RS-232 Serial Interface optoelectronic Isolator User Manual

Ⅰ. Overview

This is a RS-232 serial port optoelectronic isolator. It adopts advanced optoelectronic isolation technology, maximally protects RS-232 serial interface devices from bad environment damage, such as ground loop circuit voltage, surge, lightning, ESD, hot-plug and electroma gnetic interference, etc. The damage of RS-232 port is related to communication hardware. The reasons 90% are converged on above mentioned. For example, device A connects device B with RS-232 port, if the voltage difference of ground line between A and B is up to 50V (usually up to 80V), RS-232 port will not working normal; the isolated voltage of RS-232 port will reach 2,500Vrms instantly, together with 500VDC continuous peak voltage difference; it also absorbs in ESD and electromagnetic interference, so as to protect RS-232 port. The optoelectronic isolation technology is fully isolating the electrical devices and ground loop circuit on both ends; it converts the electrical signal to optic signal, then transmits the signal to another end, finally converts it back to electrical signal. This protects the communication device from ground loop circuit and surge interference, which greatly improve the reliability and stability of the communication system.

It gets widely application in point to point RS-232 communication system, UNIX multi-user system, monitoring system, and ATM for power, insurance, telecommunications, railway, post office, finance, banking, securities and program control, etc.

Ⅱ. Feature

◎ Standards: RS-232 EIA and CCITT V2.4 asynchronic protocols

◎ Connector: DB9 connectors for both ends

◎ Transmission mode: asynchronic, full-duplex, full transparent

◎ Isolated voltage: 2,500Vrms impulse or 500 VDC continues

◎ Transmission rate: 300bps-57,600bps

◎ Power: from RS-232 interface (TXD, RTS or DTR)

◎ Dimension: 63mm×33mm×17mm

◎ Weight: 30g

◎ Working environment: -40 to 85℃, relative humidity 5% to 95%

III. Connector and signal

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

IV.Connector and signal

Conforming to EIA RS-232 and CCITT V2.4 standards. 2-3 pin for data sending and receiving, 7-8 pin for RTS and CTS, 4-1 pin for DTR and DCD, 6 pin for DSR and 5 pin 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 have to 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 dose 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.

V. 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 pubic grounding

◎ Protection of MODEM and routers