

XSP / XSR DMX Splitter & RDM Hub User Manual

XSP / XSR
DMX Splitter /RDM Hub
User Manual

Issue 4 (2010-06-15)

Copyright © 2010 SWISSON AG

No part of this documentation may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, without the prior written permission of SWISSON AG.

The information in this documentation is supplied without warranty of any kind, either directly or indirectly, and is subject to change without prior written notice. SWISSON its employees or appointed representatives will not be held responsible for any damages to software, hardware, or data, arising as a direct or indirect result of the product(s) mentioned herein.

Dieses Dokument darf weder vollständig noch auszugsweise in irgendwelcher Form reproduziert, kopiert oder gespeichert werden, ohne das vorherige schriftliche Einverständnis der Firma SWISSON AG.

Die Informationen in diesem Dokument sind ohne jegliche Gewähr und können ohne vorherige Ankündigung jederzeit im Sinne des technischen Fortschritts geändert werden. SWISSON und seine Angestellten oder seine Vertreter sind nicht verantwortlich für Schäden, welche direkt oder indirekt mit den in diesem Dokument beschriebenen Geräten entstanden sind.

Issued by

SWISSON AG
Fabrikstrasse 21
CH-3250 Lyss
Switzerland

SWISSON of AMERICA Corp.
2419 East Harbor Blvd. #34
Ventura, CA 93001
U.S.A.

E-Mail: welcome@swisson.com

XSR and XSP

DMX Splitter/Booster & RDM Hub

Introduction

The XSR and XSP series of RDM hubs and DMX splitter/boosters, from SWISSON can be easily and economically integrated into any lighting system where you wish to split and boost DMX and RDM signals.

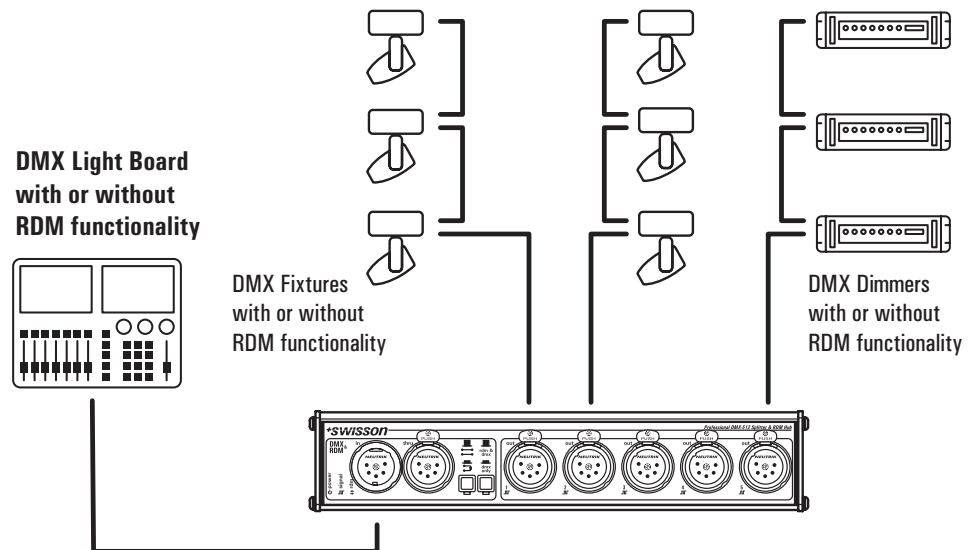
While the XSP splits and boost only DMX signals, the XSR also detects RDM Data and use its bidirectional functionality to report back to the Controller (Lighting Board).

All output ports on both XSP and XSR are optically isolated. A strong power supply allows a reliable operation in a wide voltage range. A large program of XSR and XSP devices is available; consisting of different housings, different connector types and different numbers of input and output ports.

Applications

- Concert Lighting
- Live Events
- Multimedia Shows
- Theater
- TV Sets
- Theme Parks
- Architectural Lighting

Typical Application

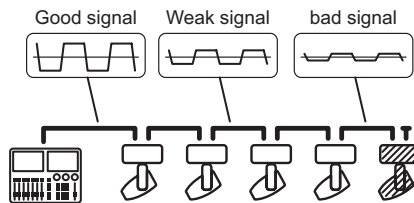


The XSR works within DMX / RDM environments and works as well as in pure DMX environments. The XSR is a good solution for those who expect to use RDM in future because the XSR acts as a normal DMX splitter if there is no RDM Data. The XSP work only within DMX environments.

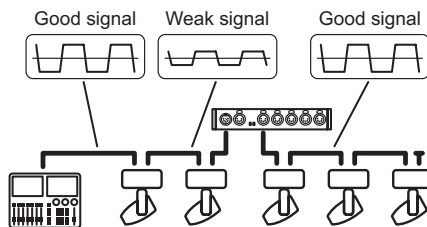
Benefits using a XSP/XSR Splitter / Booster

Boost

On installations with excessively long cable runs the DMX and/or RDM signal can be compromised or significantly weakened by the distance.

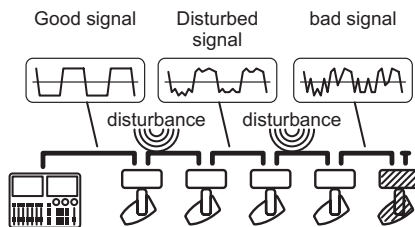


The XSP/XSR boosts the signals thus eliminating signal interference

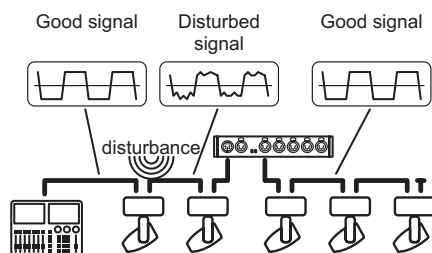


Regenerate

In harsh environments DMX and RDM signals can be disturbed or corrupted.

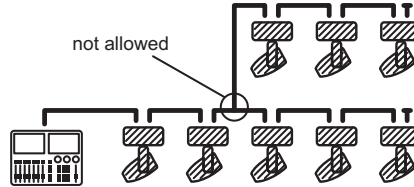


The XSP/XSR cleans and regenerates the signals.

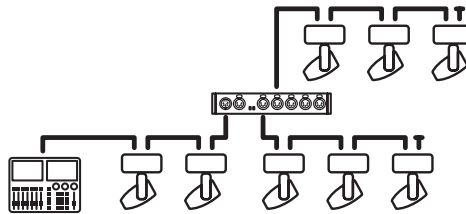


Split

A simple split of signal lines is not allowed. The bidirectional operation of RDM is even more sensitive to the split on that than DMX.

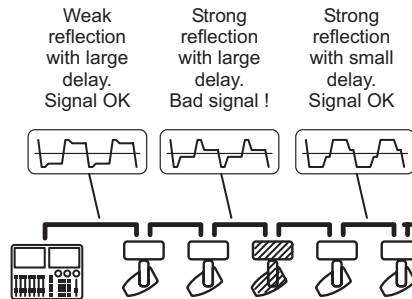


A split of the signal lines is possible with the XSR / XSP by using different output ports

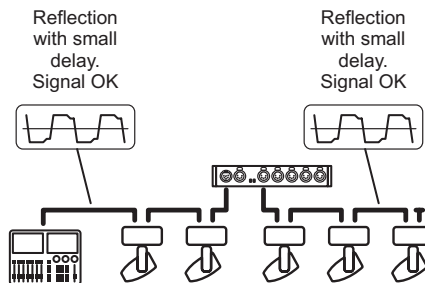


Reduces reflection problems

Signal reflection is a common problem on large DMX installations or on long signal lines. The bidirectional operation of RDM is more sensitive to reflections than DMX.

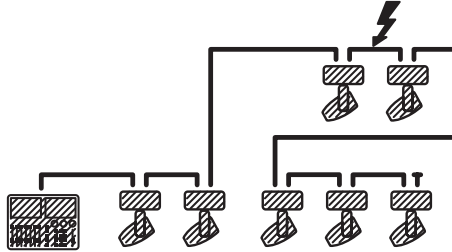


The XSP/XSR split the line into smaller segments with a regenerated signal, which reduces the delay of the reflection on each segment.

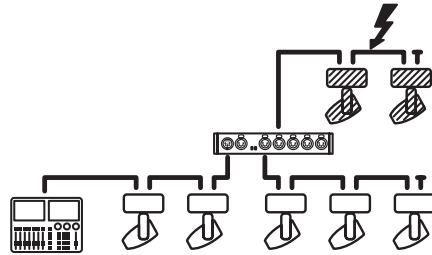


Protect

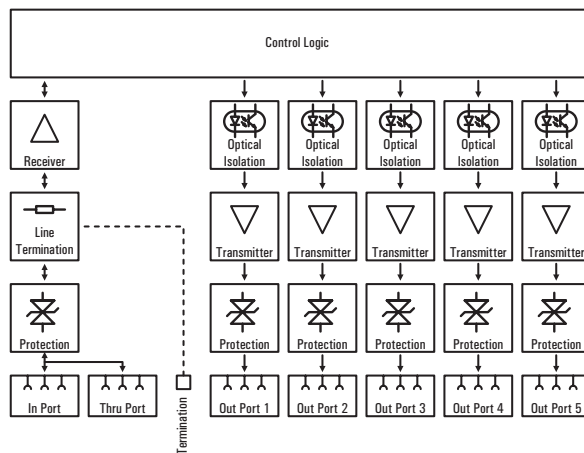
In case of an over voltage on the DMX and RDM line(s), all devices on that line can be damaged.



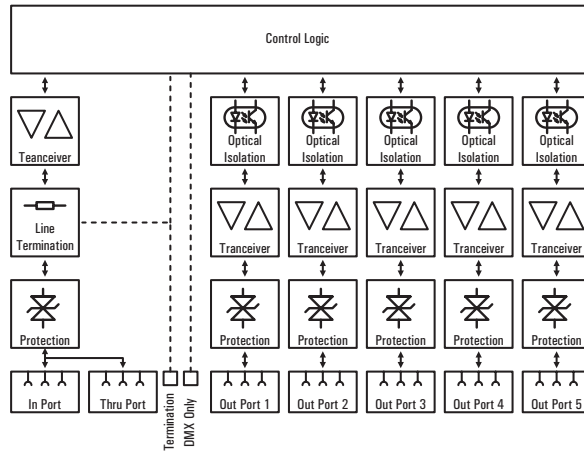
The XSP/XSR separate the line into multiple segments. The over voltage is restricted to the concerned segment. The XSP/XSR itself is well protected against transient over voltage and the optical isolation of each port prevents a damage of other ports and segments in case of a permanent over voltage.



XSP Block Diagram



XSR Block Diagram

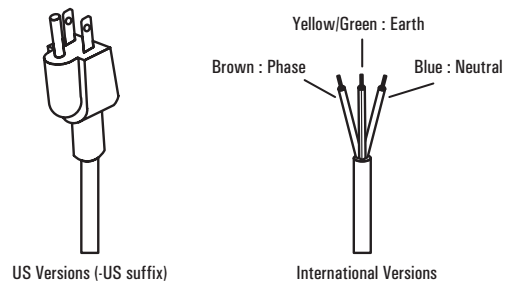


Mains Connection

Two different Mains connections are available:

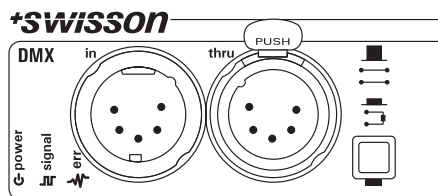
The US versions are delivered by Swisson with a "Edison Plug" (NEMA-5-15). These models has a "-US" suffix at the end

The International versions are delivered without any plug. *Swisson distributors or dealers may deliver the devices with a country specific plug.*




Input Section XSP Versions

The Input section of the versions with XLR connectors



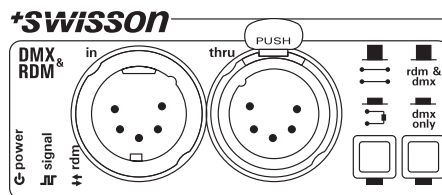
The Input section of the versions with terminals:
The “input” and “thru” terminals are at the rear of the device.



- G-power** The Power LED shows if the device powered and if power supply unit of the XSP is working
- signal** A green LED shows if a signal is available at the Input port.
- err** A red LED shows if the received signal is faulty
-  The XSP has a built in line termination. This can be activated by pressing the termination button. A LED shows if the termination is activated.

Input Section XSR Versions


The Input section of the XSR versions with XLR connectors





The Input section of the XSR versions with terminals:
The “input” and “thru” terminals are at the rear of the device.



- G-power** The Power LED shows if the device powered and if the power supply unit of the XSR is working
- signal** A multicolor LED shows if a signal is available at the Input port. The LED has 3 different states:
 - Off: No signal present
 - Green: Signal is present and Ok
 - Red: Signal is present but faulty

- 

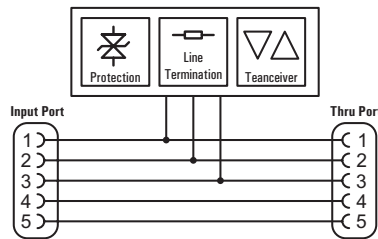
The RDM LED show if RDM data packets are preset. In a pure DMX environment this LED remains off.
- 

The XSR has a built in line termination. This can be activatet by pressing the termination button. A LED shows if the termination is activated.
- 

The "dmx only" function of the XSR allows removal off all RDM data from the ouput ports. A LED shows if the "dmx only" function is activated.

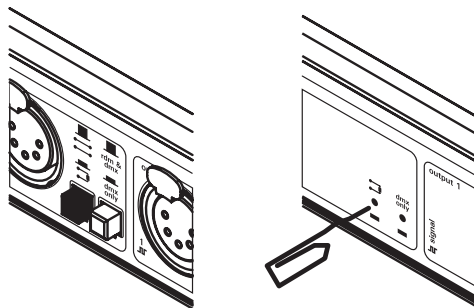
Input and Thru Port

The THRU port is hardwired with the INPUT port and allows to daisy-chain the devices even when the XSR is not powered. On all XSP and XSR models with 5-Pin XLR connector the pin 4 and 5 are also looped thru to the THRU port. On all other models pin 4 & 5 are not available.



Line Termination

All XSP and XSR splitters have a built-in line termination. The termination is activated by pressing the termination button. On terminal and Installation version the button is only accessible with a tool (such as a paper clip).

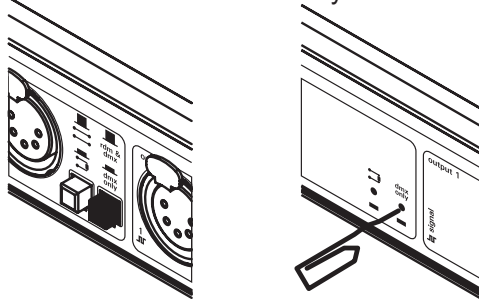


DMX Only (only on XSR models)

The "DMX only" function removes all non DMX data before forwarding the data to the output ports. RDM data will be removed too.

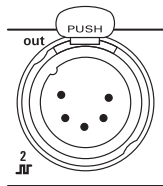
This can be helpful when DMX devices are not compatible and do not check the data they receive as valid DMX.

The "DMX only" function is activated by pressing the "DMX only" button. On terminal and Installation version the button is only accessible with a tool.

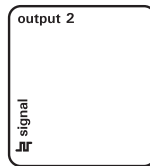


Output Ports

The output section of the versions with XLR connectors:

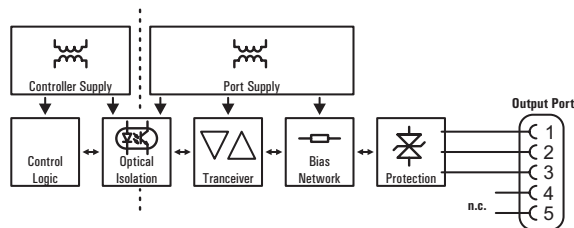


The OUTPUT section of the versions with terminals:



The OUTPUT terminals are at the rear of the devices.

Each output port is individually optically isolated, meaning that it is totally isolated from the other output ports and the input selection. The Pins 4&5 on the models with 5-Pin XLR connectors are not connected.



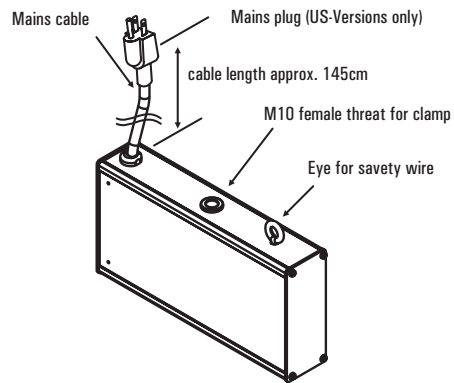
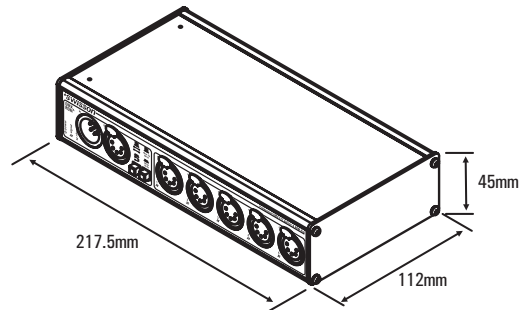
signal

On the XSR the signal LED of the OUTPUT ports show if a valid signal is transmitted. It works bidirectionally:

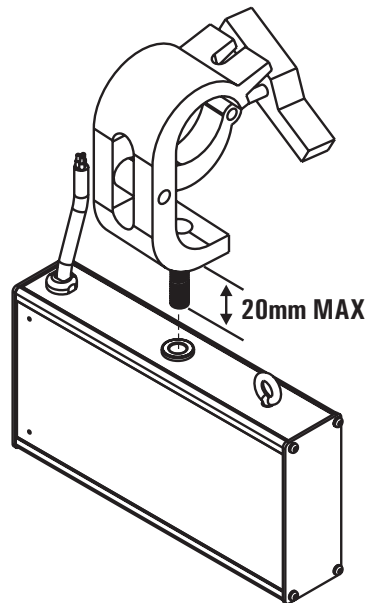
When sending DMX or RDM packets and when receiving RDM responses.

This LED is not available on the XSP models.

XSP / XSR Box Models

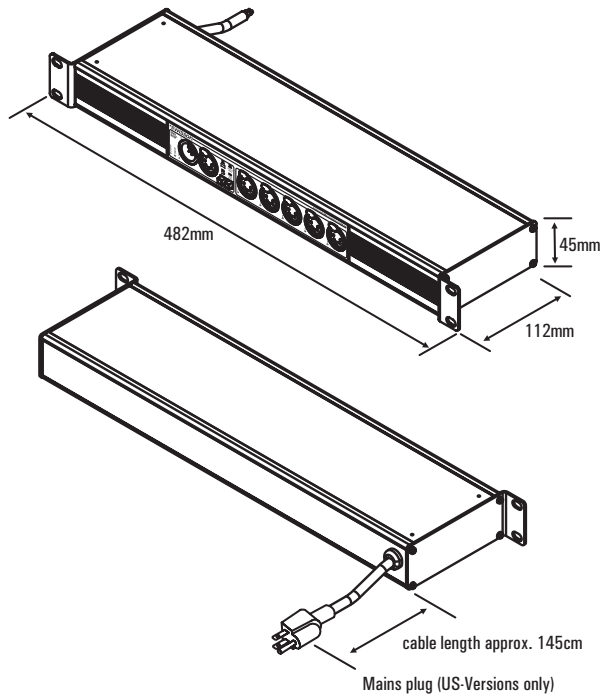


The length of the M10 screw which enters the XSP/XSR should not exceed a maximum of 20mm.

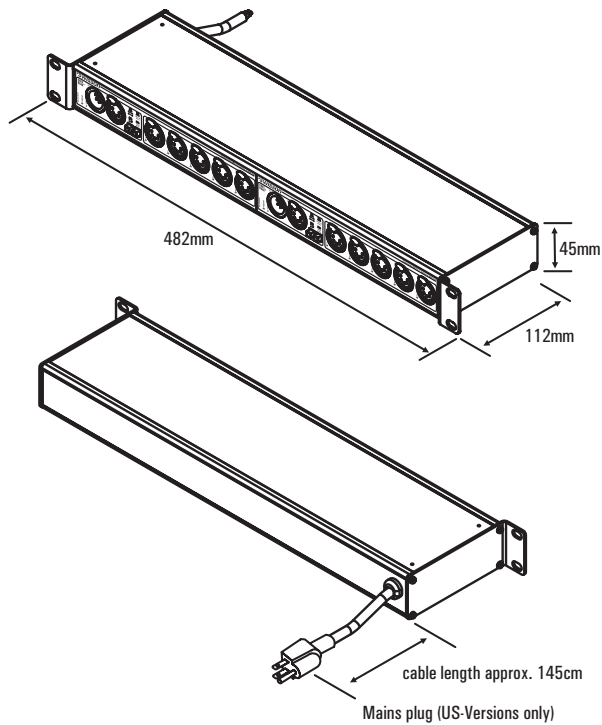


Clamp is not included with the XSP/XSR.

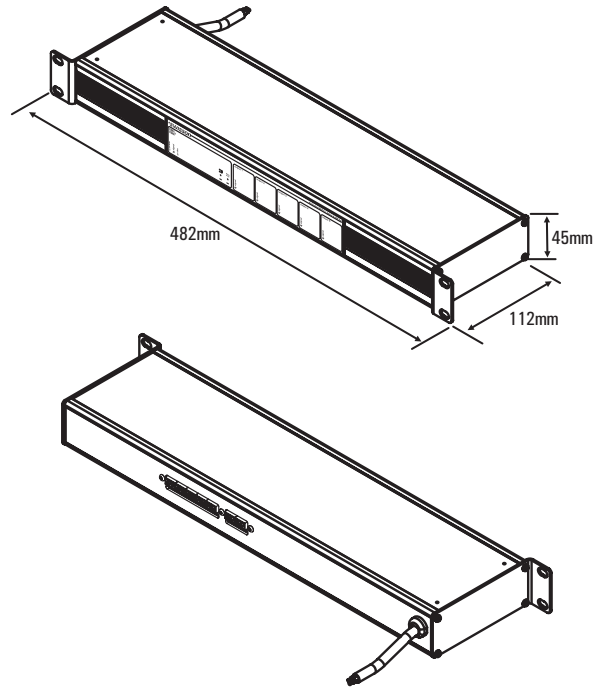
Single Rack Models



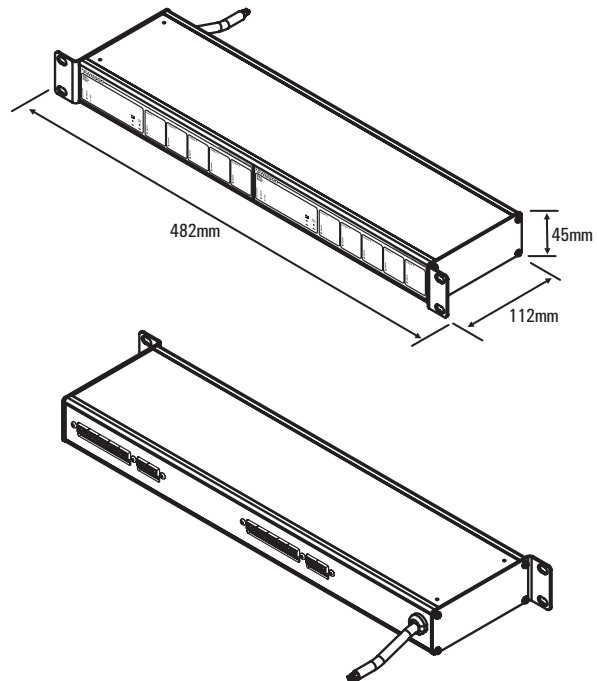
Double Rack Models



Single Rack Terminal Models

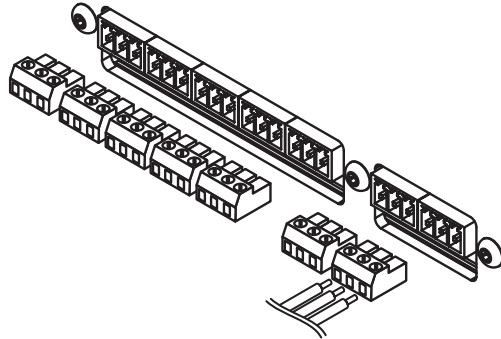


Double Rack Terminal Models



Terminal Models

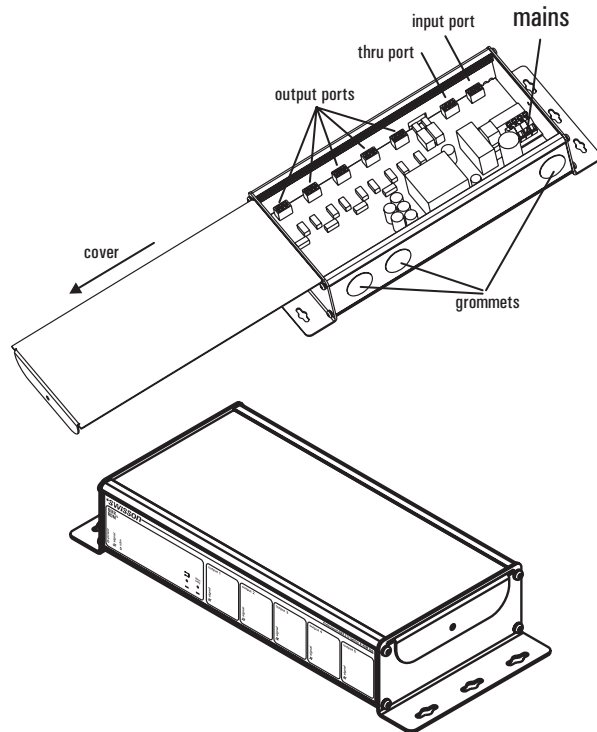
The terminal models of the XSP/XSR comes with plugable terminal blocks. The terminal blocks are located at the rear of the device.



XSP/XSR terminal models are shipped with the terminal blocks. They can accept wires up to AWG 17 (~1mm²)

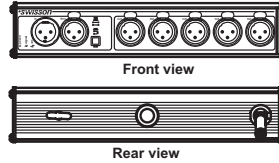
Installation model

The XSP/XSR installation model is made to be installed by certified professionals. This version has no plugs. All connections are located inside of the device.

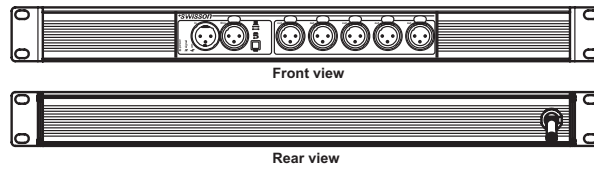


XSP standard program

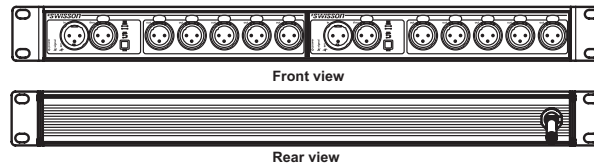
-
- | | |
|----------|----------------------------|
| 10 11 63 | XSP-3B |
| 11 11 63 | XSP-3B-US (with NEMA 5-15) |



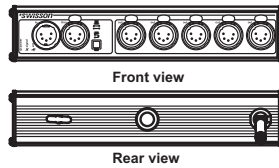
-
- | | |
|----------|----------------------------|
| 10 11 74 | XSP-3R |
| 11 11 74 | XSP-3R-US (with NEMA 5-15) |



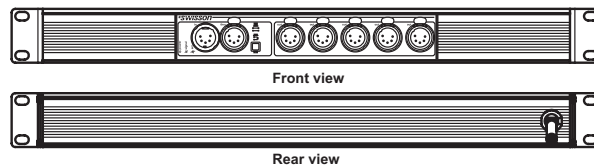
-
- | | |
|----------|-------------------------------|
| 10 11 85 | XSP-3R-3R |
| 11 11 85 | XSP-3R-3R-US (with NEMA 5-15) |



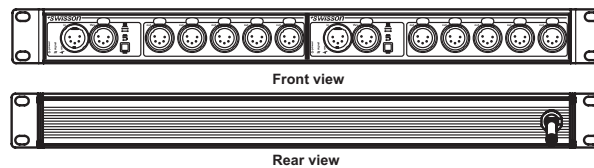
-
- | | |
|----------|----------------------------|
| 10 11 62 | XSP-5B |
| 11 11 62 | XSP-5B-US (with NEMA 5-15) |



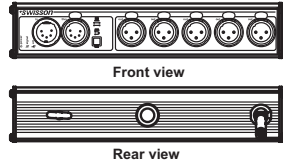
-
- | | |
|----------|----------------------------|
| 10 11 72 | XSP-5R |
| 11 11 72 | XSP-5R-US (with NEMA 5-15) |



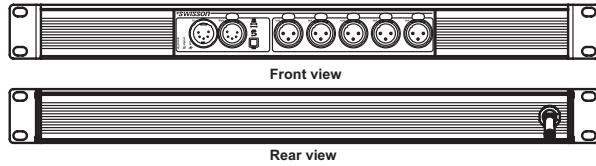
-
- | | |
|----------|-------------------------------|
| 10 11 82 | XSP-5R-5R |
| 11 11 82 | XSP-5R-5R-US (with NEMA 5-15) |



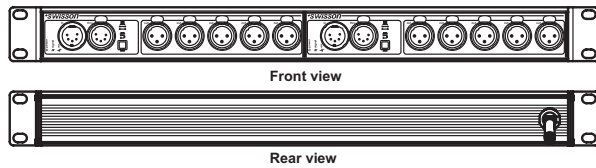
-
- 10 11 60 XSP-5B5
 - 11 11 60 XSP-5B5-US (with NEMA 5-15)



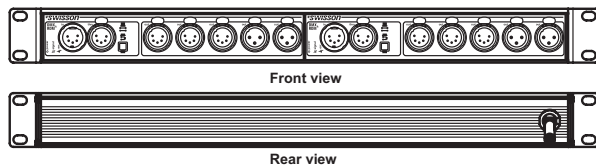
-
- 10 11 70 XSP-5R5
 - 11 11 70 XSP-5R5-US (with NEMA 5-15)



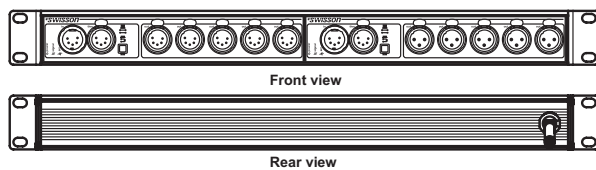
-
- 10 11 80 XSP-5R5-5R5
 - 11 11 80 XSP-5R5-5R5-US (with NEMA 5-15)



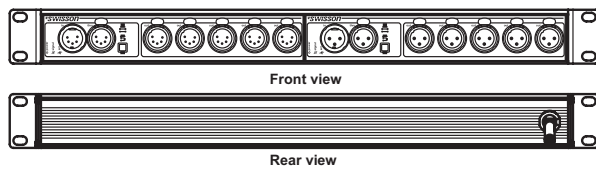
-
- 10 11 87 XSP-5R2-5R2
 - 11 11 87 XSP-5R2-5R2-US (with NEMA 5-15)



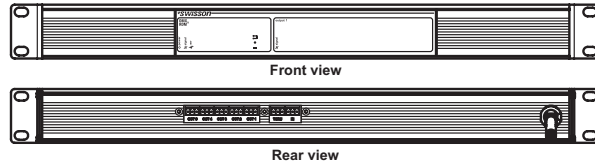
-
- 10 11 84 XSP-5R-5R5
 - 11 11 84 XSP-5R-5R5-US (with NEMA 5-15)



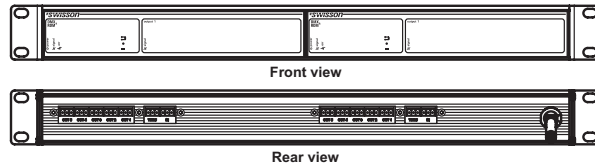
-
- 10 11 86 XSP-5R-3R
 - 11 11 86 XSP-5R-3R-US (with NEMA 5-15)



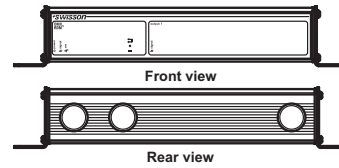
10 11 50 XSP-TR5
 11 11 50 XSP-TR5-US (with NEMA 5-15)



10 11 51 XSP-TR5-TR5
 11 11 51 XSP-TR5-TR5-US (with NEMA 5-15)

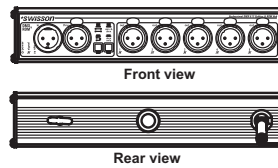


10 11 98 XSP-IB5-W

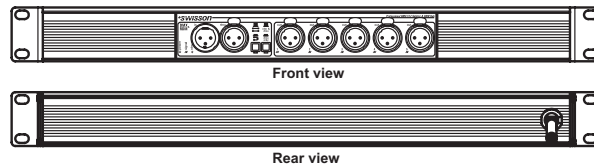


XSR standard program

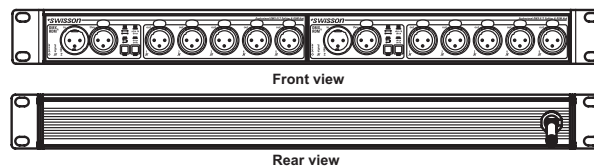
10 12 10 XSR-3B
 11 12 10 XSR-3B-US (with NEMA 5-15)



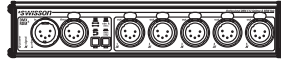
10 12 20 XSR-3R
 11 12 20 XSR-3R-US (with NEMA 5-15)



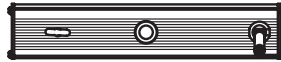
10 12 30 XSR-3R-3R
 11 12 30 XSR-3R-3R-US (with NEMA 5-15)



10 12 11 XSR-5B
 11 12 11 XSR-5B-US (with NEMA 5-15)



Front view



Rear view

10 12 21 XSR-5R
 11 12 21 XSR-5R-US (with NEMA 5-15)



Front view

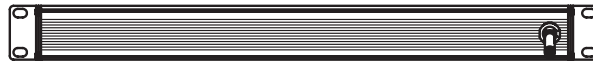


Rear view

10 12 31 XSR-5R-5R
 11 12 31 XSR-5R-5R-US (with NEMA 5-15)



Front view

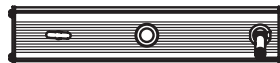


Rear view

10 12 16 XSR-5B5
 11 12 16 XSR-5B5-US (with NEMA 5-15)



Front view



Rear view

10 12 26 XSR-5R5
 11 12 26 XSR-5R5-US (with NEMA 5-15)



Front view



Rear view

10 12 33 XSR-5R5-5R5
 11 12 33 XSR-5R5-5R5-US (with NEMA 5-15)

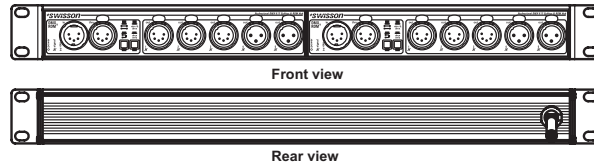


Front view

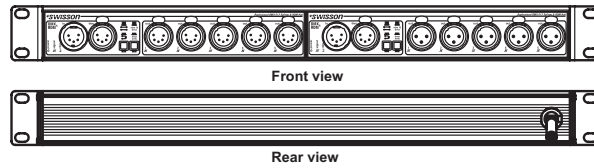


Rear view

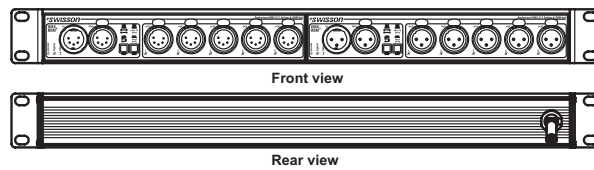
10 12 35 XSR-5R2-5R2
 11 12 35 XSR-5R2-5R2-US (with NEMA 5-15)



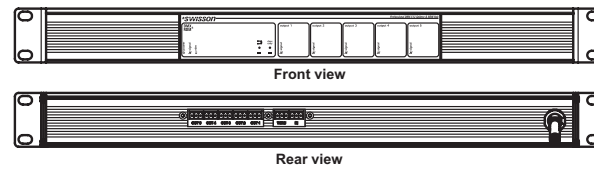
10 12 34 XSR-5R-5R5
 11 12 34 XSR-5R-5R5-US (with NEMA 5-15)



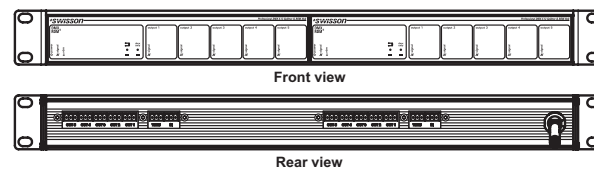
10 12 32 XSR-5R-3R
 11 12 32 XSR-5R-3R-US (with NEMA 5-15)



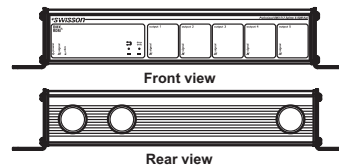
10 12 50 XSR-TR5
 11 12 50 XSR-TR5-US (with NEMA 5-15)



10 12 51 XSR-TR5-TR5
 11 12 51 XSR-TR5-TR5-US (with NEMA 5-15)



10 12 51 XSR-IB5-W



Technical Data

Mains Voltage	110 / 230 [VAC]
Main Frequency	50/60 [Hz]
Current Consumption Single Units	0.25 [A]
Current Consumption Double Units	0.5 [A]
Operating Temperature	0F to 130F (-17°C to 55°C)
Protocol Standard	ANSI E1.11 (DMX-512) ANSI E1.20 (RDM)
Safety Standards	EN60950-1 UL?????
EMC emmission	EN50081-1 EN50081-2
EMC immunity	EN50081-1 EN50081-2

Safety notes

Consider the following notes absolutely when you set up, connect and use the XSP / XSR

- Connect the cables only with the proper plugs and sockets.
- Set the cables in an accident-proof fashion. Connected cables mustn't be stressed mechanically too much.
- Keep the device away from sources of electrical interference..
- Only connect accessories certified for use with this device.
- Never open the device yourself. Don't touch the plug contacts with metal or sharp/pointed objects.
- Clean the XSP/XSR DMX Splitter only with a soft, damp cloth. Don't use chemicals or scrubbing means.
- Protect the device against against exposure to: excessive humidity, liquids, moisture, dust, direct sunlight.
- 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 combustible'.

***SWISSON**