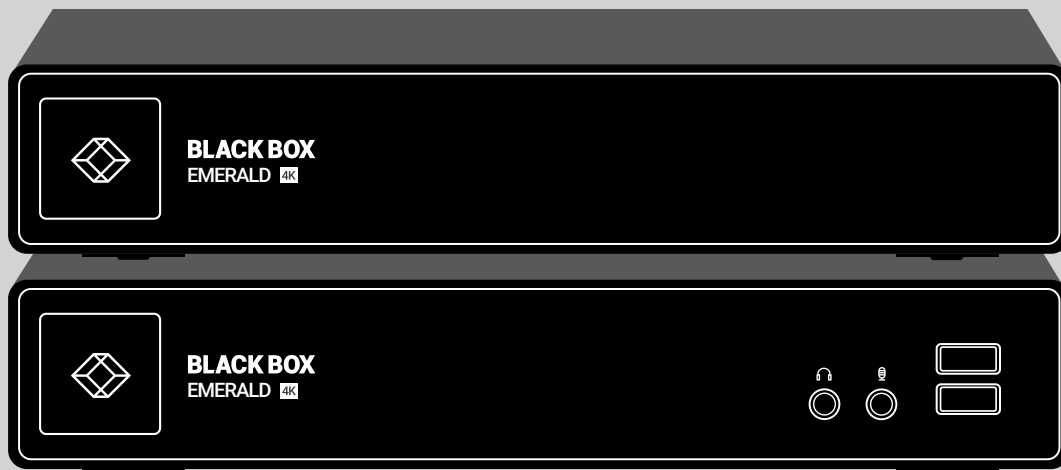


DATA SHEET

EMD SERIES

EMERALD UNIFIED KVM FAMILY



BLACK BOX[®]

OVERVIEW

EMERALD UNIFIED KVM FAMILY DATA SHEET

INTRODUCTION

Emerald High-Performance KVM provides KVM over an existing or dedicated IP network. Extension and switching of 4K video and HD video, along with direct access to Virtual machines from all of our 4K and HD receivers ensures a future-proof system. Transmitters, receivers and Ethernet switches are available.

- DESKVUE, DESKVUE PE
- 4K
- PE DVI and DisplayPort™, Single/Dual
- SE DVI and DisplayPort, Single/Dual
- ZeroU DVI and DisplayPort
- Remote App (Software-based receiver)

FEATURES

- 4K VIDEO @ 60 HZ (MODEL DEPENDENT)
- PIXEL PERFECT VIDEO—MATHEMATICALLY LOSSLESS
- ACCESS TO VIRTUAL MACHINES USING RDP/REMOTEFX AND PCOIP SUPPORTING MICROSOFT® AND VMWARE®
- 4K AND PE VERSIONS HAVE DUAL NETWORK OPTION FOR REDUNDANCY
- SELECT PE VERSIONS SUPPORT POWER-OVER-ETHERNET (POE) OR POWER VIA AN EXTERNAL PSU
- PE VERSION HAS DUAL NETWORK INTERFACES — (1) 1GBASE-T AND SFP
- ACCESS RESOURCES ANYWHERE VIA WAN
- CENTRALIZED MANAGEMENT, ACCESS CONTROL, MONITORING AND UPGRADES
- OPTION TO USE EXISTING NETWORK INFRASTRUCTURE
- CHOOSE COPPER OR FIBER CONNECTIONS
- TRANSPARENT USB 2.0 – CONNECT MOST USB DEVICES
- SUPPORT AUDIO OVER DISPLAYPORT, USB AND ANALOG
- ZEROU TRANSMITTER HAS A SMALL FORM FACTOR SO IT USES ZERO RACKSPACE—YOU SAVE MONEY WHEN RACK SPACE IS EXPENSIVE
- ZEROU DVI OR DISPLAYPORT TRANSMITTER IS POWERED OVER USB OR VIA A SEPARATE POWER SUPPLY
- ZEROU DISPLAYPORT AND SE/PE DISPLAYPORT TRANSMITTERS SUPPORT EMBEDDED AUDIO
- SUPPORTS INTEROPERABILITY AMONG ALL EMERALD DEVICES
- DESKVUE RECEIVERS SUPPORT KVM MULTIVIEWING UP TO 16 TARGETS
- EMERALD GE OFFERS USER SESSION SHARING FOR VIRTUAL MACHINES
- EMERALD REMOTE APP RECEIVER CLIENT AVAILABLE FOR macOS® & Windows®
- FIPS 140-3 VALIDATED CRYPTOGRAPHY
- EMERALD® CANVAS™ DRIVES VIDEO WALLS ACROSS MULTIPLE DISPLAYS



OVERVIEW

SPECIFICATION COMPARISON CHART: TRANSMITTERS AND RECEIVERS								
	# OF VIDEO HEADS	USB PORTS	NETWORK	POE	SERIAL	AUDIO	SFP+	RESOLUTION
RECEIVERS								
DESKVUE EMD5104-R	(4) DP	(4) USB TYPE A	(2) RJ-45	NO	NONE	(2) 3.5 mm	NONE	4096 x 2160 (5K:5120 x 2880)
DESKVUE EMD5004PE-R	(4) mDP	(9) USB TYPE A, (1) USB TYPE C	(1) RJ-45 1G, (1) RJ-45 1G/2.5G	NO	NONE	(1) 3.5 mm or DP embedded	NONE	4096 x 2160 (5K:5120 x 2880)
EMD3000GE	Headless	(4) USB TYPE A (not used)	(2) RJ-45	NO	NONE	(1) 3.5 mm (not used)	NONE	Headless
SE RECEIVER, SINGLE-HEAD (EMD2000SE-R)	(1) DVI	(4) USB TYPE A	(1) RJ-45	NO	(1) DB9	(2) 3.5 mm	NONE	1920 x 1200
SE RECEIVER, DUAL-HEAD (EMD2002SE-R)	(2) DVI	(4) USB TYPE A	(1) RJ-45	NO	NONE	(2) 3.5 mm	NONE	1920 x 1200
PE POE RECEIVER, SINGLE-HEAD (EMD2000PE-R-P)	(1) DVI	(4) USB TYPE A	(1) RJ-45, (1) SFP	YES	NONE	(2) 3.5 mm	NONE	1920 x 1200
PE POE RECEIVER, DUAL-HEAD (EMD2002PE-R-P)	(2) DVI	(4) USB TYPE A	(1) RJ-45, (1) SFP	YES	NONE	(2) 3.5 mm	NONE	1920 x 1200
DISPLAYPORT SE RECEIVER, SINGLE-HEAD (EMD2000SE-DP-R)	(1) DISPLAYPORT™	(4) USB TYPE A	(1) RJ-45	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
DISPLAYPORT SE RECEIVER, DUAL-HEAD (EMD2002SE-DP-R)	(2) DISPLAYPORT	(4) USB TYPE A	(1) RJ-45	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
DISPLAYPORT PE RECEIVER, SINGLE-HEAD(EMD2000PE-DP-R)	(1) DISPLAYPORT	(4) USB TYPE A	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
DISPLAYPORT PE RECEIVER, DUAL-HEAD (EMD2002PE-DP-R)	(2) DISPLAYPORT	(4) USB TYPE A	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
4K RECEIVER (EMD4000R)	(1) DISPLAYPORT	(4) USB TYPE A	(1) RJ-45 (not used)	NO	NONE	(2) 3.5 mm	(2)	4096 x 2160
TRANSMITTERS								
SE TRANSMITTER, SINGLE-HEAD (EMD2000SE-T-R2)	(1) DVI	(1) USB TYPE B	(1) RJ-45	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
PE TRANSMITTER, SINGLE-HEAD (EMD2000PE-T-R2)	(1) DVI	(1) USB TYPE B	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
PE TRANSMITTER, DUAL-HEAD (EMD2002PE-T-R2)	(2) DVI	(1) USB TYPE B	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
PE TRANSMITTER, DUAL-HEAD (EMD2002PE-T-P)	(2) DVI	(1) USB TYPE B	(1) RJ-45, (1) SFP	YES	NONE	(1) 3.5 mm	NONE	1920 x 1200
ZEROU DVI TRANSMITTER (EMD2000DV-T)	(1) DVI	(1) USB HID, (1) USB HD for power only	(1) RJ-45	NO	NONE	(1) 3.5 mm	NONE	1920 x 1200
ZEROU DISPLAYPORT TRANSMITTER (EMD2000DP-T)	(1) DISPLAYPORT	(1) USB HID, (1) USB HD for power only	(1) RJ-45	NO	NONE	embedded audio on DP	NONE	1920 x 1200
PE DP TRANSMITTER, SINGLE- HEAD (EMD2000PE-DP-T)	(1) DISPLAYPORT	(1) USB TYPE B	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm and embedded audio on DP	NONE	1920 x 1200
SE DP TRANSMITTER, SINGLE- HEAD (EMD2000SE-DP-T)	(1) DISPLAYPORT	(1) USB TYPE B	(1) RJ-45	NO	(1) RJ-45	(1) 3.5 mm and embedded audio on DP	NONE	1920 x 1200
PE DP TRANSMITTER, DUAL- HEAD (EMD2002PE-DP-T)	(2) DISPLAYPORT	(1) USB TYPE B	(1) RJ-45, (1) SFP	NO	NONE	(1) 3.5 mm and embedded audio on DP	NONE	1920 x 1200
SE DP TRANSMITTER, DUAL- HEAD (EMD2002SE-DP-T)	(2) DISPLAYPORT	(1) USB TYPE B	(1) RJ-45	NO	NONE	(1) 3.5 mm and embedded audio on DP	NONE	1920 x 1200
4K TRANSMITTER (EMD4000T)	(1) DISPLAYPORT	(1) USB TYPE B	(1) RJ-45 (not used)	NO	NONE	(2) 3.5 mm	(2)	4096 x 2160

NOTE: The products listed above cover commercially available options and do not include client-specific part numbers.



COMPARISON CHART: SWITCHES

SPECIFICATION COMPARISON CHART: SWITCHES							
NETWORK SWITCHES	SPEED	PORTS	CASCADE PORTS	CAPACITY	MAC ADDRESSES	CPU MEMORY	BUFFER
EMS1G24F	1G	(24) 1G SFP	(2) 10G SFP+	212 GBPS	56 K	2 GB	4 MB
EMS10G28	10G	(28) 10GbE SFP+	(2) 100G QSFP28	960 GBPS	272 K	4 GB	12 MB
EMS100G32-R2	100G	(32) 100G QSFP28	—	6.4 TBPS	136 K	8 GB	16 MB

COMPATIBLE SFPS

COMPATIBLE SFPS		
PART NUMBER	DESCRIPTION	DISTANCE
1-GBPS CONNECTIONS		
LFP441	SFP, Gigabit Ethernet, 850 nm Multimode Fiber, LC	550 m
LFP442	SFP, Gigabit Ethernet, 1310 nm Single-mode Fiber, LC	20 km
LFP443	SFP, 10/100/1000BASE-T RJ-45 SGMII	100 m
10 GBPS CONNECTIONS		
LSP441	SFP+ - 10-Gb, Extended Diagnostics, 850 nm Multimode Fiber, LC	300 m
LSP442	SFP+ - 10-Gb, Extended Diagnostics, 1310 nm Single-mode Fiber, LC	10 km
LSP443	SFP+, 10GBASE-T, RJ-45	30 m
EMD-LSP-5000	SFP+, Optical Transceiver, 850 nm Multimode Fiber, LC	300 m
EMD-LSP-5001	SFP+ Optical Transceiver, 1310 nm Single-mode Fiber, LC	10 km
100 GBPS CONNECTIONS		
QSFP441-R2	QSFP28 100GBASE-SR4, 850 nm Multimode, MPO	100 m
QSFP442	QSFP28 100GBASE-LR4, DWM Single-mode, LC	10 km

NOTE: Black Box switches will also support generic SFP+ modules.



COMPATIBLE ACTIVE OPTICAL CABLES (AOCs) FOR NETWORKING

COMPATIBLE 100G ACTIVE OPTICAL CABLES FOR NETWORKING	
PRODUCT CODE	LENGTH
QSFP-100G-AOC3M-BB	3 m
QSFP-100G-AOC5M-BB	5m
QSFP-100G-AOC15M-BB	15 m

COMPATIBLE 10G DIRECT ATTACH CABLES (DACs) FOR NETWORKING

COMPATIBLE 10G DIRECT ATTACH CABLES FOR NETWORKING	
PRODUCT CODE	LENGTH
SFP-H10GB-CU50CM-BB	50 cm
SFP-H10GB-CU1M-BB	1 m
SFP-H10GB-CU1M5-BB	1.5 m
SFP-H10GB-CU2M-BB	2 m
SFP-H10GB-CU3M-BB	3 m
SFP-H10GB-CU5M-BB	5 m



SPECIFICATIONS

EMERALD ZEROU DVI TRANSMITTER (EMD200DV-T) DATA SHEET

TRANSMITTER



NOTE: The Emerald® ZeroU DVI transmitter (EMD200DV-T) supports speakers-only audio on the 3.5-mm connector.

WHAT'S INCLUDED WITH THE TRANSMITTER (EMD200DV-T)

- (1) EMERALD ZEROU DVI TRANSMITTER

NOTE: The EMD200DV-T does not support USB-redirected connections or devices.

SPECIFICATIONS FOR EMERALD ZEROU DVI TRANSMITTER (EMD200DV-T)

APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
PHYSICAL	
LED INTERFACE	(1) Power LED (green); (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	12" (305 mm) via connected cable harness
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(1) DVI input, (2) USB Type A female, (1) RJ-45 network (10/100/1000BASE-T), (1) 2.5-mm barrel for power; NOTE: The ZeroU transmitter can be powered via (2) USB Type A connectors or via an optional DC power adapter.
DIMENSIONS	0.98" H x 2.78" W x 6.12" D (25 x 71 x 155 mm)
WEIGHT	0.48 lb. (221 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.22
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	Via USB or an optional 5VDC power adapter
INPUT VOLTAGE	5VDC
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing
HEAT DISSIPATION	8.52 BTU/h maximum



SPECIFICATIONS

EMERALD ZEROU DISPLAYPORT TRANSMITTER (EMD200DP-T) DATA SHEET

The Emerald® system will take audio from your DisplayPort™ connector and transmit it across the network just like it does with the video signal. The receiver will decode this and send it out the receiver's 3.5-mm audio connector with no configuration required in Emerald.

NOTE: The graphics card and OS must support embedded audio over DisplayPort, and it may need to be enabled on your system.



NOTE: The Emerald ZeroU DisplayPort transmitter (EMD200DP-T) supports embedded audio on the DisplayPort connector.

WHAT'S INCLUDED WITH THE TRANSMITTER (EMD200DP-T)

(1) EMERALD ZEROU DISPLAYPORT TRANSMITTER

NOTE: The EMD200DP-T cannot support USB-redirected connections.

SPECIFICATIONS FOR EMERALD ZEROU DISPLAYPORT TRANSMITTER (EMD200DP-T)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
PHYSICAL	
LED INTERFACE	(1) Power LED (green); (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	12" (305 mm) via connected cable harness
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(1) DisplayPort input, (2) USB Type A female, (1) RJ-45 network (10/100/1000BASE-T), (1) 2.5-mm barrel for power; NOTE: The ZeroU transmitter can be powered via (2) USB Type A connectors or via an optional DC power adapter.
DIMENSIONS	0.98" H x 2.78" W x 6.12" D (25 x 71 x 155 mm)
WEIGHT	0.43 lb. (198 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.22
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	Via USB or an optional 5VDC power adapter
INPUT VOLTAGE	5VDC
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing
HEAT DISSIPATION	8.52 BTU/h maximum



SPECIFICATIONS

EMERALD PE SINGLE-HEAD RECEIVER (EMD2000PE-R-P) DATA SHEET

RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE RECEIVER (EMD2000PE-R-P)

- (1) EMERALD PE RECEIVER, SINGLE-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD PE SINGLE-HEAD RECEIVER (EMD2000PE-R-P) DATA SHEET

SPECIFICATIONS FOR EMERALD PE RECEIVER, SINGLE-HEAD (EMD2000PE-R-P)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, ICES, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED (lights when power is on); NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(1) DVI output, (4) USB Type A female, (1) RJ-45 PoE network, (1) SFP network, (2) 3.5-mm audio for SPK and MIC, (1) 3-pin locking connector for power, (1) Micro USB connector
DIMENSIONS	1.32" H x 7.62" W x 5.79" D (34 x 194 x 147 mm)
WEIGHT	1.17 lbs (535 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2000PE-R-P: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DEFAULT USERNAME	admin
DEFAULT PASSWORD	The password is blank by default.
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply or PoE IEEE 802.11af
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	Unit: 7.5 W with keyboard and mouse attached; Power supply: 36 W to support USB-based powered devices
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC-320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD PE DUAL-HEAD RECEIVER (EMD2002PE-R-P) DATA SHEET

RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE RECEIVER (EMD2002PE-R-P)

- (1) EMERALD PE RECEIVER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD PE DUAL-HEAD RECEIVER (EMD2002PE-R-P) DATA SHEET

SPECIFICATIONS FOR EMERALD PE RECEIVER, DUAL-HEAD (EMD2002PE-R-P)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, ICES, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED (lights when power is on); NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2002PE-R-P: (2) DVI outputs, (4) USB Type A female, (1) RJ-45 PoE network, (1) SFP network, (2) 3.5-mm audio for SPK and MIC, (1) 3-pin locking connector for power, (1) Micro USB connector
DIMENSIONS	1.32" H x 7.62" W x 5.79" D (34 x 194 x 147 mm)
WEIGHT	1.47 lbs (667 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DEFAULT USERNAME	admin
DEFAULT PASSWORD	The password is blank by default.
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	PoE IEEE 802.11af
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	Unit: 7.5 W with keyboard and mouse attached; Power supply: 36 W to support USB-based powered devices
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC-320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD PE SINGLE-HEAD DISPLAYPORT TRANSMITTER (EMD2000PE-DP-T) AND RECEIVER (EMD2000PE-DP-R) DATA SHEET

TRANSMITTER FRONT VIEW



TRANSMITTER BACK VIEW



RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2000PE-DP-T)

- (1) EMERALD PE DP TRANSMITTER, SINGLE-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD
- (1) DISPLAYPORT™ CABLE
- (1) USB TYPE A TO B CABLE

WHAT'S INCLUDED WITH THE RECEIVER (EMD2000PE-DP-R)

- (1) EMERALD PE DP RECEIVER, SINGLE-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD PE SINGLE-HEAD DISPLAYPORT TRANSMITTER (EMD2000PE-DP-T) AND RECEIVER (EMD2000PE-DP-R) DATA SHEET

SPECIFICATIONS FOR EMERALD PE DISPLAYPORT TRANSMITTER, SINGLE -HEAD (EMD2000PE-DP-T), AND RECEIVER (EMD2000PE-DP-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED; (1) Network LED; (1) Video 1 Status LED; (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DisplayPort™ and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100m) CATx Fiber: Distance dependent on SFP and Fiber cable used
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2000PE-DP-T: (1) DisplayPort female, (1) USB Type B female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, 1Gbps, (1) SFP Interconnect, 1 Gbps (unpopulated), (1) USB Type B micro (Console), (1) 3-pin locking connector for power (12VDC); EMD2000PE-DP-R: (1) DisplayPort female, (4) USB Type A female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, (1) SFP Interconnect 1Gbps (unpopulated), (1) USB Type B Micro (Console), (2) Power Inputs; (1) 3-pin locking power connector for power (12VDC)
DIMENSIONS	EMD2000PE-DP-T: 1.34" H x 5.39" W x 6.1" D (34 x 137 x 155 mm); EMD2000PE-DP-R: 1.3" H x 7.62" W x 5.81" D (33.11 x 193.6 x 147.8mm)
WEIGHT	EMD2000PE-DP-T: 0.84 lbs (382 g); EMD2000PE-DP-R: 0.85 lbs (384 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2000PE-DP-T: 192.168.1.22; EMD2000PE-DP-R: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	36 W maximum (Unit consumes 9 W)
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD PE DUAL-HEAD DISPLAYPORT TRANSMITTER (EMD2002PE-DP-T) AND RECEIVER (EMD2002PE-DP-R) DATA SHEET

TRANSMITTER FRONT VIEW



TRANSMITTER BACK VIEW



RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2002PE-DP-T)

- (1) EMERALD PE DP TRANSMITTER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD
- (2) DISPLAYPORT™ CABLES
- (1) USB TYPE A TO B CABLE

WHAT'S INCLUDED WITH THE RECEIVER (EMD2002PE-DP-R)

- (1) EMERALD PE DP RECEIVER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD PE DUAL-HEAD DISPLAYPORT TRANSMITTER (EMD2002PE-DP-T) AND RECEIVER (EMD2002PE-DP-R) DATA SHEET

SPECIFICATIONS FOR EMERALD PE DISPLAYPORT TRANSMITTER, DUAL-HEAD (EMD2002PE-DP-T) AND RECEIVER (EMD2002PE-DP-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED; (1) Network LED; (1) Video 1 Status LED; (1) Video 2 Status LED; (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DisplayPort™ and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100m) CATx Fiber: Distance dependent on SFP and Fiber cable used
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2002PE-DP-T: (2) DisplayPort female, (1) USB Type B female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, 1Gbps, (1) SFP Interconnect, 1 Gbps (unpopulated), (1) USB Type B micro (Console), (1) 3-pin locking connector for power (12VDC); EMD2002PE-DP-R: (2) DisplayPort female, (4) USB Type A female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, 1Gbps, (1) SFP Interconnect, 1 Gbps (unpopulated), (1) USB Type B micro (Console), (2) Power inputs; (1) 3-pin locking connector for power (12VDC)
DIMENSIONS	EMD2002PE-DP-T: 1.34" H x 5.39" W x 6.1" D (34 x 137 x 155 mm); EMD2002PE-DP-R: 1.3" H x 7.62" W x 5.81" D (33.11 x 193.6 x 147.8mm)
WEIGHT	EMD2002PE-DP-T: 0.85 lbs (387 g); EMD2002PE-DP-R: 0.85 lbs (385 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2002PE-DP-T: 192.168.1.22; EMD2002PE-DP-R: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	36 W maximum (Unit consumes 9.5 W)
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



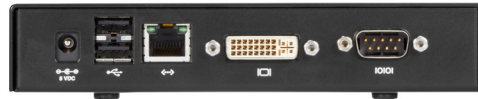
SPECIFICATIONS

EMERALD SE SINGLE-HEAD RECEIVER (EMD2000SE-R) DATA SHEET

RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE RECEIVER (EMD2000SE-R)

- (1) EMERALD SE RECEIVER, SINGLE-HEAD
- (1) 5VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD SE SINGLE-HEAD RECEIVER (EMD2000SE-R) DATA SHEET

SPECIFICATIONS FOR EMERALD SE RECEIVER, SINGLE-HEAD (EMD2000SE-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS
PHYSICAL	
LED INTERFACE	(1) Power LED/button; NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2000SE-R: (1) DVI output, (4) USB Type A female, (1) RJ-45 network (10/100/1000BASE-T), (1) DB9 serial, (2) 3.5-mm audio for SPK and MIC, (1) 2.5-mm barrel for power
DIMENSIONS	1.15" H x 6.2" W x 4.2" D (29 x 157 x 107 mm)
WEIGHT	EMD2000SE-R: 1.32 lbs (600 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2000SE-R: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DEFAULT USERNAME	admin
DEFAULT PASSWORD	The password is blank by default.
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	0.9 Amps maximum
POWER CONSUMPTION	Unit: 6.5 W with keyboard and mouse attached; Power supply: 20 W to support USB-based powered devices
HEAT DISSIPATION	68.2 BTW/hr maximum
OUTPUT CONNECTOR	2.5-mm barrel (5 VDC, 4 Amp output)
INPUT CONNECTOR	IEC-320, C8
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD SE SINGLE-HEAD TRANSMITTER (EMD2000SE-T-R2) DATA SHEET

EMD2000SE-T-R2 FRONT VIEW



EMD2000SE-T-R2- BACK VIEW



WHAT'S INCLUDED WITH THE SINGLE-HEAD TRANSMITTER (EMD2000SE-T-R2)

- (1) EMERALD SE-R2 TRANSMITTER
- (1) 5VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD SE SINGLE-HEAD TRANSMITTER (EMD2000SE-T-R2) DATA SHEET

SPECIFICATIONS FOR EMERALD SE SINGLE-HEAD TRANSMITTER (EMD2000SE-T-R2)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS
PHYSICAL	
LED INTERFACE	(1) Power LED; (1) Network LED; (1) Video 1 Status LED; (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(1) DVI-D female, (1) USB Type B female, (1) 3.5-mm audio; (1) RJ-45 Interconnect, 1Gbps, (1) USB Type B micro (Console), (1) 2.5-mm barrel connector for power
DIMENSIONS	1.34" H x 6.1" W x 6.07" D (34 x 137 x 155 mm)
WEIGHT	0.78 lb. (355 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.22
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	0.9 Amps maximum
POWER CONSUMPTION	Unit: 6.5 W with keyboard and mouse attached Power supply: 20 W to support USB-based powered devices
HEAT DISSIPATION	68.2 BTW/hr maximum
OUTPUT CONNECTOR	2.5-mm barrel (5 VDC, 4 Amp output)
INPUT CONNECTOR	IEC-320, C8
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD SE DUAL-HEAD RECEIVER (EMD2002SE-R) DATA SHEET

RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE RECEIVER (EMD2002SE-R)

- (1) EMERALD SE RECEIVER, DUAL-HEAD
- (1) 5VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD SE DUAL-HEAD RECEIVER (EMD2002SE-R) DATA SHEET

SPECIFICATIONS FOR EMERALD SE RECEIVER, DUAL-HEAD (EMD2002SE-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS
PHYSICAL	
LED INTERFACE	(1) Power LED/button; NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2002SE-R: (2) DVI outputs, (4) USB Type A female, (1) RJ-45 network (10/100/1000BASE-T), (2) 3.5-mm audio for SPK and MIC, (1) 2.5-mm barrel for power
DIMENSIONS	EMD2002SE-R: 1.15" H x 6.2" W x 4.2" D (29 x 157 x 107 mm)
WEIGHT	EMD2002SE-R: 1.32 lbs (600 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2002SE-R: 192.168.1.21
ENCRYPTION	Secure Sockets Layer (SSL) over TCP/IP, 128-bit between transmitter and receiver, user set between receiver and virtual machine
DEFAULT USERNAME	admin
DEFAULT PASSWORD	The password is blank by default.
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	0.9 Amps maximum
POWER CONSUMPTION	Unit: 6.5 W with keyboard and mouse attached; Power supply: 20 W to support USB-based powered devices
HEAT DISSIPATION	68.2 BTW/hr maximum
OUTPUT CONNECTOR	2.5-mm barrel (5 VDC, 4 Amp output)
INPUT CONNECTOR	IEC-320, C8
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD PE SINGLE-HEAD TRANSMITTER (EMD2000PE-T-R2) DATA SHEET

EMD2000PE-T-R2 FRONT VIEW



EMD2000PE-T-R2 BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2000PE-T-R2)

- (1) EMERALD PE TRANSMITTER, SINGLE-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD
- (1) DVI CABLE
- (1) USB 2.0 TYPE B CABLE



SPECIFICATIONS

EMERALD PE SINGLE-HEAD TRANSMITTER (EMD2000PE-T-R2) DATA SHEET

SPECIFICATIONS FOR EMERALD PE SINGLE-HEAD TRANSMITTER (EMD2000PE-T-R2)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, ICES, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED; (1) Network LED; (1) Video 1 Status LED; (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(1) DVI input, (1) USB Type B female, (1) RJ-45 network, (1) SFP network, (1) 3.5-mm audio, (1) 3-pin locking connector for power, (1) Micro USB connector;
DIMENSIONS	1.34" H x 7.64" W x 5.83" D (34 x 194 x 148 mm)
WEIGHT	1.03 lb. (468 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.22
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	Unit: 7.5 W with keyboard and mouse attached; Power supply: 36 W to support USB-based powered devices
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC-320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD PE DUAL-HEAD TRANSMITTER (EMD2002PE-T-R2) DATA SHEET

EMD2002PE-T-R2 FRONT VIEW



EMD2002PE-T-R2 BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2002PE-T-R2)

- (1) EMERALD PE TRANSMITTER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD
- (2) DVI CABLES
- (1) USB 2.0 TYPE B CABLE



SPECIFICATIONS

EMERALD PE DUAL-HEAD TRANSMITTER (EMD2002PE-T-R2) DATA SHEET

SPECIFICATIONS FOR EMERALD PE DUAL-HEAD TRANSMITTER (EMD2002PE-T-R2)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, ICES, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED; (1) Network LED; (1) Video 1 Status LED; (1) Video 2 Status LED; (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DVI-D and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	(2) DVI input, (1) USB Type B female, (1) RJ-45 network, (1) SFP network, (1) 3.5-mm audio, (1) 3-pin locking connector for power, (1) Micro USB connector
DIMENSIONS	1.32" H x 7.62" W x 5.79" D (34 x 194 x 147 mm)
WEIGHT	1.04 lb. (474 g)
OPERATION	
DEFAULT IP ADDRESS	192.168.1.22
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	0.9 Amps maximum
POWER CONSUMPTION	Unit: 7.5 W with keyboard and mouse attached; Power supply: 36 W to support USB-based powered devices
HEAT DISSIPATION	122.76 BTW/hr maximum
OUTPUT CONNECTOR	3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC-320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD SE SINGLE-HEAD DISPLAYPORT TRANSMITTER (EMD2000SE-DP-T) AND RECEIVER (EMD2000SE-DP-R) DATA SHEET

TRANSMITTER FRONT VIEW



TRANSMITTER BACK VIEW



RECEIVER FRONT VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2000SE-DP-T)

- (1) EMERALD SE DP TRANSMITTER, SINGLE-HEAD
- (1) 5VDC POWER SUPPLY WITH POWER CORD

WHAT'S INCLUDED WITH THE RECEIVER (EMD2000SE-DP-R)

- (1) EMERALD SE DP RECEIVER, SINGLE-HEAD
- (1) 5VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD SE SINGLE-HEAD DISPLAYPORT TRANSMITTER (EMD2000SE-DP-T) AND RECEIVER (EMD2000SE-DP-R) DATA SHEET

SPECIFICATIONS FOR EMERALD SE DISPLAYPORT TRANSMITTER, SINGLE-HEAD (EMD2000SE-DP-T) AND RECEIVER (EMD2000SE-DP-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS
PHYSICAL	
LED INTERFACE	(1) Power LED; NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 feet), DisplayPort™ and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2000SE-DP-T: (1) DisplayPort input, (1) USB Type B, (1) RJ-45 network, (1) 3.5-mm audio, (1) 2.5-mm barrel connector for power, (1) RJ-45 Serial Console Connector; EMD2000SE-DP-R: (1) DisplayPort input, (4) USB Type A, (1) RJ-45 network, (1) 3.5-mm audio, (1) 2.5-mm barrel connector for power, (1) RJ-45 Serial Console Connector
DIMENSIONS	1.34" H x 5.39" W x 6.07" D (34 x 137 x 154 mm)
WEIGHT	0.73 lb. (335 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2000SE-DP-T: 192.168.1.22; EMD2000SE-DP-R: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	0.9 Amps maximum
POWER CONSUMPTION	Unit: 6.5 W with keyboard and mouse attached; Power supply: 20 W to support USB-based powered devices
HEAT DISSIPATION	68.2 BTU/hr maximum
OUTPUT CONNECTOR	2.5-mm barrel (5 VDC, 4 Amp output)
INPUT CONNECTOR	IEC-320, C8
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

EMERALD SE DUAL-HEAD DISPLAYPORT TRANSMITTER (EMD2002SE-DP-T) AND RECEIVER (EMD2002SE-DP-R) DATA SHEET

TRANSMITTER FRONT VIEW



RECEIVER FRONT VIEW



TRANSMITTER BACK VIEW



RECEIVER BACK VIEW



WHAT'S INCLUDED WITH THE TRANSMITTER (EMD2002SE-DP-T)

- (1) EMERALD SE DP TRANSMITTER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD

WHAT'S INCLUDED WITH THE RECEIVER (EMD2002SE-DP-R)

- (1) EMERALD SE DP RECEIVER, DUAL-HEAD
- (1) 12VDC POWER SUPPLY WITH POWER CORD



SPECIFICATIONS

EMERALD SE DUAL-HEAD DISPLAYPORT TRANSMITTER (EMD2002SE-DP-T) AND RECEIVER (EMD2002SE-DP-R) DATA SHEET

SPECIFICATIONS FOR EMERALD SE DISPLAYPORT TRANSMITTER, DUAL-HEAD (EMD2002SE-DP-T) AND RECEIVER (EMD2002SE-DP-R)	
APPROVALS	
UNIT	Directive 2014/30/EU, CE, FCC, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA
POWER SUPPLY	Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, RCM, BIS, CB
PHYSICAL	
LED INTERFACE	(1) Power LED; NOTE: Unit automatically powers on when plugged in; must be powered off at the power source. (1) RJ-45 Speed LED (green, located on top left of RJ-45 connector): Blinks three times when the network connection is 1000 Mbps, Blinks two times when network connection is 100 Mbps, Blinks once when the network connection is 10 Mbps, Not blinking: No link to network; (1) Activity LED (green, located on top right of RJ-45 connector): Solid green: Link up, Blinking: Activity on the link, OFF: No link
MAXIMUM DISTANCE FROM CPU TO TRANSMITTER	5 m (16.4 ft.), DisplayPort™ and USB limitations
MAXIMUM DISTANCE BETWEEN TRANSMITTER AND RECEIVER	328 ft. (100 m), use a network switch to get farther distances
OPERATING SYSTEM SUPPORT	Microsoft Windows® 10/11, Server OS, Linux®, and Mac OS
CONNECTORS	EMD2002SE-DP-T: (2) DisplayPort female, (1) USB Type B female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, 1Gbps, (1) USB Type B micro (Console), (1) 3-pin locking connector for power (12VDC); EMD2002SE-DP-R: (2) DisplayPort female, (4) USB Type A female, (1) 3.5-mm audio, (1) RJ-45 Interconnect, 1Gbps, (1) USB Type B micro (Console), (1) 2.5-mm barrel for power (5VDC)
DIMENSIONS	EMD2002SE-DP-T: 1.34" H x 5.39" W x 6.07" D (34 x 137 x 154 mm); EMD2002SE-DP-R: 1.3" H x 7.62" W x 5.81" D (33.11 x 193.6 x 147.8mm)
WEIGHT	EMD2002SE-DP-T: 0.77 lbs (350 g) EMD2002SE-DP-R: 0.85 lbs (385 g)
OPERATION	
DEFAULT IP ADDRESS	EMD2002SE-DP-T: 192.168.1.22; EMD2002SE-DP-R: 192.168.1.21
ENCRYPTION	FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
DDC SUPPORT	Built-in/clone of remote
POWER	
POWER SOURCE	External in-line power supply
INPUT VOLTAGE	100–240 VAC, 50/60 Hz
INPUT CURRENT	1 Amp maximum
POWER CONSUMPTION	Unit: 9 W with keyboard and mouse attached; Power supply: 36 W to support USB-based powered devices
HEAT DISSIPATION	EMD2002SE-DP-T: 122.76 BTU/h maximum; EMD2002SE-DP-R: 68.2 BTU/h maximum
OUTPUT CONNECTOR	EMD2002SE-DP-T: 3-pin locking connector (12 VDC, 3 Amp output) EMD2002SE-DP-R: 3-pin locking connector (12 VDC, 3 Amp output)
INPUT CONNECTOR	IEC-320, C14
POWER SUPPLY CORD LENGTH	6 ft. (1.8 m)
ENVIRONMENTAL	
OPERATING TEMPERATURE	32 to 104° F (0 to 40° C)
STORAGE TEMPERATURE	-4 to +140° F (-20 to 60° C)
OPERATING HUMIDITY	5 to 95%, noncondensing



SPECIFICATIONS

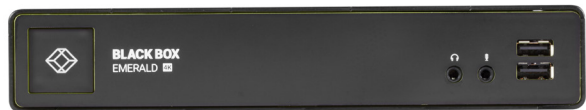
4K SINGLE-HEAD TRANSMITTER AND RECEIVER (EMD4000T AND EMD4000R) DATA SHEET

FRONT VIEW



EMD4000T

FRONT VIEW



EMD4000R

BACK VIEW



EMD4000T

BACK VIEW



EMD4000R

WHAT'S INCLUDED WITH THE TRANSMITTER

- (1) TRANSMITTER
- (1) 12VDC POWER SUPPLY WITH POWER CORD
- (1) DISPLAYPORT M/M CABLE
- (1) USB TYPE A TO B CABLE

WHAT'S INCLUDED WITH THE RECEIVER

- (1) RECEIVER
- (1) 12VDC POWER SUPPLY WITH POWER CORD

NOTE: SFP+ sold separately.



SPECIFICATIONS

4K SINGLE-HEAD TRANSMITTER AND RECEIVER (EMD4000T AND EMD4000R) DATA SHEET

4K SINGLE-HEAD EXTENDER (EMD4000R AND EMD4000T)	
APPROVALS	Unit: Directive 2014/30/EU, CE, FCC, ICES, UKCA, 2011/65/EU, 2015/863/EU, Reach, TSCA, CB Power Supply: Directive 2014/35/EU, EN 62368-1:2014, UL, cUL, GS, PSE, BSMI, CB, RCM, BIS
CONNECTORS	Transmitter: (1) DisplayPort™, (1) Power, (1) DB9 serial, (1) USB Type B, (1) RJ-45, (2) SFP+ cages (10GBASE-X), (2) 3.5-mm audio; Receiver: (1) DisplayPort, (1) Power, (1) DB9 serial, (4) USB Type A, (1) RJ-45, (2) SFP+ cages, (2) 3.5-mm audio
DISTANCE	Distance between Transmitter and Receiver: CATx: 98 ft. (30 m) (using LSP443); Fiber: 984.2 ft. to 6.2 mi. (300 m to 10 km), based on SFP used
INDICATORS	(1) single bi-color LED (red/green)
MAXIMUM RESOLUTION	4096 x 2160 @ 60 Hz
MATERIAL	Aluminum outer case with plastic bezel
OPERATING SYSTEMS SUPPORTED	Microsoft Windows® 10/11, Server OS, Linux®, Mac OS
OPERATION	Default IP Address for Transmitter:192.168.1.22; Default IP Address for Receiver: 192.168.1.21; Default Username: admin; Default Password: Blank password by default, just press the Enter key; EDID Support: Internal EDID table in transmitter (can be updated from a receiver or manager or real monitor EDID can be used if cloned); Encryption: FIPS 140-3 Level 1 validated cryptographic module (CMVP Certificate #5002); Uses AES 256 encryption and TLS 1.3 secure communications to protect KVM and management traffic
ENVIRONMENTAL	Operating Temperature: 32 to 104° F (0 to 40° C); Storage Temperature: -4°F to 140°F (-20° C to 60° C); Operating Humidity: 5–95%
POWER	External desktop-style adapter, 100–240 VAC input, 12 VDC, 3 A connection to unit
POWER CONSUMPTION	36 Watts maximum
HEAT DISSIPATION	122.8 BTU/h
DIMENSIONS	Each unit: 1.5" H x 8.5" W x 7.4" D (38 x 216 x 188 mm)
WEIGHT	EMD4000T: 2.49 lbs (1130 g); EMD4000R: 2.48 lbs (1129 g)



SPECIFICATIONS

EMERALD REMOTE APP RECEIVER (EMDRM)

OVERVIEW

The Emerald™ Remote App is software from Black Box that allows users to access their Emerald connections, both physical and virtual, from any Windows 10/11 or macOS® device. This increases mobility and device access and monitoring in full HD video on the Emerald System. And multiple connections can be launched simultaneously to facilitate multiple device management.

Available licenses are listed below:

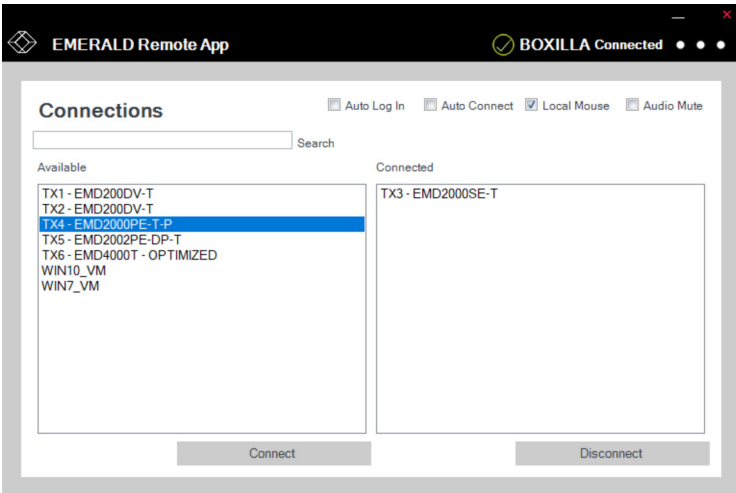
- EMDRMDMO-LIC: Emerald Remote Access, 30-day Trial (4 Connections)
- EMDRM1-LIC: Emerald Remote Access, 1 Connection
- EMDRM5-LIC: Emerald Remote Access, 5 Connections
- EMDRM10-LIC: Emerald Remote Access, 10 Connections
- EMDRM20-LIC: Emerald Remote Access, 20 Connections

FEATURES

- **HIGH-QUALITY USER EXPERIENCE:** SUPPORTS HD VIDEO UP TO 1920 X 1200 WITH ACCESS TO BOTH PHYSICAL MACHINES AND VIRTUAL MACHINES
- **NO HARDWARE REQUIRED:** WORKS ON ANY LAPTOP, TABLET AND DESKTOP DEVICES RUNNING WINDOWS 10 OR WINDOWS 11 OR macOS. DOES REQUIRE BOXILLA MANAGER.
- **MULTIPLE CONNECTIONS:** OPEN CONNECTIONS TO MULTIPLE DEVICES SIMULTANEOUSLY. THIS ALLOWS YOU TO INTERACT OR MONITOR MANY SYSTEMS FROM YOUR OWN DEVICE. PURCHASE THE APPROPRIATE NUMBER OF SIMULTANEOUS CONNECTION LICENSES
- **SECURITY:** ALL ACCESS IS AUTHENTICATED BY BOXILLA IN REAL TIME, ENSURING THAT THE EMERALD ADMINISTRATOR HAS FULL CONTROL AND CAN DEFINE ONLY THE USERS REQUIRED TO HAVE REMOTE ACCESS
- **WAN SUPPORT:** USERS CAN CONNECT FROM ANYWHERE WITH ACCESS TO ALL CONNECTED RESOURCES, ONCE THEY CAN AUTHENTICATE VIA BOXILLA

SPECIFICATIONS FOR EMERALD REMOTE APP (EMDRM)	
HARDWARE/SOFTWARE REQUIREMENTS	
HARDWARE	PC, laptop or tablet
SOFTWARE	Windows® 10/11 (requires Microsoft® Visual C++ Redistributable to run, included in installer) or macOS

REMOTE APP SCREEN



SPECIFICATIONS

28-PORT 10G NETWORK SWITCH (EMS10G28)

FEATURES

- (1) RU HIGH-DENSITY 28-PORT 10 GBE SWITCH
- 960 GBPS (FULL-DUPLEX) NON-BLOCKING, CUT-THROUGH SWITCHING FABRIC DELIVERS LINE-RATE PERFORMANCE UNDER FULL LOAD
- REDUNDANT, HOT-SWAPPABLE POWER SUPPLIES AND FANS
- SUPPORTS 10GBASE FIBER OPTICS
- COMPLIES WITH IEEE 1588V2
- VXLAN GATEWAY SUPPORT FOR BRIDGING AND ROUTING NON-VIRTUALIZED AND VIRTUALIZED OVERLAY NETWORKS WITH LINE-RATE PERFORMANCE
- I/O PANEL TO PSU AIRFLOW
- CONVERGED NETWORK SUPPORT WITH DCB

WHAT'S INCLUDED WITH THE SWITCH

- (1) ETHERNET SWITCH
- (2) POWER CORDS
- (1) SET OF RACK RAILS
- (1) INFORMATION SHEET
- (1) CONSOLE CABLE RJ-45 TO DB9F
- (1) USB TYPE A/B CABLE

FRONT VIEW



EMS10G28

28-PORT 10G NETWORK SWITCH (EMS10G28) SPECIFICATIONS	
APPROVALS	Directive 2015/35/EU, Directive 2015/30/EU, EN 62368-1, CE, FCC, ICES, RCM, RoHS, Reach, and TSCA
ENVIRONMENTAL	Operating Humidity: 10 to 85%, relative humidity, non-condensing Operating Temperature: 32 to 104° F (0 to 40° C) Storage Humidity: 5 to 95%, relative humidity, non-condensing Storage Temperature: -40 to +158° F (-40 to +70° C)
MANAGEMENT	Console port management: (1) RJ-45 serial Security/Authentication: RADIUS, RADIUS and IPv6, SSHv2, Security Architecture for IPSec, IPSec Authentication Header, ESP Protocol Network Management: SNMPv1/2, SSHv2, FTP, TFTP, SCP, Syslog, Port Mirroring, RADIUS, 802.1X, Support Assist (Phone Home, Netconf APIs, XML Schema, CLI Commit (Scratchpad), sFlow Automation: Control Plane Services APIs, Linux Utilities and Scripting Tools Quality of Service (QoS): Access Control Lists, Prefix List, Route-Map, Rate Shaping (Egress), Rate Policing (Ingress); Scheduling Algorithms: Round Robin, Weighted Round Robin, Deficit Round Robin, Strict Priority, Weighted Random Early Detect
PERFORMANCE	Switching Capacity: 960 Gbps; Forwarding Capacity: 720 Mpps; Frame Size: 9416 bytes; Packet Buffer Memory: 12 MB; CPU Memory: 4 GB; MAC Addresses: 160 K; ARP Table: 128 K; IPv4 routes: 128K; IPv6 hosts: 64K; IPv6 routes: 64K; Multicast hosts: 8K Link aggregation: 16 links per group, 128 groups; Layer 2 VLANs: 4K; MSTP: 64 instances; LAG load balancing: Based on layer 2, IPv4 or IPv6 headers

SPECIFICATIONS

28-PORT 10G NETWORK SWITCH (EMS10G28)

28-PORT 10G NETWORK SWITCH (EMS10G28) SPECIFICATIONS (CONTINUED)	
PHYSICAL	Connectors/Interfaces: (28) 10GbE SFP+, (2) 100GbE QSFP28, (2) AC PSUs, (4) Fan modules, I/O Panel to PSU Airflow Dimensions: 1.75" H (1 RU) x 17" W x 18" D (4.4 x 43.1 x 45.7 cm) Mounting: Rackmounted Weight: 19.66 lb. (8.92 kg)
POWER	Input: 100–240 VAC, 50/60 Hz Maximum Power: 290 W Typical Operating Power: 260 W Max. Thermal Output: 886 BTU/hr. Power Supply Type: (2) hot-swappable redundant AC power Fans: (4) hot-swappable redundant fans
STANDARDS	IEEE Compliance: 802.1ab LLDP; TIA-1057 LLDP-MED; 802.1s MSTP; 802.1w RSTP; 802.3ab Gigabit Ethernet (1000BASE-T); 802.3ad Link Aggregation with LACP; 802.3ae 10 Gigabit Ethernet (10GBASE-X); 802.3i Ethernet (10BASE-T); 802.3u Fast Ethernet (100BASE-TX); 802.3z Gigabit Ethernet (1000BASE-X); 802.1D Bridging, STP; 802.1p L1 Prioritization; 802.1Q VLAN Tagging, Double VLAN Tagging, GVRP; 802.1Qbb PFC; 801.2Qaz ETS; 802.1s MSTP; 802.1w RSTP; PVST+; 802.1X Network Access Control; 802.3ac Frame Extensions for VLAN Tagging; 802.3u Fast Ethernet (100BASE-TX) on mgmt ports; 802.3x Flow Control; 802.3z Gigabit Ethernet (1000BASE-X) with QSA; ANSI/TIA-1057, Jumbo MTU support 9416 bytes



SPECIFICATIONS

32-PORT 100G NETWORK SWITCH (EMS100G32-R2)

FEATURES

- (1) RU HIGH-DENSITY (32) ULTRA-SPEED PORTS (CAN ALSO CONNECT TO HIGH-SPEED)
- UP TO 6.4 TBPS OF SWITCHING I/O BANDWIDTH (FULL DUPLEX) AVAILABLE
- SCALABLE L2 AND L3 ETHERNET SWITCHING WITH QOS AND A FULL COMPLEMENT OF STANDARDS-BASED IPV4 AND IPV6 FEATURES, INCLUDING OSPF AND BGP ROUTING SUPPORT
- L2 MULTIPATH SUPPORT VIA VIRTUAL LINK TRUNKING (VLT) AND MULTIPLE VLT (MVLT) MULTI-CHASSIS LINK AGGREGATION TECHNOLOGY
- VRF-LITE ENABLES SHARING OF NETWORKING INFRASTRUCTURE AND PROVIDES L3 TRAFFIC ISOLATION ACROSS TENANTS
- OPEN AUTOMATION FRAMEWORK ADDING AUTOMATED CONFIGURATION AND PROVISIONING CAPABILITIES TO SIMPLIFY THE MANAGEMENT OF NETWORK ENVIRONMENTS
- JUMBO FRAME SUPPORT FOR LARGE DATA TRANSFERS
- 128 LINK AGGREGATION GROUPS WITH UP TO EIGHT MEMBERS PER GROUP, USING ENHANCED HASHING
- REDUNDANT, HOT-SWAPPABLE POWER SUPPLIES AND FANS
- I/O PANEL TO PSU AIRFLOW
- TOOL-LESS MOUNTING KITS REDUCE TIME AND RESOURCES FOR SWITCH RACK INSTALLATION
- POWER-EFFICIENT OPERATION UP TO 45°C HELPING REDUCE COOLING COSTS IN TEMPERATURE-CONSTRAINED DEPLOYMENTS

WHAT’S INCLUDED WITH THE SWITCH

- (1) ETHERNET SWITCH
- (2) POWER CORDS
- (1) SET OF RACK RAILS
- (1) INFORMATION SHEET
- (1) CONSOLE CABLE RJ-45 TO DB9F
- (1) GROUNDING LUG/HARDWARE

32-PORT 100G NETWORK SWITCH (EMS100G32-R2) SPECIFICATIONS	
APPROVALS	Directive 2015/35/EU, Directive 2015/30/EU, EN 62368-1, CE, FCC, ICES, RCM, RoHS, Reach, and TSCA
ENVIRONMENTAL	Operating Humidity: 10 to 90% (RH), noncondensing Operating Temperature: 32 to 113° F (0 to 45° C) Storage Humidity: 5 to 95% (RH), noncondensing Storage Temperature: -40 to +158° F (-40 to +70° C)
MANAGEMENT	Network Management: SMIv1, SNMPv1, Concise MIB Definitions, SNMP Traps, Bridges MIB, OSPFv2 MIB, Community-Based SNMPv2, IP MIB, IP Forwarding Table MIB, SMIv2, Textual Conventions for SMIv2; Security/Authentication: RADIUS, RADIUS and IPv6, Radius support for EAP, 802.1X with RADIUS, EAP, AES Cipher Algorithm in the SNMP User Base Security Model, SSHv2, Security Architecture for IPsec, IPsec Authentication Header, ESP Protocol, IPsec Security Policy DB MIB Type

SPECIFICATIONS

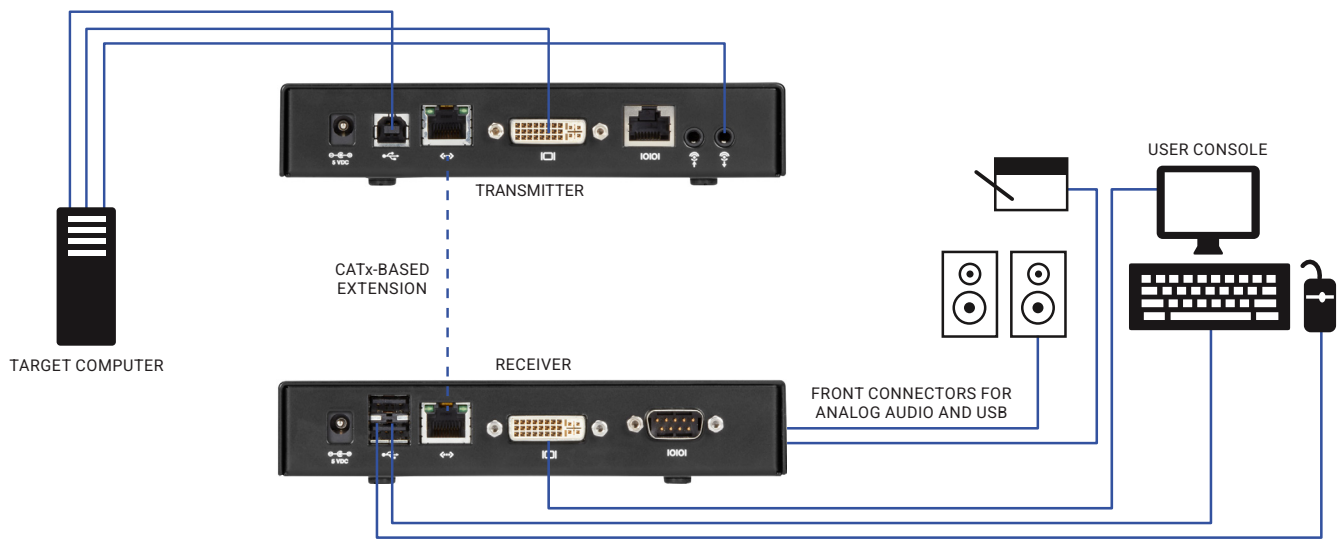
32-PORT 100G NETWORK SWITCH (EMS100G32-R2)

32-PORT 100G NETWORK SWITCH (EMS100G32-R2) SPECIFICATIONS (CONTINUED)	
PERFORMANCE	Switching Capacity: 6.4 Tbps; Forwarding capacity: Up to 4400 Mpps (Full Duplex); Packet buffer memory: 16MB; CPU memory: 8GB; MAC addresses: 136 K; ARP entries: 128K; IPv4 Unicast routes: 136 K; IPv6 Unicast routes: 68K; IPv4 Multicast routes: 68K; IPv6 Multicast routes: Not supported; Multicast Hosts: 8K; Layer 2 VLANs: 4K per port; Layer 3 VLANs: Standalone 1K/VLT 4K; MSTP: 64 instances; PVST+: 128 instances; LAG: 128 groups, 16 members per LAG group;; LAG load balancing: Based on layer 2, IPv4 or IPv6 headers;; Latency: Sub 500 ns; QOS data queues: 8; QOS control queues: 12; QOS: Default 1024 entries scalable to 2.5K; ACL Support: 3K
PHYSICAL	Connectors/Interfaces: (32) 100 Gbps Ethernet SFP ports, (2) SFP+ 10 GbE/1 GbE cages, (1) RJ-45 serial console management port, (1) 10/100/1000BT Ethernet port for management, (1) USB 2.0 Type A storage port, (1) micro USB Type B for console/management port access Dimensions: 1.75" H (1 RU) x 17.08" W x 18.11" D (4.4 x 43.4 x 46 cm) Mounting: Rackmounted Weight: 20.1 lb. (9.12 kg), including power modules
POWER	Input: 100–240 VAC, 50/60 Hz Max. Power Consumption: 605 W; Min. Power Consumption: 195 W; Power Supply Type: (2) hot-swappable redundant AC power Fans: (4) hot-swappable redundant fans
STANDARDS	LLDP, Bridging, STP, L2 Prioritization, VLAN Tagging, Double VLAN Tagging, GVRP, PFC, ETS, MSTP, RSTP, Network Access Control, Gigabit Ethernet (1000BASE-T) or breakout, Frame extensions for VLAN Tagging, Link Aggregation with LACP, MORE; ANSI/TIA-1057 LLDP-MED, Force10 PVST+. Jumbo MTU support 9.416 bytes

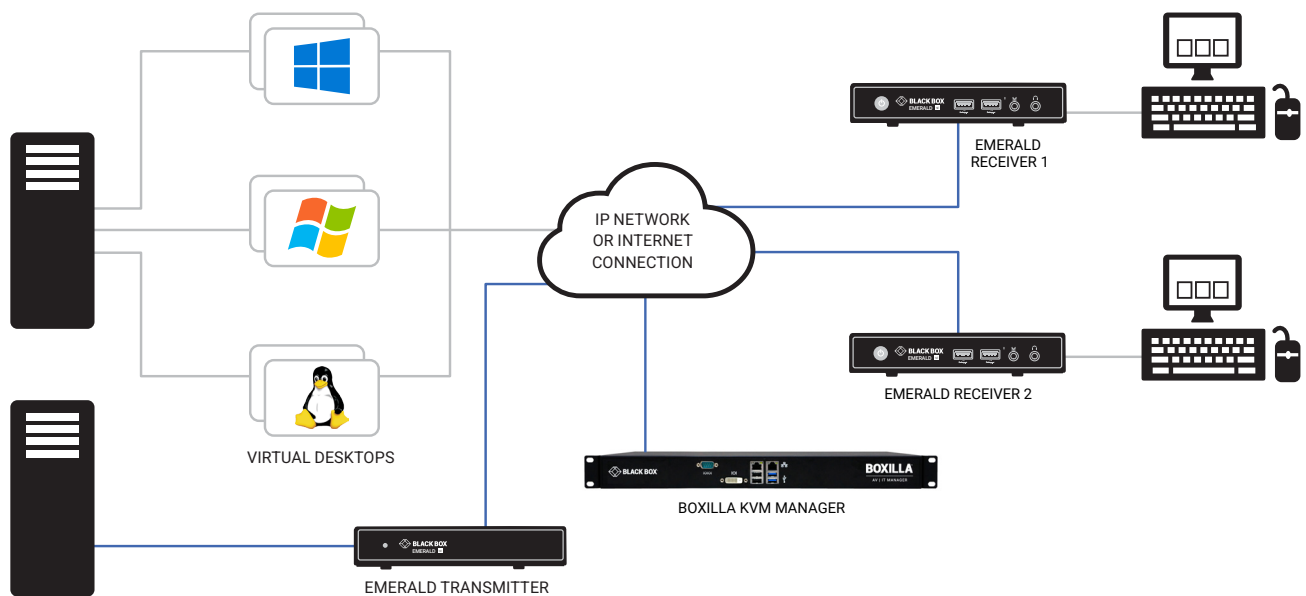


APPLICATION DIAGRAMS

BASIC EXTENDER APPLICATION



EMERALD SE SINGLE-HEAD TRANSMITTER AND RECEIVER MANAGED APPLICATION



COMPATIBLE RACKMOUNT KITS

COMPATIBLE RACKMOUNT KITS		
PART NUMBER	RACKMOUNT KIT(S)	NOTE
EMD200DV-T EMD200DP-T	N/A	Not required
EMD2000SE-T EMD2002SE-T EMD2000SE-R EMD2002SE-R	(1) DTX1000-RMK1 (2) DTX1000-RMK2 (1) EMD2000-RMK2	*EMD2000-RMK2 contains only (1) SE bracket, so only (1) SE can be mounted using the included adapters. It is designed to mount (2) Emerald PE units or (1) PE and (1) SE unit, excluding DP and R2 versions. If two SE units need to be mounted, order the DTX1000-RMK2.
EMD2000PE-T (-P) EMD2002PE-T (-P) EMD2000PE-R (-P) EMD2002PE-R (-P)	(2) EMD2000-RMK2	
EMD2000PE-DP-T EMD2002PE-DP-T	(3) EMD2000-RMK3	
EMD2000PE-DP-R EMD2002PE-DP-R	(2) EMD2000-RMK2	
EMD2000SE-DP-T EMD2002SE-DP-T	(3) EMD2000-RMK3	
EMD2000SE-DP-R	(3) EMD2000-RMK3	
EMD2002SE-DP-R	(2) EMD2000-RMK2	
EMD2000SE-T-R2	(3) EMD2000-RMK3	
EMD2000PE-T-R2 EMD2002PE-T-R2	(2) EMD2000-RMK2	
EMD4000T EMD4000R	(2) EMD4000-RMK1 (2) EMD4000-RMK2-SLIM (2) EMD5000-RMK2-SLIM	
EMD5004SE-R EMD5004PE-R-R2 EMD5004FPE-R	(2) EMD5000-RMK2-SLIM (2) EMD5000-RMK2-SLIM N/A	Desktop device



MTBF TABLE

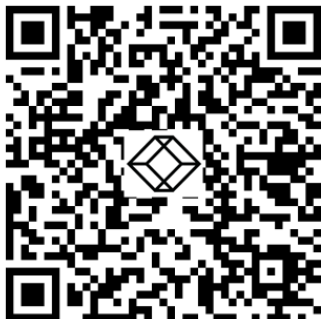
MTBF	
EMD200DV-T	1,000,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD200DP-T	930,000 Calculated Hours at 25°C , by Telcordia SR-33
EMD2000SE-T	800,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000SE-T-R2	675,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000SE-R	800,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000SE-DP-T	300,000 hours (estimated)
EMD2000SE-DP-R	>700k
EMD2000PE-T	340,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000PE-T-R2	>700k
EMD2000PE-R	320,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000PE-R-P	320,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2000PE-DP-T	300,000 hours (estimated)
EMD2000PE-DP-R	>700k
EMD2002SE-T	950,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2002SE-R	900,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2002SE-DP-T	300,000 hours (estimated)
EMD2002SE-DP-R	>700k
EMD2002PE-T	320,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2002PE-T-R2	>700k
EMD2002PE-R	300,000 hours (estimated)
EMD2002PE-R-P	320,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD2002PE-DP-T	300,000 hours (estimated)
EMD2002PE-DP-R	>700k
EMD4000T	810,000 Calculated Hours at 25°C , by Telcordia SR-332
EMD4000R	860,000 Calculated Hours at 25°C , by Telcordia SR-332

NOTE: The values above are either based upon actual calculations or estimations. This table will be updated over time when calculations are performed. The calculated values are designated with a method while the estimates are more general and have no method. If you require calculated estimates, contact Black Box technical support.



TECH SUPPORT/CONTACT INFORMATION

Visit blackbox.com/discover-bb/global-presence for regional technical support and contact information.



ORDERING INFORMATION

ITEM	CODE
Emerald® DESKVUE SE Multi-Source Receiver—Dual-Monitor, CATx (TAA compliant)	EMD5004SE-R*
Emerald DESKVUE PE Multi-Source Receiver—Quad monitor, CATx (TAA compliant)	EMD5004PE-R-R2*
Emerald DESKVUE PE Multi-Source Receiver —Quad monitor, Fiber (TAA compliant)	EMD5004FPE-R*
Emerald DESKVUE (TAA compliant)	EMD5104-R*
Emerald DESKVUE PE IP Multi-source receiver	EMD5004PE-R*
Emerald Gateway VM with PCoIP	EMD3000GE*
Emerald 4K High-Performance KVM	
4K Single-Head Extender	
Transmitter	EMD4000T
Receiver	EMD4000R
4K Single-Head Extender Kit, Includes (1) EMD4000T and (1) EMD4000R	EMD4000-KIT
Emerald PE KVM Over IP Technology	
Single-Head Extender	
HD, DVI Transmitter,	EMD2000PE-T-R2
Receiver, PoE	EMD2000PE-R-P
Emerald PE TX/RX Kit, includes (1) EMD2002PE-T-R2 and (1) EMD2002PE-R-P	EMD2002PE-K-R2
Dual-Head Extender	
HD, DVI Transmitter	EMD2002PE-T-R2
Receiver, PoE	EMD2002PE-R-P
Emerald PE DisplayPort™ KVM Over IP Technology	
Single-Head Extender	
Transmitter	EMD2000PE-DP-T
Receiver	EMD2000PE-DP-R
Dual-Head Extender	
Transmitter	EMD2002PE-DP-T
Receiver	EMD2002PE-DP-R

ITEM	CODE
Emerald SE KVM Over IP Technology	
Single-Head Extender	
Receiver	EMD2000SE-R
HD, DVI Transmitter	EMD2000SE-T-R2
Dual-Head Extender	
Receiver	EMD2002SE-R
Emerald SE DisplayPort KVM Over IP Technology	
Single-Head Extender	
Transmitter	EMD2000SE-DP-T
Receiver	EMD2000SE-DP-R
Dual-Head Extender	
Transmitter	EMD2002SE-DP-T
Receiver	EMD2002SE-DP-R
Emerald 4-Port USB 2.0 Switchable Extender Kit over LAN	EMD100USB
Emerald 4-Port USB 2.0 Switchable Receiver over LAN	EMD100USB-R
Emerald USB 2.0 Switchable Transmitter over LAN	EMD100USB-T
Emerald ZeroU	
DVI Transmitter	EMD200DV-T
DisplayPort Transmitter	EMD200DP-T

* Included for reference (available as a standalone data sheet).



ORDERING INFORMATION (CONTINUED)

ITEM	CODE
Boxilla Endpoint License Only, no Boxilla Manager	
Boxilla Upgrade License, increase endpoints by 25	BXAMGR-LIC-25
Boxilla Upgrade License, increase endpoints by 100	BXAMGR-LIC-100
Boxilla Upgrade License, increase endpoints by 200	BXAMGR-LIC-200
Boxilla Upgrade License, increase endpoints by 300	BXAMGR-LIC-300
Boxilla Endpoint License Only for Primary/Backup, no Boxilla Manager	
Boxilla Manager & Backup + 25 endpoint licenses	BXAMGR-LICBAK-25
Boxilla Manager & Backup + 100 endpoint licenses	BXAMGR-LICBAK-100
Boxilla Manager & Backup + 200 endpoint licenses	BXAMGR-LICBAK-200
Boxilla Manager & Backup + 300 endpoint licenses	BXAMGR-LICBAK-300
Boxilla Manager & Backup + Unlimited endpoint licenses	BXAMGR-LICBAK-ULT
RemoteApp Licenses (must be applied to Boxilla)	
Boxilla RemoteApp 1 Connection License	EMDRM1-LIC
Boxilla RemoteApp 5 Connection License	EMDRM5-LIC
Boxilla RemoteApp 10 Connection License	EMDRM10-LIC
Boxilla RemoteApp 20 Connection License	EMDRM20-LIC
Ethernet Switches	
10G 28-Port	EMS10G28
100G 32-Port	EMS100G32-R2
Boxilla™ KVM Manager	
with 25 endpoint licenses	BXAMGR-R2
with 50 endpoint license	BXAMGR-R2-50
with 75 endpoint licenses	BXAMGR-R2-75
with 125 endpoint licenses	BXAMGR-R2-125
with 225 endpoint licenses	BXAMGR-R2-225
with 325 endpoint licenses	BXAMGR-R2-325
with unlimited endpoint licenses	BXAMGR-R2-ULT

DISCLAIMER

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Corporation may revise this document at any time without notice.

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ITEM	CODE
Rackmount Kits	
Emerald Rackmount Kit - Slim (supports up to 2 EMD5004SE-R, 2 EMD5004PE-R, 2 EMD5104-R, 2 EMD5004PE-R-R2, or 2 EMD4000R/T)	EMD5000-RMK2-SLIM
Emerald Rackmount Kit - 1 or 2 4K KVM Units, 1 RU	EMD4000-RMK1
Emerald Rackmount Kit - Slim, 1 or 2 4K KVM Units, 1RU	EMD4000-RMK2-SLIM
Emerald PE Rackmount Bracket for 2 KVM PE Extenders (supports up to 2 EmeraldPE EMD2000PE-T, EMD2002PE-T, EMD2000PE-R, EMD2002-PE-R, EMD2000PE-R-P, EMD2002PE-R-P, EMD2000PE-DP-R, or EMD2002PE-DP-R)	EMD2000-RMK2
Emerald Rackmount Bracket for 3 SE or PE DisplayPort™ KVM Extenders (supports EMD2000SE-T-R2 and DP Variants EMD2000SE-DP-T, EMD2002SE-DP-T, EMD2000PE-DP-T, EMD2002PE-DP-T, EMD2000SE-DP-R, and EMD2002SE-DP-R)	EMD2000-RMK3
Emerald Rackmount Bracket for 1 EMD2000SE-T, EMD2002SE-T EMD2000SE-R, EMD2002SE-R, EMD2000PE-T-R2 and EMD2002PE-T-R2	DTX1000-RMK1
Emerald Rackmount Bracket for 2 EMD2000SE-T, EMD2000SE-R, EMD2002SE-T, EMD2002SE-R, EMD2000PE-T-R2 and EMD2002PE-T-R2 extender units	DTX1000-RMK2
SFPs	
1G/10G Multimode SFP	EMD-LSP-5000
1G/10G Single Mode SFP	EMD-LSP-5001
Spares	
5VDC, 4 Amp Power Supply	EMD2000-PSU
12VDC, 3 Amp Power Supply	EMD4000-PSU
Power Supply for EMS1G24F	EMS1G24FPS
Spare/Redundant Power Supply for EMS10G28	EMS10G28PS

ABOUT BLACK BOX

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