



SDI Extender

User Manual

Model : SDI01F-12G
12G-SDI Fiber Extender with Loop out



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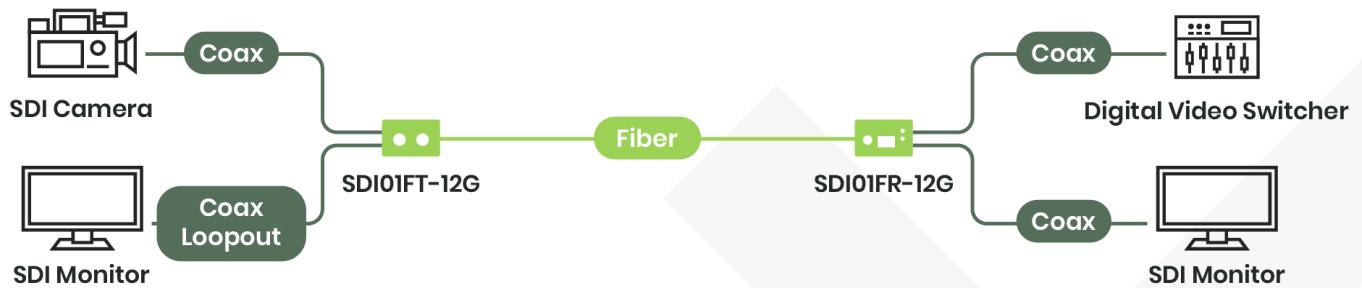
Introduction

SDI01F-12G is an SDI over fiber extender supporting up to 12G-SDI signals. The transmission distance can be 20km for single mode fibers. Its small and compact size allows users to install in any broadcasting application easily.

Features

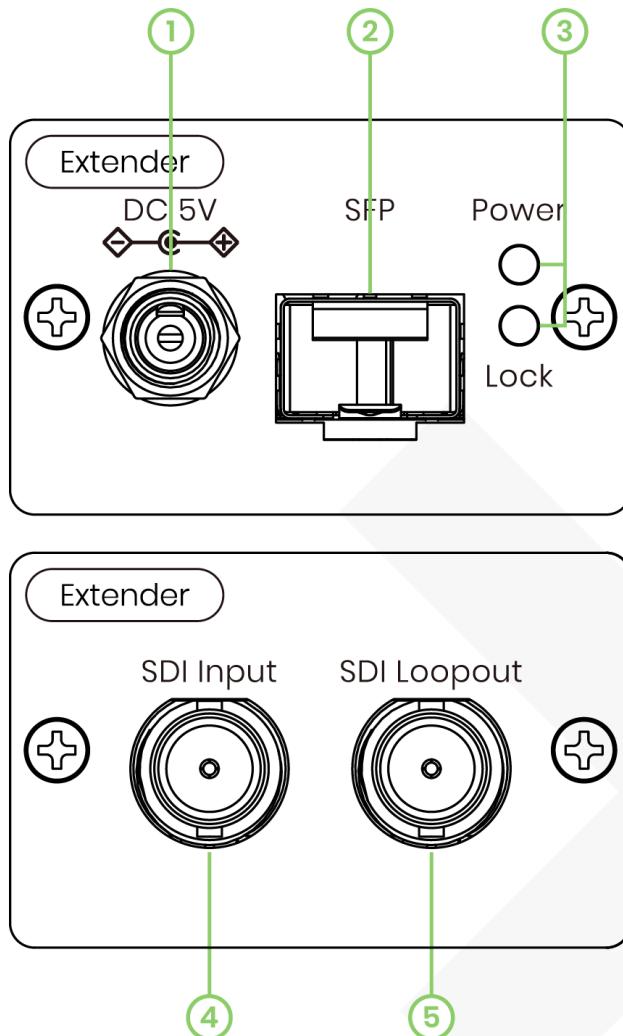
- 12G-SDI input compatible with 6G/3G/HD/SD
- SMPTE 259, SMPTE 292-1, SMPTE 424, SMPTE 2081-1 and SMPTE 2082-1 compatible
- 12G-SDI transmission distance up to 20km for single-mode fibers
- Power input with locking design to prevent power interruption
- Small, compact and easy to install
- Multiple mounting options (Wall/Rack & Din-Rail)

Application Diagram



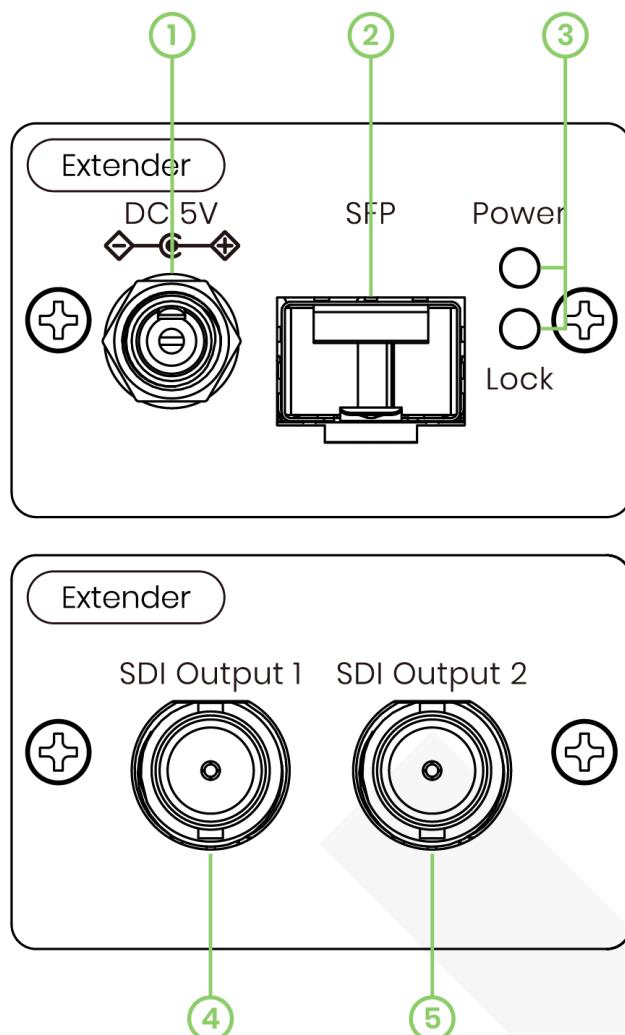
Panel View

SDI01FT-12G



	Interface	Description
1	DC Jack (with locking)	To plug in DC 5V power adapter
2	SFP+ Fiber Connector	To connect to Video SFP+ Fiber Module
3	Power/Lock	To indicate the status of Power and SDI signals
4	SDI Input	To connect to SDI Source
5	SDI Loopout	To connect to SDI Display or Digital Video Switcher

SDI01FR-12G



	Interface	Description
1	DC Jack (with locking)	To plug in DC 5V power adapter
2	SFP+ Fiber Connector	To connect to Video SFP+ Fiber Module
3	Power/Lock	To indicate the status of Power and SDI signals
4	SDI Output 1	
5	SDI Output 2	To connect to SDI Display or Digital Video Switcher

LED Indication



Interface	LED Status	Description
Power	On (Green)	Power On
	Off	Power Off
Lock	On (Blue)	SDI signal lock and Fiber signal ready to transmit (SDI01FT-12G) Fiber signal lock and SDI signal ready to transmit (SDI01FR-12G)
	Off	No SDI signal

Functional Description

SDI Interface

SDI01F-12G enables transmission of SDI signals over long distances using fiber optic cables. This fiber extender functionality extends the reach of 12G-SDI signals beyond the limitations of traditional coaxial cables, making it ideal for applications requiring extended transmission distances.

Support Resolution

SDI01F-12G supports various resolutions, indicated by the below table:

Resolution		
12G SMPTE ST 2082	4096x2160p	23.98/24/25/29.97/30/50/59.94/60Hz
	3840x2160p	23.98/24/25/29.97/30/50/59.94/60Hz
6G SMPTE ST 2081	4096x2160p	23.98/24/25/29.97/30Hz
	3840x2160p	23.98/24/25/29.97/30Hz
3G-A SMPTE ST 424	2048x1080p	23.98/24/25/29.97/30/50/59.94/60Hz
	1920x1080p	23.98/24/25/29.97/30/50/59.94/60Hz
	1920x1080i	50/59.94/60Hz
	1280x720p	50/59.94/60Hz
HD SMPTE ST 292	2048x1080p	23.98/24/25/29.97/30Hz
	1920x1080p	23.98/24/25/29.97/30Hz
	1920x1080i	50/59.94/60Hz
	1280x720p	50/59.94/60Hz
SD SMPTE ST 259	720x576i	50Hz
	720x480i	59.94Hz

Fiber Optic Interface

SDI01F-12G utilizes Video SFP+ (Small Form-factor Pluggable Plus) modules for its fiber optic transmission functionality, offering flexibility and scalability in extending SDI signals over various distances.

SDI01FT-12G converts electrical SDI signals into optical signals by the Video SFP+ transmitter module for transmission over fiber optic cables, while SDI01FR-12G converts optical signals back into electrical SDI signals with the Video SFP+ receiver module at the receiving end.

SDI01F-12G is compatible with single-mode fiber optic cables, offering flexibility in deployment based on distance requirements and installation environments.

SFP+ Pin Definition

SDI01F-12G meets the pin configuration of Video SFP+ modules which adheres to industry standards governed by the Multi-Source Agreement (MSA). The Video SFP+ MSA outlines mechanical, electrical, and functional specifications for SFP+ modules, including the pin out configuration, ensuring interoperability and compatibility with Video SFP+ compatible devices from different manufacturers. Below table is the pin definition for Video SFP+ transceiver.

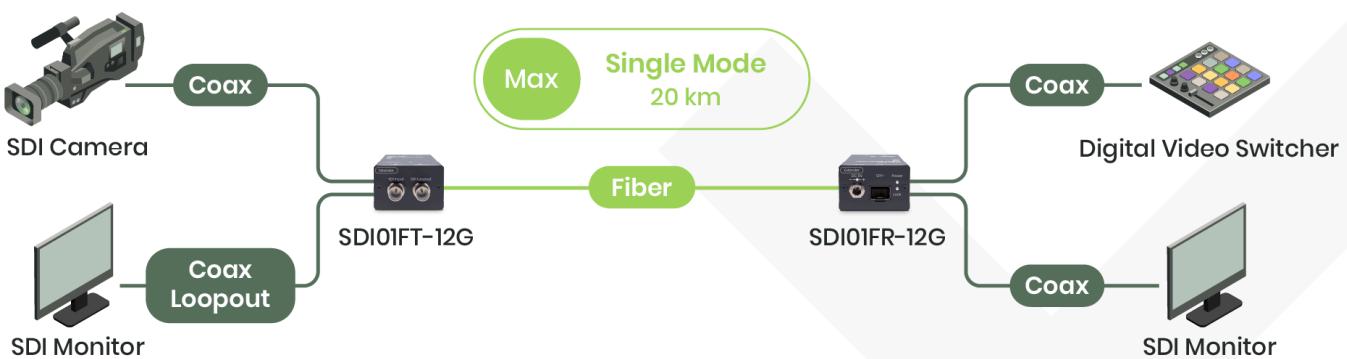
Pin	Pin Name	Description
1	Vee	Ground connection
2	TX_FAULT	Indicates a fault condition in the transmitter
3	TX_DISABLE	When pull low, disables the transmitter circuitry
4	SDA	Used for the serial communication interface
5	SCL	Used for the serial communication interface
6	MOD_DEF	Used for module identification and management purposes
7	NC	Not connected
8	RX_LOS	Indicates the loss of signal condition on the receiver side
9	NC	Not connected
10	Vee	Ground connection
11	Vee	Ground connection
12	RD-	Differential pair for receiving data signals
13	RD+	Differential pair for receiving data signals
14	Vee	Ground connection

15	Vcc	Provides power to the SFP+ module
16	Vcc	Provides power to the SFP+ module
17	Vee	Ground connection
18	TD+	Differential pair for transmitting data signals
19	TD-	Differential pair for transmitting data signals
20	Vee	Ground connection

Transmission Distance

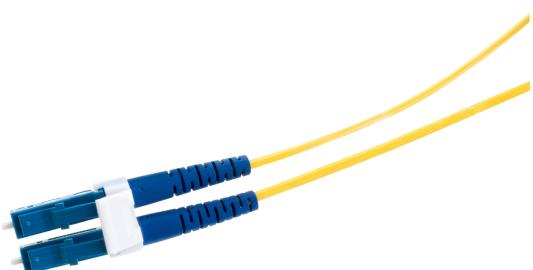
SDI01F-12G optional package includes a pair of 12G-SDI SFP+ modules, FMI2ST-20K and FMI2SR-20K for both transmitter and receiver functions. These single-mode modules are optimized for long-distance transmission, with a specified transmission distance of up to 20 kilometers.

The transmission distance also depends on the quality of the fiber optic cable type.



Fiber Connector Type

The Video SFP+ modules provided in our optional package use Lucent Connector (LC) type dual fiber connectors for seamless integration with existing fiber optic infrastructure. The LC connector's small form-factor and dual fiber design enable high-density connections and efficient use of fiber optic cables in networking environments.



Technical Specification

Model	SDI01FT-12G	SDI01FR-12G
Compliance		
Standard	SMPTE ST 2082/2081/424/292/259	
Wavelength	1300~1320nm	1260~1580nm
Transmission Distance	Single Mode Fiber 12G-SDI 20km ¹	
Ports & Interfaces		
Input	1 x (12G/6G/3G/HD/SD)-SDI	1 x SFP+
Output	1 x SFP+ 1 x (12G/6G/3G/HD/SD)-SDI	2 x (12G/6G/3G/HD/SD)-SDI
Power		
Power Supply	DC 5V 2A	DC 5V 2A
Power Consumption ²	1.55W	1.05W
Power Saving	0.1W	0.1W
Ambient Temperature		
Operation	0 to 55°C	
Storage	-40 to 85°C	
Operating Altitude (Max.)	2000m	
Humidity	Up to 95%	
Physical Characteristics		
Dimension	93 x 51 x 32mm	93 x 51 x 32mm
Weight	156g	156g

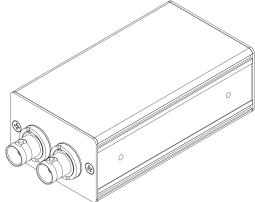
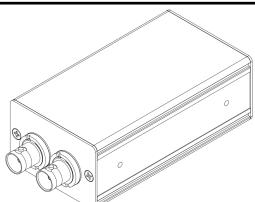
¹ Transmission distance up to 20km using FM12ST-20K and FM12SR-20K 12G-SDI SFP+ modules.

² Power consumption varies when using fiber optic modules from different manufacturers.

Caution

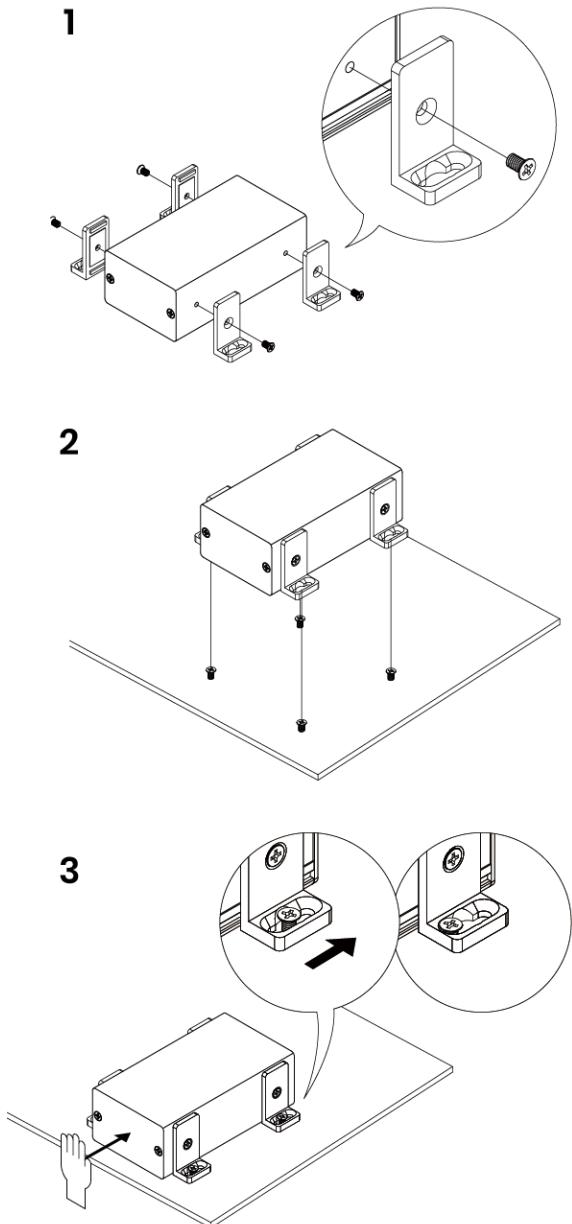
1. This product is designed for indoor applications. If it is desired for outdoor use, please install additional equipment for waterproof protection and surge protectors to prevent damages caused by lighting.
2. Do not put anything on the power and system cables, place them where they cannot be stepped on. Please be sure there is nothing resting on any cables.
3. Avoid using this product close to water places, or near high temperature devices such as radiators, stoves, etc.
4. Shut down the power supply and unplugged all equipment immediately if:
 - A. water or any kind of liquid has been spilled into the product;
 - B. the product has been damaged by external force;
 - C. the product does not operate normally as this manual indicates;
5. Please contact us for further repair if above conditions happen.
6. Using certified coaxial cables to transfer high-resolution video is recommended.
7. The optical fiber transmission interface uses the standard 12G-SDI SFP+ optical fiber module, and the transmission distance depends on the specifications and performance of the optical fiber module and optical fiber cable
8. If simplex fiber modules are used, please connect the fiber module transmitter to SDI01FT-12G and the receiver to SDI01FR-12G. If duplex fiber modules are used (also called transceivers), it is not necessary to distinguish if it is transmitter or receiver.

Package Includes

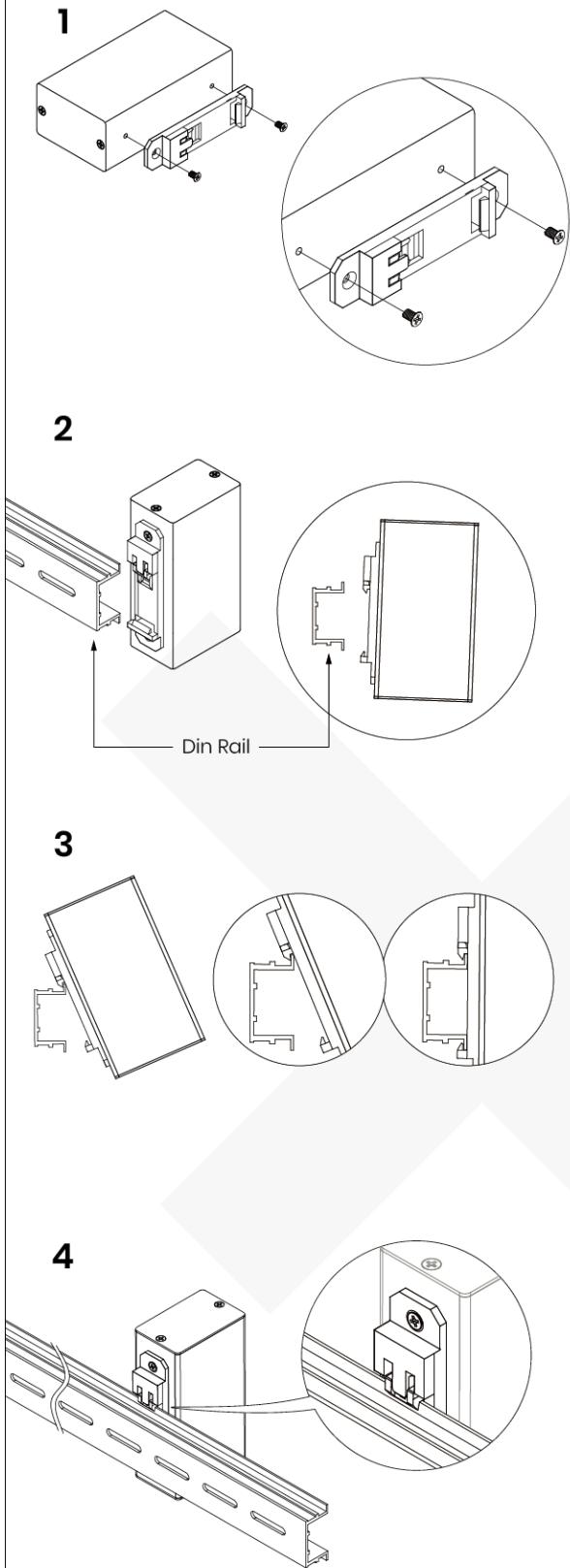
Item	Amount	Image
SDI01FT-12G	1 pc	 <p>The unit has a width of 51mm and accommodates six units within a standard 19-inch rack</p>
SDI01FR-12G	1 pc	 <p>The unit has a width of 51mm and accommodates six units within a standard 19-inch rack</p>
DC 5V 2A Power Adapter	2 pcs	
Mounting Screw pack	2 bags	 <p>4 pcs (bag) 4 pcs (bag) 4 pcs (bag) 4 pcs (bag) 1 pcs (bag)</p>

Installation

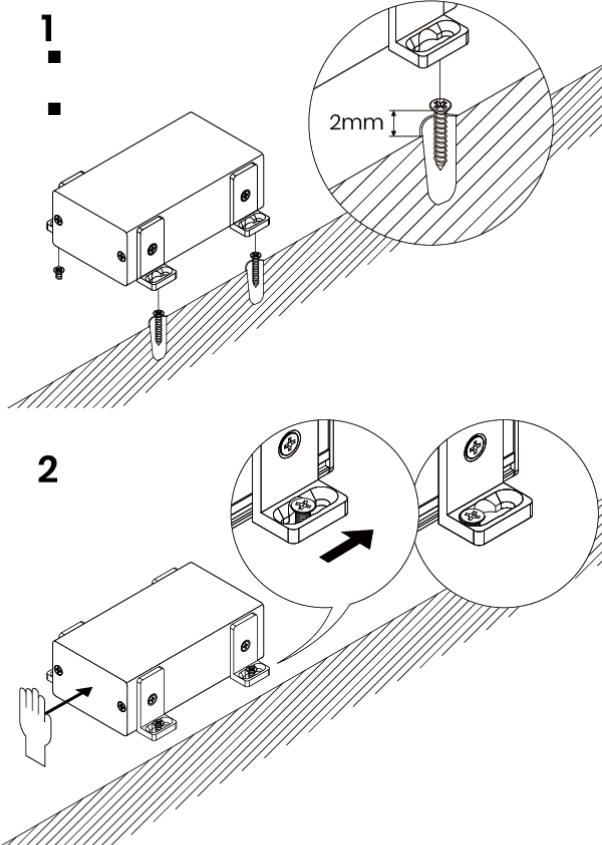
Installed on a Platform



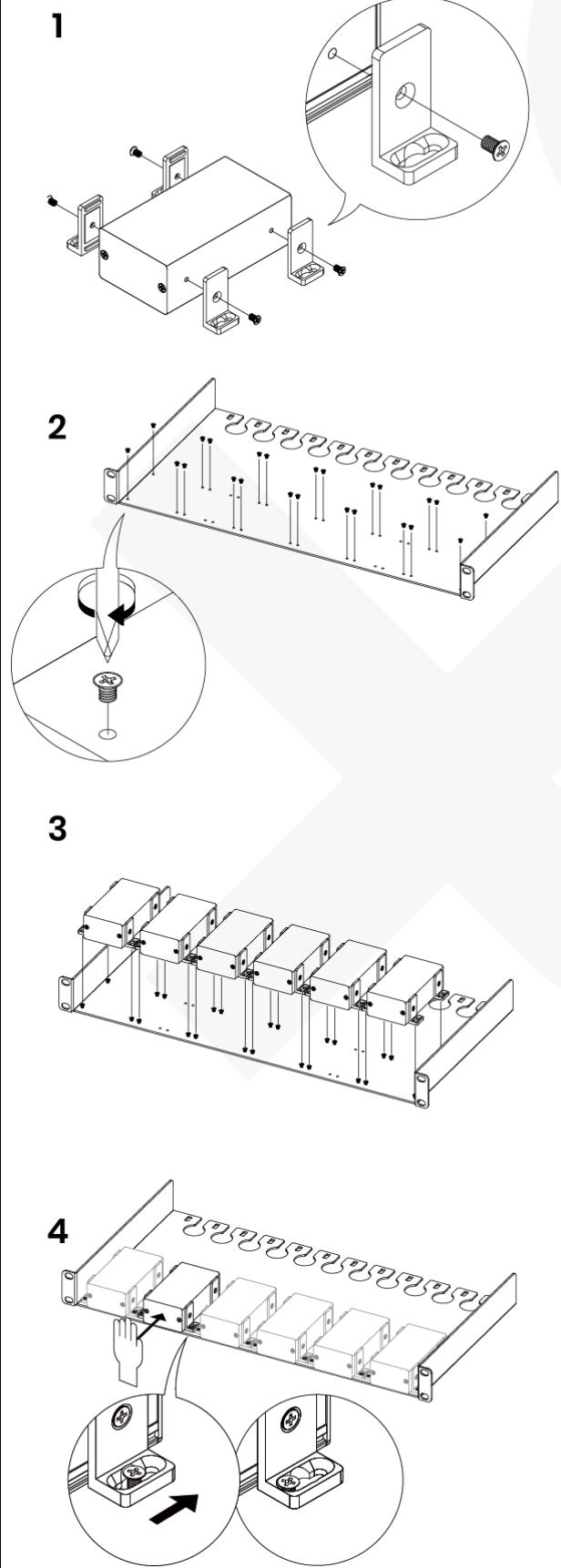
Installed on a DIN-rail



Installed on Wall



Installed on a Rack



RoHS CE