

NS3503-16P-4C A&E Specifications, Division 28 00 00 Electronic Safety and Security



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

## UTC Fire & Security Model Number: **NS3503-16P-4C**.

### Number of ultra PoE ports: 16 (RJ45 connector)

### Maximum Distance: 100m with PoE output (328 ft.)

# Summary

## **NS3503-16P-4C** 16-port Gigabit Ethernet PoE-Ultra with 4 SFP Ports plus 4 RJ45 Combo Ports Managed Switch – Standalone.

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 16 10/100/1000 Base-T Ethernet with IEEE 802.3at/af PoE injectors and 4 shared 100/1000 Base-X SFP slots.

### The system shall utilize EIA568, category 5/5e, 4-pair cables for 10/100/1000 Base-T to transfer Ethernet data and power simultaneously.

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

## 4 Gigabit SFP slots can be optical 100/1000Base-SX / LX through SFP (Small Form-Factor Pluggable) interface.

### The SFP module shall utilize **850nm** optics capable of bi-directional data transmission of **100/1000Base-SX** on two multimode optical fibers.

### The SFP module shall utilize **1310nm** optics capable of bi-directional data transmission of **100/1000Base-LX** on two single-mode optical fibers.

### The SFP module shall utilize **1310nm/1490nm or 1310nm/1550nm** optics capable of bi-directional data transmission of **100/1000Base-BX** on one single-mode optical fiber.

## 16 10/100/1000 Base-T ports with ultra PoE injector

###  **NS3503-16P-4C** able to power on 16 PoE+ compliant End-span and/or Mid-span devices maximum 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: 17.3” x 11.8” x 1.8” (440 mm x 300 mm x 44.5 mm)

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

# Weight < 9.85 lbs / 4479 g

28 05 45.13 Electrical

# Power Characteristics of NS3502-8P-2T-2S:

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

## Current: 7A max.

## Power Consumption: Maximum 500 watts with PoE full load

# PoE Output Power of NS3503-16P-4C:

## PoE output budget: 400 watts

## IEEE 802.3af class 3 (15.4 W): Max. 16 ports

## IEEE 802.3at class 4 End-span (30.8 W): Max. 12 ports

## IEEE 802.3at class 4 Mid-span (30.8 W): Max. 12 ports

## UPOE (60 W): 6 ports

28 05 45.15 Information

# Submittals

## Manufacturer’s Installation and Operating Manual: installation and operating information for the Managed Ultra 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: **-10 to +70˚ C**

# Project/Site Conditions

## Temperature Requirements: Product shall operate in an environment with an ambient temperature range of **0** to **+50˚C** without 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 manufacture’s 3 Years Warranty.

# General Specifications

## The Managed PoE Switch shall be an NS3503-16P-4C model.

## The switch features 16 fixed 10/100/1000 Base-T electrical ports

## The switch features 4 shared 100/1000 Base-SX/LX optical SFP slots.

## The switch features 4 10/100/1000T optical copper ports.

## 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, SYS, Link / Act status, at/af PoE In-Use, 60W PoE In-use, PoE power alert, FAN1 and FAN2 alert indicating LEDs for monitoring proper system operation.

## The switch shall be a 1U, 19-inch equipment.

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

## The NS3503-16P-4C shall comply with IEEE 802.3at / 802.3af Power over Ethernet:

### The NS3503-16P-4C shall support IEEE 802.3at Power over Ethernet detection and 54 VDC power injection at port1 to port16.

### The NS3503-16P-4C shall transmit DC Voltage to the Cat5/5e/6 cable and transfer data and power simultaneously to remote PD (Powered Device) equipments.

### The NS3503-16P-4C shall Auto-detect of PoE IEEE802.3at / 802.3af equipment; protect devices from being damaged by incorrect installation.

### The NS3503-16P-4C shall support total distance up to 100 meters on PoE ports.

### The NS3503-16P-4C shall support 60 watts PoE power outputting maximum for compatible ultra PoE device.

# Data Specifications

## Data Interface: Ethernet IEEE 802.3z

## Data Rate:

### Port1 to Port20: 10/100/1000 Mbps

### Port18 to Port20 SFP: 100/1000 Mbps

## Data Inputs: 12

## Operation Mode: Simplex or Duplex

# Status Indicators

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| PWR | Green | **Lit:** indicates the power is on. |
| SYS | Green | **Lit:** indicates system has booted done. |
| **Blinks**: indicates that system is booting. |
| FAN1 | Red | **Lit:** indicates FAN1 stop. |
| FAN2 | Red | **Lit:** indicates FAN2 stop. |
| PoE PWR | Red | **Lit:** indicates the PoE power supply out of power. |

## 10/100/1000Base-T Interface (port1 to port16)

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| 1000 LNK/ACT | Green | **Light:** indicates the connection has established to 1000Mbps. |
| **Off**: indicates that the connection doesn’t establish to 1000Mbps. |
| 10/100 LNK/ACT | Amber | **Light:** indicates the connection has established to 10/100Mbps. |
| **Off**: indicates that the connection doesn’t establish to 10/100Mbps. |
| PoE In-Use | Green | **Light:** indicates the port has been set to “UPOE” mode and supplies DC in-line power. |
| **Off:** indicates the port has no supplies DC in-line power. |
| Amber | **Light:** indicates the port has been set to “End-span or Mid-span” mode and supplies DC in-line power. |
| **Off:** indicates the port has no supplies DC in-line power. |

# Connectors

## Ethernet Port: RJ45

## PoE Port: RJ45

## Optical: SFP slot

## Power: Universal socket

# 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)

# Accessories

## SFP dust caps x 4

## Rack-mounting kit x 1

## RS232 to RJ45 console cable x 1

## Power Cord x 1

# 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’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 SFP slot 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 budge.

# Installation

## General: Locate fiber optic modules as indicated on the approved detail drawings and install module in compliance with the UTC 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

## Manufacturer

### Acceptable Manufacturer:

#### IFS Brand

#### UTC Fire & Security, Inc.

#### 8985 Town Center Parkway

#### Bradenton, FL 34202-5129

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

#### Email: presales@interlogix.com

### 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\*** |
| NS3503-16P-4C | 16-port Gigabit PoE-Ultra Managed Switch | Max. 100m with Ethernet transmit (328 ft.)Max. 100m with PoE output (328 ft.)SFP slot depends on various SFP module  |

#### 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 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 - 60Km - 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 |

\* 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 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.

## Connects an 802.3at PoE device and check if the PoE device could be power normally.

# Testing the 10/100/1000T PoE Copper output capability.

Contacting Support

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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.eu/support](http://www.utcfssecurityproducts.eu/support)