



## UT-60020G Series

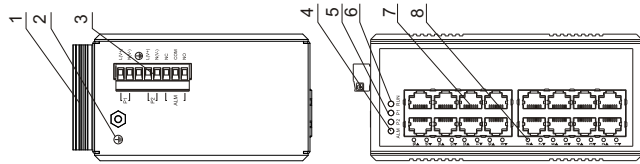
# Full Gigabit Unmanaged Ethernet Switch User Manual

### I. Overview

UT-60020G is a full Gigabit Unmanaged industrial Ethernet switch. It supports up to 4 Gigabit fiber ports and 16 Gigabit RJ-45 ports, this series of switches is with low power consumption, fanless design; at the same time, it supports -40°C~75°C working temperature; it is with good EMC performance. All these guarantee it work stable in bad industrial environment; it provides safe and reliable solution for industrial automation, intelligent transportation, video monitoring, and other industrial application networking access.

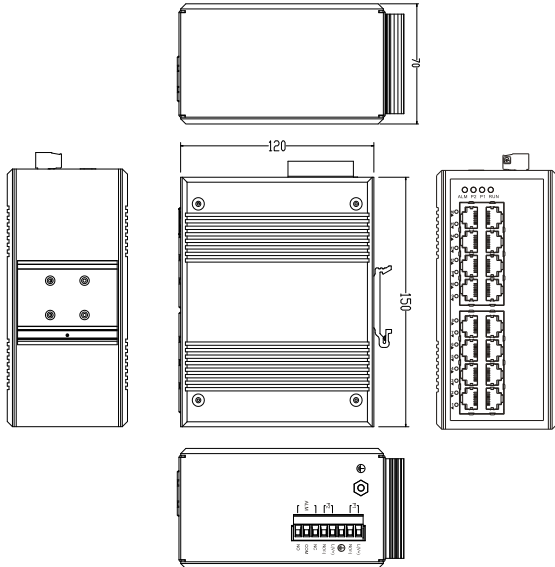
### II. Panel Description

Example: UT-60020G-16GT-BNF



1. DIN-Rail
2. Ground screw
3. Power & relay alarm terminal block
4. Alarm indicator
5. Power indicator
6. System running indicator
7. 10/100/1000Base-T(X) Ethernet port
8. 10/100/1000Base-T(X) Ethernet port indicator

Dimension (unit: mm)



### III. Hardware Specification

#### 3.1 Standards

IEEE802.3, IEEE802.3u, IEEE802.3z, IEEE802.3ab, IEEE802.3x

#### 3.2 Ports

Fiber port: 1000Base-X(SC/ST/FC/SFP slot)

RJ45 port: 10/100/1000Base-T(X), auto MDI/MDI-X

#### 3.3 Transmission Distance

Cat.5e: 100m

Fiber module

Single-mode: 1,310nm 20/40/60Km

1,550nm 80/100/120Km

Multi-mode: 1,310nm 2Km

#### 3.4 Switching Performance

Forwarding rate

Gigabit Ethernet port: 1,488,095pps

Transmission mode: store-and-forward

MAC address size: 16K

Buffer size: 12Mb

Switching bandwidth: 40G

Max. frame length: 9216B

#### 3.5 Power Requirement

Voltage input: 12/24/48VDC(10.8~52.8VDC), supports redundant dual power input

#### 3.6 Power Consumption

Max. input power consumption: 625mA@24Vmax(check details on label)

#### 3.7 Mechanical Characteristics

IP rating: IP40

Weight: <1600g

Installation: DIN-Rail

#### 3.8 Dimension

Size ( W × H × D ) : 150mm × 70mm × 120mm

#### 3.9 Environment

Operating temperature: -40°C~75°C

Storage temperature: -40°C~85°C

Relative humidity: 0~95%(non-condensing)

#### 3.10 Industrial Standards

EMI :

FCC Part 15, CISPR (EN55022) class A

EMS:

IEC(EN)61000-4-2(ESD)

IEC(EN)61000-4-3(RS)

IEC(EN)61000-4-4(EFT)

IEC(EN)61000-4-5(Surge)

IEC(EN)61000-4-6(CS)

IEC(EN)61000-4-8

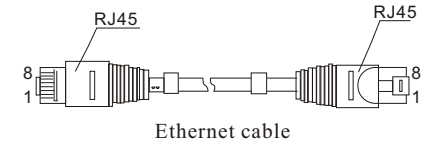
IEC 60068-2-27(Shock)

IEC 60068-2-32(Freefall)

### IV. Industrial Standards

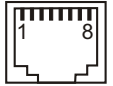
#### 4.1 10/100/1000Base-T ( X ) Ethernet port

This series provide with 10/100Base-T(X) ports, auto MDI/MDI-X. Please connect the switch with other Ethernet terminal devices via CAT5e STP. The pinassignment of the electrical port is as below:



RJ45 ports support auto MDI/MDI-X, it can be connected with PCs, servers, other switches or hubs by MDI/MDI-X. When use MDI connection, relative pin 1, 2, 3, 4, 5, 6, 7, 8 to be connected directly. For MDI-X port of switch or hub, it adopts cross connection: 1->3, 2->6, 3->1, 6->2, 4->7, 5->8, 7->4, 8->5. 10/100/1000Base-T(X) MDI/MDI-X pin assignment is as below:

Pin No	MDI Signal	MDI-X Signal
1	BI_DA+/TX+	BI_DB+/RX+
2	BI_DA-/TX-	BI_DB-/RX-
3	BI_DB+/RX+	BI_DA+/TX+
4	BI_DC+/-	BI_DD+/-
5	BI_DC-/-	BI_DD-/-
6	BI_DB-/RX-	BI_DA-/TX-
7	BI_DD+/-	BI_DC+/-
8	BI_DD-/-	BI_DC-/-



Remarks: "TX±" is "data transmit", "RX±" is "data receive", "-" is empty

#### 4.2 1000Base-X fiber port

This series switch provides 1000Base-X fiber ports; when using RJ45 ports, it can be connected with other Ethernet terminal devices through fiber port by fiber patch cord.

##### 4.2.1 Fiber patch cord

According to the transmission mode of light on fiber, there are multi-mode fiber and single-mode fiber. The central glass core of multi-mode fiber is thick (50 or 62.5 μm); it can transmit light in different mode. The chromatic dispersion is big, and this causes limitation on frequency of transmission digital signal. With this, the transmission distance of multi-mode fiber is short (mostly few kms). The central glass core of single-mode is thin (9 or 10 μm), and it can transmit single mode light. The chromatic dispersion is small, it is good for long distance communication. Normally, the orange cable is multi-mode; the yellow cable is single-mode.

##### 4.2.2 Fiber port

Fiber port is a physical interface for fiber cable connection. It adopts the principle that when light enter optically thinner medium from optically denser medium, the light will total reflection. There are four types fiber port:

**FC port:** FC port is a round port with thread, metal style; it adopts metal cover outside, use thread and nut to match and fix.

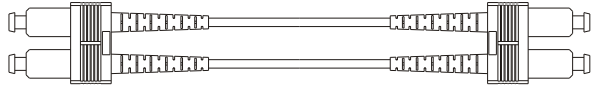
**SC port:** SC port is a standard square style port; it adopts engineer plastics, high temperature resistance, hard to oxidate.

**LC port:** LC port is similar to SC port, but smaller than SC port; it adopts modular jack, easy to operate.

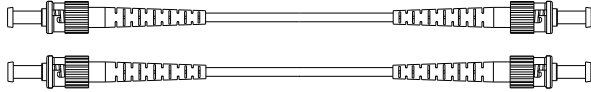
**ST port:** ST port is a clip-on round port.

#### 4.2.3 Fiber patch cord use

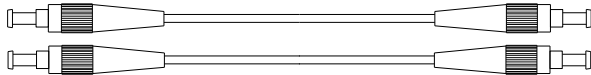
SC port to SC port fiber patch cord



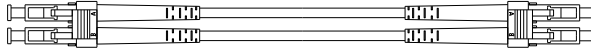
ST port to ST port fiber patch cord



FC port to FC port fiber patch cord



LC port to LC port fiber patch cord



Remarks: please don't bend the fiber patch cord when using.

## V. LED indicator

LED	Status	Description
P1~P2	green light on	power normal
	green light off	power breakdown or no power
Network port indicator	green light on	link connection normal
	green light blinking	link communication normal
	green light off	link without connection or breakdown
ALM	red light on	with alarm signal output
	red light off	without alarm signal output
RUN	green light on/off	system running breakdown
	green light blinking	system running regular

## VI. Installation

### 6.1 Attention

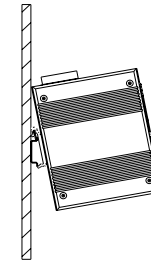
To avoid device damage causing by wrong operation and personal injury, please follow below steps:

- ◎ To avoid device damage by falling down, please put the device on stable surface.
- ◎ When the device is ready to power on, please make sure the voltage input is wide voltage range, and the positive/negative anodes of the power.
- ◎ To avoid the electric shock, make sure the device is in good ground connection when operating.
- ◎ Please do not open the device case at any time.
- ◎ Please keep away from dusty and strong electromagnetic interference environment.

### 6.2 DIN-Rail installation

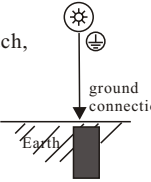
Install the switch on guide rail, and then follow below steps:

- Step 1: Check the rail stability; put the switch rail slot into the guide rail;
- Step 2: rotate the fix screw of the rail from center to both sides in turn tightly, to make the guide rail plying-up the vertical install cover slightly.
- Step 3: Fix the rail on the guiderail by screw, make sure the rail and the switch is vertical and stable.



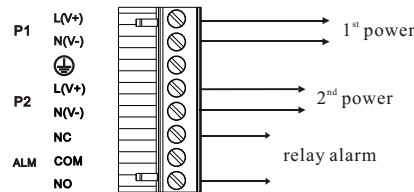
### 6.3 Ground connection

Fix the ground wire on the ground screw of the switch, make sure good connection.



### 6.4 Power input

Plug the power wire into the right position of 8-pin terminal block, then plug the terminal block into standard power input port (1<sup>st</sup> power is P1 L(V+), N(V-) input, 2<sup>nd</sup> power is P2 L(V+), N(V-) input, supports V+, V- power voltage range 12/24/48VDC (10.8~52.8VDC))

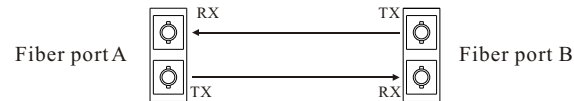


### 6.5 Relay alarm

Relay alarm is 3-pin of the terminal block; it provides power breakdown alarm output; NC-COM is normal close, when one of the power is breakdown, NC-COM means "short circuit"; when the power is normal, NC-COM means "open circuit". NO-COM is normal open, when one of the power is breakdown, NO-COM means "open circuit"; when the power is normal, NO-COM means "short circuit".

### 6.6 Network port connection

Connect the fiber cord or network cable with relative network port, please pay attention on RX & TX when fiber connection; the relative indicators will be on or blinking.



Notice: when connect fiber port A with fiber port B by fiber patch cord, please connect TX of fiber port A with RX of fiber port B, and connect RX of fiber port A with TX of fiber port B.

## VII. Ordering

Model No.	Port description		Fiber port type
	1000 Base-X	10/100/1000 Base-T(X)	1000 Base-X
UT-60020G-16GT4GP-BNF	4	16	SFP
UT-60020G-16GT-BNF	-	16	-
UT-60020G-16GT4GSC-BNF	4	16	SC

1. Single-mode dual-fiber SC port/SFP slot is a standard configuration for products above mentioned, with optional ST/FC.
2. The suffix "F" in "BNF" means dual power 12/24/48VDC (10.8~52.8VDC) input.
3. If there is no model under requirement, or any questions about the models, please contact UTEK.