



VisionNize®

Software operating manual

2.1

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1 Operating instructions

1.1 Using this manual

Your VisioNize software manual consists of software instructions. Separate instructions exist for some optional software and hardware modules.

The software manual is part of the product and can be called via the footer entry in VisioNize portal.

The current version of the software manual can be found on our website: www.eppendorf.com.

- ▶ Read the complete software manual before using the software.
- ▶ Open the software manual via the footer entry in VisioNize portal.
- ▶ Store the software manual at an easily accessible location.
- ▶ The software may only be transferred with the software manual.

1.2 Danger symbols and danger levels

1.2.1 Danger symbols

The safety instructions in this manual have the following danger symbols and danger levels:

	Hazard point		Material damage
---	---------------------	---	------------------------

1.2.2 Danger levels

DANGER	<i>Will lead to severe injuries or death.</i>
WARNING	<i>May lead to severe injuries or death.</i>
CAUTION	<i>May lead to light to moderate injuries.</i>
NOTICE	<i>May lead to material damage.</i>

1.3 Symbols used

Depiction	Meaning
1. 2.	Actions in the specified order
▶	Actions without a specified order
•	List
	Direction of movement
<i>Text</i>	Display or software texts
	Additional information

1.4 Abbreviations used

DHCP

Dynamic Host Configuration Protocol (network)

DNS

Domain Name System (network)

HTTPS

HyperText Transfer Protocol Secure

IP

Internet Protocol (network)

MQTT

Message Queuing Telemetry Transport

PDF

Portable Document Format

URL

Uniform Resource Locator

USB

Universal Serial Bus

1.5 Glossary

D**Data services**

A service provider that enables data access on demand to users regardless of their geographic location.

Device

An object, machine, or piece of equipment that has been made for a particular purpose.

DHCP

A standardized network protocol used on Internet Protocol (IP) networks. This protocol is controlled by a DHCP server that dynamically distributes network configuration parameters, such as IP addresses, for interfaces, and services.

DNS server

DNS is the Domain Name System. This network system is used to translate names into IP addresses. The DNS name server stores the records for VisioNize and answers to queries against the database.

H

HTTPS

A protocol for secure communication over a computer network. The communication over HTTPS is encrypted by Transport Layer Security, or its predecessor, Secure Socket Layer.

M

MQTT

For communication between device and cloud.

N

NTP server

The Network Time Protocol is used to synchronize the clock to computer systems.

U

URL

Uniform Resource Locator is a specific character string that constitutes a reference to a resource e.g. for a website.

2 Safety

2.1 Intended use

VisioNize is a cloud-based IoT platform intended to be used for connecting laboratory devices for data management, notification services by e-mail/SMS, and remote monitoring of the connected devices.

VisioNize is intended for research use only.

2.2 Warnings for intended use

Using VisioNize is easy and safe. To avoid data loss, read the following notices.



NOTICE! Data loss and malfunction due to malicious software.

Malicious software (like a computer virus) is designed to cause harm to a computer and user.

- ▶ Check storage media with updated antivirus software.
- ▶ Do not download software from uncertain source.
- ▶ Do not open e-mail attachments of uncertain origin.



To avoid unauthorized access, data loss, sample loss, and data abuse, protect your VisioNize-onboard devices against unauthorized access from Internet.

- ▶ Ask your local IT administration for advice.



In addition to the warnings and notes of this manual, safety notes and other notes mentioned in the operation manuals of connected devices are valid.

- ▶ Read the operating manuals of connected devices and VisioNize box, before you start using VisioNize.



CAUTION! Poor safety due to incorrect accessories and spare parts.

The use of accessories and spare parts other than those recommended by Eppendorf may impair the safety, functioning and precision of the device. Eppendorf cannot be held liable or accept any liability for damage resulting from the use of accessories and spare parts other than those recommended, or from the improper use of such equipment.

- ▶ Only use accessories and original spare parts recommended by Eppendorf.

2.3 Data security

VisioNize is based on the Azure cloud infrastructure from Microsoft taking advantage of its wide array of security tools and capabilities. All servers running VisioNize are located in the EU and all data is stored on servers in the EU as well.

Built-in firewalls control the access to network resources of VisioNize to protect against unauthorized access.

Security updates to VisioNize are provided regularly and independent from the release cycle of new software versions.

Encryption of all data within VisioNize is handled with the utmost care to prevent any unauthorized access. This handling includes a state-of-the-art approach to encrypt data at rest and in transit.

To give you full control over all your personal data in VisioNize, all acquisition, processing, and storage of personal data is fully compliant to the General Data Protection Regulation (EU) 2016/679 (GDPR).

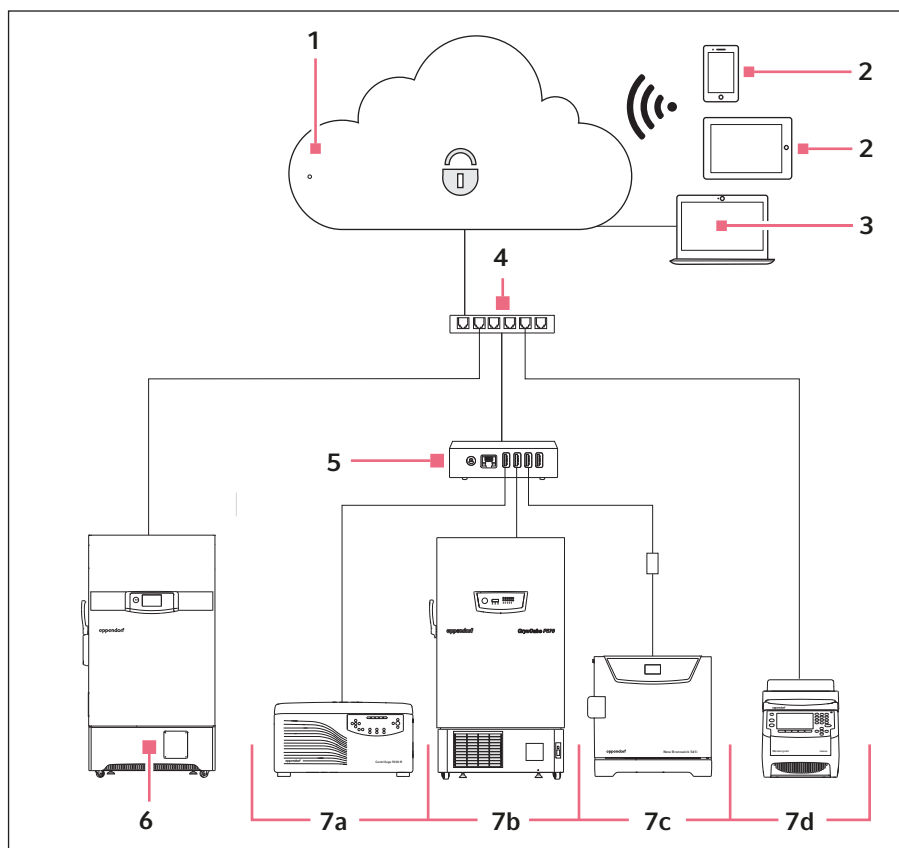
For detailed information, refer to the Whitepaper of VisioNize.

3 Product description

3.1 Software description

VisioNize is the digital platform of Eppendorf, delivering value adding services in and around your Eppendorf devices. This platform is built up for a varying and increasing number of applications. VisioNize safely stores data and makes this data accessible through the Internet. All you need is a computer or a mobile device with Internet access, a web browser, and an account for VisioNize.

3.2 Product overview



1 VisioNize services

2 Mobile devices

3 VisioNize client

4 Home network / IT department

5 VisioNize box

6 VisioNize-onboard device

7a VisioNize-qualified device (USB)

7b VisioNize-qualified device (serial)

7c VisioNize-qualified device (USB to Ethernet adapter)

7d VisioNize-qualified device (Ethernet)

4 Requirements on site

4.1 Requirements

Meet the following requirements so that you can integrate an Eppendorf device to VisioNize and access the data via a web browser.

4.1.1 Supported browser

- Google Chrome; versions 75.x (64-Bit) or later
- Mozilla Firefox (Quantum), versions 68.x (32-Bit) or later
- Safari (iOS); versions 12.3.1 or later
- Microsoft Edge; versions 42.x or later

4.1.2 Network components

- DNS server
- NTP server

4.1.3 Firewall

Define the following exceptions for outgoing connections for your firewall.

- port 443 for HTTPS
- port 8883 for MQTT



Firewall settings

- ▶ Ask your IT system administration for advice.

4.2 VisioNize account

Your laboratory, institute, or company needs one user account with administration rights for VisioNize.

To get an VisioNize administrator account, visit the Eppendorf eShop www.eppendorf.com/visionize-subscription (see *Accounts on p. 19*).

The VisioNize administrator manages all other users (see *User Management on p. 26*).

The administrator and each created user gets an e-mail including a link to VisioNize.

4.3 Devices

At the moment, VisioNize displays data of two families of devices.

The devices with the following software versions already have an Eppendorf Device Certificate for VisioNize.

Tab. 4-1: Software requirements for devices

Device family	Device	Software version
VisioNize-onboard	Shaker Innova S44i	2.1.5.200 or higher
	CryoCube F740i	2.1.5.200 or higher
VisioNize-qualified with VisioNize box (i.e. CryoCube U725 family, Centrifuge 5920 R, Mastercycler nexus family)	VisioNize box	1.8 or higher



Eppendorf Device Certificate for devices with older software versions

- ▶ To get an Eppendorf Device Certificate for VisioNize, contact your Eppendorf service representative.

To connect the VisioNize-onboard devices, refer to chapter Registration (see *Register device on p. 14*).

4.4 Register device

To connect a VisioNize-qualified device to your network, refer to the operating manual of the device and optionally to the operating manual of VisioNize box.

4.4.1 VisioNize-onboard devices

The following describes how to connect a VisioNize-onboard device to your network.

Requirements:

- Network socket of the local network near the device
- Standard Ethernet cable
- Internet access



To avoid unauthorized access, data loss, sample loss, and data abuse, protect your VisioNize-onboard devices against unauthorized access from Internet.

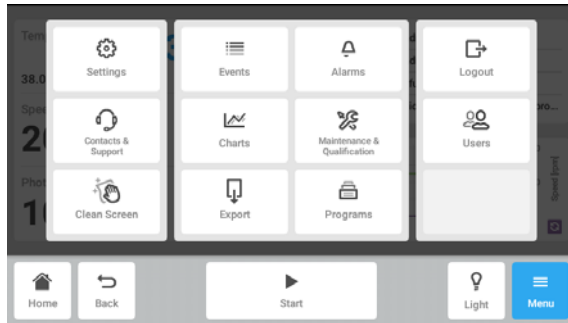
- ▶ Ask your IT system administration for advice.



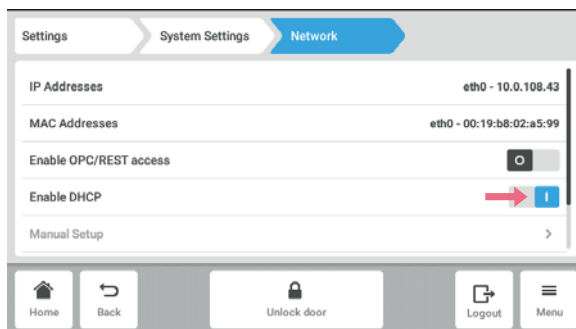
WARNING! Security risk

- ▶ Enable OPC/REST only on demand, as any communication protocol exposed to the internet is a potential security risk.

Connect to the network

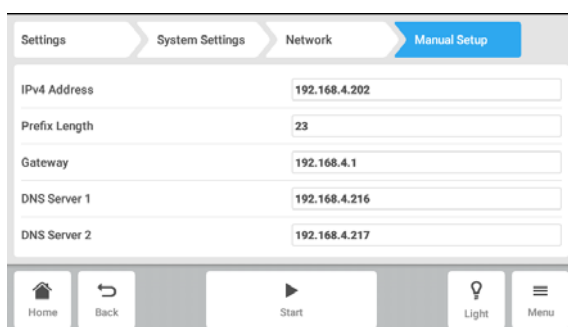


1. Connect the ethernet socket at the rear site of the device to an unlocked socket of the network with a standard ethernet cable.
2. To check the network connection, open the settings on the touch screen of the device.
3. Tab *Menu* > *Settings* > *System Settings* > *Network*.



4. We recommend switching on DHCP as network protocol.

DHCP

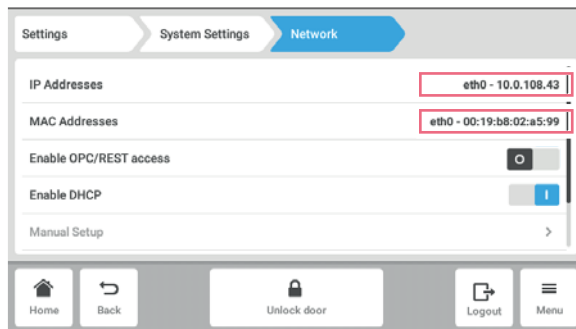


5. If you do not use DHCP, switch off *Enable DHCP* and tab *Manual Setup*.
6. Enter the device settings.

Requirements on site

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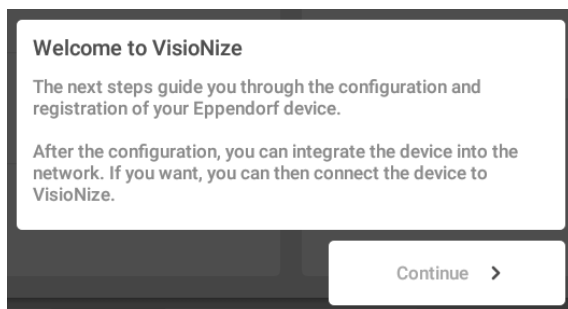
7. To check the entries, tab *Back*.

When the device is successfully connected, the IP address is displayed next to *IP Addresses*.

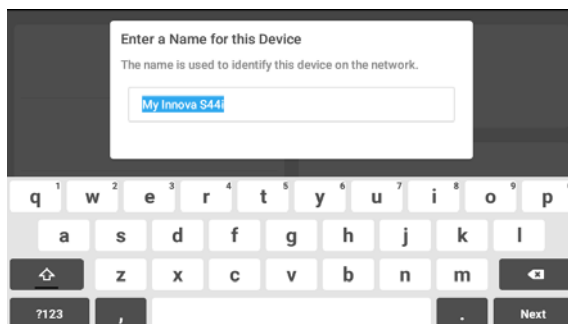
If the IP address is not displayed, note the MAC address and contact your local IT administration.

4.4.2 Registration

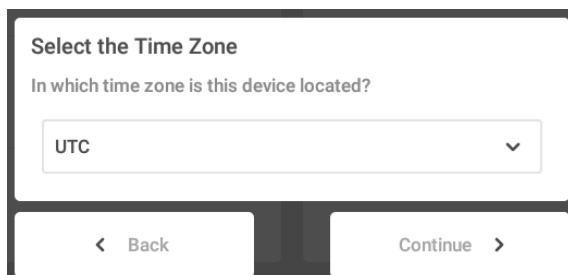
VisioNize-onboard devices already have the certificate to connect to VisioNize (see Tab. on p. 14). After you have put the device into operation and connected the device to the network, the following dialogs guide you through the registration.



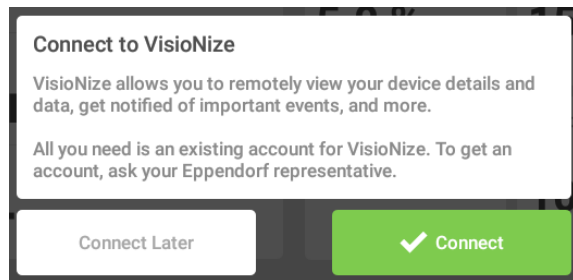
1. To configure your device, follow the instructions.



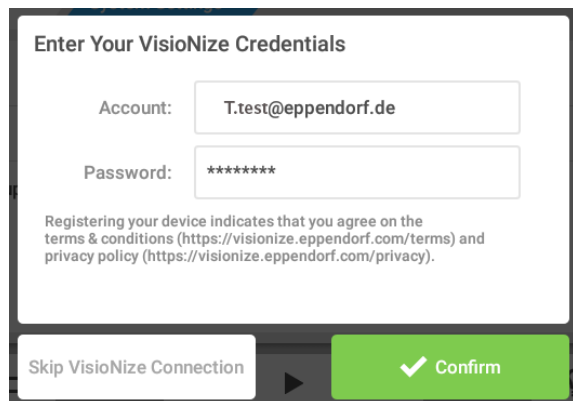
2. To identify your device in the network, enter a nickname.



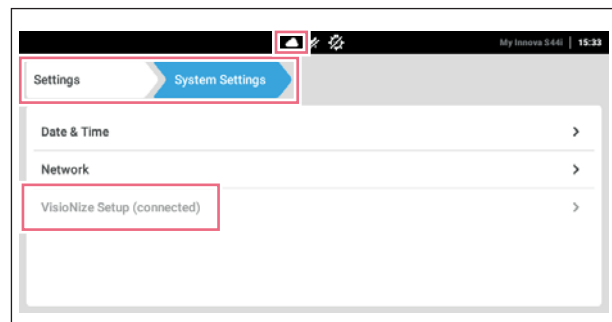
3. Select the time zone of the device and click *Continue >*.



- To connect to VisioNize directly, select *Connect*. To connect later (see *Connecting later on p. 17*), select *Connect Later* and follow the instructions.

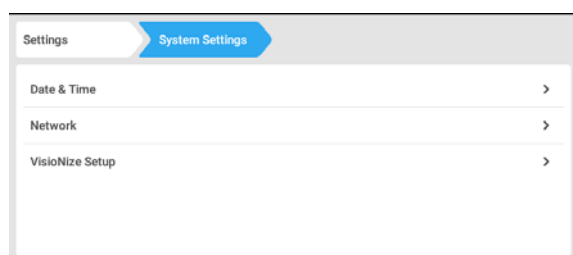


- Enter the Administrator Credentials of the VisioNize account (see *VisioNize account on p. 13*) and select *Confirm*. Your device is connected successfully to VisioNize.



A cloud in the status bar indicates the cloud connection and the grayed out menu item *VisioNize Setup (connected)* in the *System Settings*.

4.4.3 Connecting later



- To start the registration of your VisioNize-onboard device for VisioNize, tap *Settings > System Settings > VisioNize Setup*.
- Follow the instructions (see *Registration on p. 16*).

5 Before starting

5.1 Accounts

5.1.1 Get an administrator account

Visit the Eppendorf eShop www.eppendorf.com/visionize-subscription and request an administrator account (tenant) for your company or institute. You get one administrator account for one organizational unit, through which all other users and additional administrator accounts can be activated.

5.1.2 Get a user account

The administrator has to add a user account to VisioNize in the User Management (see *User Management on p. 26*).

- To get an account, contact your VisioNize administrator.

5.2 Login

5.2.1 Initial login

The administrator and each user created, receive an e-mail including a link to VisioNize.

VisioNize Cloud - User Account created Σ Posteingang x

[Do not reply] Password Reset <notification@visionize.cloud> [Abbestellen](#)
an mich ▼

🌐 Englisch ▼ > Deutsch ▼ [Nachricht übersetzen](#)

Your VisioNize User Account has been created through your admin. Please reset your password by [clicking here](#).



Do not wait longer than 24 hours after receiving the e-mail with the initial login. Find more details in chapter troubleshooting (see *VisioNize on p. 31*).

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Password

- ▶ To open your web browser, click the link *clicking here* in the e-mail from VisioNize cloud. A *Reset password* dialog opens.
- ▶ Enter and confirm your self-chosen password. The password must contain a capital letter, a number, and a special character.
- ▶ Click *Set password*.

5.2.2 Log in

- ▶ Enter the URL of VisioNize <https://visionize.eppendorf.com> in your web browser.
- ▶ To log in, enter your e-mail address and password.
- ▶ Click *Enter*.

5.2.3 Log out

- ▶ Click your user name in the upper right corner. The log out button is displayed.
- ▶ To log out, click the button.

6 Operation

6.1 Operating controls

The following describes the main operating controls of VisioNize.

6.1.1 Digital lab space

After logging in, the digital lab space of VisioNize is displayed. This space is the home screen and gives an overview of all applications.

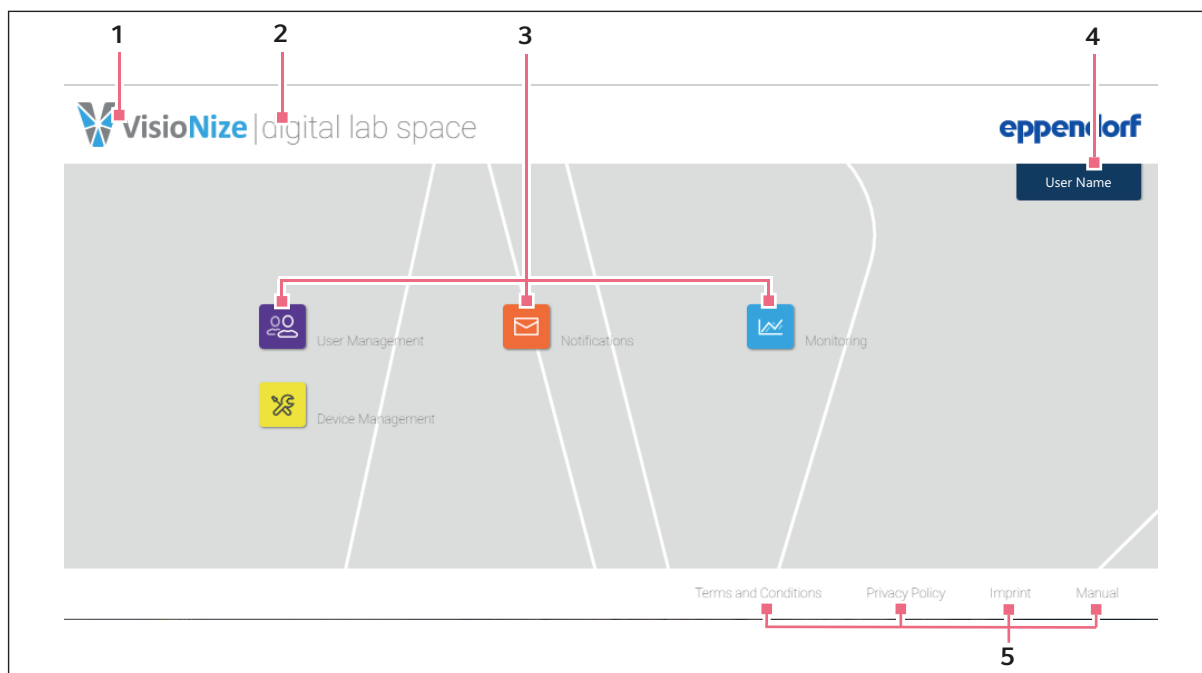


Fig. 6-1: VisioNize digital lab space

1 VisioNize icon

Functions as home button to get back to VisioNize digital lab space.

2 Application indicator

The name next to the vertical line shows the name of the application used.

3 Buttons for applications

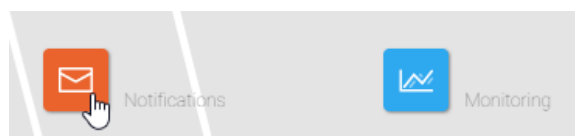
The number of buttons displayed depends on whether a user or the administrator is logged in.

4 User Name

Functions as button for logout.

5 Information

Terms and Conditions, Privacy Policy, Imprint, and Manual



- ▶ To open an application, click the corresponding button.



- ▶ To get back to digital lab space, click the *VisioNize* symbol in the upper left corner.



- ▶ To open the PDF of the VisioNize manual, or the Term and Conditions, click the corresponding link in the lower right corner of the home screen.

6.1.2 Device symbols

The following table shows the commonly used symbols for devices.

Tab. 6-1: Symbol of devices

Symbol	Device
	Bioreactor
	Centrifuge
	Cycler
	Freezer
	General
	Incubator
	Shaker

7 Applications

7.1 Notifications

VisioNize provides the option to send notifications as e-mail and text. These notifications are connected to the events of devices and can be adjusted to your needs. Decide which devices should trigger which type of notification.



E-mail and text data

E-mail notifications will be send to the e-mail address used for the VisioNize enrollment.

Text notifications will be send to the mobile phone number stored in the User Management.

- ▶ To enter your mobile phone number, contact your VisioNize administrator.

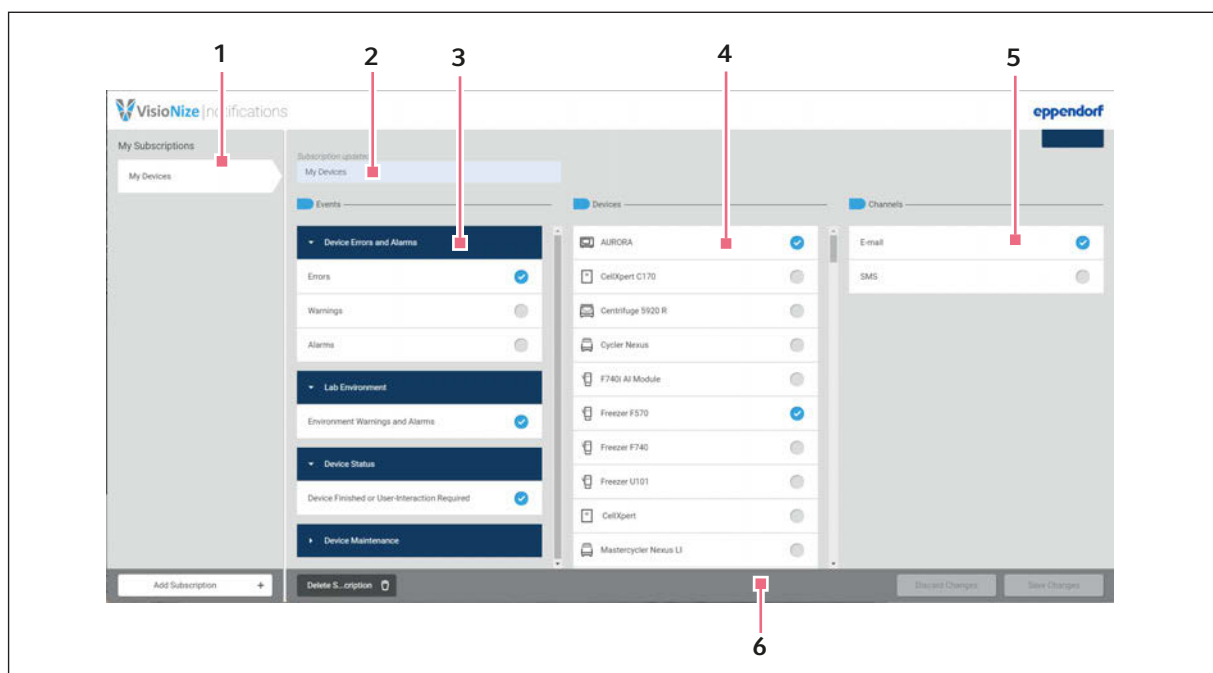


Fig. 7-1: Notifications

1 My Subscriptions

List of subscriptions

2 Title box

Title of a subscription

3 Events

List of categories

4 Devices

List of connected devices

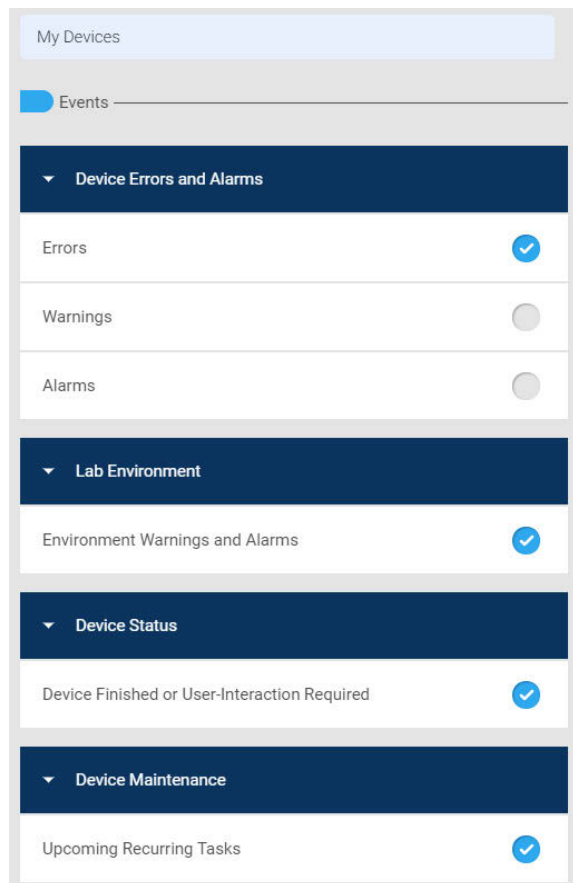
5 Channels

E-Mail or SMS notification channels

6 Button bar

Buttons to edit, add, delete, or save notifications

7.1.1 Add subscription



My Devices

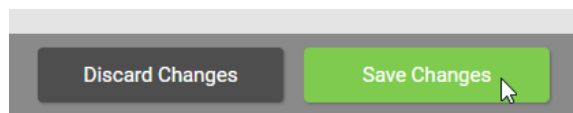
Events

- Device Errors and Alarms
 - Errors ☒
 - Warnings ☐
 - Alarms ☐
- Lab Environment
 - Environment Warnings and Alarms ☒
- Device Status
 - Device Finished or User-Interaction Required ☒
- Device Maintenance
 - Upcoming Recurring Tasks ☒



Cancel Save

Edit



Discard Changes Save Changes

- ▶ Click *Add Subscription* +.
- ▶ Enter a title for the notification.
- ▶ Tick the event groups about which you want to be informed (Tab. on p. 25).
- ▶ Tick the devices and tick the type of notification.

- ▶ To confirm, click *Save*.

- ▶ To edit a subscription, select the name of your subscription.
- ▶ Select or deselect events, devices, or channels to your needs.
- ▶ To confirm the changes, click *Save Changes*.

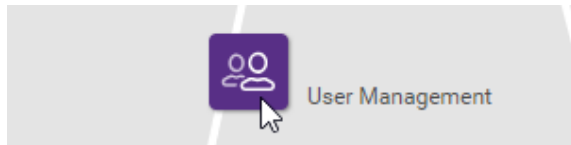
The events are structured in the following categories.

Tab. 7-1: Events categories

Device Error and Alarms	Is your device fully functional now?
Errors	Due to an error state, the device does not function normally.
Warnings	Functional warnings
Alarms	Function alarms incl. door alarms
Lab Environment	External conditions that influence the operation of the lab, e.g., power outages or ambient climate conditions.
Environment Warning and Alarms	Events from VisioNize compatible environmental probes and ambient sensors.
Device Status	Is your device available?
Device finished or user-interaction required	The device has finished or resumed or paused working. Intervention is necessary.
Device Maintenance	Is your device in need of preventive maintenance?
Upcoming Recurring Tasks	Recurring tasks Warning and Alarms.

7.2 User Management

The application User Management is only available for the administrator.



At the left, a list of users is displayed. To *Add User* or *Deactivate User*, use the corresponding buttons.

The screenshot shows the "VisioNize | user management" interface. On the left, a "Users" list contains entries for "Anna Test", "Anne Testing", "Bernd Smith", and "Tom Smith", with empty rows below. At the bottom of this list is an "Add User +" button. To the right, a form for editing a user is shown with fields for "First Name" (Anna), "Last Name" (Test), "E-mail" (a.test@eppendorf.com), and "Mobile Phone" (+1234567890). There is also a checkbox for "Administrator" with the text "with administration privileges". At the bottom right, there are "Discard Changes" and "Save Changes" buttons. The top right corner shows the user "Annett...minski".

Fig. 7-2: User Management



Phone number

- ▶ To receive text notifications, enter a phone number.
- ▶ Enter the mobile phone number without spaces in the following format: +4912312345678

7.3 Monitoring

The *Monitoring* application displays device-specific parameters as history chart, a status overview and an event List.

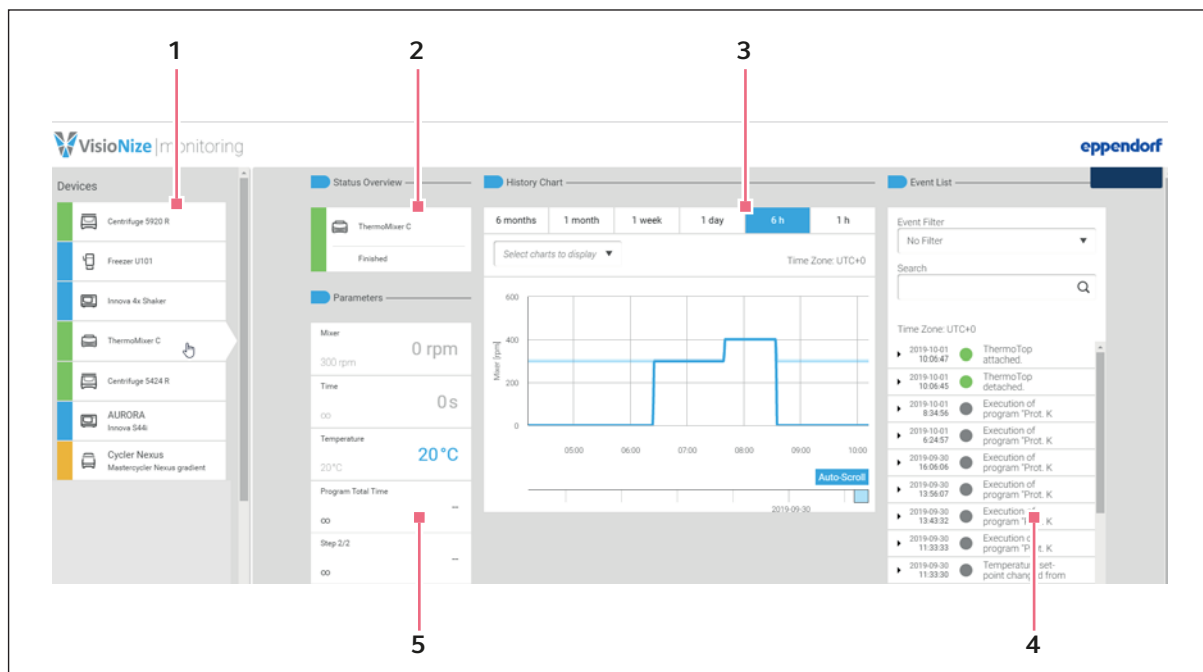


Fig. 7-3: Charts

- | | |
|---|--|
| 1 Devices
list of devices | 4 Event List
list of events with filter and search |
| 2 Status Overview
status of the selected device | 5 Parameters
key parameters of the selected device |
| 3 History Chart
device data up to 6 month in the past; not available for every device | |

7.3.1 Color code

The color of the devices in the list show the status of the devices at a glance.

  Innova 4x Shaker	running
  Centrifuge 5920 R	finished

 Cycler Nexus Mastercycler Nexus gradient	idle
 Centrifuge 5920 R	paused or hold
 SciVario twin	preparing or updating
 F740hi...Testlab Freezer F740 Not connected	not connected
 Centrifuge 5920 R	error

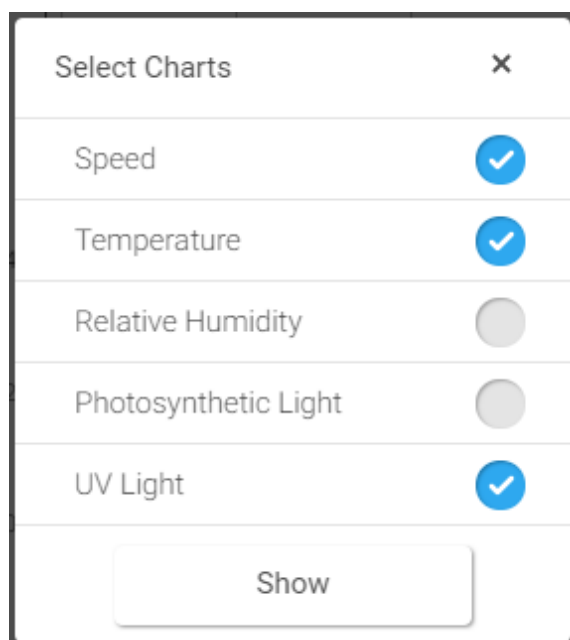
7.3.2 Display options

Time span selection



- ▶ To display the history data from 1 hour to up to 6 month in the past, select a time span tab.

Select charts



- ▶ To display more than one chart, click the drop down menu of *Select charts to display* and select the offered charts.

Time navigation bar



- ▶ To display a time span of historical data, click and drag the blue area on the time navigation bar.
- ▶ To scroll back to the latest data, click *Auto Scroll*.

8 Contact information

If you need support for VisioNize contact: <https://www.eppendorf.com/service-support/>

9 Troubleshooting

9.1 VisioNize

Problem	Cause	Solution
E-mail missing after account creation	• Firewall options • Spam filter options	▶ Check the firewall options. ▶ Check the spam filter.
Login failed with an error message.	• The first registration for VisioNize did not take place within 24 hours.	▶ Call up the login mask at https://visionize.eppendorf.com ▶ Click <i>Forgot Password</i>. ▶ Enter your e-mail address and click <i>Send recovery e-mail</i>. ▶ Check your e-mail inbox immediately. You should have received an e-mail with the subject Password Reset. ▶ Click the included link and follow the instructions (see Fig. on p. 20).

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