

VALUE RS232 Optical Coupler

12.99.1016

User Manual

Overview

This is an RS-232 optoelectronic isolator. It utilizes advanced optoelectronic isolation technology and provides maximum protection for RS-232 serial interface devices against harmful environmental influences, such as ground loops, overvoltage, lightning, ESD, hot-plug and electromagnetic interference, etc. Damage to the RS-232 connection is related to the communication hardware. The reasons are 90% like those mentioned above. Example: Device A connects device B to the RS-232 port, if the voltage difference of the ground line between A and B is up to 50V (normally up to 80V), the RS-232 interface does not work normally; the isolated voltage of the RS-232 interface immediately reaches 2,500Vrms, along with 500VDC continuous peak voltage.

It also absorbs ESD and electromagnetic interference to protect the RS-232 port. The optoelectronic isolation technology completely isolates the electrical devices and the ground loop circuit at both ends; it converts the electrical signal into an optical signal, then transmits the signal to another end, and finally converts it back into an electrical signal. This protects the communication device from ground loops and overvoltage interference, which significantly increases the reliability and stability of the communication system. It is widely used in point-to-point RS-232 communication systems, UNIX multi-user systems, monitoring systems and ATMs for energy, insurance, telecommunication, railroad, postal, finance, banking, securities, and program control, etc.

Features

- Standards: RS-232 EIA and CCITT V2.4 asynchronous protocols
- Connector: DB9 connectors for both ends
- Transmission asynchronous, full-duplex, full transparent
- Isolated voltage: 2,500Vrms impulse or 500 VDC continuing
- Transmission rate: 300bps-57,600bps
- Power: from RS-232 interface (TXD, RTS or DTR)
- Dimensions : 53mm x 34mm x 17mm
- Weight: 23g
- Working environment: -40 C° to 85 C°, relative humidity 5% to 95%

Pin assignment

RS-232 DTE end Pin assignment

DB9 female(PIN)	RS-232C Signal
1	N/C
2	SOUT(TXD)
3	SIN(RXD)
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	RI

RS-232 DCE end Pin assignment

DB9 male(PIN)	RS-232C Signal
1	N/C
2	SIN(RXD)
3	SOUT(TXD)
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	RI

Connection and Signals

Conforming to EIA RS-232 and CCITT V2.4 standards. Pins 2-3 for data sending and receiving, Pins 7-8 for RTS and CTS, Pins 1-4 for DTR and DCD, pin 6 for DSR and pin 5 for GND. RS-232 interface (TO DTE): Connector: DB-25/9 hole-shaped connector to be used.

Signal: interior signal cables are separated.

1. Model selection

First of all, you have to get a clear idea of which signal cables are used by your RS-232 system, then you can select the proper model isolator to protect your communication system. For example, for the terminal of the traditional 2,3 and 5 lines, you can select isolator which supports 3-line-2-cable 1-receive-1-send mode. And for the 5 line terminal of 2,3,4,5 and 7, you can select isolator which supports 5-line-4-cable 2-receive-2-send mode.

2. Connection method

It can be connected in series with between the serial connection cable of the previous RS-232 and the RS-232 interface, and either end is OK but you must pay attention to the direction indicated by TO DTE or TO DCE. Generally speaking, PC user and multi-user are DTE devices, MODEM and terminal are DCE devices, however this general rule does not apply to all situations. To decide DTE or DCE devices, you have to base your conclusion on the signal cable of your devices RS-232 interface. For example, it is DTE for the signal output from DB25 interface pin 2, while its receiving input is DCE.

Therefore, if crossed RS-232 cable is used to connect two DTE devices (e.g. terminal and multi-users), you have to connect the TO DTE end to the device and TO DCE end to the cable, no matter which side your it is connected.

Application areas

- Various kind of multi-user systems such as UNIX
- Protection of multi-user terminal and host
- Protection of satellite receiver
- Protection of multi-user cards
- Protection of ATM automatic teller machines connected with RS-232 devices without public grounding
- Protection of MODEM and routers

Safety instructions

Read the operating instructions carefully and especially observe the safety information. If you do not follow the safety instructions and information on proper handling, we assume no liability for any resulting personal injury or damage to property. Such cases will invalidate the warranty/guarantee.

- The product is not a toy. Keep it out of the reach of children and pets.
- Protect the product from extreme temperatures, direct sunlight, strong jolts, high humidity, moisture, flammable gases, vapours and solvents.
- Do not place the product under any mechanical stress. If it is no longer possible to operate the product safely, stop using it and prevent unauthorized use.
- Safe operation can no longer be guaranteed if the product:
 - is visibly damaged,
 - is no longer working properly,
 - has been stored for extended periods in poor ambient conditions or has been subjected to any serious transport-related stresses.
- Always handle the product carefully. Jolts, impacts or a fall even from a low height may damage the product. Consult a technician if you are not sure how to use or connect the product
- Maintenance, modifications and repairs are to be performed exclusively by an expert or at a qualified shop. If you have questions which remain unanswered by these operating instructions, contact our technical support service or other technical personnel.