

ES2402-16P-2C-V2 A&E Specifications, Division 28 00 00 Electronic Safety and Security



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This A&E Specification conforms to CSI MasterFormat 2016 guidelines.

28 05 00 Common Work Results for Electronic Safety and Security

28 05 07 Power Sources for Electronic Safety and Security

28 05 07. 21 PoE Power Sources for Electronic Safety and Security

# Specifications

## Carrier Fire & Security Model Number: **ES2402-16P-2C-V2**.

### The switch shall comply with IEEE 802.3at / 802.3af Power over Ethernet.

### The switch shall support IEEE 802.3at Power over Ethernet detection and 52 VDC power injection at port 1 to port 16.

### The switch is also the power injectors which transmit DC Voltage to the Cat5/5e/6 cable and transfer data and power simultaneously to remote PD (Powered Device) units.

### The switch shall auto-detect PoE IEEE802.3at/802.3af equipment to protect devices from being damaged by incorrect installation.

### The switch shall support a total distance up to 100 meters on PoE ports.

28 05 07.25 Power Source Monitoring

# PoE Usage

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| 50 W | Amber | Indicates the PoE power consumption has equaled 50 W or over 50 W |
| 100 W | Amber | Indicates the PoE power consumption has equaled 100 W or over 100 W |
| 150 W | Amber | Indicates the PoE power consumption has equaled 150 W or over 150 W |
| 190 W | Amber | Indicates the PoE power consumption has equaled 190 W or over 190 W |

28 05 11 Cyber Security Requirements for Electronic Safety and Security

# Mandatory Default Password Change

## For added cybersecurity, the user is forced to change the default password for accessing the web interface.

## Password must contain one lower case letter, one upper case letter, one number, and one special character.

# Automatic Logout

## For added cybersecurity, a logged in user is automatically logged out after five minutes of inactivity in the web interface.

28 05 33 Safety and Security Network Communications Equipment

28 05 33.15 Security Data Communications Power-Over-Ethernet Switches

# System Description

## Performance Requirements: Provide eight 10/100Base-TX copper ports with IEEE 802.3at Power over Ethernet Injector.

### The system shall utilize EIA568, category 5/5e/6, 4-pair cables for 10Base-T or 100Base-TX to transfer Ethernet data and 52 VDC power simultaneously.

### The system shall utilize 850 to 1550 nm optics capable of data transmission of 1000 Mbps on multimode / single-mode optical fibers.

## The Gigabit SFP ports can be optical 1000Base-SX / LX through SFP (Small Form-Factor Pluggable) interface.

### The SFP module shall utilize **850 nm** optics capable of bi-directional data transmission of **1000Base-SX** on two multimode optical fibers.

### The SFP module shall utilize **1310 nm** optics capable of bi-directional data transmission of **1000Base-LX** on two single-mode optical fibers.

### The SFP module shall utilize **1310 nm/1490 nm or 1310 nm/1550 nm** optics capable of bi-directional data transmission of **1000Base-BX** on one single-mode optical fiber.

## The ES2402-16P-2C-V2 Web Smart PoE Switch provides 8 10/100Mbps Fast Ethernet ports and two 1000 Mbps SFP interfaces with 16 IEEE 802.3at / 802.3af PoE injectors.

### The PoE in-line power following the standard IEEE 802.3at / 802.3af makes the ES2402-8P-2C able to power on 16 PoE compliant devices at the distance up to 100 meters through the 4-pair Cat 5/5e UTP wire.

28 05 45 Systems Integration and Interconnection Requirements

28 05 45.11 Mechanical

# Surface Mount Dimensions: 17” x 8” x 1.75” (440 mm x 200 mm x 44.5 mm)

# Finish: Module shall be constructed of a metal enclosure with a powder coat.

# Weight: 5.61 lb. / 2.55 kg

28 05 45.13 Electrical

# Power Characteristics:

## Voltage Input:100~240 VAC / 50-60 Hz

## Current: 4 A max.

## Power Consumption: Maximum 250 W with PoE full load

# PoE Output Power:

## PoE output budget: 220 W

## IEEE 802.3af class 3 (15.4 W): Max. 14 ports

## IEEE 802.3at class 4 (30 W): Max. seven ports

28 05 45.15 Information

# Submittals

## Manufacturer’s Installation and Operating Manual: Printed installation and operating information for the switch.

## Warranty: Manufacturer’s Printed Warranty.

# Delivery, Storage, and Handling

## Store in original packaging in a climate controlled environment.

## Storage Temperature not to exceed: **–10 to +70˚C**

# Project/Site Conditions

## Temperature Requirements: Products shall operate in an environment with an ambient temperature range of –**0** to **+50˚C** with the assistance of fan-forced cooling.

## Humidity Requirements: Products shall operate in an environment with relative humidity of 5 to 95% (non-condensing).

# Warranty

## Standard Carrier Fire & Security Inc. Comprehensive Warranty: Carrier Fire & Security warrants the product to be free of factory defects under the manufacturer’s 3 Years Warranty.

# General Specifications

## The Web Smart PoE Switch shall be a ES2402-16P-2C-V2 model.

## The switch features 16 fixed 10/100TX electrical ports.

## The switch features two 1000SX/LX optical SFP slots.

## The switch shall support the Ethernet data IEEE 802.3 protocol using auto-negotiating and auto-MDI/MDI-X features.

## The switch shall provide power, fan failure, link/act status and PoE in-use status indicating LEDs for monitoring proper system operation.

## The switch shall be a 1U (one U, 19 inches) 19-inch unit.

## The switch shall be connected with a EIA568A/B Cat 5/5e/6 UTP/STP cable system for its RJ45 interface ports.

# Data Specifications

## Data Interface: Ethernet IEEE 802.3/3u/3ab/3z

## Data Rate:

### Port 1 to Port 16: 10/100 Mbps

### Port 17 to Port 18 SFP: 1000 Mbps

## Data Inputs: 18

## Operation Mode: Simplex or Duplex

# Status Indicators

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| Power | Green | **Lit:** indicates the unit has power. |

## 10/100 Base-TX Interfaces

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the port is successfully connecting to the network at 10/100/1000 Mbps. |
| **Off**: indicates that the interface failed connecting to the network. |
| **Blink**: indicates that the port is transmitting or receiving packets from the TX device. |
| PoE in-use | Amber | **Lit:** indicates that the port is providing 52 VDC in-line power. |
| **Off**: indicates that the connected device is not a PoE Powered Device (PD). |

## 1000T Copper Interfaces (Port 17 and Port 18)

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the link through that port is successfully established at 1000 Mbps. |
| **Blink**: indicates that the switch is actively sending or receiving data over that port or established a speed of 10 Mbps. |
| 1000 | Green | **Lit:** indicates that the port is successfully established at 1000 Mbps. |
| **Blink**: indicates that the port is successfully established at 100 Mbps. |
| **Off**: indicates that the port is successfully established at 10 Mbps. |

## 1000X SFP Interfaces (Shared with Port 17 and Port 18)

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the link through that port is successfully established at 1000 Mbps. |
| **Blink**: indicates that the switch is actively sending or receiving data over that port. |
| 1000 | Green | **Lit:** indicates that the port is successfully established at 1000 Mbps. |

# Connectors

## Optical: SFP Slot

## Power: Universal AC socket

## Data: RJ45

# Environmental Specifications

## MTBF: > 50,000 Hours

## Operating Temp: 0 to +50˚C

## Storage Temp: –10 to +70˚C

## Relative Humidity: 5 to 95% (non-condensing).

# Regulatory Agencies/Approvals and Listings

## Federal Communications Commission (FCC) Part 15, Class A

## European Union Compliance (CE) with the following standards:

### EN 55032: 2015+AC:2016, Class A

### EN61000-3-2: 2014

### EN61000-3-3: 2013

### EN 55024: 2010+A1:2015

# Accessories

## AC Power cord

## Rubber feet

## Rack-mount brackets

## SFP dust caps

# Execution

## Preparation

### Standalone Module (Surface Mount)

#### Shall be mounted on a properly prepared surface adequate for the size and weight of module.

#### The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the installation manual.

### Rack Mount Module (19-inch Rack)

#### The unit is installed in a standard EIA 19-inch (482.6 mm) rack or wall standoff bracket adequate for the size and weight of the rack mount unit.

#### The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the user’s manual.

### Optical Fibers

#### Caution: NEVER look into the end of an active optical fiber when using laser light output. Eye damage can occur. Wear eye protection when cleaving, terminating, and splicing fiber.

#### The number of optical fiber FTP slots shall meet the requirements of the Carrier Fire & Security model number.

#### All optical fiber cables shall be properly installed and terminated with the mating optical connectors.

#### The optical link shall be tested with either a power meter, at a minimum, or OTDR to ensure the link budget (overall path loss) plus an added 3 dB of optical safety margin does not exceed the optical power budget.

# Installation

## General: Locate fiber optic modules as indicated on the approved detail drawings and install module in compliance with the Carrier Fire & Security User’s manual.

# Cleaning

## Follow all instructions for proper use of solvents and adhesives used for termination and splicing.

## At completion of the installation, dispose of all UTP cable scraps properly.

28 05 53 Identification for Electronic Safety and Security

# Products

## Description:

### IFS ES2402-16P-2C-V2 16-port 10/100 Mbps 802.3at PoE with two Shared SFP slot Web Smart Switch.

## Manufacturer

### Acceptable Manufacturer:

#### IFS Brand

#### Carrier Fire & Security Americas Corporation Inc

#### 13995 Pasteur Blvd

#### Palm Beach Gardens

#### FL 33418, USA

### Substitutions: Not Permitted

## Manufactured Units

### Model Number Descriptions: Reference Table A: Product Number Descriptions

### Model Compatibility Chart: Reference Table B: Product Compatibility Chart

### MANUFACTURED UNITS REFERENCE TABLES

#### Table A: Product Number Descriptions

|  |  |  |
| --- | --- | --- |
| **Model Name** | **DESCRIPTION** | **MAX. DISTANCE\*** |
| ES2402-16P-2C-V2 | 16-Port Fast Ethernet PoE+ plus 2 RJ45/SFP Combo Ports Web Smart Managed Ethernet Switch | 300 feet (100 m) electrical |

#### Table B: Product Compatibility Chart

| SFP Transceiver | DESCRIPTION | MAX. DISTANCE\* |
| --- | --- | --- |
| MULTI-MODE |  |  |
| S30-2MLC | SFP-Port 1000 Base-SX Mini-GBIC Module - 2 Fiber – 550 m - Multi-Mode – 850 nm (0~50℃) - Based on 50/125 µm OM2 Fiber | 550 m |
| S30-2MLC-2 | SFP-Port 1000 Base-SX2 Mini-GBIC Module - 2 Fiber – 2 km - Multi-Mode – 1310 nm (0~50℃) - Based on 50/125 µm OM4 Laser Optimise | 2 km |
| SINGLE MODE |  |  |
| S30-2SLC-10 | SFP-Port 1000Base-LX10 Mini-GBIC Module - 2 Fiber – 10 km - Single-Mode – 1310 nm (0~50℃) | 10 km |
| S30-2SLC-30 | SFP-Port 1000Base-LHX Mini-GBIC Module - 2 Fiber – 30 km - Single-Mode – 1310 nm (0~50℃) | 30 km |
| S30-2SLC-70 | SFP-Port 1000Base-ZX Mini-GBIC Module - 2 Fiber – 70 km - Single-Mode – 1550 nm (0~50℃) | 70 km |
| S30-1SLC/A-10 | SFP-Port 1000Base-BX10 Mini-GBIC Module - 1 Fiber – 10 km - Single-Mode - Tx 1310 nm - Rx 1490 nm (0~50℃) | 10 km |
| S30-1SLC/B-10 | SFP-Port 1000Base-BX10 Mini-GBIC Module - 1 Fiber – 10 km - Single-Mode - Tx 1490 nm - Rx 1310 nm(0~50 ℃) | 10 km |
| S30-1SLC/A-20 | SFP-Port 1000Base-BX20 Mini-GBIC Module - 1 Fiber – 20 km - Single-Mode - Tx 1310 nm - Rx 1490 nm (0~50℃) | 20 km |
| S30-1SLC/B-20 | SFP-Port 1000Base-BX20 Mini-GBIC Module - 1 Fiber – 20 km - Single-Mode - Tx 1490 nm - Rx 1310 nm (0~50℃) | 20 km |
| S30-1SLC/A-60 | SFP-Port 1000Base-BX60 Mini-GBIC Module - 1 Fiber – 60 km - Single-Mode - Tx 1310nm - Rx 1490nm (0~50℃) | 60 km |
| S30-1SLC/B-60 | SFP-Port 1000Base-BX60 Mini-GBIC Module - 1 Fiber – 60 km - Single-Mode - Tx 1490 nm - Rx 1310 nm (0~50℃) | 60 km |

\* Maximum distance is limited to optical loss of the fiber and any additional loss by connectors, splices and patch panels.

28 08 00 Commissioning of Electronic Safety and Security

28 08 11 Testing for Baseline Performance Criteria

# Testing the 10/100TX Fast Ethernet Copper Link.

## Verify that the data leads and UTP ports are properly connected.

## Make sure that power is applied to the PoE switch.

## Successful data link operation should be confirmed at this point by communicating with other equipment.

# Test the 10/100TX PoE Copper output capability.

Contacting Support

See specific country listings at:

EMEA:

https://firesecurityproducts.com

Australia/New Zealand

https://firesecurityproducts.com.au/