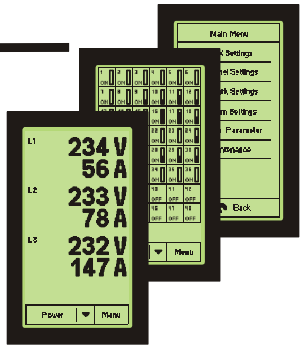
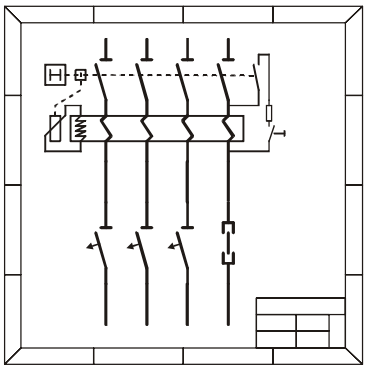
XSD-I48
Sine Wave Installation System

SineWave-Technology

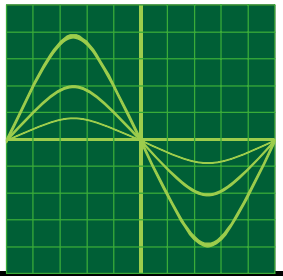
Control-Management



Installation-Management

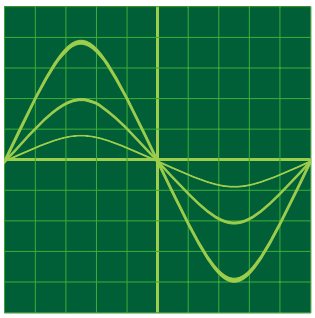


Sinewave Power-Management



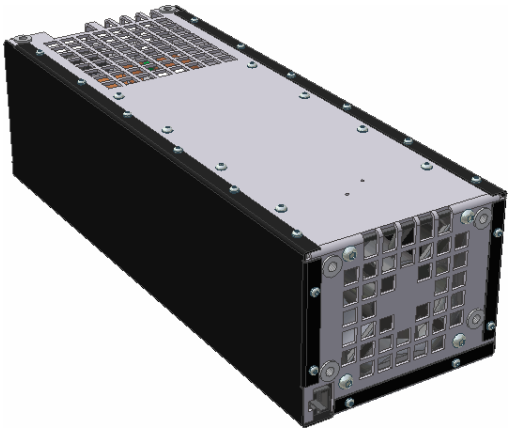
Assembling- Flexibility

Overview



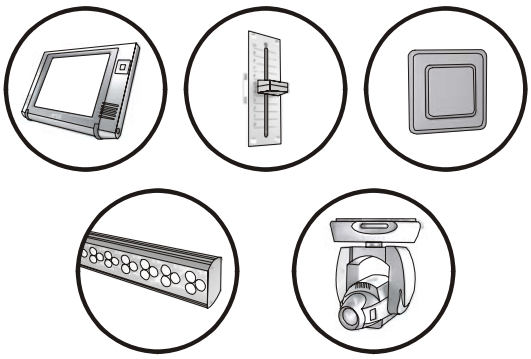
Sine Wave-Technology

The core of the XSD-I48 Sine Wave Installation System is assembled with the award winning *sine wave-power module* from SWISSON. Compared to traditional phase cutting technology, sine wave dimming technology has many more advantages. No disturbances are produced with the XSD-I48 since nothing is cut off of the sine wave and only the amplitude of the sine wave is limited. Lamp filament sing, flickering images on video applications and the annoying buzzing sound on audio equipment is completely eliminated. The XSD-I48 does not create reactive power. This in turn makes the electrical installation easier to perform and more cost effective by removing the need of adding costly suppressors and reducing the amount of cable needed in the installation. The XSD-I48 Sine Wave Installation System is also seen as a very electrically efficient, or "green", device.



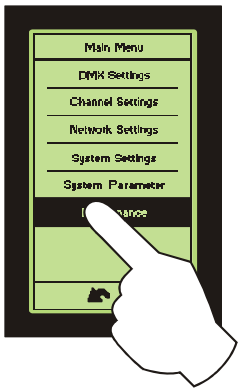
Sine Wave-Power-Management

SWISSON'S s*ine wave- power modules* are very reliable, even when used under a constant full load or in hard touring applications. The XSD-I48 Sine Wave Installation System can contain 1 to 12 modules and can be assembled or disassembled very quickly and easily. Each *sine wave-power module* contains its own microprocessor and switching power supply. The modules are also short circuit- and over voltage proof. The power configuration of each module can be any one of the following: 4x2.5kW, 2x5kW or 1x10kW.



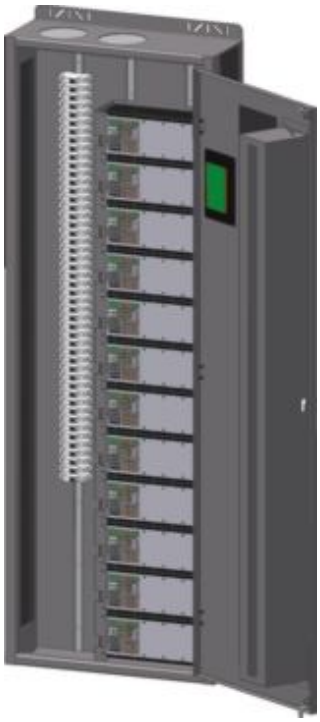
Installation-Management

The XSD-I48 Sine Wave Installation System, from SWISSON, meets all the expectations of a modern and innovative management system. Project specific solutions can be found easily and cost effectively. The multi-functional control management system contains: DMX and Ethernet interface, switching relays, 0-10V, media control and potentiometers.
The XSD-I48 can also run in a standalone mode, setting scenes or switching on and off relays. External devices like LED systems or moving lights can be integrated with the DMX output of the system.



Control-Management

The XSD-I48 is operated through a user-friendly touch screen display. The potential total power of the electric control cabinet is 120kW and can be accessed quickly and efficiently through this interface. As a safety and security feature, the system can be locked and unlocked through the use of a password.



Assembling-Flexibility

The electrical control cabinet can be adapted quickly making it flexible in meeting different project requirements and needs.
The electrical control cabinet from Swisson is designed to hold a maximum of 12 *sine wave-power modules*.
The electrical control cabinet is not equipped with a specified wiring system allowing the user to custom configure the cabinet exactly the way they would like it.
The customer can install and use any number of fuses that they specify for projects that the XSD-I48 will be used in.
The *sine wave-power module* is connected to the control management through a standard RJ45 cable.
This assures trouble free communication between the electrical control and the power management systems.

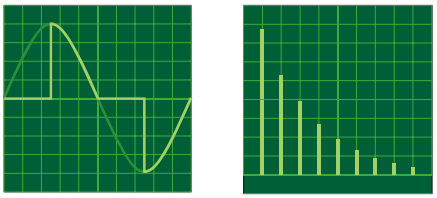
Air Conditioning Technology
The electric control cabinet has a layout for:

- Conventional open room cooling or
- Closed air conditioning system, a 0-10V interface is integrated.

System Extension
The XSD-I48 can be connected with other XSD-I48 systems to create a larger system with more power if your application requires it.

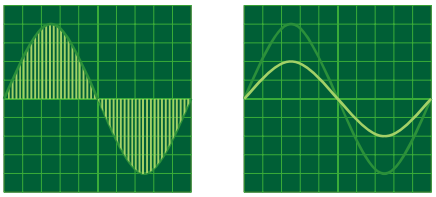
Table of contents

The advantages of sine wave dimming technology



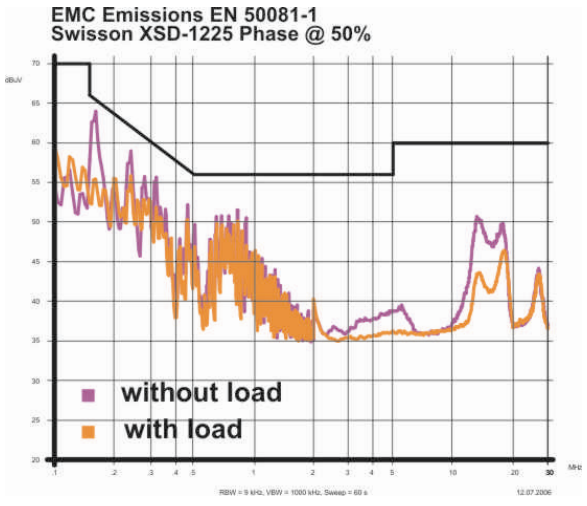
Eliminate harmonic interferences produced by “traditional” dimming systems.

Conventional dimmers working with traditional phase cutting technology, literally cut out a portion of the sine wave. That removal of this portion of sine wave is what produces harmonic interferences.
This interference expresses its self in a multitude of ways such as: a buzzing sound on audio equipment, flicker on video equipment and the typical buzz of floodlights or “filament sing”.
All of these interferences produced by traditional phase cutting technology produce high amounts of costly reactive power
SWISSON’S sine wave dimming technology does not create any of the above mentioned interferences that are created through the use of traditional dimmer technology and is by far superior in many points.



SWISSON’S Sine wave dimmer principles

SWISSON’S Sine Wave dimmer does not cut out any portion of the sine wave leaving it completely intact. Only the amplitude of the sine wave is limited when dimming.
This patented Sine Wave Dimming System from SWISSON works reliably under extreme situations, such as flashing, without producing any electrical interferences. This is achieved through PWM modulation (Pulse Width Modulation).



No interferences with the XSD from SWISSON

The XSD from SWISSON keeps the out going power to applications in a perfect sine wave. This means that there will not be any kind of harmonic interferences produced that can affect and disturb delicate sound, film and video equipment.

High frequencies are no problem with the XSD from SWISSON

Attention was paid to the importance of the electromagnetic compatibility of the XSD dimming system during its development.
Very complex filters with a patented electronic design are responsible for disturbance free operation.

The advantages of sine wave dimming technology

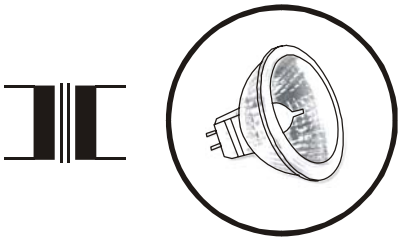
Silent dimming

Buzz at the coil of a bulb is not there any more and completely eliminated with the XSD.
Silent operation is now possible with noisy spot lights such as the PAR64.

$$\cos(\varphi) = 1$$

No reactive power

Conventional phase cutting dimmers produce quite a considerable amount of reactive power.
Through the addition of this reactive power, cable must be oversized to work with the load.
In countries where the reactive power part will be absorbed, the costs are significant.
In a phase cutting dimmer the reactive power is not constantly at the same level, and can not be simply compensated with a filter.
The only solution is a dynamic reactive power facility which will be an expensive solution.
The XSD from SWISSON produces no reactive power so all reactive power problems are gone.



Inductive load and capacity load dimming

The XSD Sine Wave dimmer from SWISSON can dim inductive loads like low voltage halogen spots or PAR36 with out any problems.

0 W

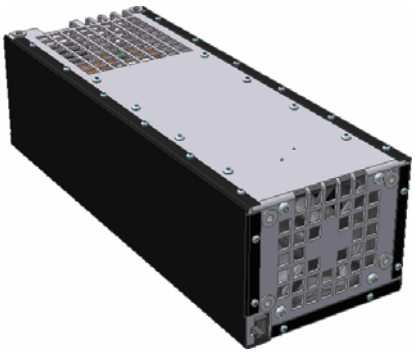
Minimal load dimming

With the XSD sine wave dimming technology a minimum load is not necessary. You can dim all loads effective from 0 watts.

Frequency independence

The XSD acts independent of the main frequency. In a facility where the mains are extremely disturbed the SWISSON sine wave performs perfectly without any inconvenient flicker.
The round steering signal of the mains doesn't affect the XSD sine dimmer.

Sine wave power module



A strong independent module solution

The *sine wave power module* from SWISSON has its own microprocessor where management and execution of the power supply unit is completely independent.

- Current Management:

Continuous control of the output current.

- **Failure Management:**

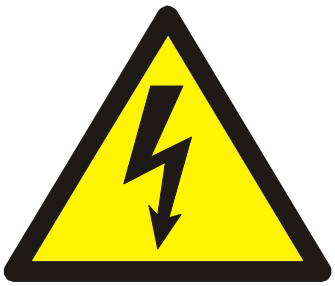
System automatically detects and quickly turns system off in the event of a short circuit, power over load or over temperature.

- Air conditioning Management

A high power fan is managed continuously through two internal temperature sensors.

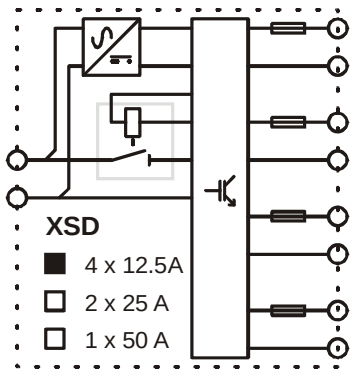
- Assembling Management

Multiplexing with the *sine wave power module* and the control management / master unit is done simply with a RJ45 cable. This assures trouble free communication. The input and output wiring can be connected through the WAGO clamp.



Overload Information

The power supply voltage is constantly monitored. The module power supply unit is rated for voltage up to 450VAC. The XSD automatically shuts off if the power supply is not properly configured. The power section of the sine dimmer is protected by a relay. This relay is used in the Stand By Mode when the power section unit turns off completely.



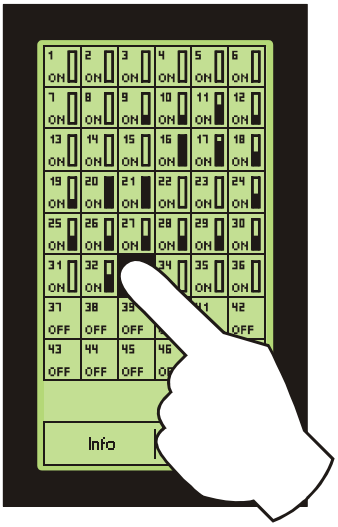
Overload and short circuit protection Information

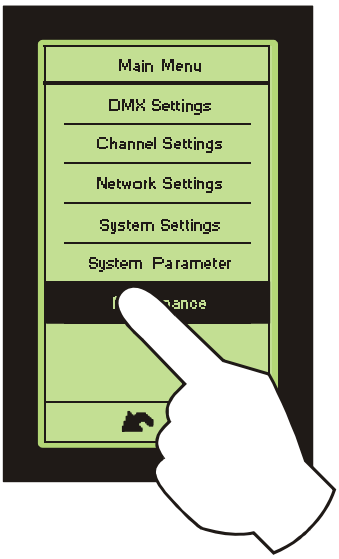
Through the technology of the XSD its *sine wave power modules* are 100% short circuit proof.
The power supply is constantly monitored and controlled. When an over load is detected on a particular channel, only that particular channel is shut off. In extreme situations like a short circuit there is a fast electronic component that is responsible for turning off the device. The addition of a built in fuse is responsible for protection in case of electronic failure regarding the international device protection standards. It's possible to turn on channels that have been shut off through remote operation.

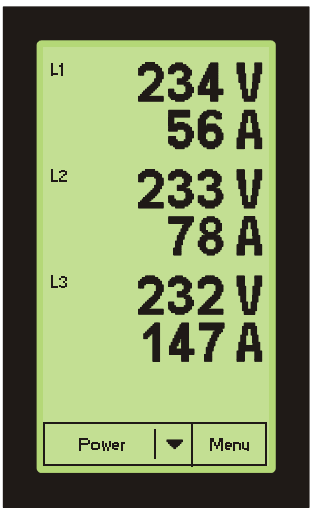
Sine wave power module program

- Operating voltage 230V
4x 2.5kW, 2x 5kW, 1x 10kW
- Operating voltage 120V
4x 1.25kW, 2x 2.5kW, 1x 5kW

Control-Management







Operation friendly

The handling of the XSD-I48 from SWISSON is simple to use and intuitively laid out through a touch screen interface for control management.
The control management access can be built upon different user levels and be adjusted through the use of pass words.
The intuitive menu guidance allows simple operation.

Fast and uncompromising access

The status of all 48 channels is visible at a glance
The wanted channel can be simply dialled over the touch screen.
Depending on the user level, there will be displayed only the channel information, or there will be a direct access for a channel change.
Depending on the mode there will be an electronic fuse to switch on or off so the channel can be tested directly.

Status display for each module

Input Voltage [V]
Temperature [°C]
Main frequency [Hz]

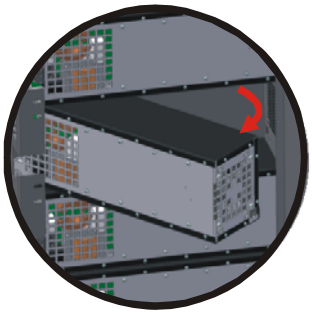
Status display for each cannel

Maximum Output Voltage [V]
Preheat voltage [V]
Output voltage [V]
Output current [A]
Output power [W]

Settings for all channels

Maximum output voltage
Pre-heating
Dimming curve

Installation-Management-System



Control fuse and module cabinet

The XSD-I48 Installation System from SWISSON is designed and built to be used in a specially developed switch cabinet.
The closed cabinet can be easy operated through the large touch screen.
Fuses can be visible or closed with a service door.

Assembling *sine wave power module*

The insertion or removal of the *sine wave power module* is done easily when used with specially designed metal profile. Control is done with a RJ-45 network cable.
The cable is set in the provided cable channel.
The input and output wiring is simply connected to the WAGO clamp

Assembling of the electric

The system's electronics are flexible and can be adjusted, depending upon the project or customers need.
The installer has the ability to use specifically specified products like fuses or cable necessary for installation, regional or location needs.
On request SWISSON offers complete electrical wiring for the XSD-I48.
The *sine wave power module* comes with a safety fuse for each circuit.
To the customer needs or local standards, 1-pol and 2-pol magnetic circuit breaker (MCB), residual current device (RCD) or combined residual current circuit breaker (RCBO) can be connected.

Access to the fuses

In the switch cabinet are two different DIN-track in fixed locations. One has an open access for the user and the other one is closed for the installer. The open one can be closed through a service door.

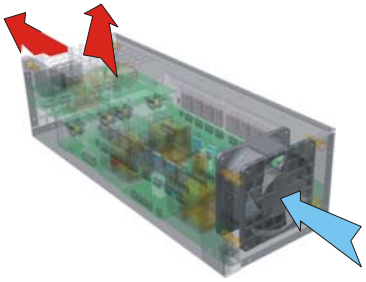
Customer requirements cut-out

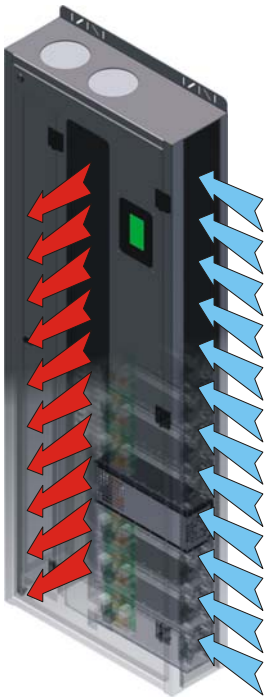
A cut out on the top of the cabinet is produced depending upon the need of the customer requirements for cabling and or air conditioning.

Installation system program

- Basic System:
Switch cabinet, control unit, sine wave power modules
- Complete system:
On request

Installation-Management-Air Conditioning





Cooling of the module

The SWISSON s*ine wave power module* are developed, checked and optimized with a heat picture camera for reliable air ventilation.
Every s*ine wave power module* has its own high power fan controlled by two temperature sensors.
The high power fan is continuously adjusted by the temperature.
Depending of the project size, regarding installation system or room, there are different kinds of air conditioning possibilities.

Open cabinet module ventilation

The s*ine wave power modules* are cooled through their own fan. The cabinet XSD-I48 is optimized that the air flow passes the module in a perfect way.
Fresh air vents on the side can be cleaned with a dust filter. The dust filter can be changed easily from the outside. Open room ventilation has to be checked to make sure there is enough fresh air. In very small rooms SWISSON recommends an additional fan built on top of the cabinet. An interface existing on the control unit allows for this to happen.

Closed cabinet ventilation

The change from the front perforated sheet to a full sheet is the outcome of a ventilation shaft.
The cabinet shaft can be connected at the top to the air conditioning system. It is possible to build in additional standard fans.
The exhaust air can be conducted or used for energy recovery.

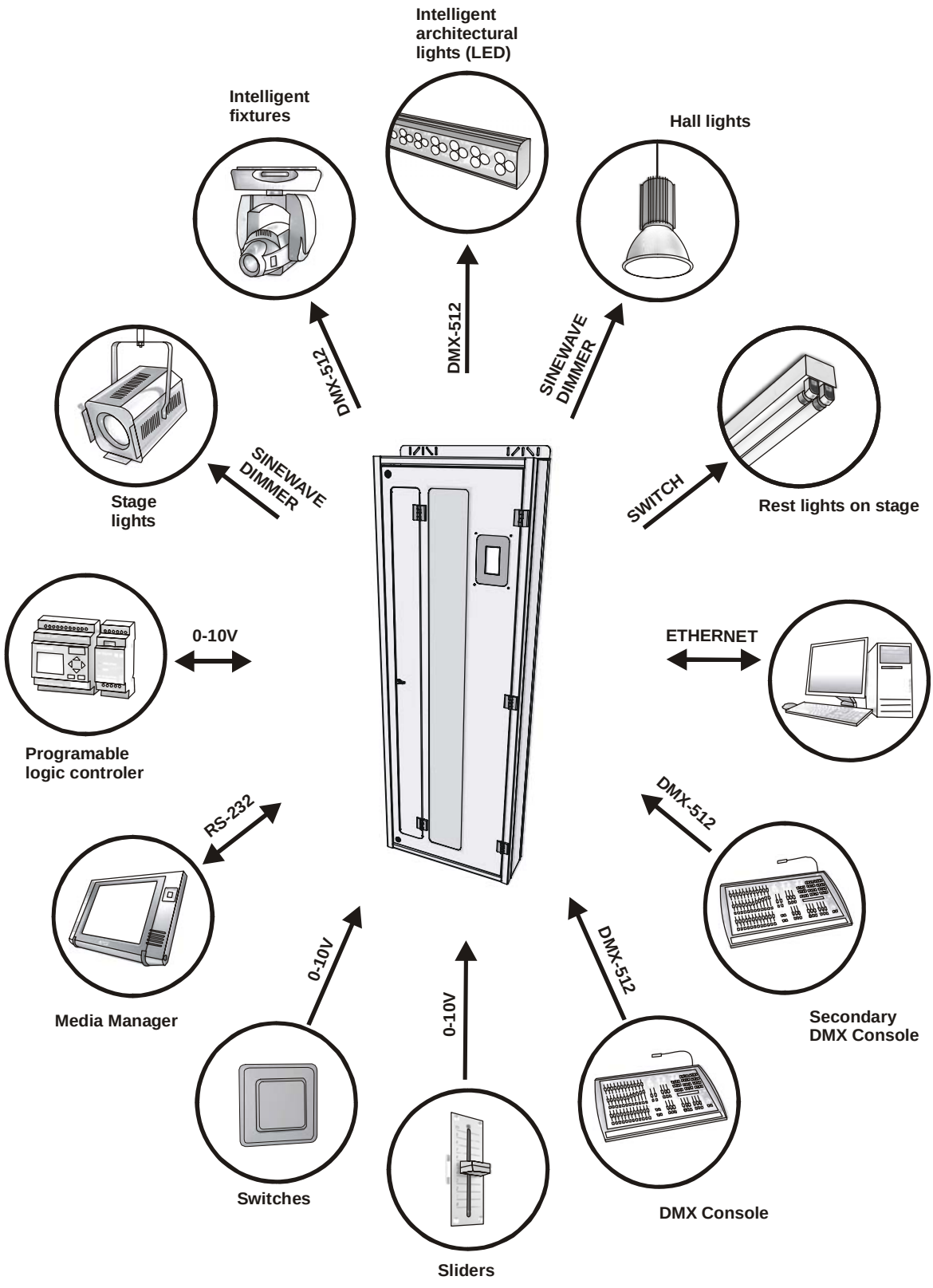
Room climate

The room climate has to be adjust to:
- Amount of XSD-I48 cabinets
- open or closed air conditioning

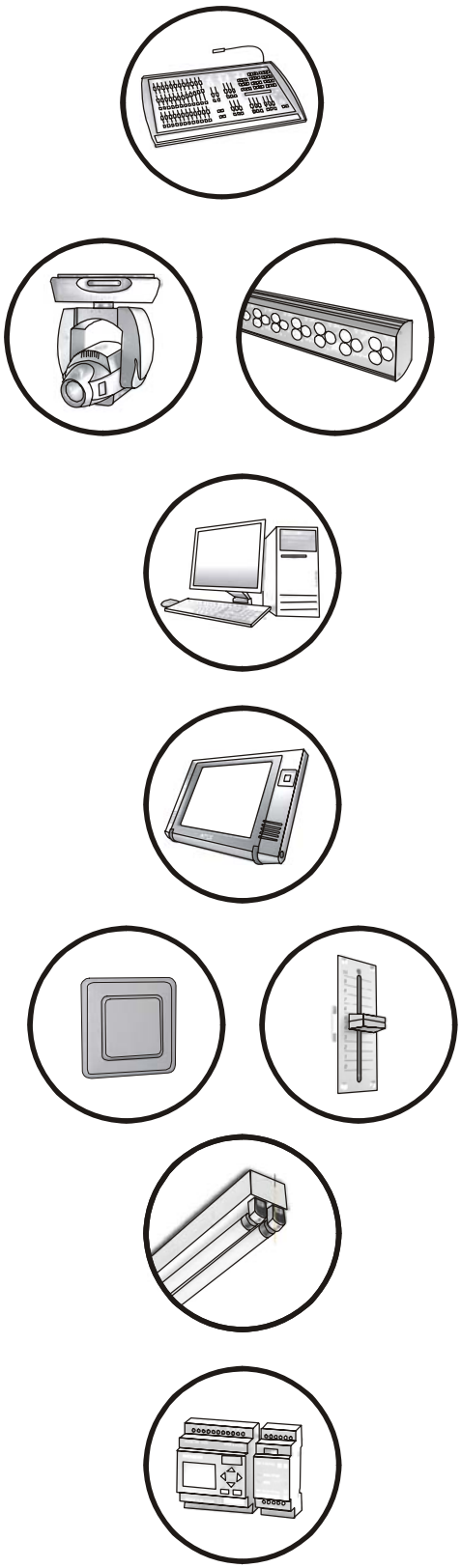
We recommend calling an air conditioning expert.
The SWISSON installation system is equipped with measuring and reporting possibilities for an external air conditioning unit.
For example the cabinet temperature can be reported through a 0-10V signal. This signal can be easy control by the air condition unit.
If the room contains a lot of dust, the cabinet equipped with dust filter.

Installation-Management-Overview

More than a dimming system



Installation-Management-Interfaces



Concept

The XSD-I48 Sine Wave Installation System is equipped with numerous interfaces.
Through that flexibility is it possible to connect many different kinds of components.

DMX IN (2x)

The system has 2 DMX inputs. Enabling patching to two DMX universes (1024 channel) or the two lines can be merged into one universe. The merge mode can be used for secondary connection points or a second back DMX lighting consol.

DMX OUT (2x)

The XSD-I48 stored scenes are not only limited to their own dimmer channels. For additional channels there will be a DMX output interface.
It's possible to integrate into a scene LED or moving lights.

Ethernet

Status information is displayed on a PC over Ethernet. The configuration of the system can also be done over the PC.

Media controller (RS232)

Over the RS232 interface orders can be sent to the system. Modern Media controllers can be easily connected with the XSD-I48.

Digital and analog input

Scene can be controlled by digital and analog input.

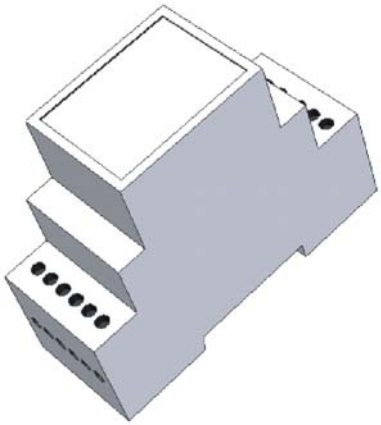
Relay output

There are relay output interfaces
For example maintenance lights can be controlled

SPS - Controller output 0-10V

When there is the need for an application or function which are not in the basic function of a XSD-I48, then the XSD-I48 provides interfaces for 0-10V in and output. SPS-controllers can be easy connected.
Parameter like temperature, DMX failure and so forth can be sent as 0-10V signal.

Installation-Management-Interfaces



Track module system

There are different types of track modules available:
- 0-10V in put
- 0-10V out put
- Relay

The DIN track module can be connected to the control management over a serial bus system.
It is possible to connect 32 of those tracking modules.
Those tracking modules can be installed inside the XSD-I48 or externally.

Track module program

0-10V Input

XRI-AI5 5 analog in put 0-10V,
Can be used also digital 0/5V or 0/10V

0-10V Out put

XRI-AO5 5 analog out put 0-10V

Relay

XRI-R210 2 change relay 10A

Configuration installation management

	I48-Standard	I48-Ethernet
DMXin	2	2
DMXout	2	2
AUX	✓	✓
RS232	✓	✓
Ethernet	×	✓
Realtime Clock	✓	✓
Anz. Dim Module	12	12

Installation-Management-Overview