

XORAYA Datacube-C6+

User Manual



© 2025 X2E GmbH

This user manual is protected by copyright; all usual rights reserved. Reproduction of this user manual, even in part, is only permitted with the approval of X2E GmbH. Any infringement will result in liability for damages and may result in criminal prosecution.

All product names and brands used in this user manual are the property of their respective owners.

Table of contents

Introduction.....	4
Intended use	4
Identification	4
Delivery contents	5
Safety instructions	6
Product liability	6
FCC notice	7
Connections and controls	8
Installation.....	11
Location	11
Power supply	11
PC/Switch	12
XORAYA External Storage Units.....	12
Web interface	13
HDDs	14
Firmware	15
Network.....	16
Datacube	22
Download.....	23
Hdd-Download	23
Automatic download service.....	28
Cleaning.....	30
Repair	30
Disposal	31
Technical data	32

Introduction

Intended use

The XORAYA Datacube-C6+ is a fast read-out station for XORAYA External Storage Units. Up to six devices can be connected and accessed by a terminal or PC.

The Datacube-C6+ is designed for industrial areas and must not be used in residential areas.

You may only operate the Datacube-C6+ within the scope of the technical specifications provided in this user manual. Additionally, the use in hazardous areas is not allowed.

Identification

The nameplate is located on the back of the Datacube-C6+.



It contains the following information:

- **Type** Device type
- **Config.** 1st block: Product ID
0286 XORAYA Datacube
2nd block: Product variant
0002 XORAYA Datacube-C6+
3rd block: Hardware revision
- **Input** Maximum current consumption at given standard input voltage
- **S/N** Unique serial number
- **DMF** Date of manufacture

Delivery contents

- XORAYA Datacube-C6+
- Power cord with AC/DC adapter (12 V/15 A, picture 1)
- 2x SFP+ module FS SFP-10G-T100 (picture 2)
- Connection cables for XORAYA External Storage Units
- User manual
- Software: XORAYA Suite and web interface

Check to ensure that the delivery is complete and all components are in sound condition. If the delivery is incomplete or provided components are damaged, contact X2E immediately. Do not use damaged components.



1: Power cord with AC/DC adapter



2: SFP+ module FS SFP-10G-T100

Safety instructions

The XORAYA Datacube-C6+ is only intended for use by qualified personnel. Read the user manual and especially this chapter thoroughly before operating.



CAUTION

Electric shock due to damaged components

Damages to the Datacube-C6+ or the power cord can result in electric shock.

- ▶ Check all components regularly for damages.
- ▶ Only connect the Datacube-C6+ if all components are undamaged.



CAUTION

Device damage due to vibrations, dirt or liquids

Excessive vibrations, dirt or liquids may result in malfunction or destruction of the Datacube-C6+.

- ▶ Avoid exposing the Datacube-C6+ to these influences.
- ▶ Keep the Datacube-C6+ clean, especially plugs and sockets to ensure a reliable contact.
- ▶ Never open the Datacube-C6+.



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 Datacube-C6+ in your hands.
 - ▶ Operate the Datacube-C6+ in an ESD-compliant environment.
-

Product liability

In the following cases, the intended protection of the Datacube-C6+ may be adversely affected. The liability is then transferred to the user.

- The Datacube-C6+ is not used according to the manual.
- The Datacube-C6+ is used outside the scope described in this manual.
- The user modifies the Datacube-C6+ without proper authorization.

FCC notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

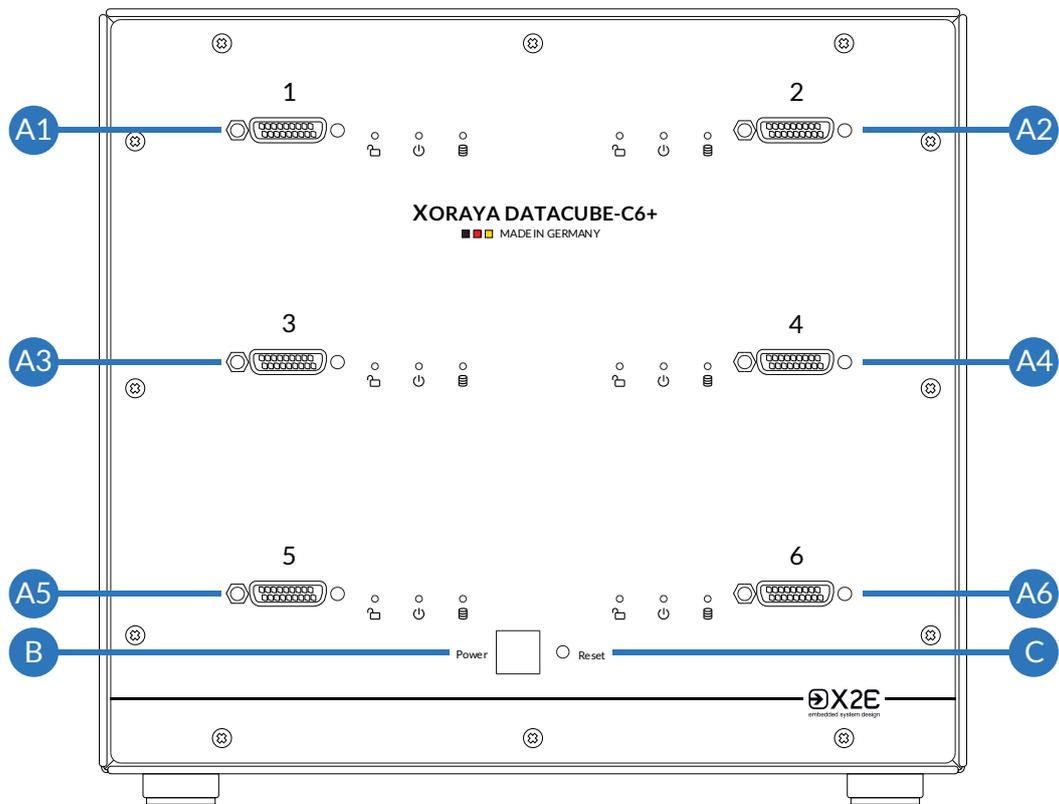
- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications made to this equipment not expressly approved by X2E may void the FCC authorization to operate this equipment.

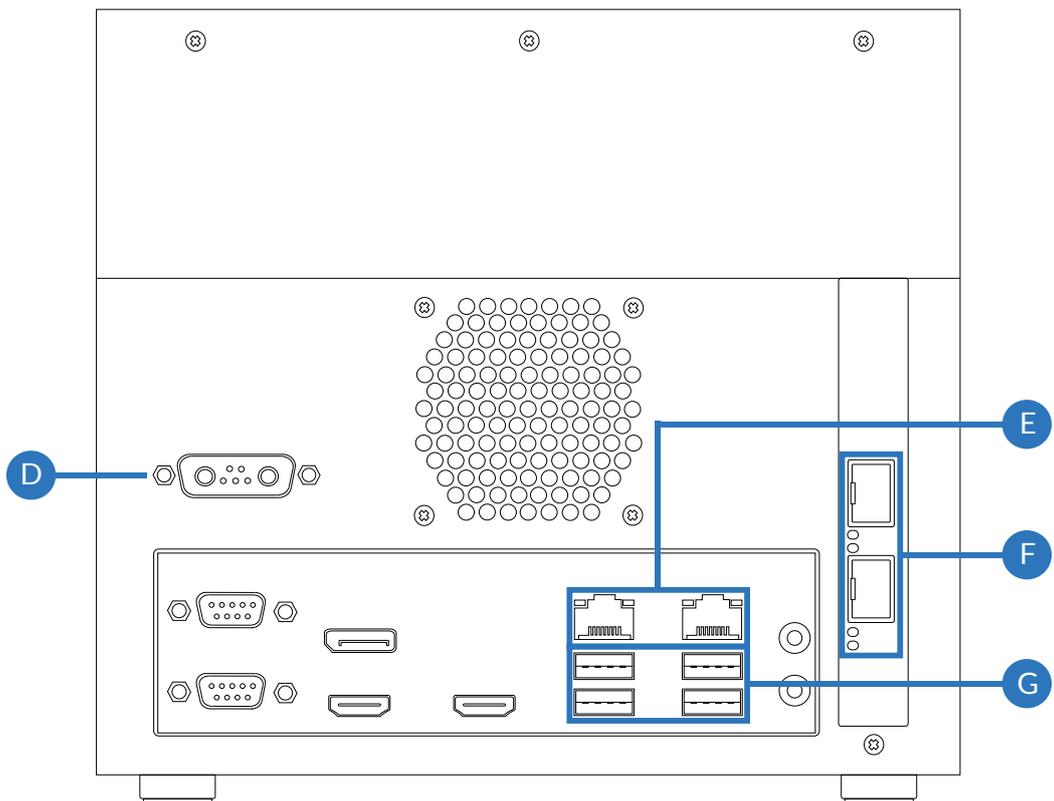
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Connections and controls



Front view



Back view

Connections for XORAYA External Storage Units with LEDs (A1-A6)

LED	Meaning
	red when connection between Datacube-C6+ and XORAYA External Storage Unit is established (locked) green when disconnected via button on XORAYA External Storage Unit or via software (unlocked)
	green when the XORAYA External Storage Unit is voltage-supplied
	red when accessing the XORAYA External Storage Unit

Power button (B)

When the Datacube-C6+ is on, the power button lights up green. Press the button twice shortly to safely shut down the Datacube-C6+.

Reset button (C)

Press the reset button with a pointed object to restart the Datacube-C6+.

Power supply (D)

Only use the provided power cord with AC/DC adapter (12 V/15 A) to connect the device to a suitable voltage source.

1GbE LAN ports (E)

Use these ports to connect the Datacube-C6+ to a switch or directly to your PC.

LED	State	Meaning
Link/Activity (left)	off	not connected
	orange (solid)	connected
	orange (blinking)	activity
Link speed (right)	off	10 Mbit/s
	orange	100 Mbit/s
	green	1 Gbit/s

10GbE LAN ports (F)

Use these ports with the provided SFP+ modules to connect the Datacube-C6+ to a switch or directly to your PC.

LED	State	Meaning
Link/Activity (bottom)	off	not connected
	green (solid)	connected
	green (blinking)	activity
Link speed (top)*	yellow	1 Gbit/s
	green	10 Gbit/s

* The provided SFP+ modules only support 10GbE.

USB 3.2 ports (G)

Perform a firmware update by using a USB flash drive containing the suitable ISO file.

Other ports

The other ports on the back are **not** intended for use.

Installation



CAUTION

Device damage due to wrong power supply

A wrong power supply can result in damage or destruction of the Datacube-C6+.

- ▶ **Only** use the provided power cord with AC/DC adapter (12 V/15 A).
 - ▶ **Do not** use the power cord with AC/DC adapter for the classic Datacube/Datacube-C6 (12 V/10 A).
 - ▶ **Do not** use the power cord for XORAYA dataloggers and a laboratory power supply.
 - ▶ Only connect the Datacube-C6+ to power supplies that meet the specifications on the AC/DC adapter label.
-



CAUTION

Device damage due to overheating

Overheating may result in malfunction or destruction of the Datacube-C6+.

- ▶ Do not operate the Datacube-C6+ in the vicinity of heat sources.
 - ▶ Ensure adequate air circulation.
 - ▶ Do not cover the Datacube-C6+ with other objects.
-

Location

Select a location for the Datacube-C6+ according to the following criteria:

- Proximity to power supply, which also needs to be easily accessible
- Sufficient distance to other devices
- Solid and stable surface
- Ambient temperature in required range
- Sufficient airflow
- Ventilation slots in particular must not be covered

Power supply

- ▶ Connect the provided power cord with AC/DC adapter (12 V/15 A) to port **(D)**.
- ▶ Tighten the connector screws.
- ▶ Connect the power cord to a suitable power source.

PC/Switch

- ▶ Connect a PC or a switch to one of the corresponding ports (**E-F**) using a network cable.
- ▶ Ensure proper connector seating.

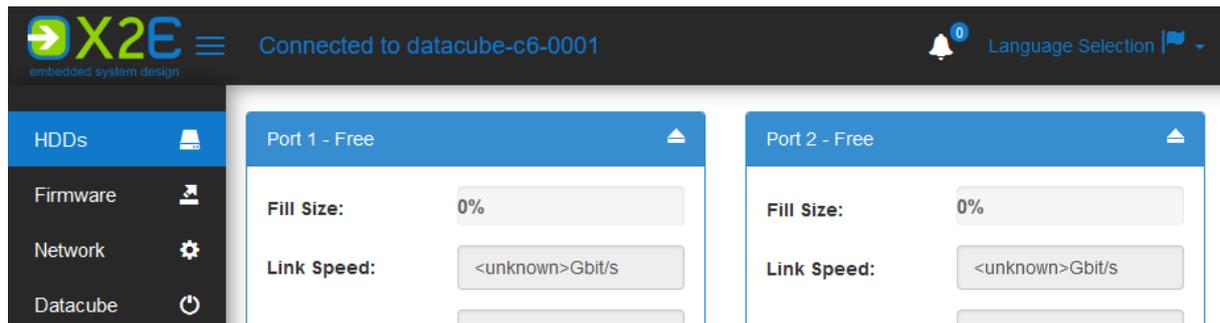
XORAYA External Storage Units

- ▶ Connect up to six XORAYA External Storage Units to the corresponding ports (**A1-A6**) using the provided cables.
- ▶ Tighten the connector screws.

Web interface

The interface consists of these sections, which you select from the vertical menu on the left:

- HDDs Display ports and connected External Storage Units (ESUs)
- Firmware Perform firmware updates
- Network Change global and port-specific settings
- Datacube General device actions, e.g. restart or create syslog



You can reach the web interface of the connected Datacube-C6+ by entering either the IP address or the name (e.g. datacube-c6p-0001/) in the browser.

SSL certificate

When the page is called up, the Datacube-C6+ checks whether a valid customer-specific certificate with the associated private key exists, whether it is still valid and whether it matches the active host name. If there is no customer-specific certificate or if it is not valid, a self-signed certificate is used or, if necessary, a new one is created by the Datacube-C6+.



Your connection is not private

Attackers might be trying to steal your information from **datacube-c6-0001** (for example, passwords, messages or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

To get Chrome's highest level of security, [turn on enhanced protection](#)

Advanced

Back to safety

If your browser displays this warning, click *Advanced* to still allow encrypted access to the web interface using the self-signed certificate.

HDDs

This overview displays information about all six connectors (ports 1 through 6) on the front panel of the Datacube-C6+ and any connected ESUs. The arrangement represents the actual physical arrangement on the device.

You will also receive live statistics of the downloads carried out by the Datacube-C6+ itself (push method). Downloads that are initiated via the XORAYA Suite (pull method) are not displayed here.

- ▶ Click **(1)** to eject a connected ESU safely.

The screenshot shows the X2E interface with the following details:

- Header:** X2E embedded system design, Connected to datacube-c6-0001, Language Selection.
- Port 1 - Connected:** Fill Size: 0,01%, Link Speed: 6.0Gbit/s, Plugin Date: 21.2.2025, 17:46, ESN: 0284_0001_0000_00000001, remaining lifetime: unknown. (Eject icon 1)
- Port 2 - Connected:** Fill Size: 5,59%, Link Speed: 6.0Gbit/s, Plugin Date: 21.2.2025, 17:46, ESN: 0284_0001_0000_00000002, remaining lifetime: 100%. Copy Jobs table below:

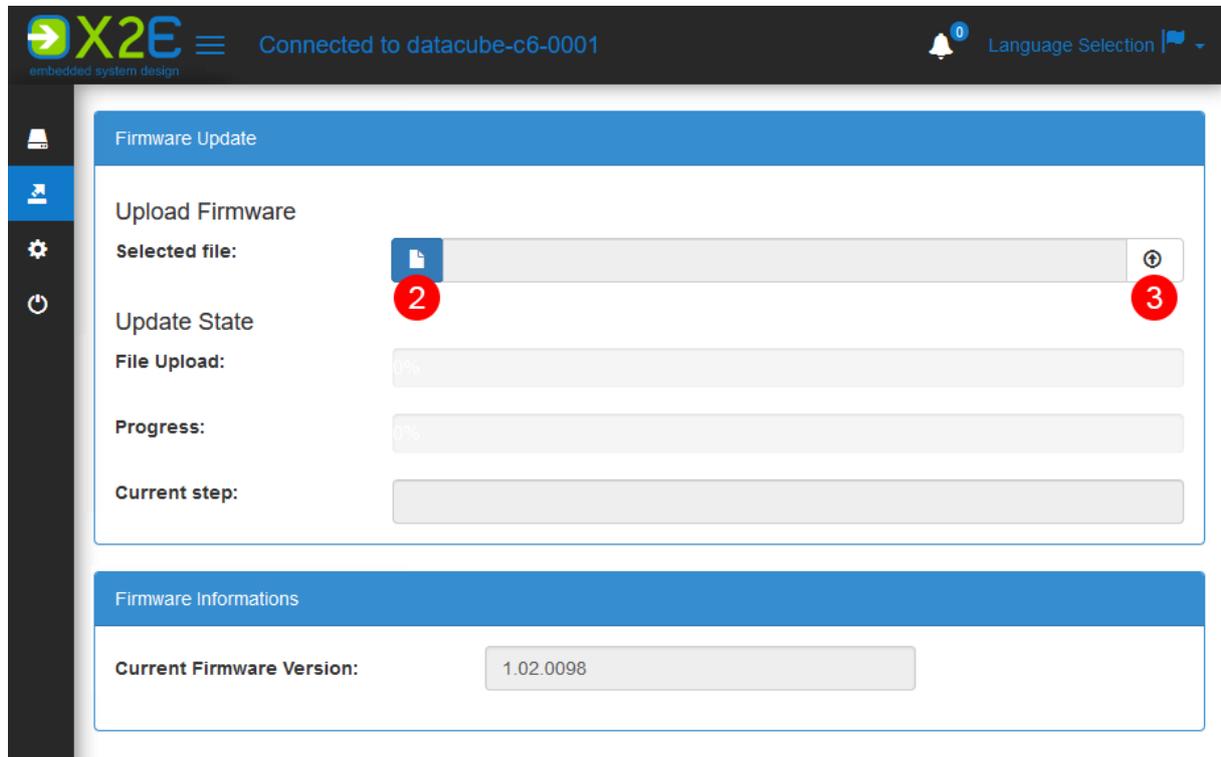
#XorayaN4000p-0001	▼	finished	100%
#XorayaN4000p-0002	▼	finished	100%
#XorayaN4000p-0003	▲	running	92%

 target: \\server.domain\share, Verbleibende Zeit: 00:00:06, Created: 2/10/2025, 10:41 AM, Files: 62 / 67, Bytes: 55145358 / 596536098, ExitCode: <none>. (Eject icon 1)
- Port 3 - Connected:** Fill Size: 0,01%, Link Speed: 6.0Gbit/s, Plugin Date: 21.2.2025, 17:52, ESN: 0284_0001_0000_00000003, remaining lifetime: unknown. (Eject icon 1)
- Port 4 - Connected:** Fill Size: 0,01%, Link Speed: 6.0Gbit/s, Plugin Date: 21.2.2025, 17:52, ESN: 0284_0001_0000_00000004, remaining lifetime: unknown. (Eject icon 1)
- Port 5 - Free:** (Eject icon 1)
- Port 6 - Free:** (Eject icon 1)

Firmware

This section shows the current version of the Datacube-C6+ firmware and allows its update.

- ▶ Click *Browse...* (2) and select a suitable XSWU file.
- ▶ Click *Update* (3).



The screenshot shows the X2E web interface for firmware update. The top navigation bar includes the X2E logo, a menu icon, the text "Connected to datacube-c6-0001", a notification bell with "0", and a "Language Selection" dropdown. The main content area is titled "Firmware Update" and contains two sections:

- Upload Firmware:** This section includes a "Selected file:" field with a file icon and a red circle with the number "2" next to it. To the right of this field is a red circle with the number "3" next to a gear icon. Below this are three progress bars: "Update State" (0%), "File Upload:" (0%), and "Progress:" (0%). A "Current step:" field is also present.
- Firmware Informations:** This section displays "Current Firmware Version:" with a text box containing the value "1.02.0098".



Update firmware via USB flash drive

If the firmware update is available as an ISO file, write it to a USB flash drive and insert the drive into one of the USB 3.2 ports (G). The Datacube-C6+ automatically performs the firmware update. The web interface is not needed.

Network

Here you can change the global settings of the Datacube-C6+ and the configuration of the 1GbE (ports A and B) and 10GbE LAN ports (ports C and D) on the back panel.

- ▶ Click the desired port in the image.
or
- ▶ Click one of the *Global* or *Port A to Port D* tabs.
- ▶ Activate *Editmode*.
- ▶ Make the desired changes. The descriptions of the settings can be found in the corresponding tables.
- ▶ Click *Save*.

Global settings

Configuration

Global | Port A | Port B | Port C | Port D

Editmode:

Hostname: datacube-c6-0001 ✓

System contact: contact ✓

Location: location ✓

NTP-Server: time.domain ✓

Copy-Settings:

Data stream 0 (standard)

Targetpath (UNC/NFS-Path): \\server.domain\path\folder ✓

Log file path (UNC/NFS-Path): \\server.domain\path\log-folder ✓

Username (SMB only): user ✓

Password (SMB only): ... ✓

Domain (SMB only): domain-or-host ✓

Data stream 1

Targetpath (UNC/NFS-Path):

Log file path (UNC/NFS-Path):

additional file name tag:

Username (SMB only):

Password (SMB only): ... ✓

Domain (SMB only):

Data stream 2

Targetpath (UNC/NFS-Path):

Log file path (UNC/NFS-Path):

additional file name tag:

Username (SMB only):

Password (SMB only): 

Domain (SMB only):

Common options

Max. file size in MB: 

Delete data after transmission:

Release ESU on success:

Convert videos to this format: 

Use compression:

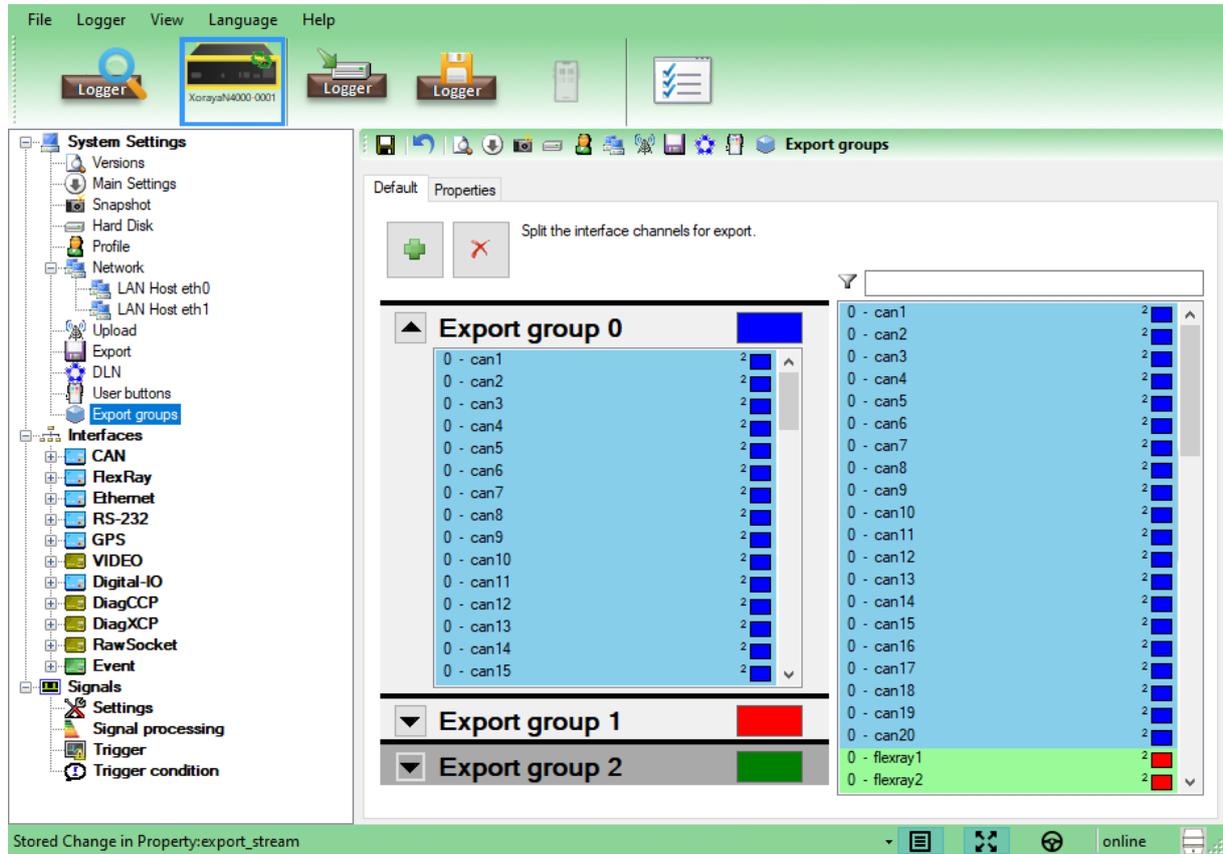
Processor cores per compression: 

Setting	Description
Hostname	letters A-Z, numbers 0-9 and - allowed
System contact	any text
Location	any text
NTP-Server	NTP server, IP or FQDN
Copy-Settings: Data stream 0 to 2*	
Targetpath (UNC/NFS-Path)	e.g. \\server.domain\path\folder
Log file path (UNC/NFS-Path)	e.g. \\server.domain\path\log-folder
Username (SMB only)	user for SMB access
Password (SMB only)	user password
Domain (SMB only)	domain or hostname of user
Copy-Settings: Common options	
Max. file size in MB	size of target files in MB
Delete data after transmission	delete successfully transferred data
Release ESU on success	eject ESU when all data is successfully transferred
Convert videos to this format	<i>original</i> or <i>avi</i>
Use compression	compress target data
Processor cores per compression	number of CPUs used for compression

* Data stream 0 to 2:

When recording with a XORAYA Datalogger, the interface channels can optionally be split into different data streams. The Datacube-C6+ can then save these data streams to individual target paths and log file paths during the copy process.

An interface channel is assigned to a data stream in the *Settings* tool of the XORAYA Suite under *Export groups*.



If no changes are made here, all recorded interface channels are in data stream 0.

Ports settings

Ports A through D in the web interface correspond to the 1GbE (A and B) and 10GbE (C and D) LAN ports on the back panel.

The screenshot displays the 'Configuration' page of the web interface. At the top, the header shows 'X2E embedded system design' and 'Connected to datacube-c6-0001'. A navigation sidebar on the left contains icons for home, refresh, settings, and power. The main content area features a diagram of the device's back panel with four LAN ports labeled A, B, C, and D. Below the diagram are tabs for 'Global', 'Port A', 'Port B', 'Port C', and 'Port D'. The 'Port A' tab is active, showing an 'Editmode:' section with a toggle switch. The configuration fields for Port A are as follows:

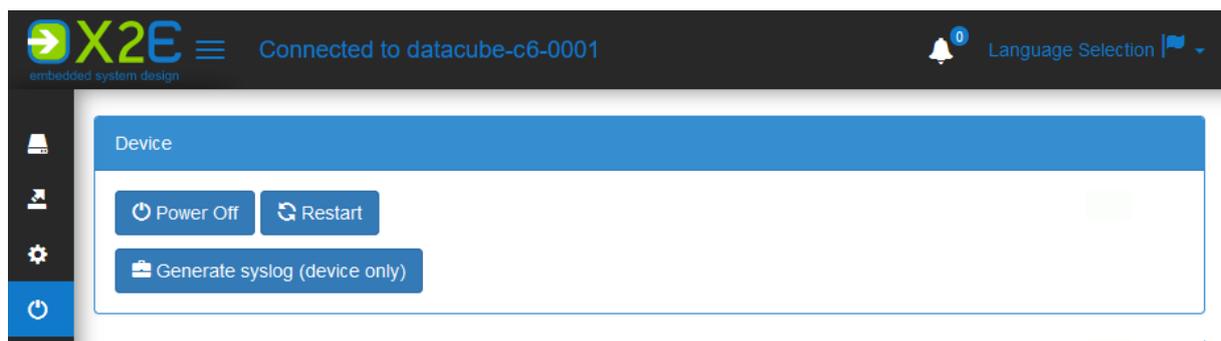
Field	Value	Status
Mode:	dhcp	
IP-Adress(configured):	0.0.0.0	✓
Subnet mask:	0.0.0.0	✓
Standard gateway:	0.0.0.0	✓
IP-Adresse(used):		
Nameserver:		
MTU (Bytes):	1500	✓
MAC-Address:	01:23:45:67:89:ab	
Description:	1G top left	
Status:	No link	

A 'Save' button is located at the bottom right of the configuration panel.

Setting	Description
Mode	operating mode, <i>static</i> or <i>dhcp</i>
IP-Address(configured)	static IP if <i>Mode = static</i>
Subnet mask	subnet mask if <i>Mode = static</i>
Standard gateway	gateway if <i>Mode = static</i>
IP-Address(used)	current IP, possibly via DHCP
Nameserver	nameserver if <i>Mode = static</i>
MTU (Bytes)	maximum packet size on this port
MAC-Address	MAC address (read-only)
Description	description of the port (read-only)
Status	current link status (read-only)

Datacube

Here you can power off the Datacube-C6+, restart it or create a syslog in case of problems.



Download

The graphical user interface XORAYA Suite is available for downloading the log data from connected XORAYA External Storage Units.

Hdd-Download

The *Hdd-Download* tool allows manual download of log data to a PC.

- ▶ Start the XORAYA Suite.
- ▶ Click *Hdd-Download*.

Connect Datacube-C6+

- ▶ Connect the Datacube-C6+ to power supply, PC and one or more XORAYA External Storage Units (see chapter *Installation*).
- ▶ Turn on the power supply.
- ▶ Press the power button (**B**).

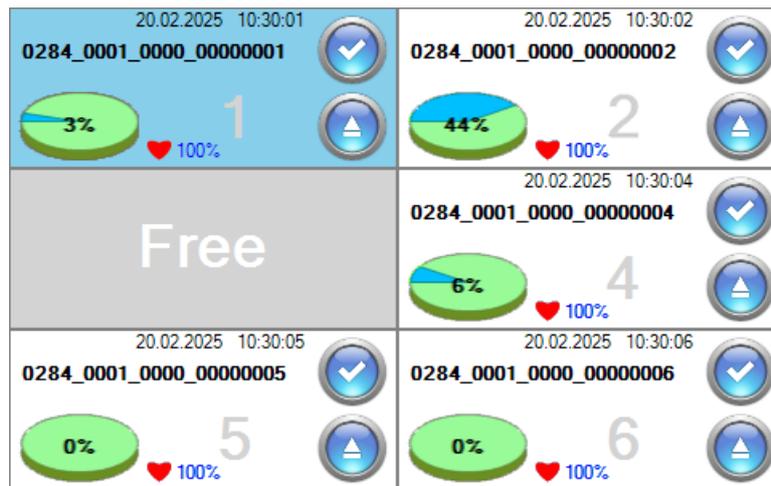
The Datacube-C6+ is ready when the power LED is green.



- ▶ Click **(1)** to start scanning for dataloggers and datacubes.
- ▶ Select the desired Datacube-C6+ in the list **(2)**.

The Datacube-C6+ is connected with the *Hdd-Download* tool.

If only one XORAYA External Storage Unit is connected, it is automatically activated. Otherwise, an additional window appears to display all six ports. The two columns and three rows represent the physical arrangement on the Datacube-C6+.



Each cell contains for each connection or for each connected device:

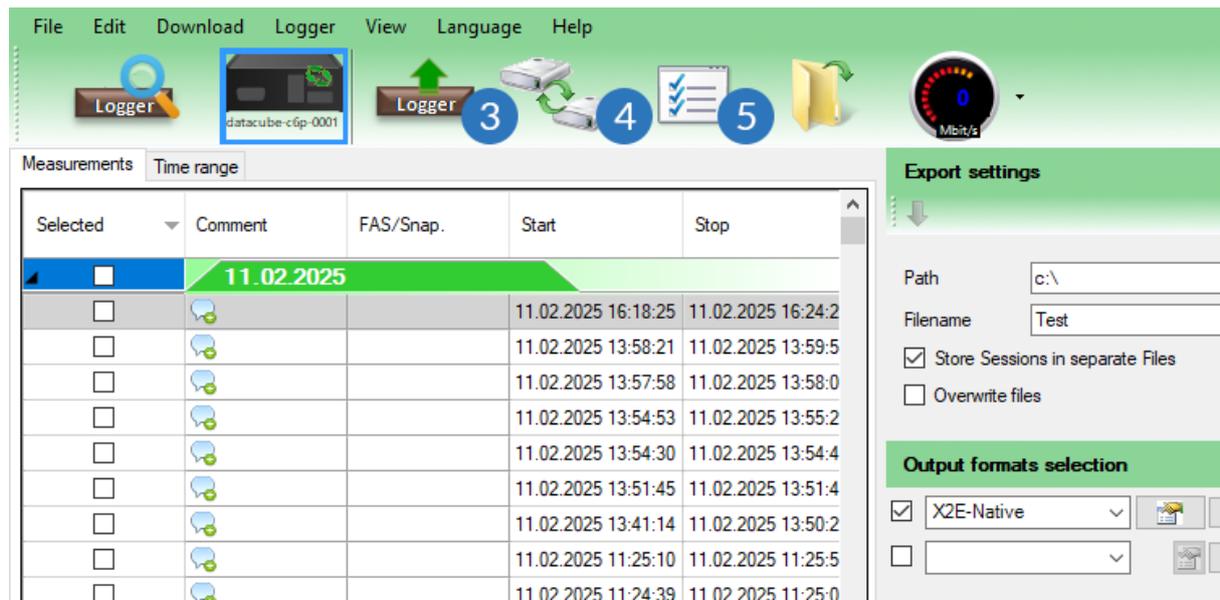
- port number (1-6)
- connection date and time
- configuration, consisting of four blocks: product ID, product variant, hardware revision and serial number
- percentage of used space
- percentage rating of “health status”
- activate button
- eject button
- background color depending on the state

white	connected
blue	activated
grey	ejected or not connected
brown	initializing

Activate XORAYA External Storage Unit

- ▶ Click the activate button of the desired XORAYA External Storage Unit.

The measurements stored on the selected device are displayed.



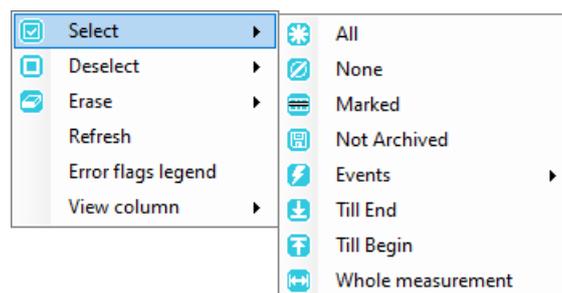
To eject a XORAYA External Storage Unit safely or to activate another device, click *Change disk* (4).

Via *Settings* (5) or the *Settings* command in the *Download* menu, you can configure that the connection is automatically released after downloading.

There are different ways to select the log data to download.

Measurements tab

- ▶ Select the check boxes in the *Selected* column.
- or
- ▶ Right-click to access the advanced selection options in the context menu.



Time range tab

Selected	FAS/Snap.	Start	Stop	Duration
<input checked="" type="checkbox"/>		20.02.2025 15:5...	20.02.2025 15:5...	15:02:19.4140145
<input checked="" type="checkbox"/>		20.02.2025 13:5...	20.02.2025 14:0...	00:03:19.5176162
<input checked="" type="checkbox"/>		20.02.2025 13:5...	20.02.2025 13:5...	00:00:10.0920544
<input checked="" type="checkbox"/>		20.02.2025 13:5...	20.02.2025 13:5...	00:00:00.2375535
<input checked="" type="checkbox"/>		20.02.2025 13:4...	20.02.2025 13:5...	00:06:33.0875771

- ▶ Specify start date (a) and start time (b) of the desired time range.
- ▶ Specify the end date (c). Use the arrows (d) optionally to apply the start date or to jump one day forward or backward.
- ▶ Specify the end time (e).
- ▶ Click *Apply* (f).
- ▶ Limit the time range further by clicking and dragging inside the graphical representation (g).



History

The time ranges defined since starting the tool can be selected again via the *History* button (h).

Edit menu

- ▶ Click *Select all* or *Select none*.

Download selected log data

- ▶ Specify the export settings.
- ▶ Specify the output formats.
- ▶ Click *Start download* (3).

The selected measurements are transmitted to the PC.



Statistical data

Click the arrow behind *Show download statistics* (7) to switch between different statistics.

The symbol displays the current value during download and the average as the process completes.

Click *Show download statistics* (7) to display statistical data graphically.

Cancel download

- ▶ Click *Stop download from logger* (3).

Analyze log data

- ▶ Click (7) to open the path last used in Windows Explorer.
- ▶ After downloading into the *X2E-Native* output format, double-click the DLI file to open the measurement with the *Viewer* tool.

Disconnect Datacube-C6+

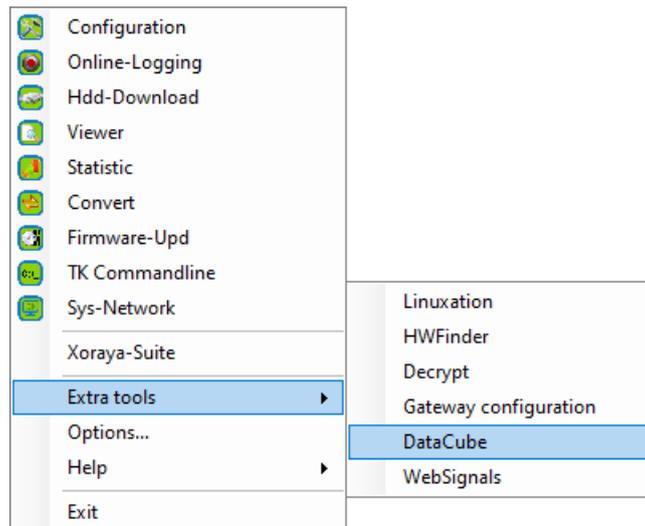
- ▶ In the *Logger* menu, click *Disconnect*.

Datacube-C6+ and Hdd-Download are disconnected.

Automatic download service

This XORAYA Suite extra tool is a server, which automatically downloads log data from selected datacubes (and dataloggers).

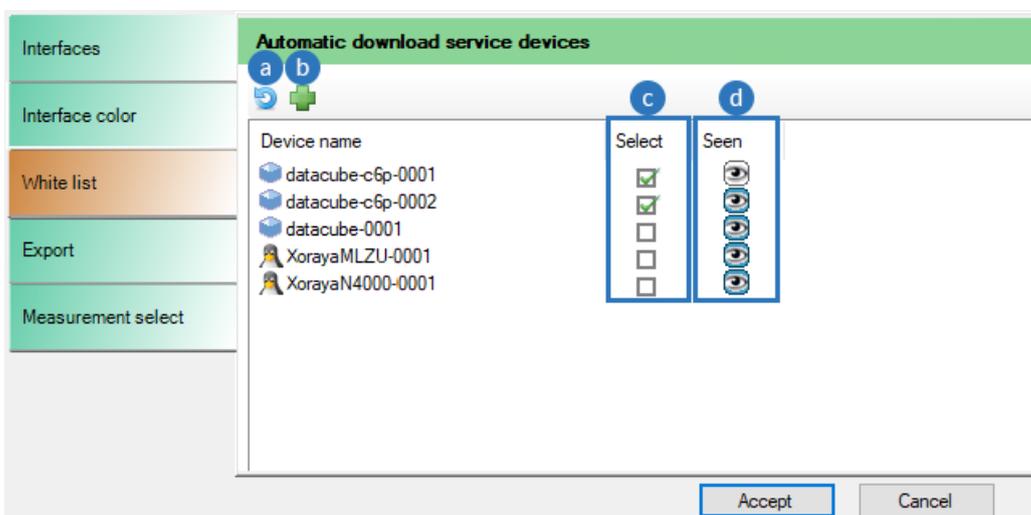
- ▶ Start the XORAYA Suite.
- ▶ Click  in the Windows notification area.
- ▶ Select Extra tools > DataCube.



Download settings



- ▶ Click (3) to open the settings.



In the category *White list*, select the devices for the automatic download service.

- ▶ Click *Refresh the device list (a)* to search for datacubes and dataloggers in the network again.
- ▶ Click *Add manually a device to favorites (b)* to enter the IP address of a device.
- ▶ Select the check boxes (c) for all devices that you want to add to the white list.

For a selected device, the symbol (d) changes from  to  if it is currently not reachable.

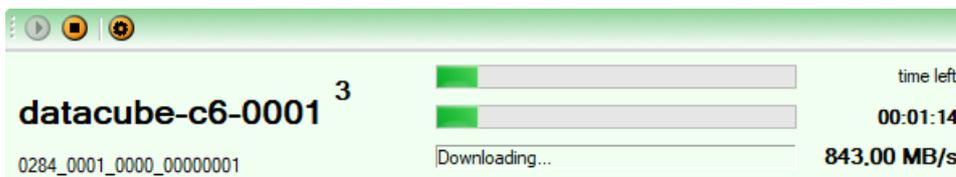
- ▶ In the category *Export*, specify export settings and output formats.
- ▶ In the category *Measurement select*, restrict the log data to download, for example by setting a start date. Additionally, you can configure that emails are sent on download error and on success or that statistical data is logged in a CSV file.
- ▶ After configuring all settings, click *Accept*.

Start server



- ▶ Click *Start Server (1)*.

After 5 seconds, the server scans for the selected devices, connects and automatically downloads the log data.



Every 60 seconds, the server scans the network again for other devices from the white list and downloads the log data.

Stop server



- ▶ After completing the log data download from all desired devices, click *Stop Server (2)*.

Cleaning



CAUTION

Device damage due to entering liquids

Entering liquids may result in malfunction or destruction of the Datacube-C6+.

- ▶ Disconnect the Datacube-C6+ from the power supply before cleaning.
 - ▶ Make sure that no liquids enter the Datacube-C6+.
-

- ▶ Clean the Datacube-C6+ with a damp, soft cloth as needed.

Repair



CAUTION

Device damage from opening the device

Unauthorized opening may result in malfunction or destruction of the Datacube-C6+.

- ▶ Never open the Datacube-C6+.
 - ▶ Maintenance and repair, including replacing the mainboard battery, must be carried out by X2E personnel only.
-

- ▶ In case of malfunctions or damages, please contact X2E via e-mail to get information about returning the Datacube-C6+: xoraya-return@x2e.de

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.

Make sure that you do not mechanically damage the removed battery, do not leave it in environments with extremely high temperatures and do not dispose of it in a fire. There is a risk of explosion!

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.

Technical data

Operating ambient temperature	0 to +40 °C
Operating air humidity	20 to 90 % (non-condensing)
Power supply (AC/DC adapter)	100 to 240 V AC, 50/60 Hz, max. 4 A
Dimensions (H x W x D)	195 mm x 210 mm x 217 mm
Weight	3.2 kg
Housing protection type	IP 20, NEMA Type 1
Pollution degree	3
Altitude	Max. 2000 m
Interfaces	6x XORAYA External Storage Unit
Download speed	Max. 5 Gbit/s via 10GbE (when downloading from 1 XORAYA External Storage Unit)



X2E GmbH
Grosse Ahlmuehle 19
76865 Rohrbach
Germany

Phone	+49 6349 99599 200
E-Mail	xoraya@x2e.de
Internet	www.x2e.de