

IT-ES7110-IM-2GS Series

Managed Industrial Ethernet Switch

User Manual

Intellisystem Technologies S.r.l.

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【Summarize】

IT-ES7110-IM-2GS series is an industrial grade, managed and redundancy Ethernet switch. It included IT-ES7110-IM-2GS-P (12/48VDC), IT-ES7110-IM-2GS-P (110/220VAC), IT-ES7110-IM-2GS-2F-P (12/48VDC) and IT-ES7110-IM-2GS-4F-P (12/48VDC). IT-ES7110-IM-2GS series provided some kinds of advanced network managed function, like as: SW-Ring redundancy ring network, VLAN, Trunking, Quality of Service, Speed control, port mirroring, fault alarm and firmware upgrade online. SW-Ring can bring your Ethernet to intelligent redundancy. Standard Industry design can satisfied every requirement of the industry scene. All components used industry grade, it takes products high Reliability. It provided wide voltage power supply input.

SW-Ring™ is designed as rapid redundancy network arithmetic. It provided recover technology for fault of rapid redundant network, the recovery time<20ms.

【Packing list】

Please check the packaging and accessories by your first using.

- Industrial Ethernet switch (IT-ES7110-IM-2GS series) × 1
- User manual × 1
- CD × 1
- Certificate of quality × 1
- Warranty card × 1

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

【Features】

High performance network exchange technology

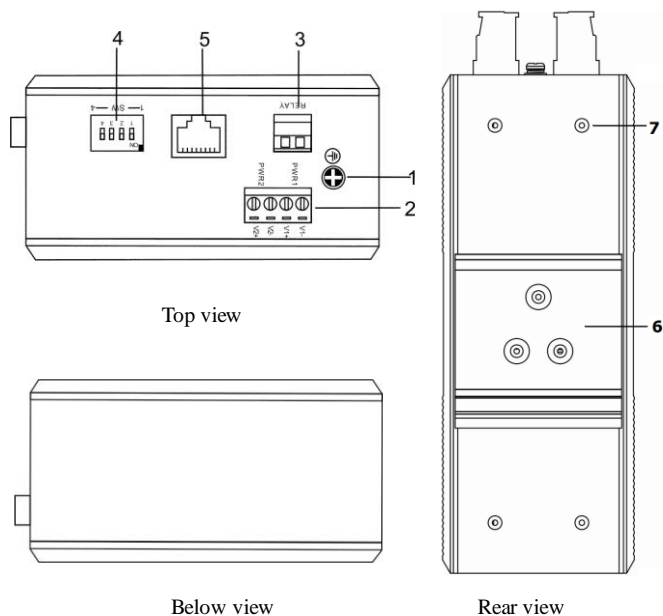
- Support IEEE802.3, IEEE802.3u, IEEE 802.3x, IEEE802.3z, IEEE802.1Q, IEEE802.1p, IEEE802.1D/W.
- SW-Ring ring network patent technology (Fault recovery time<20ms).
- Support RSTP, way exchange time<1s.
- Support WEB configuration.
- Support MAC address learning, aging automatic.
- Support port status display, data update.
- Support static and dynamic IGMP.
- Support flow statistics.
- Support bi-directional port mirroring.
- Support rate control, Broadcast storm control.
- Support configuration files up and download.
- Support 1 channel relay alarm output.

Reliable Industrial grade design

- Industrial grade 4 design, -40-75°C work temperature.
- No fan design.
- IP40 protection grade.



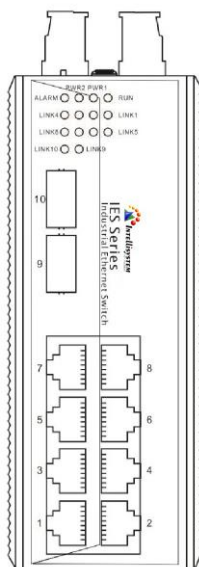
【Panel layout】



2

IT-ES7110-IM-2GS-P (12/48VDC)

1. Ground screw.
2. PWR1/PWR2 power input.
3. Relay output terminal block.
4. DIP switch.
5. CONSOLE port.
6. DIN-Rail mounts.
7. Wall mount screw hole.
8. Relay alarm LED.
9. The power LED.
10. Systems running LED.
11. 100M Link/ACT LED.
12. 1000M Link/ACT LED.
13. 1000Base-FX SFP port.
14. 10Base-T /100Base-TX port.

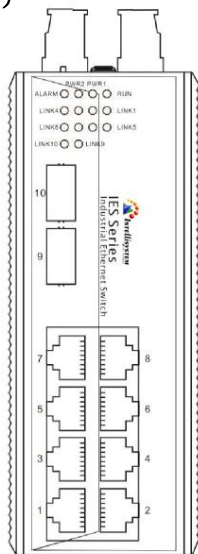


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IT-ES7110-IM-2GS-P (110/220VAC)

1. Ground screw.
2. Power input (L/-, FG N/+).
3. Relay output terminal block.
4. DIP switch.
5. CONSOLE port.
6. DIN-Rail mounts.
7. Wall mount screw hole.
8. Relay alarm LED.
9. Systems running LED.
10. 100M Link/ACT LED.
11. 1000M Link/ACT LED.
12. 1000Base-FX SFP port.
13. 10Base-T /100Base-TX port.

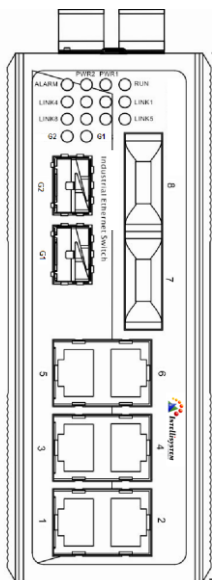


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Note: AC power supply input did not have power supply indicator

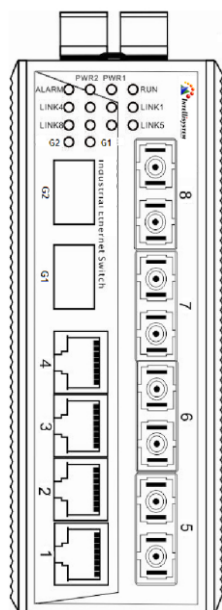
IT-ES7110-IM-2GS-2F-P (12/48VDC)

1. Ground screw.
2. PWR1/PWR2 power input.
3. Relay output terminal block.
4. DIP switch.
5. CONSOLE port.
6. DIN-Rail mounts.
7. Wall mount screw hole.
8. Relay alarm LED.
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11. 100M Link/ACT LED.
12. 1000M Link/ACT LED.
13. 1000Base-FX SFP port.
14. 10Base-T /100Base-TX port.
15. 100Base-FX port.



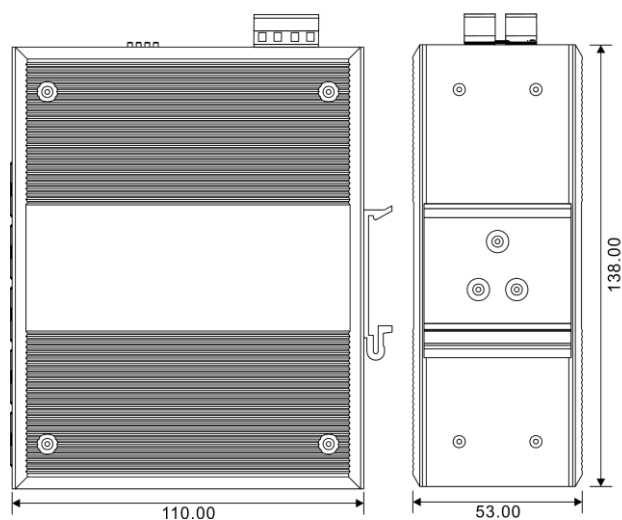
IT-ES7110-IM-2GS-4F-P (12/48VDC)

1. Ground screw.
2. PWR1/PWR2 power input.
3. Relay output terminal block.
4. DIP switch.
5. CONSOLE port.
6. DIN-Rail mounts.
7. Wall mount screw hole.
8. Relay alarm LED.
9. The power LED
10. Systems running LED.
11. 100M Link/ACT LED.
12. 1000M Link/ACT LED.
13. 1000Base-FX SFP port.
14. 10Base-T /100Base-TX port.
15. 100Base-FX port.

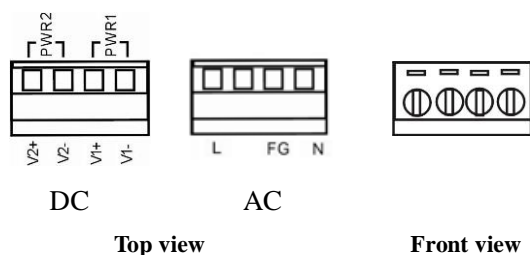


【Appearance and dimensions】

Unit (mm)



【Power supply input】



IT-ES7110-IM-2GS series top panel provided 4 bit power supply input terminal block, support AC or DC input. 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 overcurrent protection, Reverse connection protection.

Voltage input range is 12~48VDC (terminal block defined as: V1-, V1+, V2-, V2+) .

AC voltage input range: 110~220VAC (47~63Hz), the defined of terminal block: N/-, FG, L/+.

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.

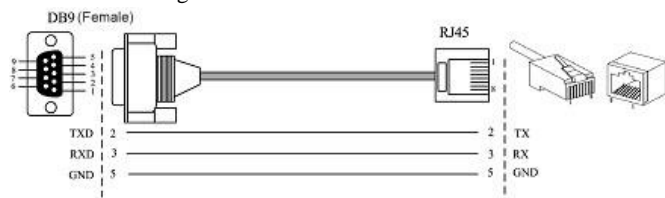
【DIP switch】



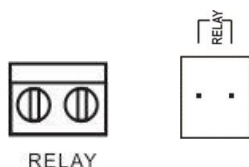
Top panel provided 4 bits DIP switch to do function configure (OFF is default factory), 1 and 4 keep for future function. 2 is recovery default factory. 3 is for upgrade. Please power off and power on when you change the status of DIP switch.

【Console port】

IT-ES7110-IM-2GS series provided 1pcs procedure test port based in serial port. It adopts RJ45 interface, located in top panel, can configure the CLI command through RJ45 to DB9 female cable.



【Relay connection】



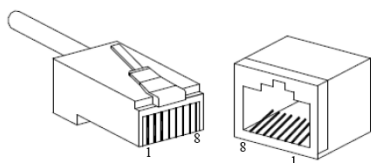
The relay owns two contacts of the terminal block on the top pane of IT-ES7110-IM-2GS series. It is used to detect both power failure and port failure. The two wires attached to contacts form an open circuit when:

- (1) IT-ES7110-IM-2GS series has lost power supply from one of the DC power inputs.
- (2) One of the ports is failure.
- (3)

【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 120Ω of UTP 5, 10Mbps is used 120Ω of UTP 3, 4, 5.

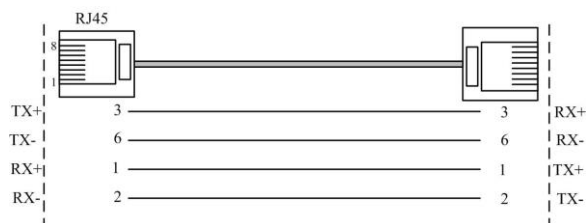


RJ 45 port support automatic MDI/MDI-X operation. Can connect the PC, Server, Converter and HUB .Pin 1,2,3,6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10Base-T/100Base-TX are used in MDI/MDI-X, the define of Pin in the table as below.

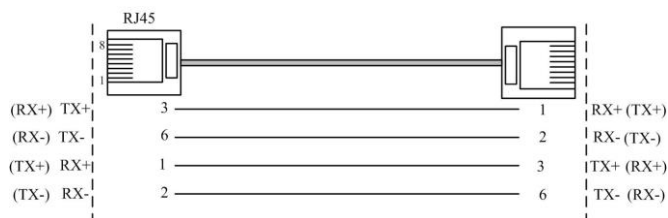
NO.	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

Note: “TX±” Transmit Data±, “RX±” Receive Data±, “—” Not Use.

MDI (straight-through cable)



MDI-X (Cross over cable)



7

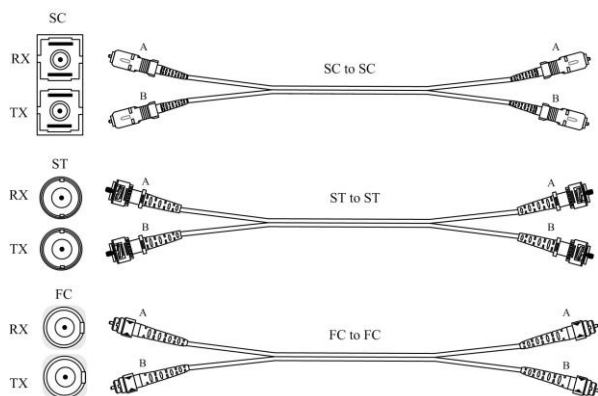
MDI/MDI-X auto connection makes IT-ES7110-IM-2GS easy to use for customers without considering the type of network cable.

100Base-FX Fiber port

100Base-FX full-duplex SM or MM port, SC/ST/FC 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.

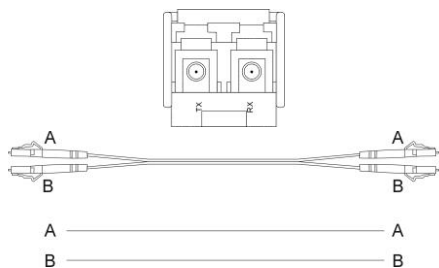
Suppose: If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).



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-ES7110-IM-2GS LED indicator light on the front panel, the function of each LED is described in the table as below:

(AC power supply input did not have power supply indicator)

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
Link/ACT (1~8/G1~G2)	ON	Established effective network connection
	Blinking	Network in activity statues
	OFF	Did not established effective network connection

【Installation】

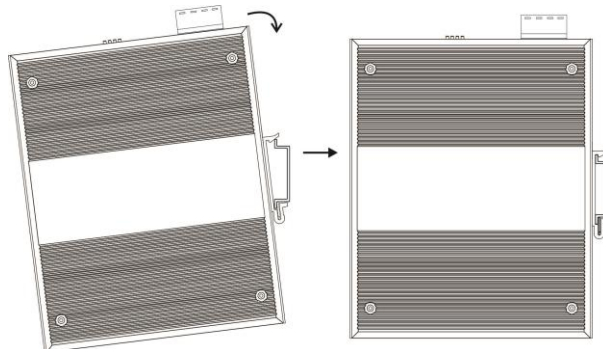
Before installation, confirm that the work environment meet the installation require, including the power needs and abundant space. Whether it is close to the connection equipment and other equipments are prepared or not.

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: DC series support redundant 12-48VDC power input
 AC series support 100-240VAC power input
6. Environment: working temperature -40~75℃
 Relative humidity 5%~95%

9

DIN-rail installation

In order to apply for industrial environments conveniently, IT-ES7110-IM-2GS series adopts 35mm DIN-Rail installation, the installation steps are as follows:



1. Examine the DIN-Rail accessories
2. Examine DIN Rail is firm or not and the position is suitable 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;

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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.

【Specifications】

Technology

Standard: Support IEEE802.3, IEEE802.3u, IEEE 802.3x, IEEE802.3z, IEEE802.1Q, IEEE802.1p, IEEE802.1D, IEEE802.1W

Protocol: ARP, ICMP, TCP, DHCP, DNS, HTTP, Telnet, SW-Ring, RSTP, SNMP

Flow control: IEEE802.3x flow control, back press flow control

Functions

Switch function: SW-Ring, QOS, 802.1QVLAN, RSTP, SNMP, Port trunking, static multicast filter, port mirroring, bandwidth management, broadcast storm control, port flow statistics, upgrade online, up and download configuration file, user name access system

SW-Ring: Support Single, Couple, Chain, Dual homing

Exchange attributes

100M forward speed: 148810pps

1000M forward speed: 1488100pps

Transmit mode: store and forward

System exchange bandwidth: 5.6G

MAC address table: 8K

Memory: 1M

Interfaces

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

100M optic fiber port: 100Base-FX, SC/ST connector, support single mode (20/40/60/80Km optional), multi-mode (2Km), wavelength: 1310nm, 1550nm

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

Console port: debug serial port carry out CLI command

Alarm port: 2bit 7.62mm Terminal block

1 channel relay alarm output

Load ability: 1A@24VDC

Transfer distance

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

Multi-mode: 1310nm, 2Km

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

1550nm, 60/80/100/120Km

LED indicators

Run indicator: Run

Interface indicator: Link (1~8/G1~G2)

DC Power supply indicator: P1, P2

Alarm indicator: Alarm

Power supply

Input voltage: 12~48VDC or 110~220VAC (47~63Hz)

Input method: 4 bits 7.62mm terminal block

Overload current protect: 4.0A (DC) or 5.0A (AC)

Support DC dual power supply redundancy and alarm input

Support DC input no parity, protection reverse connection

Consumption

➤ IT-ES7110-IM-2GS-P (12/48VDC):

Unload consumption: 2.2W @24VDC

Full load consumption: 5.5W @24VDC

➤ IT-ES7110-IM-2GS-P (110/220VAC):

Unload consumption: 2.7W @220VAC

Full load consumption: 5.5W @220VAC

➤ IT-ES7110-IM-2GS-2F-P (12/48VDC):

Unload consumption: 5.1W @24VDC

Full load consumption: 8.0W @24VDC

➤ IT-ES7110-IM-2GS-4F-P (12/48VDC):

Unload consumption: 6.1W @24VDC

Full load consumption: 9.0W @24VDC

Working environment

Working temperature: -40~75°C

Storage temperature:-40~85°C

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

Mechanical Structure

Shell: IP40 protect grade, metal shell

Installation: DIN rail

Size (W×H×D) :138mm×53mm×110mm

Weight: 720g

Industry Standards

CE, FCC, RoHS, PAL, UL508 (Pending)

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

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

EN61000-4-3 (RS), Level 3

EN61000-4-4 (EFT), Level 4

EN61000-4-5 (Surge), Level 4 (AC power supply)

EN61000-4-6 (CS), Level 3

EN61000-4-8, Level 5

Shock: IEC 60068-2-27

Free fall: IEC 60068-2-32

Shake: IEC 60068-2-6

Warranty: 5 years