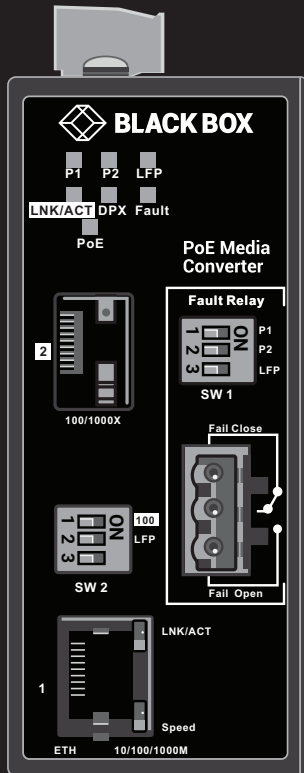


# QUICK INSTALL GUIDE/USER MANUAL

LGC5500A

# INDUSTRIAL GB POE MEDIA CONVERTER

24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT [BLACKBOX.COM](http://BLACKBOX.COM)



# TABLE OF CONTENTS

<b>SAFETY AND WARNINGS</b> .....	<b>3</b>
<b>QUICK INSTALLATION GUIDE</b> .....	<b>4</b>
<b>1. SPECIFICATIONS</b> .....	<b>7</b>
<b>2. OVERVIEW</b> .....	<b>8</b>
2.1 Introduction.....	8
2.2 What's Included.....	8
2.3 Hardware Description.....	8
2.4 Compatible SFPs.....	11
<b>3. CONFIGURATION</b> .....	<b>12</b>
DIP Switch Settings.....	12
<b>4. INSTALLATION</b> .....	<b>13</b>
4.1 Preparation.....	13
4.2 DIN Rail Installation.....	13
4.3 Wallmounting.....	14
4.4 Network Connection.....	14
4.5 Terminal Block Wiring.....	15
<b>5. OPERATION</b> .....	<b>16</b>
LEDs.....	16
<b>APPENDIX A: DIMENSIONAL DIAGRAM</b> .....	<b>17</b>
<b>APPENDIX B: REGULATORY INFORMATION</b> .....	<b>18</b>
B.1 FCC Class A Statement .....	18
B.2 CE and RoHS2 .....	18
B.3 Additional Certifications .....	19
<b>APPENDIX C: DISCLAIMER/TRADEMARKS</b> .....	<b>20</b>
C.1 Disclaimer .....	20
C.2 Trademarks Used in this Manual.....	20



## **SAFETY AND WARNINGS**

**Elevated Operating Ambient:** If installed in a closed cabinet, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

**Reduced Air Flow:** Installation of the equipment should be such that the amount of air flow required for safe operation of the equipment is not compromised.

**Mechanical Loading:** Mount the equipment in the DIN rail so that a hazardous condition is not achieved due to uneven mechanical loading.

**Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.

## QUICK INSTALLATION GUIDE

### STEP 1: CHECK THE PACKAGE CONTENTS

Before installation, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

#### Package Contents

- ◆ (1) Industrial Gigabit PoE Media Converter unit
- ◆ (1) DIN Rail kit
- ◆ (1) Wallmount kit
- ◆ (1) 4-pin terminal block

### STEP 2A: DIN RAIL INSTALLATION

1. Slant the switch and screw the DIN rail kit onto the back of the switch, right in the middle of the back panel.

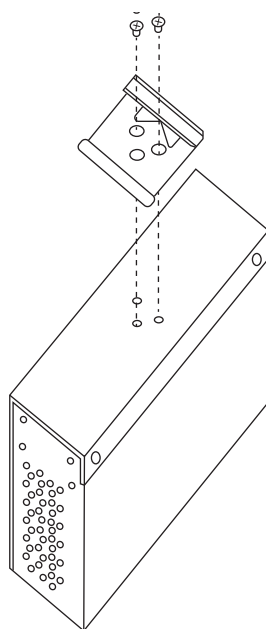


FIGURE Q-1.

2. Slide the switch onto a DIN rail from the DIN rail kit and make sure the switch clicks into the rail firmly.

## QUICK INSTALLATION GUIDE

### STEP 2B: WALLMOUNTING

1. Screw the two pieces of the wallmount kit onto both sides of the switch. A total of eight screws are required, as shown below.

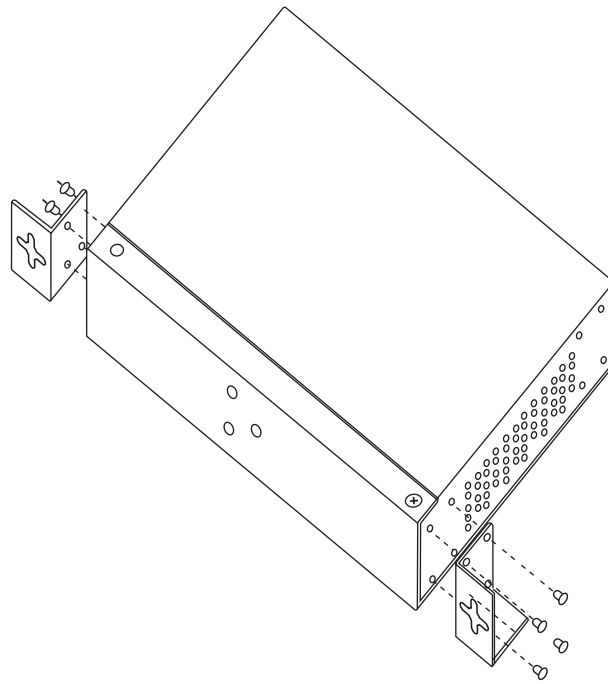


FIGURE Q-2.

2. Use the switch, with wallmount plates attached, as a guide to mark the correct locations of the four screws.
3. Insert four screw heads through the large parts of the keyhole-shaped apertures, and then slide the switch downwards. Tighten the four screws for added stability.

### STEP 3: NETWORK CONNECTION

The device has a standard Ethernet port. According to the link type, the device uses CAT3, 4, 5, 5e UTP cables to connect to any other network devices (PCs, servers, switches, routers, or hubs).

## QUICK INSTALLATION GUIDE

### STEP 4: DIP SWITCH SETTINGS

Set the DIP switches as described in the tables shown next.

**TABLE Q-1. 3-PIN DIP SWITCH #1 SETTINGS**

DIP SWITCH POSITION	FUNCTION	STATUS
1	Power 1 failure detection	ON: When power 1 fails, enable relay output OFF: Disable power 1 failure detection
2	Power 2 failure detection	ON: When power 2 fails, enable relay output OFF: Disable power 2 failure detection
3	LFP warning detection	ON: LFP signals detection, enable relay output OFF: Disable LFP signals detection

**TABLE Q-2. 2-PIN DIP SWITCH #2 SETTINGS**

DIP SWITCH POSITION	FUNCTION	STATUS
1	100/1000BASE-FX mode selection	ON: 100BASE-FX mode OFF: 1000BASE-FX mode
2	LFP function	ON: Enable LFP function OFF: Disable LFP function

### STEP 5: TERMINAL BLOCK WIRING

The switch supports dual redundant power supplies, which are located on the 4-pin terminal block.

STEP 5A: Insert the negative/positive wires into the V-/V+ terminals, respectively.

STEP 5B: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.



TABLE 1-1. SPECIFICATIONS

SPECIFICATION	DESCRIPTION
<b>Physical Ports</b>	
10/100/1000 BASE-T(X) Port	(1) RJ-45
100/1000BASE-X Port	(1) SFP cage
<b>Technology</b>	
Ethernet Standards	IEEE 802.3i for 10BASE-T; IEEE 802.3u for 100BASE-TX and 100BASEFX; IEEE 802.3ab for 1000BASE-T; IEEE 802.3z for 1000BASE-X; IEEE 802.3at PoE specification (up to 30 Watts per port for P.S.E.)
Jumbo Frame	9K Bytes (1G mode only)
MTBF	1,116,093 hours
<b>Fault Contact</b>	
Relay	Relay output to carry capacity of 1 A at 24 VDC at pin terminal block
<b>Power</b>	
Input Power	Dual 50 to 57 VDC voltage power inputs in 4-pin terminal block
Power consumption (Typ.)	4 Watts (unit only, does not include PoE)
Overload current protection	Present
Reverse polarity protection	Present on terminal block
<b>Physical</b>	
Enclosure	IP-30
Dimensions	3.74" H x 1.61" W x 2.76" D (9.5 x 4.1 x 7 cm)
Weight	0.64 lb. (291 g)
<b>Environmental</b>	
Storage Temperature	-40 to +185° F (-40 to +85° C)
Operating Temperature	-40 to +167° F (-40 to +75° C)
Operating Humidity	5 to 95%, noncondensing
<b>Regulatory Approvals</b>	
EMI	FCC Part 15, CISPR (EN55022) Class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EMS EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1

## CHAPTER 2: OVERVIEW

### 2.1 INTRODUCTION

The Industrial PoE Media Converter (LGC5500A) is a cost-effective solution for conversion between 10/100/1000BASE-T(X) and 100/1000BASE-X SFP interfaces, allowing you to extend communication distance using optical fiber. The device supports MDI/MDIX auto detection, so you don't need to use crossover wires. With a 10/100/1000BASE-T(X) P.S.E. (Power Sourcing Equipment) port, the device can transmit electrical power up to 30 watts, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. It also supports LFP (Link Fault Pass-through). When one side of the link fails, the other side continues to transmit packets and will wait for a response that never arrives from the disconnected side. LFP can be easily enabled using the DIP switch. Once enabled, the link will shut down as soon as it is notified that the other link has failed, giving the application software a chance to react to the situation.

The LGC5500A has a wide operating temperature range from -40 to +167° F (-40 to +75° C) and a wide voltage range between 50 to 57 VDC, so it is suitable for harsh operating environments.

### 2.2 WHAT'S INCLUDED

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or [info@blackbox.com](mailto:info@blackbox.com)

- ♦ (1) Industrial Gigabit PoE Media Converter unit
- ♦ (1) DIN Rail kit
- ♦ (1) Wallmount kit
- ♦ (1) 4-pin terminal block

### 2.3 HARDWARE DESCRIPTION

Figures 2-1, 2-2, and 2-3 show the front, top, and back panels of the media converter. Table 2-1 describes their components.

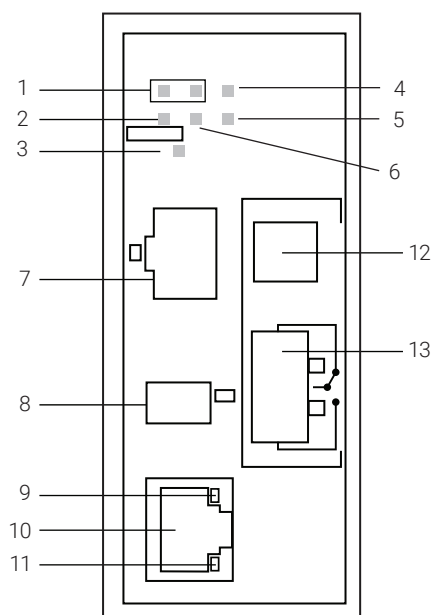


FIGURE 2-1. FRONT PANEL



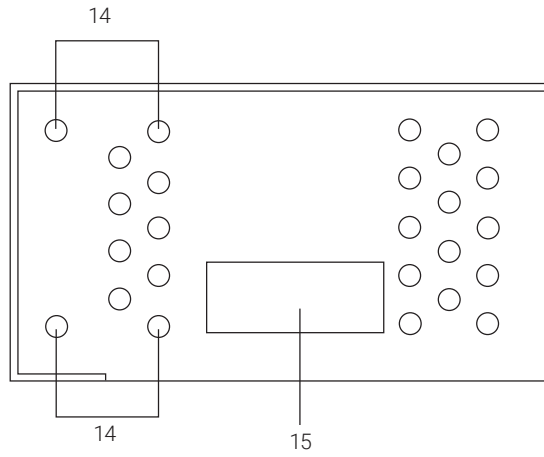


FIGURE 2-2. TOP PANEL

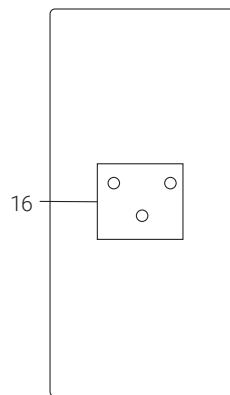


FIGURE 2-3. BACK PANEL

## CHAPTER 2: OVERVIEW

**TABLE 2-1. COMPONENTS**

NUMBER	COMPONENT	DESCRIPTION
1	Power LED	Lights when power to the unit is on
2	LNK/ACK LED for SFP port	Lights green when port is linked
3	PoE power status	Lights green when power is supplied over Ethernet cable
4	LFP status LED	Lights amber when LFP function failed
5	Fault LED	Lights amber when an unexpected event occurred
6	Duplex LED for Gigabit port	Lights green when unit is operating in full-duplex mode Off when unit is operating in half-duplex mode
7	SFP port	SFP module installs here. See Table 2-2 for compatible SFP modules
8	DIP switch 2	Sets 100/1000BASE-FX mode selection and LFP function. See Table 3-2
9	Gigabit port LNK/ACT LED	Lights green when port is linked
10	Gigabit port	10/100/1000 RJ-45 port links to Gigabit Ethernet
11	Gigabit port speed LED	Lights green when port is running at 1000 Mbps; Lights amber when port is running at 100 Mbps; Off when port is running at 10 Mbps
12	DIP switch 1	Sets Power 1 and Power 2 failure detection, and LFP warning detection. See Table 3-1
13	Faulty terminal	3-pin fault relay that can be set up to fail open or fail closed when DIP Switch 1 is set up to detect Power failure. Relay output 1 A, 24 VDC.
14	Wallmount screw holes	Insert screws here to mount the unit on a wall
15	Terminal block	Supports redundant power supplies
16	DIN rail screw holes	Insert screws here to mount the unit on a DIN rail



## 2.4 COMPATIBLE SFPS

Table 2-2 describes 100/1000 Mbps SFPs that are compatible with the Industrial Gigabit PoE Media Converter (LGC5500A).

**TABLE 2-2. COMPATIBLE SFPS**

PRODUCT CODE	DESCRIPTION
LFP401	SFP - 155-Mbps, Extended Diagnostics, 850-nm Multimode Fiber, 2-km, LC
LFP402	SFP - 155-Mbps, Extended Diagnostics, 1310-nm Multimode Fiber, 2-km, LC
LFP403	SFP - 155-Mbps, Extended Diagnostics, 1310-nm Single-Mode Fiber, 30-km, LC
LFP404	SFP - 155-Mbps, Extended Diagnostics, 1310-nm Single-Mode Fiber, 60-km, LC
LFP411	SFP - 1250-Mbps, Extended Diagnostics, 850-nm Multimode Fiber, 550-m, LC
LFP412	SFP - 1250-Mbps, Extended Diagnostics, 1310-nm Multimode Fiber, 2-km, LC
LFP413	SFP - 1250-Mbps, Extended Diagnostics, 1310-nm Single-Mode Fiber, 10-km, LC
LFP414	SFP - 1250-Mbps, Extended Diagnostics, 1310-nm Single-Mode Fiber, 30-km, LC
LFP416	SFP - 1250-Mbps, Extended Diagnostics, 10/100/1000BASE-T, SGMII Interface, RJ-45
LFP418	SFP - 1250-Mbps, Extended Diagnostics, 1550-nm Single-Mode Fiber, 80-km, LC
LFP420	SFP - 1250-Mbps, Extended Diagnostics, 1550-nm TX, 1310-nm RX, Simplex, Single-Mode Fiber, 10-km, LC
LFP421	SFP - 1250-Mbps, Extended Diagnostics, 1310-nm TX, 1550-nm RX, Simplex Single-Mode Fiber, 10-km, LC

## CHAPTER 3: CONFIGURATION

### DIP SWITCH SETTINGS

DIP switches 1 and 2 control the power failure detection, LFP warning and function, and mode selection. Set the DIP switches as described in the tables below.

**TABLE 3-1. 3-PIN DIP SWITCH #1 SETTING**

DIP SWITCH	FUNCTION	STATUS
1	Power-1 failure detection	ON: When power1 fails, enable relay output OFF: Disable power -1 failure detection
2	Power-2 failure detection	ON: When power2 fails, enable relay output OFF: Disable power -2 failure detection
3	LFP warning detection	ON: LFP signals detection, enable relay output OFF: Disable LFP signals detection

**TABLE 3-2. 2-PIN DIP SWITCH #2 SETTING**

DIP SWITCH	FUNCTION	STATUS
1	100/1000BASE-FX mode selection	ON: 100BASE-FX mode OFF: 1000BASE-FX mode
2	LFP function	ON: Enable LFP function OFF: Disable LFP function



## CHAPTER 4: INSTALLATION

### 4.1 PREPARATION

Before installation, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

#### Package Contents

- ◆ (1) Industrial Gigabit PoE Media Converter unit
- ◆ (1) DIN Rail kit
- ◆ (1) Wallmount kit
- ◆ (1) 4-pin terminal block

### 4.2 DIN RAIL INSTALLATION

1. Slant the switch and screw the DIN rail kit onto the back of the switch, right in the middle of the back panel.

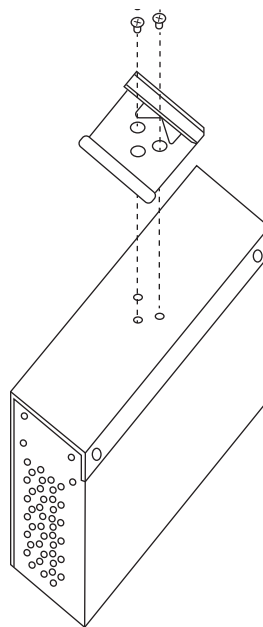


FIGURE 4-1.

2. Slide the switch onto a DIN rail from the DIN rail kit and make sure the switch clicks into the rail firmly.

## CHAPTER 4: INSTALLATION

### 4.3 WALLMOUNTING

1. Screw the two pieces of wall-mount kits onto both sides of the switch. A total of eight screws are required, as shown below.

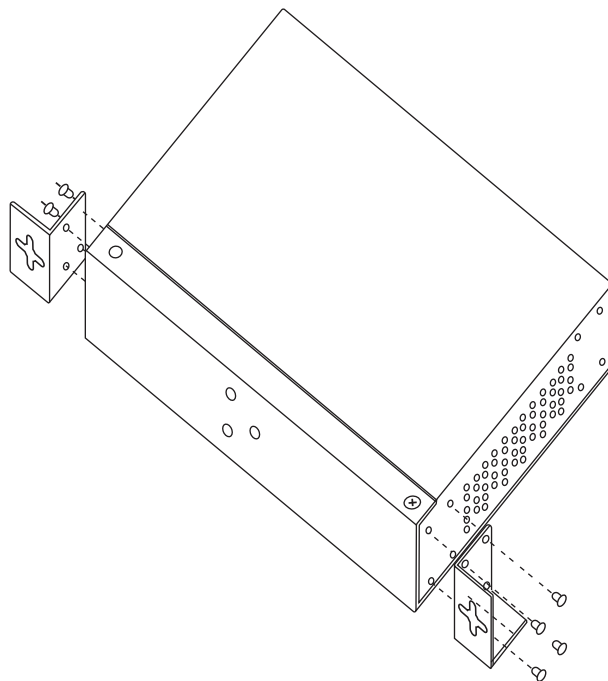


FIGURE 4-2.

2. Use the switch, with wallmount plates attached, as a guide to mark the correct locations of the four screws.
3. Insert four screw heads through the large parts of the keyhole-shaped apertures, and then slide the switch downwards. Tighten the four screws for added stability.

### 4.4 NETWORK CONNECTION

The device has a standard Ethernet port. According to the link type, the device uses CAT3, 4, 5, 5e UTP cables to connect to any other network devices (PCs, servers, switches, routers, or hubs).

TABLE 4-1. CABLE TYPES AND SPECIFICATIONS

CABLE	TYPE	MAXIMUM LENGTH
10BASE-T	CAT3, 4, 5 100-ohm UTP	328 ft. (100 m)
100BASE-T(X)	CAT5 100-ohm UTP	328 ft. (100 m)
1000BASE-T	CAT5/CAT5e 100-ohm UTP	328 ft. (100 m)

## CHAPTER 4: INSTALLATION

For pin assignments for different types of cables, refer to the following tables.

**TABLE 4-2. 10/100BASE-T(X) P.S.E. RJ-45 DEFINITION**

PIN NUMBER	DESCRIPTION
1	TD+ with PoE Power input +
2	TD- with PoE Power input +
3	RD+ with PoE Power input -
4	Not used
5	Not used
6	RD- with PoE Power input -
7	Not used
8	Not used

**TABLE 4-3. 1000BASE-T P.S.E. RJ-45 PIN DEFINITION**

PIN NUMBER	DESCRIPTION
1	BI_DA+ with PoE Power input +
2	BI_DA- with PoE Power input +
3	BI_DB+ with PoE Power input -
4	BI_DC+
5	BI_DC-
6	BI_DB- with PoE Power input -
7	BI_DD+
8	BI_DD-

### 4.5 TERMINAL BLOCK WIRING

The switch supports dual redundant power supplies, which are located on the 4-pin terminal block.

1. Insert the negative/positive wires into the V-/V+ terminals, respectively.
2. To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

## CHAPTER 5: OPERATION

### LED INDICATORS

After installing the device and connecting cables, the green power LED should turn on.

Refer to the following tables for LED functions.

**TABLE 5-1. SYSTEM LEDS**

LED	COLOR	STATUS	DESCRIPTION
PW1	Green	ON	DC power module 1 activated
PW2	Green	ON	DC power module2 activated
PoE	Green	ON	Power is supplied over Ethernet cable
Fault	Amber	ON	An unexupted event occurred

**TABLE 5-2. 10/100/1000 BASE-T(X) RJ-45 PORT LEDS**

LED	COLOR	STATUS	DESCRIPTION
LNK/ACT	Green	ON	Port is linked
	Green	Blinking	Acting
	None	OFF	Port is disconnected
Speed	Green	ON	Port is running at 1000 Mbps
	Amber	ON	Port is running at 100 Mbps
	None	OFF	Port is running at 10 Mbps
Duplex	Green	ON	Full-Duplex
	None	OFF	Half-Duplex

**TABLE 5-3. SFP PORT LEDS**

LED	COLOR	STATUS	DESCRIPTION
LNK/ACT	Green	ON	Port is linked
LFP	Amber	ON	LFP function failed



# APPENDIX A: DIMENSIONAL DIAGRAM

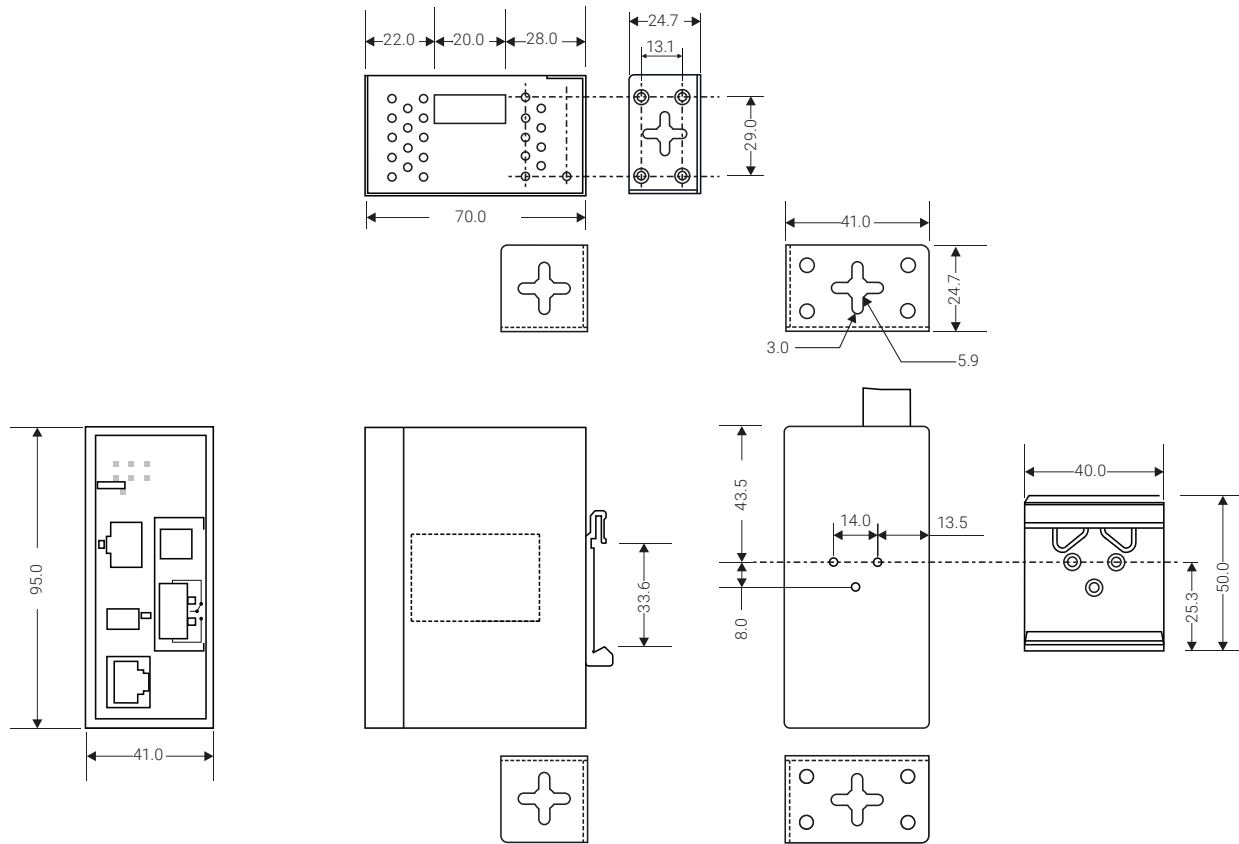


FIGURE A-1. DIMENSIONAL DIAGRAM

NOTE: Dimensions are in millimeters (mm).

## APPENDIX B: REGULATORY INFORMATION

### B.1 FCC CLASS A STATEMENT

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

### B.2 CE AND ROHS2

This product complies with CE and ROHS2 certifications.



## APPENDIX B: REGULATORY INFORMATION

### B.3 ADDITIONAL CERTIFICATIONS

EMS : EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

Shock: IEC60068-2-27

Free Fall : IEC60068-2-32

Vibration: IEC60068-2-6

Safety: EN60950-1

## APPENDIX C: DISCLAIMER/TRADEMARKS

### C.1 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.

### C.2 TRADEMARKS USED IN THIS MANUAL

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Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.









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