

NS3500-24T-2C A&E Specifications, Division 28 00 00 Electronic Safety and Security



• ISS

This A&E Specification conforms to CSI Master Format 2016 guidelines.

28 05 00 Common Work Results for Electronic Safety and Security

28 05 33 Safety and Security Network Communications Equipment

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

# System Description

## NS3500-24T-4C provides 24 Gigabit ports with multiple shared mini-GBIC SFP combination slots.

### The system shall utilize EIA568, category 5/5e/6, 4-pair cables for 10Base-T or 100Base-TX to transfer Ethernet data and 48 to 52 VDC power simultaneously depending on power input voltage.

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

## The Gigabit TP/SFP combo ports can be either 1000Base-T for 10/100/1000 Mbps or 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 SFP module shall utilize 1310 nm optics capable of bi-directional data transmission of 100Base-FX on multimode or single-mode optical fibers.

28 05 45 Systems Integration and Interconnection Requirements

28 05 45.11 Mechanical

# Surface Mount Dimensions: 17.32” x 7.87” x 1.75” 1U height

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

# Weight: < 6 lb.

28 05 45.13 Electrical

# Power Characteristics:

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

## Current: 0.6 A max

## Power Consumption: Maximum 31 W.

28 05 45.15 Information

# Submittals

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

# Delivery, Storage, and Handling

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

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

## Deliver materials in unopened factory packaging with Manufacturer’s bar coding to the job site.

## Inspect product upon delivery to assure that specified products have been received.

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

# General Specifications

## The 24-port Gigabit managed Ethernet switch shall be a NS3500-24T-4C model.

## The switch features 24 fixed 10/100/1000 Base-T electrical ports.

## The switch features four shared 1000 Base-SX/LX optical SFP slots.

## The switch shall provide power, link speed and fiber port status indicating LED’s for monitoring proper system operation.

## The switch shall comply with IEEE 802.3, 802.3u, 802.3ab, and 802.3z Ethernet standards.

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

## The switch shall support the transmission of 100 Mbps over a multimode or single-mode fiber.

## The switch shall support the transmission of 1000 Mbps over a multimode or single-mode fiber.

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

## The switch shall be a 1U (one U, 1.75 inches) 19-inch rack mountable equipment that can be installed in standard cabinet or 19-inch rack.

## 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 24 TP: 10/100/1000 Mbps

### Port 21 to Port 24 100/1000 Mbps (combo ports)

## Data Inputs: 24

## Operation Mode: Simplex or Duplex

# Optical Specifications

## Optical Interface: 3.3 V SFP (Small Form Factor Pluggable slot).

## Number of SFP Optical ports: 2.

## Optical Fiber:

### 62.5/125 micron multimode

### 9/125 micron single-mode

## Number of Fibers Required: 1 or 2, depending on the SFP module.

## Optical Wavelength: Depends on the SFP module.

## Optical Power Budget: Depends on the SFP module.

## Maximum Distance: 74.56 miles (120 km).

## SFP DDM supported.

# Status Indicators

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| 1000 LNK/ACT | Green | **Lit:** indicates that the port is successfully connecting to the network at 1000 Mbps. |
| **Blink**: indicates that the switch is transmitting or receiving data over that port. |
| **Off**: if the 1000 LNK/ACT LED light illuminates, it indicates that the port is operating at 1000 Mbps. If the LNK/ACT LED is off, it indicates that the port is link down. |
| 10/100 LNK/ACK | Green | **Lit:** indicates that the port is successfully connecting to the network at 10 Mbps or 100 Mbps |
| **Blink**: indicates that the switch is transmitting or receiving data over that port. |
| **Off**: if the 10/100 LNK/ACT LED light illuminates, it indicates that the port is operating at 10Mbps or 100Mbps. If the LNK/ACT LED is off, it indicates that the port is link down. |

## SFP (Port-21 to Port-24)

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

# Connectors

## Optical: SFP Slot

## Power: Universal AC socket

## Data: RJ45

## Console: DB9 Type RS232 serial com

# 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

## RS232 DB9 male console cable

# 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” Rack)

#### The unit is installed in a standard EIA 19” (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 slots shall meet the requirements of the UTC 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 UTC 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 fiber scraps properly.

28 05 53 Identification for Electronic Safety and Security

# Products

## Description:

### IFS NS3500-24T-4C 24-Port 10/100/1000 Mbps with 4 SFP Combo Ports L2+ Managed Switch.

## Manufacturer

### Acceptable Manufacturer:

#### IFS Brand

#### UTC Fire & Security, Inc.

#### 2955 Red Hill Avenue

#### Costa Mesa, CA 92626

#### Phone 1-855-286-8889

### 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\*** |
| NS3500-24T-4C | 24-Port 10/100/1000Mbps with 4 Shared SFP Managed Switch | 300 feet (100M) electrical for copper portVaries according to the SFP module used for the SFP port. |

#### Table B: Product Compatibility Chart

| SFP Transceiver | DESCRIPTION | MAX. DISTANCE\* |
| --- | --- | --- |
| MULTI-MODE |  |  |
| S30-2MLC | SFP-Port 1000Base-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 1000Base-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 1000Base-LX10 Mini-GBIC Module - 2 Fiber - 10km - Single-Mode - 1310nm (0~50℃ | 10 km |
| S30-2SLC-30 | SFP-Port 1000Base-LHX Mini-GBIC Module - 2 Fiber - 30km - Single-Mode - 1310nm (0~50℃) | 30 km |
| S30-2SLC-70 | SFP-Port 1000Base-ZX Mini-GBIC Module - 2 Fiber - 70km - Single-Mode - 1550nm (0~50℃) | 70 km |
| S30-1SLC/A-10 | SFP-Port 1000Base-BX10 Mini-GBIC Module - 1 Fiber - 10km - Single-Mode - Tx 1310nm - Rx 1490nm (0~50℃) | 10 km |
| S30-1SLC/B-10 | SFP-Port 1000Base-BX10 Mini-GBIC Module - 1 Fiber - 10km - Single-Mode - Tx 1490nm - Rx 1310nm(0~50 ℃) | 10 km |
| S30-1SLC/A-20 | SFP-Port 1000Base-BX20 Mini-GBIC Module - 1 Fiber - 20km - Single-Mode - Tx 1310nm - Rx 1490nm (0~50℃) | 20 km |
| S30-1SLC/B-20 | SFP-Port 1000Base-BX20 Mini-GBIC Module - 1 Fiber - 20km - Single-Mode - Tx 1490nm - Rx 1310nm (0~50℃) | 20 km |
| S30-1SLC/A-60 | SFP-Port 1000Base-BX60 Mini-GBIC Module - 1 Fiber - 60km - Single-Mode - Tx 1310nm - Rx 1490nm (0~50℃) | 60 km |
| S30-1SLC/B-60 | SFP-Port 1000Base-BX60 Mini-GBIC Module - 1 Fiber - 60km - Single-Mode - Tx 1490nm - Rx 1310nm (0~50℃) | 60 km |
| S20-1SLC/A-20 | SFP-Port 100Base-BX20 Mini-GBIC Module - 1 Fiber - 20km - Single-Mode - Tx 1310nm - Rx 1550nm (0~50℃) | 20 km |
| S20-1SLC/B-20 | SFP-Port 100Base-BX20 Mini-GBIC Module - 1 Fiber - 20km - Single-Mode - Tx 1550nm - Rx 1310nm (0~50℃) | 20 km |
| S20-2SLC-20 | SFP-Port 100Base-LX20 Mini-GBIC Module - 2 Fiber - 20km - Single-Mode - 1310nm (0~50℃) | 20 km |
| S40-2SLC-10 | SFP+ Port 10GBase-LR Mini-GBIC Module - 2 Fiber - 10km – Single Mode - 1310nm (0~50℃) | 10 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 |

\* 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 Fiber Optic Ethernet Link.

## Verify that the data leads and optical fibers are properly connected.

## Make sure that power is applied to all fiber optic modules, controllers, and receiver drivers or other equipment used in the system.

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

# Testing the 10/100/1000T Gigabit Ethernet and Gigabit Copper Link.

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

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

Contacting Support

North America:

855-286-8889

techsupport@interlogix.com

Latin America:

561-998-6114

latam@interlogix.com

Web site:

[www.interlogix.com/customer-support](http://www.interlogix.com/customer-support)

EMEA:

See specific country listings at:

[www.utcfssecurityproducts.com/CustomerSupport](http://www.utcfssecurityproducts.com/CustomerSupport)