IT-ES3020-IU-4GS series
Unmanaged Industrial Ethernet switch
User manual

【**Summarize**】

IT-ES3020-IU-4GS series is an unmanaged Industrial Ethernet switch with high performance, high cost-effective. It included IT-ES3020-IU-4GS-P (12-48VDC), IT-ES3020-IU-4GS-2F-P (12-48VDC), IT-ES3020-IU-4GS-4F-P (12-48VDC).

IT-ES3020-IU-4GS-P (12-48VDC) supports 16-ports 10Base-T/100Base-TX Ethernet + 4 ports 1000Base-FX SFP, IT-ES3020-IU-4GS-2F-P(12-48VDC) supports 14 ports 10Base-T/100Base-TX Ethernet + 2 ports 100BaseFX fiber + 4 ports 1000BaseFX SFP, IT-ES3020-IU-4GS-4F-P (12-48VDC) supports 12 ports 10Base-T/100Base-TX Ethernet + 4 ports 100BaseFX fiber + 4 ports 1000BaseFX SFP. It supports autoflow control, full/half duplex mode and MDI/MDI-X self-adaption. It built in standard industry design, all components are based on Industry grade, no fan, low consumption, can satisfied some kinds of requirements of industry field, to achieve high reliability.

【**Packing list**】

Please check the packaging and accessories by your first using.

- Industrial Ethernet switch（IT-ES3020-IU-4GS series）ｘ 1
- User manual ｘ 1
- Certificate of quality ｘ 1
- Warranty card ｘ 1

Please inform us or our distributor if your equipment's have been damaged or lost any accessories, we will try our best to satisfy you.

【**Features**】

- Support MAC address auto-learning, auto-aging
- Support 8K MAC address table
- System exchange bandwidth: 11.2Gbps
- Support redundancy power supply
  (12~48VDC), non-polarity
- Support flow control
- Support Broadcast storm suppression
- Support 1ch relay alarm output
- Working temperature: -40℃～85℃
- DIN rail mounted
- No fan, low consumption
- Metal shell, IP40 protection class
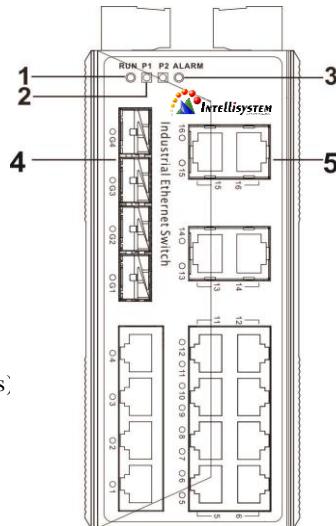
【Panel layout】

IT-ES3020-IU-4GS series
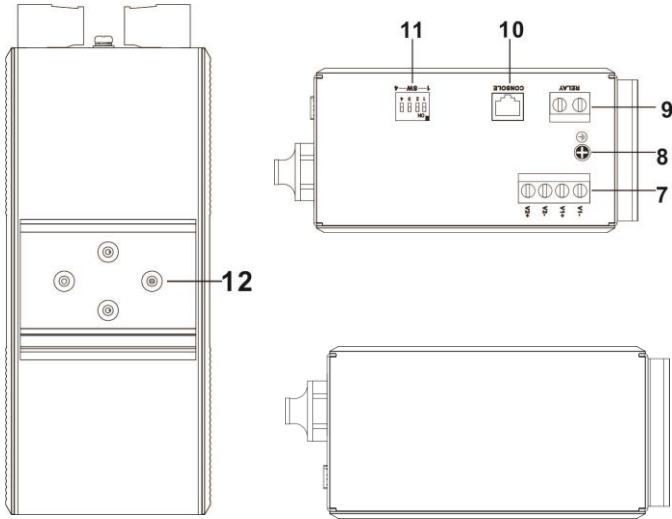
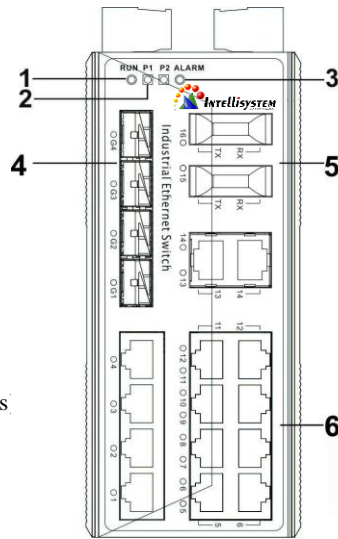**Back view**   **Vertical view**

IT-ES3020-IU-4GS-P (12-48VDC)

1. Running status indicator

2. Power supply indicator

3. Power supply alarm

4. 1000M optic port (SFP slot)

5.10Base-T /100Base-TX Ethernet

7. 4 bits power supply terminal block

8. Ground screw

9. Relay alarm output terminal block (2 bits）

10. Console port (RS-232 port RJ45)

11. DIP switch

12. DIN-Rail

IT-ES3020-IU-4GS-2F-P (12-48VDC)

1. Running status indicator

2. Power supply indicator

3. Power supply alarm

4. 1000M optic port (SFP slot)

5. 100Base-FX optic port

6.10Base-T /100Base-TX Ethernet

7. 4 bits power supply terminal block

8. Ground screw

9. Relay alarm output terminal block (2 bits)

10. Console port (RS-232 port RJ45)

11. DIP switch

12. DIN-Rail

IT-ES3020-IU-4GS-4F-P (12-48VDC)

1. Running status indicator

2. Power supply indicator

3. Power supply alarm

4. 1000M optic port (SFP slot)

5. 100Base-FX optic port

6.10Base-T /100Base-TX Ethernet

7. 4 bits power supply terminal block

8. Ground screw

9. Relay alarm output terminal block (2 bits)

10. Console port (RS-232 port RJ45)
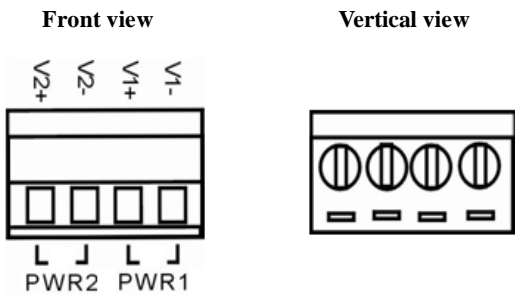
11. DIP switch

12. DIN-Rail
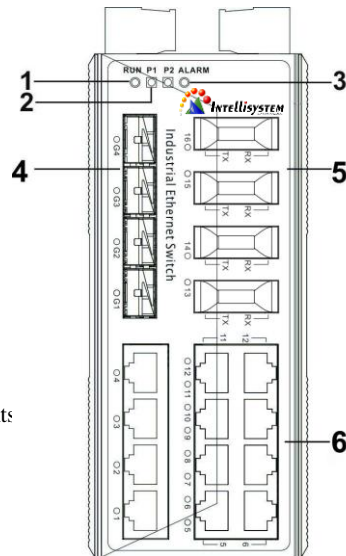
【Appearance and dimensions】

Unit（mm）

## 【Power supply input】

Front view　　　　　**Vertical view**
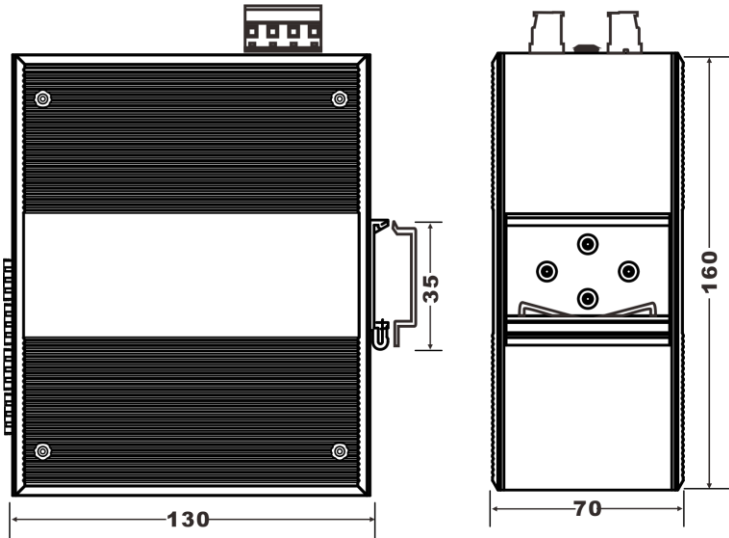
IT-ES3020-IU-4GS series top panel provided 4 bit power supply input terminal block, DC power supply input supported redundancy function, provided PWR1 and PWR2 power input,　can use for single, and can connect 2 separately power supply system, use 1 pair terminal block connect the device at the same time. If one of the power system broke, the device can work un-interruptible. built-in over current protection, Reverse connection protection. Voltage input range is 12～48VDC（terminal block defined as: V1-、V1+、V2-、V2+）.

Important notice:

1. Power ON operation: first of all, insert power cable's terminal block into device's power port, then insert power supply plug into power source

2. Power OFF operation: First off all, unpin power plug, then strike the terminal block, please take care of operation sequence.

【Relay connection】

Vertical view　　　　**Front view**
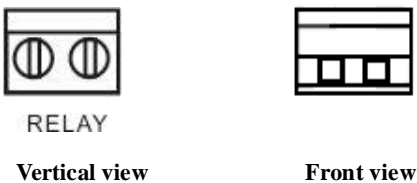
The terminal block of relay is on top panel, it is a group of normally closed contact.

Configure power alarm open or close by DIP switch 2. After open power alarm function, if no alarm, it is in close status, if have any alarm, it is

in open status.

IT-ES3020-IU-4GS series support 1 channel relay alarm output, can connect alarm light or alarm buzzer, it can also connect other I/O device, It is convenience to note operator once alarm.

【DIP switch】

Top panel provided 4 bits DIP switch to do function configure(OFF is default factory), 1 keep for future function, 2 power alarm open or close, 3 flow control open or close, 4 broadcast storm suppression open or close. Please power off and power on when you change the status of DIP switch.

【Communication connector】

10/100BaseT(X) Ethernet port

The pinout of RJ45 port display as below, connect by UTP or STP. The connect distance is no more than 100m. 100Mbps is used 100 Ω of UTP 5, 10Mbps is used 100 Ω of UTP 3, 4, 5.
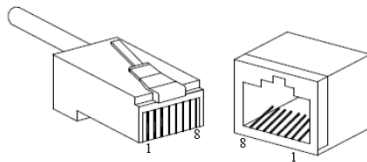
RJ 45 port support automatic MDI/MDI-X operation. Can connect the PC, Server, Converter and HUB .Pin 1,2,3,6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10Base-T/100Base-TX are used in MDI/MDI-X, the define of Pin in the table as below.
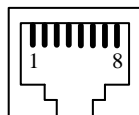
NO.	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

Note："TX±"Transmit Data±，"RX±"Receive Data±，"—"Not Use。

MDI (straight-through cable)
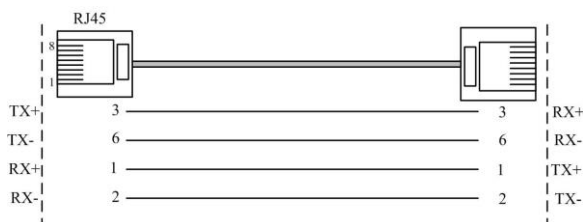
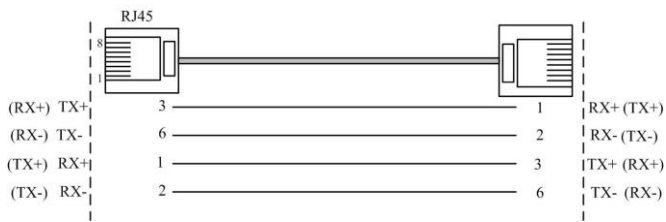**MDI-X (Cross over cable)**

MDI/MDI-X auto connection makes IT-ES3020-IU-4GS series easy to use for customers without considering the type of network cable.

100Base-FX Fiber port

100Base-FX full-duplex SM or MM port, SC/ST type .The fiber port must be used in pair, TX (transmit) port connect remote switch's RX (receive) port; RX (receive) port connect remote switch's TX (transmit) port.

The optical fiber connection supports the line to instruct enhance the reliability of network effectively.

Suppose if you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).
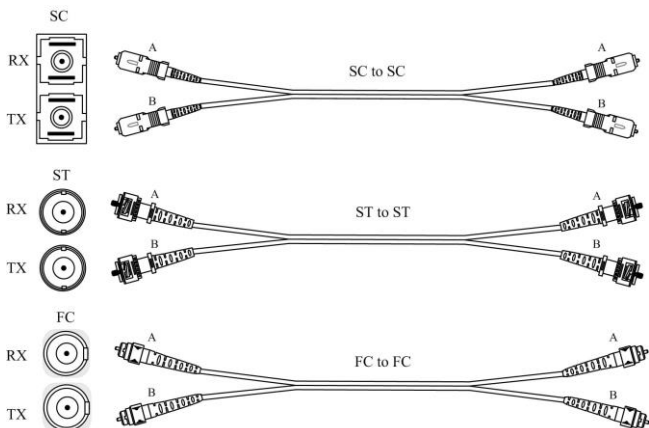
1000SFP fiber port (mini-GBIC)

1000BaseSFP fiber port adopts gigabit mini-GBIC transmission, can choice different SFP module according to different transfer distance. Fiber interface must use for pair, TX port is transmit side, must connect to RX (receive side). The fiber interface support loss line indicator.
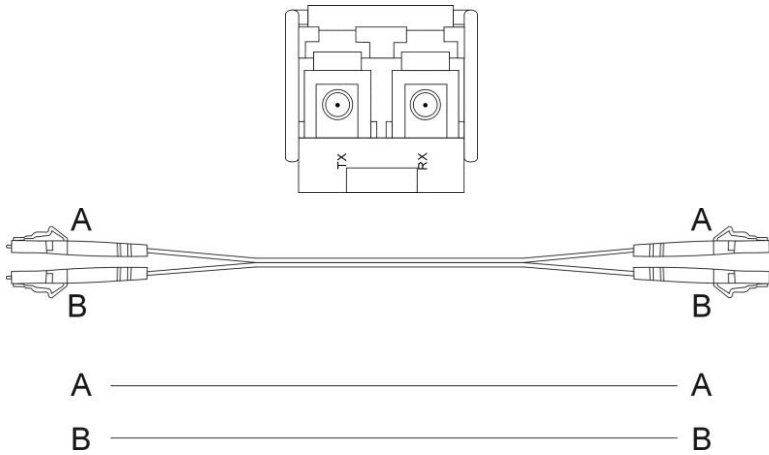
Suppose: If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).

【LED indicator】

IT-ES3020-IU-4GS series LED indicator light on the front panel .the function of each LED is described in the table as below:

System status LED		
LED	Indicator	Description
P1	ON	P1 connection regularly
	OFF	P1 Power supply have no connection or unwonted
P2	ON	P2 connection regularly
	OFF	P2 Power supply have no connection or unwonted
ALARM	ON	Power, port have alarm
	OFF	Power, port have no alarm
RUN	ON/OFF	Device unwonted
	Blinking	Device working steadily, Blinking per second
Link/Act（1～16）	ON	100M port Established effective network connection
	Blinking	100M port Network in activity status
	OFF	100M port did not establish effective network connection
Link/Act（G1～G4）	ON	1000M port Established effective network connection
	Blinking	1000M port Network in activity status
	OFF	1000M port did not establish

|		effective network connection

【Installation】

Before installation, confirm that the work environment meet the installation require, including the power needs and abundant space. Whether it is close to the connection equipment and other equipments are prepared or not.

1. Avoid in the sunshine, keep away from the heat fountainhead or the area where in intense EMI.

2. Examine the cables and plugs that installation requirements.

3. Examine whether the cables be seemly or not (less than 100m) according to reasonable scheme.

4. Screw, nut, tool provide by yourself.

5. Power: redundant 12-48VDC power input

6. Environment: working temperature -40～85℃

                     Relative humidity 5%～95%

DIN rail installation

In order to use in industrial environments expediently, IES618-4D series adopt 35mm DIN-Rail installation, the installation steps as fellows:

1. Examine the DIN-Rail attachment

2. Examine DIN Rail whether be firm and the position be suitability or not.

3. Insert the top of the DIN-Rail into the slot just below the stiff metal spring.

4. The DIN-Rail attachment unit will snap into place as shown below.
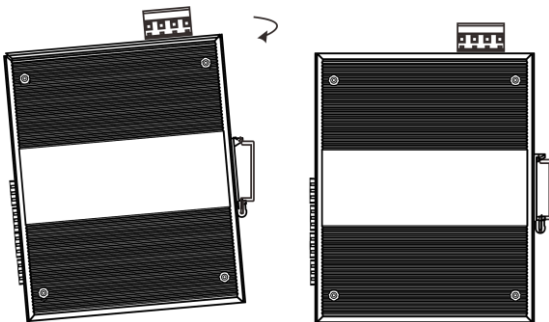
Wiring Requirements

   Cable laying need to meet the following requirements,

1. It is needed to check whether the type, quantity and specification of cable match the requirement before cable laying;

2. It is needed to check the cable is damaged or not, factory records and quality assurance booklet before cable laying;

3. The required cable specification, quantity, direction and laying position need to match construction requirements, and cable length depends on actual position;

4. All the cable cannot have break-down and terminal in the middle;

5. Cables should be straight in the hallways and turning;

6. Cable should be straight in the groove, and cannot beyond the groove in case of holding back the inlet and outlet holes. Cables should be banded and fixed when they are out of the groove;

7. User cable should be separated from the power lines. Cables, power lines and grounding lines cannot be overlapped and mixed when they are in the same groove road. When cable is too long, it cannot hold down other cable, but structure in the middle of alignment rack;

8. Pigtail cannot be tied and swerved as less as possible. Swerving radius cannot be too small (small swerving causes terrible loss of link). Its banding should be moderate, not too tight, and should be separated from other cables;

9. It should have corresponding simple signal at both sides of the cable for maintaining.

Technology

Standard: IEEE802.3, IEEE802.3u, IEEE802.3x

Flow control: IEEE802.3x, back pressure

Interface

Electric port: 10Base-T/100Base-TX auto speed control, Half/full duplex and MDI/MDI-X auto detection

100M fiber port: 100Base-FX, SC/ST optional

1000M fiber port: 1000Base-FX （SFP port）

Alarm port: 2bit 7.62mm Terminal block

        1 channel relay alarm output

Transfer distance:

Twisted cable: 100M (standard CAT5/CAT5e cable)

Multi mode fiber: 1310nm, 2Km

Single mode fiber: 1310nm, 20/40/60Km

        1550nm, 60/80/100/120Km

Exchange attribute:

100M forward speed: 148810pps

1000M forward speed: 1488100pps

100M maximum filter speed: 148810pps

1000M maximum filter speed: 1488100pps

Transmit mode: store and forward

System exchange bandwidth: 11.2G

MAC address table: 8K

Memory: 256Kbits

LED indicator

Power supply indicator: P1, P2

Alarm indicator: ALARM

Running status indicator: RUN

100M port connection/running status: Link/Act (1~16)

1000M port connection/running status: Link/Act (G1~G4)

Power supply

Input voltage: 12～48VDC

Input method: 4 bits 7.62mm terminal block

 IT-ES3020-IU-4GS-P (12-48VDC)

No-load consumption: 4.752W@24VDC

Full-load consumption: 9.864W@24VDC

 IT-ES3020-IU-4GS-2F (12-48VDC)

No-load consumption: 5.86W@24VDC

Full-load consumption: 10.63W@24VDC

 IT-ES3020-IU-4GS-4F (12-48VDC)

No-load consumption: 7.2W@24VDC

Full-load consumption: 11.83W@24VDC

Support DC dual power supply redundancy

Overload current protect 4.0A (DC)

Power supply support non-polarity

Mechanical Structure:

Shell: IP40 protect grade, metal shell

Installation: DIN rail and wall mount

Size (W×H×D): 160mm×130mm×70mm

Weight: 1016g

Working environment:

Working temperature: -40～85℃

Storage temperature:-40～85℃

Relative Humidity: 5%~95% (no condensation)

Standards

EMI: FCC Part 15, CISPR (EN55022) class A

EMS: EN61000-4-2 (ESD), Level 4

Shock: IEC 60068-2-27

Free fall: IEC 60068-2-32

Shake: IEC 60068-2-6

Warranty

Warranty time: 5 years

Certifications

CE, FCC, RoHS, UL508 (Pending)