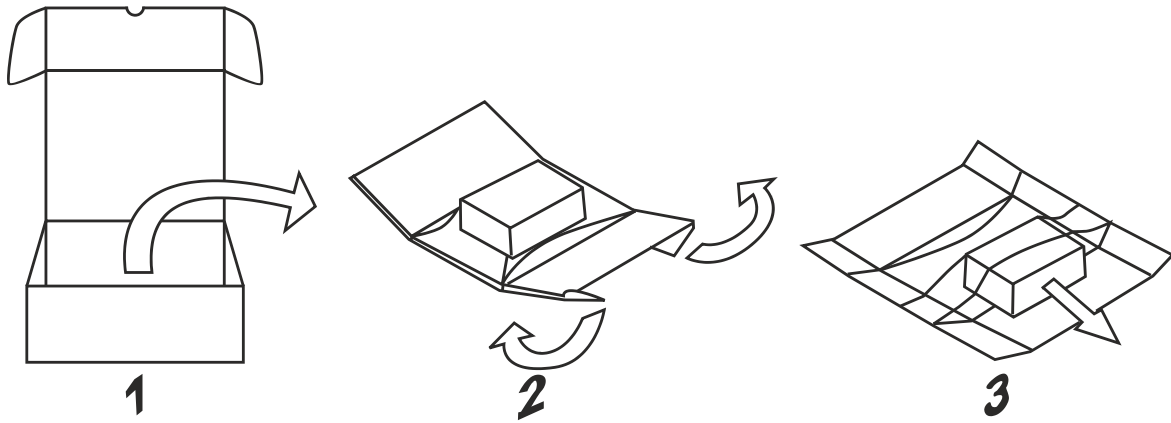
## 9 System Settings

**System Settings** includes options for basic settings of the device:

<b>Language</b>	Configure language used for System Setting menu only.
<b>System</b>	Show information about platform, status and timers (like System on time, backlight on time).
<b>Logs</b>	Enable persistent log for BSP and allows exporting it.
<b>Date &amp; Time</b>	Change the device date and time, including time zone and NTP Server
<b>Network</b>	Configure IP Address of Ethernet interfaces and other network settings such as DNS, Gateway, DHCP, Hostname, routing and bridging.
<b>Services</b>	Enable/disable services. Examples of services are: SSH server, Bridge, Cloud, Router, SNMP and logging.
<b>Management</b>	Update of BSP components (Main OS, Config OS, Boot loader, XLoader), check for partitions consistence, update of splash screen, information about usage and size of partitions. The update of Main OS is available only in System Mode, the update of Config OS is only in User Mode.
<b>Restart</b>	Restart the device. "Main OS" option restarts the device in User Mode, "Config OS" option restarts the device in System Mode showing System Settings.
<b>Authentication</b>	Configure password for administrator ("admin") and for the standard user ("user"). Administrator has full access to System Settings (updates of BSP and other system components). Standard user has some limitations.

**Note:** *Additional information on System Settings are available in dedicated manual.*

# 10 Unpacking and Packing Instructions



To repack the unit, please follow the instructions backwards.