User Manual

XORAYA N8000
XORAYA N16000

Version: 1.1.6

Table of contents

1 Introduction

1.1 About this user manual

▶ Read this user manual completely before using the XORAYA N8000/ N16000 for the first time.

▶ Please consider this user manual as part of the product and make sure it is easily accessible.

▶ Provide this user manual upon transfer of the XORAYA N8000/N16000 to a third party.

▶ Request a replacement user manual upon loss.

This user manual contains important information for safe, proper and efficient operation of the XORAYA N8000/N16000. Following this user manual strictly helps in avoiding dangers, reduces repair costs and downtime, while increasing the reliability and service life of the XORAYA N8000/N16000. It should be read, understood and applied by those using the XORAYA N8000/N16000 according to the user manual.

Pay particular attention to:

▪ the safety section (➔ Safety and warranty)
▪ the text warnings of each section

Bear in mind that this user manual does not replace your responsibility as a XORAYA N8000/N16000 user.

Subject to change without prior notice. This applies especially to changes relating to technical enhancements.

1.2 Validity of the user manual

This user manual applies to dataloggers of the XORAYA N8000 and XORAYA N16000 series, including the removable storage unit XORAYA RSU. The exact type specifications can be found on the nameplate. (➔ Identification)

The following instructions are key to operate the XORAYA N8000/N16000 and must be strictly observed under all circumstances.

Information in this user manual is subject to change without prior notice due to further technical developments and subsequent modifications. New features may not be described yet or may be described incompletely. Please ensure that you have the most current and complete user manual.

Users can change certain properties and functions via the included software, so that the XORAYA N8000/N16000 behaves differently than described herein. Users may revert to factory defaults at any time by pressing the default button on the front panel or via the supplied software.

1.3 Representation conventions

Representation	Meaning
▶ <Instruction>	User-executed action
▶ <Instruction option 1> *or* ▶ <Instruction option 2>	Instruction options
☑ <Outcome>	Outcome of an action or a series thereof
▪ <Level 1a> – <Level 2a> – <Level 2b> ▪ <Level 1b>	Maximum two-level enumeration
➔ <Cross-reference>	Clickable cross-reference to a section or heading (In most Windows programs, you can return to the previous position by pressing *ALT + Left arrow*)
<Text>	Housing label, GUI element or other highlighting
#	Placeholder for numbers
(1) or **(A)**	Reference to numbered markers in graphics

1.4 Pictograms

This manual uses pictograms to highlight and ensure faster recognition of important or especially useful information.

Warning:

These types of symbols indicate warnings that must be observed.

The following subsections contain a description of the basic structure and relevance of different warning levels.

General information:

This symbol indicates general information.

General information includes application tips and particularly useful information excluding warnings or hazards.

1.4.1 Meaning of warnings

Warnings are systematized according to the severity and probability of their occurrence.

CAUTION

This pictogram in conjunction with the word *Caution* warns of a potentially dangerous situation, or an unsafe procedure.

Ignoring this warning information could result in injury or property and environmental damage.

WARNING

This pictogram used in conjunction with the word *Warning* warns of a potentially imminent danger to the health and lives of people.

Ignoring this warning could cause serious personal injury, including death in the worst case.

DANGER

This pictogram used in conjunction with the word *Danger* warns of an imminent danger to the health and life of people.

Ignoring this warning causes serious personal injury, including death in the worst case.

1.4.2 Structure of warnings

Warnings are separated from the surrounding text by lines set above and below.

⚠️ SIGNAL WORD	**Danger types and sources** Explanation and consequence of danger ▶ Actions to prevent danger

2 Safety and warranty

The XORAYA N8000/N16000 dataloggers were developed according to the latest state of the art and offer outstanding safety levels. During operation, however, this safety level can only be achieved if the user complies with all relevant safety regulations.

Upon measuring, safety regulations of the professional associations must be observed.

Please contact an expert or the service of X2E GmbH when in doubt about the operation, safety, or connection of the XORAYA N8000/N16000.

2.1 Intended use

The XORAYA N8000/N16000 is used for real-time acquisition of data communication in automotive bus systems. You can perform measurements and save them on the XORAYA RSU for later analysis.

- Installation and start-up of the XORAYA N8000/N16000 must only be done by trained personnel.
- The XORAYA N8000/N16000 must not be used in residential or living areas. Its use is strictly limited to industrial environments.
- The XORAYA N8000/N16000 must not be used in hazardous areas.
- Always operate the XORAYA N8000/N16000 within its technical specifications. (➔ Technical data)
- The XORAYA N8000/N16000 may only be used under the conditions and for the purposes for which it was designed.
- Repairs may only be carried out by trained personnel of X2E GmbH.
- Operational safety cannot be guaranteed after modifications or conversions.
- Except for data buses, never perform measurements on live parts.
- The 4-mm plug of the power supply cable delivered must never be introduced in low-voltage sockets.
- The data lines may be extended up to a maximum of 30 m provided that they are shielded like the connecting cables supplied.
- The voltage supply line may be extended up to a maximum of 3 m with sufficient cross-section.

2.2 Safety labels on the device

You find the following two safety labels on the XORAYA RSU front side.

Warning: Hot surface

Please note the safety instruction *Burning hazard due to hot surfaces.* (➔ Inserting the XORAYA RSU)

Read this user manual completely before using the device for the first time.

2.3 General safety instructions

DANGER

Electric shock caused by damage to components

Any damage to the XORAYA N8000/N16000, power source or connection cable may cause an electric shock.

▶ Switch on the XORAYA N8000/N16000 only if all components appear undamaged.

▶ Only commission the XORAYA N8000/N16000 after a proper installation or repair.

▶ Check the connecting cable regularly for defects to prevent damage to the power source.

▶ Always install the XORAYA N8000/N16000 in de-energized status.

WARNING

Defects influencing the environment

The incorrect XORAYA N8000/N16000 configuration can lead to the temporary or permanent functional failure of connected vehicles.

Connected vehicles being operated on public roads bear an increased risk of injury and damage.

▶ If available, use configuration templates provided by the vehicle manufacturer.

⚠️ CAUTION	**Device damage due to short circuit** Bent connector pins pose a short circuit risk. This can lead to abnormal behavior or destruction of the XORAYA N8000/N16000. Likewise, devices connected to the measurement setup may be also compromised. ▶ Make sure that connector pins are not bent. ▶ Check the XORAYA N8000/N16000 regularly for any deficiencies.
⚠️ CAUTION	**Device damage due to electrostatic discharge** Electronic components can be destroyed by electrostatic discharge. ▶ Avoid touching connectors and connector pins. ▶ Ground yourself before carrying the XORAYA N8000/N16000 in your hands. ▶ Store and operate the XORAYA N8000/N16000 in an ESD-compliant environment.
⚠️ CAUTION	**Device damage due to overheating** Overheating can lead to abnormal behavior or destruction of the XORAYA N8000/N16000. ▶ Do not operate the XORAYA N8000/N16000 outside the specified temperature range. ▶ Never operate the XORAYA N8000/N16000 near heat sources. ▶ Please ensure adequate air circulation for operation. ▶ Do not cover the XORAYA N8000/N16000, especially the ventilation slots, with other objects.
⚠️ CAUTION	**Device damage due to shocks** Excessive vibration can lead to abnormal behavior or destruction of the XORAYA N8000/N16000. ▶ Avoid exposing the XORAYA N8000/N16000 to excessive vibration.
⚠️ CAUTION	**Device damage due to pollution** Avoid any contamination in plugs and sockets to ensure a reliable contact. ▶ Keep the XORAYA N8000/N16000 clean.

CAUTION

Device damage due to device opening

Unauthorized opening of the XORAYA N8000/N16000 can lead to abnormal behavior or destruction of the device.

▶ Never open the XORAYA N8000/N16000.

▶ Contact X2E GmbH should maintenance and repairs be required.

CAUTION

Device damage due to penetration of dust or liquids

Dust or moisture inside the XORAYA N8000/N16000 may cause abnormal behavior or destruction of the device.

▶ Only operate the XORAYA N8000/N16000 with a closed housing.

▶ Make sure that no moisture penetrates through the ventilation slots.

▶ Operate the XORAYA N8000/N16000 in a low-dust environment.

▶ Do not operate the XORAYA N8000/N16000 outdoors.

▶ Do not operate the XORAYA N8000/N16000 outside the specified temperature range.

▶ Turn off the XORAYA N8000/N16000 and disconnect it from the power supply before you start cleaning.

CAUTION

Damage due to improper device shutdown

Disconnecting the power supply during operation may cause data loss and destruction of the XORAYA N8000/N16000.

▶ Never disconnect the XORAYA N8000/N16000 from the power supply while in operation.

▶ Ensure proper connector seating and tighten the screws if possible.

▶ Only shut down the XORAYA N8000/N16000 through the graphical user interface or the power button on the front panel.

▶ Pull the black plug connected to ground last when disconnecting the XORAYA N8000/N16000 from the power supply.

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⚠️ CAUTION	**Safety defects due to incorrect accessories and spare parts** Accessories and spare parts that have not been recommended by X2E GmbH negatively affect the safety, functionality and precision of the XORAYA N8000/N16000. X2E GmbH shall assume no responsibility whatsoever or honor any warranty for damages arising from non-recommended accessories and spare parts or incorrect use. ▶ Use only accessories recommended by X2E GmbH and original spare parts.

2.4 Product liability

In the following cases, the intended protection of the XORAYA N8000/N16000 may be adversely affected. The liability is then transferred to the user.

- The XORAYA N8000/N16000 is not used according to the manual.
- The XORAYA N8000/N16000 is used outside the scope described in this manual.
- The user modifies the XORAYA N8000/N16000 without proper authorization.

2.5 Terms of use

If the installation of the XORAYA N8000/N16000 in a vehicle is intended for operation on public roads, the user and the X2E GmbH must jointly perform a risk analysis beforehand. This analysis must consider the specific installation requirements and the valid factory standards at the user's site.

Conditions set forth in framework contracts shall apply.

The XORAYA N8000/N16000 is continuously developed. The development process relies on the cooperation between the user and X2E GmbH.

2.6 Warranty

The warranty period is 12 months. Device batteries, whether internal or external, are excluded from the warranty. The warranty also excludes damages arising from improper handling.

X2E GmbH guarantees that the media on which the software is located are free of material errors under normal operating conditions. Users can return any defective or materially erroneous media to X2E GmbH within a period of 30 days from date of original purchase. Media shall be replaced immediately at no cost.

X2E GmbH guarantees that the software as described herein is basically usable. X2E GmbH, however, shall assume no liability for the correctness and the continued use of the software, given that the current state of the art prevents the production of software suitable for all combinations of hardware and software.

In particular, X2E GmbH cannot guarantee that the software meets any user requirements, or that it is compatible with any programs the latter may have selected. Responsibility for program selection and the consequences of program use lie entirely with the user.

X2E GmbH shall assume no liability for damages arising from faulty recorded data, as well as damage due to incorrect configuration, data entry and data transfer.

After configuring, we recommend to verify the proper operation and plausibility of each sensor using some manual measurement over the entire measuring range.

X2E GmbH shall assume no further liability. This limitation of liability also applies to the personal liability of employees, representatives and organs of X2E GmbH.

2.7   FCC notice

This equipment has been tested and found to comply with the limits for a *Class A* digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at one's own expense.

Changes or modifications made to this equipment not expressly approved for compliance may void the FCC authorization to operate this equipment.

3 Product description

The XORAYA N8000/N16000 is the central hub to connect various data logging devices within the car. Compact and specialized probes can then be placed close to the source and transfer the data via 1GbE/10GbE to the N8000/N16000.

The XORAYA N8000+ is a more powerful variant of the N8000 and is equipped with 64 GB of RAM instead of 32 or 48.

The XORAYA RSU, a removable PCIe storage unit consisting of NVMe SSDs is used to save up to 32 TB of log data. Alternatively, data can directly be downloaded to an external computer system via Ethernet.

In addition to host functionality for other devices, the N8000/N16000 is also capable of capturing Ethernet data itself. Another feature is mirroring traffic from one port to another. A built-in supercap unit bridges voltage fluctuations and safely shuts down the N8000/N16000 in the event of power failures.

The N8000/N16000's slot system allows flexible configuration of Ethernet interfaces according to customer requirements.

3.1   Identification

XORAYA N8000/N16000:

The nameplate contains the following information:

- Type   Product variant
- Config.   First block: Product ID
                  0200   XORAYA Datalogger

                  Second block: Product variant
                  0500   XORAYA N8000
                  0800   XORAYA N16000

                  Third block: Hardware revision
- S/N   Unique identification number for this XORAYA Datalogger
- DMF   Date of manufacture
- RAM-Size   Size of RAM

XORAYA RSU:

Additional information about the storage medium:

- Total capacity in TB
- Manufacturer of the built-in SSDs
- Temperature variant: I-Temp/C-Temp

3.2   Scope of delivery

Parts of the delivery:

- XORAYA N8000/N16000
- XORAYA RSU
- Power supply cable
- Software
- User manual

Optionally available accessories:

- further XORAYA RSUs
- mounting kit

Supported third-party accessories:

- SFP+ module FTLX8573D3BTL by Finisar

3.3 Connections and controls

The front side of the XORAYA N8000/N16000 contains interfaces, buttons, LEDs and the slot for the removable storage medium XORAYA RSU.

The power supply port is on the back side.

Front side
4 U

3 U

A	Power button	E	Default button
B	Trigger button	F	Ethernet interfaces
C	Service interface	G	USB interfaces
D	Status LEDs	H	Unlock button

Power button (A):

If you press this button while the XORAYA N8000/N16000 is operational, the device switches to sleep mode.

Trigger button (B):

This button can function as a wake signal or be assigned to an action, for example, to start a recording.

Service interface (C):

In case of errors, this interface is used as a debugging interface by the X2E support team.

Status LEDs (D):

These LEDs indicate the operating status of the XORAYA N8000/N16000.

LED	Meaning
Connect	Connection between XORAYA N8000/N16000 and control software is established
Info	blue: PTP master green: PTP slave, synchronized red: PTP slave, no grandmaster found
Logging	Logging in progress LED flashes as the logging stops, because the stopping process may take longer depending on the queue fill level
Error	Flashes when restarting after the power supply was interrupted and the XORAYA N8000/N16000 could not shut down safely
Mirror	Flashes when mirroring data traffic from one port to another
Storage	Displays the XORAYA RSU fill state as a gradient from red to green flashing red: maximum storage capacity almost reached
USB	Flashes when accessing a connected USB drive
Service	Error state; please contact X2E support

Default button (E):

Press the default button with a pointed object for at least 3 seconds to reset all XORAYA N8000/N16000 settings to factory defaults.

Ethernet interfaces (F):

Depending on the configuration, the XORAYA N8000/N16000 is equipped with a different number of interfaces of the following Ethernet standards:

- 1000Base-T
- 10GbE
- 100Base-T1

The freely configurable interfaces perform one of the following tasks:

- connecting to a switch or PC to configure and control the XORAYA N8000/N16000 through software
- direct recording of Ethernet data
- connecting to other devices likes probes, for example, to establish a distributed logger network

USB interfaces (G):

Update the firmware or perform a complete system recovery of the XORAYA N8000/N16000 through a connected USB drive.

Proceed as follows:

▶ Switch off the XORAYA N8000/N16000.

▶ Connect a bootable USB drive that contains the firmware ISO file with one of the USB interfaces.

▶ Switch on the XORAYA N8000/N16000.

▶ Wait until the trigger button **(B)** LED flashes.

▶ Press the trigger button to start the process.

    ☑ The firmware update or system recovery is performed and the XORAYA N8000/N16000 switches off after the process is done successfully.

▶ Disconnect the USB drive.

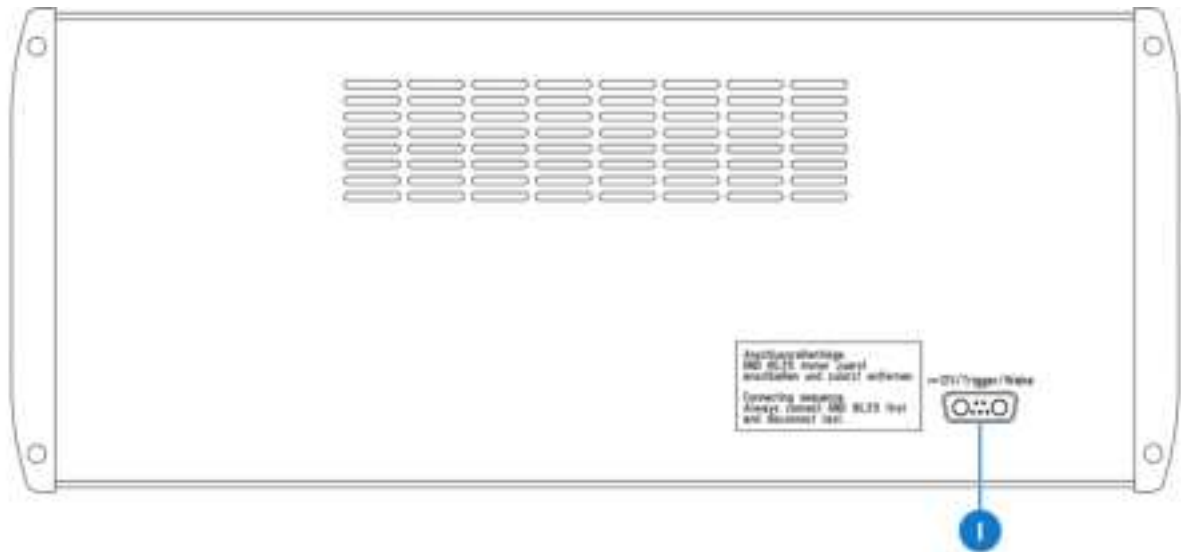**Unlock button (H):**

To avoid data loss, always press this button for at least one second before disconnecting the XORAYA RSU. The integrated LED displays the connection state.

LED	Meaning
	Red: connection enabled (locked)
	Green: connection disabled through button (unlocked)
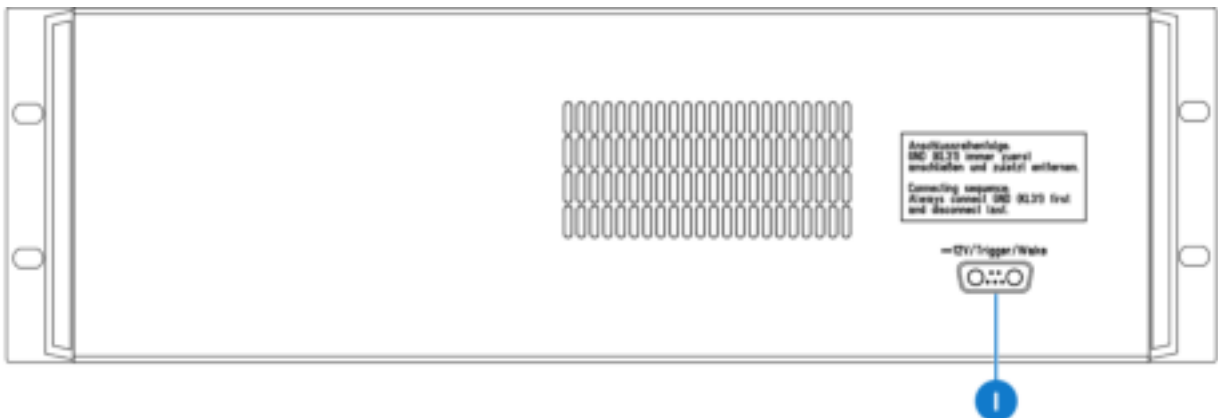
Back side
4 U
3 U
I   Power/trigger/wake port

Power/trigger/wake port (I):

By default, the XORAYA N8000/N16000 must be supplied with 12 V DC voltage. Optionally, it can also operate with power supplies in a certain specified range. (➜ Technical data)

Trigger input and trigger button offer an analogous operation. A +12 V signal level at the trigger input is equivalent to pressing the trigger button.

The wake input allows waking up the XORAYA N8000/N16000 from sleep. To that end, the wake signal must shift from 0 V to +12 V.

4 Commissioning

4.1 Unpacking

Upon unpacking, check whether the delivery is complete and all components appear in perfect condition. (➔ Scope of delivery)

▶ Please contact X2E GmbH immediately should the delivery be incomplete or upon damaged components.

▶ Do not put any defective component into operation.

X2E GmbH can only accept your complaint and replace the affected component upon prompt notification.

ⓘ	**Keep original packaging** Keep the original packaging and packing materials for later storage or further transport.

4.2 Selecting an installation location

The XORAYA N8000/N16000 installation location must meet the following criteria:

- Location of the DC power supply
- Solid and stable base
- Distance of at least 15 cm to walls and other devices
- Adequate airflow
- XORAYA N8000/N16000 front and back sides must not be covered

4.3 Installing the XORAYA **N8000/N16000**

X2E GmbH provides no special requirements for XORAYA N8000/N16000 installation. Install the XORAYA N8000/N16000 in the vehicle so as to avoid a damage risk at any time.

Additionally, X2E optionally offers a flange panel to install the XORAYA N8000/N16000 into a 19-inch rack and a wall fitting.

4.4 Inserting the XORAYA RSU

<table>
<tr>
<td>⚠
CAUTION</td>
<td>Burning hazard due to hot surfaces

Continuous operation can strongly heat up enclosure and handle of the storage medium XORAYA RSU. As a result, when removing the medium, it can burn the skin on the hands.

▶ Wear temperature-resistant ESD gloves when in contact with the XORAYA RSU.</td>
</tr>
<tr>
<td>⚠
CAUTION</td>
<td>Risk of injury due to sharp edges and falling down

Sharp edges on the XORAYA RSU can cause cuts. Due to the heavy weight of the XORAYA RSU, foot injuries are likely to occur when it falls down.

▶ Wear temperature-resistant ESD gloves when in contact with the XORAYA RSU.

▶ Handle the XORAYA RSU with special care.</td>
</tr>
</table>

▶ Insert the XORAYA RSU carefully with both hands into the slot.

▶ Slowly push the XORAYA RSU until the stop is reached.

☑ When the XORAYA N8000/N16000 starts up, the RSU is automatically locked.

4.5 Connecting the XORAYA N8000/N16000

⚠️ CAUTION	**Device damage due to incorrect connection sequence**
	The incorrect connection sequence can lead to abnormal behavior or destruction of the XORAYA N8000/N16000.
	▶ According to the numbering of the subsections, connect the interfaces first and then the power supply.
	▶ Please note the correct connection sequence from top to bottom within the subsection.

4.5.1 Ethernet interfaces

▶ Connect all devices of the distributed logger network with data cables.

▶ Connect the data cables to the appropriate XORAYA N8000/N16000 ports.

▶ Wherever possible, tighten the connector screws.

ℹ️	**Loss of data due to port disconnections**
	To avoid data loss, never disconnect the XORAYA N8000/N16000 during the current recording from connected data buses.
	Furthermore, make sure that all connectors are firmly attached and the screws are tightened.

4.5.2   Power supply

⚠️ **DANGER**	**Electric shock due to improper connection of the power supply** Introducing the 4-mm plugs of the supplied power cable into low-voltage sockets can be fatal. ▶ Never introduce the 4-mm plugs into low-voltage sockets. ▶ Connect the supplied power cable only to a power source that meets the prescribed technical conditions.
⚠️ **CAUTION**	**Damage due to incorrect power supply** Using an incorrect power supply can lead to abnormal behavior or destruction of the XORAYA N8000/N16000. ▶ Use only the supplied power cable. ▶ Please ensure correct polarity upon connection. ▶ Make sure that the power supply used meets the prescribed technical conditions. ▶ Make sure that the power supply lies within permissible operating voltage of the XORAYA N8000/N16000. ▶ Please note the allowable voltage level when feeding external signals.
⚠️ **CAUTION**	**Damage due to faulty connection** When connecting with live contacts, transient fault currents with entrained mass may arise on interface connections which have been already connected. ▶ Please ensure contacts are de-energized when connecting the XORAYA N8000/N16000 to the power supply.

Continuous current of the DC power supply

A 12 V DC power supply must deliver a continuous current of 16.6 A. Use a regulated power supply or a car battery and note the required voltage and current values.

Please note the following sequence:

▶ Connect the power cable to port **(I)** on the XORAYA N8000/N16000. (➜ Connections and controls)

▶ Tighten the connector screws.

▶ Connect the black plug of the cable to 0 V or ground.

▶ Connect the red plug to the power supply.

Once the supply voltage is established, the XORAYA N8000/N16000 turns on and displays its operational status via the power button LED **(A)**.

CAUTION

Damage due to improper device shutdown

Disconnecting the power supply during operation may cause data loss and destruction of the XORAYA N8000/N16000.

▶ Never disconnect the XORAYA N8000/N16000 from the power supply while in operation.

▶ Ensure proper connector seating and tighten the screws if possible.

▶ Only shut down the XORAYA N8000/N16000 through the graphical user interface or the power button on the front panel.

▶ Pull the black plug connected to ground last when disconnecting the XORAYA N8000/N16000 from the power supply.

4.5.3 PC/Switch

▶ Connect a network cable to a switch.

　　or

▶ Connect a network cable directly to your PC.

▶ Connect a network cable to one of the LAN host ports **(F)** on the XORAYA N8000/N16000.

5 Maintenance

The measures in this chapter apply both to the XORAYA N8000/N16000 and the XORAYA RSU.

5.1 Safety measures

DANGER	**Electric shock caused by damage to components** Any damage to the XORAYA N8000/N16000, power source or connection cable may cause an electric shock. ▶ Switch on the XORAYA N8000/N16000 only if all components appear undamaged. ▶ Only commission the XORAYA N8000/N16000 after a proper installation or repair. ▶ Check the connecting cable regularly for defects to prevent damage to the power source. ▶ Always install the XORAYA N8000/N16000 in de-energized status.
CAUTION	**Device damage due to short circuit** Bent connector pins pose a short circuit risk. This can lead to abnormal behavior or destruction of the XORAYA N8000/N16000. Likewise, devices connected to the measurement setup may be also compromised. ▶ Make sure that connector pins are not bent. ▶ Check the XORAYA N8000/N16000 regularly for any deficiencies.
CAUTION	**Safety defects due to incorrect accessories and spare parts** Accessories and spare parts that have not been recommended by X2E GmbH negatively affect the safety, functionality and precision of the XORAYA N8000/N16000. X2E GmbH shall assume no responsibility whatsoever or honor any warranty for damages arising from non-recommended accessories and spare parts or incorrect use. ▶ Use only accessories recommended by X2E GmbH and original spare parts.

5.2 Cleaning

	Device damage due to pollution
⚠️ CAUTION	Avoid any contamination in plugs and sockets to ensure a reliable contact. ▶ Keep the XORAYA N8000/N16000 clean.

Observe the following instructions to prevent damage to the XORAYA N8000/N16000:

▶ Turn off the XORAYA N8000/N16000 and disconnect it from the power supply before you start cleaning.

▶ If necessary, clean the XORAYA N8000/N16000 with a damp, soft, lint-free cloth.

▶ Make sure that no moisture penetrates into the housing.

▶ Use only clear water and a mild detergent to moisten the cloth. Avoid sprays, solvents, alcohol or abrasive cleaners.

▶ Only reconnect the XORAYA N8000/N16000 to the power supply if the housing appears completely dry.

5.3 Repair

	Device damage due to device opening
⚠️ CAUTION	Unauthorized opening of the XORAYA N8000/N16000 can lead to abnormal behavior or destruction of the device. ▶ Never open the XORAYA N8000/N16000. ▶ Contact X2E GmbH should maintenance and repairs be required.

Upon malfunction or defect, return the XORAYA N8000/N16000 without any accessories to X2E GmbH. You can find the address on page 2 of this manual.

Before submission, please take the following measures:

▶ Clean the XORAYA N8000/N16000. (➔ Cleaning)

▶ Pack the XORAYA N8000/N16000 safely in its original packaging.

▶ Include the completed return form. You can download this form from the X2E Wiki or receive via email upon request to xoraya-return@x2e.de.

6   Storage, transport and disposal

The measures in this chapter apply both to the XORAYA N8000/N16000 and the XORAYA RSU.

6.1   Storage

If the XORAYA N8000/N16000 will remain unused for an extended time, we recommend storing it in the original packaging.

Adopt the following precautions to avoid damage to the XORAYA N8000/N16000:

▶ Protect the XORAYA N8000/N16000 from intense sun, heat, as well as from severe shocks.

▶ Do not place heavy objects on the XORAYA N8000/N16000.

▶ Store the XORAYA N8000/N16000 in a dry, dust-free and ESD safe area.

6.2   Transport

Transport the XORAYA N8000/N16000 only in the original packaging.

6.3   Disposal

The Electrical and Electronic Equipment Act (ElektroG), which applies in Germany, obliges every manufacturer to create a reasonable option for returning old B2B devices.

X2E cannot take back so-called historical devices that were placed on the market before August 15th, 2018. In this case, the customer is responsible for professional disposal.

Return of old X2E devices

Old devices can be returned at the customer's expense to the following address:

X2E GmbH
Grosse Ahlmuehle 19
76865 Rohrbach
Germany
Phone: +49 6349 99599 211
E-mail: sales@x2e.de

If more than 10 devices are returned at the same time, X2E must be informed in advance by the customer via the above e-mail address.

Old devices to be returned must be clearly marked by the customer with the words "Disposal" or "Entsorgung".

Disposal of batteries

If the products contain batteries or lamps that can be removed from the old device without destroying them, you as the end user are legally obliged to remove them before disposal and dispose of them separately.

Deletion of personal data

X2E expressly points out that the customer is responsible for deleting personal data on the devices to be disposed of.

Meaning of the symbol on the device

The crossed-out wheeled bin symbol on the device means that it must not be disposed of with household waste.

7 Appendix

7.1 Technical data

The following table provides an overview of technical data and properties of the XORAYA N8000/N16000 and the storage medium XORAYA RSU.

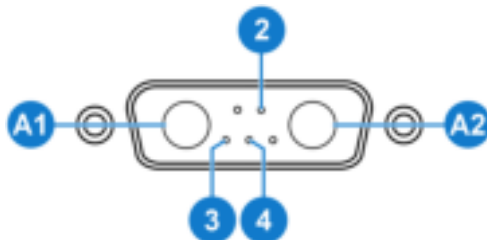| Property	Value
Timestamp resolution	100 ns
Storage capacity	Max. 32 TB
Operating ambient temperature	-40 to +65 ˚C (with I-Temp RSU)
Air humidity	10 to 95 % (non-condensing)
Supply voltage	6 to 32 V (6 V only briefly when the engine starts, at least 8 V for continuous operation)
Current consumption	Max. 16.6 A (at 12 V)
Standby current consumption	Max. 1 mA (at 12 V)
Dimensions (H x W x D)	189 x 444 x 305 mm (4 U) 139 x 482 x 353 mm (3 U, with handles)
Weight	8.1 kg
Housing protection type	IP 20, NEMA Type 1
Pollution degree	Pollution degree 3
Altitude	Max. 2000 m

7.2 Pin assignments

The following tables show the pin assignments of the 100Base-T1 interface and of the power/trigger/wake port. Figures show the external view of the N8000/N16000 contacts.

7.2.1 6x 100Base-T1

Pin	Function
1-18	-
19	Channel 6 (N)
20	Channel 6 (P)
21	-
22	Channel 4 (N)
23	Channel 4 (P)
24	-
25	Channel 2 (N)
26	Channel 2 (P)
27	-
28	Channel 1 (N)
29	Channel 1 (P)
30	-
31	Channel 3 (P)
32	Channel 3 (N)
33	-
34	Channel 5 (P)
35	Channel 5 (N)
36	-

7.2.2 Power/trigger/wake

Pin	Function
A1	GND
A2	VIN
2	Wake
3	Trigger/Wake GND
4	Trigger