

NS3553-4P-2S A&E Specifications, Division 28 00 00 Electronic Safety and Security



P/N 1073442-EN • REV A • ISS 26JAN18

This A&E Specification conforms to CSI Master Format 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

## UTC Fire & Security Model Number: **NS3553-4P-2S**.

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

### The switch shall support IEEE 802.3at Ultra PoE detection and 56 VDC power injection at port 1 to port 4.

### The switch is also the power injectors which transmit 48 to 56 VDC (depending on the amount of input power) to the Cat5/5e/6 cable and transfer data and power simultaneously to remote PD (Powered Device) units.

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

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

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

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 four 10/100/1000Base-T copper ports with IEEE 802.3bt pre-standard Power over Ethernet Injector plus one 10/100/1000Base-T copper uplink port and two 100/1000Base-SX/LX SFP slots.

### The system shall utilize EIA568, category 5/5e/6, 4-pair cables for 10Base-T or 100Base-TX and 1000Base-T to transfer Ethernet data and 48 to 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 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 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 100 Base-FX on multimode or single-mode optical fibers.

28 05 45 Systems Integration and Interconnection Requirements

28 05 45.11 Mechanical

# Surface Mount Dimensions: 5.9” x 4.2” x 2.8” (161 mm x 107 mm x 72 mm)

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

# Weight: 2.3 lb. / 1.05 kg

28 05 45.13 Electrical

# Power Characteristics:

## Power: 48 to 56 VDC, 6 A max.

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: **–40 to +85˚C**

# Project/Site Conditions

## Temperature Requirements: Products shall operate in an environment with an ambient temperature range of –4**0** to **+70˚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 Industrial Gigabit Managed Switch shall be a NS3553-4P-2S model.

## The switch features four 10/100/1000Base-T copper ports plus one RJ45 10/100/1000Base-T and two 100/1000 Base-X SFP slot system.

## The 10/100/1000Base-T port shall support the Ethernet data IEEE 802.3 protocol using auto-negotiating and auto-MDI/MDI-X features.

## The 100/1000Base-X SFP slot supports single mode/multimode fiber.

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

## The unit supports eight VLAN interfaces and 32 routing entries.

## The unit supports IPv4 and IPv6 software static IP routing between VLAN interfaces.

## The unit provides a power fault alarm.

## The unit provides two digital input groups and two digital output groups.

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

## The Fast/Gigabit Ethernet SFP module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation.

## 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 5: 10/100/1000 Mbps

### Port 6 to Port 7 100/1000 Mbps

## Data Inputs: 7

## Operation Mode: Simplex or Duplex

# Optical Specifications

## Optical Fiber:

### 9/125 micron single mode

### 62.5/125 micron multimode

## Number of Optical ports: 2

## 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: Depends on the SFP module

# Status Indicators

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| P1 | Green | **Lit:** indicates that power 1 has power. |
| P2 | Green | **Lit:** indicates the power 2 has power. |
| FAULT | Red | **Lit:** indicates the monitored power or port has failed. |
| RING | Green | **Lit:** indicate that the ERPS Ring has been created successfully. |
| R.O. | Green | **Lit:** indicate that Switch has been enabled Ring Owner. |
| I/O | Red | **Blink**: indicates that the switch DC or port has failed or DI has event. |

## 100/100Base-X SFP Interfaces

|  |  |  |
| --- | --- | --- |
| **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. |
| 100 LNK/ACT | Orange | **Lit:** indicates that the port is successfully connecting to the network at 100 Mbps. |
| **Blink**: indicates that the switch is transmitting or receiving data over that port. |

## 10/100/1000Base-T Interfaces

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| 1000 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. |
| 10/100 LNK/ACT | Orange | **Lit:** indicates that the port is successfully established at 100 Mbps. |
| **Blink**: indicates that the switch is transmitting or receiving data over that port. |

## System

|  |  |  |
| --- | --- | --- |
| **LED** | **Color** | **Function** |
| 60 | Orange | **Lit:** indicates that the system consumes over 60 W PoE power budget. |
| 120 | Orange | **Lit:** indicates that the system consumes over 120 W PoE power budget. |
| 180 | Orange | **Lit:** indicates that the system consumes over 180 W PoE power budget. |
| 240 | Orange | **Lit:** indicates that the system consumes over 240 W PoE power budget. |

# Connectors

## Optical: SFP Slot/LC interface

## Power: Terminal block with screw clamps

## Data: RJ45

## Console: RJ45 to DB9 RS-232

## Contact closure: Terminal block with screw clamps

# Environmental Specifications

## MTBF: > 100,000 Hours

## Operating Temp: –40 to +75˚C

## Storage Temp: –40 to +85˚C

## Relative Humidity: 5 to 95% (non-condensing). If product is installed under condensation conditions, unit shall have conformal coating applied to the printed circuit board.

# 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

## RF45 to RS-232 Console Cable

## DIN rail kit

## Wall-mount kit

## Dust caps

# Execution

## Examination

### All electronic RJ45 connectors shall be covered with dust caps and remain on the fixed port until cable connectors are installed.

### All optical connectors shall be covered with dust caps and remain on the interface until cable connectors are installed.

## 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.

### DIN rail mount installation

#### Shall be mounted on a properly installed DIN rail 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.

### 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 and type of multimode optical fiber shall meet the requirements of the UTC Fire & Security model number.

#### The number of optical fiber FTP 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.

#### All optical connectors on the cable shall be cleaned in compliance to the optical connector manufacturer's specifications and covered with dust caps until connection to the fiber optic module.

# 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

## Description:

### IFS NS3553-4P-2S 4-port 10/100/1000Base-T Gigabit Ethernet Ultra PoE with one RJ45 port for 10/100/1000Base-T + two SFP ports Industrial Managed Switch Standalone.

## 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\*** |
| NS3553-4P-1T-2S | 4-Port Gigabit Ethernet PoE-Ultraplus 1 RJ45 + 2 SFP PortsIndustrial Managed Switch | Copper port is 100 metersSFP slot depends on various SFP module |

#### 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 |
| 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 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 10/100/1000Base-T 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.

# Test the 10/100/1000Base-T PoE Copper output capability.

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)