

NS4750-24S-4T-4X-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 07.25 Power Source Monitoring

# Specifications

## Carrier Fire & Security Model Number: **NS4750-24S-4T-4X-V2**.

### The module shall provide two powers, power fault, Ring and RO, fiber port speed and link / act status, TP port speed, link / act status, and indicating LEDs for monitoring proper system operation.

### The unit also provides a contact closure for a power fault alarm.

### The module shall have redundant power supply connections to minimize single point failure.

28 05 11 Cyber Security Requirements for Electronic Safety and Security

# Login Requirements for Cyber Security

## Mandatory Username and Password Reset

### The switch shall require a mandatory username and password change from the default username and password after a switch reset.

28 05 33 Safety and Security Network Communications Equipment

28 05 33.17 Security Data Communications Non-Power-Over-Ethernet Switches

# System Description

## Performance Requirements: Provides 24 100/1000Base-X SFP mini-GBIC slots with four shared 10/100/1000T Ethernet ports.

### The system shall utilize EIA568, category 5/5e/6, four-pair cables for 10Base-T or 100Base-TX and 1000Base-T to transfer Ethernet data and 56 VDC power simultaneously.

### The system shall utilize 850 to 1550 nm optics capable of data transmission of 100/1000 Mbps on multimode / single mode optical fibers.

## The Gigabit SFP ports can be optical 1000Base-SX/LX or 100Base-FX 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 four multimode optical fibers.

### The SFP module shall utilize 1310 nm optics capable of bi-directional data transmission of 1000Base-LX on four 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 SFP module shall utilize 1310nm optics capable of bi-directional data transmission of 100Base-FX on multimode or single-mode optical fibers

## The 10 Gigabit SFP ports can be optical 1000Base-SX / LX and 10GBase-SR/LR through SFP+ interfaces.

### The SFP+ modules shall utilize 850 nm optics capable of bi-directional data transmission of 10GBase-SR on four multimode optical fibers.

### The SFP+ modules shall utilize 1310 nm optics capable of bi-directional data transmission of 10GBase-LR on four single-mode optical fibers.

28 05 45 Systems Integration and Interconnection Requirements

28 05 45.11 Mechanical

# Surface Mount Dimensions: 17” x 7.87” 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: 6.48 lb. / 2.94 kg

28 05 45.13 Electrical

# Power Characteristics:

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

### Current: 1.0 A max.

## DC 36 to 60 V power input

### Current: 1.2 A max

## Power Consumption: Maximum 57.6 W.

28 05 45.15 Information

# Submittals

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

## Warranty: Manufacturer’s Printed Warranty.

# Delivery, Storage, and Handling

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

## Storage Temperature not to exceed: –40 to +80˚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 managed switch shall be a NS4750-24S-4T-4X-V2 model.

## The switch features 24 100/1000X and 100FX optical SFP slots.

## The switch features four 10/100/1000Mbps shred copper ports.

## The switch features four 1/10GBase-SR/LR 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, power failure, LNK/ACT status, and indicating LEDs for monitoring proper system operation.

## The switch shall provide a RS-232 serial connection for local management of the device.

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

## The switch shall be connected with 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-24 SFP: 100/1000 Mbps

### Port-1 to port-4: 10/100/1000 Mbps

### Port-25 to Port-28 SFP+: 1/10 Gbps

## Data Inputs: 28

## Operation Mode: Simplex or Duplex

# Status Indicators

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| PWR | Green | **Lit:** indicates that the system boot is complete. |
| DC1 | Green | **Lit:** indicates that the switch is powered on by the DC1 input. |
| DC2 | Green | **Lit:** indicates that the switch is powered on by the DC2 input. |
| Ring | Green | Lit: indicates that Ring state is in idle.  Blinking: indicates that the Ring state is in protected mode. |
| R.O. | Green | Lit: indicates that the switch is set to ring owner.  Off: indicates that the switch doesn’t set to ring owner. |

## 10/100/1000Base-T Interfaces

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the link through that port is successfully connecting to the network at 1000 Mbps.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |
| Amber | **Lit:** indicates that the link through that port is successfully connecting to the network at 10/100 Mbps.  **Off**: indicates that the copper port is link down.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |

## 100/1000X SFP Interfaces (shared with port 1 to port 4)

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the link through that port is successfully connecting to the network at 1000 Mbps.  **Off**: indicates that the SFP port is link down.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |
| Amber | **Lit:** indicates that the port is successfully established at 100 Mbps.  **Off**: indicates that the SFP port is link down.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |

## 10GBase-SR/LR SFP+ Interfaces (Port-25 to Port-28)

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| LNK/ACT | Green | **Lit:** indicates that the link through that port is successfully connecting to the network at 10 Gbps.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |
| Amber | **Lit:** indicates that the port is successfully established at 1000 Mbps.  **Blinking**: indicates that the port is actively sending or receiving data over that port. |

## Alert

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| Fault | Green | **Lit:** indicates a power or port fault alarm. |
| FAN1 | Green | **Lit:** indicates FAN1 failure. |
| FAN2 | Green | **Lit:** indicates FAN2 failure. |

# Connectors

## Optical: SFP and SFP+ slots.

## Power: Universal AC socket and DC1 and DC2 input interfaces.

## Data: RJ45, SFP, and SFP+ fiber-optical.

## Console: RJ45 Type RS-232 serial com.

# Environmental Specifications

## MTBF: > 50,000 Hours

## Operating Temp: -10 to +60˚C (AC power input)

## Operating Temp: -40 to +75˚C (DC power input)

## Storage Temp: –40 to +80˚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, Class A

### EN61000-3-2: 2014

### EN61000-3-3: 2013

### EN 55024:2015

# Accessories

## AC Power cord

## Rubber feet

## Rack-mount brackets

## RS-232 DB9 male console cable

## 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 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 SFP/SFP+ 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 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 NS4750-24S-4T-4X-V2 24-port 100/1000Mbps SFP slots with four shared 10/100/1000 Mbps copper ports and four 1/10Gbps SFP+ slots managed 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\*** |
| NS4750-24S-4T-4X-V2 | L2+ 24-Port 10/100Base-X SFP with 4-Port 10G SFP+ Managed Ethernet Switch | 328 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 |
| S20-2MLC-2 | SFP-Port 100Base-FX Mini-GBIC Module - 2 Fiber - 2km - Multi-Mode - 1310nm (0~50℃) | 2 km |
| S40-2MLC | SFP+ Port 10GBase-SR Mini-GBIC Module - 2 Fiber – 300m - Multi-Mode - 850nm (0~50℃) | 300 m |
| SINGLE MODE | | |
| S30-2SLC-10 | SFP-Port 1000 Base-LX10 Mini-GBIC Module - 2 Fiber – 10 km - Single-Mode – 1310 nm (0~50℃) | 10 km |
| S30-2SLC-30 | SFP-Port 1000 Base-LHX Mini-GBIC Module - 2 Fiber – 30 km - Single-Mode – 1310 nm (0~50℃) | 30 km |
| S30-2SLC-70 | SFP-Port 1000 Base-ZX Mini-GBIC Module - 2 Fiber – 70 km - Single-Mode – 1550 nm (0~50℃) | 70 km |
| S30-1SLC/A-10 | SFP-Port 1000 Base-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 1000 Base-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 1000 Base-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 1000 Base-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 1000 Base-BX60 Mini-GBIC Module - 1 Fiber – 60 km - Single-Mode - Tx 1490 nm - Rx 1310 nm (0~50℃) | 60 km |
| S20-1SLC/A-20 | SFP-Port 100Base-BX20 Mini-GBIC Module - 1 Fiber – 20 km - Single-Mode - Tx 1310nm - Rx 1550nm (0~50℃) | 20 km |
| S20-1SLC/B-20 | SFP-Port 100Base-BX20 Mini-GBIC Module - 1 Fiber – 20 km - Single-Mode - Tx 1550nm - Rx 1310nm (0~50℃) | 20 km |
| S20-2SLC-20 | SFP-Port 100Base-LX20 Mini-GBIC Module - 2 Fiber – 20 km - Single-Mode - 1310nm (0~50℃) | 20 km |
| S25-1MLC-A-2 | SFP - 100Base-BX - 1MM - LC - 2Km TX:1310 nm, RX: 1550 nm (-40~75℃) | 2 km |
| S25-1MLC-B-2 | SFP - 100Base-BX - 1MM - LC - 2Km TX:1550 nm, RX: 1310 nm (-40~75℃) | 2 km |
| S40-2SLC-10 | SFP+ Port 10GBase-LR Mini-GBIC Module - 2 Fiber – 10 km – Single Mode – 1310 nm (0~50℃) | 10 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 10/100/1000T Gigabit Copper Link.

## Verify that the data leads and optical fibers 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 1/10Gbps SFP+ output capability.

Contacting Support

EMEA:

See specific country listings at:

https://firesecurityproducts.com

Australia/New Zealand

https://firesecurityproducts.com.au/