ETC

F-Drive RX

F-Drive Series

Type(s)	
Project	
Date	
Notes	

GENERAL INFORMATION

The F-Drive RX LED driver solution from ETC provides a modular, centralized approach for controlling a wide variety of LED luminaires. Driver cards and power supplies are easily accessible, simplifying installation and service while ensuring critical components are readily accessible to support staff. In addition, the low voltage nature of F-Drive RX reduces installation costs and system complexity to get installations online faster, and with fewer headaches. This comes in a system that has more outputs, higher wattage, and more control - all with UL924 Listed emergency control bypass with load shedding.

APPLICATIONS

- Retail and hospitality spaces
- Entertainment spaces
- Themed environments
- Houses of worship
- Conference centers
- Schools
- Cruise ships

FEATURES

- Powered by external 56 VDC Input (not included)
- Hot-swappable output cards
- Up to 2800 W of output across 80 channels
- RJ45 output connectors (CC and FTW output cards)
- Local configuration via full-color UI
- Dual DMX512 control inputs
- Support for sACN over Ethernet via single RJ45
- Front-mount USB-A 2.0 port for easy configuration management
- Wet or dry emergency contact closure for remote triggering of output channels
- Support for load shedding in emergency applications

ORDERING INFORMATION

F-Drive RX

MODEL	DESCRIPTION
FD-RX	F-Drive RX rack-mount enclosure
Each FD-RX is designed to utilize up to ten (10) output cards as listed below.	
FD-RX-OC-CC8	F-Drive RX CC 8 Card - constant current, 8 channels
FD-RX-OC-FTW8	F-Drive RX FTW 8 Card - Fade to Warm, 8 channels
FD-RX-OC-C24V	F-Drive RX C24V Card - constant voltage, 24 VDC, 4 channels
FD-RX-OC-CH16	AVAILABLE SOON: F-Drive RX Chroma 16 Card, 16 channels

F-Drive RX Power Supply

MODEL	DESCRIPTION
FD-RX-RPSU-56/2800	F-Drive RX Power Supply, 1U, 56 VDC, 2800 W
FD-RX-RPSU-56/1800	F-Drive RX Power Supply, 1U, 56VDC, 1800 W
Power cord chosen below, one cord required for each FD-RX-PSU	
FD-RPS-IC-E20	12/3 NEMA 5-20P to Locking C19 IEC Connector
FD-RPS-IC-S16	14/3 (2.5 mm²) Euro Schuko Plug to Locking C19 IEC Connector
FD-RPS-IC-BE	14/3 (2.5 mm²) Bare Ends (Euro) to Locking C19 IEC Connector

Note: All power input cords are 1.8 m (6 ft) long

MEAN WELL Industrial Power Supply

MODEL	DESCRIPTION
FD-RX-PSU-MW-56/3200	MEAN WELL Power Supply, 56 VDC 3200 W with UL input power cable
FD-RX-PSU-MW-56/3200-CE	MEAN WELL Power Supply, 56 VDC 3200 W with CE input power cable
FD-RX-PSU-MW-FRAME	MEAN WELL PSU Frame, 56 VDC, holds up to four FD-RX-PSU-MW-56/3200 or FD-RX-PSU-MW-56/3200-CE

Note: Each FD-RX-PSU-MW-56/3200 or FD-RX-PSU-MW-56/3200-CE module includes a 1.8 m (6 ft) power cord with fork terminals on one side and wire ferrules on the other.

208 V fused power cord FD-RPS-IC-208BE is available separately.

F-DRIVE RX SPECIFICATION

Control

Protocols	DMX and sACN
Configuration	• Configuration using front panel UI • Configuration in Concert, loaded via USB
UI type	Full-color UI with five-button navigation
DMX footprint	See "DMX Control" on page 10
Local control	Yes
Input method	• Two universes of DMX512 (In and Thru) via three-pin connector • sACN over Ethernet via single RJ45

Electrical (FD-RX Enclosure Only)

Voltage Input	56 VDC input from an external power supply, maximum 2800 W
Output	RJ45 connection headers provided at rear of unit. RJ45 cable must be Category-type cable with 0.25 mm^2 (23 AWG) or larger conductors. F-Drive RX is a Class 2 LED power solution. Do not bus or bridge outputs. Bussing/bridging outputs may exceed Class 2 limits.
Inrush	See the manufacturer's specifications for the power supply you intend to use.
Wattage (Max / Standby)	Max 2800 W / Standby 15 W
Max current draw	See the manufacturer's specifications for the power supply you intend to use.
RX Power factor	> 0.85

Output Cable Bundling

Cable bundling limitations apply to F-Drive Class 2 output cables. For reference on maximum number of four-pair cables in a bundle, ETC follows the recommendation of the NFPA 2020 National Electric Code, Table 725.144.

Thermal

Ambient operating temp	0°C to 40°C (32°F to 104°F)
Humidity	5%–95% non-condensing
Fans	Thermally controlled, forced air-cooled enclosure with fans. Left-to-right airflow.
BTU/hour (120 V/240 V)	F-Drive RX enclosure: 54 BTU/hr*

*BTU/hour does not include external power supply.

Physical

Materials	Enclosure: 1.6 mm (0.063 in) aluminum. Front plate: 19 in rack-compatible 3.2 mm (0.125 in) aluminum.
Color options	Front plate: Space grey, fine-textured, scratch-resistant powder coat paint
Mounting options	Enclosure: rack-mount, 2U, 19-inch standard rack, easy handling via two aluminum 'U' handles. Output cards: inserted into enclosure using nylon guide rails and secured via M3.5 threaded aluminum thumb screw. Rack-mount power supply requires additional 1U of rack space.
IP rating	IP-20 (dry locations only)
Weight	See "Weight" on page 8

Warranty

F-Drive RX Enclosure	5 years
Website	etcconnect.com/warranty

Regulatory and Compliance

Approved regulatory standards	cULus Listed to UL2108 and CSA C22.2 No. 250.0 cULus Listed to UL 924 and CSA C22.2 No. 141 CE and UKCA Compliant to IEC 61347-2-13 and IEC 60598-2-22

OUTPUT CARD SPECIFICATION

Each F-Drive RX enclosure is designed to utilize up to ten output cards that are listed below. F-Drive RX output cards are hot-swappable and can be placed in any slot. Output card configurations are stored on the enclosure processor to ensure easy service when required.

Electrical: CC 8 - Constant Current, 8 Channel Card

Control	Eight individually addressable channels
Output Connector	Two RJ45 Outputs with four channels on each
Output Current	200–700 mA adjustable per channel via configuration
Output Voltage	Automatically regulates voltage from 3–56 VDC
Output Power	Max 32.5 W per channel, max 240 W per card
Maximum BTU/hr	91 per card
Cable specifications	Category-type cable with 0.25 mm^2 (23 AWG) or larger conductors*. Max 100 m (328 ft).
Recommended ETC luminaires	• ArcSystem Navis 50 White • ArcSystem Navis 100 White • ArcSystem Pro One-Cell (White or FTW) • ArcSystem Pro One-Cell Small (White or FTW) • ArcSystem Pro One-Cell Micro (White) • Irideon FPZ for F-Drive and Irideon FPZ Plus for F-Drive • Irideon WLZ for F-Drive and Irideon WLZ Plus for F-Drive • S4 Mini LED for F-Drive and Source Four Mini LED Plus for F-Drive
Recommended 3rd party luminaires	Most constant current LED sources with 200–700 mA drive current and 3–56 VDC string voltage.
Luminaire capacity	Each channel can natively support a single luminaire. Multiple constant current fixtures can be used on a single channel with F-Drive S-Box. Drive current is constant across multiple fixtures, but voltage is additive and can not exceed the output voltage maximum of 56 VDC. For example: three (3) Navis 50 White fixtures can be combined on a single channel with S-Box

Electrical: FTW 8 - Fade to Warm, 8 Channel Card

Control	Eight individually addressable channels
Output Connector	Two RJ45 Outputs with four channels on each
Output Current	Navis 100 FTW (450 mA) or Navis 50 FTW (700 mA) configurable per output channel
Output Voltage	Automatically regulates voltage up to 56 VDC
Output Power	Max 32.5 W per channel, max 240 W per card
Maximum BTU/hr	91 per card
Cable specifications	Recommended Category-type cable with 0.25 mm^2 (23 AWG) or larger conductors. Max 100 m (328 ft)
Recommended ETC luminaires	ArcSystem Navis 50 Fade to Warm. ArcSystem Navis 100 Fade to Warm.
Luminaire capacity	• One luminaire per channel (total 8) per card • Three per channel with S-Box (total 24, Navis 50 FTW luminaires only)

Electrical: C24V - Constant Voltage, 4 Channel Card

Control	Four individually-addressable channels
Output Connector	8-pin terminal connector via included adapter
Output Adapter	Includes required RJ45 to Terminal 4 - CV Adapter (FD-RX-RJ45-T4)
Output Power	Max 65 W per channel (up to card limit of four), max 240 W per card
Output Voltage	24 VDC
Maximum BTU/hr	91 per card
Cable specifications	1–.5 mm^2 (18–12 AWG): Constant voltage luminaires must take voltage drop into consideration.
Recommended 3rd party luminaires	ETC recommends this product for use with third-party 24 VDC luminaires and 24 VDC LED tape with support for multiple channels of control.

Electrical: Chroma 16, 16 Channel Card

Available Soon	
Control	Up to 16 luminaires
Output Connector	Two RJ45 outputs with four channels on each
Cable specifications	Recommended Category-type cable with 0.25 mm^2 (23 AWG) or larger conductors. Max 100 m (328 ft)
Recommended ETC luminaires	Upcoming ETC Navis Chroma luminaires

POWER SUPPLY INFORMATION

GENERAL INFORMATION

The F-Drive RX LED driver solution from ETC is a 56 VDC input product. ETC offers two categories of compatible 56 VDC power supplies. The first category is simple and effective 1U supplies designed to be used with a single F-Drive RX enclosure when no redundancy is required. The second category is an industrial, expandable MEAN WELL power supply system that is ideal for installations using multiple F-Drive RX enclosures or for systems that need power supply redundancy.

F-Drive RX Power Supply

The F-Drive RX Power Supply is the low cost, easy setup solution for a single F-Drive RX enclosure with no backup requirements. Simply connect the F-Drive RX Power Supply to AC power via the optional power cables listed as FD-RPS-IC on page 1, connect the DC power harness included with the F-Drive RX, and your system is up and running. The F-Drive RX Power Supply is available in 1800 W or 2800 W models and both take 1U of rack space.

See the F-Drive RX Power Supply datasheet at etcconnect.com/F-DriveRX/Documentation for more information.

MEAN WELL Industrial Power Supply

For a robust, versatile, and expandable power supply solution, ETC also offers a powerful option in the FD-RX-PSU-MW-FRAME and FD-RX-PSU-MW-56/3200 power supply modules. The FD-RX-PSU-MW-FRAME is a 1U rack-mounted frame capable of holding one to four power supplies, each rated at 3200 W. When fully loaded, this power supply system can support up to 12800 W. This provides the possibility of redundancy in the event of a power supply module failure. Each FD-RX-PSU-MW-56/3200 or FD-RX-PSU-MW-56/3200-CE includes its own AC power cable with fork terminals on one end and wire ferrules on the other end for easy termination.

208 V fused power cord FD-RPS-IC-208BE is available separately.

Safety Kit Ordering Options

Safety kits provide convenient output terminals and plastic safety covers for use with the FD-RX-PSU-MW-FRAME.

The FD-RX-SK1 safety kit is for use in installations utilizing a single FD-RX-PSU-MW-FRAME. It provides a simple location to terminate the low-voltage wiring going to the F-Drive RX rack-mount enclosure.

The output terminals of two FD-RX-PSU-MW-FRAME rack-mount units may be bussed together with a FD-RX-SK2 safety kit to allow multiple power supply frames to operate in unison. This safety kit allows the power supplies in each FD-RX-PSU-MW-FRAME four-bay frame to work in conjunction, providing a maximum of 25600 W when fully populated. This safety kit also provides the possibility of redundancy in the event of a power supply module failure in either of the two FD-RX-PSU-MW-FRAME four-bay frames.

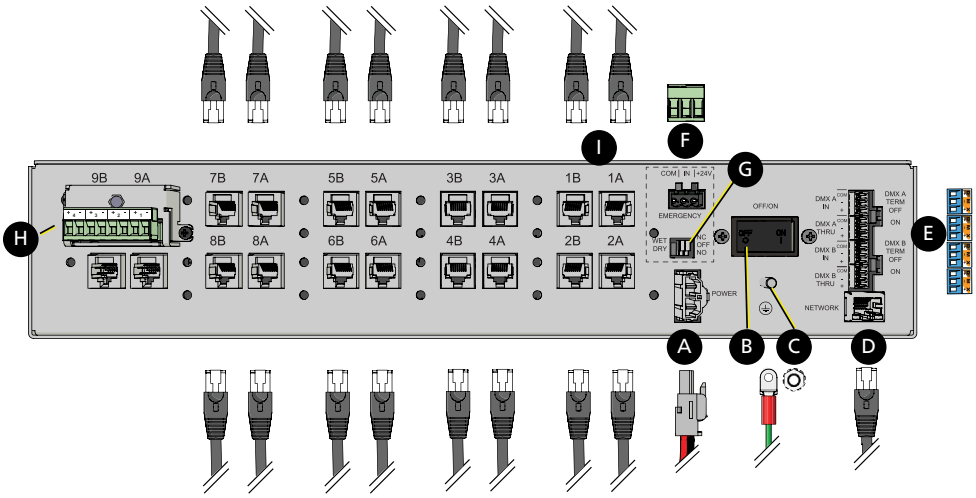
Safety Kits include:

- Four output bus bars
- Two plastic covers

MODEL	DESCRIPTION
FD-RX-SK1	F-Drive RX Safety Kit with connection kit for one (1) FD-RX-PSU-MW-FRAME
FD-RX-SK2	F-Drive RX Safety Kit with connection kit for two (2) FD-RX-PSU-MW-FRAME

For detailed dimensions of the FD-RX-PSU-MW-FRAME, see the MEAN WELL website at www.meanwell.com. For detailed dimensions of the safety kits, see the *F-Drive RX Installation Manual* at etcconnect.com/LED-Drivers.

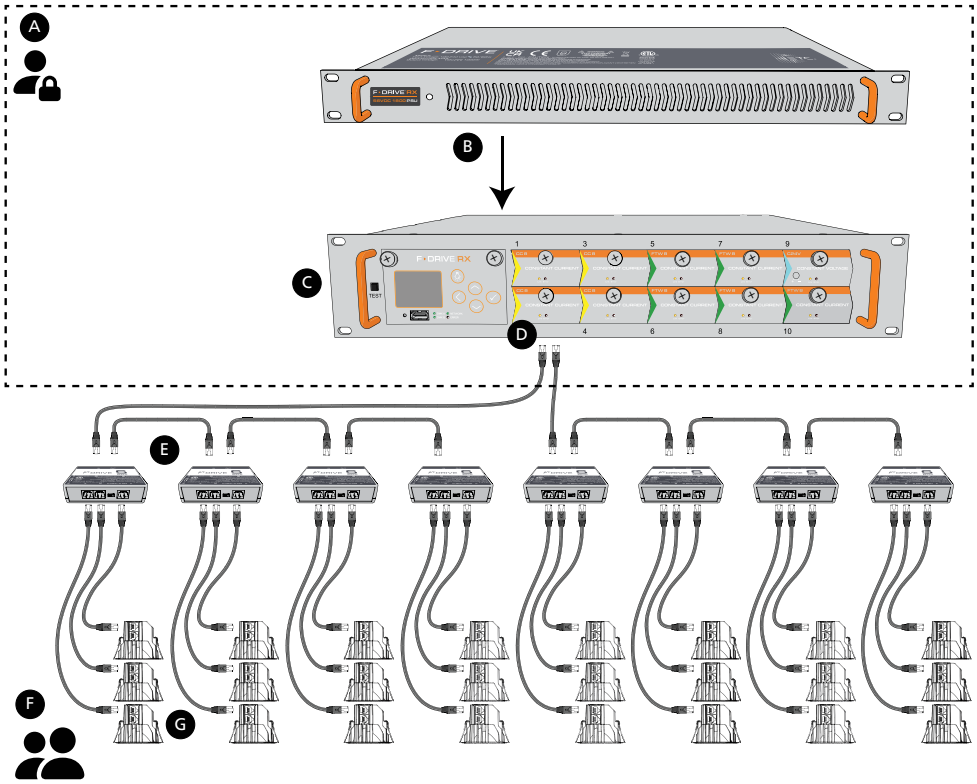
F-DRIVE RX TERMINATIONS



	DESCRIPTION	NOTES
A	56 VDC input power	Input power options include: • F-Drive RX Power Supply • FD-RX-PSU-MW-FRAME with one or more FD-RX-PSU-MW-56/3200 modules installed
B	Breaker	
C	Ground/earth stud	Connect to ground harness with lock-nut (included)
D	Network connection	Network cable not included
E	DMX A and DMX B receptacles	Support for two universes of DMX512 (In and Thru) via three-pin connectors
F	Emergency receptacle	Support for a single contact closure input
G	Emergency connector configuration switches	Emergency contact configurable for WET/DRY and NC/OFF/NO
H	Outputs 9A and 9B with RJ45 to Terminal 4 - CV Adapter	An FD-RX-RJ45-T4 adapter is shown occupying slot 9. An adapter is required for use with the C24V Card. One FD-RX-RJ45-T4 adaptor is included with each C24V Card and provides screw terminals for four pairs of wires.
I	Outputs 1A and 1B	• 1A and 1B correspond to output card slot 1. • Two RJ45 connections per output card slot. • Connect to Category-type cable* (not included). • All output slots support a FD-RX-RJ45-T4 adapter (included with the C24V Card).

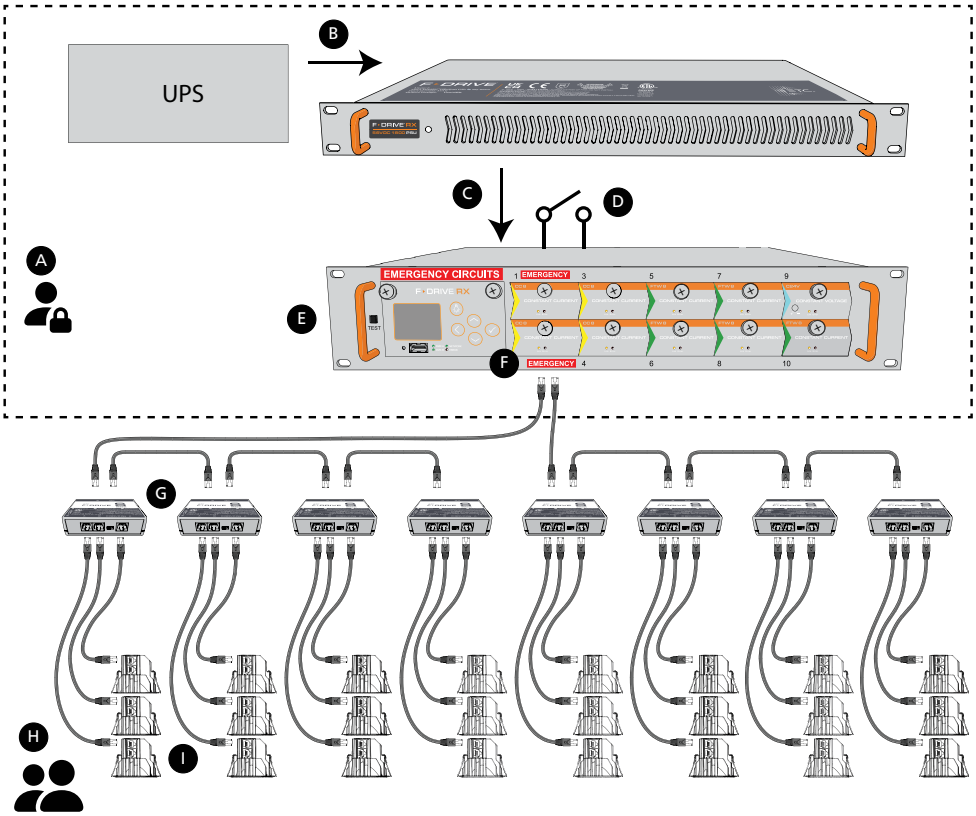
*If you are installing ETC luminaires with RJ45 input, you must use 0.25 mm^2 (23 AWG) or larger conductors in Category-type cable. Not all Cat5 or Cat6 cables meet this requirement.
Note: The illustration is not drawn to scale.

F-DRIVE RX NON-EMERGENCY SYSTEM DIAGRAM



	DESCRIPTION	NOTES
A	Serviceable area	
B	56 VDC power from F-Drive RX Power Supply	FD-RPS-56/1800 shown
C	F-Drive RX	FD-RX
D	Output card	This example shows a CC 8 Card installed in slot 2 of the F-Drive RX. F-Drive RX supports 10 output cards. Each constant current output card has up to 8 output channels.
E	Eight S-Box with RJ45 outputs	S-Box is an optional accessory that allows multiple luminaires to be connected on a single output channel. This example shows one FD-SBOX-R per channel.
F	Public space	
G	Luminaires or loads	24 ArcSystem Navis 50 shown, three per output channel (requires FD-SBOX-R)
Note: The illustration is not drawn to scale. Loads are only illustrated connected to one of the ten output cards for clarity.		

F-DRIVE RX EMERGENCY SYSTEM DIAGRAM



	DESCRIPTION	NOTES
A	Serviceable area	
B	Double-conversion uninterruptible power supply (UPS)	UPS should be specified with capacity to power all of the connected loads.
C	56 VDC power from F-Drive RX Power Supply	FD-RPS-56/1800 shown
D	Maintained contact closure	Wet or dry, normally-open or normally-closed
E	F-Drive RX	FD-RX
F	Output card	This example shows a CC 8 Card installed in slot 2 of the F-Drive RX, and labeled with an "EMERGENCY" label on the enclosure near the output card (front and back). F-Drive RX supports 10 output cards. Each constant current output card has up to 8 output channels. **The output card can be connected to any directly controlled luminaires (DCLs).**
G	Eight S-Box with RJ45 outputs	S-Box is an optional accessory that allows multiple luminaires to be connected on a single output channel. This example shows one FD-SBOX-R per channel.
H	Public space	
I	Luminaires or loads	24 ArcSystem Navis 50 shown, three per output channel (requires FD-SBOX-R).
Note: The illustration is not drawn to scale. Loads are only illustrated connected to one of the ten output cards for clarity.		

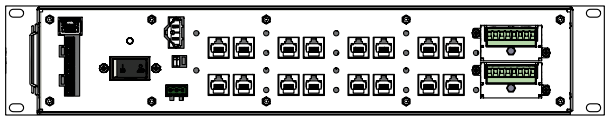
PHYSICAL

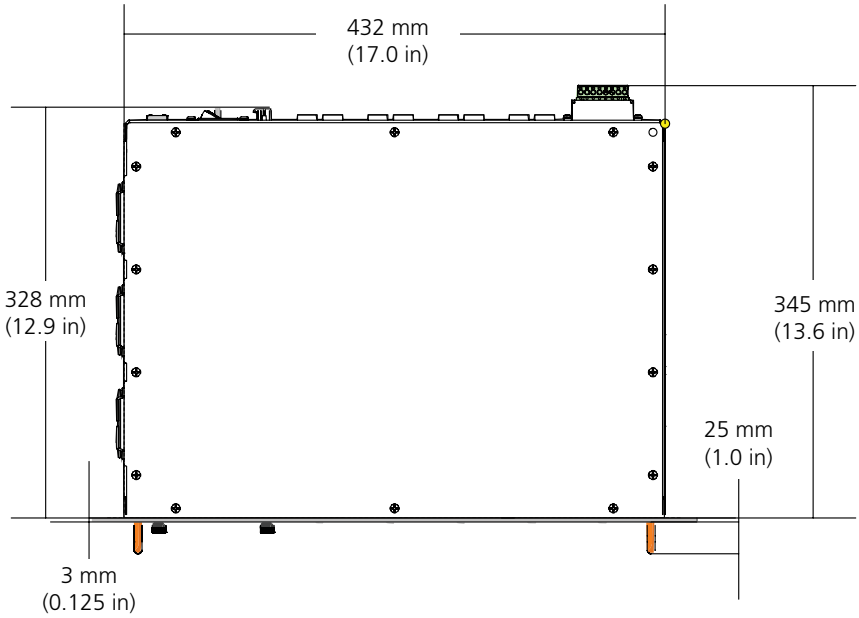
F-Drive RX Dimensions

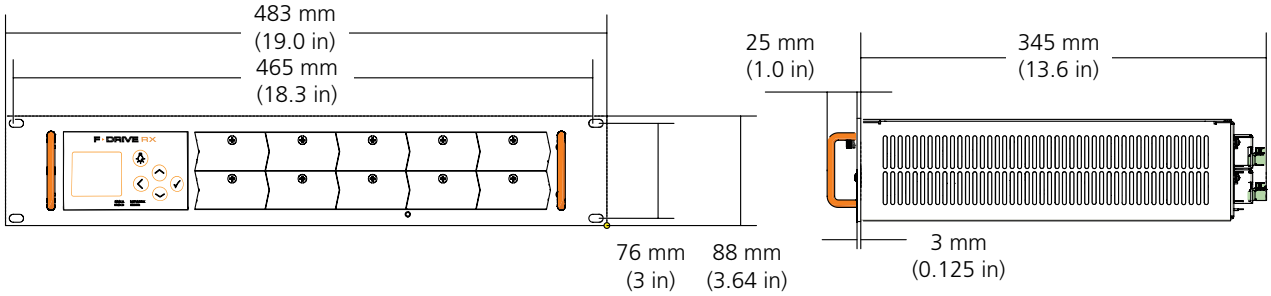
MODEL	HEIGHT		WIDTH		DEPTH	
	mm	in	mm	in	mm	in
FD-RX	88	3.46	483	19.00	345	13.60

F-Drive RX Weights

MODEL	WEIGHT	
	kg	lb
FD-RX	4.9	10.8







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