XSD-S3
Sine Wave Dimmer
User Manual

Index

Introduction

The XSD-S3 is a fully RDM enabled single channel sine wave dimmer. The output voltage and current are electronically regulated, ensuring a stable and safe output to a wide range of different loads. It is short circuit proof and features an electronic fuse.

The XSD-S3 can be controlled over DMX, by 0-10V analogue input, and manually with the encoder knob on the device. DMX and device specific settings, such as dimmer curves or output response time, can be changed over RDM as well as directly on the dimmer, thanks to its bright OLED display. The user interface can also display detailed sensor information and offers simplified troubleshooting by raising notifications.

There are models available with either powerCON 20A connectors, powerCON TRUE1 connectors, or terminal connectors for the dimmer input and output. The signal input is either a 5-pin XLR connector, where pins 4 and 5 are used for 0-10V input, or terminal connectors.

Applications

- TV studios
- Architectural lighting
- Convention centres
- Churches
- Schools
- Theme parks
- Theatres, operas
- Multimedia shows
- Cruise ships

Typical Setup
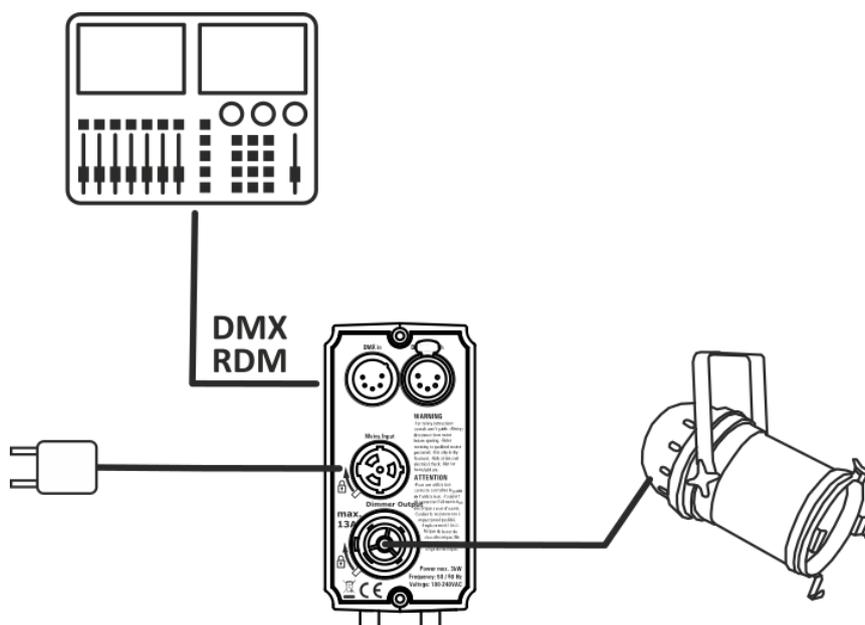
Unpacking

The XSD-S3 is packaged in a cardboard box. The following items are included:

- The device.
- This user manual.

Safety Information

Consider the following notes mandatory when you set up, connect, and use the XSD-S3.

This product is approved for professional use only; it is not intended for household usage. Read this document before operating the device, follow the safety instructions closely and pay attention to all warnings given in this document.

**Use this device only in accordance with local laws and regulations.**

Safety Instructions

- **Disconnect the device from the AC power supply before removing any cover or part, including fuses, even when not in use.**
- **Ensure that the device is electrically connected to ground (earth).**
- **Use only a source of AC power supply that complies with local building and electrical regulations and which has both overload and ground fault (earth fault) protection.**
- **The source of the AC power supply must be protected by a breaker or fuse with a current rating of 16 amperes.**
- **If the device is directly wired to an electrical installation, an easily accessible power switch must be installed close to the device.**
- **Before using the device, check that the power distribution equipment and cables are in perfect condition and rated for the current required by all connected devices.**
- **Disconnect the device from the power supply immediately if the power cable or the power plug are in any way damaged, defective or wet, or if they show signs of overheating.**
- **Do not expose the device to rain or moisture.**
- **Do not operate the device if any cover or component is missing, damaged, or deformed.**
- **Refer any service operation not described in this document to Swisson.**
- **Provide unrestricted airflow around the device.**
- **Do not operate the device if the ambient temperature exceeds 60°C (140°F).**
- **Do not cover the ventilation slots of the device.**
- **Do not modify the device in any way not described in this document or install other than genuine Swisson parts.**

- **Do not attempt to bypass any fuse. Replace any defective fuse with one of the specified type and rating only.**

- **When suspending the device, ensure that the supporting structure and all hardware used can hold at least 10 times the weight of all devices suspended together.**

- **When suspending the device, install a secondary attachment such as a safety cable that is approved by an official body, e.g. TÜV (German Technical Monitoring Association), for the total weight it secures. The safety cable must comply with EN 60598-2-17 section 17.6.6 and be capable of bearing a static suspended load of 10 times the weight of the device.**

- **Make sure that any external cover and rigging hardware is securely fastened.**

- **Provide an adequate clearance underneath the work area and a stable platform whenever installing, servicing or moving an overhead device.**

- **Do not use the device in areas where it is exposed to direct sunlight.**

- **Do not use the device in areas that are considered to be "highly inflammable".**

Device Overview

XLR Versions
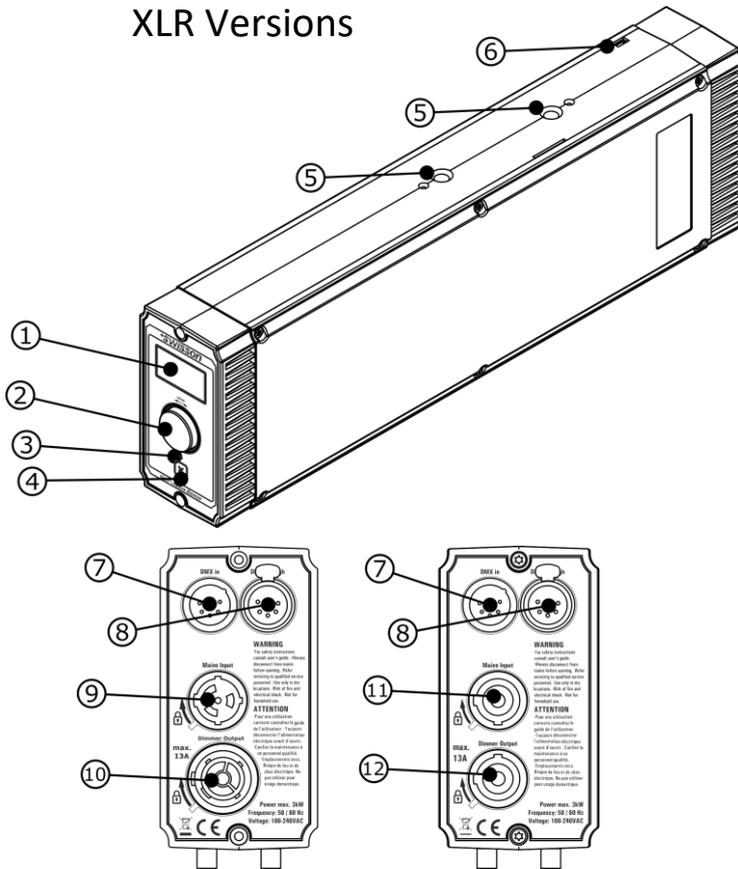
Terminal Version
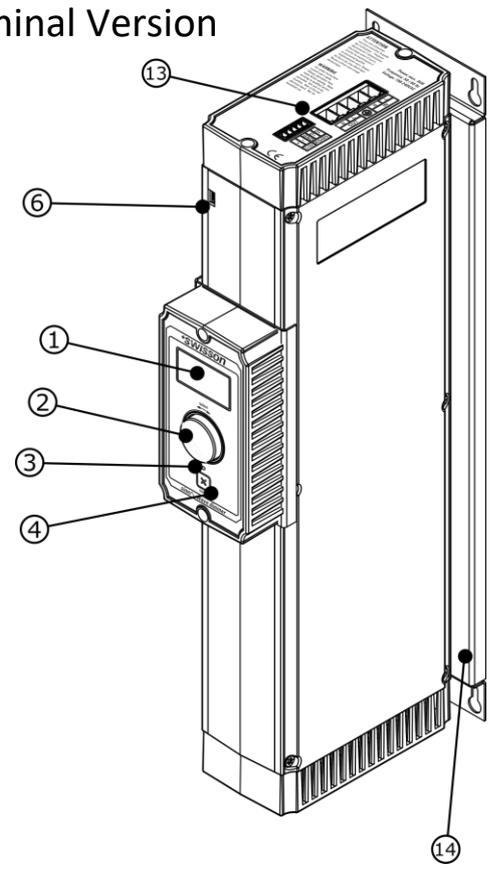
1. OLED display.
2. Encoder wheel / [OK] button.
3. Status LED.
4. [cancel] button.
5. Threads for truss mounting (only on XLR models). Please refer to the safety instructions above regarding the suspension of the device.
6. Micro-USB type B socket for firmware updates and diagnostics.
7. DMX / 0-10V input port. (XLR models only).
8. DMX / 0-10V through port. (XLR models only).

XLR Model XSD-S3-YC-5:

9. Neutrik powerCON TRUE1 input socket (black).
10. Neutrik powerCON TRUE1 output socket (black).

XLR Model XSD-S3-BC-5:

11. Neutrik powerCON 20A input socket (blue).
12. Neutrik powerCON 20A output socket (light-grey).

Terminal Model XSD-S3-TC-T:

13. Terminal connectors.
14. Wall mounting plate.

Installation

AC Power Connection

The user must supply a suitable power cable. He may then either hard-wire the power cable to the building's electrical installation and provide an easily accessible power on/off switch close to the device, or install on the power cable a grounding-type (earthed) mains plug that is suitable for the local power outlets, following the power plug manufacturer's instructions. Consult a qualified electrician if you have any doubts about the proper installation.

A connector matching the socket of the specific device must be used to supply power to the XSD-S3. The socket type of each model is specified under Device Overview on page 8. A blue *Neutrik powerCON NAC3FCA* cable mount connector is required for XSD-S3-BC models, while XSD-S3-YC models require a black *TRUE1 NAC3FX-W* cable mount connector. The installation of the terminal model is to be referred to a qualified electrician.

Warning! For protection against dangerous electrical shocks, the device must be grounded (earthed). The local AC power source must be supplied with both overload and ground fault (earth fault) protection.

Important! Do not connect or disconnect a Neutrik powerCON 20A (blue) connector while it is connected to the mains, except in an emergency situation. Doing so may cause arcing at the terminals that will damage the connectors.


Power Outlet

A power cable that meets the requirements specified in the safety instructions section of these notes must be used to connect the XSD-S3 to an AC supply and to connect other devices to the power outlet of the dimmer.

A connector matching the socket of the specific device must be used to draw power from the XSD-S3. The socket type of each model is specified under Device Overview on page 8. A grey *Neutrik powerCON NAC3FCB* cable mount connector is required for XSD-S3-BC models, while XSD-S3-YC models require a black *TRUE1 NAC3MX-W* cable mount connector. The installation of the terminal model is to be referred to a qualified electrician.

Truss Mount

The XLR models (XSD-S3-BC-5 and XSD-S3-YC-5) feature threads for truss mounting. Please refer to the Safety Instructions above regarding the suspension of the device.
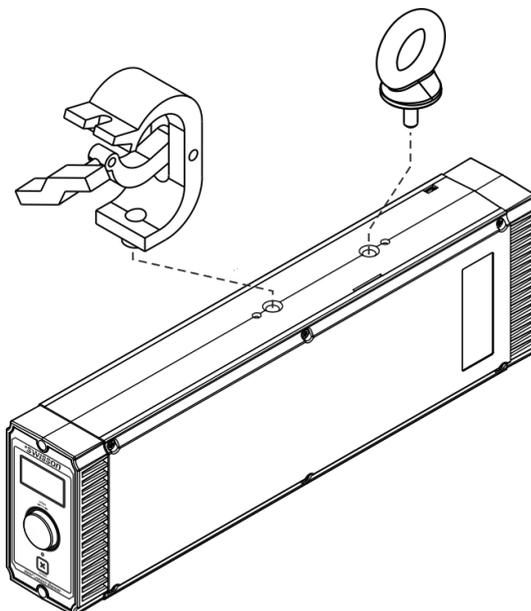
DMX Connections

Depending on the model, the XSD-S3 is equipped with 5-pin XLR connectors (models XSD-S3-BC-5 and XSD-S3-YC-5) or terminal connectors (model XSD-S3-TC-T).

XLR Connectors

Pin	Connection
1	DMX Com
2	DMX Data -
3	DMX Data +
4	0-10V Input -
5	0-10V Input +
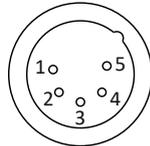
5-Pin XLR male
(DMX in)
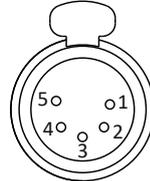
5-Pin XLR female
(DMX out)

Terminal Connectors

Terminal	Connection
1	Power Input Phase
2	Power Input Neutral
3	Ground (Earth)
4	Power Output Phase
5	Power Output Neutral
6	DMX Data +
7	DMX Data -
8	DMX Common
9	0-10V Input -
10	0-10V Input +

ATTENTION
·Pour une utilisation correcte consultez le guide de l'utilisateur. ·Toujours déconnecter l'alimentation électrique avant d'ouvrir. ·Confier la maintenance à un personnel qualifié. ·Emplacements secs. Risque de feu et de choc électrique. Ne pas utiliser pour usage domestique.

Power max. 3kW
Frequency: 50 / 60 Hz
Voltage: 100-240VAC

WARNING
·For safety instructions consult user's guide. ·Always disconnect from mains before opening. ·Refer servicing to qualified service personnel. ·Use only in dry locations. ·Risk of fire and electrical shock. ·Not for household use.

Dimmer Operation

Dimmer Startup

The XSD-S3 starts automatically once connected to an AC power supply. Initially, the dimmer is disarmed, meaning the input and output relays are open, the power electronics are not running and there is no power at the output. The firmware immediately begins the starting sequence, which checks the AC voltage at the input. If the measurements are successful, the dimmer is armed, i.e. the power electronics is started and the relays closed.

AC Supply Modes

The XSD-S3 can operate in two modes depending on the AC supply voltage: A 230 volts mode, active when the supplied voltage lies between 180 and 265 volts, and a 110 volts mode for supply voltages between 80 and 140 volts. The operating mode is chosen automatically during the starting sequence.

If the supply voltage changes to a value outside these ranges, the dimmer will go into an error state (see Dimmer States, page 13) and raise a notification (see Notifications, page 19). If the dimmer is being operated in the 80 – 140 volts range, it also switches to an error state when the supply voltage is changed to a value between 180 and 265 volts.

Home Screen

After the firmware is checked by the bootloader, the firmware starts and the home screen is displayed. The home screen shows status information and the most important settings regarding the input signal. Depending on the chosen control source, the appearance of the home screen changes. There are three sources available:

1. **DMX:** The dimmer is controlled by the DMX signal and also manually, when on the home screen.
2. **0-10V:** The dimmer is controlled by the analogue 0-10V input and also manually, when on the home screen.
3. **Manual:** The dimmer is only controlled manually, from the home screen.

How the control source can be selected is detailed in the sub-section Control Source on page 16. The individual appearances of the home screen for each of the three control sources are detailed below.

DMX Input

1. **Main level bar:** Shows the requested output level in percent.
2. **Notification icon:** When this icon is displayed, one or more notifications are present in the notification menu (see Notifications, page 19).
3. **Output level bars:** These bars show the current output levels. A full voltage bar corresponds to the maximum voltage as defined in the settings (see Max. Voltage, page 17). A full amperage bar means 18 amperes.
4. **Device label** (see Device Label, page 20).
5. **Supply mode**: This depends on the supplied voltage, as described above under AC Supply Modes.
6. **Device state**: These are detailed under Dimmer States on page 13.
7. **DMX personality** (see Personality, page 15).
8. **DMX start address** (see Set DMX Address, page 15).
9. **Signal source:** Indicating that the dimmer is controlled over DMX.
10. **Signal source level**: The requested level received from the DMX signal.
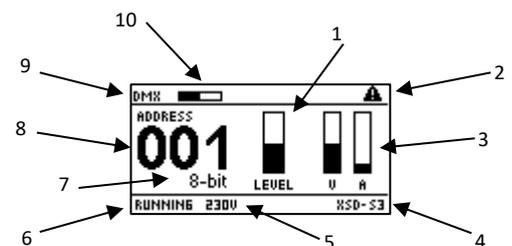
When the encoder wheel (see Device Overview, page 8) is turned while the home screen is displayed, the manual input level is displayed in a pop-up box:
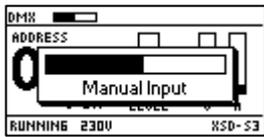
Turning the encoder clockwise will increase the manual input level, turning it counter-clockwise will decrease it. Pushing the encoder down or pressing the [cancel] button will close the pop-up. The manual input is merged with the DMX input according to the merging rule chosen in the settings as detailed under Merge Mode on page 17.

0-10V Input

If 0-10V is selected as the input source, the DMX address and personality are no longer displayed:

1. **0-10V logo**

2. **Signal source:** Indicating that 0-10V is selected as the input source.

3. **Signal source level:** The requested level received from the analogue signal.
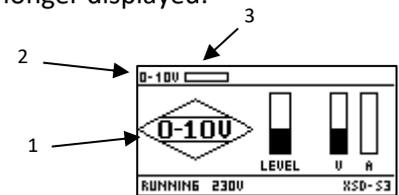
The rest of the home screen remains identical to the home screen displayed when DMX is selected as the control source (detailed above). Also, when the encoder wheel is turned while on the home screen, the manual input pop-up appears. The manual input is merged with the 0-10V input.

Manual Input

When the manual input is selected, no signal information is displayed. Further, the manual input pop-up will not appear when the encoder wheel is turned, instead the wheel directly controls the output level, which is visible from the main level bar. In this mode, the manual input level is saved and restored upon startup of the dimmer.
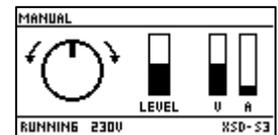
Arming and Disarming

The dimmer has to be armed in order to provide power at the output. After the successful completion of the starting sequence, the dimmer is armed automatically and stays armed during regular operation. It may get disarmed due to an error forcing the dimmer to change into an error state (see Dimmer States, page 13), which opens the relays and stops the dimmer from generating an output.

Being disarmed, there are three ways how the dimmer can be rearmed:

1. **Automatically:** In some cases, the dimmer is rearmed automatically once the issue which led to the disarming seems to be resolved (see Dimmer States, page 13).

2. **Remotely, by the input signal:** The dimmer can be rearmed by pulling the input signal all the way down. For DMX, this means transmitting a level of 0, for 0-10V analogue input this means an input voltage of (close to) 0 volts. This method of rearming can only be tried three times within 10 minutes; After three attempts, the dimmer has to be rearmed manually, on the device. After 10 minutes of uninterrupted operation, remote rearming will be available again.

3. **Manually, on the device:** When disarmed, the dimmer will display a rearming message on the home screen. It can then be rearmed by pressing the [cancel] button.
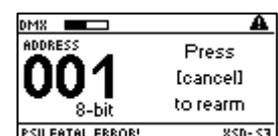
There is no way for the user to purposely disarm the dimmer, other than disconnecting it from the AC power supply.

Dimmer States

When powered, the dimmer is in one of seven states, which are displayed at the bottom left of the home screen (see Home Screen, page 11). The states are detailed below.

- **Starting:** The dimmer is executing the starting sequence (described in Dimmer Startup, page 11).

- **Running:** The dimmer is operational and running normally.

- **Disturbance:** The dimmer is disarmed due to the AC supply being unstable. If the supply seems to be stable again, the dimmer will try to restart automatically, up to ten times. If all attempts are unsuccessful, the dimmer changes its state to "Fatal Error".

- **Low Voltage:** The AC supply voltage dropped below the threshold of the current supply mode (see AC Supply Modes, page 11) and the dimmer is disarmed. It will rearm automatically once the voltage rises above the respective threshold.

- **Overtemp:** The internal temperature of the dimmer is too high (above 80° Celsius or 176° Fahrenheit). The dimmer will rearm automatically once the temperature sinks below the threshold (75°Celsius / 167° Fahrenheit).

- **Fatal Error:** The dimmer is disarmed due to a severe fault. One or more notifications were issued to give more insight into the nature of the problem. They can be found in the notification menu (see Notifications, page 19). From this state, the dimmer will not restart automatically, but has to be rearmed manually (see Arming and Disarming, page 12).

- **PSU Fatal Error:** The voltage generated by the internal power supply unit of the dimmer is or was out of range, and the dimmer is disarmed. This error state is always accompanied by at least one notification giving more insight into the nature of the problem (see Notifications, page 19).

Power Output

The XSD-S3 is designed to permanently deliver 13 amperes of current, which equates to 3 kilowatts of power at 230 volts. While short bursts of much higher current are possible and safe, the dimmer does not allow for long time operation under excessive load. If the current limit of 13 amperes is exceeded over an extended period of time, the dimmer will go into the "Fatal Error" state (see Dimmer States above) and raise a notification ("Overload Lvl 4", see Notifications and Troubleshooting, page 22). It can be immediately rearmed.

Status LED

The XSD-S3 features a bright blue status LED on its front (see Device Overview, page 8).

During normal operation, the LED glows continuously. In situations where the light may be too bright or disturbing, the LED can be muted in the settings (see Mute Power LED, page 22).

When the device is identified over RDM (see Identify Mode, page 21), the LED flashes slowly, with a period of 2 seconds. This behaviour is independent of the "Mute Power LED" setting.

If the dimmer is running on power supplied by USB, i.e. there is no AC power supply connected, the LED flashes quicker, with a period of 0.6 seconds.

If the dimmer is in the process of copying new firmware to the internal flash, the LED flashes very quickly.

▬▬▬▬▬▬▬▬▬▬	Dimmer is powered on.
▬▬ ▬▬ ▬▬	Dimmer is identified over RDM.
▬ ▬ ▬ ▬ ▬	Dimmer is powered by USB; No AC supply.
- - - - - - - - - -	Dimmer is copying new firmware.

Temperature and Cooling

The XSD-S3 features a built-in temperature regulated fan. Once a temperature of 30° Celsius (86° Fahrenheit) is reached, the fan will turn on, reaching its maximum speed at 45° Celsius (113° Fahrenheit). For optimal cooling, please ensure unhindered airflow to and from the ventilation slots.

If the temperature of the dimmer rises too high (above 80° Celsius or 176° Fahrenheit), the dimmer will go into the "Overtemp" state and produce a notification ("Overtemperature", see Notifications and Troubleshooting, page 22). The dimmer will rearm automatically once the temperature drops below the threshold of 75° Celsius (167° Fahrenheit).

Ventilation outlets

Ventilation inlets
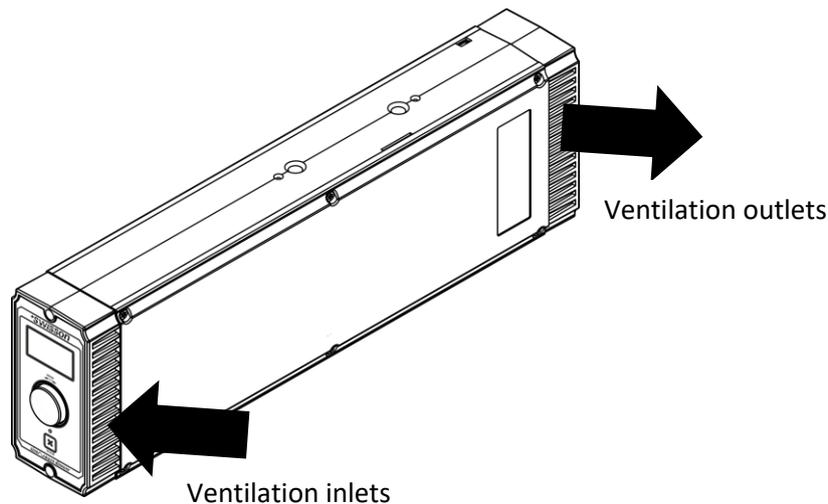
Settings and Menu

General Navigation

The encoder wheel (see Device Overview, page 8) is the primary means for navigating through the menus. Most of the menus arrange items vertically. In those menus, turning the encoder clockwise will select the item below the currently selected item, turning it counter-clockwise will select the item above the currently selected item. In menus that arrange items horizontally (e.g. text fields), clockwise moves the cursor to the right and counter-clockwise moves it to the left.

The encoder wheel further functions as a push button. This button is generally used to confirm a selection or to navigate to a selected sub-menu. This manual will also refer to pushing the encoder wheel as "push [OK]" or "push the [OK] button".

Below the encoder knob is the [cancel] button (see Device Overview, page 8), which is generally used to dismiss a selection or to exit a menu.

By keeping the [cancel] button pressed for more than two seconds, the current menu is closed and the home screen reappears. From the home screen, the menu is launched by simply pushing the [OK] button.

Below, the following notation is used to describe locations in the menu: *Home > Menu > Sub-menu > …*

DMX Settings

The DMX settings can be found under *Home > Menu > DMX Settings.*

Set DMX Address

Use the encoder wheel to select a DMX start address from 1 to 512, and press [OK] to save. This setting can be found under *Home > Menu > DMX Settings > Set DMX Address* and additionally in the main menu (*Home > Menu > Set DMX Address)* for faster access.

Note: If the 16-bit personality is selected in the personality menu, the address 512 cannot be selected as start address, as the dimmer then requires two channels. In this case, the highest valid start address is 511.

Personality

The DMX personality setting can be found under *Home > Menu > DMX Settings > Personality.* There are two DMX personalities available:

- **8-bit**: The dimmer uses only a single DMX channel.
- **16-bit**: The dimmer uses two sequential DMX channels. The channel at the start address is used for the coarse control of the level, the subsequent channel for the fine control.

Note: When the 16-bit personality is selected, the dimmer cannot have the start address 512, as it requires two consecutive channels in this mode. In the case the address 512 was previously configured, it is changed to 511 automatically.

8-bit	16-bit	Function
1	1	Coarse level control
	2	Fine level control

Failure Behaviour

In this menu, the behaviour of the dimmer when the DMX signal is lost can be configured. It can be found under *Home > Menu > DMX Settings > Failure Behaviour.*

Mode

There are two modes available:

- **Hold**: The dimmer holds the level which was set when the DMX signal was lost indefinitely.
- **Level**: After a specified delay, the dimmer changes the level to the value defined in the sub-menu *Level*.

Level

In this sub-menu, the level the dimmer should be set to after the DMX signal is lost can be configured. This can be done either manually with the encoder wheel, or by saving the level currently configured. This setting only applies if the mode "Level" is selected.

Delay

In this dialogue, the delay after which the dimmer should change to the defined level can be configured. The maximum delay is 1 minute, adjustable in steps of 0.1 seconds (from 0 to 60.0 seconds). This setting only applies if the mode "Level" is selected.

Startup Behaviour

In this menu, the behaviour of the dimmer when missing a DMX signal upon startup can be configured. It can be found under *Home > Menu > DMX Settings > Startup Behaviour.*

Level

Define the level the dimmer should be set to when no DMX signal is present after startup. This can be done either manually with the encoder wheel, or by saving the level currently configured.

Delay

In this menu, the delay after which the dimmer should change to the defined level can be configured. The maximum delay is 1 second, adjustable in steps of 10 milliseconds (from 0 to 1,000 milliseconds).

Control Settings

The control settings configure the control source and how it should be merged with the manual input from the home screen. These settings can be found under *Home > Menu > Control Settings.*

Control Source

One of three available control sources can be selected under *Home > Menu > Control Settings > Control Source*:

- **DMX**: The dimmer is controlled over DMX. When on the home screen, the level can be adjusted with the encoder wheel, according to the merge rule selected in the submenu Merge Mode.
- **0-10V**: The dimmer is controlled by the analogue 0-10V input, connected to the pins 4 and 5 of the XLR connector or the respective terminal connectors (detailed under DMX Connections on page 10). When on the home screen, the level can be adjusted with the encoder wheel, according to the merge rule selected in the sub-menu Merge Mode, which is detailed in the next section.
- **Manual**: The dimmer is only controlled manually, by turning the encoder wheel when on the home screen.

Merge Mode

The merge mode can be selected under *Home > Menu > Control Settings > Merge Mode.* There are two modes available:

- **LTP**: Latest takes precedence. The level of the dimmer is defined by the input which changed more recently.
- **HTP:** Highest takes precedence. The level of the dimmer is defined by the input which requests the higher level.

Depending on the control source selected, the merger merges the DMX input with the manual input or the 0-10V input with the manual input.

Dimmer Settings

The dimmer settings can be found under *Home > Menu > Dimmer Settings.* They concern the technical operation of the dimmer, namely the minimum and maximum output voltage, the dimmer curve, and the response time.

Preheat/Min. Voltage

In this dialogue, a minimum voltage or preheat voltage can be defined. Independent of what the level of the dimmer is, the output voltage will never fall below this value. It can either be set to 0 or a value between 6 and 20 volts.

This setting can be found under *Home > Menu > Dimmer Settings > Preheat/Min. Voltage.*

Max. Voltage

In this dialogue, a maximum voltage can be defined in the range of 240 volts down to 100 volts. The dimmer level is scaled to the set maximum voltage. For example, if the maximum voltage set is 150 volts, a level of 100% corresponds to 150 volts, a level of 50% to 75 volts, assuming the linear dimmer curve is selected.

This setting can be found under *Home > Menu > Dimmer Settings > Max. Voltage.*

Dimmer Curve

There are four dimmer curves available, which are detailed below. The dimmer curve can be selected under *Home > Menu > Dimmer Settings > Dimmer Curve.*
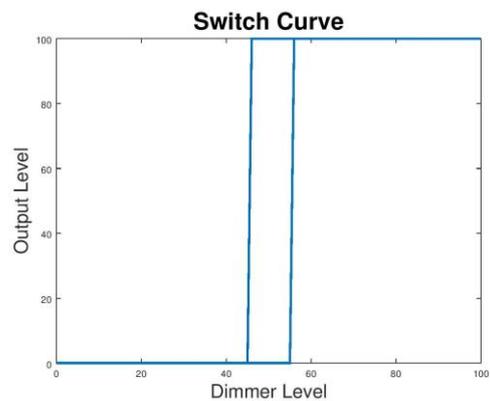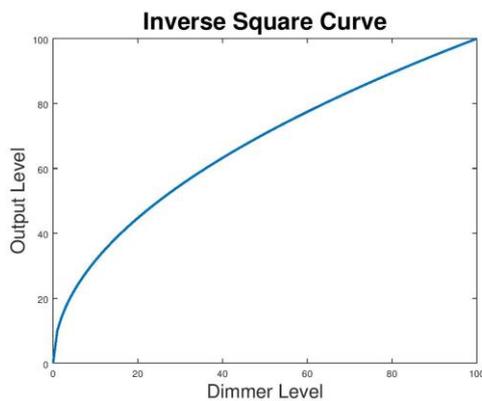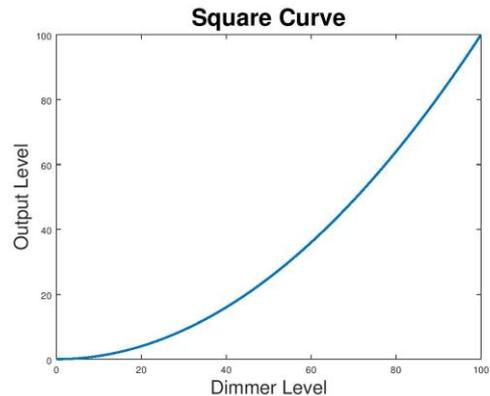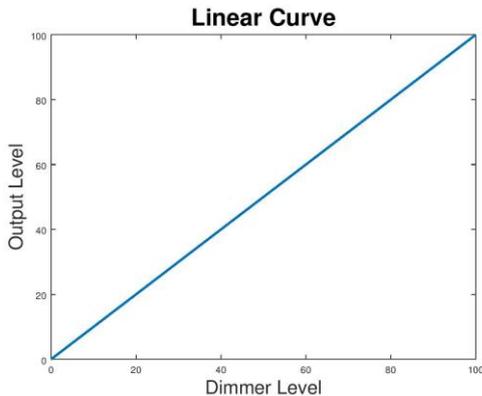
- **Linear:** The standard, linear mapping. The output voltage is linear to the dimmer level.
- **Square:** The output rises slowly for low levels and gets steeper the higher the level.
- **Inverse Square:** The output rises quickly for low levels and more slowly for higher levels.
- **Switch:** The dimmer behaves like a switch, going to 100% output for any level over 55% and to 0% output for levels under 45%.

Response Time

The XSD-S3 features an adjustable response delay, defining how quickly and aggressively changes in the dimmer level should be translated to the output. A longer response time results in smoother transitions of the output voltage. There are four options to choose from, which can be found under *Home > Menu > Dimmer Settings > Response Time*:

- **None:** There is no delay, every change in the input is immediately translated to the output.
- **Short:** A relatively short filter smooths the output slightly. The delay introduced by the filter is 200 milliseconds.
- **Medium:** A filter smooths the output noticeably. The delay introduced by the medium filter is 500 milliseconds.
- **Long:** This setting smooths the output maximally, resulting in a delay of 1000 milliseconds.

System Status

This menu is intended to monitor the dimmer operation. It contains the measurement screen and the notification list and is found under *Home > Menu > System Status.*

Measurements

This sub-menu shows the measurement screen, which displays all available sensor information:

- U_{IN}: The input voltage supplied by the AC connection, and the measured frequency.

- **Temp:** The internal temperature of the dimmer.

- **Fan:** The speed of the cooling fan in thousand revolutions per minute.

- U_{OUT}: The voltage at the output of the dimmer.

- I_{OUT}: The current at the output of the dimmer.

- P_{OUT}: The total power supplied to the devices connected to the dimmer.

- **cos φ:** The power factor of the load as estimated by the dimmer. A value of 1 means a purely resistive load, a lesser value means that the voltage and current are not in phase due to a capacitive or inductive load.

The measurement screen can be found under *Home > Menu > System Status > Measurements.*

Notifications

This screen shows a list of all current notifications; It can be found under *Home > Menu > System Status > Notifications.* A list of all notifications and their meaning is provided in the section Notifications and Troubleshooting on page 22. If one or more notifications are present, the notification symbol is displayed on the home screen (see Home Screen, page 11), as well as in the main menu and the System Status menu:
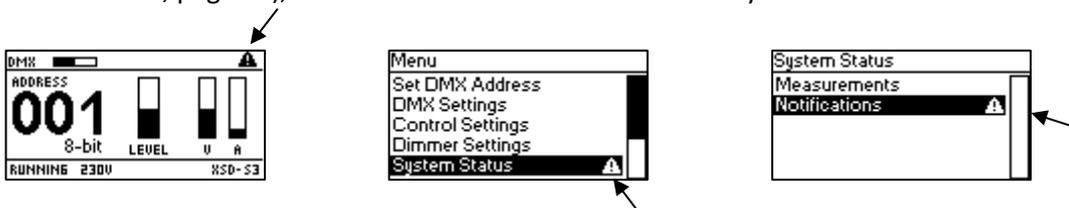
In the notification list, the notifications are sorted by the time of creation, the newest being at the top of the list.
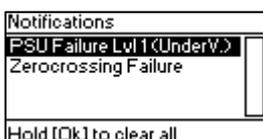
Clear a Notification

To delete the selected notification, push [OK]. This will show a dialogue asking for confirmation to delete the selected notification. Confirm by pressing [OK] a second time.
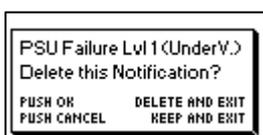
This will preserve all other notifications. While there are remaining notifications in the list, the notification icon will be displayed on the home screen and in the menu.
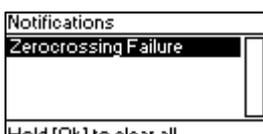
Clear all Notifications

To clear all notifications, the [OK] button is pushed down for 3 seconds, and the subsequent dialogue is confirmed with [OK].

This will leave an empty notification list, and the notification icon will no longer be displayed on the home screen and in the menu.
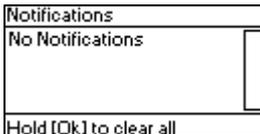
System Settings

The system settings can be found under *Home > Menu > System Settings.*

Device Label

The device label is displayed on the bottom right of the home screen (see Home Screen, page 11) and reported over RDM. It can be changed in the settings under *Home > Menu > System Settings > Device Label*, or over RDM. The following sections describe how the label text can be edited on the device.

Deleting Text

In order to delete a text line or a part of it, position the cursor immediately to the left (or right) of the first (or last) character you want to delete.
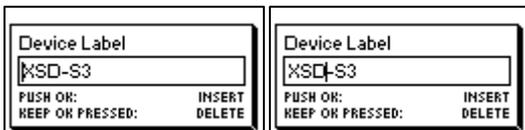
Then keep [OK] pressed and turn the encoder until all of the text that you wish to delete appears highlighted.
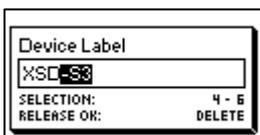
As you release the [OK] button, the highlighted text is removed.
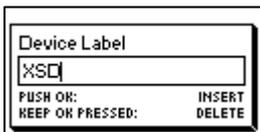
Inserting or Appending Text

To append or insert text, move the cursor to the position where you want to add your text.

```
Device Label
XSD|

PUSH OK:          INSERT
KEEP OK PRESSED:  DELETE
```
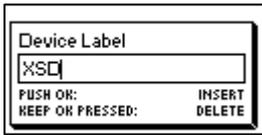
Then push the [OK] button and select a character to add.

```
Device Label
XSD|

◄ 456789() ▬ .?!"%'·A ►
```
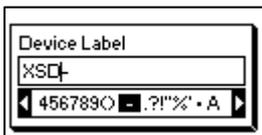
Confirm your selection by pressing [OK].

```
Device Label
XSD+

◄ 456789() ▬ .?!"%'·A ►
```
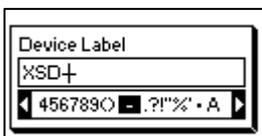
Repeat the above steps for the remaining characters. Then press [cancel] to finish editing.

```
Device Label
XSD-|S

◄ NOPQR S TUVWXY ►
```
```
Device Label
XSD-S|S

◄ NOPQR S TUVWXY ►
```
```
Device Label
XSD-S|3

◄ uvwxyz012 3 456789() ►
```
```
Device Label
XSD-S3|3

◄ uvwxyz012 3 456789() ►
```

Press [cancel] again to quit the editor.

```
Device Label
XSD-S3|

PUSH OK:          INSERT
KEEP OK PRESSED:  DELETE
```
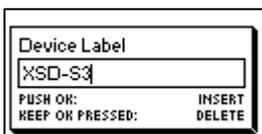
Press [OK] to save the changes or press [cancel] to discard all changes.

```
Device Label
XSD-S3

OK       EXIT AND SAVE
CANCEL   EXIT AND DISCARD
```
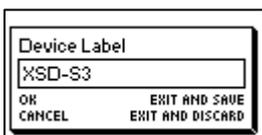
Identify Mode

Devices with RDM can offer the feature of being identified over RDM. This will cause them to make themselves noticeable, e.g. by flashing an LED on the device, which allows them to be easily locatable in larger installations with many similar devices.

After receiving a request to identify itself, the dimmer will stay identified for two minutes. Please note that some RDM controllers might resend the identify request automatically.

The XSD-S3 supports two identify modes to choose from, which affect the behaviour of the dimmer when it is identified over RDM.

- **Silent:** Only the screen and the status LED blink when the device is identified.

- **Loud:** In addition to the screen and LED blinking, the output switches between 0 and 70 percent of the defined maximum output voltage, in order to let the connected lamps blink as well. In this case, the output level that would otherwise be requested is thus fully overridden while the device is being identified.

This setting can be found under *Home > Menu > System Settings > Identify Mode.*

Mute Power LED

The power indication by the LED on the front is mutable, in case the brightness of the LED is disruptive. If the LED is muted, it is off during normal operation, but it will flash during identification and when the AC supply is missing. This setting can be found under *Home > Menu > System Settings > Mute Power LED.*

System Information

The following information about the device is available under *Home > Menu > System Settings > System Information*.

Model

The device model is reported as "XSD-S3" for all variants of the XSD-S3.

UID

The RDM Unique Identifier for this device.

Boot Software

The full version number of the boot software.

Firmware

The full version number of the firmware.

Hardware

The hardware revision.

Reboot System

This menu allows the device to be rebooted, and can be found under *Home > Menu > System Settings > Reboot System.* Push [OK] to confirm or [cancel] to abort. The device will then restart automatically.

Restore Default Settings

The default settings can be restored under *Home > Menu > Restore Default Settings*. Push [OK] to confirm or [cancel] to abort.

Notifications and Troubleshooting

The XSD-S3 features a notification system, which reports any issues during operation and facilitates troubleshooting.

Whenever a notification is active and visible in the notifications menu, the notification icon is displayed on the top right of the home screen (see Home Screen, page 11) and in the menu.

The notification(s) can then be viewed under *Home > Menu > System Status > Notifications.* The notification screen is detailed above under Notifications on page 19.

Below, a list of all possible notifications is compiled, together with a brief explanation of the underlying issue and the recommended measure to resolve the issue.

Troubleshooting List

Notification Text	Explanation	Measure
Overload Lvl 1	Hardware overload: The dimmer was shut down in order to protect the power electronics from irreparable damage, due to very high currents being detected.	Check for short circuit at the load. Contact support if persistent.
Overload Lvl 2	Software overload: The dimmer was shut down due to very high currents being detected by the software.	Check for short circuit at the load.
Overload Lvl 3	Oversize load detected: The dimmer was shut down because the resistance of the connected load is very small, indicating a load which is much too big.	Check for short circuit at the load or if the connected loads exceed the specified output power of the dimmer.
Overload Lvl 4	Thermal overload: The dimmer was shut down because it has been operated for a longer than tolerable time outside of its design parameters.	Check if connected loads exceed the specified output power of the dimmer. Reduce the output power of the dimmer.
Grid Overvoltage	The detected AC supply voltage is too high.	Check the AC supply source.
Grid Undervoltage	The detected AC supply voltage is too low.	Check the AC supply source.
Zerocrossing Failure	The dimmer failed to detect a zero-crossing in the AC supply current for longer than tolerable.	Check the AC supply source.
PSU Failure Lvl 1 (OverV.)	The power supply unit of the electronics of the dimmer is generating a voltage which is too high.	Contact support.
PSU Failure Lvl 1 (UnderV.)	The power supply unit of the electronics of the dimmer is generating a voltage which is too low.	Check the AC supply source. Contact support if persistent.
PSU Failure Lvl 2	The power supply unit failed to drive the power electronics of the dimmer.	Check the AC supply source. Contact support if persistent.
External Voltage	The dimmer detected external voltage on the wires connected to its output.	Check the output cabling for any sources possibly connected.
Overtemperature	The temperature inside the dimmer reached an intolerable value.	Let the dimmer cool down. Provide better airflow, clean ventilation slots from dust. Move dimmer to cooler environment.
Fan Jammed or Missing	The fan failed to spin. This could be due to missing power supply, i.e. as a result of another issue.	Contact support if persistent.

RDM

RDM stands for Remote Device Management. It is a protocol which allows bi-directional communication between the lighting controller and the RDM compliant devices connected to it. RDM is used to change settings on such devices remotely, as well as for requesting information which can then be displayed on the controller.

The XSD-S3 is fully RDM enabled, implementing the mandatory and many additional functionalities defined in the ANSI standard E1.20, as well as the newer, dimmer specific E1.37-1 standard.

A complete list of the currently supported RDM parameters, their arguments and functionality is given below, in the Appendix on page 30. This list is subject to change, as in the future, further RDM parameters may be added.

DMX Fail and Startup Mode over RDM

By the RDM standard, the DMX failure and startup behaviour of a dimmer are defined by four arguments: A scene, either recorded or predefined on the device, the delay after which the scene should be played, the time it should be held and the level at which the selected scene is played. The failure and startup behaviour can be adjusted through the RDM parameters DMX_FAIL_MODE (0x0141) and DMX_STARTUP_MODE (0x0142) using these four arguments.

On the XSD-S3, scenes are not implemented and thus not used to define the failure or startup behaviour. Further, the hold time is always infinite. The parameters defining the scene number and the hold time have no meaning and can be chosen arbitrarily. They will always be reported as 0 (scene number) and 65535 (hold time). The following sections explain how the settings can be changed on the XSD-S3 using the RDM parameters.

DMX Fail Mode

DMX Fail Mode as specified by RDM				XSD-S3 Failure Behaviour
Scene Number	Loss of Signal Delay	Hold Time	Level	
x (0)	65535	x (65535)	x	Hold
x (0)	0 – 600	x (65535)	0 - 255	Change level to "Level" after the "Loss of Signal Delay" specified in deciseconds.

See also under Failure Behaviour, page 16.

DMX Startup Mode

| DMX Startup Mode as specified by RDM				XSD-S3 Startup Behaviour
Scene Number	Startup Delay	Hold Time	Level	
x (0)	0 – 10	x (65535)	0 - 255	Change level to "Level" after the "Startup Delay" specified in deciseconds. **Note**: In the menu, the delay can be adjusted in steps of centiseconds.

See also under Startup Behaviour, page 16.

Firmware Updates

Firmware updates will be provided on the product page on the Swisson website. For updating the firmware, a PC with Windows (Vista or later) and a Micro-USB cable (Standard-A to Micro-B) is needed. Please refer to the documentation provided on the product web page of the XSD-S3 for a detailed description of the process.

Technical Data

AC power input .... 100-120 and 220-240 V AC

Operation frequency.. 50/60 Hz

Nominal output power.. 3 kW

Max output current (RMS) .... 13 A

Electronic fuse... Yes, short circuit proof

Minimum ambient temperature.................................. -10°C / 14°F

Maximum ambient temperature .... 50°C / 122°F (3 kW)
60°C / 140°F (2 kW)

Preheat.. Off or 6 – 20 V

Adjustable maximum voltage .... 100 – 240 V

DMX personalities.. 2 (8-bit / 16-bit)

Dimmer curves 4

DMX in / through .... 1 / 1

DMX... ANSI E1.11

RDM .... ANSI E1.20
ANSI E1.37-1

Weight... 3 kg / 6.6 lb.

Dimensions XLR Models

132 mm / 5.2 in

65 mm / 2.6 in

416 mm / 16.4 in
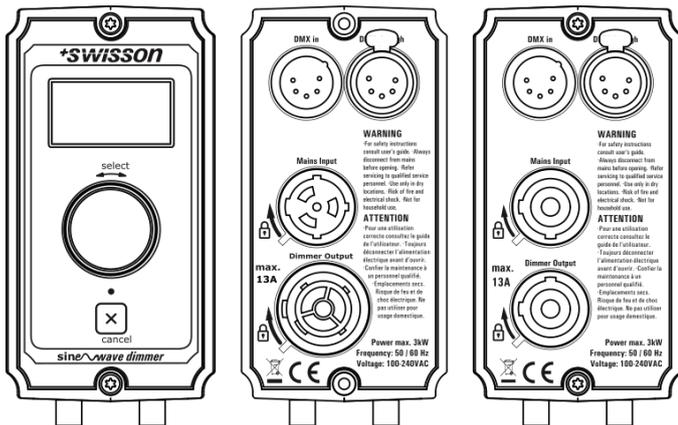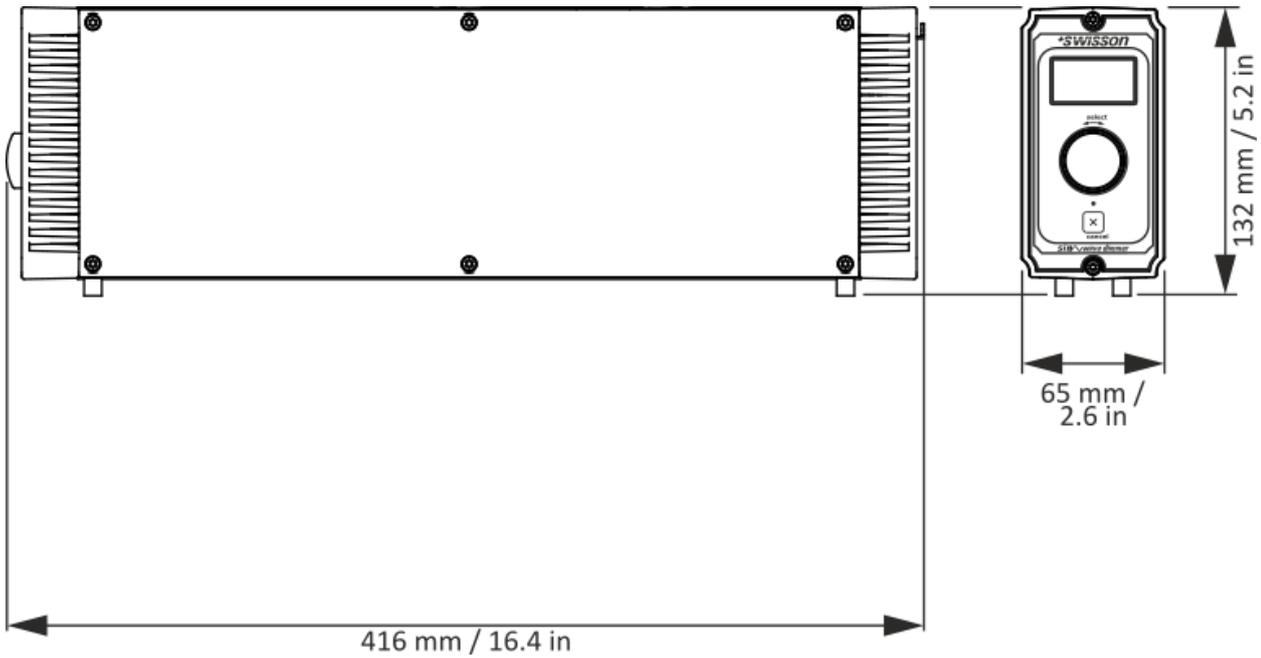
Dimensions Terminal Model

168 mm
6.6 in

406 mm
16 in

85 mm
3.34 in
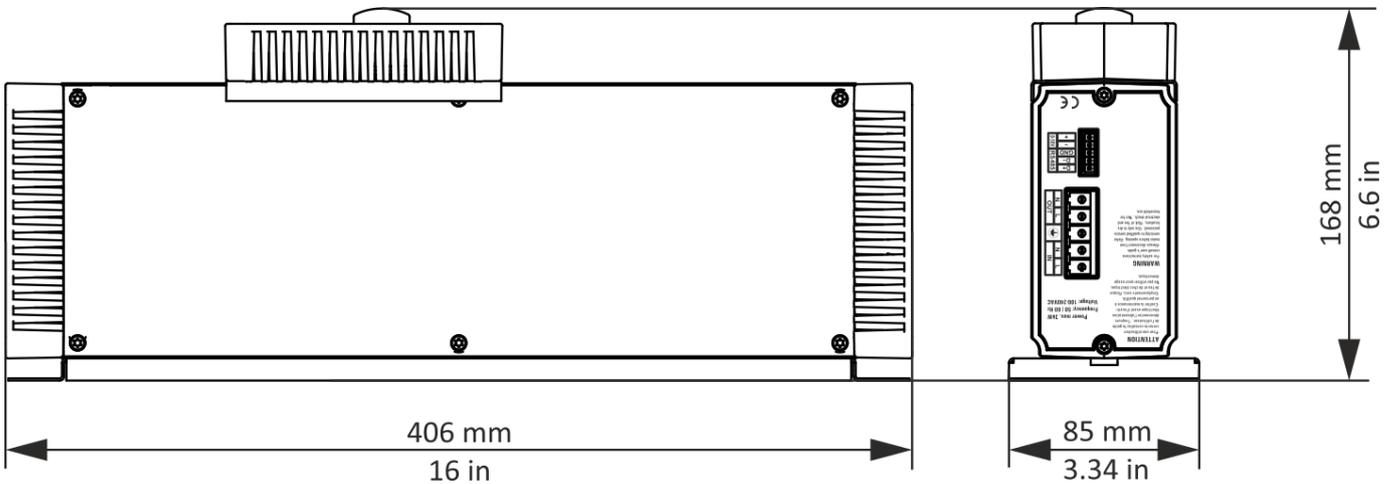
Ordering Information

XLR Models

10 80 12	XSD-S3-BC-5	3 kW, powerCON (blue, white) input and dimmer output, 5-pin XLR connectors with pins 4 and 5 used for 0-10V input
10 80 18	XSD-S3-YC-5	3 kW, powerCON TRUE1 (yellow, black) input and dimmer output, 5-pin XLR connectors with pins 4 and 5 used for 0-10V input

Terminal Model

10 80 20	XSD-S3-TC-T	3 kW, terminal connectors for power input and dimmer output, terminal connectors for all signal inputs

Appendix

Table of RDM Parameters

Value	Name	Get	Set	Description
0x0001	DISC_UNIQUE_BRANCH			Used for device discovery.
0x0002	DISC_MUTE			
0x0003	DISC_UN_MUTE			
0x0050	SUPPORTED_PARAMETERS	x		Returns a list of all RDM parameters supported by this device.
0x0060	DEVICE_INFO	x		Returns a variety of information about the device.
0x0080	DEVICE_MODEL_DESCRIPTION	x		Returns the name of the device model.
0x0081	MANUFACTURER_LABEL	x		Returns the name of the manufacturer.
0x0082	DEVICE_LABEL	x	x	Get: Returns the label of the device. Set: Takes the label to be set as argument (up to 32 ASCII characters).
0x00C0	SOFTWARE_VERSION_LABEL	x		Returns the version name of the firmware.
0x00C1	BOOT_SOFTWARE_VERSION_ID	x		Returns the version number of the bootloader.
0x00C2	BOOT_SOFTWARE_VERSION_LABEL	x		Returns the version name of the bootloader.
0x00E0	DMX_PERSONALITY	x	x	Get: Returns the index of the currently selected personality and the total number of personalities. Set: Takes the index of the personality to be set as argument (ranging from 1 to 2, see Personality).
0x00E1	DMX_PERSONALITY_DESCRIPTION	x		Takes the index of the requested personality as argument (ranging from 1 to 2, see Personality). Returns a description of the requested personality.
0x00F0	DMX_START_ADDRESS	x	x	Get: Returns the currently set DMX address of the device. Set: Takes the DMX address to be set as argument.
0x0120	SLOT_INFO	x		Returns information about the slots currently occupied by the device (depends on selected personality).
0x0200	SENSOR_DEFINITION	x		Takes the index of the sensor as argument (ranging from 0 to 5). Returns information about the sensor, but not its value.
0x0201	SENSOR_VALUE	x	(x)	Get: Takes the index of the requested sensor as argument. Returns the current sensor value (lowest, highest, and recorded value are not implemented). Set: Not implemented.

0x1000	IDENTIFY_DEVICE	x	x	Get: Returns whether the device is being identified or not. Set: Takes 0 or 1 as argument, 1 to start identifying the device and 0 to stop the identification.
0x0340	DIMMER_INFO	x		Returns various information about the dimmer.
0x0343	CURVE	x	x	Get: Returns the index of the currently selected curve (ranging from 1 to 4, see Dimmer Curve) and the total number of curves available. Set: Takes the index of the curve to be set as an argument (ranging from 1 to 4, see Dimmer Curve).
0x0344	CURVE_DESCRIPTION	x		Takes the index of the requested curve as argument (ranging from 1 to 4, see Dimmer Curve). Returns information about the requested curve.
0x1040	IDENTIFY_MODE	x	x	Get: Returns 0 if the identify mode is silent, or 255 if it is loud. See also under Identify Mode. Set: Takes either 0 (for silent) or 255 (for loud) as argument. See also under Identify Mode.
0x0345	OUTPUT_RESPONSE_TIME	x	x	Get: Returns the index of the current response time (ranging from 1 to 4, see Response Time) and the number of the totally available response times. Set: Takes the index of the response time to be set as argument (ranging from 1 to 4, see Response Time).
0x0346	OUTPUT_RESPONSE_TIME_DESCRIPTION	x		Takes the index of the requested response time (ranging from 1 to 4, see Response Time) as argument and returns a description of the requested response time setting.
0x0141	DMX_FAIL_MODE	x	x	See under DMX Fail and Startup Mode over RDM, page 24.
0x0142	DMX_STARTUP_MODE	x	x	

07.12.2017