



Type(s)
Project
Date
Notes

GENERAL INFORMATION

The F-Drive R12 LED driver solution from ETC provides a modular, centralized approach for controlling LED luminaires. By maintaining remote, easy access to driver cards and power supplies, LED based systems can be easily installed and serviced, while ensuring critical components are readily accessible to support staff.

APPLICATIONS

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

FEATURES

- 48 VDC Input (via separate power supply)
- Hot-swappable output cards
- RJ45 output connectors for use with CC, FTW, and Chroma output cards
- Modular output connectors for higher gauge/existing wire (Max 14 AWG / 2.5 mm²)
- DMX512/RDM control input
- Wet/Dry contact panic input for remote triggering of output channels
- 48 VDC pass-through for connection to downstream sense equipment such as F-Drive W1E emergency driver

ORDERING INFORMATION

F-Drive Frame

MODEL	DESCRIPTION
FDR12FD	F-Drive Rack-Mount with DMX/RDM control card
Each FDR12FD is designed to utilize up to twelve (12) output cards as listed below	
FDROCCC150	Constant Current Output Card
FDROCCV150	Constant Voltage Output Card
FDROCFW150	FTW Output Card
FDROCCHC100	Chroma Output Card
FDROCAC150	ArcLamp Output Card

External Power Supply

MODEL	DESCRIPTION
FDRPS1F	Power Supply Three-Bay Frame (Meanwell RKP-1U System) (Frame holds up to three (3) FDRPS1M below)
FDRPS1M	Power Supply Module (Meanwell RCP-2000-48)
Power cord connection type chosen below, one cord required for each FDRPS1M	
FDRPSICE15	F-Drive Rack-Mount Power Supply Power Cord 14/3 NEMA 5-15P to Locking C19 IEC Connector
FDRPSICE20	F-Drive Rack-Mount Power Supply Power Cord 12/3 NEMA 5-20P to Locking C19 IEC Connector
FDRPSICS16	F-Drive Rack-Mount Power Supply Power Cord 14/3 (2.5 mm ²) Euro Schuko Plug to Locking C19 IEC Connector
FDRPSICS16	F-Drive Rack-Mount Power Supply Power Cord 14/3 (2.5 mm ²) Bare Ends (Euro) to Locking C19 IEC Connector

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

Note: A bussing/wiring kit is recommended to allow connection of an external power supply to F-Drive R12. Select bussing kit option from list on page 4.



FRAME SPECIFICATION

Control

Protocols	DMX/RDM
RDM configuration	Yes
UI type	no UI, Configured via ETC Concert
DMX footprint	See table on Page 6
Local control	No
Input method	DMX-512 via three-pin IDC or screw-terminal connector

Electrical (R12 Frame Only)

Voltage Input	48 VDC input from an external power supply, maximum 1500 W Connection to external power supply via bussing kit detailed on page 4
Output	RJ45 and terminal connection headers provided at rear of unit Electrical characteristics are detailed on page 3
Output Wiring	RJ45 control wire via Category-type cable with 0.25 mm ² (23 AWG) or larger conductors Max wire size for terminal headers 2.5 mm ² (14 AWG)
Output bridging	F-Drive is a SELV/LPS (Safety Extra Low Voltage/Limited Power Source) solution. LED outputs may not be bridged/combined
Wattage (max / standby)	Max 1500 W / standby 42 W
Inrush Max current at 120 VAC Power factor	See the manufacturer's specifications for the power supply you intend to use. ETC recommends the MEAN WELL RCP-2000-48 power supplies, visit http://www.meanwell.com for specifications.

Thermal

Ambient operating temp	0° to 40°C (32° to 104°F)
Humidity	5–95% non-condensing
Fans	Thermally controlled, forced air-cooled enclosure with left to right airflow
BTUs/hour (120 V/240 V)	230 BTU/hr, does not include output cards (See page three for individual output card thermal data) does not include external power supply

Physical

Materials	Powder coated Aluminum
Color	Front plate: Space Grey, fine-textured, scratch-resistant powder coat paint
Mounting options	Horizontal Rack-mount - 2U 19 inch standard rack mounting, removable via two aluminum 'U' handles Output cards inserted via nylon guide rails and secured via threaded thumb screw MEAN WELL rack-mount frame requires additional 1U of rack space
IP rating	IP-20 (dry locations only)
Weight	See table on page 7

Warranty

Driver	5 years
Website	etcconnect.com/Support/Warranty.aspx

Regulatory and Compliance

Approved regulatory standards	cULus Listed Conforms to ANSI/UL STD.8750; UL 2108, Low Voltage Lighting Systems UL 1598, Certified to CSA STD. C22.2 No: 250.13 CE Compliant UKCA Compliant EAC Compliant
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SPECIFICATION

Electrical: FTW-150 Card

Control	Four individually addressable outputs
Output	Parallel output provided to both RJ45 and terminal connectors
Output power	Max 50 W per circuit, up to card limit of 150 W
Output current	450 mA
Maximum BTU/hr	53
Cable specifications	Max 100 m (328 ft) to furthest luminaire
Recommended ETC luminaires	ArcSystem Navis 100 Fade to Warm luminaires only
Luminaire capacity	One luminaire per output

Electrical: CC-150 Card

Control	Four individually addressable outputs
Output	Parallel output provided to both RJ45 and terminal connectors
Output power	Max 50 W per circuit, up to card limit of 150 W
Output current	200–700 mA adjustable via RDM
Maximum BTU/hr	43
Cable specifications	Max 100 m (328 ft) to furthest luminaire
Recommended ETC luminaires	ArcSystem Navis 100 Fixed White, White or Fade to Warm versions of ArcSystem Pro One-Cell, ArcSystem Pro One-Cell Small, and ArcSystem Pro One-Cell Micro luminaires
Luminaire capacity	One luminaire per output

Electrical: Chroma Card

Control	One output controlling up to four individually addressable luminaires
Output	Output provided to RJ45 connector only
Output power	120 W per card
Output voltage	48 VDC
Maximum BTU/hr	43
Cable specifications	Max 100 m (328 ft) to furthest luminaire
Recommended ETC luminaires	ArcSystem Navis 100 RGBW luminaires
Luminaire capacity	Four luminaires

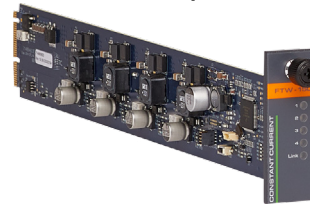
Electrical: ArcLamp 150 Card

Control	Four individually addressable outputs
Output	Output provided to terminal connectors only
Output power	Max 50 W per circuit, up to card limit of 150 W
Output voltage	24 VDC
Maximum BTU/hr	43
Cable specifications	2.5 mm ² (14 AWG) recommended, use ETC provided distance calculator at: etconnect.com/Products/Lighting-Fixtures/ArcLamp/Tools.aspx
Recommended ETC luminaires	For use with ETC ArcLamp only
Luminaire capacity	Supports up to 8 ArcLamps per circuit

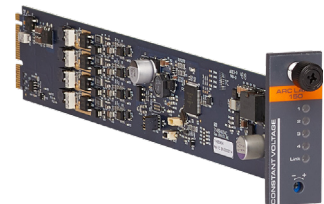
Electrical: CV-150 Card

Control	Four individually addressable outputs
Output	Output provided to terminal connectors only
Output power	Max 50 W per circuit, up to card limit of 150 W
Output voltage	24 VDC
Maximum BTU/hr	63
Cable specifications	2.5 mm ² (14 AWG) recommended, installer must consider line voltage drop in distance calculations

FTW-150 Output Card



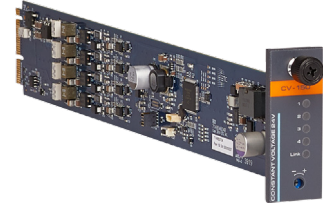
ArcLamp 150 Output Card



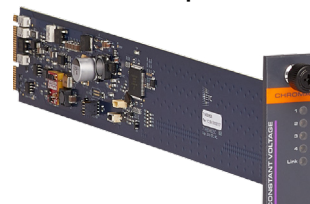
CC-150 Output Card



CV-150 Output Card



Chroma Output Card



F-DRIVE POWER SUPPLY INFORMATION

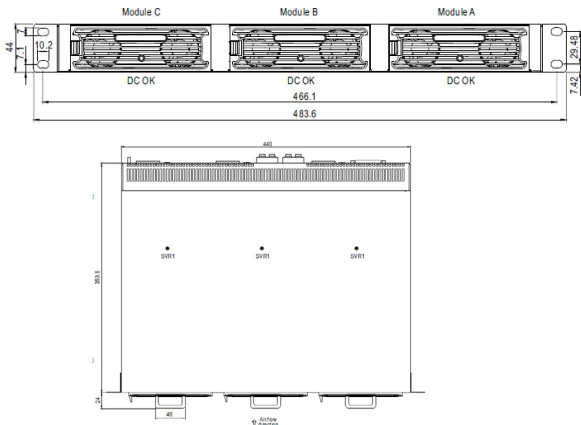
GENERAL INFORMATION

The F-Drive R12 rack-mount LED driver solution from ETC is a 48 VDC input product. An external rack-mounting power supply is required for operation. ETC recommends and offers the Meanwell RKP-1U Rack System with RCP-2000-48 power supply.

Meanwell RKP-1U Rack System

The Meanwell RKP-1U rack system is a 1U, low-profile power distribution solution perfectly suited for providing 48 VDC power to the ETC F-Drive unit. This system fits between one and three RCP-2000-48 power supplies depending on your installation requirements.

For current technical information, visit the following web URL:
<https://www.meanwell.com/productPdf.aspx?i=373>



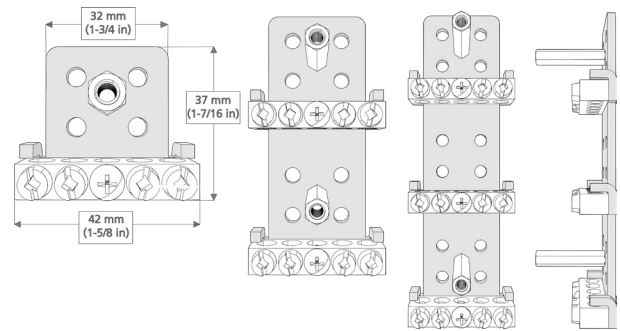
Meanwell RKP-1U Power Supply

MODEL	HEIGHT		WIDTH		DEPTH	
	in	mm	in	mm	in	mm
RKP-1U	1.73	44	19.04	483.6	14.76	374.8

Power Supply Bussing Kits

The Meanwell RKP-1U output terminals may be bussed together to allow multiple power supplies to operate in unison. This provides the possibility of redundancy in the event of a single power supply module failure.

ETC has created a series of bussing kits containing a 2.4 m (8 ft) set of 10 mm² (8 AWG) cables (1 red/1 black) pre-terminated to an F-Drive input plug on one end and bare ends on the other. DC cables may be cut to size for easy insertion to the copper screw terminal bus-bar that is supplied as part of the bussing kit.



Bussing kits are supplied complete with:

- Two output bus bars
- One plastic cover
- DC wiring harness to connect bussing kit to F-Drive R12 (number of harnesses varies based on bussing kit)

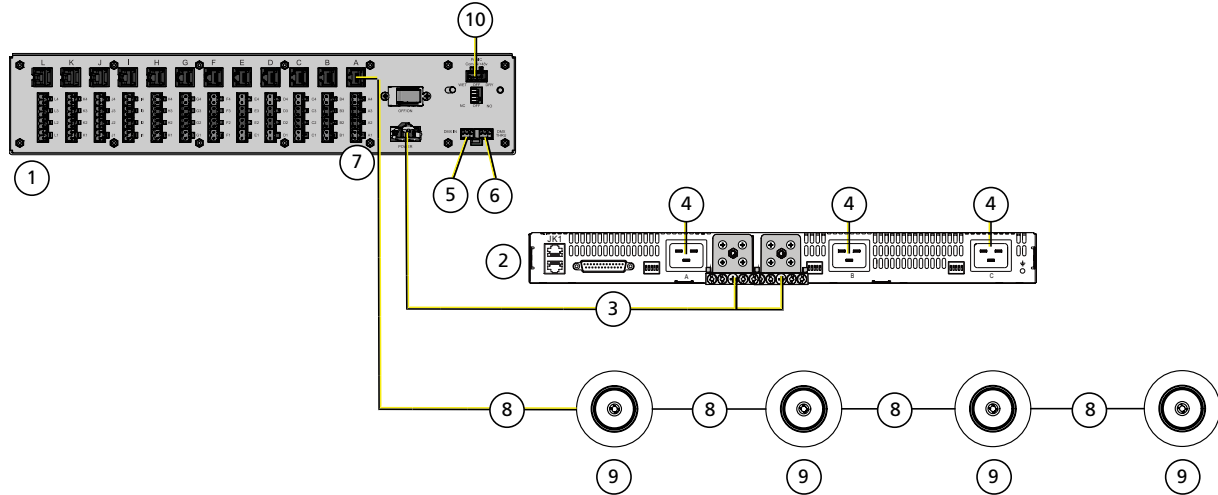
BUSSING KIT ORDERING OPTIONS

MODEL	DESCRIPTION
FDRPS1BK1-1	F-Drive Rack Mount Power Supply Bussing Kit - 1 Power Supply Frame (Meanwell RKP-1U System) / 1 F-Drive R12
FDRPS1BK1-2	F-Drive Rack Mount Power Supply Bussing Kit - 1 Power Supply Frame (Meanwell RKP-1U System) / 2 F-Drive R12
FDRPS1BK1-3	F-Drive Rack Mount Power Supply Bussing Kit - 1 Power Supply Frame (Meanwell RKP-1U System) / 3 F-Drive R12
FDRPS1BK2-4	F-Drive Rack Mount Power Supply Bussing Kit - 2 Power Supply Frame (Meanwell RKP-1U System) / 4 F-Drive R12
FDRPS1BK2-5	F-Drive Rack Mount Power Supply Bussing Kit - 2 Power Supply Frame (Meanwell RKP-1U System) / 5 F-Drive R12
FDRPS1BK2-6	F-Drive Rack Mount Power Supply Bussing Kit - 2 Power Supply Frame (Meanwell RKP-1U System) / 6 F-Drive R12
FDRPS1BK3-7	F-Drive Rack Mount Power Supply Bussing Kit - 3 Power Supply Frame (Meanwell RKP-1U System) / 7 F-Drive R12
FDRPS1BK3-8	F-Drive Rack Mount Power Supply Bussing Kit - 3 Power Supply Frame (Meanwell RKP-1U System) / 8 F-Drive R12
FDRPS1BK3-9	F-Drive Rack Mount Power Supply Bussing Kit - 3 Power Supply Frame (Meanwell RKP-1U System) / 9 F-Drive R12

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.

F-DRIVE R12 DRIVER WIRING DIAGRAM



	DESCRIPTION	NOTES
1	F-Drive FDR12FD	Back view, rack ears are attached to the front side but not shown
2	48 VDC power supply	MEAN WELL RCP-2000 module in RKP-1U rack-mount frame, back view, shown with ETC bussing kit. Rack ears are attached to the front side but not shown.
3	48 VDC from power supply to F-Drive R12	Use bussing kit harness.
4	Input power to RKP-1U with RCP-2000	See External Power Supply Options on page 1 for available power cord options.
5	DMX input from external DMX source	Belden 9729 or Cat 5e (or equivalent) with 0.2 mm ² (24 AWG) or larger conductors terminated to T568B standard
6	DMX thru to another F-Drive R12 or other device	Belden 9729 or Cat 5e (or equivalent) with 0.2 mm ² (24 AWG) or larger conductors terminated to T568B standard
7	Output card terminations	Use CC-150 Card, FTW-150 Card, or Chroma Card for Navis 100 luminaires. There are 12 output card slots available on an F-Drive R12.
8	Category-type cable with 0.25 mm ² (23 AWG) or larger conductors (Belden 2412 or 2148 Cat6e)	<48 VDC for Navis 100 White or Navis 100 Fade to Warm, 48 VDC for Navis 100 RGBW.
9	Navis luminaire*	Navis 100 White, Navis 100 Fade to Warm, or Navis 100 RGBW. Connect up to four of the same luminaire per output card, compatible with the output card type.
10	Optional panic output	48 VDC wet or dry contact suitable for connection to external emergency systems For example: the F-Drive R12 panic output can be used as the Sense input to an F-Drive W1 Emergency Driver.

* Multiple Navis 100 luminaires connected to one W1 driver must be run in a daisy-chain configuration with a maximum of four Navis 100 luminaires per cable run.

Note: The illustration is not drawn to scale.

DMX CONTROL

DMX is an accurate and robust control protocol that provides simple control over luminaires. As experts in DMX for decades, systems developed by ETC integrate DMX natively and give designer, integrator, installer, and user an easy, flexible, and robust control system.

F-DRIVE OUTPUT CARD - DMX Personality

DMX Channel	F-Drive Chroma Output Card with Navis RGBW Luminaires		F-Drive FTW Output Card with Navis FTW Luminaires		F-Drive CC, ArcLamp, or CV output card
	Direct (IRGBW)	Default (IRGB)	Default	Warm Trim	Default
1	Intensity	Intensity	Intensity	Intensity	Intensity
2	Red	Red		Fade to warm scaling	
3	Green	Green			
4	Blue	Blue			
5	White				

CHROMA CONTROL FEATURES

- Default (IRGB) mode automatically integrates the luminaires White LED into all color points where it is applicable. In this mode the luminaire will always mix the brightest version of any given color point.
- In Default (IRGB) mode the native white point of an RGBW luminaire can be set to any of the following calibrated white points: 2700K, 3000K, 3500K, 4000K, 5000K.
- Red Shift can be enabled or disabled on any RGBW luminaire using Default (IRGB) mode.
- These features are easily accessed through ETC Concert.

FTW CONTROL FEATURES

- “Warm Trim” mode enables the user to scale the intensity level at which the Red Shift color temperature changes begin to occur.

CC CONTROL FEATURES

- Intensity on CC luminaires is controlled via 8-bit DMX which gives 255 controllable levels. Internal smoothing, variable fade times, and curve controls provide even and consistent dimming for standard and customized dimming requirements.

ARCLAMP CONTROL FEATURES

- The ArcLamp output card provides control for luminaires on a per channel basis via 8-bit intensity control with internal smoothing. Luminaire configuration via ETC Concert gives simple minimum and maximum level setting as well as control for White, Fade to warm, and Flicker ArcLamp products.

PHYSICAL

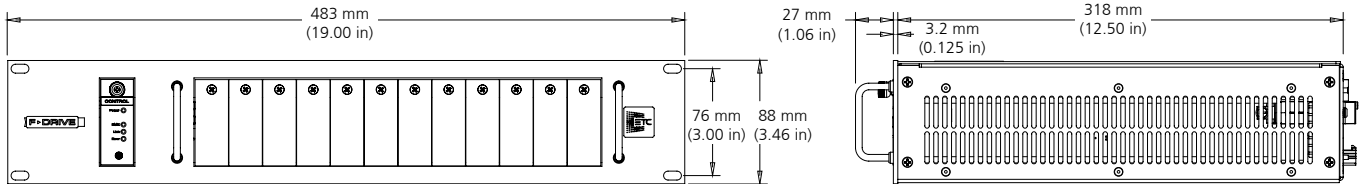
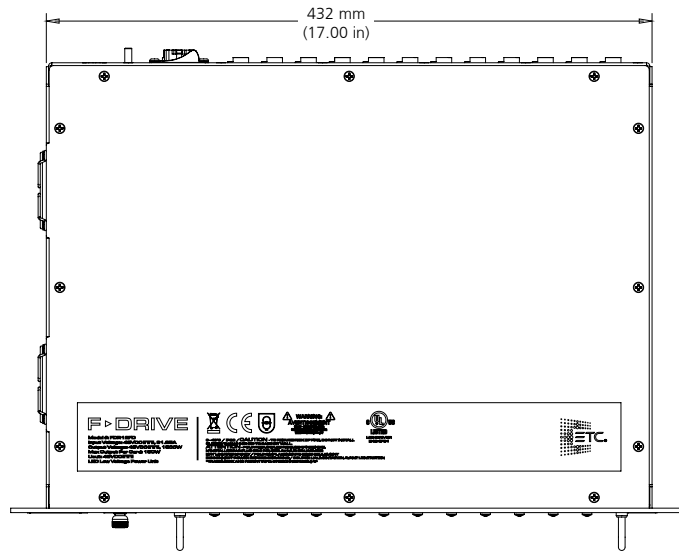
F-Drive R12 Dimensions

MODEL	HEIGHT		WIDTH		DEPTH	
	in	mm	in	mm	in	mm
FDR12	3.46	88	19.00	483	12.63	321

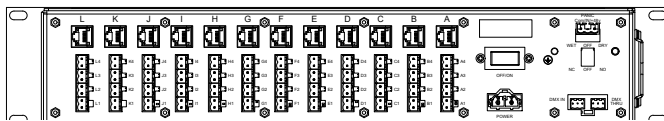
F-Drive R12 Weights

MODEL	WEIGHT		SHIPPING WEIGHT	
	lb	kg	lb	kg
FDR12	9.22	4.18	9.72	4.41

F-DRIVE R12



REAR VIEW



Corporate Headquarters • Middleton, WI USA
 Global Offices • London, UK • Rome, IT • Holzkirchen, DE • Paris, FR • Hong Kong
 Dubai, UAE • Singapore • New York, NY • Orlando, FL • Los Angeles, CA • Austin, TX
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