

SpaceLogic™ HMIs

Operator Display

Reference Guide

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Purpose of This Guide

This guide provides information about the administration and configuration of SpaceLogic™ Operator Display, and how it is used to provide an easy-to-use interface through which building managers, technicians, janitors, and security guards can locally access the EcoStruxure Building Management systems from a Human Machine Interface (HMI) terminal. This information is intended to help you understand Operator Display so you can perform common and administrative tasks using the Operator Display user interface.

Safety Information

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Cybersecurity Safety Notice

<i>NOTICE</i>
<p>POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY</p> <ul style="list-style-type: none">• Change passwords regularly to help prevent unauthorized access to device settings, controls, and information.• Do not share accounts. Each user must have their own account.• When creating user and display names, it is important to avoid using personal information, and to consider regional privacy policies. Display names will appear in event logs to identify who performed operations on the device.• It is recommended that log files be encrypted before transmission to help with security and privacy.• Disable unused services and default accounts to help minimize pathways for malicious attackers. Factory reset devices when they are decommissioned to help ensure all site, user, and log information is removed.• Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).• Use the recommended cybersecurity safety measures (for example, least privilege, separation of duties) to help prevent unauthorized exposure, loss, modification of data and logs, or interruption of services. <p>Failure to follow these instructions can result in loss of data or unauthorized system access.</p>

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1 SpaceLogic Operator Display

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1.1 Operator Display Overview

SpaceLogic* Operator Display is a touch-screen Human Machine Interface (HMI) for SpaceLogic controllers and servers, designed for local monitoring of building controllers in small and medium-sized buildings, as well as in large buildings with comprehensive building management systems. Operator Display is specifically designed for equipment rooms and it simplifies operations, service, and troubleshooting for System Integrators and Service Engineers, as well as for non-technical users (notably Facility Managers and Janitors).

* Formerly known as SmartX.



Figure – Operator Display

The simplified user interface and the intuitive touch-screen navigation make it easy to operate and maintain the system. Operator Display communicates quickly over BACnet/IP open protocol with a direct connection to SpaceLogic MP or RP controllers, IP-IO modules, AS-B or AS-P servers. Only one Operator Display is required per cabinet in the equipment room, so there is no need for more displays when a controller is added (up to seven controllers). The operator can view and acknowledge alarms, edit schedules, and adjust setpoint temperatures. Authorized operators can also view and override inputs, outputs, and other virtual points.

1.1.1 User Account Handling

Operator Display authenticate users via user name and password.

For more information, see section 1.3 “User Account Handling” on page 13.

1.1.2 Alarm Handling

When an input, output or value in a connected device is configured to generate an alarm, Operator Display allows you to view and acknowledge the alarm. Inputs, outputs or values can be configured to generate an alarm when it is, for example, out of range or in a fault state.

For more information, see section 1.27 “Alarm Handling” on page 33.

1.1.3 Value Editing

The value of inputs, outputs and values, such as non-calculated setpoints, control mode selectors, and digital override switches can be edited in Operator Display.

For more information, see section 1.29 “Value Editing” on page 35.

1.1.4 Schedule Handling

A schedule is a sequence that determines when essential events occur in a building management system: doors locked or unlocked, temperature raised or lowered, or equipment turned on or off.

For more information, see section 1.38 “Schedule Handling” on page 43.

1.1.5 Date and Time Handling

Operator Display receives date and time from a time master on the BACnet network. In smaller systems where no time master is available, Operator Display can be configured to send its date and time to the connected devices.

For more information, see section 1.18 “Date and Time Handling” on page 27.

1.1.6 Trends Handling

The function of a trend log is to log the variable that it is connected to and store the records.

For more information, see section 1.62 “Trends Handling” on page 67.

1.1.7 Configuration

As an administrator you need to configure Operator Display and make it part of the IP network and the BACnet/IP network so you can discover and add the devices.

For more information, see section 1.9 “Configuration” on page 19.

1.2 Logging on to Operator Display

You log on to Operator Display to display and interact with the connected devices.

For more information, see section 1.3 “User Account Handling” on page 13.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Wipe screen after use to avoid fingerprints from password entry remaining on the screen.
- Do not share accounts between multiple users.

Failure to follow these instructions can result in loss of data or equipment damage.

To log on to Operator Display

1. In Operator Display, tap **Start**.
2. In the **User name** box, type a user name.

Continued on next page

3. In the **Password** box, type a password.
4. Tap **Login**.

1.3 User Account Handling

Operator Display authenticates users via user name and password.

The system administrator creates a user account with your needed permissions so you can access Operator Display and perform your assigned tasks. For more information, see section 1.2 “Logging on to Operator Display” on page 12.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Wipe screen after use to avoid fingerprints from password entry remaining on the screen.
- Do not share accounts between multiple users.

Failure to follow these instructions can result in loss of data or equipment damage.

There are three different types of users in Operator Display:

Administrator

A building manager who has complete access to the configuration of the Operator Display, including user administration.

Technician

A maintenance person or janitor who uses the Operator Display to interact with devices without being able to modify the configuration.

Viewer

A security guard who can view Operator Display features like alarms, but is not authorized to perform actions.

1.3.1 Passwords

The minimum number of characters and how many lowercase, numeric, and special characters that are required when you create a password depends on how the Operator Display user settings are configured.

When you change your password, the password requirements for the Operator Display are displayed on the Change password screen. For more information, see section 1.6 “Changing Password” on page 17.

The following special characters can be used:

!*#\$%()'*/+<=>?@[\\]^_`{|}~

1.3.2 User Administration

As an administrator you add and delete user accounts, and configure user settings, such as password minimum requirements.

For more information, see section 1.4 “User Account Administration” on page 14.

1.4 User Account Administration

As an administrator you add and delete user accounts, and configure user settings, such as password minimum requirements.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Always select the least privileged role necessary for the user to perform their duties.
- Always create a unique account for each individual.
- Do not share accounts between multiple people.
- Consider regional privacy requirements when creating user and display names, as user names will appear in event logs.
- Ensure user names are clearly unique to help ensure clear traceability. For example, avoid creating both “User1” and “User 1”.

Failure to follow these instructions can result in unauthorized system access or disclosure of private information.

1.4.1 User Account Creation

When you create a new user you need to fill in a user name, a display name, a role, and a password.

User name

The minimum number of characters for the user name is 3 and no spaces are allowed.

Display name

The minimum number of characters for the display name is 3 and no leading, trailing or consecutive spaces are allowed.

Role

Operator Display supports the management of users under three roles; Administrator, Technician, and Viewer.

Table – Secure Account Management

Tasks	Administrator	Technician	Viewer
View BACnet properties and alarms	Yes	Yes	Yes
Set/force BACnet Points	Yes	Yes	-
Acknowledge BACnet Alarms	Yes	Yes	-
View event logs	Yes	Yes	Yes
Export logs to USB	Yes	Yes	-
Change Operator Display configuration	Yes	-	-
Upgrade Operator Display firmware	Yes	-	-
Add/delete users	Yes	-	-

Password

The minimum number of characters and how many lowercase, numeric, and special characters that are required when you create a password depends on how the Operator Display user settings are configured.

For more information, see section 1.5 “Creating a User” on page 16.

1.4.2 User Account Configuration

The following Operator Display user settings are configurable:

Inactivity timeout

The default setting is that the user is logged out after 15 minutes of inactivity. You can configure the timeout to be between 1 and 60 minutes.

Number of failed log in attempts

The default setting is that the user is locked for 10 minutes after 5 failed log in attempts. You can configure the number of failed log in attempts to be between 1 and 10.

User lock time

The default setting is that the user is locked for 10 minutes after 5 failed log in attempts. You can configure the user lock time to be between 1 and 60 minutes.

Minimum number of password characters

The default setting is that the minimum number of password characters is 8. You can configure the minimum number of password characters to be between 4 and 128. The maximum number of password characters is always 128.

Minimum number of lowercase characters

The default setting is that the minimum number of lowercase characters is 1. You can configure the minimum number of lowercase characters to be between 0 and 128.

Minimum number of uppercase characters

The default setting is that no uppercase characters are required (0). You can configure the minimum number of uppercase characters to be between 0 and 128.

Minimum number of numeric characters

The default setting is that the minimum number of numeric characters is 1. You can configure the minimum number of numeric characters to be between 0 and 128.

Minimum number of special characters

The default setting is that the minimum number of special characters is 1. You can configure the minimum number of special characters to be between 0 and 128.

The following special characters can be used:

!*#\$%()'*/+<=>?@[\\]^_`{|}~

NOTE: Operator Display alerts you if the total number of lowercase, uppercase, numeric, and special characters exceeds 128.

For more information, see section 1.8 “Configuring User Settings” on page 18.

1.5 Creating a User

You create a user to give building management personal access to the Operator Display features.

NOTICE



POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Always select the least privileged role necessary for the user to perform their duties.
- Always create a unique account for each individual.
- Do not share accounts between multiple people.
- Consider regional privacy requirements when creating user and display names, as user names will appear in event logs.
- Ensure user names are clearly unique to help ensure clear traceability. For example, avoid creating both “User1” and “User 1”.

Failure to follow these instructions can result in unauthorized system access or disclosure of private information.

For more information, see section 1.4 “User Account Administration” on page 14.

To create a user

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **User Administration**.
4. On the **User Administration** screen, tap the create user button .
5. On the **Create User** screen, in the **User name** box, type a unique user name.

NOTE:

- Minimum number of characters: 3
- No spaces allowed

6. In the **Display name** box, type the name that will be displayed on the screen when the user is logged on to Operator Display.

NOTE:

- Minimum number of characters: 3
- No leading, trailing or consecutive spaces allowed


7. In the **Role** box, select the user role to give the user the required permissions. For more information, see section 1.4 “User Account Administration” on page 14.
8. Tap **Next**.
9. On the **Create password for** screen, in the **Password** box, type a unique password.
10. In the **Confirm password** box, type the password a second time.
11. Tap **Create**.

1.6 Changing Password

You change a password to update your access to Operator Display.

For more information, see section 1.3 “User Account Handling” on page 13.

To change a password

1. In Operator Display, tap the menu button .
2. On the menu, tap the user name.
3. On the user profile screen, tap **Change Password**.
4. On the **Change password** screen, in the **Current password** box, type your current password.

Continued on next page

5. In the **New password** box, type your new password.

NOTE: The following special characters can be used:

!*#\$%()'()*+,-./:;<=>?@[\\]^_`{|}~



6. In the **Confirm password** box, type your new password a second time.
7. Tap **Save**.

1.7 Deleting a User

You delete a user to remove it from the list of users who can access this Operator Display.

For more information, see section 1.4 “User Account Administration” on page 14.

To delete a user


1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **User Administration**.
4. On the **User Administration** screen, tap the arrow to select a user.
5. On the user detail screen, tap the button to delete the user .
6. On the **Delete User** screen, tap **Delete**.

1.8 Configuring User Settings

You configure user settings to configure the settings for all users on this Operator Display.

For more information, see section 1.4 “User Account Administration” on page 14.

To configure user settings

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **User Configuration**.
4. On the **User Configuration** screen, tap **+** or **-** to edit the value of each user setting.

NOTE: Operator Display alerts you if the total number of lowercase, uppercase, numeric, and special characters exceeds 128.

5. Tap **OK**.

1.9 Configuration

As an administrator you need to configure Operator Display and make it part of the IP network and the BACnet/IP network so you can discover and add the devices.

1.9.1 Hardening Specifics

Operator Display communicates via BACnet/IP over ethernet. The following network rules must be followed when networking the device.

For more information, see section 1.10 “Hardening Specifics” on page 19.

1.9.2 BACnet Objects

BACnet objects and devices have a variety of required and optional properties that are used for the purposes of identification, reliability indication, and configuration of the object or device, and for prioritization of write requests.

For more information, see section 1.11 “BACnet Objects ” on page 21.

1.9.3 Configuration Menus

Configuration Menus are a group of pre-engineered objects and values that make device commissioning faster and easier. Configuration Menus are exported and downloaded from image files. Download a Configuration Menu to a BACnet/IP controller to commission the controller.

For more information, see section 1.12 “Configuration Menus” on page 23.

1.10 Hardening Specifics

Operator Display communicates via BACnet/IP over ethernet. The following network rules must be followed when networking the device.

The device is intended to operate on either:

- A sub-network under an AS-P, or
- A private network, without external connectivity, or protected by security aware device(s).

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Do not connect the device to a public network.

Failure to follow these instructions can result in unauthorized access to the BACnet network.

1.10.1 Secure Disposal

When decommissioning Operator Display, ensure all data (including users, logs, and configuration) are erased.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Use the Erase all data command accessible from the About screen or perform the Factory Reset procedure when decommissioning Operator Display.

Failure to follow these instructions can result in loss of data or equipment damage.

1.10.2 Secure Operations

All systems require maintenance to help ensure they remain secure.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Regularly delete or downgrade the role of account users who no longer need access to the device.
- Ensure users understand they should never share accounts or passwords.
- Retain strong complexity requirements for passwords when configuring user settings.

Failure to follow these instructions can result in unauthorized or unintended access to the device.

If all administrator passwords are lost, the device must be factory reset to remove all data and create new users.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Ensure the administrator password is stored securely.

Failure to follow these instructions can result in unauthorized access to the device, or require recommissioning of the device.

Log files may contain sensitive information like usernames and IP addresses.

NOTICE

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Encrypt log files before transmission.

Failure to follow these instructions can result in disclosure of information that may be sensitive or private.

1.11 BACnet Objects

BACnet objects and devices have a variety of required and optional properties that are used for the purposes of identification, reliability indication, and configuration of the object or device, and for prioritization of write requests.

The supported BACnet objects in Operator Display are:

- Analog Input Object Type
- Analog Output Object Type
- Analog Value Object Type
- Binary Input Object Type
- Binary Output Object Type
- Binary Value Object Type
- Device Object Type
- Multi-State Input Object Type
- Multi-State Output Object Type
- Multi-State Value Object Type

1.11.1 Analog Object Type Properties

Input	Output	Value
Object_Identifier	Object_Identifier	Object_Identifier
Object_Name	Object_Name	Object_Name
Object_Type	Object_Type	Object_Type
Present_Value	Present_Value	Present_Value
Description	Description	Description
Event_State	Event_State	Event_State
Units	Units	Units
Acked_Transitions	Priority_Array	Priority_Array
Event_Time_Stamps	Relinquish_Default	Relinquish_Default
Event_Message_Texts_Confi g	Acked_Transitions	Acked_Transitions
	Event_Time_Stamps	Event_Time_Stamps
	Event_Message_Texts_Confi g	Event_Message_Texts_Confi g

1.11.2 Binary Object Type Properties

Input	Output	Value
Object_Identifier	Object_Identifier	Object_Identifier
Object_Name	Object_Name	Object_Name
Object_Type	Object_Type	Object_Type
Present_Value	Present_Value	Present_Value
Description	Description	Description
Event_State	Event_State	Event_State
Inactive_Text	Inactive_Text	Inactive_Text
Active_Text	Active_Text	Active_Text
Acked_Transitions	Priority_Array	Priority_Array
Event_Time_Stamps	Relinquish_Default	Relinquish_Default
Event_Message_Texts_Confi g	Acked_Transitions	Acked_Transitions
	Event_Time_Stamps	Event_Time_Stamps
	Event_Message_Texts_Confi g	Event_Message_Texts_Confi g

1.11.3 Multi-State Object Type Properties

Input	Output	Value
Object_Identifier	Object_Identifier	Object_Identifier
Object_Name	Object_Name	Object_Name
Object_Type	Object_Type	Object_Type
Present_Value	Present_Value	Present_Value
Description	Description	Description
Event_State	Event_State	Event_State
Number_of_States	Number_of_States	Number_of_States
State_Text	State_Text	State_Text
Acked_Transitions	Priority_Array	Priority_Array
Event_Time_Stamps	Relinquish_Default	Relinquish_Default
Event_Message_Texts_Confi	Acked_Transitions	Acked_Transitions
g	Event_Time_Stamps	Event_Time_Stamps
	Event_Message_Texts_Confi	Event_Message_Texts_Confi
	g	g

1.12 Configuration Menus

Configuration Menus are a group of pre-engineered objects and values that can customize and simplify the information that is displayed on devices. When Configuration Menus exist in the connected RP-C or MP-C Controller, Operator Display will show these menus in place of the default input/output value menus.

NOTE: Alarm and schedule menus will still be displayed when Configuration Menus are present.

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Overview

You use configuration menus to customize values shown on Operator Display.

You create the configuration menu in Configuration Menu Editor to contain any source values presented by Operator Display. The menu is deployed to the RP-C or MP-C Controller and can then be accessed with Configuration Menu Viewer in Workstation, a Commission mobile application or Operator Display.

There are no limitations on the size of menus, but it is recommended to not build extensive menus to simplify its use for the devices.

Operator Display will show a maximum of 16 Configuration Menus per RP-C/MP-C Controllers.

Configuration Menu Editor

You use Configuration Menu Editor to design a menu to display, and then configure, source values presented by Operator Display.

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1.13 Identifying the Target Device for a Configuration Menu Object

You identify the target device for a configuration menu (CAM) object in order to specify the CAM that is read and used by either the mobile device (MBL) or the Operator Display (OPD) client devices, or both of them. Be sure to select OPD if you wish to use Operator Display.

For more information, see section 1.1 “Operator Display Overview” on page 10.

IMPORTANT: For the first time, you can create more than one CAM object and specify the target for that object as long as you are running the 3.3 EcoStruxure BMS software. Existing CAM objects in 3.2 or earlier MP or RP controller firmware are still recognized by the EcoStruxure BMS. However, if you are running EcoStruxure Building Operation 3.3, do not attempt to set the **Target device** property when using 3.2 or earlier MP or RP controller firmware. That firmware does not recognize the Target device property.

EcoStruxure Building Operation provides you with an easy way to create a backwards compatible CAM. To do so, select the **Use backwards compatible instance ID** checkbox provided on the **Create Object, Configuration Menu** wizard, **BACnet basic settings** page. EcoStruxure Building Operation - Technical Reference Guide

For more information, see section 1.12 “Configuration Menus” on page 23.

To identify the target device for a configuration menu object

1. In WorkStation, in the **System Tree** pane, expand the RP controller.
2. Select **Application**.
3. In the **File** menu, point to **New** and then click **Configuration Menu**.
4. In the **List View**, select the new configuration menu.
5. Click **File** and then **Properties**.
6. In the **Target device** box, choose **MBL**, **OPD**, or **MBL-OPD**.

By doing so, you specify whether you wish to use the MBL, the OPD or both as the client device (MBL-OPD) that the CAM object reads and uses.

7. Click **OK**.

1.14 Configuration Menu Visibility Operators List

Use the visibility operators to determine visibility conditions on a menu item.

1.14.1 Operators list

Operator	
TRUE	Select the boolean value TRUE to have your object (separator, submenu, or value) always displayed in the Configuration Menu Viewer.
FALSE	Select the boolean value FALSE to not have your object displayed in the Configuration Menu Viewer.
&& (and)	Select the logical operator "and" to formulate a conjunction of two conditions.
(or)	Select the logical operator "or" to formulate a disjunction of two conditions.
! (not)	Select the logical operator "not" to formulate a negative condition.
=	Select the operator "equality" to compare the value with some specific actual value.
!=	Select the operator "non-equality" to restrain the menu value of the specific actual values.
>	Select the "more than" operator to compare the menu value with some specific actual value.
>=	Select the "more than or equal" operator to compare the menu value with some specific actual value.
<	Select the "less than" operator to compare menu the value with some specific actual value.
<=	Select the "less than or equal" operator to compare menu the value with some specific actual value.
(Select the left bracket to structure your condition.
)	Select the right bracket to structure your condition.

1.14.2 Example


For example, you want your menu value to represent the activation state of a fan (with the bind name "fan_activ"). In the Value type box, select Digital to display the digital signal for on/off. If you want your menu value to represent the speed of a fan ("fan_speed"), in the Value type box choose Analogue to display an analog signal for

speed. You can decide to display the menu value for the speed of the fan in the Configuration Menu Viewer or in the Commission mobile application, only when the fan is on. In this case you configure, in the **Select Condition** dialog box, the visibility constraint for "fan_speed" to "fan_activ = TRUE".

1.15 Configuring the IP Network Communication

You configure the IP network communication to establish the IP network communication between Operator Display and the devices.

To configure the IP network communication

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **Network**.
4. On the **Network Setup** screen, tap **Static IP** to use a static IP address or **DHCP** to use a DHCP server.


NOTE: When you select to use a DHCP server, the rest of the fields are automatically completed by the DHCP server and not editable.

5. In the **IP address** box, type the static IP address for this Operator Display.
6. In the **Subnet mask** box, type the subnet mask for this Operator Display.
7. In the **Gateway** box, type the IP address of the gateway for this Operator Display.
8. Tap **OK**.

1.16 Configuring the BACnet/IP Network Communication

You configure the BACnet/IP network communication to establish the BACnet/IP network communication between Operator Display and the devices.





To configure the BACnet/IP network communication

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **BACnet**.
4. On the **BACnet Setup** screen, in the **Instance number** box, type the instance number for this Operator Display.
5. In the **Port** box, type the communication port number for this Operator Display.
6. Tap **Time master** to configure Operator Display to send date and time to its connected devices.
7. Tap **OK**.

1.17 Discovering a Device

You discover a device to add it to the list of available devices.

To discover a device

1. In Operator Display, on the **Device List** screen, tap the discover button .
2. On the **Device Discovery** screen, tap the search button .
3. On the **Search for device** screen, in the search box, type the name of the device you want to add to the list.
4. Tap the search button .
5. On the **Device Discovery** screen, tap the filter button .
6. On the **Filter** screen, tap to select the box next to the models and vendors you want to include in the filter.
7. Tap **Apply**.
8. In the **Results** list, select a device.

TIP: Tap the arrow to see more information on a device.

9. Tap **Add devices**.

1.18 Date and Time Handling

Operator Display receives date and time from a time master on the BACnet network. In smaller systems where no time master is available, Operator Display can be configured to send its date and time to the connected devices.

Receiving date and time

When Operator Display receives date and time from a time master on the BACnet network, all time stamps in logs are displayed with the date and time received from the BACnet network. Date and time configuration in Operator Display is temporarily applied until the next date and time update from the BACnet network is received.

Alarm time stamps are displayed in Operator Display with the local date and time in the device reporting the alarm.


NOTE: If the device reporting an alarm is in a different time zone, Operator Display does not make time zone adjustments.

Configured as a time master

When Operator Display is configured as a time master, it sends its date and time to the connected devices once an hour. Operator Display also sends its date and time when an offline device goes online again and when the date and time is configured in Operator Display.

All time stamps in logs and alarms are displayed with the date and time configured in Operator Display. For more information, see section 1.19 “Configuring Date and Time” on page 28.

NOTE: Operator Display does not make Daylight Saving Time (DST) adjustments automatically.

On the BACnet Setup screen, an Operator Display time master is indicated by the **Time Master** toggle  being dark gray.

1.18.1 Date and Time Administration

As an administrator you configure if Operator Display is the time master and sends its date and time to the connected devices.

Operator Display receives date and time from the BACnet network via the Local Time Synchronization service. The Local Time Synchronization service is configured in the EcoStruxure Building Operation software.

If Operator Display and the connected devices receive their time from the BACnet network, avoid configuring Operator display as the time master. As the time master, Operator Display ignores the date and time it receives from the BACnet network, but the devices receive date and time from both the BACnet network and Operator Display. The latest date and time they receive is applied. For more information, see section 1.20 “Configuring Operator Display to be Time Master” on page 29.

1.18.2 Time and Time Zones

A time zone is a region on the earth that has a uniform standard time, usually referred to as the local time. Local time is the UTC time plus the current time zone offset for the considered location. Some time zones also have an offset called DST added during the summer period. The DST offset is typically +1 hour.

For more information, see section 1.19 “Configuring Date and Time” on page 28.

1.18.3 Network Time


Consistent date and timestamping across a network is critical for system wide access control, security, communications, scheduling, alarms, and events. Network time uses the NTP protocol that provides the correct current UTC time.

1.19 Configuring Date and Time

You configure date and time to help ensure that Operator Display displays the correct date and time.

For more information, see section 1.18 “Date and Time Handling” on page 27.

To configure date and time

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **Time**.
4. On the **Date / Time** screen, tap - or + to select the year, month, date, hour, and minutes.
5. Tap the pencil button next to **Time zone**.
6. On the **Select a region** screen, tap the radio button next to your region.
7. Tap **Next**.
8. On the **Select time zone** screen, tap the radio button next to your time zone.
9. Tap **OK**.
10. On the **Date / Time** screen, the Universal Time Coordinated corresponding to your selection is displayed.
11. Tap **OK**.


NOTE: Operator Display does not make Daylight Saving Time (DST) adjustments automatically.

1.20 Configuring Operator Display to be Time Master

You configure Operator Display to be time master to make Operator Display send date and time to its connected devices.

For more information, see section 1.18 “Date and Time Handling” on page 27.

To configure Operator Display to be time master

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **BACnet**.
4. On the **BACnet Setup** screen, tap **Time master** to configure Operator Display to send date and time to its connected devices.
5. Tap **OK**.

1.21 Upgrading the Firmware

You upgrade the firmware to access the latest Operator Display features and bug fixes.

NOTICE


LOSS OF DATA

Ensure that the Operator Display power supply is not interrupted during the firmware upgrade process.

Failure to follow these instructions can result in loss of data.

IMPORTANT: You need to configure the Operator Display date and time before you update the firmware. The upgrade firmware feature cannot handle the date and time factory setting. For more information, see section 1.19 “Configuring Date and Time” on page 28.

To upgrade the firmware

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**
3. On the **Operator Display Settings** screen, tap **Firmware Update**.
4. Insert a USB key containing the firmware files into the Operator Display USB port.
5. On the **Firmware Update** screen, tap **Re-scan for files**.
6. Tap the firmware file in the list.
7. Tap **Update**.

1.22 Recovering Operator Display (Factory Reset)

You recover Operator Display when a power outage occurred during a firmware upgrade, when all administrator passwords have been lost or when decommissioning Operator Display. This operation clears the device list, logs, and users. The only data remaining will be the firmware version and time setting.

NOTICE

LOSS OF DATA

Recover Operator Display only if it is not accessible or when decommissioning Operator Display.

Failure to follow these instructions can result in loss of data

To recover Operator Display (factory reset)

1. Turn the Operator Display power off.

Continued on next page

2. On back of the Operator Display, in port **USB-2**, connect a USB On The Go cable (OTG, USB-Micro-B to USB-A).
3. In port **USB-1**, connect a USB key containing the latest version of the Device Recovery firmware file, unzipped.

NOTE: The USB OTG cable and key are not included in the purchased Operator Display bundle.

4. Turn the Operator Display power on.
5. Wait for the following information to display on the screen:

```
Recovery Mode
Loading nand.img...
Writing KERNEL...
Writing ROOTFS...
Udisk upgrade success! (loud beep)
"Upgrade successful. Wait to reboot!"
```

6. Turn the Operator Display power off.
7. Disconnect the USB key and cable from the device.
8. Turn the Operator Display power on.
9. Check that the correct firmware version is displayed on the screen.

1.23 Erasing All Data

You erase all data from Operator Display to clear the device list, logs, and users. The only data remaining will be the firmware version and time setting.


NOTICE

LOSS OF DATA

- Export the logs you want to keep.
- Consider whether you want to erase all users.

Failure to follow these instructions can result in loss of data.

To erase all data

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **About**.


Continued on next page

4. Tap **Erase all data**.

1.24 Configuring the Language

You configure the language to display the Operator Display menus and options in your preferred language.


To configure the language

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **Language**.
4. On the **Language Setting** screen, tap the preferred language.
5. Tap **Update**.

1.25 Configuring the Units

You configure the units to display the Operator Display temperature information in your preferred units.


To configure the units

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **Units**.
4. On the **Units** screen, tap the preferred temperature unit.
5. Tap **OK**.

1.26 Adjusting the Backlight

You adjust the backlight to get a comfortable display light level when working in different environments.

To adjust the backlight

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **Display**.
4. On the **Display** screen, drag the **Active backlight** slider to select the preferred light level when you are using Operator Display.

Continued on next page

5. Drag the **Inactive backlight** slider to select the preferred light level when you are not using Operator Display.

TIP: Drag the slider all the way to the left to make the backlight turn off when your not using Operator Display.

6. Tap **OK**.





1.27 Alarm Handling

When an input, output or value in a connected device is configured to generate an alarm, Operator Display allows you to view and acknowledge the alarm. Inputs, outputs or values can be configured to generate an alarm when it is, for example, out of range or in a fault state.

On the Alarms screen, active alarms and reset alarms that have not been acknowledged are displayed. On the Alarm screen you also get information such as the alarm state, the name of the input, output or value generating the alarm, and the alarm message. For more information, see section 2.7 “Alarms Screen” on page 84.

1.27.1 Acknowledgement

When you acknowledge an active alarm, you let other users know that you have seen and taken responsibility for the issue causing the alarm. Acknowledging an alarm does not necessarily mean that you are personally solving the cause of the alarm. When you acknowledge an an active alarm the color and icon of the alarm in the Alarms pane changes. You also acknowledge reset alarms to remove them from the Alarms screen. For more information, see section 1.28 “Acknowledging an Alarm” on page 35.

Icon Alarm State	Description
 Alarm	Indicates an active alarm in the state Alarm that is not acknowledged.
 Fault	Indicates an active alarm in the state Fault that is not acknowledged.
 Acknowledged	Indicates an active alarm that is acknowledged.
 Reset	Indicates a reset alarm that is not acknowledged.
(no alarm) Normal	When a reset alarm is acknowledged, it is removed from the list.






1.27.2 Alarm States

By viewing the alarm detail screen for an alarm you get more detailed information on the alarm, such as, alarm state, the event state, the event state text, the transition type, and the alarm message. For more information, see section 2.8 “Alarm Detail Screen” on page 86.

The alarm messages can have been customized in the EcoStruxure Building Operation software to display more detailed information on the alarm. If the alarm message is not customized, the event state is displayed.


The table below describes the event states, event state texts, transition types, and alarm messages that are displayed depending on in which alarm state the alarm is.

Table – Alarm Details

Icon Alarm State	Event state	Event state text	Transition Type	Message
 Alarm	Off-Normal ^a High limit ^a Low limit ^a Life safety ^a	Off-Normal	To Off-Normal	Off-Normal ^a High limit ^a Low limit ^a Life safety ^a
 Fault	Fault	Fault	To Fault	Fault
 Acknowledged	Off-Normal ^a High limit ^a Low limit ^a Life safety ^a	Off-Normal	To Off-Normal	Off-Normal ^a High limit ^a Low limit ^a Life safety ^a
 Acknowledged	Fault	Fault	To Fault	Fault
 Reset	Normal	Normal	To Normal	Normal
(no alarm) Normal	(no alarm)	(no alarm)	(no alarm)	(no alarm)

a) Which event state that is displayed depends on the alarm type.

1.27.3 Indications

A red circle on the alarms icon  in the toolbar indicates when there is at least one active alarm that is not acknowledged.

The Operator Display LED indicates when an active alarm is present.

Table – LED Patterns



LED Patterns	Condition
Orange, flashing	Operator Display is starting up.
Green, constant (while running)	There are no active alarms.
Red, flashing (while running)	There is at least one active alarm that is not acknowledged.
Red, constant (while running)	There is at least one active alarm but all alarms are acknowledged.

1.28 Acknowledging an Alarm

You acknowledge an alarm to let other users know that you have seen and taken responsibility for the alarm.

For more information, see section 1.27 “Alarm Handling” on page 33.

To acknowledge an alarm

1. In Operator Display, on the toolbar, tap the alarms button .
2. On the **Alarms** screen, tap the arrow button  to select the active or reset alarm that you want to acknowledge.
3. On the alarm detail screen, tap **Acknowledge**.

1.29 Value Editing

The value of inputs, outputs and values, such as non-calculated setpoints, control mode selectors, and digital override switches can be edited in Operator Display.

Many inputs, outputs and values receive their value from the system. For example, from a program sequence or a time schedule in the device or server application, or from a connected field device, such as a sensor.

When you edit the value it returns to the value received from the system. For example, if you edit the value of a calculated setpoint it will return back to the calculated setpoint value.

1.29.1 Forced Values

When you force a value you override the value that is received from the system. The forced value is then used to control the system equipment. When you release a forced value, the value returns to the value received from the system again.

You normally do not have to force values. The system is configured so that values intended to be edited, such as non-calculated setpoints, control mode selectors, and digital override switches, are editable without having to be forced.

⚠ WARNING**UNEXPECTED EQUIPMENT OPERATION**

Do not force values without knowing the effect.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

1.29.2 BACnet Command Priorities for Forced Values

When you force a value in Operator Display, the BACnet command priority is by default set to priority level 8. This is the suggested priority level for manual operations based on the BACnet Standard. For more information, see section 1.30 “BACnet Command Priorities” on page 36.

As an administrator, you can change the BACnet command priority level for forced values. Be careful when selecting the priority level. If higher priorities are used, it may interfere with higher-priority equipment, such as manual life safety, automatic life safety, or critical equipment control.



⚠ WARNING**UNEXPECTED EQUIPMENT OPERATION**

Do not configure the BACnet command priority level for forced values without knowing how the priority level may interfere with higher-priority equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.31 “Configuring the BACnet Command Priority Level for Forced Values” on page 39.

1.29.3 Indications

On the inputs, output and value detail screens, a forced value is indicated by the **Force** toggle being dark gray . On the input, output and value screens, a forced value is indicated by an yellow circle  and the text **Forced**.

1.30 BACnet Command Priorities

A building automation system may include objects that are manipulated and written to by other objects, operators, or applications. However, conflicts may arise when these different entities try to write to the same commandable value property of a BACnet object, such as a digital output.

To resolve this problem, a BACnet command priority handles any potential conflicts by prioritizing the write requests in a descending order from 1 (highest) to 16 (lowest). In this way, the system resolves whether a BACnet write request takes effect immediately or is stored in the command priority. Essentially, a command priority manages the actions of multiple operators or applications that use the Value property.

In the following illustration, a schedule configured to write to priority 10, regulates several fans that circulate the air in a large office area. This schedule writes a value of Off, which turns off the fans during normal operation. A program, configured with an output bound to priority 3, monitors air quality for the same office area. If a sensor monitored by the program detects an increase in the CO² levels, the program overrides the current priority 10 and supersedes the schedule in the command priority. The program sets a value of On, which turns on the fans. The program relinquishes control of priority 3 when the CO² levels return to normal. Then, the output of the schedule, which writes to priority 10, becomes active again.

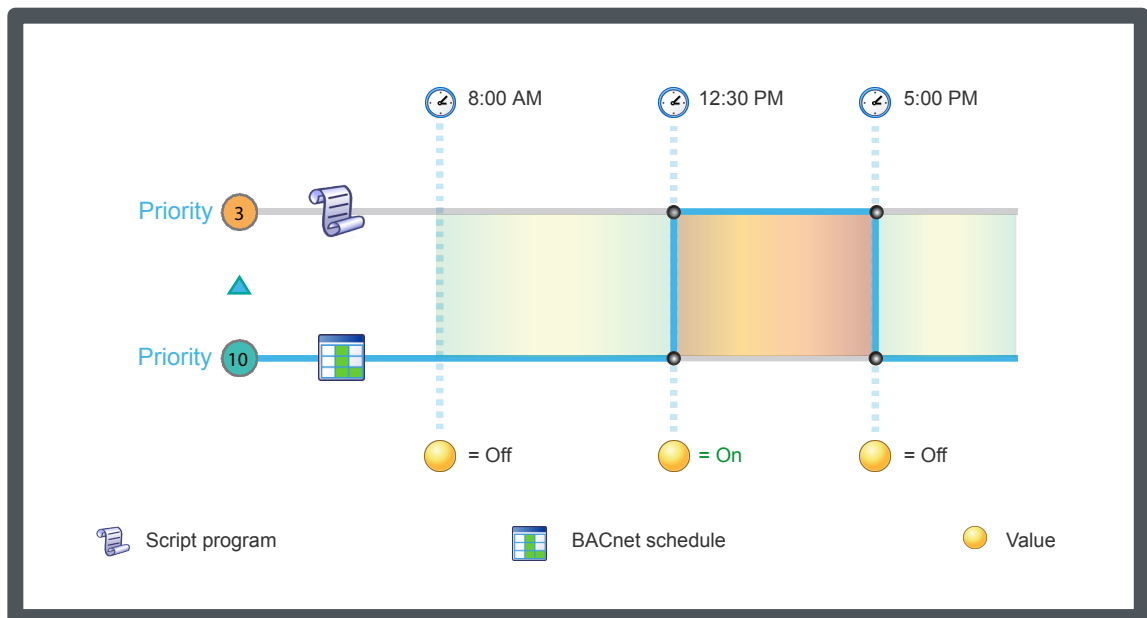


Figure – BACnet Command Priority overview

In a 16-level BACnet priority array, there are different types of levels: available, suggested, and reserved. You can configure these levels according to your specific site requirements.

Priority Level	Description
1	Manual life safety. This is a suggested priority level based on the BACnet Standard.
2	Automatic life safety. This is a suggested priority level based on the BACnet Standard.
3	Available for use.
4	Available for use.

Continued

Priority Level	Description
5	Critical equipment control. This is a suggested priority level based on the BACnet Standard.
6	Minimum on and off. This priority is reserved for timer-based algorithms that are not currently supported. (Read only)
7	Available for use.
8	Manual operator. This is a suggested priority level based on the BACnet Standard.
9	Available for use.
10	Available for use.
11	Available for use.
12	Available for use.
13	Available for use.
14	Available for use.
15	Available for use.
16	Available for use.

Relinquish default

Relinquish default is the value that the system uses for the value if all commandable priority values in the priority array are NULL. For example, you can consider this value as the lowest priority in the system. Relinquishing a priority is the same as writing NULL at that priority.

NOTE: In EcoStruxure Building Operation, relinquish default is cold start retained and not editable. For more information, see the *BACnet/IP Device Persistence* topic on WebHelp.

1.30.1 Commandable Properties and Objects

In a building automation system, objects, operators, or applications may use different sources to control equipment under certain circumstances. For example, a schedule controls HVAC equipment during normal operation until a Script program overrides the schedule during an emergency. For this reason, the BACnet Standard provides commandable properties that allow multiple sources prioritized access to sources. A commandable property is a property that can be written with a defined priority.

1.30.2 Active Command Priority

Active command priority specifies the priority level (1-16) currently controlling the value. The present value is the highest priority with a non-Null value. This property is Null when the entire priority array is Null and the Relinquish default applies.

1.30.3 Default Priority Level

The Default priority level is the lowest priority level in the system and applies in situations where a user or system engineer does not specify a priority.

1.30.4 Schedule and Loop Priority for Writing Property

In a building automation system, schedules may interact with multiple BACnet objects that have commandable value properties and, in most cases, act independently of BACnet services. To fine tune the automation, BACnet schedules include a Priority for writing property that defines the priorities of the commandable values for the BACnet objects under their control. Similarly, a BACnet Loop program includes a Priority for writing property that defines the appropriate priority of the program in relation to the commandable value.

1.30.5 Command Priority Retain Levels for BACnet Objects

When creating a BACnet point or value, you can configure the warm start and cold start settings for a command priority array.

1.31 Configuring the BACnet Command Priority Level for Forced Values

You configure the BACnet command priority level for forced values to a higher or lower priority level to make the force command override other system commands, or make other system commands override the force command.

⚠ WARNING


UNEXPECTED EQUIPMENT OPERATION

Do not configure the BACnet command priority level for forced values without knowing how the priority level may interfere with higher-priority equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.30 “BACnet Command Priorities” on page 36.

To configure the BACnet command priority level for forced values

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **BACnet**.
4. On the **BACnet Setup** screen, in the **Force Priority Level** box, tap + or - to configure the priority level at which the force command will be applied.
5. Tap **OK**.





1.32 Editing an Analog Input, Output, or Value

You edit an analog input, output, or value to change the value of a control variable, such as a non-calculated setpoint.

⚠ WARNING
UNEXPECTED EQUIPMENT OPERATION Do not force values without knowing the effect. Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.29 “Value Editing” on page 35.

To edit an analog input, output, or value




1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the analog input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button .
3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Analog** arrow button .
4. On the **Inputs**, **Outputs**, or **Values/Analog** screen, tap the arrow button  to select the analog input, output, or value you want to edit.
5. On the inputs, outputs, or values detail screen, tap **+** or **-** to edit the value of the analog input, output, or value.
6. Tap **OK**.

1.33 Editing a Binary Input, Output, or Value


You edit a binary input, output, or value to change the value of a control variable, such as a digital override switch.

For more information, see section 1.29 “Value Editing” on page 35.

To edit a binary input, output, or value


1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the binary input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button .
3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Binary** arrow button .

Continued on next page

4. On the **Inputs**, **Outputs**, or **Values/Binary** screen, tap the arrow button  to select the binary input, output, or value you want to edit.
5. On the inputs, outputs, or values detail screen, tap **+** or **-** to edit the value of the binary input, output, or value.
6. Tap **OK**.





1.34 Editing a Multi-State Input, Output, or Value

You edit a multi-state input, output, or value to change the value of a control variable, such as a control mode selector.

 WARNING
<p>UNEXPECTED EQUIPMENT OPERATION</p> <p>Do not force values without knowing the effect.</p> <p>Failure to follow these instructions can result in death, serious injury, or equipment damage.</p>

For more information, see section 1.29 “Value Editing” on page 35.

To edit a multi-state input, output, or value

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the multi-state input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button .
3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Multi-State** arrow button .
4. On the **Inputs**, **Outputs**, or **Values/Multi-State** screen, tap the arrow button  to select the multi-state input, output, or value you want to edit.
5. Tap a value option.
6. Tap **OK**.

1.35 Forcing an Analog Input, Output, or Value

You force an analog input, output, or value to override the value received from the system.

⚠ WARNING





UNEXPECTED EQUIPMENT OPERATION

Do not force values without knowing the effect.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.29 “Value Editing” on page 35.

To force an analog input, output, or value

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the analog input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button  .
3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Analog** arrow button  .
4. On the **Inputs**, **Outputs**, or **Values/Analog** screen, tap the arrow button  to select the analog input, output, or value you want to force.
5. On the inputs, outputs, or values detail screen, tap **+** or **-** to edit the value of the analog input, output, or value.
6. Tap **Force** to override the value received from the device.
7. Tap **OK**.

1.36 Forcing a Binary Input, Output, or Value

You force a binary input, output, or value to override a value received from the system.

⚠ WARNING



UNEXPECTED EQUIPMENT OPERATION

Do not force values without knowing the effect.



Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.29 “Value Editing” on page 35.

To force a binary input, output, or value


1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the binary input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button  .

Continued on next page

3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Binary** arrow button  .
4. On the **Inputs**, **Outputs**, or **Values/Binary** screen, tap the arrow button  to select the binary input, output, or value you want to force.
5. On the inputs, outputs, or values detail screen, tap **+** or **-** to edit the value of the binary input, output, or value.
6. Tap **Force** to override the value received from the device.
7. Tap **OK**.





1.37 Forcing a Multi-State Input, Output, or Value

You force a multi-state input, output, or value to override a value received from the system.

 WARNING
UNEXPECTED EQUIPMENT OPERATION Do not force values without knowing the effect. Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information, see section 1.29 “Value Editing” on page 35.

To force a multi-state input, output, or value

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the multi-state input, output, or value you want to edit.
2. On the **Device** screen, tap the **Inputs**, **Outputs**, or **Values** arrow button  .
3. On the **Inputs**, **Outputs**, or **Values** screen, tap the **Multi-State** arrow button  .
4. On the **Inputs**, **Outputs**, or **Values/Multi-State** screen, tap the arrow button  to select the multi-state input, output, or value you want to force.
5. On the inputs, outputs, or values detail screen, tap **Force** to override the value received from the system.
6. Tap a value option.
7. Tap **OK**.

1.38 Schedule Handling

A schedule is a sequence that determines when essential events occur in a building management system: doors locked or unlocked, temperature raised or lowered, or equipment turned on or off.

For example, the lighting in an office building needs to be automated to conserve energy during non-business hours. To regulate the lights from Monday through Friday, you use a weekly event in a schedule that turns the lights on at 07:00 and switches them off at 20:00. If there are any non-routine events, such as holidays, you can use exception events to override the weekly event and turn the lights off.

1.38.1 Schedule Types

You can have three types of different schedules in the building management system: Analog, Digital, Multi-State or Enumerated. An analog schedule is used if the schedule controls a device that gauges the output in real numbers. A digital schedule is used if the schedule needs to control a device with two output states, such as On or Off. A multi-state/enumerated schedule is used if the schedule needs to control a device that has output states based on multiple states, such as low, medium, or high.

For more information, see section 1.39 “Schedule Types” on page 44.

1.38.2 Schedule Events

A schedule has two types of events: weekly events and exception events. Weekly events occur every week at specified times. Exception events occur when the schedule deviates from the weekly schedule, such as during holidays. Exception events override the weekly events when there is an overlap.

For more information, see section 1.43 “Schedule Events” on page 47.

1.38.3 Time Zones

Schedule times correspond to the local time on the device containing the schedule object.

1.38.4 Priority for Writing

Defines the priority at which the referenced attributes are commanded. The priority defined here corresponds to the Priority parameter of the Write Property service. 1 is the highest priority and 16 is the lowest.

For more information, see section 1.30 “BACnet Command Priorities” on page 36.

1.39 Schedule Types

You can have three types of different schedules in the building management system: Analog, Digital, Multi-State or Enumerated. An analog schedule is used if the schedule controls a device that gauges the output in real numbers. A digital schedule is used if the schedule needs to control a device with two output states, such as On or Off. A multi-state/enumerated schedule is used if the schedule needs to control a device that has output states based on multiple states, such as low, medium, or high.

For more information, see section 1.38 “Schedule Handling” on page 43.

1.39.1 Analog Schedules

An analog schedule controls objects with real numbers. The real numbers include positive or negative numbers, fractions, and decimal values.

For more information, see section 1.40 “Analog Schedules” on page 45.

1.39.2 Digital Schedules

A digital schedule controls objects that have an active and inactive state.

For more information, see section 1.41 “Digital Schedules” on page 45.

1.39.3 Multi-State/Enumerated Schedules

A multi-state or enumerated schedule controls objects that have states based on integers or positive whole numbers including zero.

For more information, see section 1.42 “Multi-State/Enumerated Schedules” on page 46.

1.40 Analog Schedules

An analog schedule controls objects with real numbers. The real numbers include positive or negative numbers, fractions, and decimal values.

For example, an analog schedule regulates a thermostat setpoint in an office area. It controls the temperature from 08:00 to 17:00, to 22 °C (72 °F) when the schedule is active and 16 °C (62 °F) when the schedule is inactive.

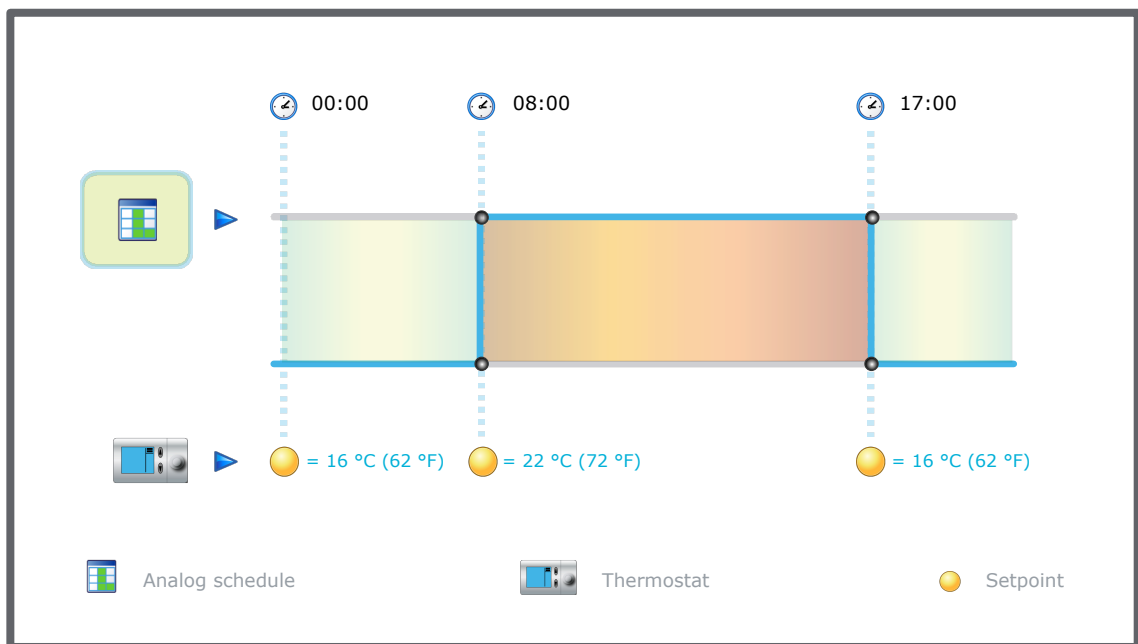


Figure – Analog schedule

1.41 Digital Schedules

A digital schedule controls objects that have an active and inactive state.

For example, a digital weekly schedule is bound to a digital output, such as a light switch. It turns on the lights Monday through Friday from 08:00 to 17:00, when the schedule is active and off when the schedule is inactive.

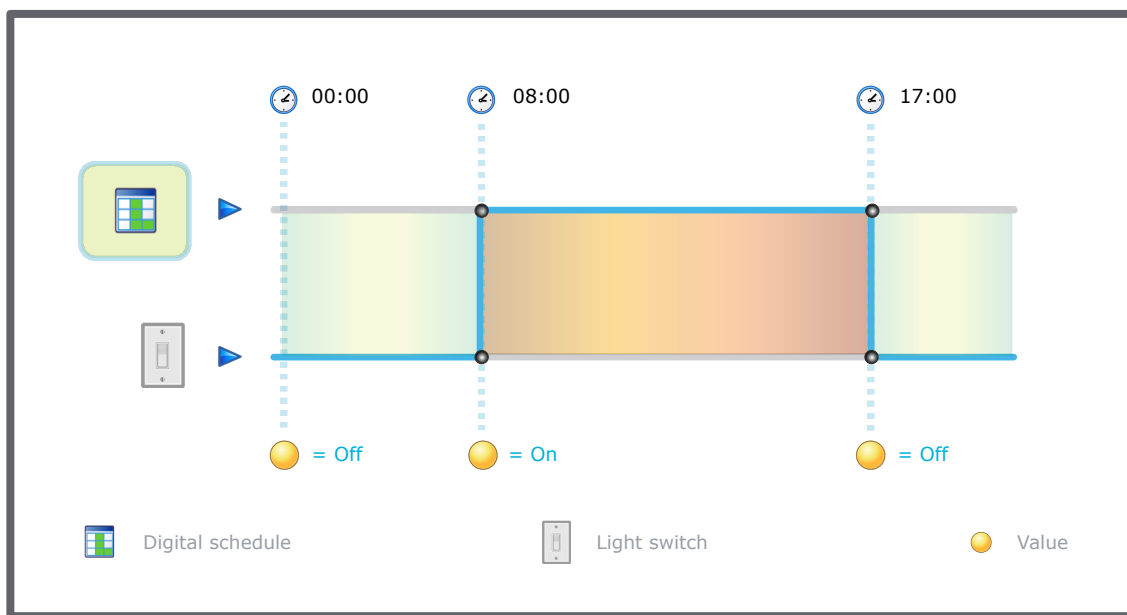


Figure – Digital schedule

1.42 Multi-State/Enumerated Schedules

A multi-state or enumerated schedule controls objects that have states based on integers or positive whole numbers including zero.

For example, a multi-state weekly schedule is bound to a multi-state value that controls an air handling unit in an office building. It regulates the air circulation Monday through Friday from 08:00 to 17:00, to 2 (occupied) when the schedule is active and 1 (unoccupied) when the schedule is inactive.

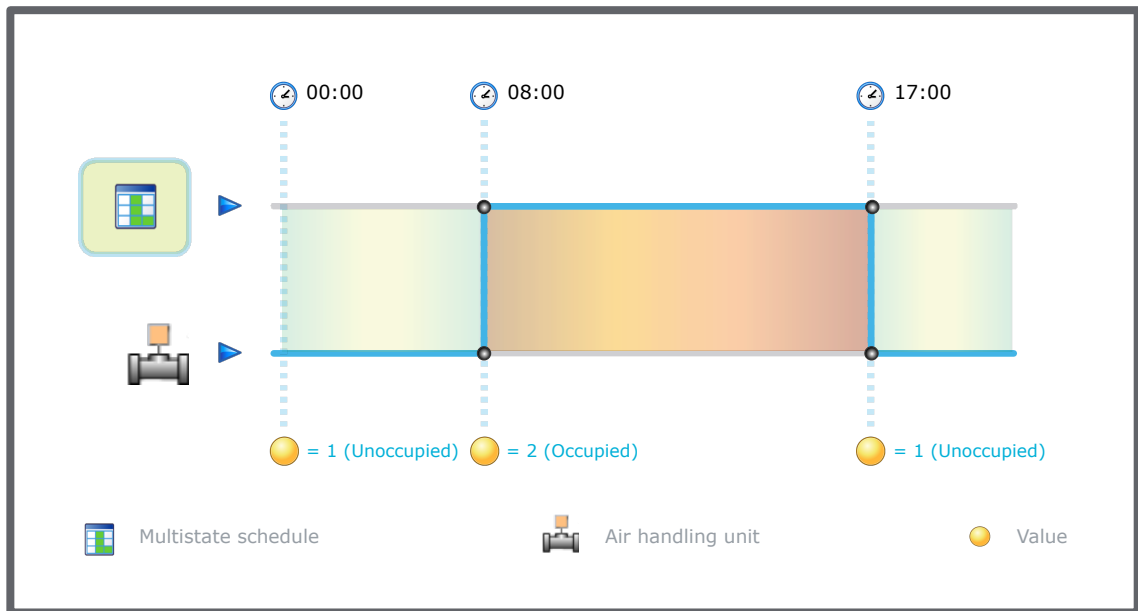


Figure – Multi-state schedule

1.43 Schedule Events

A schedule has two types of events: weekly events and exception events. Weekly events occur every week at specified times. Exception events occur when the schedule deviates from the weekly schedule, such as during holidays. Exception events override the weekly events when there is an overlap.

Each schedule has a default value. The default value goes into effect after the exception events and weekly events are complete or relinquish control. For more information, see section 1.45 “Viewing a Schedule Default Value” on page 49.

For example, the weekly event for a fan ends at 17:00. The fan ran at a value of 3 (high) throughout the event. There are no scheduled events after the weekly event. Because you have assigned 0 as the default value, the fan adjusts to the default value and turns to 0 (off). The value remains at 0 until the next scheduled event.

Events occur in the following order of precedence:

- Exception events
- Weekly events
- Default value

For example, the weekly event for a fan is set to On from '08:00 - 20:00'. An exception event is set to Off from '17:00 - 20:00' for a specific date. The exception event overrides the weekly event so that the fan only runs from 08:00 to 17:00 on the specified date.

1.43.1 Weekly Events

A weekly event occurs every week for an extended period of time. You can schedule more than one weekly event for each day of the week.

For more information, see section 1.44 “Weekly Events” on page 48.

1.43.2 Exception Events

An exception event occurs instead of the scheduled weekly events for a single date, date range, calculated date, or calendar.

For more information, see section 1.48 “Exception Events” on page 50.

1.43.3 Schedule Event Colors

A schedule has a color code so you can identify weekly events and exception events at a glance. This color code can assist you when you are modifying your schedule or trying to troubleshoot any problems.

For more information, see section 1.59 “Schedule Colors” on page 62.

1.44 Weekly Events

A weekly event occurs every week for an extended period of time. You can schedule more than one weekly event for each day of the week.

NOTE: While weekly events cannot overlap, exception events can. For more information, see section 1.48 “Exception Events” on page 50.

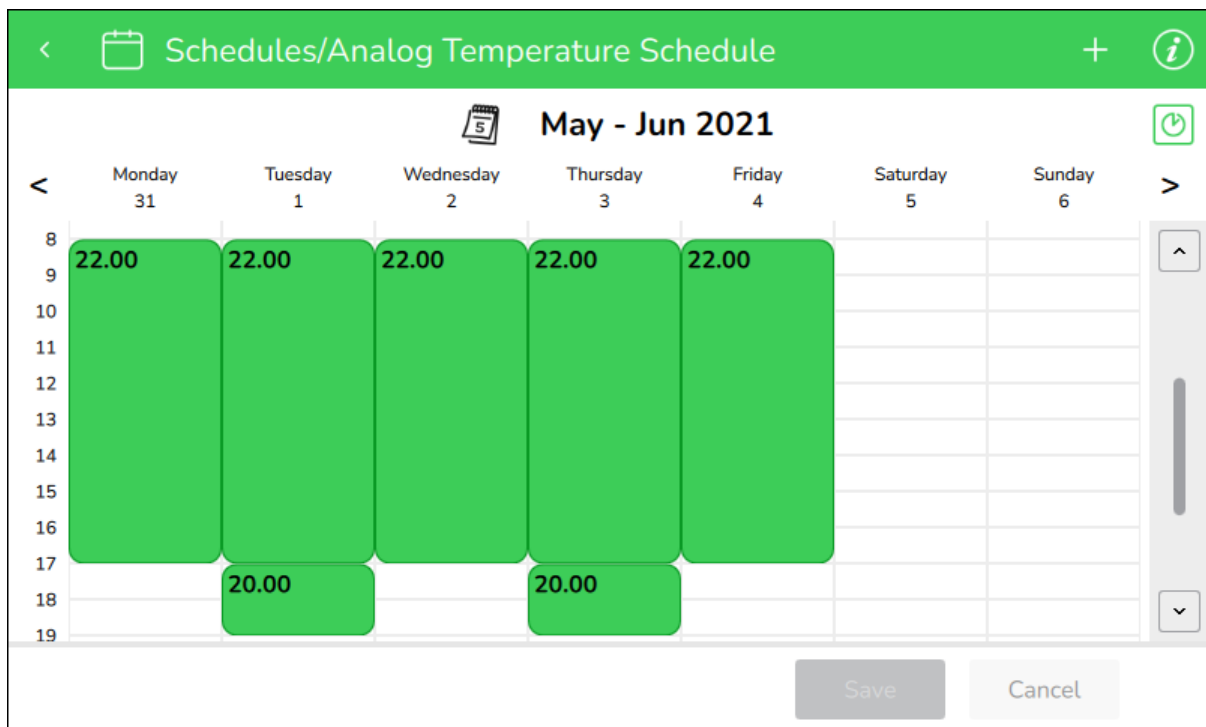


Figure – Weekly events




If there are any non-routine events, such as holidays, you can use exception events to override the weekly events in the schedule. For more information, see section 1.48 “Exception Events” on page 50.

1.45 Viewing a Schedule Default Value

You view a schedule default value to see which value will go into effect after the exception events and weekly events are complete or relinquish control.

For more information, see section 1.30 “BACnet Command Priorities” on page 36.

To view a schedule default value




1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to view the default value.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to view the default value.
4. On the schedule view screen, tap the information button  to open the schedule detail screen of the schedule for which you want to view the default value.
5. On the schedule detail screen, in the Default value box, view the schedule default value.

1.46 Adding a Weekly Event

You add a weekly event to a schedule to control the state of an analog, digital or multi-state value.

For more information, see section 1.44 “Weekly Events” on page 48.

To add a weekly event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule to which you want to add a weekly event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule to which you want to add a weekly event.
4. On the schedule view screen, tap the add event button .
5. On the **Add schedule event** screen, tap **Weekly**.
6. On the **Add weekly event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).

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7. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
8. In the **Days of week** box, tap the day(s) of the week this event is active.
9. Tap **OK**.
10. On the schedule view screen, tap **Save**.

1.47 Editing a Weekly Event

You edit a weekly event to change how the state of a value is controlled by the schedule.

For more information, see section 1.44 “Weekly Events” on page 48.

To edit a weekly event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to edit a weekly event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to edit a weekly event.
4. On the schedule view screen, tap the weekly event (green) that you want to edit.

NOTE: If a weekly event was configured as occurring on several days of the week, you must tap on on this event every day to edit or delete it.
5. On the **Edit weekly event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
6. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
7. In the **Days of week** box, tap the day of the week this event is active.
8. Tap **OK**.
9. On the schedule view screen, tap **Save**.

1.48 Exception Events

An exception event occurs instead of the scheduled weekly events for a single date, date range, calculated date, or calendar.

For example, you create an exception event in March for an intense aerobics class in the gym to open an air vent to 100 % from 06:30 to 17:00 every Wednesday in March. This exception event takes precedence over the regularly scheduled weekly Wednesday events.

When scheduling exception events, you can use three exception types to provide flexibility and control in your schedule.

1.48.1 Single Date Exception Events

A single date exception event can occur on a single day, or you can use the options for the event to occur on more than one day. Options such as **Any year** and **Any day** provide flexibility to a single date.

For example, to schedule a single date event to take place every year on October 31, you select the following single date options:

- Year: Any year
- Month: October
- Day of month: 31
- Day of week: Any day

For more information, see section 1.49 “Adding a Single Date Exception Event ” on page 52.

1.48.2 Date Range Exception Events

A date range exception event is an event that lasts over a period of time. In addition to a specific day of month, you can schedule daily exceptions by selecting a **Start time** and **End time** to provide the flexibility to a date range.

For example, to schedule an exception event to occur from the first day of July to the last day of August where the priority is 16, but each day from 08:00 to 17:00 the value is 15.50, select:

- Priority: 16
- Start date: 2021-07-01
- End date: 2021-08-31
- Start time: 08:00
- End time: 17:00
- Value: 15.50

For more information, see section 1.50 “Adding a Date Range Exception Event ” on page 53.

1.48.3 Calculated Exception Events

A calculated date is an exception event that recurs. Other than a specific month and week, you can select **Any month** and **Any week** or **Last week**, to provide flexibility to a calculated date.

For example, to schedule the Monday of the first week of every month for an exception event, select the following options:

- Month: Any month
- Week of month: First week
- Day of week: Monday

For more information, see section 1.51 “Adding a Calculated Date Exception Event” on page 54.

1.48.4 Calendar Exception Events

A calendar reference allows you to apply an exception event for all dates specified in the calendar. For example, to schedule exception events for all holidays on a calendar, you select the calendar you want to reference and the schedule will follow the holidays created in the calendar.




For more information, see section 1.52 “Adding a Calendar Exception Event ” on page 55.

1.49 Adding a Single Date Exception Event


You add a single date exception event to a schedule to make an exception for a specific day in the schedule.

For more information, see section 1.48 “Exception Events” on page 50.

To add a single date exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule to which you want to add a single date exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule to which you want to add a single date exception event.
4. On the schedule view screen, tap the add event button .
5. On the **Add schedule event** screen, tap **Single date exception**.
6. On the **Add single date exception** screen, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.



7. In the **Year** box, tap **+** or **-** to select a specific year between **2020** and **2100**, or **Any year**.
 8. In the **Month** box, tap **+** or **-** to select a specific month between **January** and **December**, **Odd months**, **Even months**, or **Any month**.
 9. In the **Day of month** box, tap **+** or **-** to select a specific day between **1** and **31**, **Last day**, **Odd days**, **Even days**, or **Any day**.
 10. In the **Day of week** box, tap **+** or **-** to select a specific day between **Mon** and **Sun**, or **Any day**.
 11. On the start/end time and value list header, tap the add time span and value button .
 12. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
 13. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
 14. Tap **OK**.
- TIP:** You can add multiple time spans and values to an exception event.
15. On the **Add single date exception** screen, tap **OK**.
 16. On the schedule view screen, tap **Save**.

1.50 Adding a Date Range Exception Event


You add a date range exception event to a schedule to make an exception for a specific series of dates in the schedule.

For more information, see section 1.48 “Exception Events” on page 50.




To add a date range exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule to which you want to add a date range exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule to which you want to add a date range exception event.

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4. On the schedule view screen, tap the add event button .
5. On the **Add schedule event** screen, tap **Date range exception**.
6. On the **Add date range exception screen**, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.


7. In the **Start date** box, tap the calendar button  to select a specific start date or **Now** to select the current date.
 8. In the **End date** box, tap the calendar button  to select a specific end date or **Never** to indicate the exception does not have an end date.
 9. On the start/end time and value list header, tap the add time span and value button .
 10. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
 11. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
 12. Tap **OK**.
- TIP:** You can add multiple time spans and values to an exception event.
13. On the **Add date range exception** screen, tap **OK**.
 14. On the schedule view screen, tap **Save**.

1.51 Adding a Calculated Date Exception Event



You create a calculated date exception to a schedule to make an exception for a recurring event in the schedule.

For more information, see section 1.48 “Exception Events” on page 50.


To add a calculated date exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule to which you want to add a calculated date exception event.

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2. On the **Device** screen, tap the **Schedules** arrow button  .
3. On the **Schedules** screen, tap the schedule to which you want to add a calculated date exception event.
4. On the schedule view screen, tap the add event button .
5. On the **Add schedule event** screen, tap **Calculated exception**.
6. On the **Add calculated date exception** screen, in the **Priority** box, tap + or - to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

7. In the **Year** box, tap + or - to select a specific year between **2020** and **2100**, or **Any year**.
8. In the **Month** box, tap + or - to select a specific month between **January** and **December**, **Odd months**, **Even months**, or **Any month**.
9. In the **Week of month** box, tap + or - to select a specific week between **First** and **Fifth**, **Last**, or **Any**.
10. In the **Day of week** box, tap + or - to select a specific day between **Mon** and **Sun**, or **Any day**.
11. On the start/end time and value list header, tap the add time span and value button .
12. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap + or - to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
13. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap + or - to select the starting and ending times.
14. Tap **OK**.

TIP: You can add multiple time spans and values to an exception event.




15. On the **Add calculated date exception** screen, tap **OK**.
16. On the schedule view screen, tap **Save**.

1.52 Adding a Calendar Exception Event

You add a calendar exception to apply an exception event for all dates specified in the calendar.

For more information, see section 1.48 “Exception Events” on page 50.



To add a calendar exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule to which you want to add a date range exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule to which you want to add a date range exception event.
4. On the schedule view screen, tap the add event button .
5. On the **Add schedule event** screen, tap **Calendar exception**.

NOTE: If the **Calendar exception** button is gray instead of blue, and you see **No calendars found** next to it, this option is unavailable for the moment on this device because at least 1 configured calendar is required.

6. On the **Add calendar exception** screen, in the **Priority** box, tap + or - to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

7. Next to the **Calendar** box, tap on the pencil button .
8. On the **Select calendar** screen, tap the radio button next the calendar you want to edit.
9. Tap **OK**.
10. On the start/end time and value list header, tap the add time span and value button .
11. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap + or - to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
12. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap + or - to select the starting and ending times.
13. Tap **OK**.

TIP: You can add multiple time spans and values to an exception event.

14. On the **Add calendar exception** screen, tap **OK**.



15. On the schedule view screen, tap **Save**.

1.53 Editing a Single Date Exception Event



You edit a single date exception event to change how the state of a value is controlled by the schedule on a specific day.

For more information, see section 1.48 “Exception Events” on page 50.

To edit a single date exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to edit a single date exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to edit a single date exception event.
4. On the schedule view screen, tap the exception event (blue) that you want to edit.
5. On the **Edit single date exception** screen, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

6. In the **Year** box, tap **+** or **-** to select a specific year between **2020** and **2100**, or **Any year**.
7. In the **Month** box, tap **+** or **-** to select a specific month between **January** and **December**, **Odd months**, **Even months**, or **Any month**.
8. In the **Day of month** box, tap **+** or **-** to select a specific day between **1** and **31**, **Last day**, **Odd days**, **Even days**, or **Any day**.
9. In the **Day of week** box, tap **+** or **-** to select a specific day between **Mon** and **Sun**, or **Any day**.
10. Select to add another start/end time and value or edit existing ones:
 - In the start/end time and value list, tap the edit exception button  on the row with the start/end time or value that you want to edit.
 - On the start/end time and value list header, tap the add time span and value button .
11. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).



12. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
13. Tap **OK**.
14. On the schedule view screen, tap **Save**.

1.54 Editing a Date Range Exception Event

You edit a date range exception event to change how the state of a value is controlled by the schedule for a specific series of dates in the schedule.



For more information, see section 1.48 “Exception Events” on page 50.

To edit a date range exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to edit a date range exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to edit a date range exception event.
4. On the schedule view screen, tap the exception event (blue) that you want to edit.
5. On the **Edit date range exception** screen, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

6. In the **Start date** box, tap the calendar to select a specific start date or **Now** to select the current date.
7. In the **End date** box, tap the calendar to select a specific end date or **Never** to indicate the exception does not have an end date.
8. Select to add another start/end time and value or edit existing ones:

- In the start/end time and value list, tap the edit exception button  on the row with the start/end time or value that you want to edit.
- On the start/end time and value list header, tap the add time span and value button .

9. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).



10. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
11. Tap **OK**.
12. On the schedule view screen, tap **Save**.

1.55 Editing a Calculated Date Exception Event



You edit a calculated date exception event to change how the state of a value is controlled by the schedule for a recurring event in the schedule.

For more information, see section 1.48 “Exception Events” on page 50.

To edit a calculated date exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to edit a calculated date exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to edit a calculated date exception event.
4. On the schedule view screen, tap the exception event (blue) that you want to edit.
5. On the **Edit calculated date exception** screen, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

6. In the **Year** box, tap **+** or **-** to select a specific year between **2020** and **2100**, or **Any year**.
7. In the **Month** box, tap **+** or **-** to select a specific month between **January** and **December**, **Odd months**, **Even months**, or **Any month**.
8. In the **Week of month** box, tap **+** or **-** to select a specific week between **First** and **Fifth**, **Last**, or **Any**.
9. In the **Day of week** box, tap **+** or **-** to select a specific day between **Mon** and **Sun**, or **Any day**.
10. Select to add another start/end time and value or edit existing ones:
 - In the start/end time and value list, tap the edit exception button  on the row with the start/end time or value that you want to edit.
 - On the start/end time and value list header, tap the add time span and value button .



11. On the **Edit exception event** screen, select the event value:
 - For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
 - For digital schedules: Tap **Inactive** or **Active** (Off or On).
12. Select the time span type:
 - Tap **All day** to make the event span 24 hours.
 - In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.
13. Tap **OK**.
14. On the schedule view screen, tap **Save**.

1.56 Editing a Calendar Exception Event


You edit a calendar exception event to change how the state of a value is controlled by the schedule for all dates specified in the calendar.

For more information, see section 1.48 “Exception Events” on page 50.



To edit a calendar exception event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to edit a date range exception event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule for which you want to edit a date range exception event.
4. On the schedule view screen, tap the exception event (blue) that you want to edit.
5. On the **Edit calendar exception** screen, in the **Priority** box, tap **+** or **-** to edit the priority of the event.

NOTE: 1 is the highest priority and 16 is the lowest.

6. Next to the **Calendar** box, tap on the pencil button .
7. On the **Select calendar** screen, tap the radio button next the calendar you want to edit.
8. Tap **OK**.

9. Select to add another start/end time and value or edit existing ones:

- In the start/end time and value list, tap the edit exception button  on the row with the start/end time or value that you want to edit.
- On the start/end time and value list header, tap the add time span and value button .

10. On the **Edit exception event** screen, select the event value:

- For analog, multi-state and enumerated schedules: In the **Value** box, tap **+** or **-** to specify the value of the event.
- For digital schedules: Tap **Inactive** or **Active** (Off or On).

11. Select the time span type:

- Tap **All day** to make the event span 24 hours.
- In the **From** and **To** boxes: tap **+** or **-** to select the starting and ending times.

12. Tap **OK**.

13. On the schedule view screen, tap **Save**.

1.57 Exception Event Priorities

Priority is a number that corresponds to a preassigned level of importance. When used for exception events, the priority numbers range from 1 to 16. 1 is the most important or highest priority and 16 is the lowest priority.

An exception event occurs instead of the scheduled weekly events for a single date, date range, calculated date, or calendar.

Exception events always take precedence over weekly events. When two exception events overlap, priorities can determine which event takes precedence over the other. Generally, priorities resolve the following conflicts:




- Two events with different priorities occur on the same day and time. In this case, the higher priority takes control of the schedule.
For example, a schedule that is set at priority 14 controls a fan in an office area at low speed during normal business hours. A Special Meeting event scheduled at 11:00 is set at priority 12 for medium speed. Therefore, the schedule adjusts the fan from low to medium for the meeting and ignores the priority 14 event until the priority 12 event ends.
- Two events with the same priority level occur on the same day and time. In this case, the position in the Event tree determines which priority takes control of the schedule. The position depends on when exception event was created.
For example, two exception events are set at priority 12. Winter Break was created first followed by Scout Meeting. Therefore, Winter Break takes precedence over Scout meeting because that event was created first.

By default, all exception events are set at priority 16, but you can change priority level. For more information, see section 1.58 “Editing an Event Priority” on page 62.

1.58 Editing an Event Priority

You edit an event priority to change the exception event to a higher or lower priority.

To edit an event priority

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the with the schedule event priority you want to edit.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule type arrow button .
4. On the schedule view screen, tap the event you want to edit.
5. On the event screen, tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest.
6. Tap **OK**.
7. On the schedule view screen, tap **Save**.

1.59 Schedule Colors

A schedule has a color code so you can identify weekly events and exception events at a glance. This color code can assist you when you are modifying your schedule or trying to troubleshoot any problems.

1.59.1 Basic Schedule View

Weekly events and exception events display in distinct colors to clearly identify them.

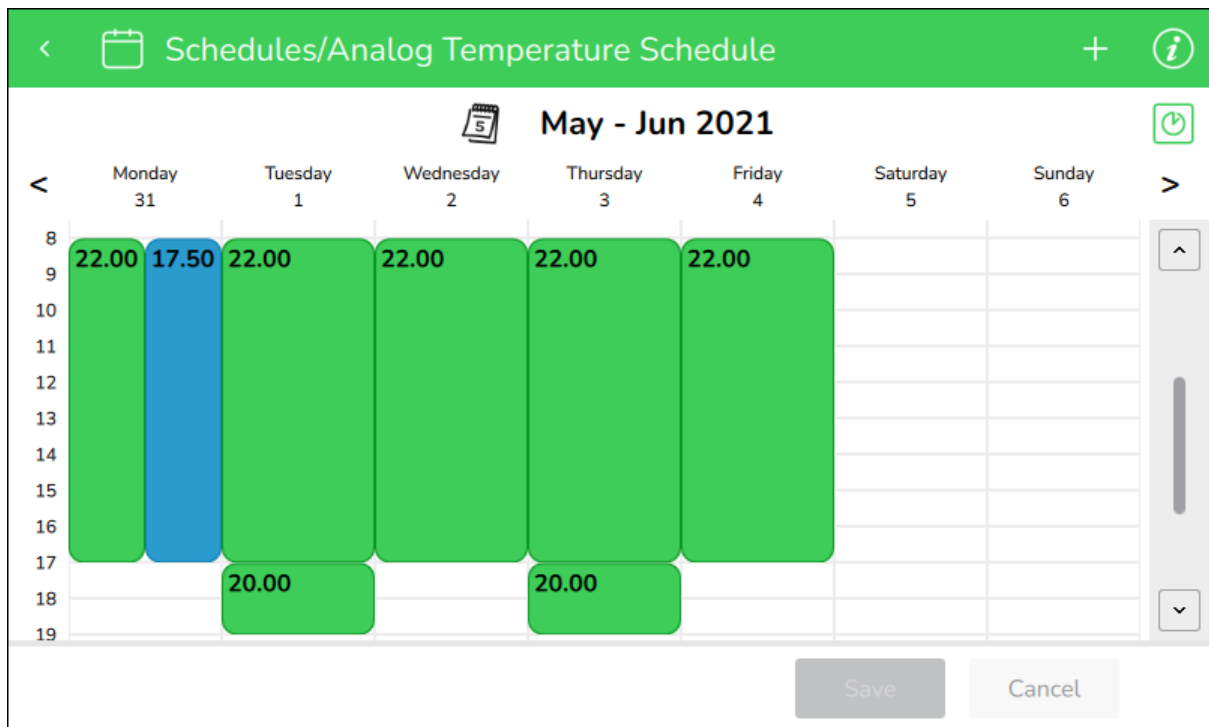


Figure – Basic schedule colors

Table – Basic Schedule Colors

Color	Description
White	Default value
Green	Weekly events
Blue	Exception events

1.59.2 Outside Effective Period View

Weekly events and exception events display in distinct colors to clearly identify them, including events that are outside the defined effective period.

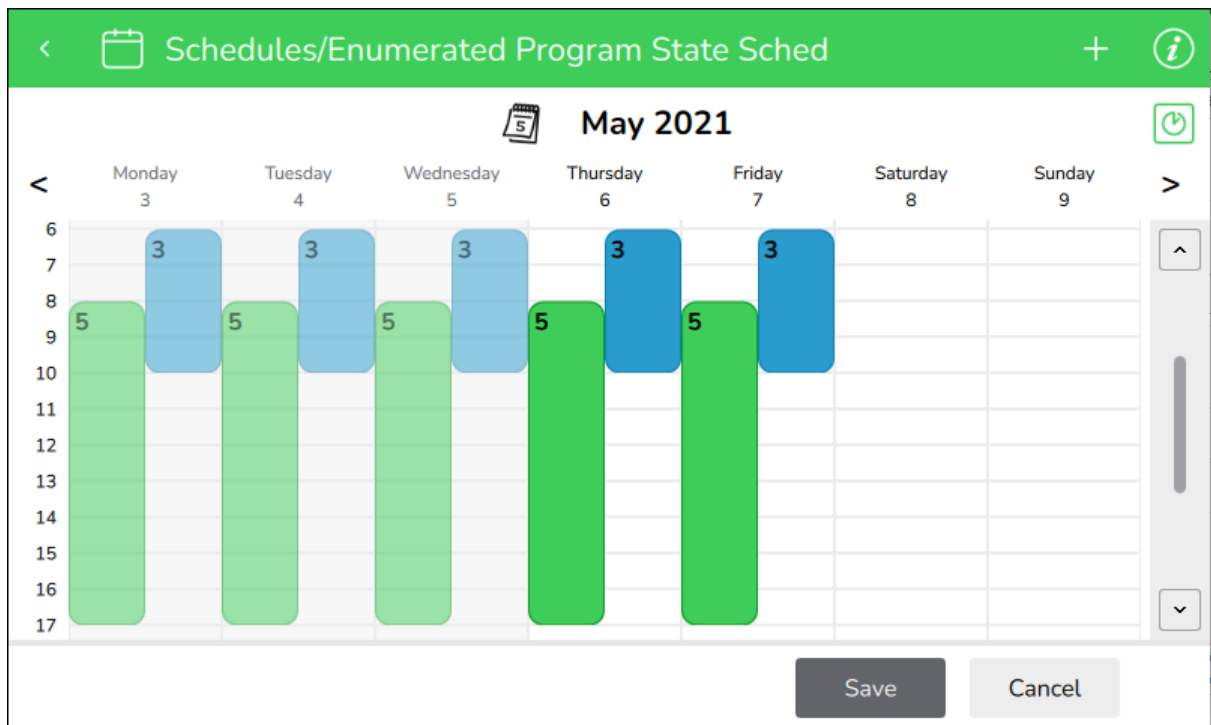


Figure – Outside effective period view

Table – Outside Effective Period View

Color	Description
White	Default value
Green	Weekly events
Blue	Exception events
Light Green (translucent)	Weekly events outside effective period
Light Blue (translucent)	Exception events outside effective period

1.59.3 Too Many Events to Be Displayed

Weekly events and exception events display in distinct colors to clearly identify them. Sometimes there are too many events scheduled in one day and they cannot all be displayed.

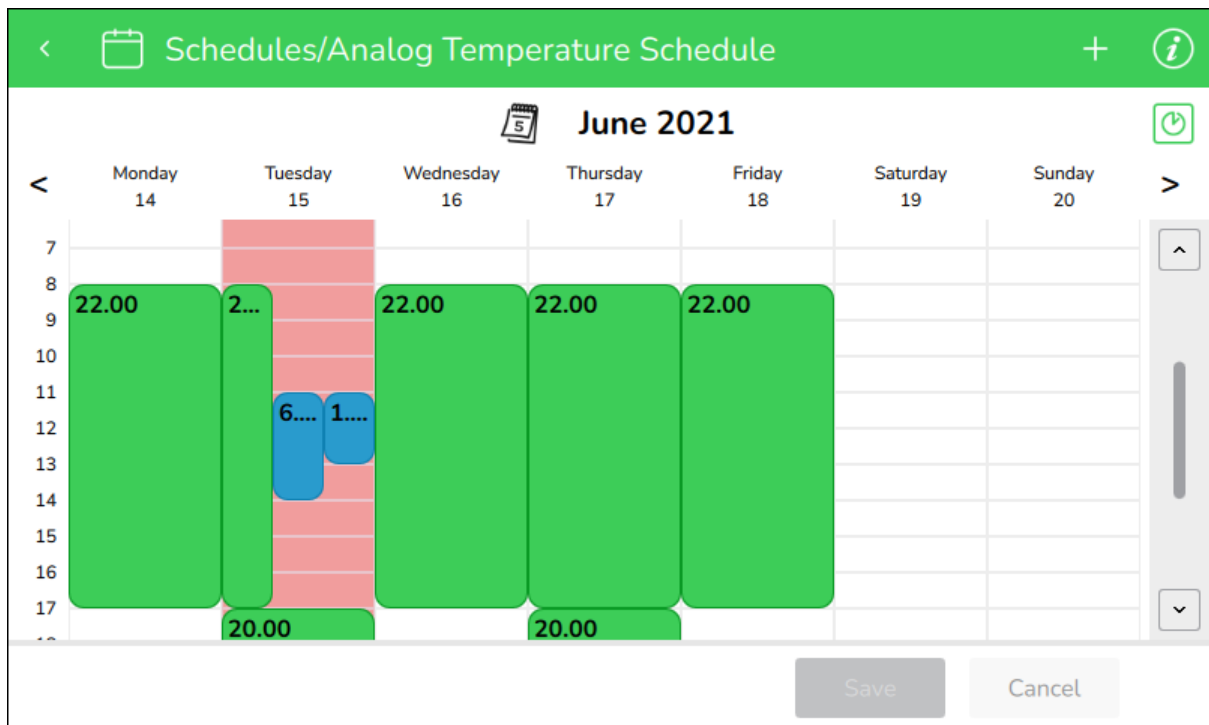


Figure – Too many events to be displayed

Table – Too Many Events to Be Displayed

Color	Description
White	Default value
Green	Weekly events
Blue	Exception events
Red	Days where there are too many events to be displayed or some events last less than 30 minutes, making them too small to select on the screen. Switch to the alternate view of the schedule to see all the events.

1.59.4 Alternate Schedule View

In the alternate view of the schedule, all the events scheduled for the week are the same size to improve visibility. Again, weekly events and exception events display in distinct colors to clearly identify them.

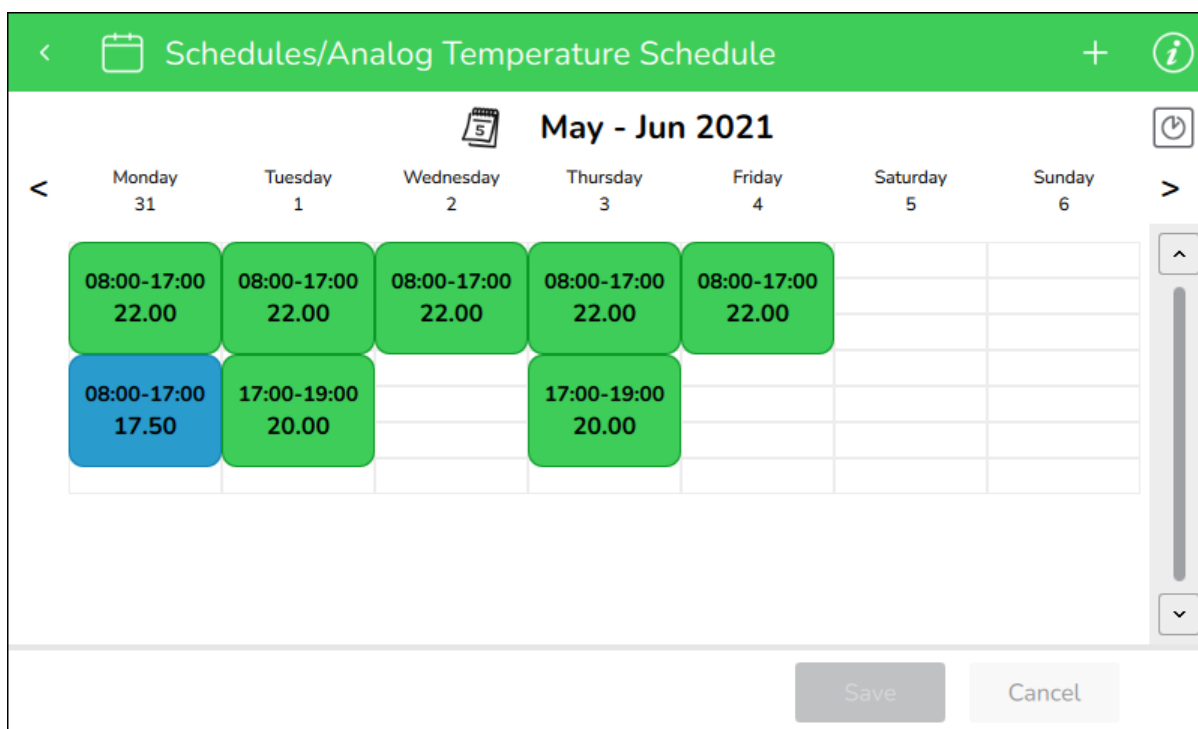


Figure – Alternate schedule colors

Table – Alternate Schedule Colors




Color	Description
White	Default value
Green	Weekly events
Blue	Exception events

1.60 Deleting a Schedule Event

You delete a schedule event to stop controlling the value controlled by the schedule during the time defined in the schedule event.

For more information, see section 1.43 “Schedule Events” on page 47.

To delete a schedule event

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the schedule for which you want to delete an event.
2. On the **Device** screen, tap the **Schedules** arrow button .
3. On the **Schedules** screen, tap the schedule arrow button .

Continued on next page

4. On the schedule view screen, tap a weekly (green) or exception (blue) event.

NOTE: If a weekly event was configured as occurring on several days of the week, you must tap on on this event every day to edit or delete it.

5. On the **Edit weekly event** or **Edit exception event** screen, tap the delete button




6. Tap **OK**.
7. On the schedule view screen, tap **Save**.

1.61 Displaying and Exporting Logs

You display the recorded activities by users and export the logs to a USB key.

To display and export logs

1. In Operator Display, tap the menu button .
2. On the menu, tap **Logs**.
3. Insert your USB key in the USB port of the Operator Display.
4. On the **Logs** screen, tap **Export**.

1.62 Trends Handling

The function of a trend log is to log the variable that it is connected to and store the records.

To be able to store larger amount of records, it is possible to connect an extended trend log using EcoStruxure Building Operation. The records of the trend log and the extended trend log can be presented numerically in a trend log list. The records can also be processed by a calculation method before they are presented.

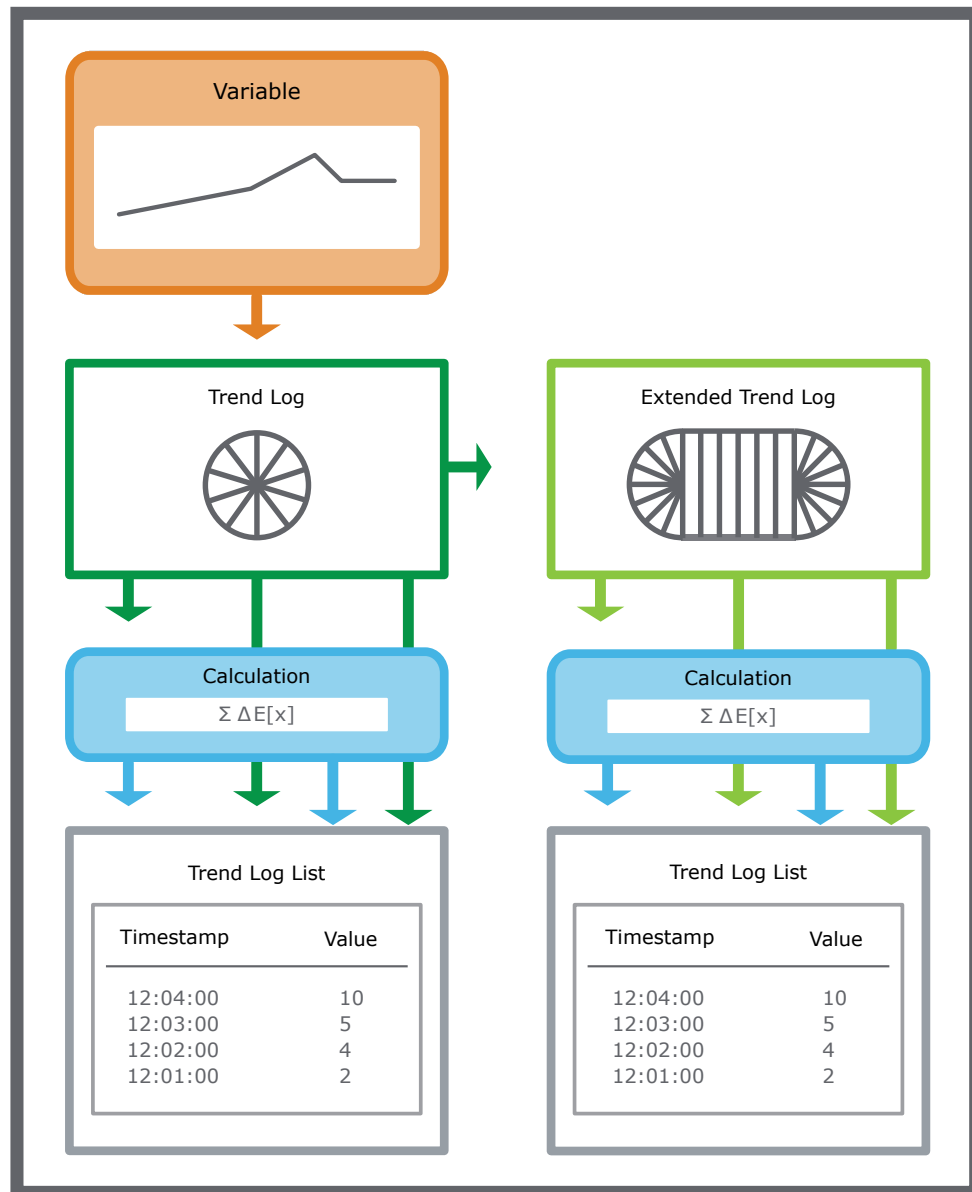


Figure – Trend overview.

NOTE: During the logging process, activity in the server may be temporarily increased. This is because a second polling rate is applied to each variable 30 seconds before the logging time. With multiple logs, the increase in activity can be significant. After 30 seconds, when a value is logged, the polling rate is set to the maximum integer.

1.62.1 Trend Log Types

You use a trend log to collect data and then store the records. A record contains a log value or an event as well as its time stamp and an optional comment. A trend log can log an analog variable, a digital variable, or an integer variable.

All trend log types can be configured to log meter consumption and handle meter replacement. Extended trend logs can be used to structure the log data and to store it where there is greater storage capacity.

Change of Value Trend Logs

The change of value trend log records the variable each time the difference between the current value and the last log value exceeds the delta. Use the change of value trend log to, for example, record a variable that has an unequal oscillation.

Interval Trend Logs

The interval trend log collects data at a specific time interval. Each logged value is stored as a record in the trend log. Use this trend log when the logging interval is less than 1 hour.

Log Processing Trend Log

A log processing trend log enables calculation within or between various trend logs. With this feature, building managers can gather new information about how the building is operating, they can view historical data that is calculated against new data and in this way detect new trends, they can compare various values and calculate a new trend log displaying relativised behavior, or unify measurements made with different units. The results from these calculations can indicate anomalies that have other reasons than the naturally varying conditions, so that it becomes easier to find problems with the building.

Manual Trend Logs

The manual trend log records data that you manually enter. The manual trend log does not log a variable. Use this type of trend log when values from offline devices have to be manually registered to the trend log. For example, if you want to create a trend log that monitors an electricity meter that cannot be connected to the EcoStruxure BMS.

Variable Triggered Trend Logs

The variable triggered trend log records the variable when the conditions of the associated trigger variable are met. Use this type of trend log when the log interval is scheduled to log monthly or yearly, or when another device is used to trigger the log.

Implicit Trend Logs

The implicit log is a change of value trend log which monitors the IO variable and records a new value if the variable exceeds the delta. Each log value is stored as a record in the trend log. The delta is automatically defined by the EcoStruxure Building Operation software depending on the measured unit of the device that is connected to the IO port.

Meter Function

The meter function adds meter properties to any trend log type to seamlessly handle consumption calculations independent of meter rollover or meter exchange.

1.62.2 Trend Log Functions

All trend logs store records by using the circular storing principle; you can also connect trends logs to external trend logs with larger storing capacity. For some trend logs you can set up conditions that have to be fulfilled before the trend log starts recording.

Log Record Storage

All trend logs use circular storing. How many records a trend log can store before overwriting old ones depends on the trend log configuration.

Trend Log Activation

The interval trend log and change of value trend log start recording values when the configured activation conditions are met. If an activation variable is used, both the activation variable and the activation time have to be true for the trend log to start recording.

Extended Trend Logs

You use an extended trend log to transfer records from a trend log. An extended trend log can be connected to a trend log or connected in a series to another extended trend log. Only one extended trend log can be connected to a trend log.

1.62.3 Trend Units

You can define the unit of a trend log when the trend log is created or on a previously created trend log where no unit has been set.

For example, a variable that represents a temperature in Kelvin is surveyed by an interval trend log. The trend log is configured to store the values in degrees Fahrenheit. A trend log list is connected to the trend log. If you display the trend log list on an operating system that uses the SI metric system, the values in the trend log list are converted and displayed in degrees Celsius.

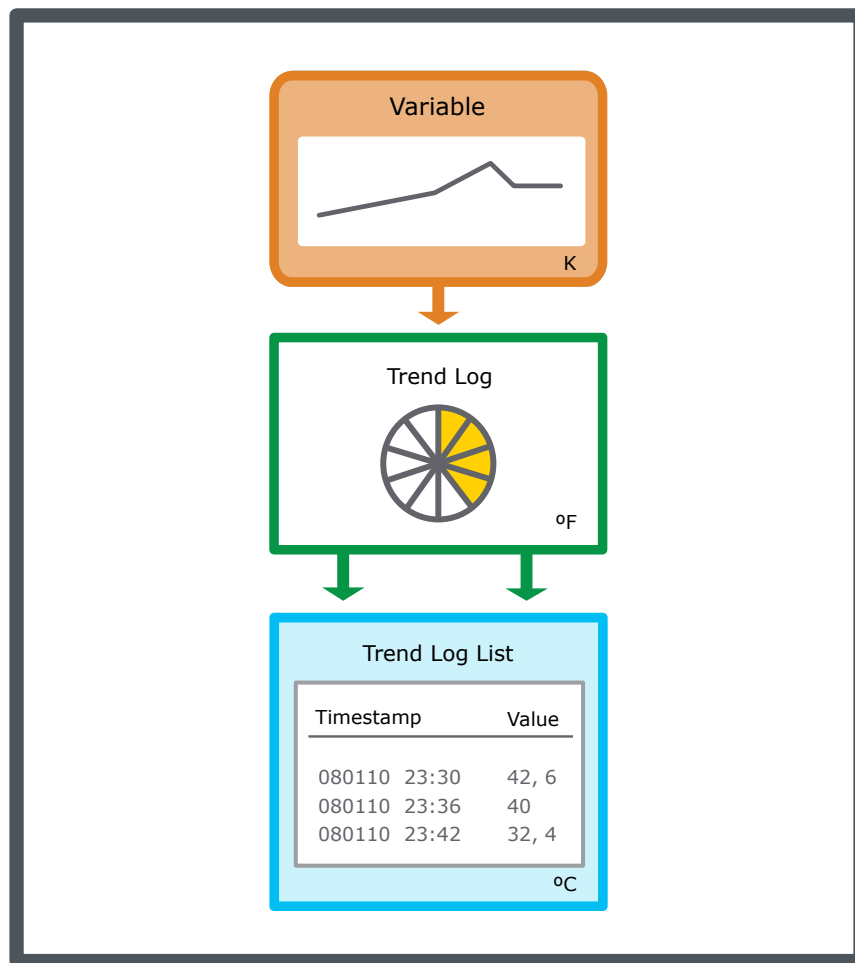


Figure – In this setup the variable has the temperature unit Kelvin, recorded trend log values are stored in Fahrenheit, and are displayed in Celsius.

1.62.4 Trend Log Lists

The trend log list numerically displays the records of a trend log or an extended trend log. The records of the trend log can be processed by a calculation method before they are presented in the trend log list.

The trend log list can only display one trend log at a time and must be manually refreshed to display recently recorded values.

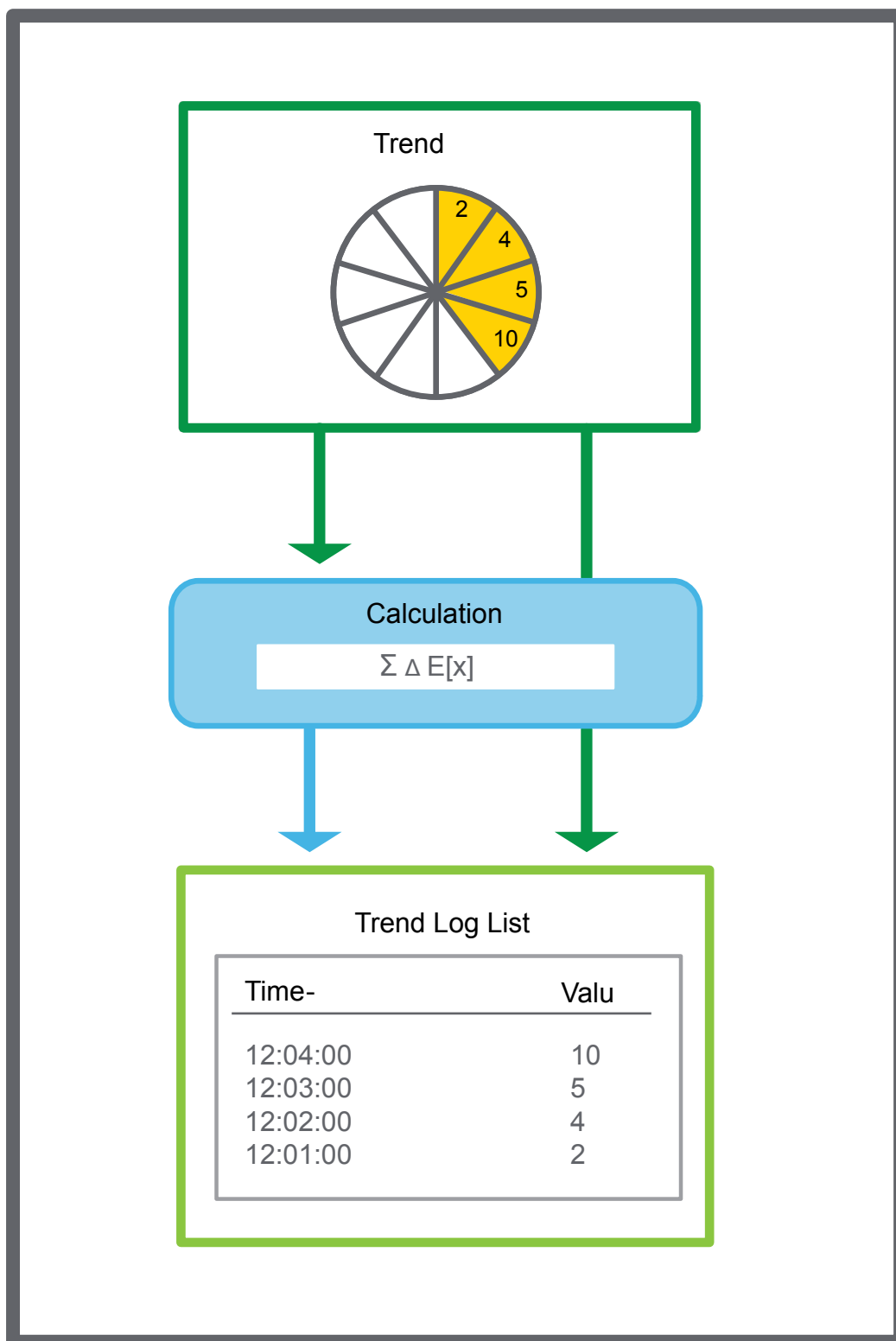







Figure – Trend log list, schematic

1.63 Displaying Trend Logs

You display the recorded activities for a specific trend on this device.


To display trend logs

1. In Operator Display, on the **Device List** screen, tap the arrow button  to select the device with the trend log you want to view.
2. On the **Device** screen, tap the **Trend Logs** arrow button .
3. On the **Trend Logs** screen, tap the log for which you want to view the activity.
4. On the trend logs view screen, tap the refresh button  to make sure the information on the screen is up to date.
5. Tap the date selector button  to pick start and dates and refine the information displayed on the screen.
6. Tap the information button  to open the trend logs information screen and view its properties.

1.64 Displaying About Information

You display about information to view more detailed information, such as the Operator Display model type and firmware version.

To displaying about information

1. In Operator Display, tap the menu button .
2. On the menu, tap **Settings**.
3. On the **Operator Display Settings** screen, tap **About**.

2 User Interface

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2.1 Home Screen

Use the home screen to access the Login screen.



Figure – Home screen

Table – Home Screen

Component	Description
Start	Tap to open the Login screen. For more information, see section 2.2 “Login Screen” on page 77.

2.2 Login Screen

Use the **Login** screen to log on to Operator Display.

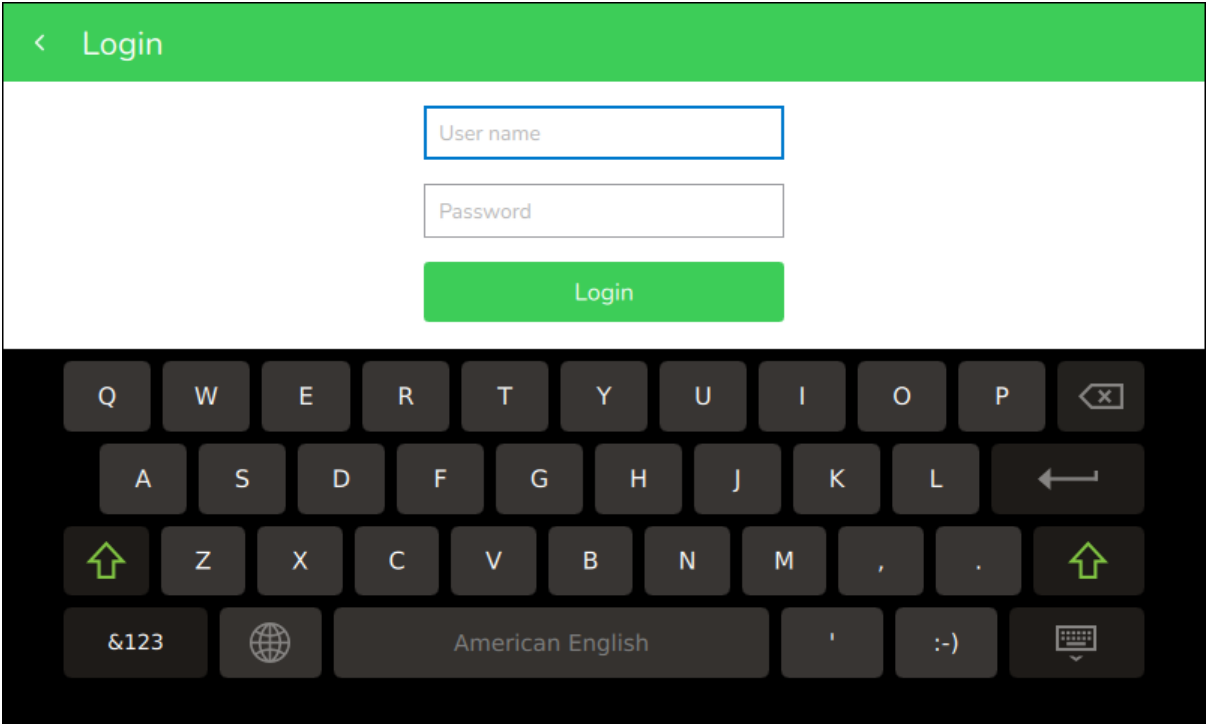


Figure – Login screen










Table – Login Screen

Component	Description
User name	Type a user name.
Password	Type a password.
Login	Tap to log on to Operator Display and open the Device list screen. For more information, see section 2.11 “Device List Screen” on page 90.









2.3 Toolbar

Use the toolbar to access the features available for the screen that is currently being displayed.

Table – Toolbar

Button	Description
	Tap to open the menu, where you access the different features of Operator Display. For more information, see section 2.4 “Menu” on page 80.
	Tap to return to the previous screen.
	Tap to open the Alarms screen, where you view and acknowledge alarms for all the devices available on this Operator Display. For more information, see section 2.7 “Alarms Screen” on page 84.
	Indicates an unacknowledged alarm is present for one of the devices. Tap to open the Alarms screen, where you view and acknowledge alarms for all the devices available on this Operator Display. For more information, see section 2.7 “Alarms Screen” on page 84.
	Indicates a network connection error. The icon disappears once the network is back online.
	Tap to open the Device Discovery screen, where you discover devices on the network and add them to the device list. For more information, see section 2.9 “Device Discovery Screen” on page 88. This task requires administrator permissions.
	Tap to search the list of discovered devices on the network and add them to the device list. For more information, see section 2.9 “Device Discovery Screen” on page 88. This task requires administrator permissions.
	Indicates the screen is displaying the results from the search you ran on the list of discovered devices. For more information, see section 2.9 “Device Discovery Screen” on page 88. This task requires administrator permissions.
	Tap to cancel the search and return to the Device Discovery screen. For more information, see section 2.9 “Device Discovery Screen” on page 88. This task requires administrator permissions.

Continued

Button	Description
	Tap to filter the list of discovered devices on the network and add them to the device list. For more information, see section 2.9 "Device Discovery Screen" on page 88. This task requires administrator permissions.
	Indicates the screen is displaying the results from the filter you ran on the list of discovered devices. For more information, see section 2.9 "Device Discovery Screen" on page 88. This task requires administrator permissions.
	Tap to cancel the filter and return to the Device Discovery screen. For more information, see section 2.9 "Device Discovery Screen" on page 88. This task requires administrator permissions.
	Tap to open the Add schedule event screen, where you add new weekly and exception events. For more information, see section 2.41 "Add Schedule Event Screen" on page 125.
	Tap to pick start and end dates to filter the list of trend log details. For more information, see section 2.54 "Trend Logs View Screen" on page 145.
	Tap to refresh the list of trend log details. For more information, see section 2.54 "Trend Logs View Screen" on page 145.
	Tap to open the detail screen of an event in Schedules or Trend Logs.
	Tap to delete a schedule event. For more information, see section 2.43 "Edit Weekly Event Screen" on page 128.

2.4 Menu

Use the menu to access the different features of Operator Display.

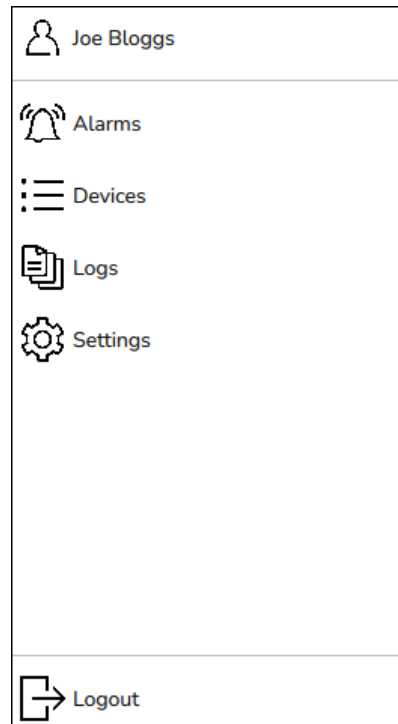


Figure – Menu

Table – Menu

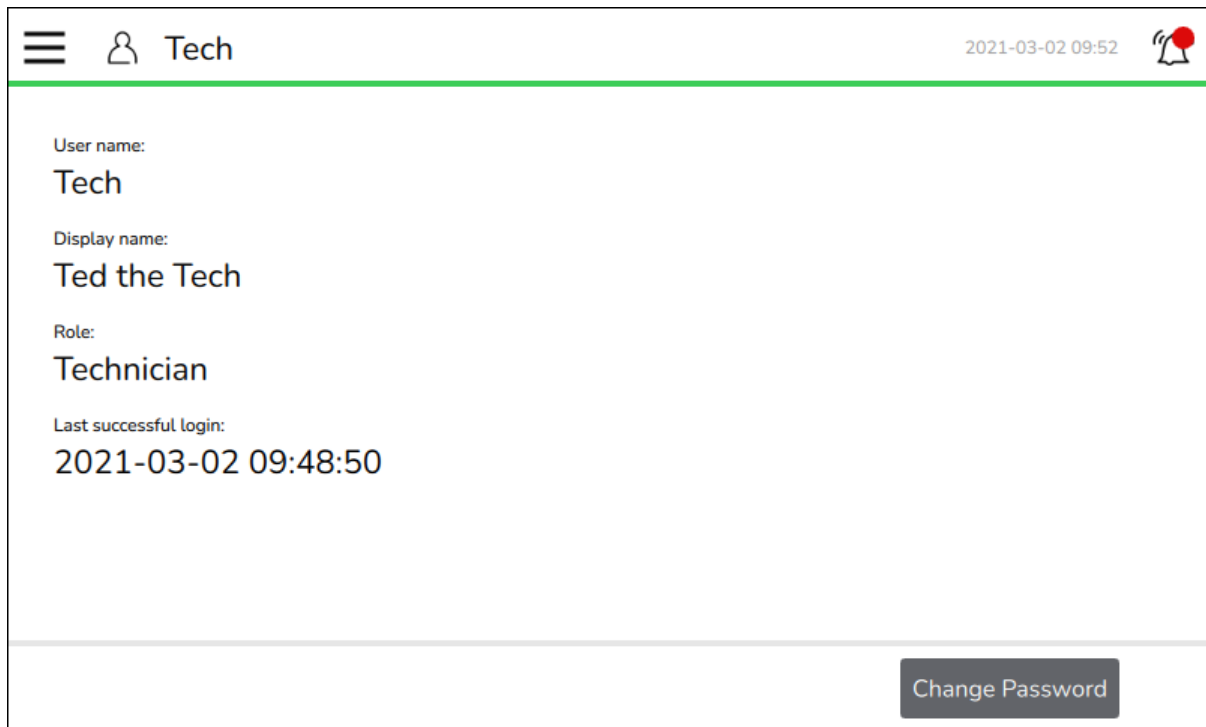
Component	Description
(user name)	Tap to open the user profile screen, where you view user settings and change your password. For more information, see section 2.5 “User Profile Screen” on page 82.
Alarms	Tap to open the Alarms screen, where you view and acknowledge alarms for all the devices available on this Operator Display. For more information, see section 2.7 “Alarms Screen” on page 84.
Devices	Tap to open the Device list screen, where you view and select devices available on this Operator Display. For more information, see section 2.11 “Device List Screen” on page 90.
Logs	Tap to open the Logs screen, where you view and export device activity logs. For more information, see section 2.57 “Logs Screen” on page 149.
Settings	Tap to open the Operator Display Settings screen, where you configure the device settings and view more information about the device. For more information, see section 2.58 “Operator Display Settings Screen” on page 150.

Continued

Component	Description
Log out	Tap to log out of Operator Display.

2.5 User Profile Screen

Use the user profile screen to display and edit the list of user accounts on this Operator Display.



The screenshot shows the User Profile Screen. At the top, there is a header bar with a hamburger menu icon, a user icon, the text 'Tech', the date and time '2021-03-02 09:52', and a bell icon. Below the header, the user profile information is displayed in a list format: 'User name: Tech', 'Display name: Ted the Tech', 'Role: Technician', and 'Last successful login: 2021-03-02 09:48:50'. At the bottom right, there is a 'Change Password' button.

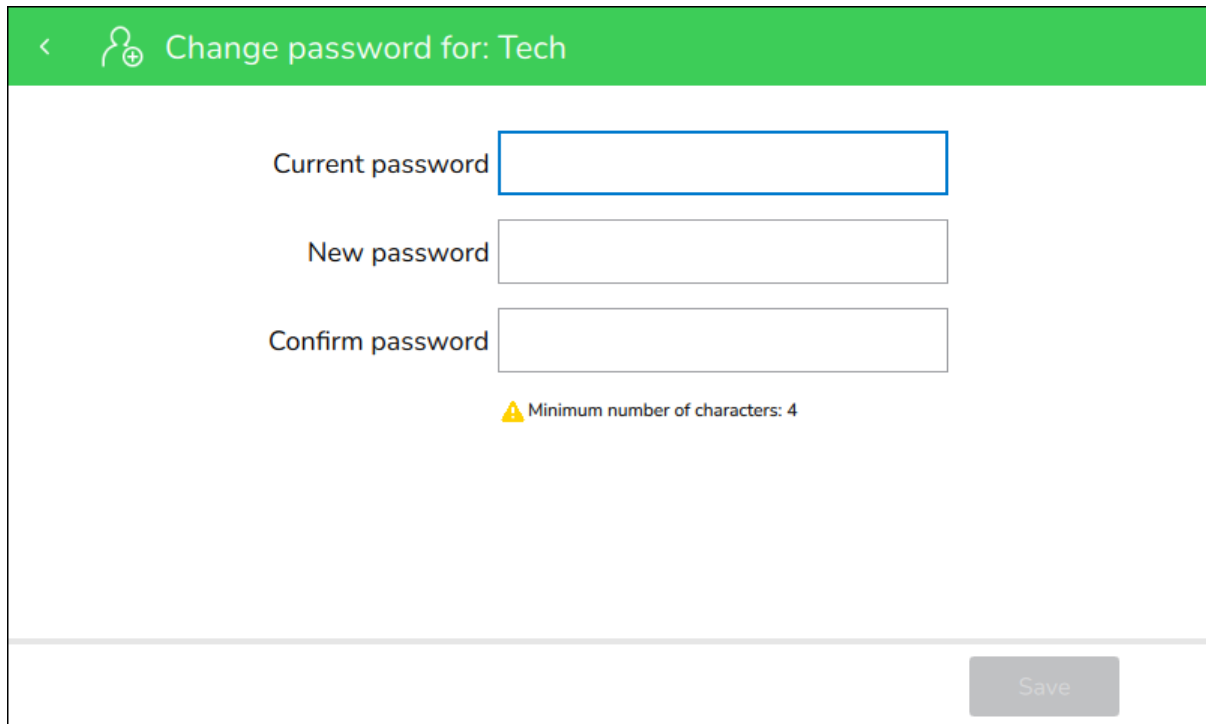
Figure – User profile screen

Table – User Profile Screen

Component	Description
User name	Displays the unique user name.
Display name	Displays the unique display name.
Role	Displays the user role (Administrator, Technician, or Viewer).
Last successful login	Displays the date and time of the last user login.
Change Password	Tap to change the password for this user. For more information, see section 2.6 “Change Password Screen” on page 83.

2.6 Change Password Screen

Use the **Change password** screen to assign a new unique password to this user.



The screenshot shows a mobile application interface for changing a password. At the top, a green header bar contains a back arrow, a user icon, and the text "Change password for: Tech". Below the header, there are three input fields: "Current password", "New password", and "Confirm password". A yellow warning icon and the text "Minimum number of characters: 4" are positioned below the input fields. At the bottom right, there is a grey "Save" button.

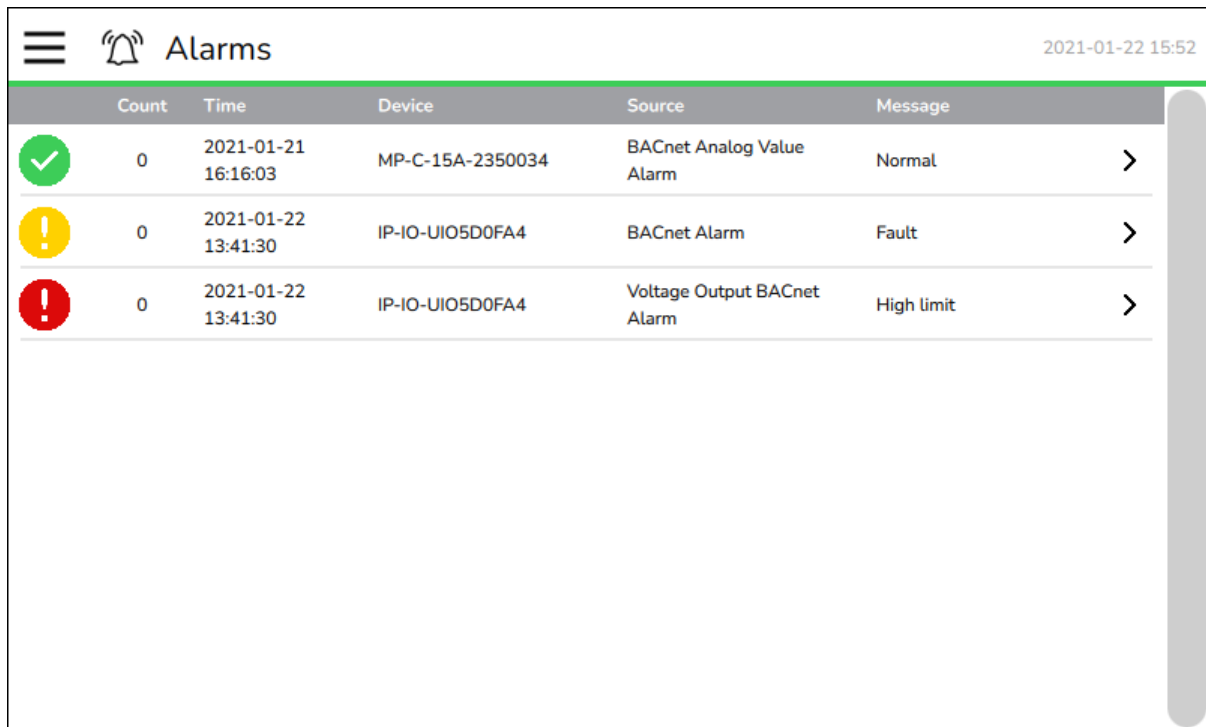
Figure – Change password screen

Table – Change Password Screen

Component	Description
Current password	Type the current password for this user. For more information, see section 1.3 "User Account Handling" on page 13.
New password	Type a unique password. For more information, see section 1.3 "User Account Handling" on page 13.
Confirm password	Type the password a second time for validation.

2.7 Alarms Screen

Use the **Alarms** screen to display alarms for all the devices available on this Operator Display.











	Count	Time	Device	Source	Message	
	0	2021-01-21 16:16:03	MP-C-15A-2350034	BACnet Analog Value Alarm	Normal	>
	0	2021-01-22 13:41:30	IP-IO-UIO5D0FA4	BACnet Alarm	Fault	>
	0	2021-01-22 13:41:30	IP-IO-UIO5D0FA4	Voltage Output BACnet Alarm	High limit	>

Figure – Alarms screen

Table – Alarms Screen

Component	Description
Count	Displays the number of times the alarm has been activated before it is acknowledged.
Time	Displays the date and time of the most recent alarm state change.
Device	Displays the name of the device.
Source	Displays the name of the input, output or value that activated the alarm.
Message	Displays the alarm message corresponding to the alarm state. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm in the state Alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm in the state Fault that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.

Continued

Component	Description
	Indicates an active alarm that is acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates a reset alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Tap to open the alarm detail screen, where you view more information and acknowledge the alarm. For more information, see section 2.8 “Alarm Detail Screen” on page 86.

2.8 Alarm Detail Screen

Use the alarm detail screen to display the alarm details and to acknowledge the alarm.

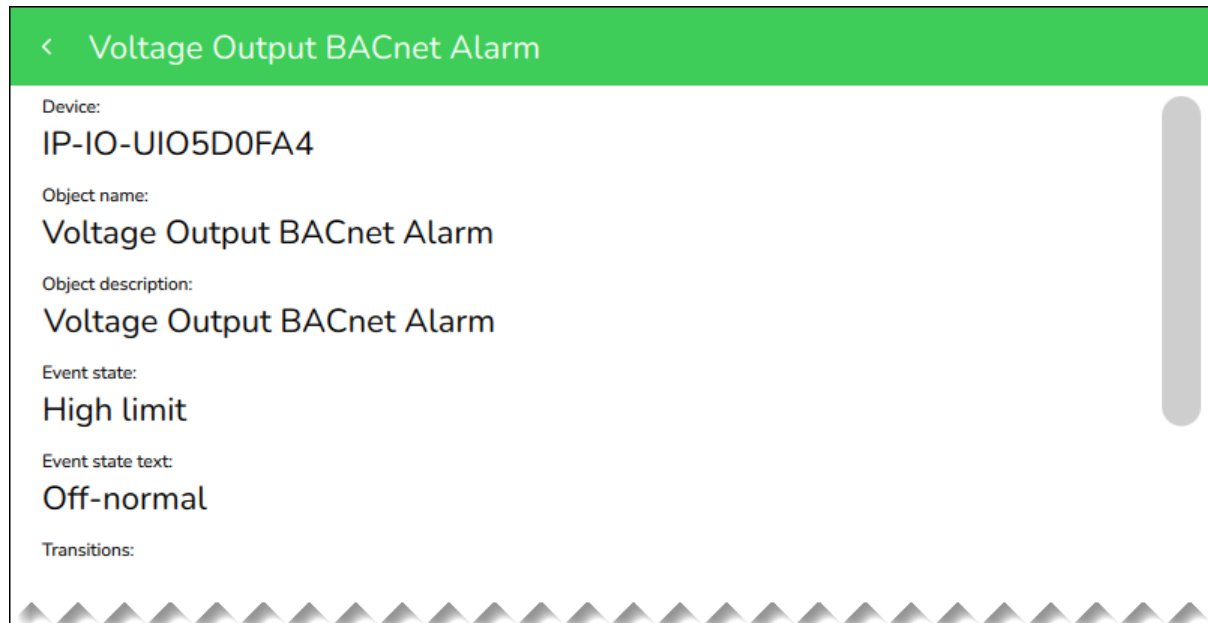






Figure – Alarm detail screen

Table – Alarm Detail Screen

Component	Description
Device	Displays the name of the device.
Object name	Displays the name of the input, output or value that activated the alarm.
Object description	Displays the description of the input, output or value that activated the alarm.
Event state	Displays the event state of the current alarm state. For more information, see section 1.27 “Alarm Handling” on page 33.
Event state text	Displays the event state text corresponding to the alarm state. For more information, see section 1.27 “Alarm Handling” on page 33.
Transitions	Displays a table that lists all the alarm state changes that has occurred.
	Indicates an active alarm that is acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm in the state Fault that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.

Continued

Component	Description
	Indicates an active alarm in the state Alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates a reset alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
Transition	Displays the transition type. For more information, see section 1.27 “Alarm Handling” on page 33.
Time	Displays the date and time of the most recent alarm state change.
Message	Displays the alarm message corresponding to the alarm state. For more information, see section 1.27 “Alarm Handling” on page 33.
Acknowledge	Tap to acknowledge the alarm. For more information, see section 1.27 “Alarm Handling” on page 33.

2.9 Device Discovery Screen

Use the **Device Discovery** screen to discover devices on the network and them to the device list.

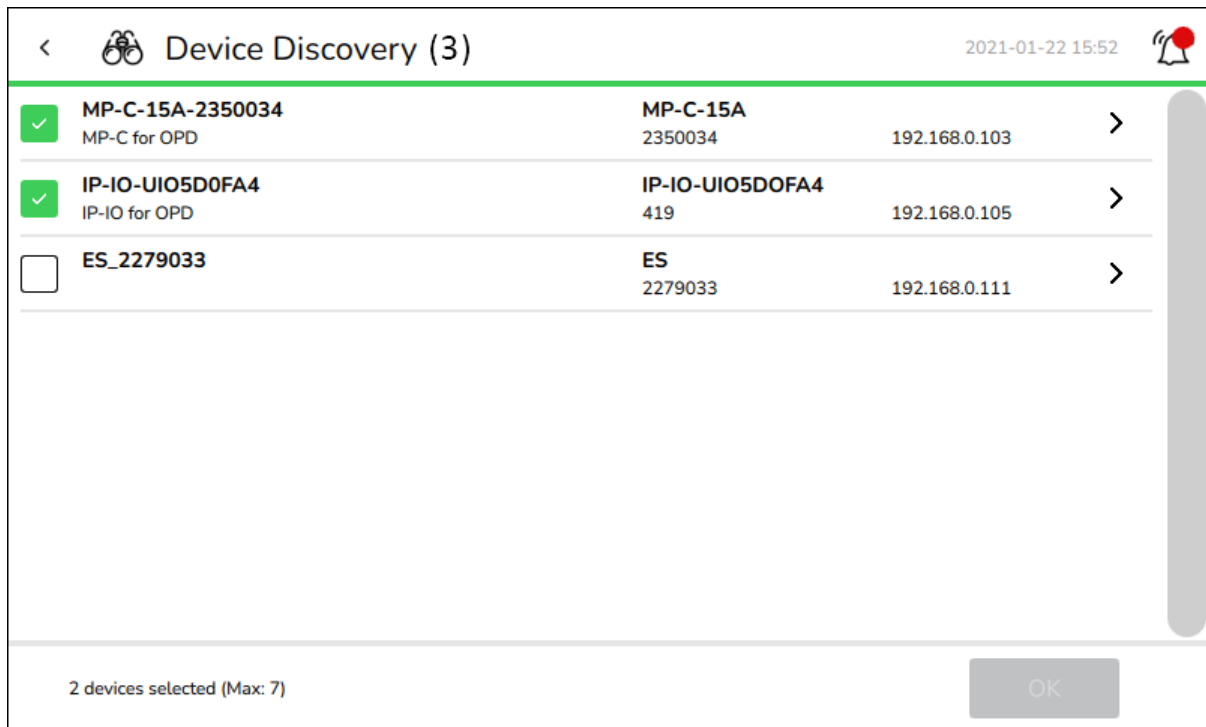





Figure – Device Discovery screen

Table – Device Discovery Screen

Component	Description
	Indicates that a device is already added to the device list or a selected device.
	Indicates an available device that is not added to the device list or selected.
	Tap to select and open the device discovery detail screen, where you view more information on the device. For more information, see section 2.12 “Device Detail Screen (without Configuration Menus)” on page 91.

2.10 Device Discovery Detail Screen

Use the device discovery detail screen to display more information on a device.

< MP-C-15A-2350034

Name:
MP-C-15A-2350034

Description:
MP-C for OPD testing

Object ID:
2350034

Firmware version:
3.02.01.00773

Serial number:
3N202350034

IP address:
192.168.0.103

Model:
MP-C-15A

Vendor:

Figure – Device discovery detail screen

Table – Device Discovery Detail Screen

Component	Description
Name	Displays the device name.
Description	Displays the device description.
Object ID	Displays the BACnet device identification number.
Firmware version	Displays the device firmware version number.
Serial number	Displays the device serial number.
IP address	Displays the IP address.
Model	Displays the device model number.
Vendor	Displays the device vendor name.
Vendor ID	Displays the device vendor identification number.

2.11 Device List Screen

Use the **Device List** screen to select a device available on this Operator Display.

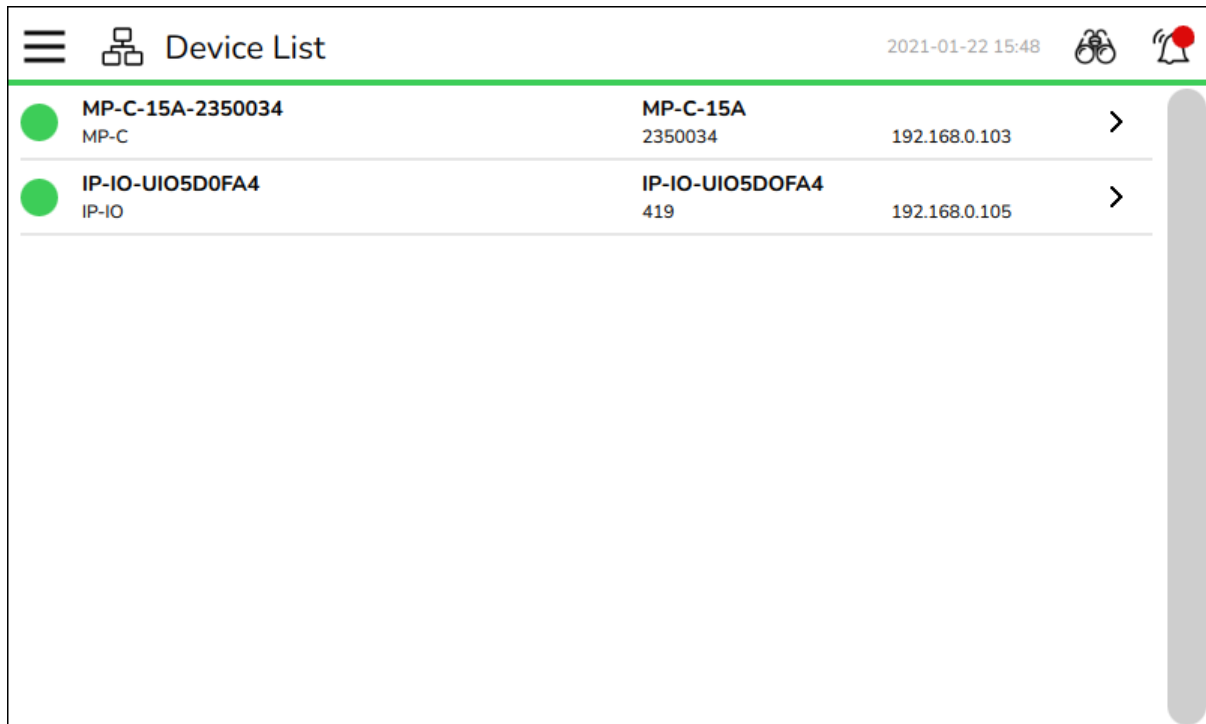





Figure – Device List screen

Table – Device List Screen

Component	Description
	Indicates that a device is online.
	Indicates that a device is offline.
	Tap to open the device detail screen, where you can view and edit the device features. For more information, see section 2.12 “Device Detail Screen (without Configuration Menus)” on page 91.

2.12 Device Detail Screen (without Configuration Menus)

Use the device detail screen to interact with the device and its features.

NOTE: The device detail screen is also available with configuration menus. For more information, see section 2.13 “Device Detail Screen (with Configuration Menus)” on page 93.



Figure – Device detail screen

Table – Device Detail Screen

Component	Description
Alarms	Tap to open the Alarms screen, where you view and acknowledge alarms specific to this device. This option is only visible if alarms are configured on this device. For more information, see section 2.7 “Alarms Screen” on page 84.
Inputs	Tap to open the Inputs screen, where you view and edit the analog, binary, and multi-state inputs. This option is only visible if inputs are configured on this device. For more information, see section 2.15 “Inputs Screen” on page 97.
Outputs	Tap to open the Outputs screen, where you view and edit the analog, binary, and multi-state outputs. This option is only visible if outputs are configured on this device. For more information, see section 2.22 “Outputs Screen” on page 104.

Continued

Component	Description
Values	Tap to open the Values screen, where you view and edit the analog, binary, and multi-state values. This option is only visible if values are configured on this device. For more information, see section 2.29 “Values Screen” on page 111.
Schedules	Tap to open the Schedules screen, where you view and edit schedule events specific to this device. This option is only visible if schedules are configured on this device. For more information, see section 2.36 “Schedules Screen” on page 118.
Trend Logs	Tap to open the Trend Logs screen, where you view event logs specific to this device. This option is only visible if trend logs are configured on this device. For more information, see section 2.53 “Trend Logs Screen” on page 144.
Device Info	Tap to open the Device Info screen, where you view more information on the device and rediscover to refresh its inputs, outputs, and values. For more information, see section 2.56 “Device Info Screen” on page 148.

2.13 Device Detail Screen (with Configuration Menus)

Use the device detail screen to interact with the device and its features.

NOTE: The device detail screen is also available without configuration menus. For more information, see section 2.12 “Device Detail Screen (without Configuration Menus)” on page 91.

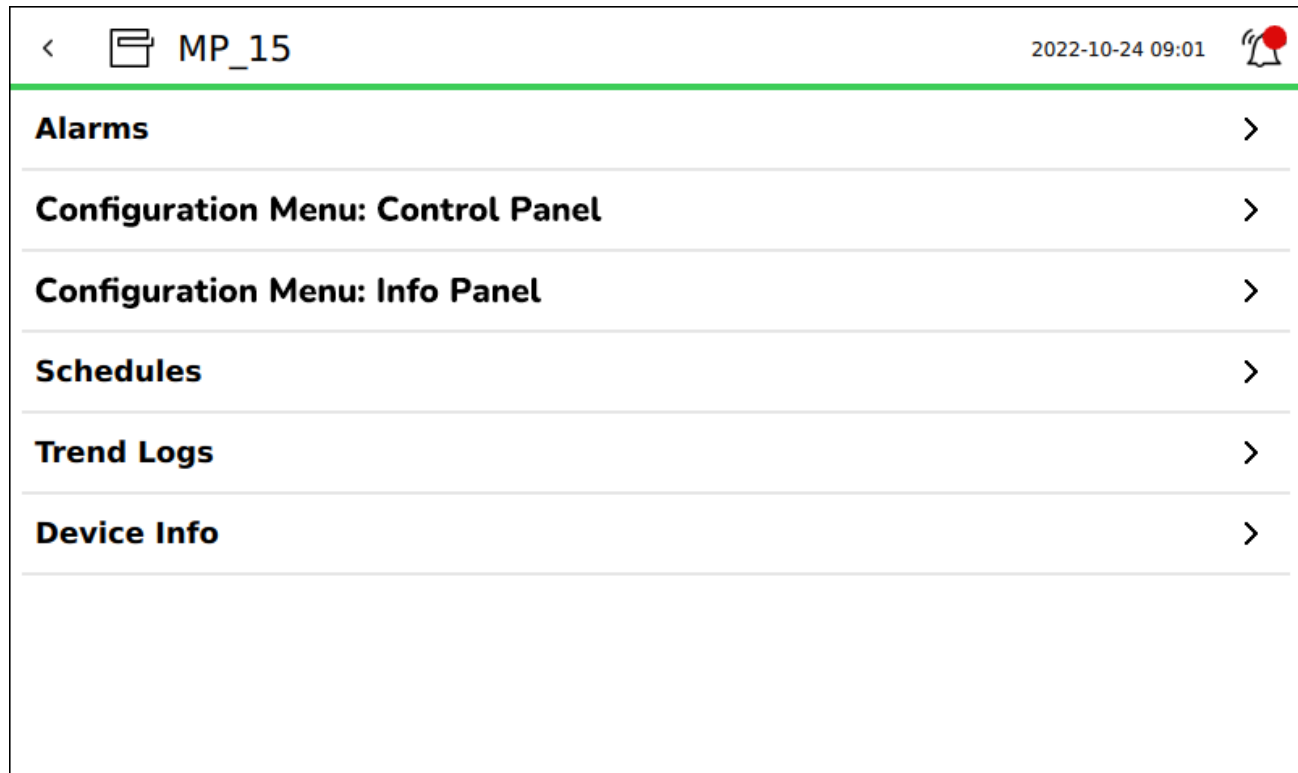


Figure – Device detail screen

Table – Device Detail Screen

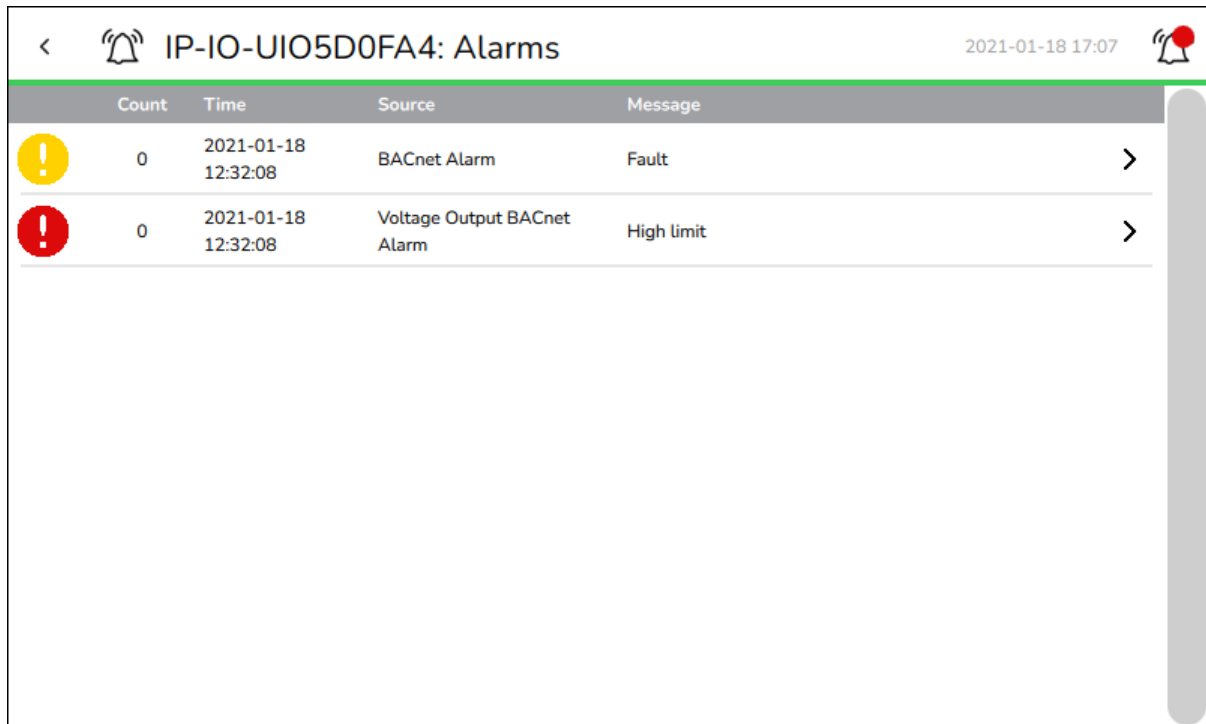
Component	Description
Alarms	Tap to open the Alarms screen, where you view and acknowledge alarms specific to this device. This option is only visible if alarms are configured on this device. For more information, see section 2.7 “Alarms Screen” on page 84.
[Configuration Menu: Control Panel]	Tap to open the configuration menu, a customized and simplified view of the information, where you view and edit the values. For more information, see section 1.12 “Configuration Menus” on page 23.
Schedules	Tap to open the Schedules screen, where you view and edit schedule events specific to this device. This option is only visible if schedules are configured on this device. For more information, see section 2.36 “Schedules Screen” on page 118.

Continued

Component	Description
Trend Logs	Tap to open the Trend Logs screen, where you view event logs specific to this device. This option is only visible if trend logs are configured on this device. For more information, see section 2.53 “Trend Logs Screen” on page 144.
Device Info	Tap to open the Device Info screen, where you view more information on the device and rediscover to refresh its inputs, outputs, and values. For more information, see section 2.56 “Device Info Screen” on page 148.

2.14 Device Alarms Screen

Use the device **Alarms** screen to display alarms for the selected device.










	Count	Time	Source	Message	
	0	2021-01-18 12:32:08	BACnet Alarm	Fault	>
	0	2021-01-18 12:32:08	Voltage Output BACnet Alarm	High limit	>

Figure – Device Alarms screen

Table – Device Alarms Screen

Component	Description
Count	Displays the number of times the alarm has been activated before it is acknowledged.
Time	Displays the date and time of the most recent alarm state change.
Source	Displays the name of the input, output or value that activated the alarm.
Message	Displays the alarm message corresponding to the alarm state. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm that is acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm in the state Fault that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Indicates an active alarm in the state Alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.

Continued

Component	Description
	Indicates a reset alarm that is not acknowledged. For more information, see section 1.27 “Alarm Handling” on page 33.
	Tap to open the alarm detail screen, where you view more information and acknowledge the alarm. For more information, see section 2.8 “Alarm Detail Screen” on page 86.

2.15 Inputs Screen

Use the **Inputs** screen to display and edit the Analog, Binary, and Multi-State inputs of the selected device.

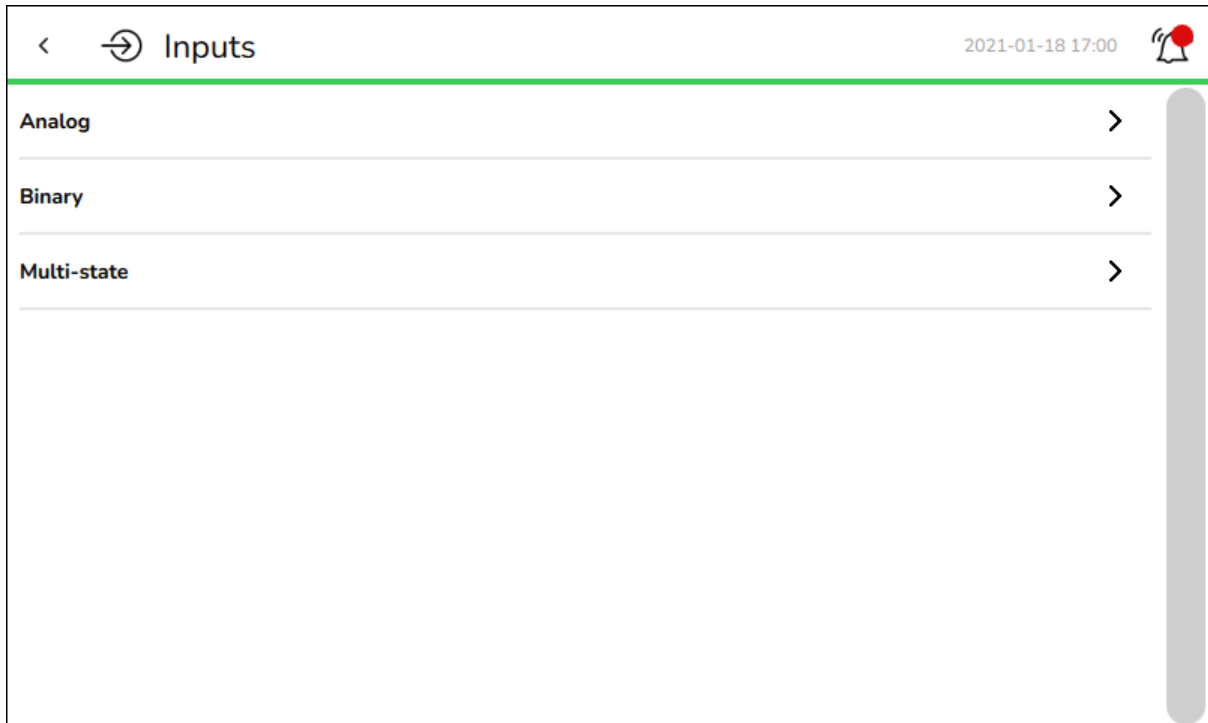


Figure – Inputs screen

Table – Inputs Screen

Component	Description
Analog	Tap to open the Inputs/Analog screen, where you view the available analog inputs on this device. For more information, see section 2.16 “Inputs/Analog Screen” on page 98.
Binary	Tap to open the Inputs/Binary screen, where you view the available binary inputs on this device. For more information, see section 2.18 “Inputs/Binary Screen” on page 100.
Multi-State	Tap to open the Inputs/Multi-State screen, where you view the available multi-state inputs on this device. For more information, see section 2.20 “Inputs/Multi-State Screen” on page 102.

2.16 Inputs/Analog Screen

Use the **Inputs/Analog** screen to display the analog inputs available on the selected device.

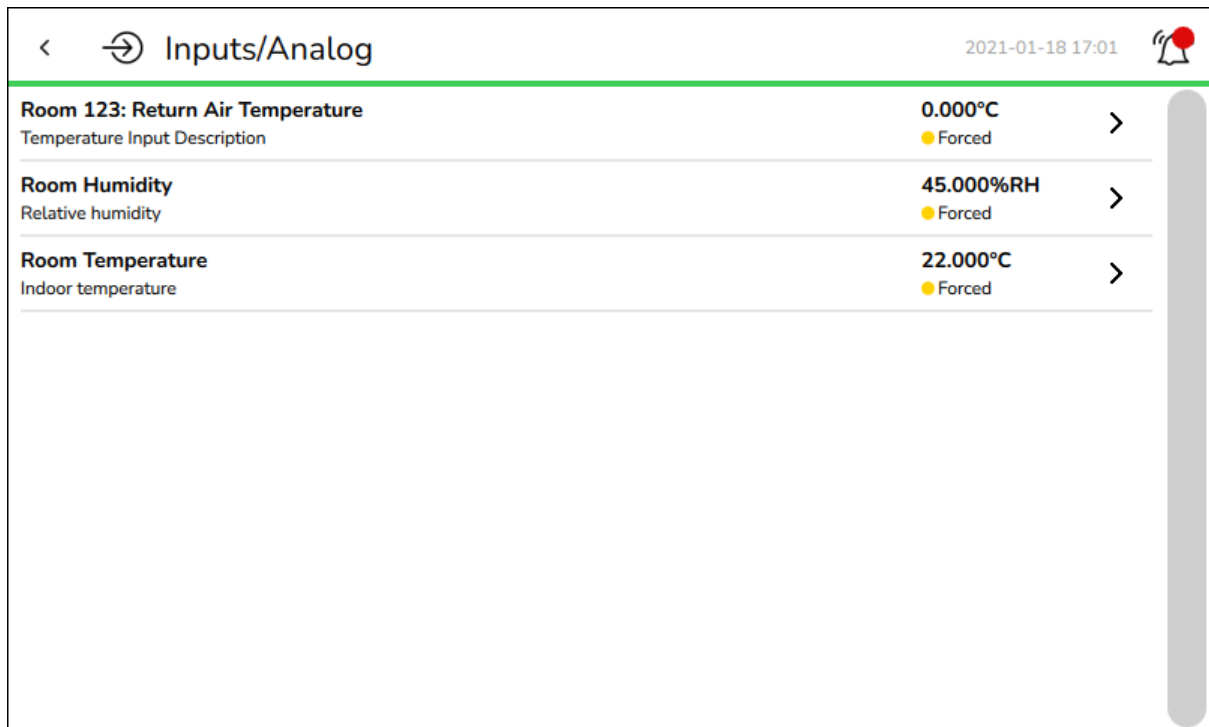


Figure – Inputs/Analog screen

Table – Inputs/Analog Screen

Component	Description
>	Tap to open the Inputs/Analog detail screen, where you view and edit the analog input. For more information, see section 2.17 "Inputs/Analog Detail Screen" on page 99.

2.17 Inputs/Analog Detail Screen

Use the **Inputs/Analog** detail screen to display and edit the seleted input.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Inputs/Analog/Room Humidity

Relative humidity

Value

-

45.000

+

%RH

Force

☐

OK

Cancel

Figure – Inputs/Analog detail screen

Table – Inputs/Analog Detail Screen

Component	Description
Value	Tap - or + to edit the value of the analog input.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.18 Inputs/Binary Screen

Use the **Inputs/Binary** screen to display the binary inputs available on the selected device.

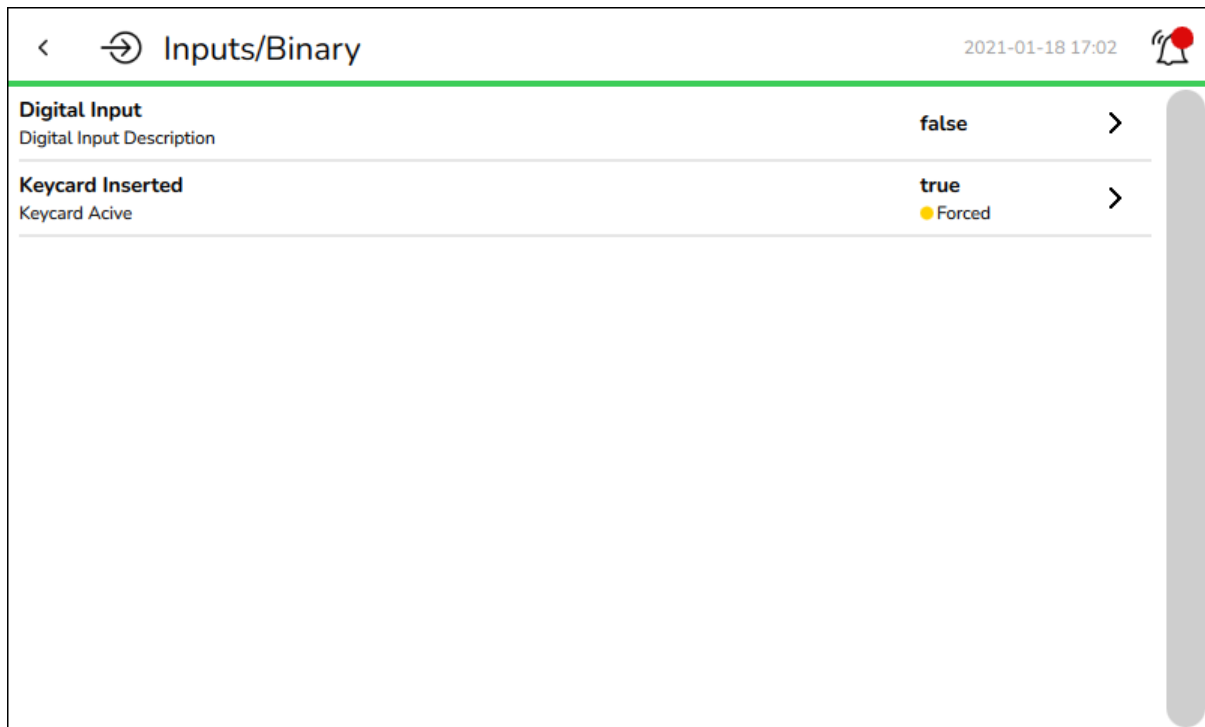


Figure – Inputs/Binary screen

Table – Inputs/Binary Screen

Component	Description
>	Tap to open the Inputs/Binary detail screen, where you view and edit the binary input. For more information, see section 2.19 "Inputs/Binary Detail Screen" on page 101.

2.19 Inputs/Binary Detail Screen

Use the **Inputs/Binary** detail screen to display and edit the available for the selected binary input.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Inputs/Binary/Digital Input

Digital Input Description

Value ☐

Force ☐

OK

Cancel

Figure – Inputs/Binary detail screen

Table – Inputs/Binary Detail Screen

Component	Description
Value	Tap Value to enable the binary input.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.20 Inputs/Multi-State Screen

Use the **Inputs/Multi-State** screen to display the multi-state inputs available on the selected device.

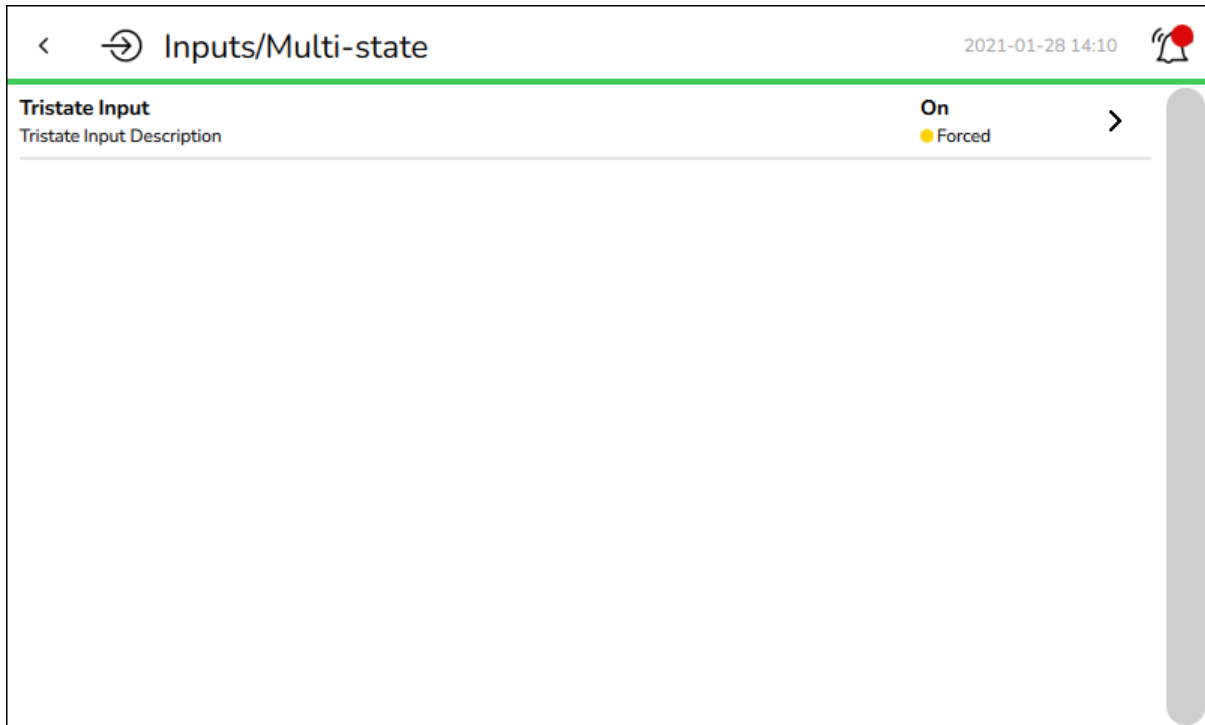


Figure – Inputs/Multi-State screen

Table – Inputs/Multi-State Screen

Component	Description
>	Tap to open the Inputs/Multi-State screen, where you view all the available multi-state inputs on this device. For more information, see section 2.21 “Inputs/Multi-State Detail Screen” on page 103.

2.21 Inputs/Multi-State Detail Screen

Use the **Inputs/Multi-State** detail screen to display and edit the selected multi-state input.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION

Do not force values without knowing the effect.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

<
Inputs/Multi-state/Supervised Multi-state Input

Supervised Multi-state Input Description

Force ☐

☐
Off

☒
On

☐
Trouble

OK

Cancel

Figure – Inputs/Multi-State detail screen

Table – Inputs/Multi-State Detail Screen

Component	Description
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.
<input checked="" type="radio"/>	Tap a value option. The value options differ depending on what the multi-state input is used for in the system.

2.22 Outputs Screen

Use the **Outputs** screen to display and edit the Analog, Binary, and Multi-State outputs of the selected device.

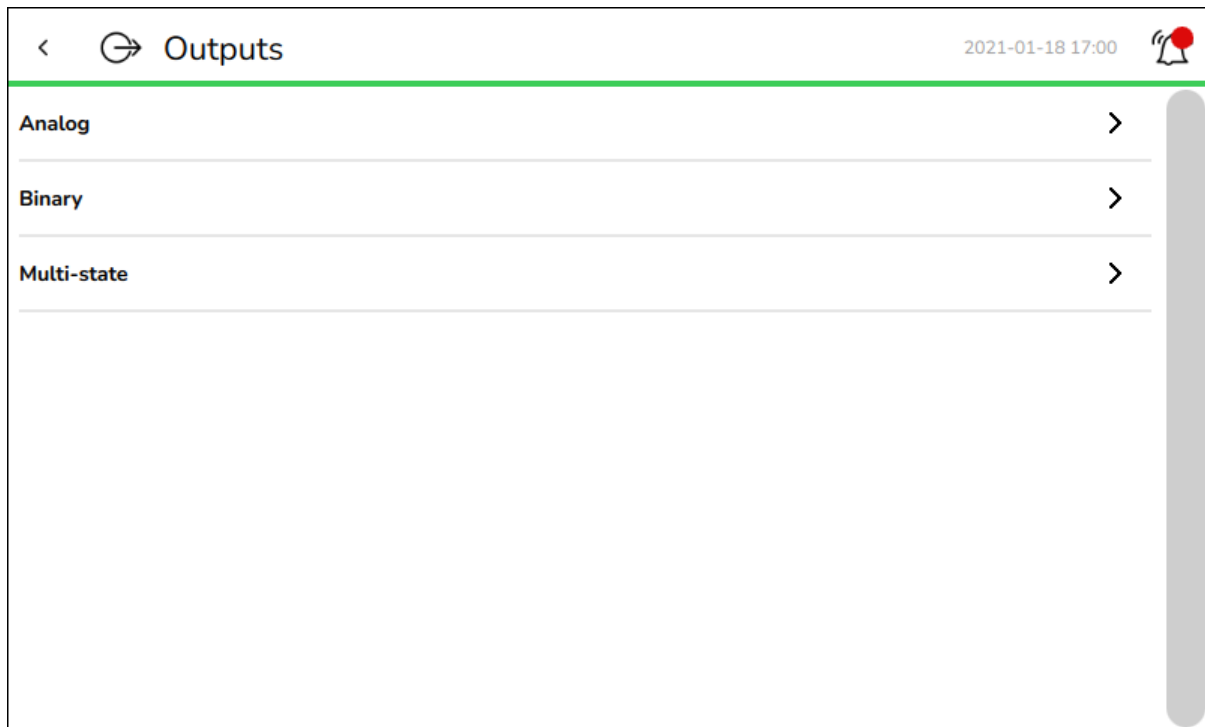


Figure – Outputs screen

Table – Outputs Screen

Component	Description
Analog	Tap to open the Outputs/Analog screen, where you view the available analog outputs on this device. For more information, see section 2.23 “Outputs/Analog Screen” on page 105.
Binary	Tap to open the Outputs/Binary screen, where you view the available binary outputs on this device. For more information, see section 2.25 “Outputs/Binary Screen” on page 107.
Multi-State	Tap to open the Outputs/Multi-State screen, where you view the available multi-state outputs on this device. For more information, see section 2.27 “Outputs/Multi-State Screen” on page 109.

2.23 Outputs/Analog Screen

Use the **Outputs/Analog** screen to display the analog outputs available on the selected device.

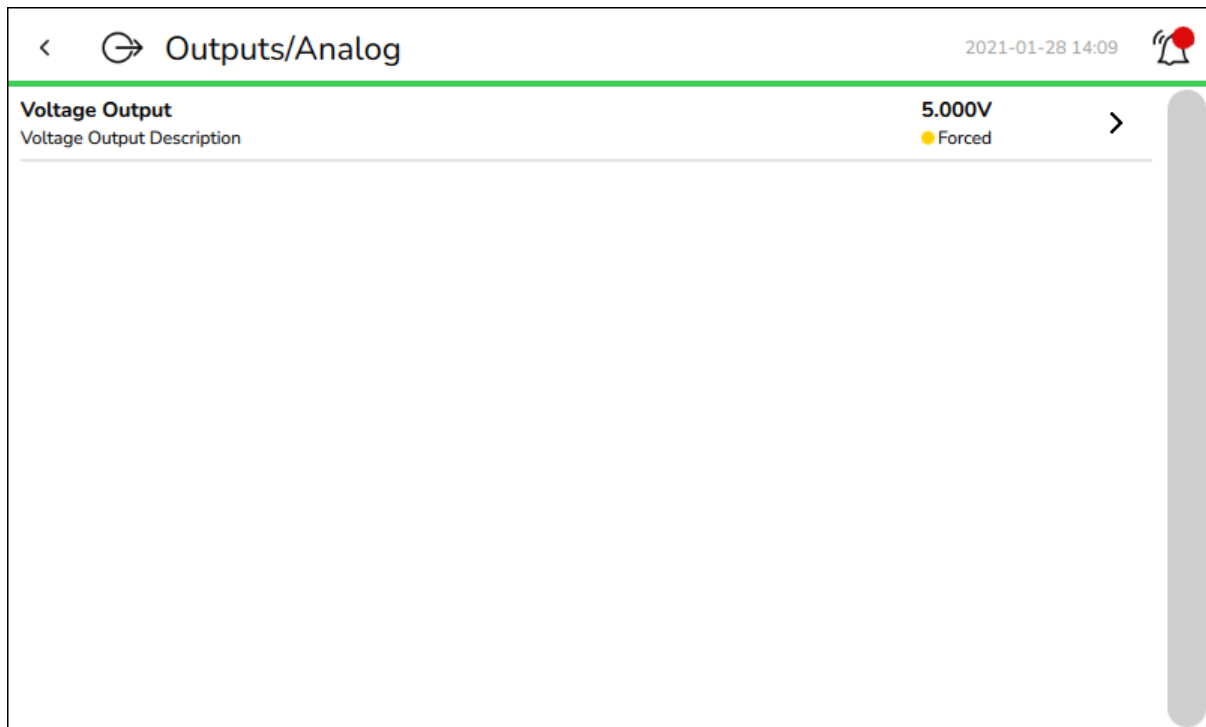


Figure – Outputs/Analog screen

Table – Outputs/Analog Screen

Component	Description
>	Tap to open the Outputs/Analog detail screen, where you view and edit the analog outputs. For more information, see section 2.24 “Outputs/Analog Detail Screen” on page 106.

2.24 Outputs/Analog Detail Screen

Use the **Outputs/Analog** detail screen to display and edit the values available for the selected analog output.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Outputs/Analog/Voltage Output

Voltage Output Description

Value

-

5.000

+

V

Force

☐

OK

Cancel

Figure – Outputs/Analog detail screen

Table – Outputs/Analog Detail Screen

Component	Description
Value	Tap - or + to edit the value of the analog output.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.25 Outputs/Binary Screen

Use the **Outputs/Binary** screen to display the binary outputs available on the selected device.

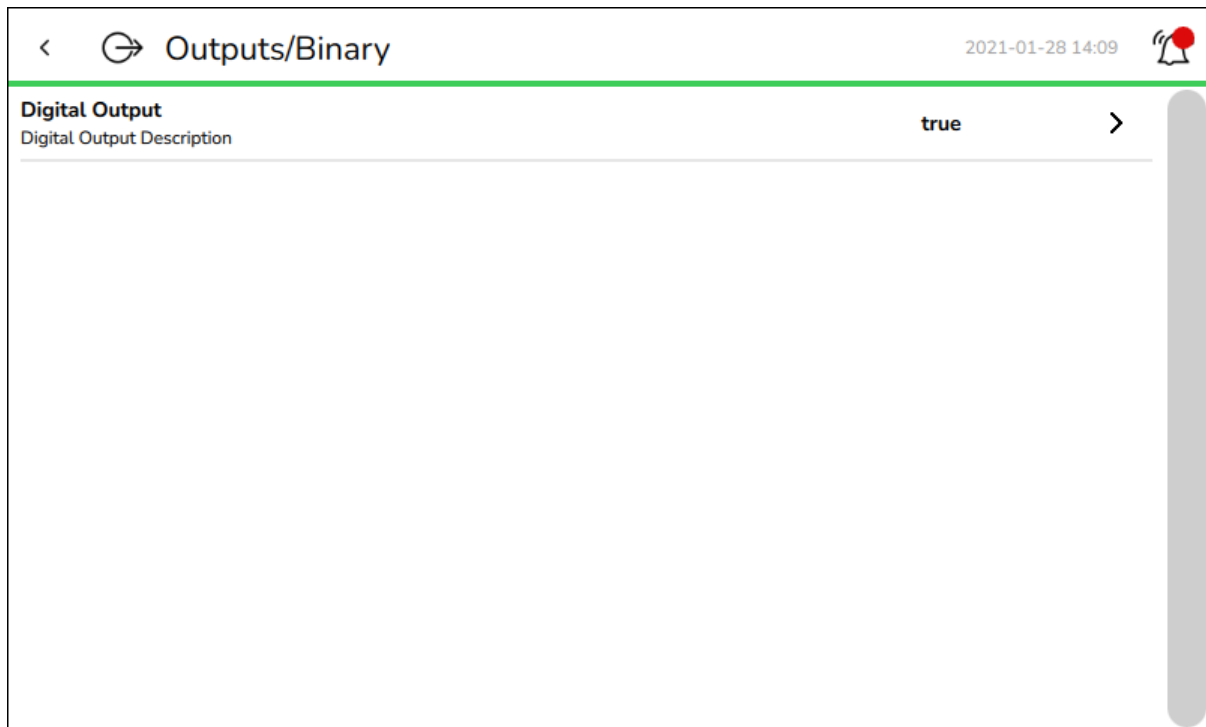


Figure – Outputs/Binary screen

Table – Outputs/Binary Screen

Component	Description
>	Tap to open the Outputs/Binary detail screen, where you view and edit the values for this binary output. For more information, see section 2.26 “Outputs/Binary Detail Screen” on page 108.

2.26 Outputs/Binary Detail Screen

Use the **Outputs/Binary** detail screen to display and edit the selected binary output.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Outputs/Binary/Digital Output

Digital Output Description

Value ☒

Force ☐

OK

Cancel

Figure – Outputs/Binary detail screen

Table – Outputs/Binary Detail Screen

Component	Description
Value	Tap Value to enable this output.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.27 Outputs/Multi-State Screen

Use the **Outputs/Multi-State** screen to display the analog outputs available on the selected device.

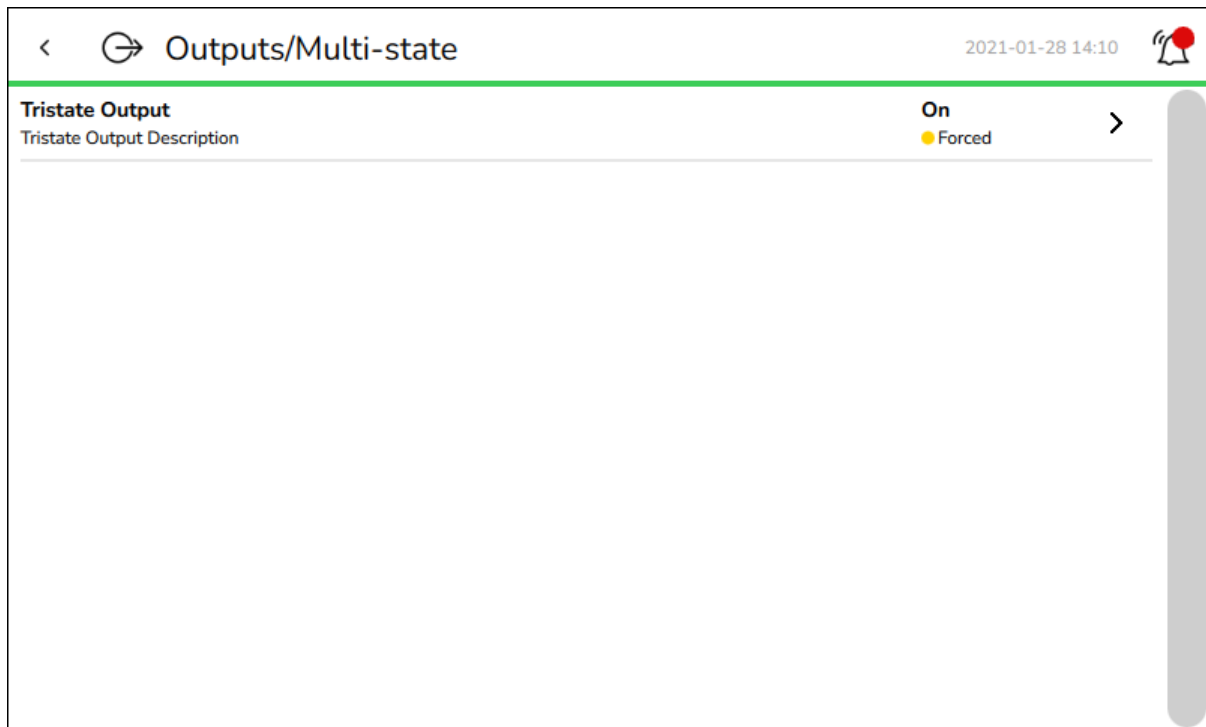



Figure – Outputs/Multi-State screen

Table – Outputs/Multi-State Screen

Component	Description
>	Tap to open the Outputs/Multi-State detail screen, where you can view and edit the multi-state output. For more information, see section 2.28 “Outputs/Multi-State Detail Screen” on page 110.

2.28 Outputs/Multi-State Detail Screen

Use the **Outputs/Multi-State** detail screen to display and edit the values available for the multi-state output.

 **WARNING**

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

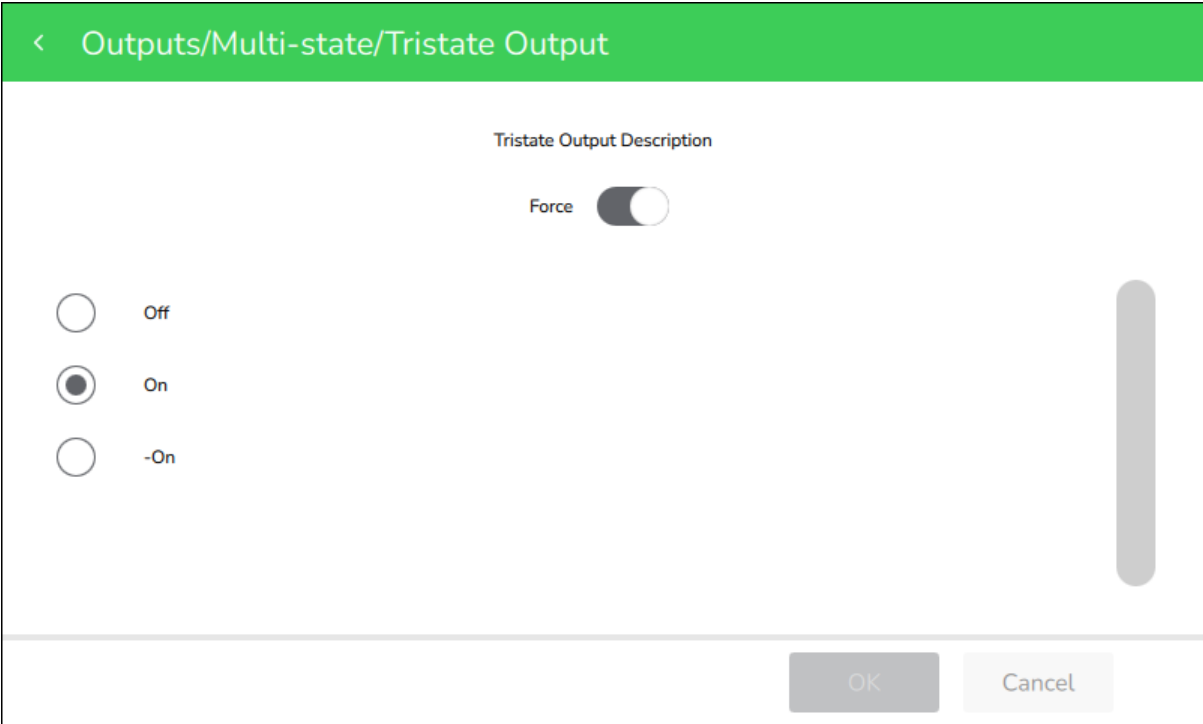



Figure – Outputs/Multi-State detail screen

Table – Outputs/Multi-State Detail Screen

Component	Description
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.
	Tap a value option. The value options differ depending on what the multi-state output is used for in the system.

2.29 Values Screen

Use the **Values** screen to display and edit the Analog, Binary, and Multi-State values of the selected device.

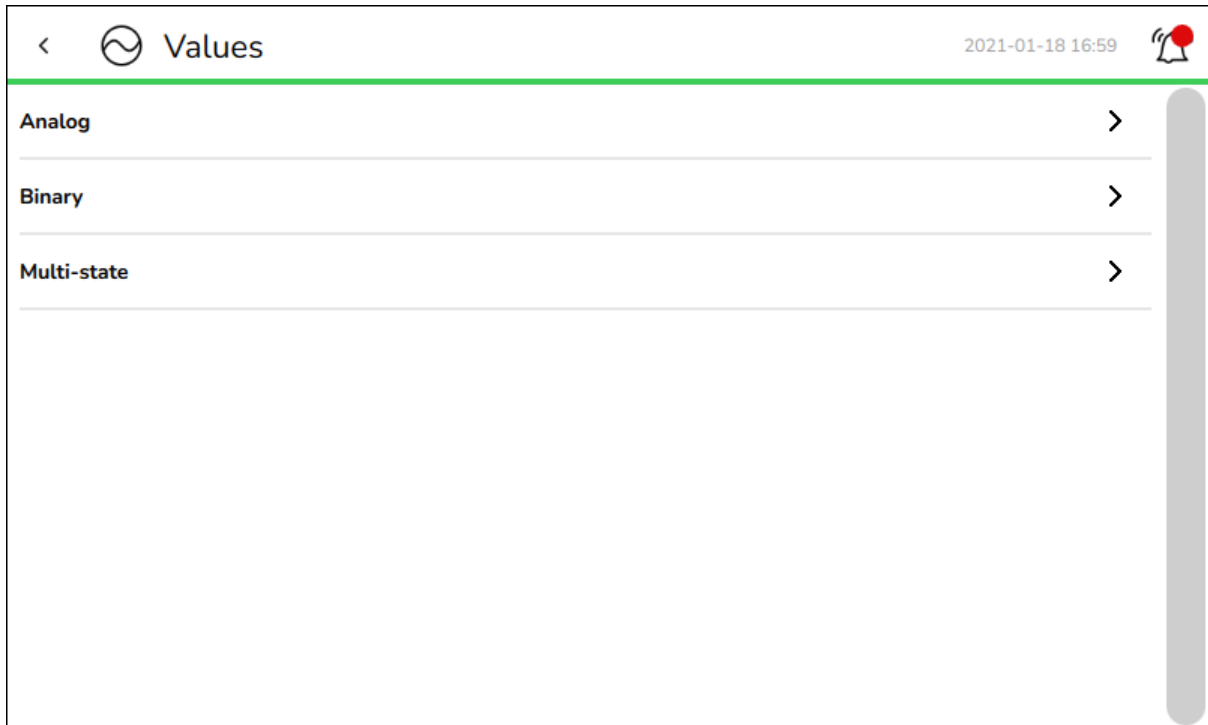


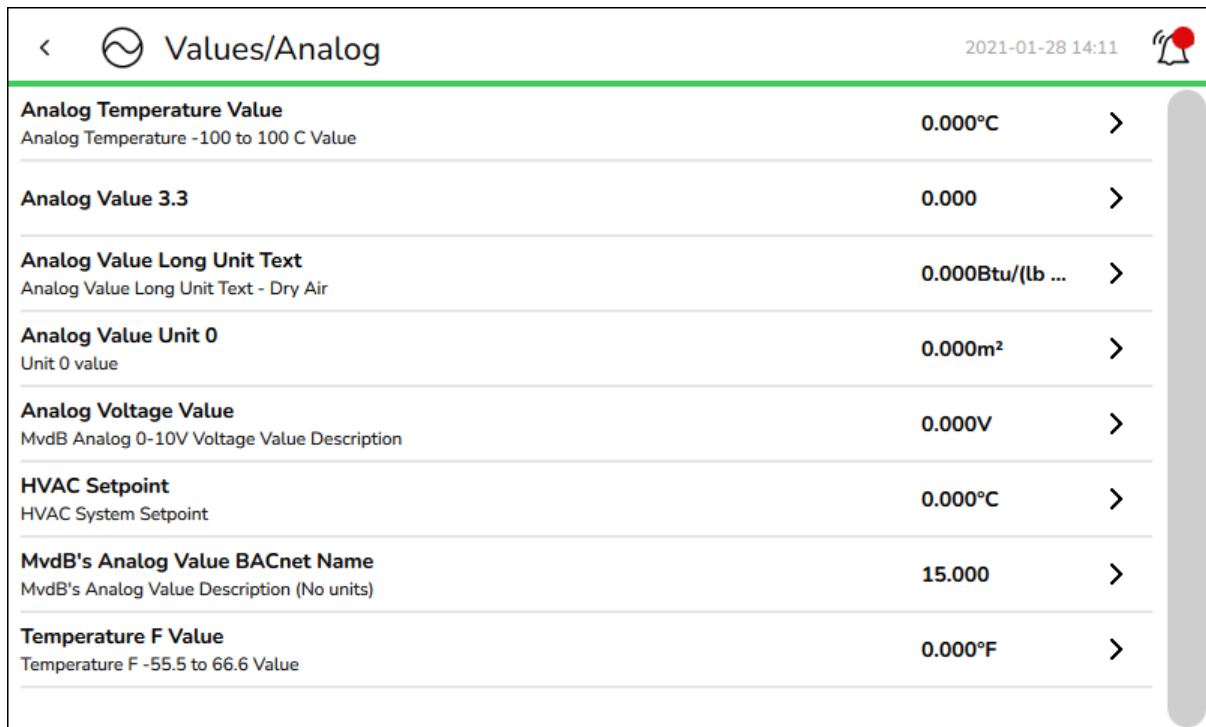
Figure – Values screen

Table – Values Screen

Component	Description
Analog	Tap to open the Values/Analog screen, where you view the available analog values on this device. For more information, see section 2.30 “Values/Analog Screen” on page 112.
Binary	Tap to open the Values/Binary screen, where you view the available binary values on this device. For more information, see section 2.32 “Values/Binary Screen” on page 114.
Multi-State	Tap to open the Values/Multi-State screen, where you view the available multi-state values on this device. For more information, see section 2.34 “Values/Multi-State Screen” on page 116.

2.30 Values/Analog Screen

Use the **Values/Analog** screen to display the analog values available on the selected device.



<div> < ⌂ Values/Analog </div> <div> 2021-01-28 14:11 🔔 </div>		
Analog Temperature Value Analog Temperature -100 to 100 C Value	0.000°C	>
Analog Value 3.3	0.000	>
Analog Value Long Unit Text Analog Value Long Unit Text - Dry Air	0.000Btu/(lb ...	>
Analog Value Unit 0 Unit 0 value	0.000m²	>
Analog Voltage Value Mvdb Analog 0-10V Voltage Value Description	0.000V	>
HVAC Setpoint HVAC System Setpoint	0.000°C	>
Mvdb's Analog Value BACnet Name Mvdb's Analog Value Description (No units)	15.000	>
Temperature F Value Temperature F -55.5 to 66.6 Value	0.000°F	>

Figure – Values/Analog screen

Table – Outputs/Analog Screen

Component	Description
>	Tap to open the Values/Analog detail screen, where you can view and edit the analog value. For more information, see section 2.31 "Values/Analog Detail Screen" on page 113.

2.31 Values/Analog Detail Screen

Use the **Values/Analog** detail screen to display and edit the seleted analog value.

▲ WARNING

UNEXPECTED EQUIPMENT OPERATION

Do not force values without knowing the effect.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Values/Analog/Analog Temperature Value

Analog Temperature -100 to 100 C Value

Value

-

0.000

+

°C

Force

OK

Cancel

Figure – Values/Analog detail screen

Table – Values/Analog Detail Screen

Component	Description
Value	Tap - or + to edit the analog value.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.32 Values/Binary Screen

Use the **Values/Binary** screen to display the binary values available on the selected device.

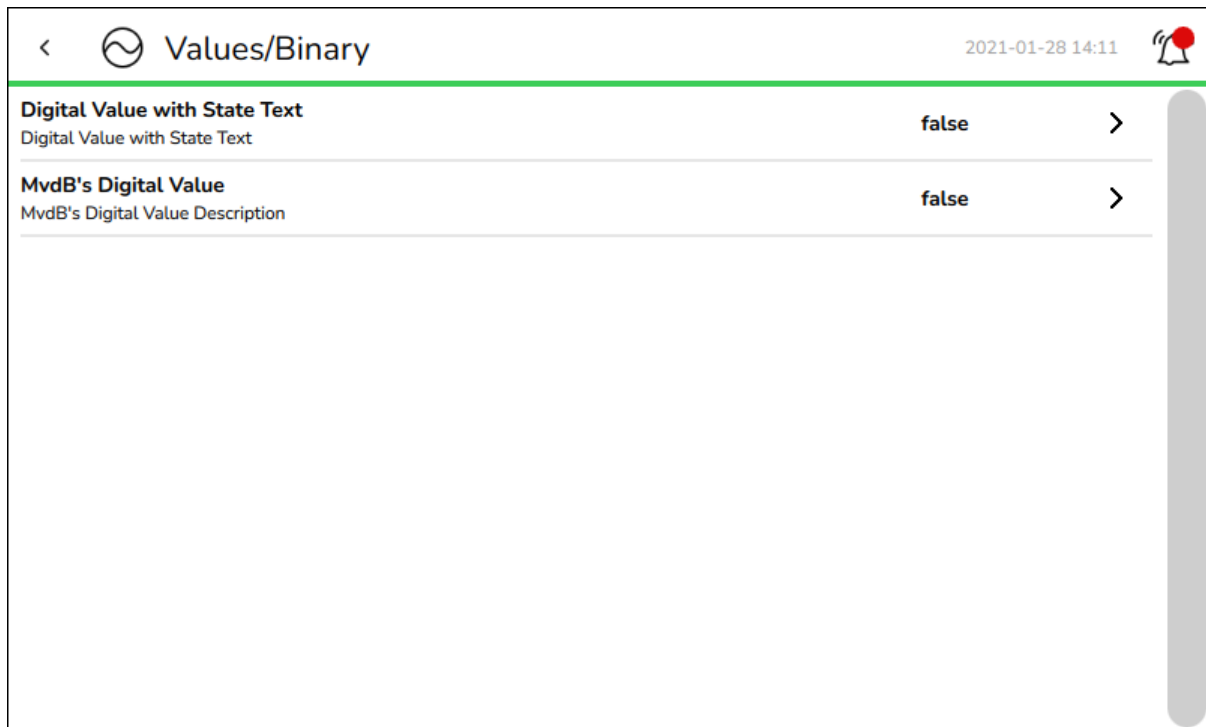


Figure – Values/Binary screen

Table – Values/Binary Screen

Component	Description
>	Tap to open the Values/Binary detail screen, where you view and edit the binary value. For more information, see section 2.33 "Values/Binary Detail Screen" on page 115.

2.33 Values/Binary Detail Screen

Use the **Values/Binary** detail screen to display and edit the seleted binary value.

⚠ WARNING

UNEXPECTED EQUIPMENT OPERATION
Do not force values without knowing the effect.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

< Values/Binary/Digital Value with State Text

Digital Value with State Text

Value ☐

Force ☐

OK

Cancel

Figure – Values/Binary detail screen

Table – Values/Binary Detail Screen

Component	Description
Value	Tap Value to enable the binary value.
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.

2.34 Values/Multi-State Screen

Use the **Values/Multi-State** screen to display the multi-state values available on the selected device.

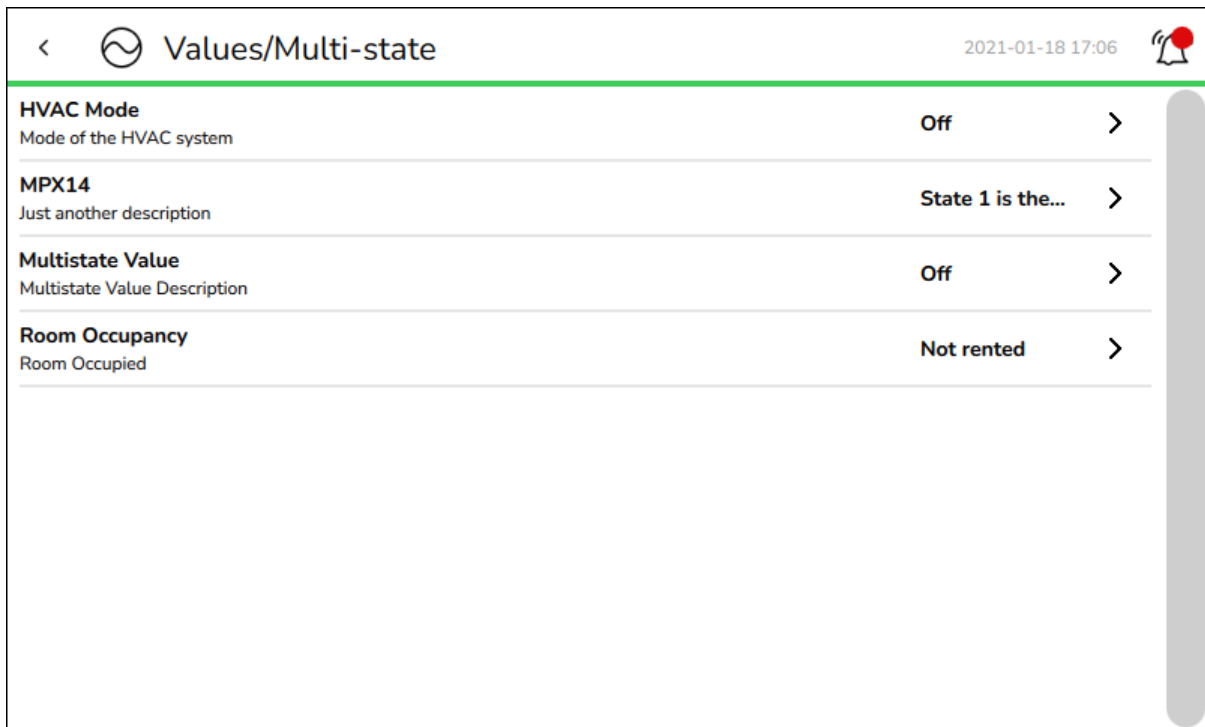


Figure – Values/Multi-State screen

Table – Values/Multi-State Screen

Component	Description
>	Tap to open the Values/Multi-State detail screen, where you view and edit the multi-state value. For more information, see section 2.35 "Values/Multi-State Detail Screen" on page 117.

2.35 Values/Multi-State Detail Screen

Use the **Values/Multi-State** detail screen to display and edit the selected multi-state value.

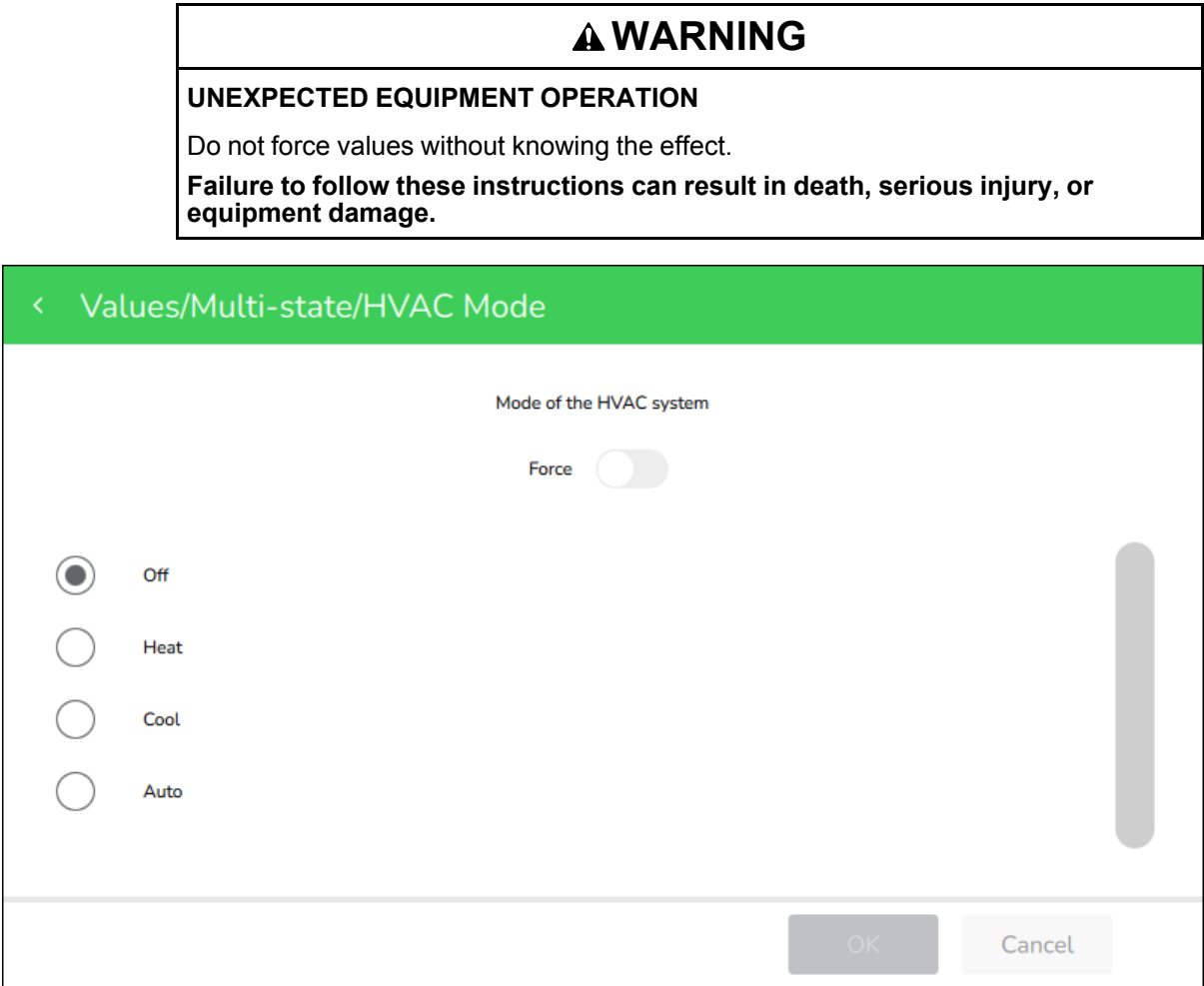


Figure – Values/Multi-State detail screen

Table – Values/Multi-State Detail Screen

Component	Description
Force	Tap Force to override the value received from the device. For more information, see section 1.29 “Value Editing” on page 35.
Value	Tap a value option. The value options differ depending on what the multi-state value is used for in the system.

2.36 Schedules Screen

Use the **Schedules** screen to display schedules for the selected device.

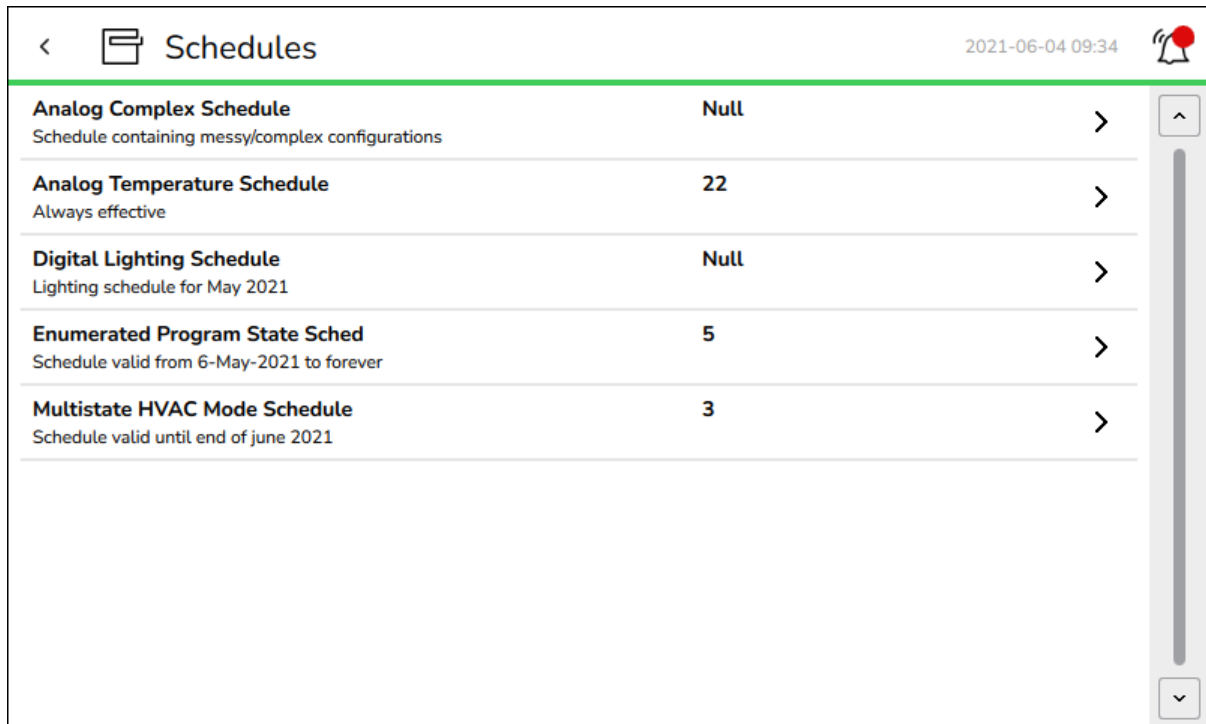


Figure – Schedules screen

Table – Schedules Screen

Component	Description
Name	Displays the name of the schedule.
Description	Displays the description of the schedule.
Present value	Displays the current schedule output value. For more information, see section 1.43 "Schedule Events" on page 47.
>	Tap to open the schedule view screen, where you view the selected schedule. For more information, see section 2.37 "Schedule View Screen" on page 119.

2.37 Schedule View Screen

Use the schedule view screen to display and edit the schedule events.

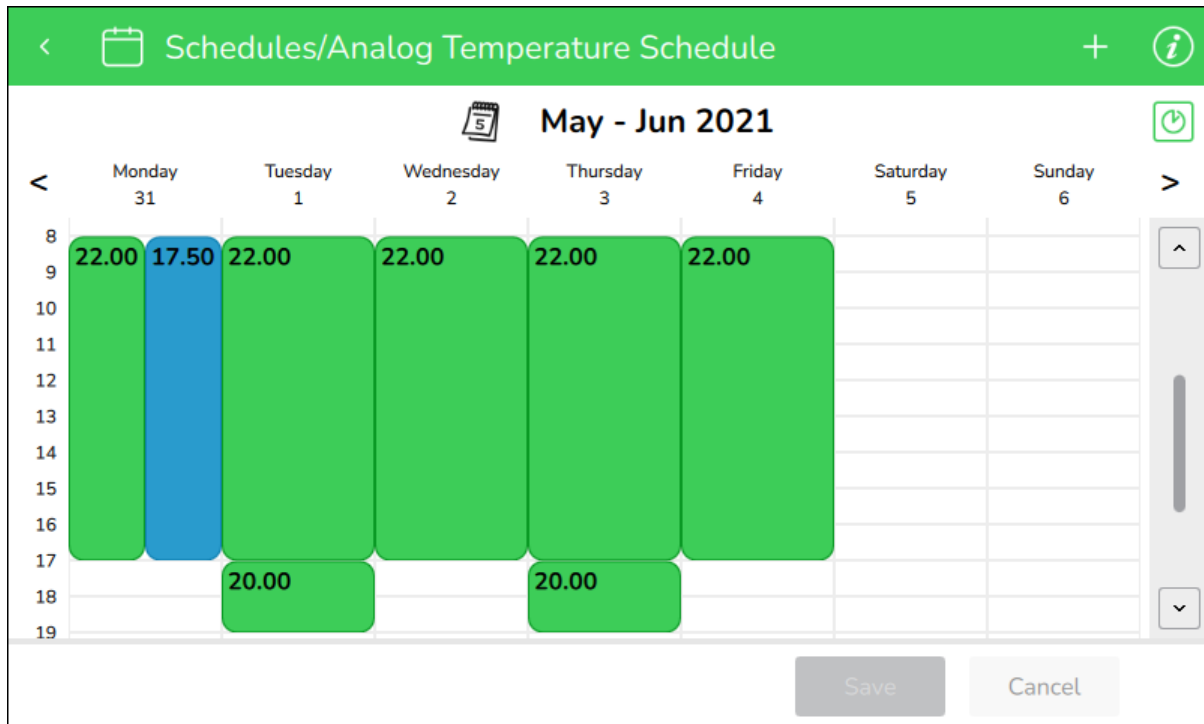




Figure – Schedule view screen

Table – Schedule View Screen

Component	Description
	Tap to open the Pick a Date screen, where you select the week to display on the schedule view screen. For more information, see section 2.40 "Pick a Date Screen" on page 124.
(Date span)	Tap to open the Pick a Date screen, where you select the week to display on the schedule view screen. For more information, see section 2.40 "Pick a Date Screen" on page 124.
	Tap to open the alternate schedule view screen, where all schedule events are the same size to improve visibility. For more information, see section 2.38 "Alternate Schedule View Screen" on page 121.
<	Tap to display the previous week.
>	Tap to display the next week.
(Green event)	Tap to open the Edit weekly event screen, where you edit the weekly event. For more information, see section 2.43 "Edit Weekly Event Screen" on page 128.

Continued

Component	Description
(Blue single date event)	Tap to open the Edit single date exception screen, where you edit the exception event. For more information, see section 2.48 "Edit Single Date Exception Screen" on page 136.
(Blue date range event)	Tap to open the Edit date range exception screen, where you edit the exception event. For more information, see section 2.49 "Edit Date Range Exception Screen" on page 138.
(Blue calculated date event)	Tap to open the Edit calculated exception screen, where you edit the exception event. For more information, see section 2.50 "Edit Calculated Date Exception Screen" on page 140.

2.38 Alternate Schedule View Screen

Use the alternate schedule view screen to display and edit the schedule events. All the listed events are the same size to improve visibility.

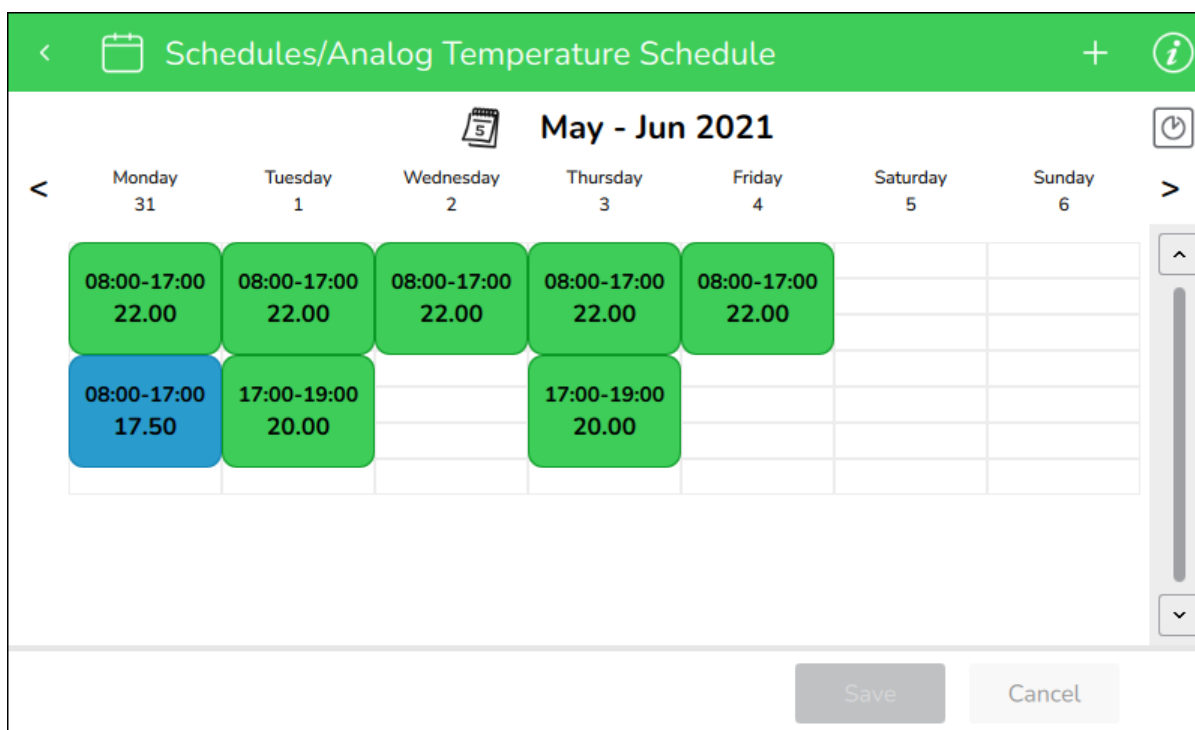




Figure – Alternate schedule view screen

Table – Alternate Schedule View Screen

Component	Description
	Tap to open the Pick a Date screen, where you select the week to display on the schedule view screen. For more information, see section 2.40 "Pick a Date Screen" on page 124.
(Date span)	Tap to open the Pick a Date screen, where you select the week to display on the schedule view screen. For more information, see section 2.40 "Pick a Date Screen" on page 124.
	Tap to open the regular schedule view screen, where all schedule events are illustrated to show how many hours they last in the day. For more information, see section 2.37 "Schedule View Screen" on page 119.
<	Tap to display the previous week.
>	Tap to display the previous week.

Continued

Component	Description
(Green event)	Tap to open the Edit weekly event screen, where you edit the weekly event. For more information, see section 2.43 “Edit Weekly Event Screen” on page 128.
(Blue single date event)	Tap to open the Edit single date exception screen, where you edit the exception event. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
(Blue date range event)	Tap to open the Edit date range exception screen, where you edit the exception event. For more information, see section 2.49 “Edit Date Range Exception Screen” on page 138.
(Blue calculated date event)	Tap to open the Edit calculated date exception screen, where you edit the exception event. For more information, see section 2.50 “Edit Calculated Date Exception Screen” on page 140.

2.39 Schedule Detail Screen

Use the schedule detail screen to view the detailed properties of the schedule.

< Schedules/Analog Temperature Schedule

Name:
Analog Temperature Schedule

Description:
Always effective

Present value:
22

Default value:
17.5

Effective Period:
Now to forever

Priority for writing:
16

Figure – Schedule detail screen

Table – Schedule Detail Screen

Component	Description
Name	Displays the name of the schedule.
Description	Displays the description of the schedule.
Present value	Displays the current schedule output value. For more information, see section 1.43 “Schedule Events” on page 47.
Default value	Displays the schedule default value. For more information, see section 1.43 “Schedule Events” on page 47.
Effective Period	Displays the range of time the schedule is in service. For more information, see section 1.43 “Schedule Events” on page 47.
Priority for writing	Displays the priority at which the referenced properties are commanded. For more information, see section 1.30 “BACnet Command Priorities” on page 36.

2.40 Pick a Date Screen

Use the **Pick a date** screen to display a specific week in the schedule.

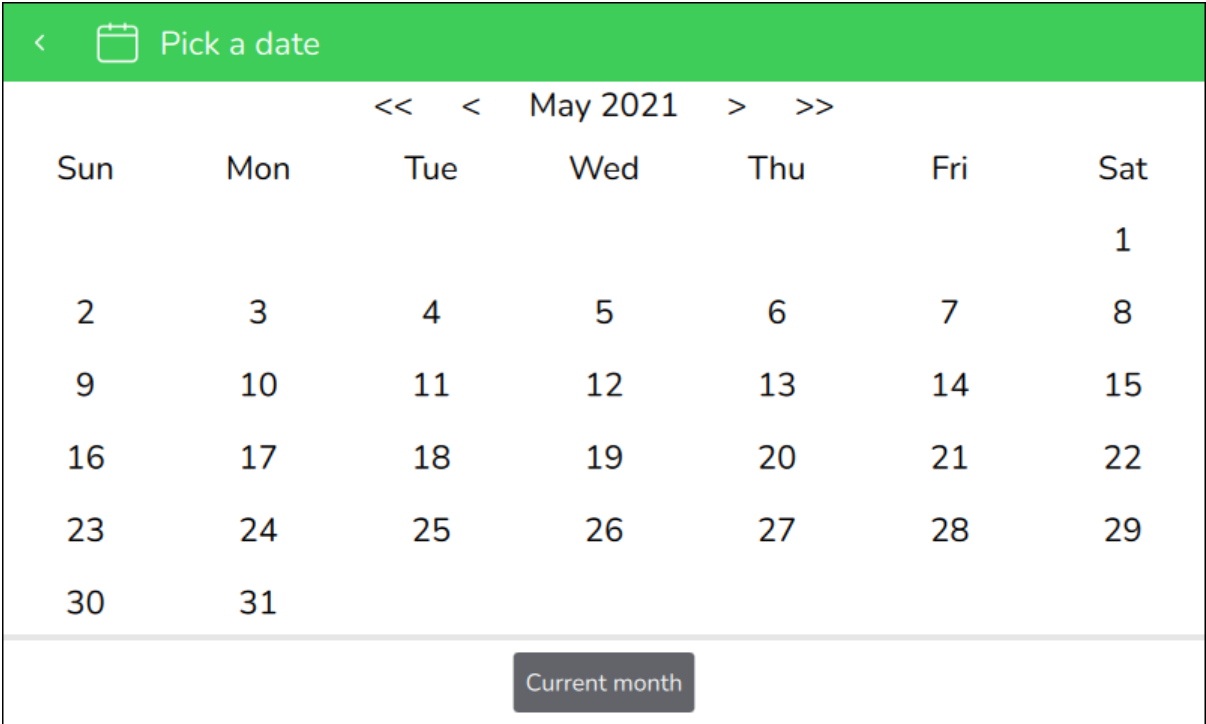


Figure – Pick a date screen

Table – Pick a Date Screen

Component	Description
<<	Tap to display the previous year.
<	Tap to display the previous month.
>	Tap to display the next month.
>>	Tap to display the next year.
Current Month	Tap to display the current month.

2.41 Add Schedule Event Screen

Use the **Add schedule event** screen to select the type of schedule event.

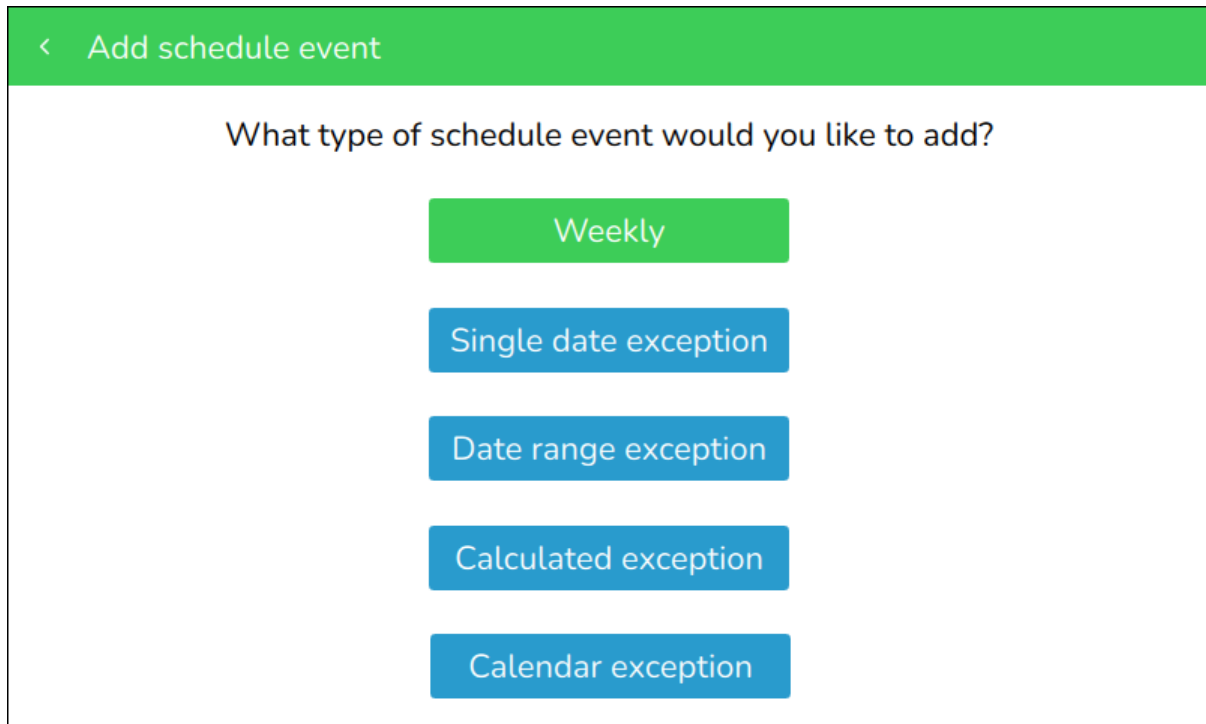


Figure – Add schedule event screen

Table – Add Schedule Event Screen

Component	Description
Weekly	Tap to open the Add weekly event screen, where you add a new weekly event. For more information, see section 2.42 “Add Weekly Event Screen” on page 127.
Single date exception	Tap to open the Add single date exception event screen, where you add a new event on a specific day. For more information, see section 2.44 “Add Single Date Exception Screen” on page 129.
Date range exception	Tap to open the Add date range exception event screen, where you add a new event on a specific series of dates. For more information, see section 2.45 “Add Date Range Exception Screen” on page 131.
Calculated exception	Tap to open the Add calculated date exception event screen, where you add a new event on specifically calculated dates. For more information, see section 2.46 “Add Calculated Date Exception Screen” on page 133.

Continued

Component	Description
Calendar exception	<p>Tap to open the Add calendar exception event screen, where you add a new monthly event. For more information, see section 2.47 “Add Calendar Exception Screen” on page 135.</p> <p>If the Calendar exception button is gray instead of blue, and you see No calendars found next to it, this option is unavailable for the moment on this device because at least 1 configured calendar is required.</p>

2.42 Add Weekly Event Screen

Use the **Add weekly event** screen to create a new weekly event for a selected analog, digital, multi-state or enumerated schedule.

< Add weekly event

Value type Analog

Value - 20.00 +

All day ☐

From - 06 + : - 00 +

To - 08 + : - 00 +

Days of week M T W T F S S

OK Cancel

Figure – Add weekly event screen

Table – Add Weekly Event Screen

Component	Description
Value type	Displays the schedule type the event is added to. For more information, see section 1.39 "Schedule Types" on page 44.
Value	Tap - or + to edit the schedule output value when this event is active. For more information, see section 1.44 "Weekly Events" on page 48.
Inactive/Active	Tap Inactive or Active (On or Off) to edit the schedule output value when this event is active. For more information, see section 1.44 "Weekly Events" on page 48.
All day	Tap All day to make the event span 24 hours instead of selecting specific hours using From and To .
From	Tap - or + to edit the starting time of the event.
To	Tap - or + to edit the ending time of the event.
Days of week	Tap to select the day(s) of the week this event is active.

2.43 Edit Weekly Event Screen

Use the **Edit weekly event** screen to delete or change the details of a weekly event.

Figure – Edit weekly event screen

Table – Edit Weekly Event Screen

Component	Description
Value type	Displays the schedule type the event is added to. For more information, see section 1.39 “Schedule Types” on page 44.
Value	Tap - or + to edit the schedule output value when this event is active. For more information, see section 1.44 “Weekly Events” on page 48.
Inactive/Active	Tap Inactive or Active (On or Off) to edit the schedule output value when this event is active. For more information, see section 1.44 “Weekly Events” on page 48.
All day	Tap All day to make the event span 24 hours instead of selecting specific hours using From and To .
From	Tap - or + to edit the starting time of the event.
To	Tap - or + to edit the ending time of the event.
Days of week	Tap to select the day(s) of the week this event is active.

2.44 Add Single Date Exception Screen



Use the **Add single date exception** screen to create new single date exception events for the selected schedule of this device.

Figure – Add single date exception screen

Table – Add Single Date Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Year	Tap - or + to select a specific year between 2020 and 2100 , or Any year .
Month	Tap - or + to select a specific month between January and December , Odd months , Even months , or Any month .
Day of month	Tap - or + to select a specific day between 1 and 31 , Last day , Odd days , Even days , or Any day .
Day of week	Tap - or + to select a specific day between Monday and Sunday , or Any day .
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.45 Add Date Range Exception Screen

Use the **Add date range exception** screen to create new date range exception events for the selected schedule of this device.

< Add date range exception


Priority

–

16


+

Start date2021-07-01




Now

End date2021-08-31



Never




	Start time	End time	Value	+
	08:00	17:00	15.50	<div><div>^</div><div></div><div>v</div></div>

OK


Cancel

Figure – Add date range exception screen

Table – Add Date Range Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Start date <div></div>	Tap to select a specific start date or Now to select the current date.
End date <div></div>	Tap to select a specific end date or Never to indicate the exception does not have an end date.
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.
<div></div>	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 "Edit Exception Event Screen" on page 143.

2.46 Add Calculated Date Exception Screen



Use the **Add calculated date exception** screen to create new calculated date exception events for the selected schedule of this device.

Figure – Add calculated date exception screen

Table – Add Calculated Date Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Year	Tap - or + to select a specific year between 2020 and 2100 , or Any year .
Month	Tap - or + to select a specific month between January and December , Odd months , Even months , or Any month .
Week of month	Tap - or + to select a specific week between First and Fifth , Last , or Any .
Day of week	Tap - or + to select a specific day between Monday and Sunday , or Any day .
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.47 Add Calendar Exception Screen

Use the **Add calendar exception** screen to create new calendar exception events for the selected schedule of this device.

< Add calendar exception

Priority

–

16

+

Calendar

Calendar

	Start time	End time	Value	+
<div></div>	08:00	17:00	0	<div><div>^</div><div></div><div>v</div></div>

OK

Cancel

Figure – Add calendar exception screen

Table – Add Calendar Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Calendar	Tap the pencil icon to open the Select calendar screen, where you tap the radio button next to the calendar of your choice.
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.
<div>+</div>	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
<div></div>	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.48 Edit Single Date Exception Screen

Use the **Edit single date exception** screen to add, edit or delete the time span and the value of a single date exception.

Edit single date exception

Priority: – 16 +

Year: – 2021 + Month: – Jun + Day of month: – 4 + Day of week: – Any +

	Start time	End time	Value	
	08:00	17:00	0	



OK Cancel

Figure – Edit single date exception screen

Table – Edit Single Date Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Year	Tap - or + to select a specific year between 2020 and 2100 , or Any year .
Month	Tap - or + to select a specific month between January and December , Odd months , Even months , or Any month .
Day of month	Tap - or + to select a specific day between 1 and 31 , Last day , Odd days , Even days , or Any day .
Day of week	Tap - or + to select a specific day between Monday and Sunday , or Any day .
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.49 Edit Date Range Exception Screen

Use the **Edit date range exception** screen to add, edit or delete the time span and the value of a date range exception.

< Edit date range exception


Priority

–

16


+

Start date2021-07-01




Now

End date2021-08-31



Never




	Start time	End time	Value	+
	08:00	17:00	15.50	<div><div>^</div><div></div><div>v</div></div>

OK


Cancel

Figure – Edit date range exception screen

Table – Edit Date Range Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Start date <div></div>	Tap to select a specific start date or Now to select the current date.
End date <div></div>	Tap to select a specific end date or Never to indicate the exception does not have an end date.
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.
<div></div>	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 "Edit Exception Event Screen" on page 143.

2.50 Edit Calculated Date Exception Screen



Use the **Edit calculated date exception** screen to add, edit or delete the time span and the value of a calculated date exception.

Figure – Edit calculated date exception screen

Table – Edit Calculated Date Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Year	Tap - or + to select a specific year between 2020 and 2100 , or Any year .
Month	Tap - or + to select a specific month between January and December , Odd months , Even months , or Any month .
Week of month	Tap - or + to select a specific week between First and Fifth , Last , or Any .
Day of week	Tap - or + to select a specific day between Monday and Sunday , or Any day .
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.

Continued

Component	Description
	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.51 Edit Calendar Exception Screen

Use the **Edit calendar exception** screen to add, edit or delete the time span and the value of a calendar exception.

< Edit calendar exception

Priority

–

16

+

Calendar

Calendar

	Start time	End time	Value	+
<div></div>	08:00	17:00	0	<div><div>^</div><div></div><div>v</div></div>

OK

Cancel


Figure – Edit calendar exception screen

Table – Edit Calendar Exception Screen

Component	Description
Priority	Tap + or - to edit the priority of the event. 1 is the highest priority and 16 is the lowest. For more information, see section 1.57 “Exception Event Priorities” on page 61.
Calendar	Tap the pencil icon to open the Select calendar screen, where you tap the radio button next to the calendar of your choice.
Start time	Displays the starting time of the event.
End time	Displays the ending time of the event.
Value	Displays the selected value of the event.
<div></div>	Tap to open the Edit exception event screen, where you add a time span and a value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.
<div></div>	Tap to open the Edit exception event screen, where you edit the time span and the value. For more information, see section 2.52 “Edit Exception Event Screen” on page 143.

2.52 Edit Exception Event Screen

Use the **Edit exception event** screen to add, edit or delete the time and value of an exception event.

< Edit exception event 

Value type Analog

Value - 6.00 +

All day ☐

From - 11 + : - 00 +

To - 14 + : - 00 +

OK Cancel

Figure – Edit exception event screen

Table – Edit Exception Event Screen

Component	Description
Value type	Displays the schedule type the event is added to. For more information, see section 1.39 “Schedule Types ” on page 44.
Value	Tap - or + to edit the schedule output value when this event is active. For more information, see section 1.44 “Weekly Events” on page 48. This field will be different if you have selected to edit a digital schedule event.
All day	Tap All day to make the event span 24 hours instead of selecting specific hours using From and To .
From	Tap - or + to edit the starting time of the event.
To	Tap - or + to edit the ending time of the event.

2.53 Trend Logs Screen

Use the Trend Logs screen to view the available logs on this device.

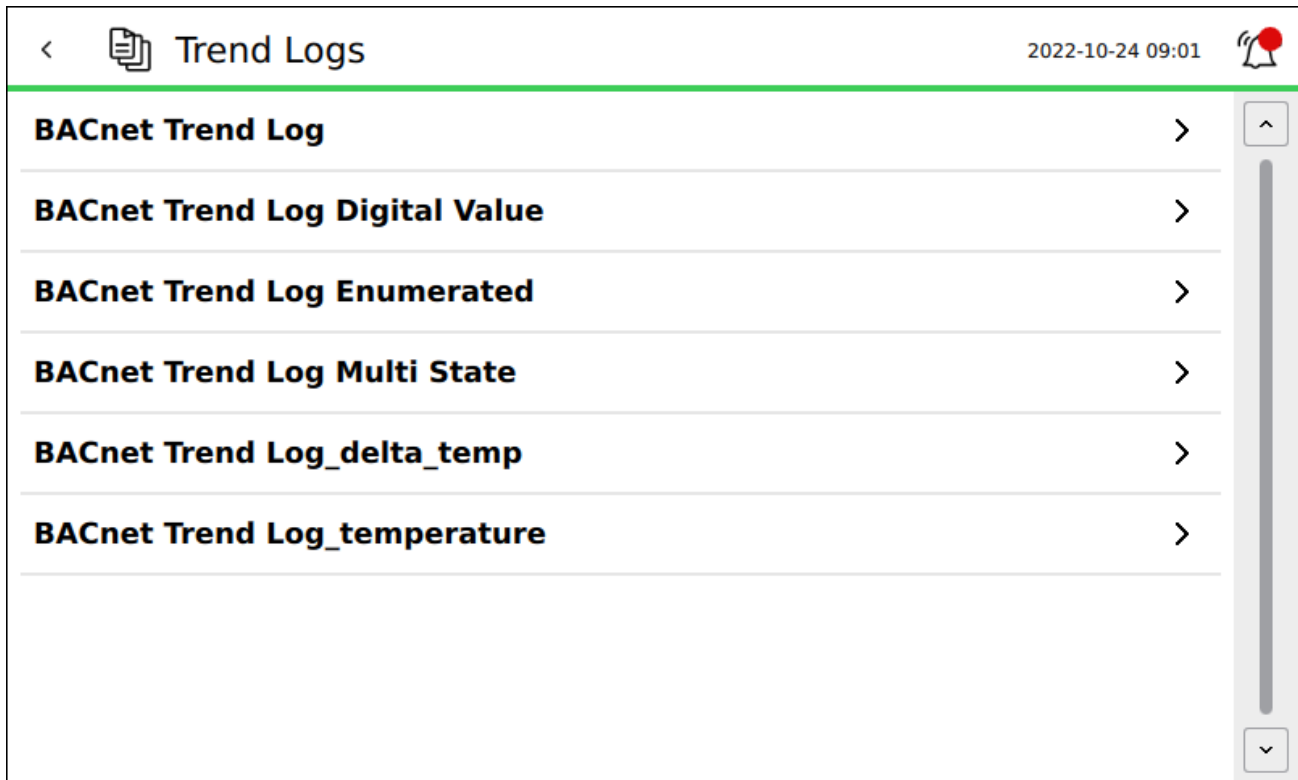


Figure – Trend logs screen

Table – Trend Logs Screen

Component	Description
>	Tap to open the trend log detail screen, where you view the recorded activities for a specific trend on this device. For more information, see section 2.54 “Trend Logs View Screen” on page 145.

2.54 Trend Logs View Screen

Use the trend logs view screen to display the recorded activities for a specific feature on this device.

BACnet Trend Log_delta_temp				2022-10-19 18:56				
Timestamp	Value	Units	Status					
2022-10-19 22:56:27	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:56:22	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:56:17	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:56:12	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:56:07	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:56:02	3.00	Δ°C	Fault Out Of Service					
2022-10-19 22:55:57	3.00	Δ°C	Fault Out Of Service					
				Page 1 / 1	Display 50 records per page			

Figure – Trend logs view screen

Table – Trend Logs View Screen

Component	Description
Timestamp	Displays the date and time of the logged activity.
Value	Displays the current value.
Units	Displays the type of units for the value.
Status	Displays the current status, if any.

2.55 Trend Logs Information Screen

Use the trend logs information screen to display the properties recorded for each trend log.

< Trend Logs/BACnet Trend Log Digital Value

Record Count:
686

Total Record Count:
686

Log Interval (in Centisecond):
3000

Logging Type:
Polled value

Stop When Full:
False

Buffer Size:
1000

Log Device Object Property:
Digital Value: 9

Log Device Object Units:

Figure – Trend logs information screen

Table – Trend Logs Information Screen

Component	Description
Log Name	Displays the name of the log that is connected to the trend log list.
Log Unit	Displays the unit of the recorded values.
Start Time	Displays the time of the first record in the trend log list.
Stop Time	Displays the time of the last record in the trend log list.
Highest Value	Displays the highest calculated value in the trend log list, based on the sample displayed in the screen.
Lowest Value	Displays the lowest calculated value in the trend log list, based on the sample displayed in the screen.
Average	Displays the average value of the trend log list, based on the sample displayed in the screen.

Continued

Component	Description
Record Count	Displays the number of records currently residing in the log buffer.
Total Record Count	Displays the total number of records collected in the trend log since its creation.
Log Enable	Displays whether events are logged and data is collected.
Log Interval (in Centisecond)	Displays the time interval in hundredths of seconds between each log recording.
Logging Type	Displays the type of data recorded in the trend log list.
Stop When Full	Displays whether the trend log collects records using polling, Change of Value (COV) or triggered acquisition.
Buffer Size	Displays the maximum number of recordings permitted in the trend log list.
Log Device Object Property	Displays the Device Identifier, Object Identifier, and Property Identifier of the property to be trend logged.
Log Device Object Units	Displays the measuring unit of the property to be trend logged.

2.56 Device Info Screen

Use the device info screen to view more information on the device and rediscover to refresh its inputs, outputs, and values.

< MP-C-15A-2350034

Name:
MP-C-15A-2350034

Description:
MP-C

Object ID:
2350034

Firmware version:
3.02.01.00773

Serial number:
3N202350034

IP address:
192.168.0.103

Model:

Rediscover

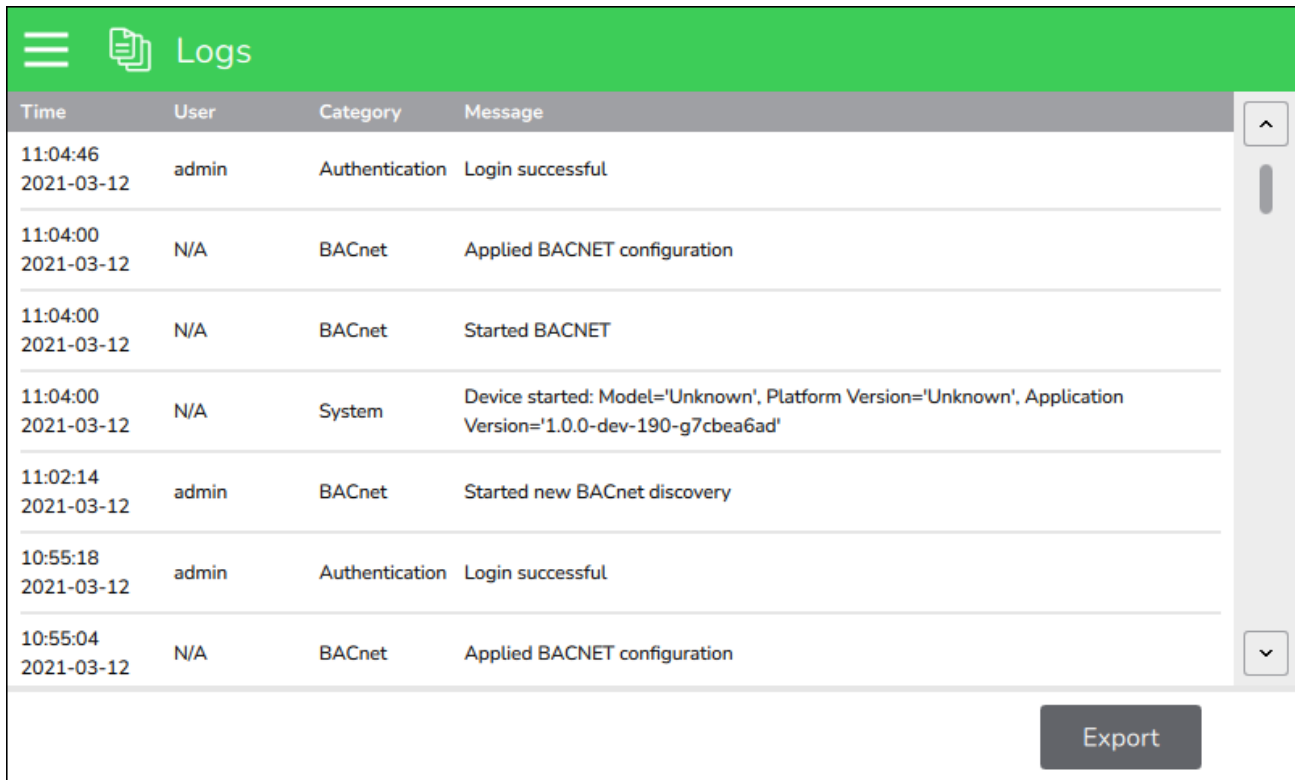
Figure – Device info screen

Table – Device Info Screen

Component	Description
Name	Displays the device name.
Description	Displays the device description.
Object ID	Displays the BACnet device identification number.
Firmware version	Displays the device firmware version number.
Serial number	Displays the device serial number.
IP address	Displays the IP address.
Model	Displays the device model number.
Vendor	Displays the device vendor name.
Vendor ID	Displays the device vendor identification number.
Rediscover	Tap to refresh the device inputs, outputs, and values.

2.57 Logs Screen

Use the **Logs** screen to display the recorded activities by users.



Time	User	Category	Message
11:04:46 2021-03-12	admin	Authentication	Login successful
11:04:00 2021-03-12	N/A	BACnet	Applied BACNET configuration
11:04:00 2021-03-12	N/A	BACnet	Started BACNET
11:04:00 2021-03-12	N/A	System	Device started: Model='Unknown', Platform Version='Unknown', Application Version='1.0.0-dev-190-g7cbea6ad'
11:02:14 2021-03-12	admin	BACnet	Started new BACnet discovery
10:55:18 2021-03-12	admin	Authentication	Login successful
10:55:04 2021-03-12	N/A	BACnet	Applied BACNET configuration

Export

Figure – Logs screen

Table – Logs Screen

Component	Description
Time	Displays the date and time of the logged activity.
User	Displays the user name.
Category	Displays the type of activity.
Message	Displays the result of the activity.
Export	Tap to export the recorded log of activities to a USB key.

2.58 Operator Display Settings Screen

Use the **Operator Display Settings** screen to configure Operator Display and perform administrative tasks.

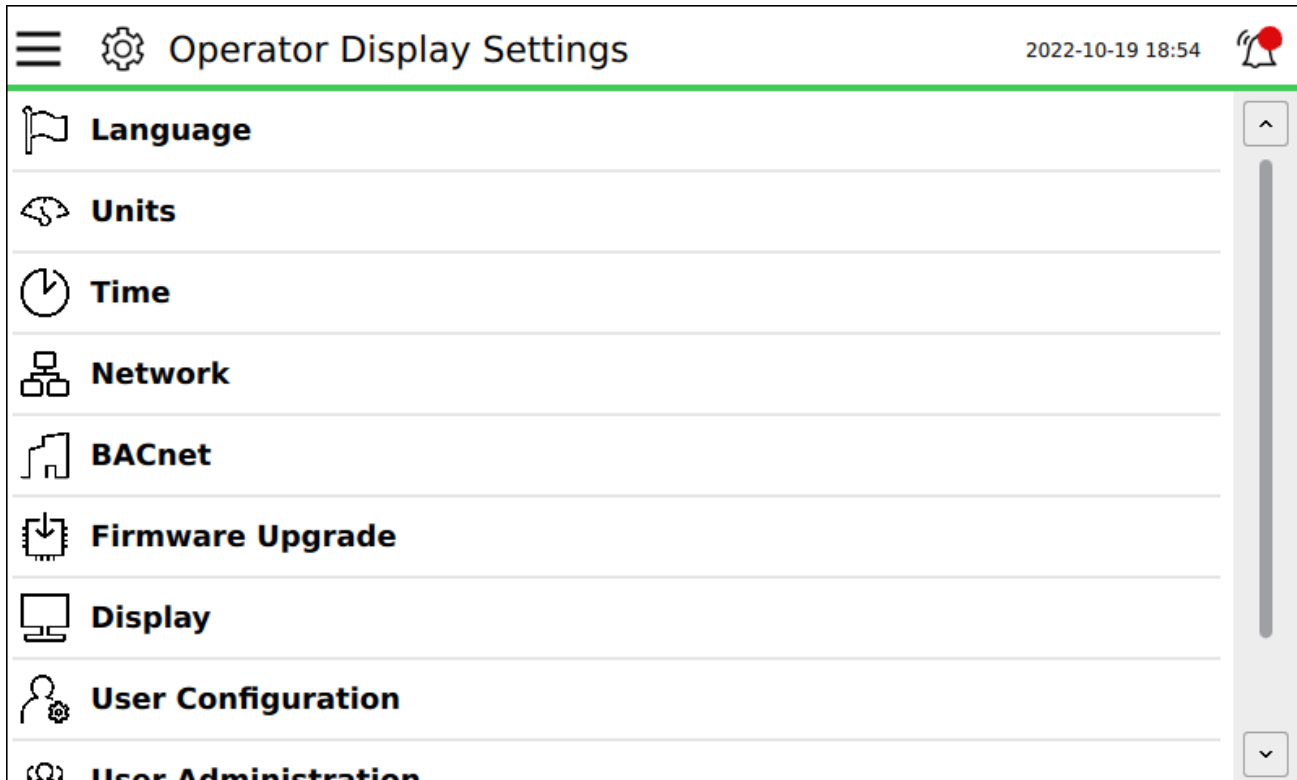


Figure – Operator Display Settings screen

Table – Operator Display Settings Screen

Component	Description
Language	Tap to open the Language settings screen where you select a language for menus and options. For more information, see section 2.59 “Language Setting Screen” on page 152. This task requires administrator permissions.
Units	Tap to open the Units screen where you can select the temperature setting. For more information, see section 2.60 “Units Screen” on page 153.
Time	Tap to open the Date / Time screen where you set the time and date. For more information, see section 2.61 “Date / Time Screen” on page 154.
Network	Tap to open the Network Setup screen where you configure the IP network communication. For more information, see section 2.64 “Network Setup Screen” on page 157.

Continued

Component	Description
BACnet	Tap to open the BACnet Setup screen where you configure the BACnet/IP network communication. For more information, see section 2.65 “BACnet Setup Screen” on page 158.
Firmware Upgrade	Tap to open the Firmware Update screen where you upload a new version of the Operator display firmware. For more information, see section 2.66 “Firmware Update Screen” on page 160. This task requires administrator permissions.
Display	Tap to open the Display screen where you configure the backlight settings. For more information, see section 2.67 “Display Screen” on page 161. This task requires administrator permissions.
User Configuration	Tap to open the User Configuration screen where you configure the settings for all users. For more information, see section 2.68 “User Configuration Screen” on page 162. This task requires administrator permissions.
User Administration	Tap to open the User Administration screen where you create and delete users. For more information, see section 2.69 “User Administration Screen” on page 163. This task requires administrator permissions.
About	Tap to open the About screen where you view more information on Operator Display. For more information, see section 2.72 “About Screen” on page 166.

2.59 Language Setting Screen

Use the **Language Setting** screen to display the Operator Display menus and options in the preferred language.

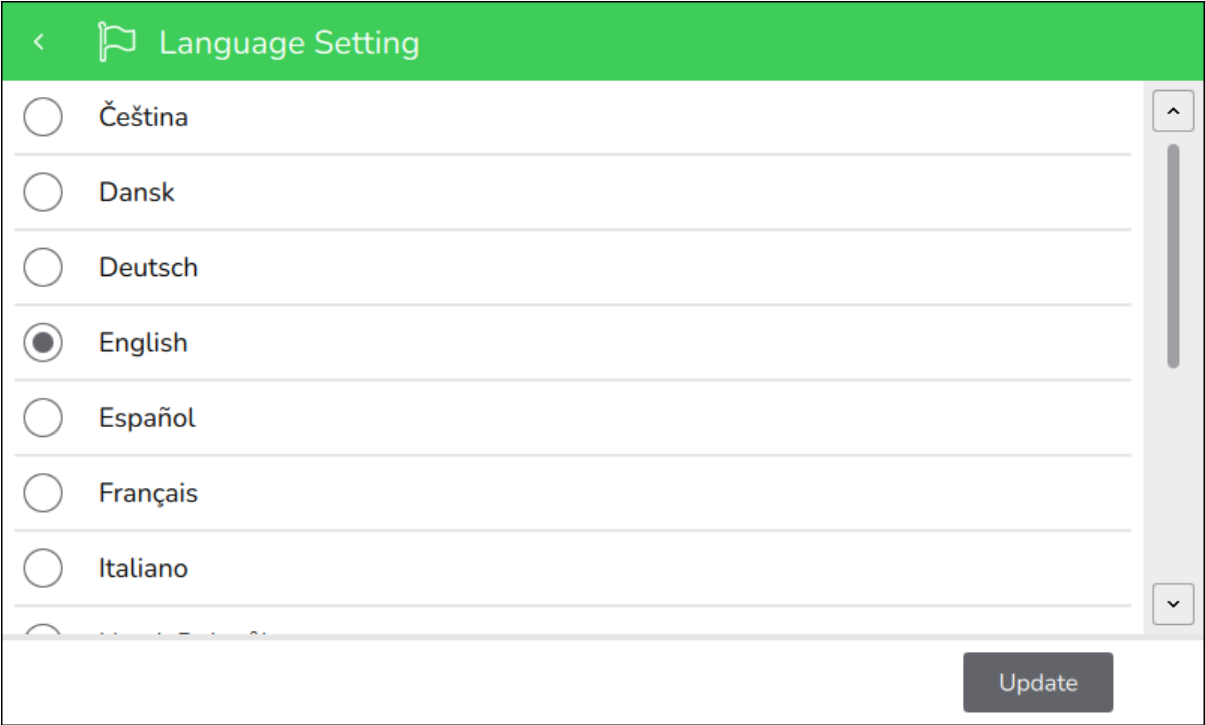



Figure – Language Setting screen

Table – Language Setting Screen

Component	Description
	Tap the radio button next to your preferred language.
Update	Tap to confirm your selection.

2.60 Units Screen

Use the **Units** screen to select the temperature setting for the Operator Display.

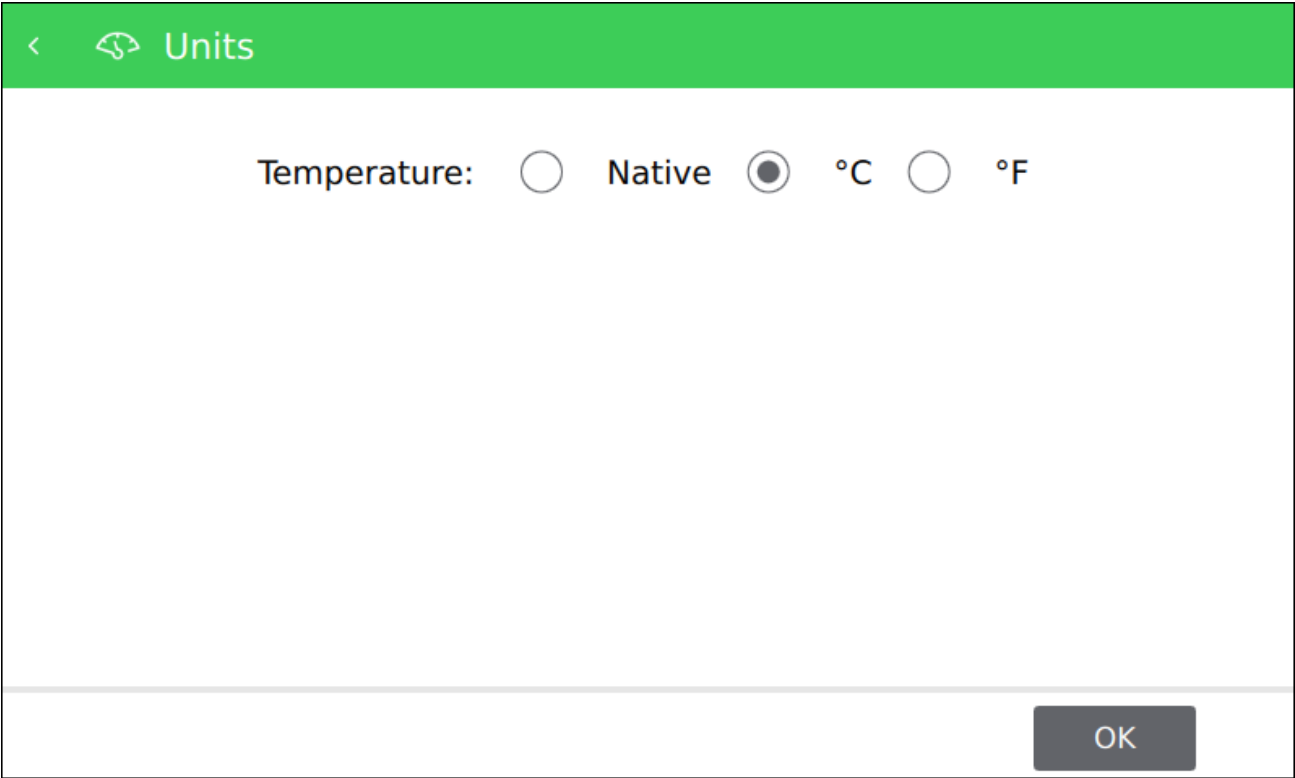



Figure – Units screen

Table – Units Screen

Component	Description
	Tap the radio button next to your preferred temperature unit.

2.61 Date / Time Screen

Use the **Date / Time** screen to configure the date and time of Operator Display.

The screenshot shows the 'Date / Time' configuration screen. At the top is a green header bar with a back arrow, a clock icon, and the text 'Date / Time'. Below this, the screen is divided into three main sections. The 'Date' section consists of three input fields: '2021', 'Oct', and '12', each with minus and plus buttons on either side. The 'Time' section consists of two input fields: '16' and '03', each with minus and plus buttons, separated by a colon. The 'Time zone' section shows a text box with '(UTC -04:00) America/Toronto' and a pencil icon to its right. Below these sections, the text 'UTC time: 2021-10-12 20:03' is displayed. At the bottom right of the screen are two buttons: 'OK' and 'Cancel'.

Figure – Date / Time screen

Table – Date / Time Screen

Component	Description
Date	Tap - or + to select the year, month, and date. For more information, see section 1.18 “Date and Time Handling” on page 27.
Time	Tap - or + to select the hour and minutes. For more information, see section 1.18 “Date and Time Handling” on page 27.
Time zone	Tap the pencil button to select the time zone. For more information, see section 1.18 “Date and Time Handling” on page 27. This task requires administrator permissions.
UTC time	Displays the Universal Time Coordinated for the selected time zone. For more information, see section 1.18 “Date and Time Handling” on page 27. This task requires administrator permissions.

2.62 Select a Region Screen

Use the **Select a region** screen to configure the time zone of Operator Display.

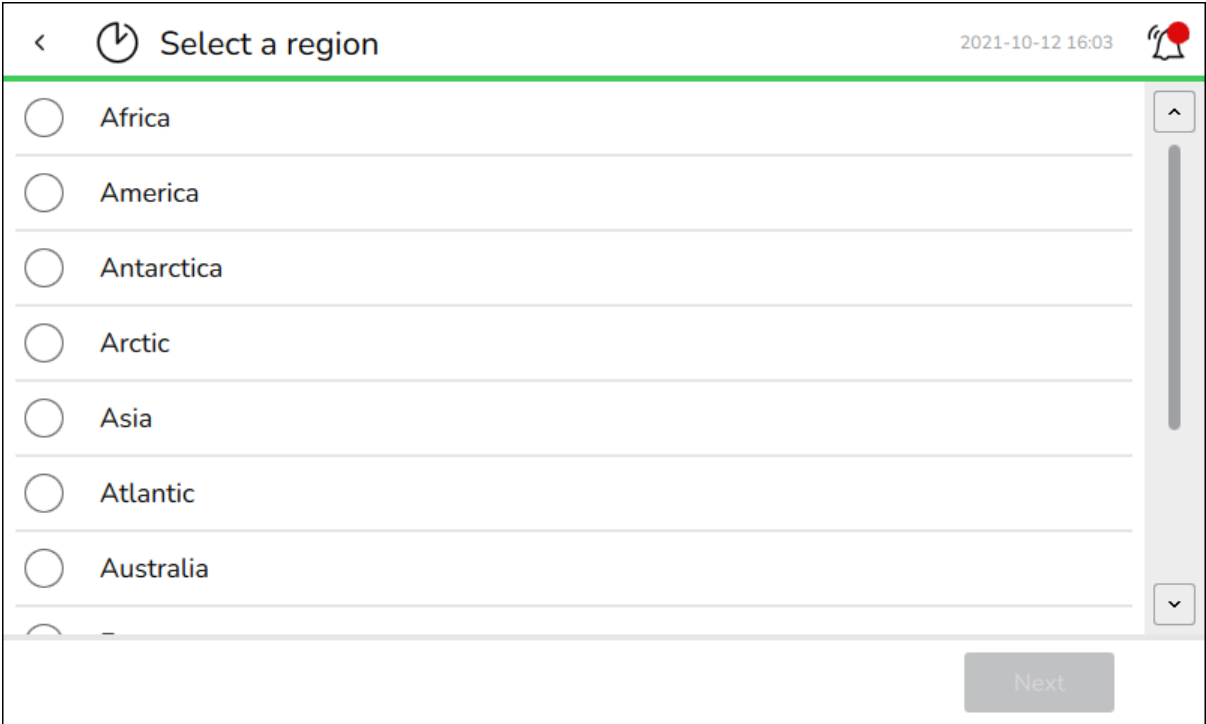



Figure – Select a region screen

Table – Select a Region Screen

Component	Description
	Tap the radio button next to your region.
Next	Tap to confirm your selection.

2.63 Select Time Zone Screen

Use the **Select time zone** screen to configure the time zone of Operator Display.

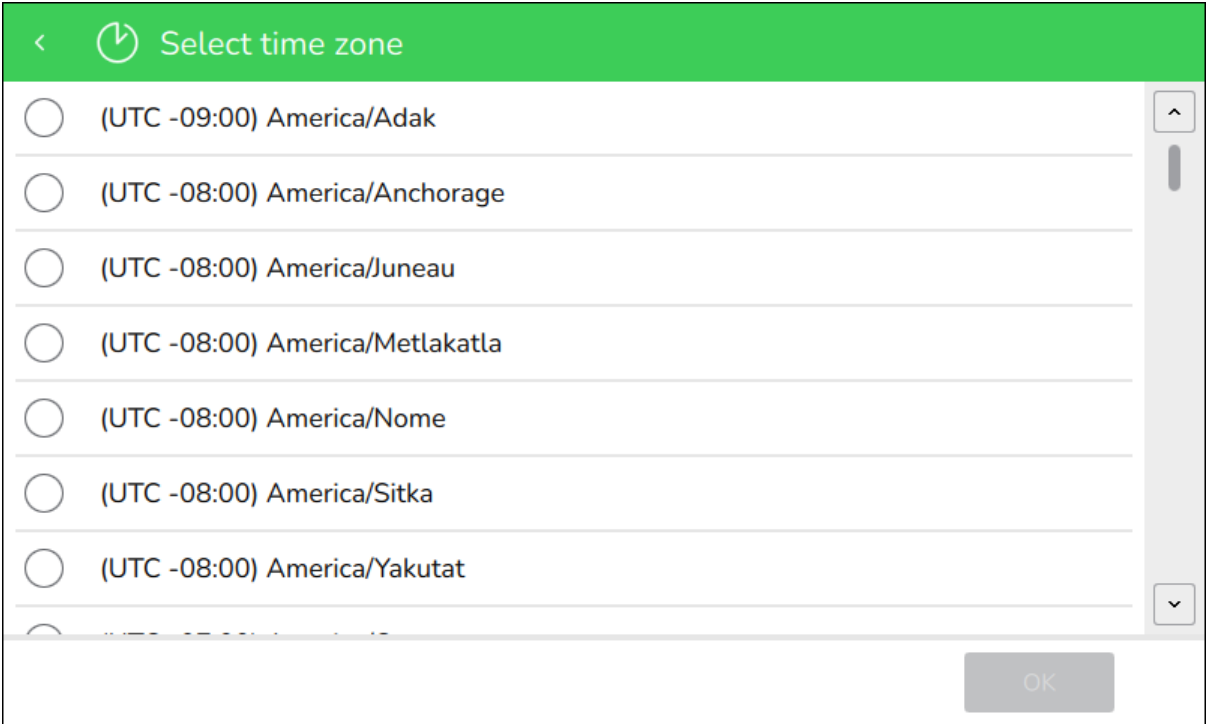




Figure – Select time zone screen

Table – Select Time Zone Screen

Component	Description
	Tap the radio button next to your time zone.
OK	Tap to confirm your selection.

2.64 Network Setup Screen

Use the **Network Setup** screen to configure the IP network communication.

<  Network Setup

Static IP ☒ DHCP

Connection state Up (Unknown)

IP address 192.168.0.106

Subnet mask 255.255.255.0

Gateway 192.168.0.1

OK

Figure – Network Setup screen

Table – Network Setup Screen

Component	Description
Static IP	Tap to use static IP address. This task requires administrator permissions.
DHCP	Tap to use a DHCP server. This task requires administrator permissions.
Connection state	Indicates if the network is online or offline.
IP address	Type the IP address. This task requires administrator permissions.
Subnet mask	Type the subnet mask. This task requires administrator permissions.
Gateway	Type the gateway. This task requires administrator permissions.

2.65 BACnet Setup Screen

Use the **BACnet Setup** screen to configure the BACnet/IP network communication.

The screenshot shows the BACnet Setup screen with the following configuration:

- Instance number: 34567
- Port: 47808
- APDU retries: 3
- APDU timeout: 3000
- APDU Segment timeout: 2500
- Force Priority Level: (slider and buttons visible)

Figure – BACnet Setup screen

Table – BACnet Setup Screen

Component	Description
Instance number	Type the BACnet instance number. This task requires administrator permissions.
Port	Type the communication port number. This task requires administrator permissions.
APDU retries	Type the maximum number of times that an Application Protocol Data Unit shall be retransmitted This task requires administrator permissions.
APDU timeout	Type the time in milliseconds that the driver will wait for a response from a device after sending a request. This task requires administrator permissions.
APDU Segment timeout	Type the amount of time in milliseconds between the retransmission of an Application Protocol Data Unit segment This task requires administrator permissions.
Force Priority Level	Tap + or - to configure the priority level at which the force actions will be applied. For more information, see section 1.29 "Value Editing" on page 35. This task requires administrator permissions.

Continued

Component	Description
Time master	Tap to determine if Operator Display sets the time for all its connected devices. This task requires administrator permissions.
Device name	Type a name unique to this device. This task requires administrator permissions.
Device description	Type a description unique to this device. This task requires administrator permissions.

2.66 Firmware Update Screen

Use the **Firmware Update** screen to upload a new version of the firmware to the Operator Display.

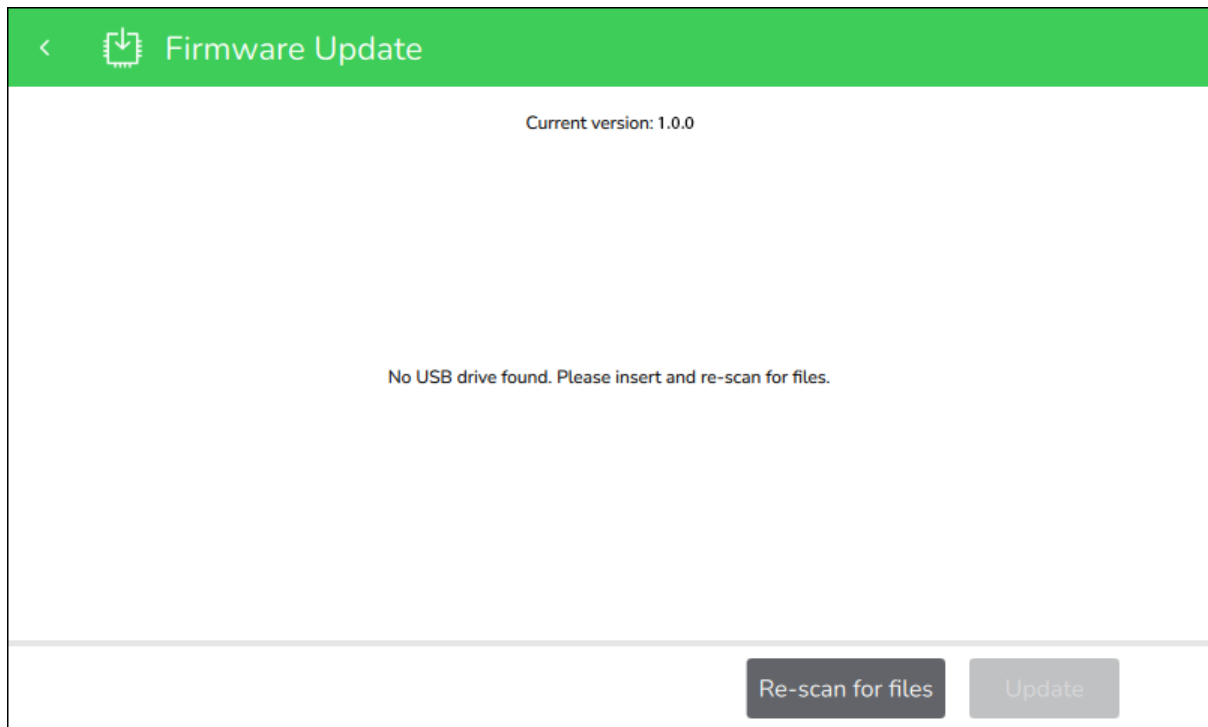


Figure – Firmware Update screen

Table – Firmware Update Screen

Component	Description
Current version	Displays the version of the firmware currently installed on the Operator Display.
Re-scan for files	Tap to start scanning the USB key for valid firmware files.
Update	Tap to install the selected firmware file.

2.67 Display Screen

Use the **Display** screen to configure the backlight settings.

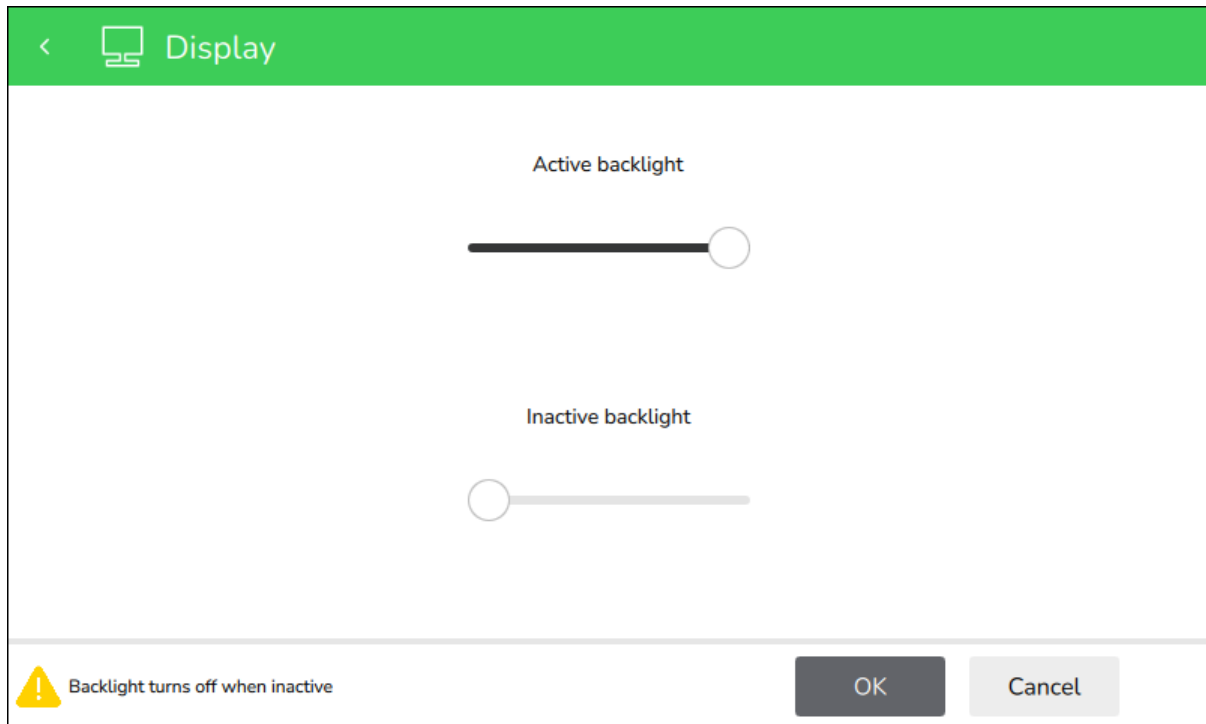


Figure – Display screen

Table – Display Screen

Component	Description
Active backlight	Drag the slider to select the preferred light level when you are using Operator Display.
Inactive backlight	Drag the slider to select the preferred light level when you are not using Operator Display. TIP: Drag the slider all the way to the left to make the backlight turn off when your not using Operator Display.

2.68 User Configuration Screen

Use the **User Configuration** screen to configure the settings for all users on this Operator Display.

The screenshot shows the 'User Configuration' screen. At the top is a green header bar with a back arrow, a user icon, and the text 'User Configuration'. Below this, the settings are organized into sections. The first section contains three rows: 'Inactivity timeout' with a value of 15 and unit 'minutes', 'Lock user after' with a value of 5 and unit 'failed login attempts', and 'Lock user for' with a value of 10 and unit 'minutes'. Each row has minus and plus buttons to adjust the value. The second section is titled 'Password Minimum Requirements' and contains two rows: 'Characters' with a value of 4 and 'Lowercase characters' with a value of 0. Both rows also have minus and plus buttons. A vertical scrollbar is located on the right side of the screen.

Figure – User Configuration screen

Table – User Configuration Screen

Component	Description
Inactivity timeout	Tap - or + to edit the number of minutes of the inactivity timeout.
Lock user after	Tap - or + to edit the number of failed login attempts before the user is locked.
Lock user for	Tap - or + to edit the number of minutes during which the user is locked.
Characters	Tap - or + to edit the minimum number of characters required in passwords.
Lowercase characters	Tap - or + to edit the minimum number of lowercase characters required in passwords.
Numeric characters	Tap - or + to edit the minimum number of numeric characters required in passwords.
Special characters	Tap - or + to edit the minimum number of special characters required in passwords.

2.69 User Administration Screen

Use the **User Administration** screen to display and edit the list of user accounts on this Operator Display.

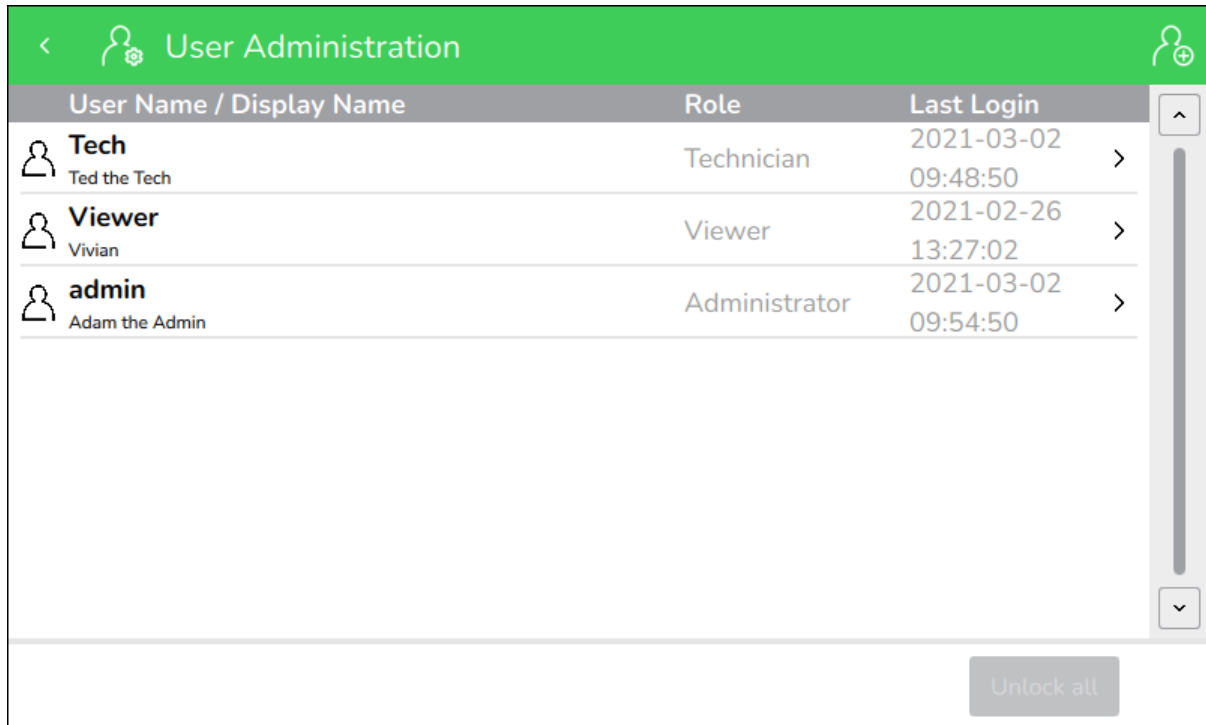




Figure – User Administration screen

Table – User Administration Screen



Component	Description
User Name / Display Name	Displays the unique user and display names.
Role	Displays the user role (Administrator, Technician, or Viewer).
Last Login	Displays the date and time of the last user login.
	Tap to open the Create User screen where you create a new user account. For more information, see section 2.70 “Create User Screen” on page 164.
Unlock all	Tap to unlock all the user accounts on this Operator Display and allow them to interact with devices.

2.70 Create User Screen



Use the **Create User** screen to create a new user account on this Operator Display.


<  Create User

User name

 Minimum number of characters: 3
 No spaces allowed

Display name

 Minimum number of characters: 3
 No leading, trailing or consecutive spaces allowed

Role 

Next

Figure – Create User screen

Table – Create User Screen

Component	Description
User name	Type a unique user name.
Display name	Type a unique display name.
Role	Tap to select a user role. For more information, see section 1.4 “User Account Administration” on page 14.

2.71 Create Password Screen

Use the **Create password for** screen to assign a unique password to the new user.

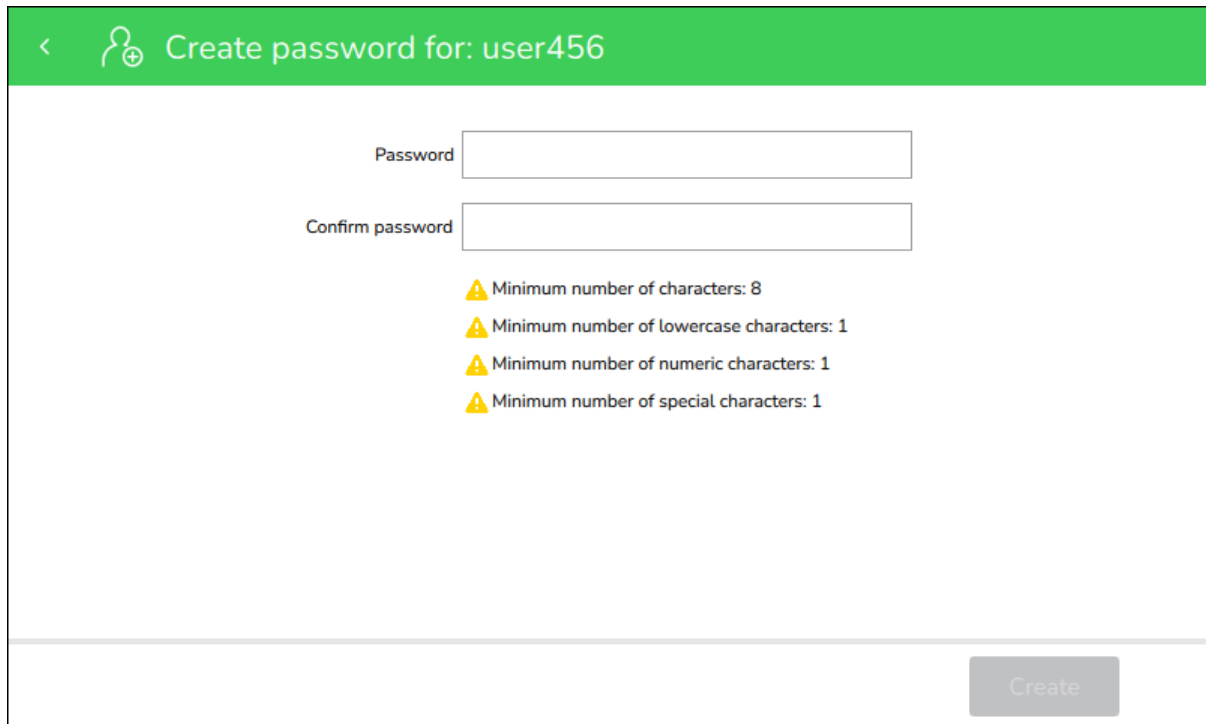


Figure – Create password for screen

Table – Create Password for Screen

Component	Description
Password	Type a unique password. For more information, see section 1.3 “User Account Handling” on page 13.
Confirm password	Type the password a second time for validation.

2.72 About Screen

Use the **About** screen to display more information on Operator Display.

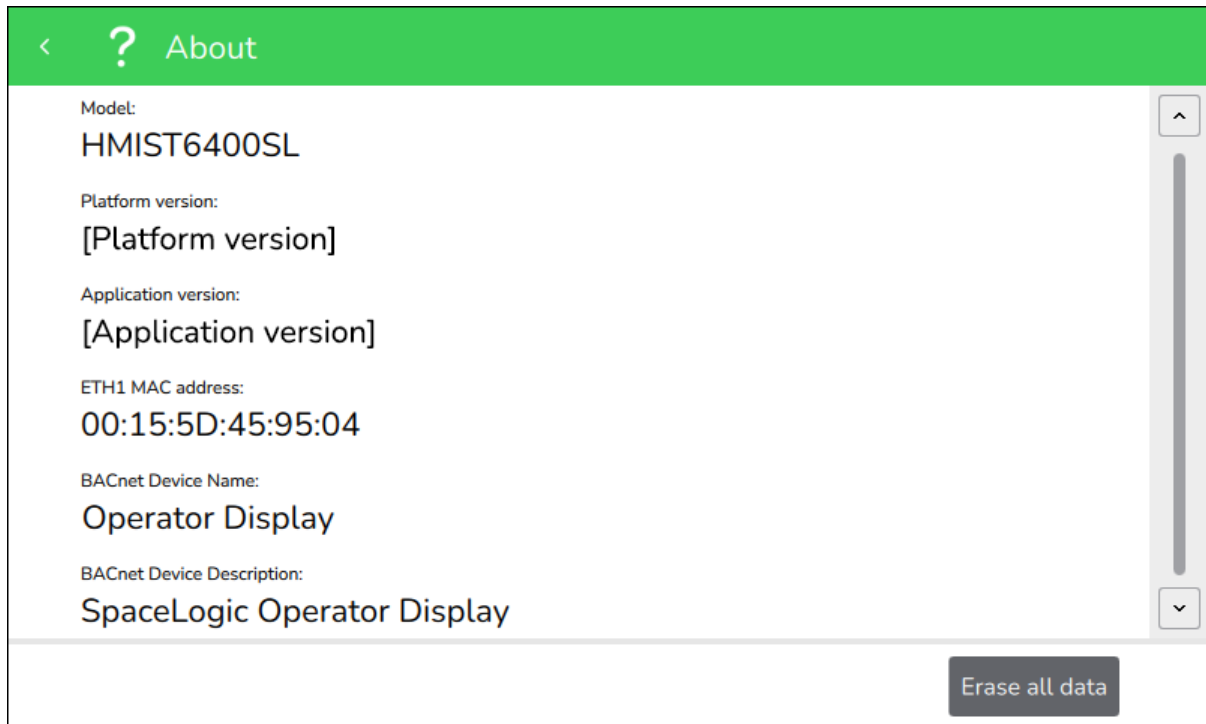


Figure – About screen

Table – About Screen

Component	Description
Model	Displays the Operator Display part number.
Platform version	Displays current platform version number.
Application version	Displays the current firmware version number.
ETH1 MAC address	Displays the MAC address for the Ethernet interface.
BACnet Device Name	Displays the device name defined in the BACnet Setup screen. For more information, see section 1.16 “Configuring the BACnet/IP Network Communication” on page 26.
BACnet Device Description	Displays the device description defined in the BACnet Setup screen. For more information, see section 1.16 “Configuring the BACnet/IP Network Communication” on page 26.
Erase all data	Tap to erase the device list, logs, and users from the Operator Display. The only data remaining will be the firmware version and time setting. This task requires administrator permissions.

3 Troubleshooting

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3.1 Need Help with your Password

You need help because you have lost your password to access the Operator Display.

3.1.1 Solutions

Contact your Systems Administrator. They will be able to reset your password and give you access to Operator Display.

3.2 All the Administrator Passwords Have Been Lost

All the administrator passwords have been lost on the Operator Display.

3.2.1 Solutions

Recover Operator Display to remove all data and create new users. This operation clears the device list, logs, and users. For more information, see section 1.22 “Recovering Operator Display (Factory Reset)” on page 30.

NOTICE

LOSS OF DATA

Export the logs you want to keep.

Failure to follow these instructions can result in loss of data.

3.3 Network Unavailable

You are having trouble connecting Operator Display to the network and interacting with devices.

3.3.1 Solution

Ensure that the Ethernet cable is properly connected to the ETH1 port of Operator Display.

If Operator Display is on network but still having trouble interacting with devices:

- Check the Network configuration:
 - If Static make sure the IP, netmask and gateway are correctly configured.
 - The IP are not hidden by other device netmasks.
 - Netmasks are used to help ensure a device only sees network traffic from specific IP ranges.
 - If going through a gateway. make sure it is the right one.
- Check the BACnet configuration:
 - It is using the correct port.
 - Is has a unique ID within the BACnet network.

3.4 The Operator Display Is Not Starting

The Operator Display is not starting. This may be happening because the device lost power during a firmware upgrade.

3.4.1 Solution

Ensure that the proper firmware is installed on the Operator Display by reinstalling the latest firmware version by performing a device recover. For more information, see section 1.22 “Recovering Operator Display (Factory Reset)” on page 30.

NOTICE

LOSS OF DATA

Recover Operator Display only if it is not accessible or when decommissioning Operator Display.

Failure to follow these instructions can result in loss of data

3.5 Firmware Upgrade Failure

The Operator Display cycles between "Upgrade from Udisk failed! (Err 6)" and "TFTP upgrade failed! Err(9)", and beeps three times on each failure. The USB key contains the wrong files or was not properly formatted.

NOTICE

LOSS OF DATA

Ensure that the Operator Display power supply is not interrupted during the firmware upgrade process.

Failure to follow these instructions can result in loss of data.

3.5.1 Solutions

The solutions are listed in order: the solution most likely to fix the problem is listed first. Work through each solution until the problem is resolved.

- Ensure that the USB key is properly formatted.
- Copy the latest version of the firmware file to the USB key.
- Upgrade the firmware once more. For more information, see section 1.21 “Upgrading the Firmware” on page 29.

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