

3onedata[®]

IES615-2D series
Industrial Ethernet switch
User manual

3onedata

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【Summarize】

IIES615-2D series is an industrial, management, redundant industrial Ethernet switch and integrate 2 port serial device servers. It included

1. IES615-2D (RS-232)-P (12/48VDC),
Support 5 port 10/100Base T(X) and 2 port RS-232,
2. IES615-2DI (RS-485)-P (12/48VDC),
Support 5 port 10/100BaseT(X) and 2 port RS-485/422,
3. IES615-1F-2D (RS-232)-P (12/48VDC),
Support 4 port is 10/100BaseT(X) Ethernet, 1 port is 100BaseFX fiber port and 2 port RS-232,
4. IES615-1F-2DI (RS-485)-P(12/48VDC),
Support 4 port is 10/100BaseT(X) Ethernet, 1 port is 100BaseFX fiber port and 2 port RS-485/422,
5. IES615-2F-2D (RS-232)-P (12/48VDC),
Support 3 port is 10/100BaseT(X) Ethernet, 2 port is 100BaseFX fiber port and 2 port RS-232,
6. IES615-2F-2DI (RS-485)-P (12/48VDC).
Support 3 port is 10/100BaseT(X) Ethernet, 2 port is 100BaseFX fiber port and 2 port RS-485/422,

it adopted SW-Ring redundant technology (Recovery time<20ms), users can set the redundant easily to increase network reliability, furthermore. It adopted no fan, low power consumption design, IP30, corrugate high strength iron shell, the performance is more steadily. It accorded with CE, FCC standard and Industrial 4 class, DIN rail installation and wide operating temperature (-40~75C), it can satisfied some kinds of industrial environment, it can provide reliable and quickly solution for your Ethernet device

【Packing list】

Please check the packaging and accessories by your first using.

- Industrial Ethernet switch (IES615-2D series) x 1
- User manual x 1
- CD x 1
- Certificate of quality x 1
- Warranty card x 1

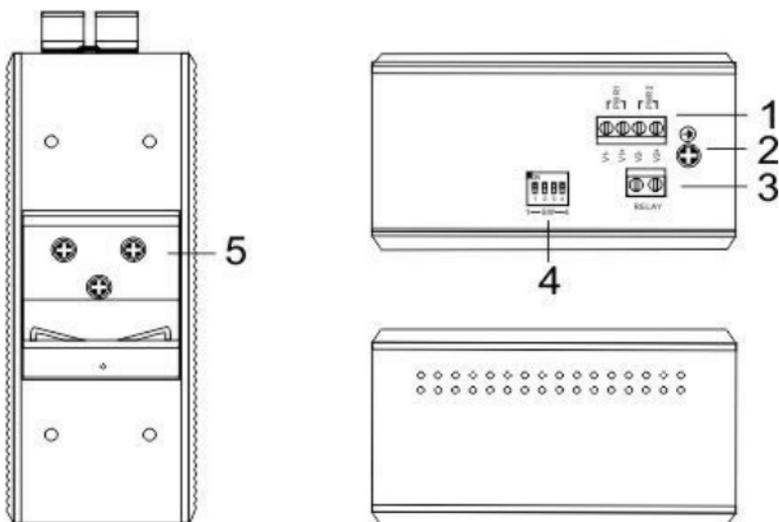
Please inform us or our distributor if your equipments have been damaged or lost any accessories, we will try our best to satisfy you.

【Features】

- IEEE802.3, IEEE802.3u, IEEE 802.3x
- Support SW-Rin^g™ redundant network patent technology (Faulty recovery time<20ms)
- Support 2 port RS-232/ RS-485/ RS-422 serial device server
- Support based on socket application access
- Support Sever, Client, UDP based mode and Sever, UDP advanced mode
- Support TCP, UDP, ARP, and DHCP protocol
- Support Web management
- Support 2K MAC address table
- Support 2 power supply input and 1 relay alarm output
- Support port line and redundant network faulty/unusual, local and remote alarm
- High strength iron shell, IP30 protection
- Industrial 4 class design
- Redundant 24VDC power supply input(12~48VDC)
- -40~75℃ working temperature
- DIN-rail, wall mounting installation

【Panel Layout】

IES615-2D series

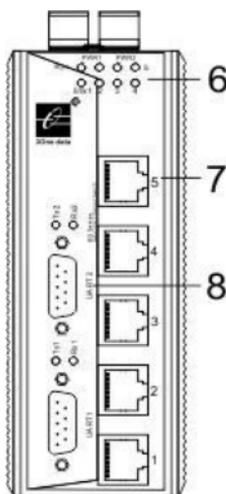


Back view

Top and below view

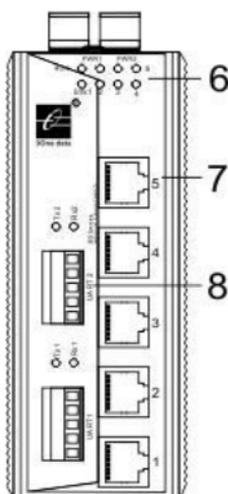
IES615-2D (RS-232) -P(12/48VDC)

1. PWR1/PWR2 power supply
2. Ground screw
3. Relay output terminal block
4. DIP switch (4 bits)
5. DIN-Rail
6. LED indicator
7. 10/100Base-TX RJ45 port
8. RS-232 port



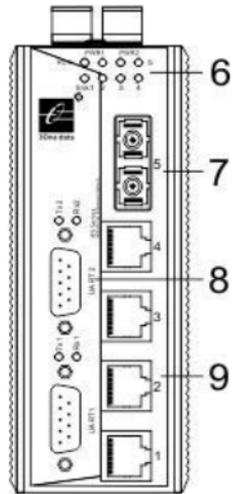
IES615-2DI (RS-485) -P(12/48VDC)

1. PWR1/PWR2 power supply
2. Ground screw
3. Relay output terminal block
4. DIP switch (4 bits)
5. DIN-Rail
6. LED indicator
7. 10/100Base-TX RJ45 port
8. RS-485/422 port



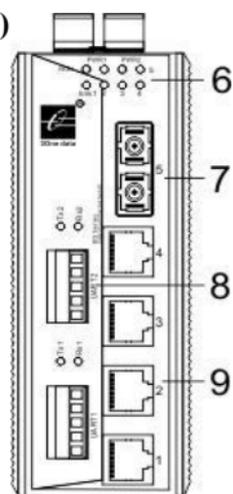
IES615-1F-2D (RS-232) -P(12/48VDC)

1. PWR1/PWR2 power supply
2. Ground screw
3. Relay output terminal block
4. DIP switch (4 bits)
5. DIN-Rail
6. LED indicator
7. 100Base-FX fiber port
8. RS-232 port
9. 10/100Base-TX RJ45 port



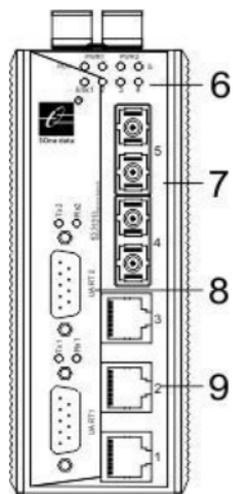
IES615-1F-2DI (RS-485) -P(12/48VDC)

1. PWR1/PWR2 power supply
2. Ground screw
3. Relay output terminal block
4. DIP switch (4 bits)
5. DIN-Rail
6. LED indicator
7. 100Base-FX fiber port
8. RS-485/422 port
9. 10/100Base-TX RJ45 port



IES615-2F-2D (RS-232) -P(12/48VDC)

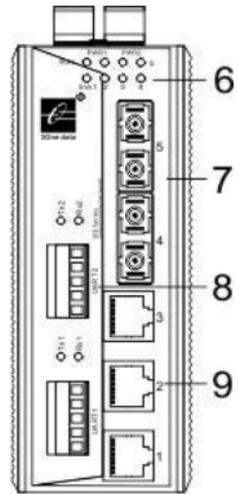
1. PWR1/PWR2 power supply
2. Ground screw
3. Relay output terminal block
4. DIP switch (4 bits)
5. DIN-Rail
6. LED indicator



- 7. 100Base-FX fiber port
- 8. RS-232 port
- 9. 10/100Base-TX RJ45 port

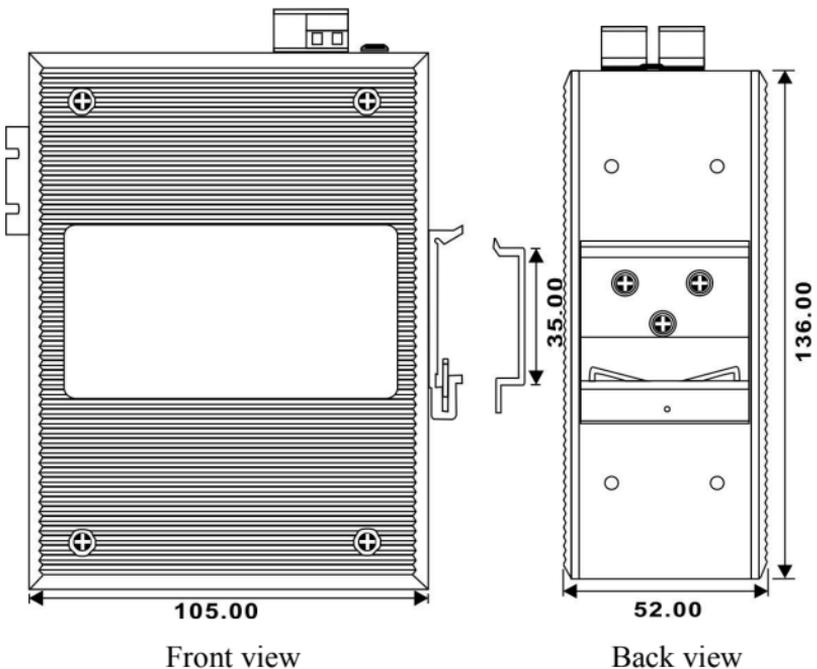
IES615-2F-2DI (RS-485) -P(12/48VDC)

- 1. PWR1/PWR2 power supply
- 2. Ground screw
- 3. Relay output terminal block
- 4. DIP switch (4 bits)
- 5. DIN-Rail
- 6. LED indicator
- 7. 100Base-FX fiber port
- 8. RS-485/422 port
- 9. 10/100Base-TX RJ45 port

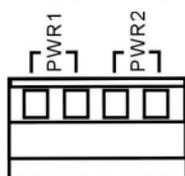


【Appearance and dimension】

Unit (mm)



【Power supply input】



V₁⁻ V₁⁺ V₂⁻ V₂⁺
Vertical view

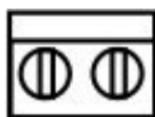


Top view

IES615-2D series provide 4 bits industry terminal block (V₁⁻, V₁⁺, V₂⁻, V₂⁺), V₋, V₊ is 12~48VDC power supply input.

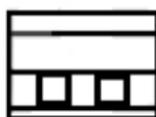
IES615-2D series DC power supply input supported redundancy function, provided PWR1 and PWR2 power input, can use for single, and can connect 2 separately power supply system, use 1 pair terminal block connect the device at the same time. If one of the power system broke, the device can work un-interruptible. built-in over current protection, Reverse connection protection

【Relay connection】



RELAY

Vertical view



Top view

The relay owns two contacts of the terminal block on the top panel of IES615-2D series. It is used to detect both power failure and port failure. The two wires attached to contacts form an open circuit when:

- (1) IES615-2D series has lost power supply from one of the DC power inputs.
- (2) One of the ports is failure.

【DIP switch】



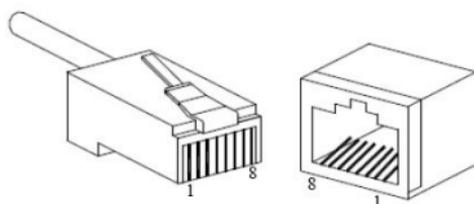
Top panel provided 4 bits DIP switch to do function

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

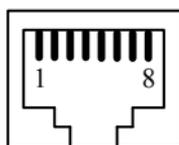
【Communication connector】

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



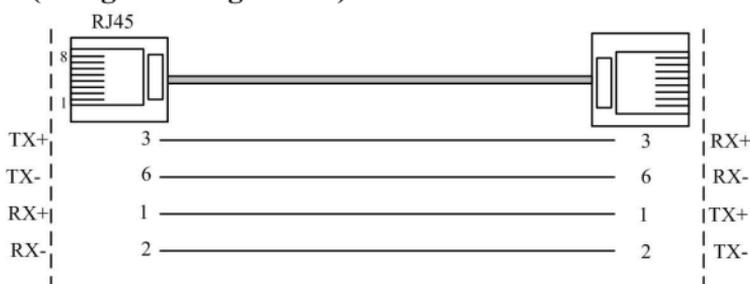
RJ 45 port support automatic MDI/MDI-X operation. can connect the PC, Server, Converter and HUB .Pin 1,2,3,6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10Base-T/100Base-TX are used in MDI/MDI-X, the define of Pin in the table as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



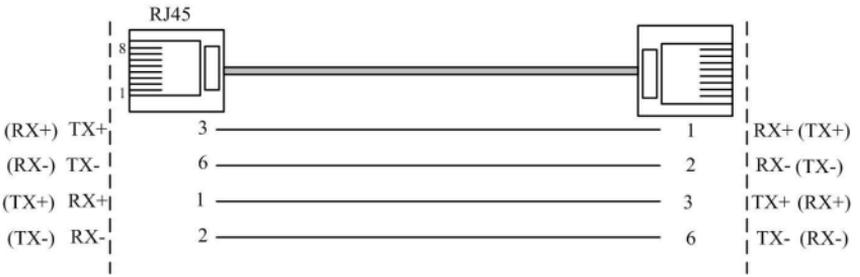
NO.	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

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

MDI (straight-through cable)



MDI-X (Cross over cable)



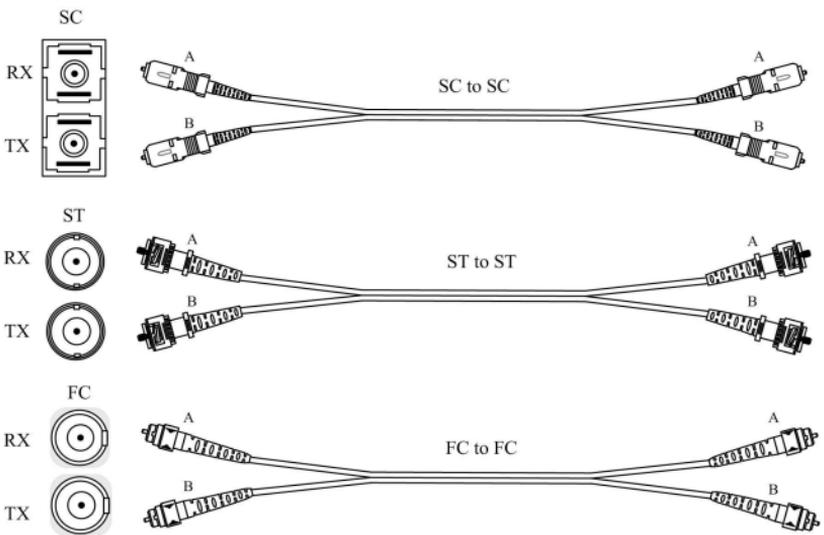
MDI/MDI-X auto connection makes IES615-2D easy to use for customers without considering the type of network cable.

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.

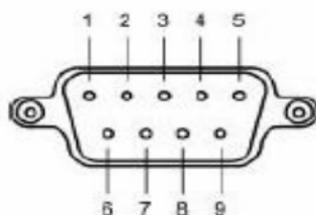
Suppose: If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).



RS-232 port:

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	—

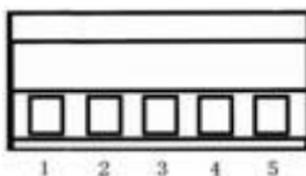
DB9 Male



DB9 male (RS-232)

RS-485/422 port:

PIN	RS-422	RS-485
1	T+	D+
2	T-	D-
3	GND	/
4	R+	/
5	R-	/



RS-485/422

【LED indicator】

IES615-2D 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
PWR1	ON	P1 connection regularly
	OFF	P1 Power supply have no connection or unwonted
PWR2	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	Device unwonted
	Blinking	Device working steadily, Blinking per second
Link/Act	ON	Established effective network connection
	Blinking	Network in activity status
	OFF	Did not establish effective network connection
TX	Blinking	Transmit data unwonted
	OFF	Transmit data wonted
RX	Blinking	Receive data unwonted
	OFF	Receive data wonted

【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.

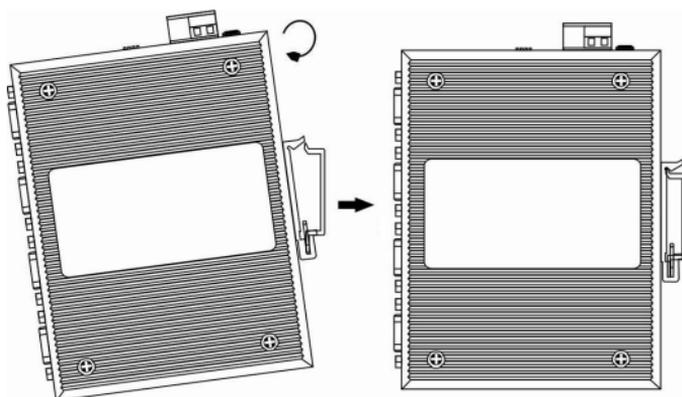
1. Avoid in the sunshine, keep away from the heat fountainhead or the area where in intense EMI.
2. Examine the cables and plugs that installation requirements.

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 o power input
6. Environment: working temperature $-40\sim 75^{\circ}\text{C}$
Relative humidity $5\%\sim 95\%$

DIN rail installation

In order to use in industrial environments expediently, IES615-2D 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.

【Specification】

Technology

Standard: IEEE802.3, IEEE802.3u, IEEE 802.3x,

Protocol: ARP, ICMP, TCP, UDP, DHCP, DNS, HTTP, SW-Ring™

Flow control: IEEE802.3x, back pressure control

Function

Function: SW-Ring™, Broadcast storm control, flow statistics, upgrade online, up and download configuration file, user name access system.

SW-Ring™: Single, Couple, Chain, Dual homing ring.

Serial device server: 4 port serial device sever, each port

Support 4pcs TCP or UDP session connection

Interface

100M Ethernet: 10/100Base-TX self-adapt RJ45 port.

100M fiber port: 100Base-FX (SC/ST/FC)

Alarm port: 2 bit 7.62mm terminal block,

1 channel relay alarm output

Serial

RS-232 signal: TXD, RXD, RTS, CTS, DTR, DSR, GND

RS-422 signal: T+, T-, R+, R-, GND

RS-485 signal: D+, D-, GND

Parity: None, Even, Odd, Space, Mark

Data bit: 5bit, 6bit, 7bit, 8bit

Band rate: 300~115200bps

Direction control: RS485 side adopt ADCC technology, auto detect and control data transfer direction

Loading: RS-485/422 side support 32 nodes loop back

Protection: 2KV isolation, 15KV static protection.

Connector: RS232: DB9 male, RS485/422 bit terminal block

Transfer distance

Twisted cable: 100m (CAT5/CAT5e)

Multi mode fiber: 1310nm, 2/5Km

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

1550nm, 80/100/120Km

RS-485/422: 1200m

RS-232: 15m

Exchange attribute:

100M transmit speed: 148810pps

Transfer: Store and forward

System exchange bandwidth: 1.2G

Buffer memory: 1MKbits

Support 2K MAC address table

LED indicator

Power supply indicator: PWR1, PWR2

Alarm indicator: Alarm

System indicator: Run

Ethernet port indicator: Link/Act (1-5)

Serial port indicator: TX (1-2), RX (1-2)

Power supply

Input voltage: 24VDC (12~48VDC)

Terminal block: 4 bits 7.62mm terminal block

➤ IES615-2D (RS-232) -P(12/48VDC)

None load consumption: 0.9W@24VDC

Full load consumption: 1.6 W@24VDC

➤ IES615-2DI (RS-485) -P(12/48VDC)

None load consumption: 1.3W@24VDC

Full load consumption: 1.9 W@24VDC

➤ IES615-1F-2D (RS-232) -P(12/48VDC)

None load consumption: 1.5W@24VDC

Full load consumption: 2W@24VDC

➤ IES615-1F-2DI (RS-485) -P(12/48VDC)

None load consumption: 1.7W@24VDC

Full load consumption: 2.4W@24VDC

➤ IES615-2F-2D (RS-232) -P(12/48VDC)

None load consumption: 2.2W@24VDC

Full load consumption: 2.3W@24VDC

➤ IES615-2F-2DI (RS-485) -P(12/48VDC)

None load consumption: 2.4W@24VDC

Full load consumption: 2.7W@24VDC

Support dual redundant power supply

Support inside over-current 4.0A protection

Mechanical

Shell: IP30, high strength iron shell.

Installation: DIN Rail

Dimension (W×H×D) : 136mm×52mm×105mm

Weight: 900g

Environmental

Operating Temperature: -45°C to 75°C

Storage Temperature: -45°C to 85°C

Relative Humidity: 10 to 95% (non-condensing)

Standard

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

EN61000-4-6(CS), Level 3

EN61000-4-8(PFM), Level 5

Shock: IEC 60068-2-27

Free fall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Certification

CE, FCC, RoHS, UL508 (Pending)

Warranty

Warranty time: 5 years