



# **16-port 10/100/1000Base-TX +2x Gigabit SFP Industrial Ethernet Switch**



## **Quick Installation Guide**

DN-651138

## 1. Overview

Industrial Ethernet switch with 16-Port 10/100/1000Mbps Base-TX and 2-Port Gigabit SFP, the Product meet CE, FCC, RoHS standards. DN-651138 switch has the operating temperature of  $-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$ , has the super firmness can adapt to all kinds of harsh environment, can also be conveniently placed in the compact space of the control box. The installation characteristics of the guide rail, wide temperature operation, IP40 protection class housing and LED indicator light make the DN-651138 a plug and play industrial grade device, providing a reliable and convenient solution for users to network their Ethernet devices.

## 2. Switch Panel



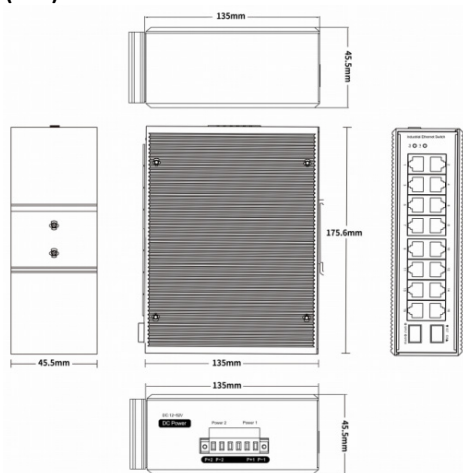
**Side panel:** P1 and P2 are the number of connecting terminals, and F is the interface of alarm. P+1 and P-1 are respectively to the positive and negative poles to be connected; Earthing screw, used for earthing equipment.



**Front panel:** The Yellow LED on the port is the LINK light, which is on when the connection is established and the data transmission is flashing.

The green LED is POE light, which is only on when the switch port is supplying power to PD device (this model is not to support PoE); Power indicator light is on when connecting with Power.

### Switch size (mm)



### 3. Features

- Support long range transmission by fiber optical port.
- Full working temp. -40 ~ 80 °C to ensure reliable data and long working life
- In line with industrial operating standards, the average trouble-free work in more than 300,000 hours dual power input
- Lightning Surge Protection (Power): 5000A (8/20μs)
- DIN Rail and Wall mount support
- Support full duplex or half duplex mode, with automatic negotiation capability
- Network port support automatic cross identification internal storage and forwarding mechanism

## **4. Specification**

### **4.1 Standard:**

IEEE802.3 10Base-T; IEEE802.3i 10Base-T; IEEE802.3u 100Base-TX/FX;  
IEEE802.3ab 1000Base-T; IEEE802.3z 1000Base-X; IEEE802.3x

### **4.2 Interface:**

16-Port RJ45; 2- Port SFP Uplink

### **4.3 Work environment:**

Working: -40 ~ 80 °C

Storage: -40 ~ 80 °C

Relative Humidity: 5%~95 %

(No condensation)

### **4.4 Switch:**

Bandwidth: 56Gbps

Packet Buffer Memory: 4.1Mbit

Packet Forwarding Rate: 42Mpps

MAC Address Table: 8K

### **4.5 Power supply:**

Input voltage: DC12-52V (two-way power redundancy backup)

Access terminal: terminal block;

Support dual power redundancy

Support built-in over current 4.0A protection

Support reverse connection protection

### **4.6 Mechanical characteristic:**

IP40 aluminum housing

DIN rail install

Natural cooling, no fan

Weight: 1.0Kg

Measurement: 175.6 x 135 x 45.5 mm

#### 4.7 Industrial standard:

FCC Part 15 Subpart B, EN55032, Class A

IEC61000-4-2 (ESD):  $\pm 8\text{kV}$  (contact),  $\pm 12\text{kV}$  (air)

IEC61000-4-3 (RS):  $10\text{V/m}$  ( $80\sim 1000\text{MHz}$ )

IEC61000-4-4 (EFT): Power Port:  $\pm 4\text{kV}$ ; Data Port:  $\pm 2\text{kV}$

IEC61000-4-5 (Surge): Power Port:  $\pm 2\text{kV/DM}$ ,  $\pm 4\text{kV/CM}$ ;  
Data Port:  $\pm 2\text{kV}$

IEC61000-4-6 (CS):  $3\text{V}$  ( $10\text{ kHz}-150\text{ kHz}$ );  $10\text{V}$  ( $150\text{ kHz}-80\text{MHz}$ )

IEC61000-4-16 (Common mode conduction):  $30\text{V}$  (cont.),  $300\text{V}$  (1s)

Frequency range:  $150\text{kHz}-80\text{MHz}$

Impact: IEC60068-2-27

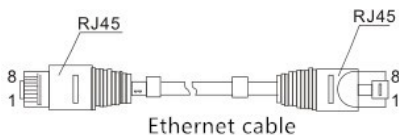
Free Fall: IEC60068-2-32

Vibration: IEC60068-2-6

## 5. Interface Definition

### 5.1 10/100/1000Base-TX Ethernet interface:

This switch provides MDI/MDI-X self-identification with cable support on all 10/100/1000Base-TX ports. In use, the Ethernet port of the switch can be connected with other Ethernet terminal devices through network cables (direct or cross). Please use Class 5 shielded twisted pair. The Ethernet port pin definition is shown in the following figure:



RJ45 port supports automatic MDI/MDI-X operation, you can use a straight line to connect to the PC or server, connect to other switches or hubs. In the through line (MDI), pins 1, 2, 3, 4, 5, 6, 7, 8 correspond to the connection;

For the MDI-X port of a switch or hub, cross lines are used: 1-3, 2-6, 3-1, 6-2, 4-7, 5-8, 7-4, 8-5. 10Base-T/100Base-T (X) pins are defined as follows:

Pin No.	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4,5,7,8	-	-

Note: "Tx ±" refers to send data, "Rx ±" refers to received data ±, and "-" refers to unused data.

## 5.2 1000base-FX Ethernet interface

This device provides 1000Base single-mode dual-fiber SC module, and multi-mode like LC, ST as optional.

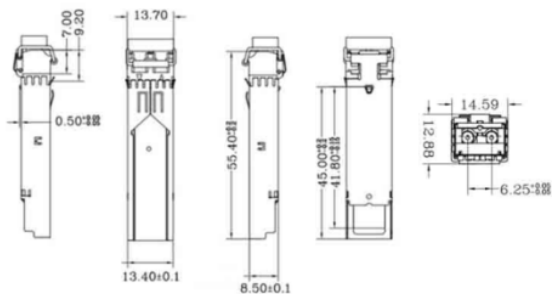
### 5.2.1 Patch cord classification

According to the transmission mode of light in the fiber, it can be divided into multi-mode fiber and single-mode fiber. Multimode fiber has a thick glass core (50 or 62.5μm), which can transmit light in various modes. However, the high inter-mode dispersion limits the frequency at which digital signals can be transmitted, so multimode fibers can be transmitted over relatively close distances (typically only a few kilometers).

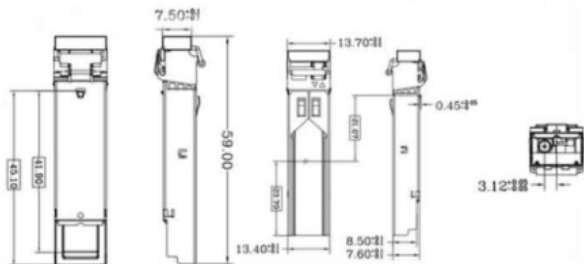
The single-mode fiber has a very thin glass core (core diameter, usually 9 or 10μm) and can transmit only one mode of light. Therefore, its inter-module dispersion is very small, and it is suitable for remote communication. Under normal circumstances, the skin is orange for multi-mode, yellow for single mode.

## 5.2.2 SFP module (Optional, not included)

LC connector, Gigabit, 20km Single mode, dual fiber (DN-81011)



LC connector, Gigabit, 20km Single mode, Single fiber  
(DN-81020 and DN-81021)



## 6. LED Indicator

LED indicator	Status	Definition
P1/P2	Red LED on	Power supplying in normal
	Red LED off	Power supply abnormal or no powering
RJ45 indicator	Yellow LED on	Network connection in normal
	Yellow LED flashing	Link communication in normal
	Yellow/Green LED off	No connection at port

**Note:** this model is not available with PoE

## 7. Installation caution

### 7.1 Installation precautions

In order to avoid damage to equipment and personal injury caused by improper use, please follow the following precautions:

- In order to avoid damage caused by falling of the equipment, please put the equipment in a stable environment.
- When supplying power to the equipment, pay attention to confirm the range of power supply voltage, as well as the positive and negative poles of the power supply, so as not to damage the equipment by wrong operation.
- In order to reduce the risk of electric shock, ensure that the equipment is well grounded in the working environment.
- No matter when, please do not arbitrarily remove the equipment shell.
- When placing the switch, please avoid the area with dust and strong electromagnetic interference

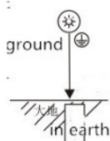


## 7.2 Din rail installation:



The first step is to check the grounding and stability of the guide rail: the guide rail slot of the switch is clamped into the guide rail; The second step: from the center to both sides of the guide rail positioning screws in order. Step 3: Use screws to fix the mounting rail card slot on the fixed guide groove at both ends of the guide rail to ensure that the guide rail and the switch are fixed on the guide rail vertically and stably.

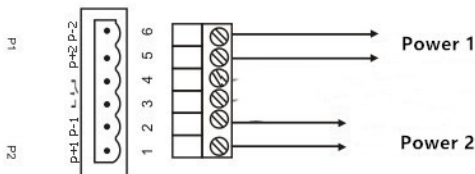
## 7.3 grounding



Fix the grounding wire to the grounding screw above the switch, and ensure good reliable connection of the grounding system.

## 7.4 Power Connection

Insert the power cord into the specified position of the 6-core terminal, and insert the terminal into the standard power supply inlet (P+1 and P-1 input corresponding to the first power supply P1, and P+2 and P-2 input corresponding to the second power supply P2). The available voltage standard of the power supply is supported from 12VDC to 52VDC



## 8. Packages

Content	QTY
Industrial switch	1 PCS
Quick installation guide	1 PCS
Rackmount kit	1 SET
Terminal block	1 PCS

This is a Class A product. In home environment, this product may cause radio interference. In this case, the user may be required to take appropriate measures.

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