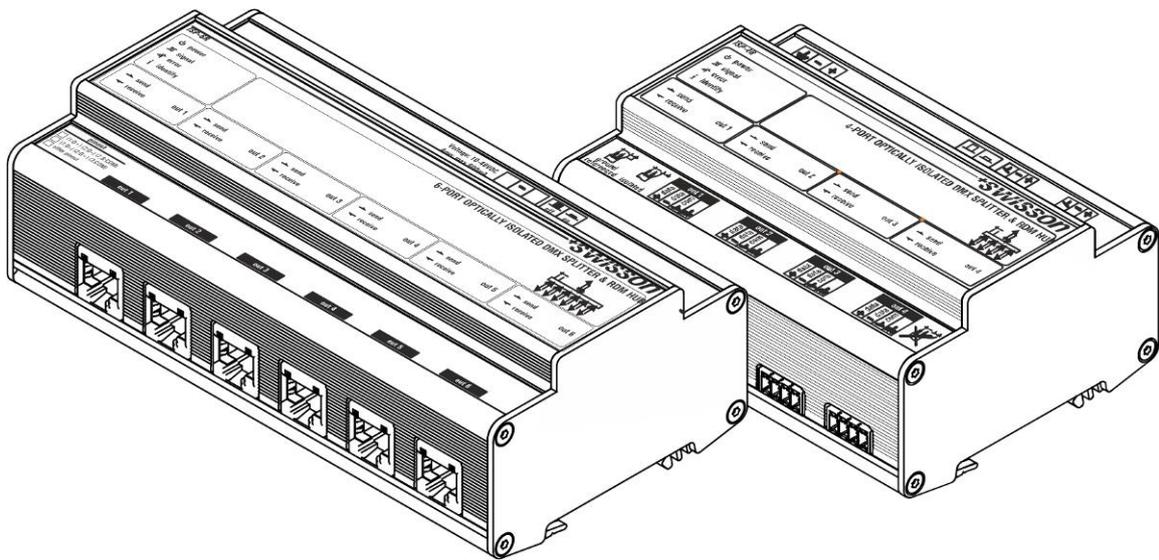


ISP Installation Splitter User Manual



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Introduction

The DMX splitters of the ISP-4/ISP-6 line of products boost an incoming DMX signal and provide it on four/six output ports. This allows for connecting more than the 32 devices allowed according to ANSI E1.11 to a single universe, as well as for building star topologies. Furthermore, the ISP-4/ISP-6 splitters also act as repeaters and may thus be used for transporting a DMX signal across larger distances.

DMX signals often get disturbed by the environment or even by the devices connected to the signal. An ISP-4/ISP-6 splitter may completely clear the disturbances if it's connected at a location where the signal is still "readable".

Providing four/six individually optically isolated outputs, as well as an optically isolated input, the ISP-4/ISP-6 splitters may prevent harmful voltages applied to a given port from affecting the other ports and damaging the connected equipment.

The ISP-4/ISP-6 splitters work within DMX / RDM environments, as well as in pure DMX environments. ISP-4/ISP-6 splitters are DIN rail mountable and powered by an external power supply unit (not included).

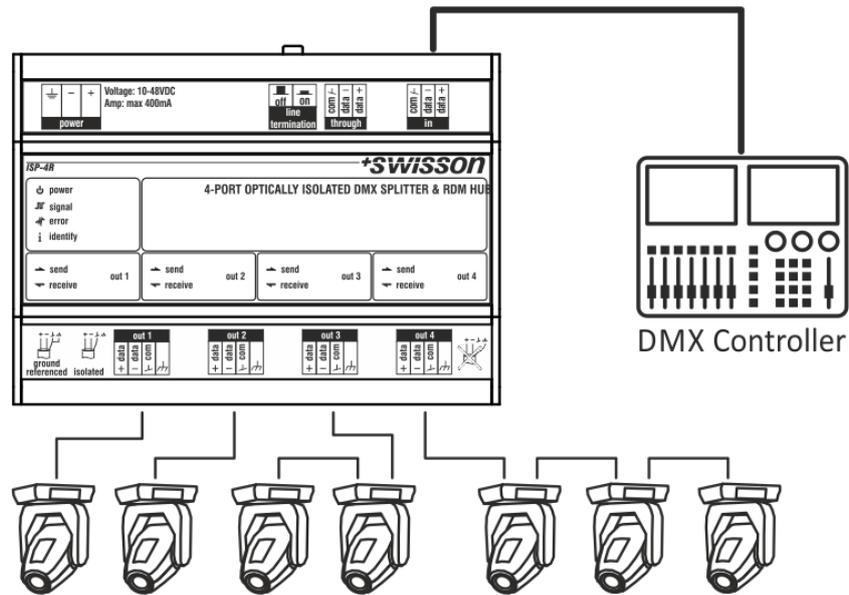
Applications

- Boost / repeat DMX signals
- Regenerate / clean DMX signals and remove disturbances before they lead to malfunctioning
- Prevent reflection issues
- Split DMX signals and build star topologies
- Connect a large number of fixtures to a single DMX universe
- Protect expensive equipment

Fields of Application

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

Typical Application



Unpacking

The ISP Installation Splitter is packaged in a cardboard box. The following items are included:

ISP-4R-DC-TERM

- The device
- This user manual
- 1 pluggable terminal block connector, 3-pin for connecting the PSU
- 2 pluggable terminal block connectors, 3-pin
- 4 pluggable terminal block connectors, 4-pin

ISP-4R-DC-RJ45X

- The device
- This user manual
- 1 pluggable terminal block connector, 3-pin for connecting the PSU

ISP-6R-DC-TERM

- The device
- This user manual
- 1 pluggable terminal block connector, 3-pin for connecting the PSU
- 2 pluggable terminal block connectors, 3-pin
- 6 pluggable terminal block connectors, 4-pin

ISP-6R-DC-RJ45X

- The device
- This user manual
- 1 pluggable terminal block connector, 3-pin for connecting the PSU

Safety Information

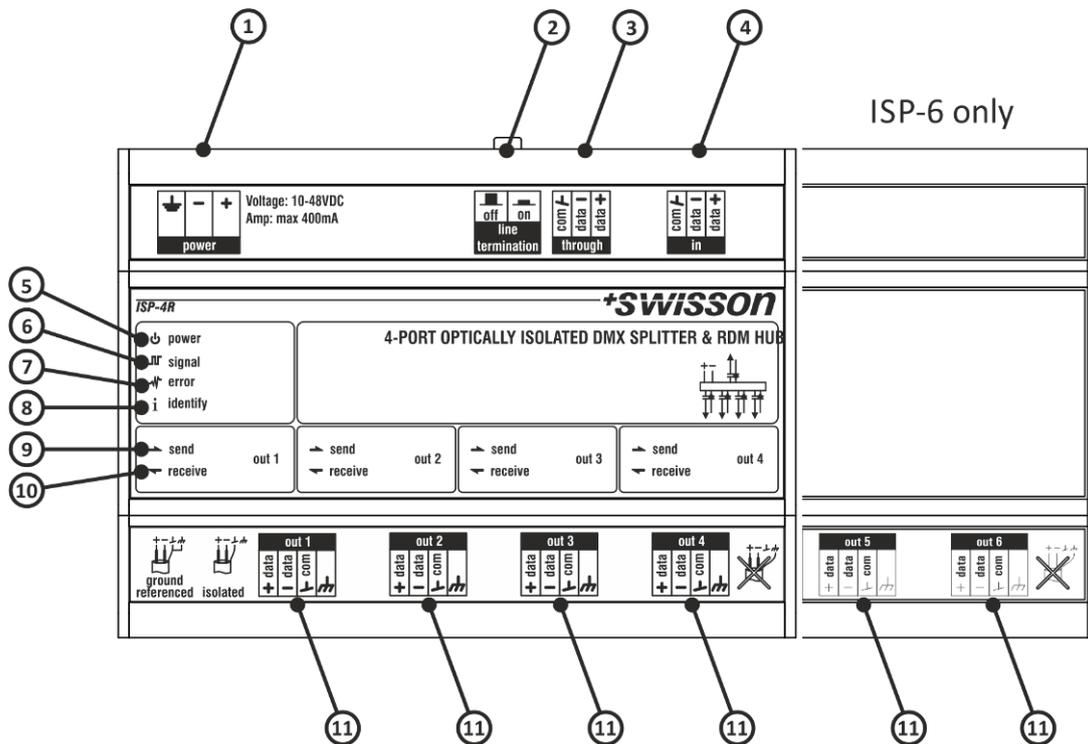
It is essential that you read and understand this manual before operating the device and that you follow the instructions given below closely when you set up, connect and use the ISP-4/ISP-6. Do not use the device in any way or for any purpose not described in this user manual.

This product is approved for professional use only; it is not intended for household usage. Pay attention to all warnings given in this manual and use this device only in accordance with applicable laws and regulations.

Safety Precautions

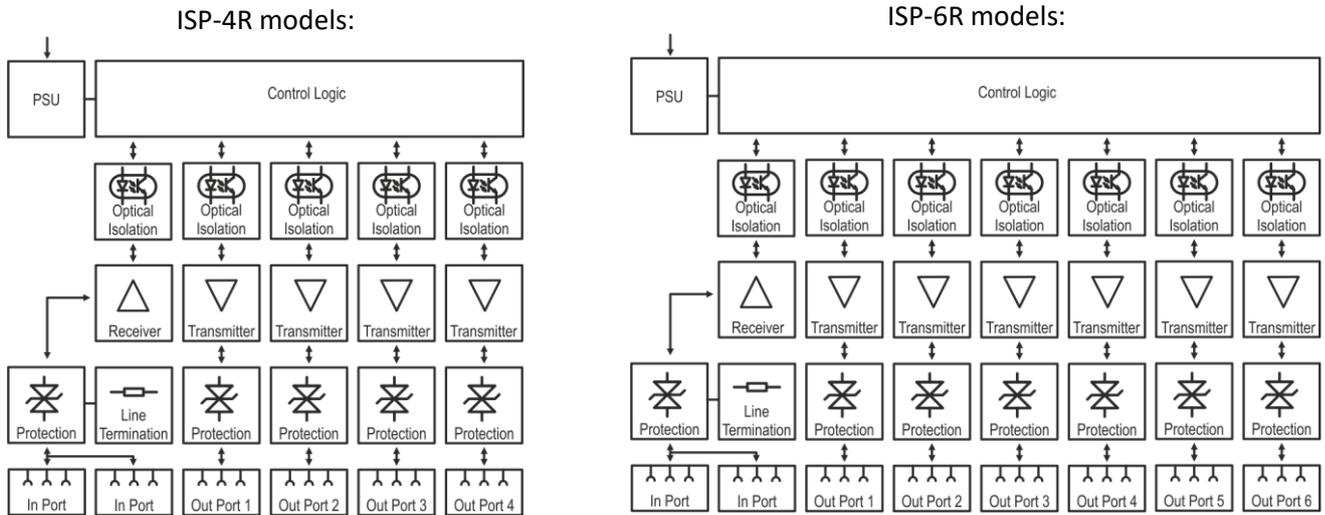
- **Disconnect the device from the power supply before removing any cover or part, including any fuse and when not in use.**
- **Ensure that the device is electrically connected to ground (earth).**
- **Before using the device, check that the power distribution equipment and cables are in perfect condition and rated for the current required of all connected devices.**
- **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 manual to Swisson.**
- **Provide unrestricted airflow around the device.**
- **Do not operate the device if the ambient temperature exceeds 55°C (131°F).**
- **Do not modify the device in any way not described in this manual 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.**
- **Do not use the device in areas where it is exposed to direct sunlight.**

Device Overview



1. Power input
2. Line termination switch to turn the line termination on and off
3. DMX trough-port
4. DMX input
5. Power LED
6. Signal LED, indicates that a signal is being received
7. Error LED, indicates a faulty signal
8. Identify LED
9. Send DMX / RDM LED, indicates that RDM or DMX data is being sent
10. Receive RDM LED, indicates that an RDM response is being received and sent back to the controller
11. DMX output port

ISP Block Diagram



PSU Connection

A suitable power supply unit that meets the following conditions, must be supplied by the user:

- Stabilized DC output voltage: 10 V - 48 V
- Power: 4 W (ISP-4), 6 W (ISP-6)

See page 8, item 1, “power input”.

It is not strictly required but highly recommended to properly connect the ground pin to earth. Not connecting the ground pin may affect the performance of the device.

The device can only be operated as a “ground referenced” transmitter if it is properly grounded. See page 10.

Warning! For protection from dangerous electric shocks, the device must be grounded (earthed). The local AC power source must have both overload and ground-fault (earth fault) protection.

DMX Connections

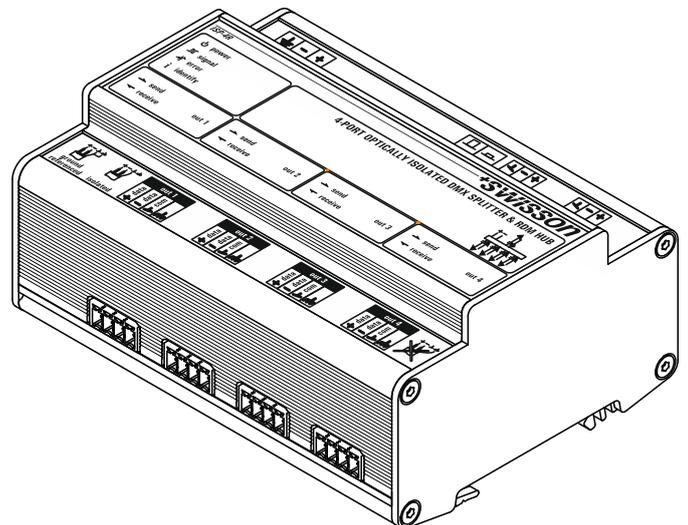
The DMX input is fully isolated and has a built-in termination.

Depending on the product variant, the DMX inputs and the DMX outputs are provided as pluggable screw terminals or as RJ45 connectors.

Models with Terminal Connectors

This configuration applies to ISP-4R-TERM and ISP-6R-TERM.

Pin	Connection
1	Data +
2	Data -
3	Com
4 (outputs only)	Earth



The DMX standard ANSI E1.11 suggests that transmitters are “ground referenced”. With the ISP-4/ISP-6, this is achieved for each output port by wiring pin 3 to pin 4.

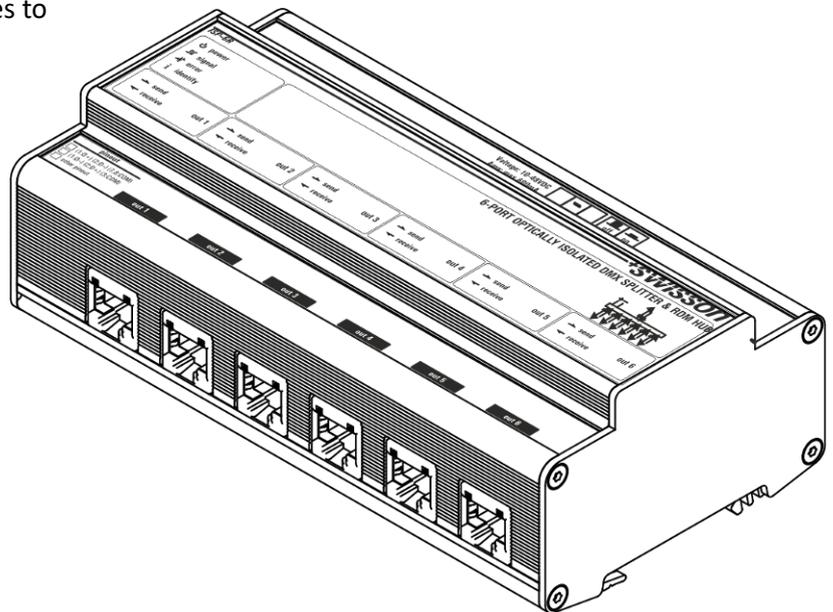
In some cases, however, the above configuration may lead to so called ground loops. This applies when a DMX receiver’s COM input signal is connected to the earth with a low resistance. In such cases it may resolve issues by not connecting pin 3 to pin 4 of the corresponding output.

Note: Only with the latter setup, each output port is individually optically isolated, meaning that it is totally isolated from the other output ports and from the input section.

Models with RJ45 Connectors

The RJ45 versions ISP-4R-DC-RJ45A, ISP-6R-DC-RJ45A, ISP-4R-DC-RJ45B and ISP-6R-DC-RJ45B are configured as “isolated” transmitters as defined in ANSI E1.11, such that each output port is individually optically isolated, meaning that it is totally isolated from the other output ports and from the input section.

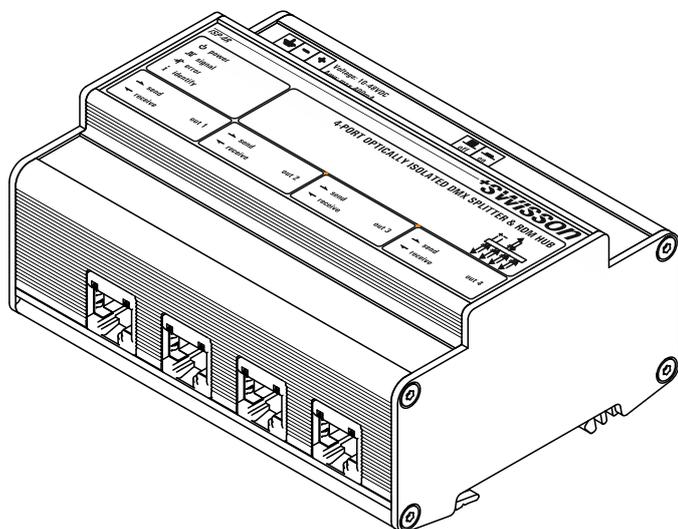
ANSI E1.11 compliant RJ45 configuration, applies to ISP-4R-DC-RJ45A and ISP-6R-DC-RJ45A models.



Pin	Connection
1	Data +
2	Data -
3	Not connected
4	Not connected
5	Not connected
6	Not connected
7	Com
8	Com
Shield	Earth

Alternative RJ45 configuration, applies to ISP-4R-RJ45B and ISP-6R-RJ45B models.

Pin	Connection
1	Data -
2	Data +
3	Com
4	Not connected
5	Not connected
6	Not connected
7	Not connected
8	Not connected
Shield	Earth



Line Termination

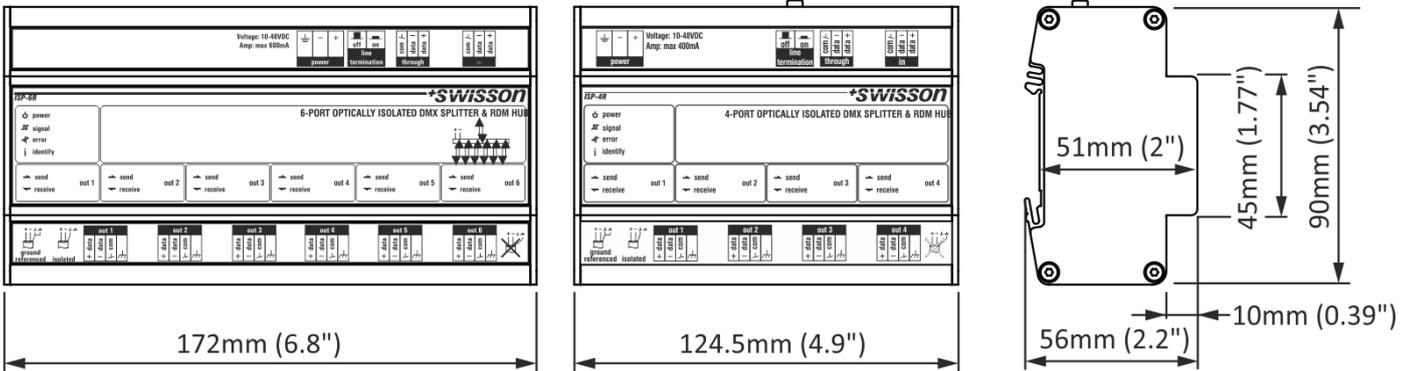
The line termination of the ISP-4/ISP-6 splitters may be turned on or off using the toggle button next to the through port. See page 8. The line termination should be turned on by pushing it down when no receiver is connected to the through port of an ISP-4/ISP-6, and turned off otherwise.

A missing termination at the end of a DMX chain may lead to significant reflection issues. Additional termination resistors in the middle of a chain may cause an unwanted drop of the signal level. Line termination is also known to reduce the susceptibility to environmental noise.

RDM Protocol (Remote Device Management)

All ISP-4R/ISP-6R models support the RDM protocol. The ISP-4R/ISP-6R models forward incoming RDM messages to all connected devices and send the RDM responses back to the RDM controller. The ISP-4R/ISP-6R acts as a non-proxy inline device. Further, the ISP-4R/ISP-6R is a responder itself. It responds to RDM messages and can be discovered on an RDM network.

Technical Data



Depth ISP-4/ISP-6.....	90 mm (3.54 ")
Width ISP-4	124.5 mm (4.9 ")
Width ISP-6	172 mm (6.8 ")
Height ISP-4/ISP-6.....	56 mm (2.2 ")
Weight ISP-4.....	400 g (0.9 lb.)
Weight ISP-6.....	560 g (1.25 lb.)
Ambient temperature	-30°C - 55°C (-22°F - 131°F)
DC power.....	10 V - 48 V
Power consumption ISP-4.....	4 W
Power consumption ISP-6.....	6 W
DMX.....	ANSI E1.11
RDM	ANSI E1.20
Electrical standard signal ports.....	EIA-485

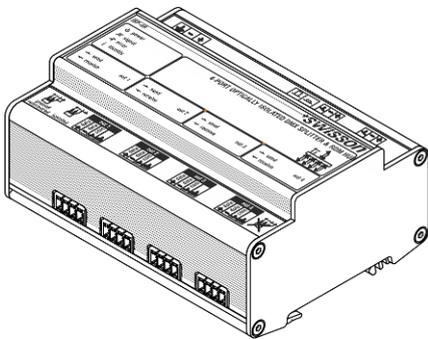
Ordering Information

ISP-4 Variants (four DMX output ports)

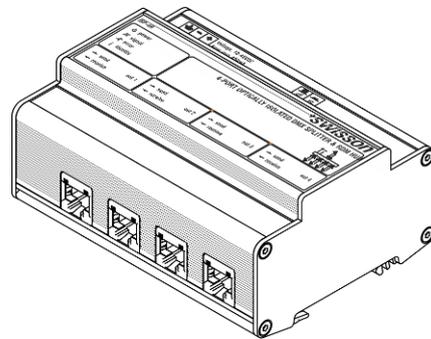
20 10 20	ISP-4R-DC-TERM	DMX & RDM splitter for DIN rail installation. 1 in, 4 out ports. Input and outputs optically isolated. Pluggable screw terminals. 10 - 48 V DC.
20 10 25	ISP-4R-DC-RJ45A	DMX & RDM splitter for DIN rail installation. 1 in, 4 out ports. Input and outputs optically isolated. RJ45, pin configuration according to ANSI E1.11. 10 - 48 V DC.
20 10 26	ISP-4R-DC-RJ45B	DMX & RDM splitter for DIN rail installation. 1 in, 4 out ports. Input and outputs optically isolated. RJ45, alternative pin configuration. 10 - 48 V DC.

ISP-6 Variants (six DMX output ports)

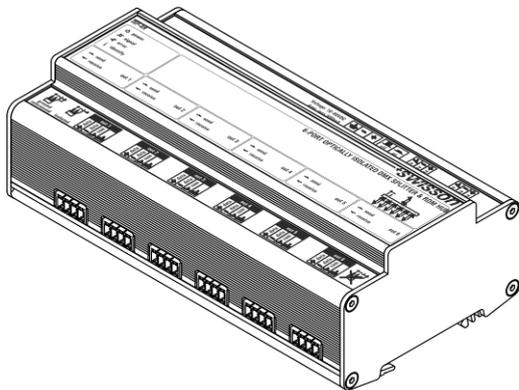
20 10 30	ISP-6R-DC-TERM	DMX & RDM splitter for DIN rail installation. 1 in, 6 out ports. Input and outputs optically isolated. Pluggable screw terminals. 10 - 48 V DC.
20 10 35	ISP-6R-DC-RJ45A	DMX & RDM splitter for DIN rail installation. 1 in, 6 out ports. Input and outputs optically isolated. RJ45, pin configuration according to ANSI E1.11. 10 - 48 V DC.
20 10 36	ISP-6R-DC-RJ45B	DMX & RDM splitter for DIN rail installation. 1 in, 6 out ports. Input and outputs optically isolated. RJ45, alternative pin configuration. 10 - 48 V DC.



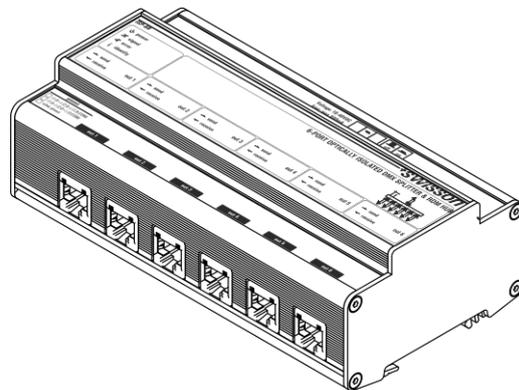
ISP-4R-DC-TERM



ISP-4R-DC-RJ45



ISP-6R-DC-TERM



ISP-6R-DC-RJ45