STM232 RS-232 Serial Interface Optical Isolation

User Manual

I. Summary

With adoption of advanced photoelectric isolation technology, STM-232 RS-232 Serial Interface Photoelectric Isolator, also named Serial Isolator, can offer best protection for RS-232 serial interface devices with elimination of damages possibly caused up by grounding loop voltage, surge, lighting induction, hot plug, etc.

Normally, RS-232 damages are hardware damages of communication devices, for which more than 90% of the reasons are bad circumstances including non-grounding at both ends of the devices, various of surges, lighting induction, static interference, hot plug, electromagnetic interference, etc. For example, if device A is connected to device B with RS-232 interface, when there is a voltage margin of above 50V between their grounding wires, the communication will gets unstable. RS-232 Serial Interface Photoelectric Isolator can tolerate a peak voltage margin of transient 2,500 Vrms or 500VDC on a continuous base, and at the same time, it is able to absorb static and electromagnetic interference for protection of RS-232 devices.

As the electric and grounding loop between the two ends of RS-232 devices are completely blocked by the advanced isolation technology adopted by us, therefore, the electric signal from one end has been turned into optical signal for transmission to the other end, and the optical received by the other end will be converted back into electric signal again. In this way, the communication devices are well protected from the interference and damages possibly caused by power grounding loop or surge, therefore, obvious improvement of the reliability and stability of the communication system are achieved.

Our STM232 products are now being widely used in the applications of point-to-point RS-232 communication system, UNIX multi-user system, monitor control system, program control exchanger charging terminal, satellite receiver, ATM auto teller machine etc for the industries of electricity, insurance, telecommunications, railway, post office, financial, banking, securities, program controlling, etc.

II. Technical parameters

1. Interface: conforming to EIA RS-232 and CCITT V2.4 asynchronic protocols.
2. Connector: DB9 connectors for both ends.
3. Transmission mode: asynchronic, full duplex, full transparent.
4. Isolation voltage: 2,500 Vrms impulse or 500 VDC continues.
5. Transmission rate: 300BPS-57,6000BPS.
6. Power: from RS-232 interface (TXD, RTS or DTR).
7. Measurements: 63mm*33mm*17mm
8. Working environments: -40 degrees to 85 degrees, relative humidity 5% to 95%.

III. Connector and signal

Pin distribution at RS-232 DTE end

DB9 Female (PIN)	RS-232C Interface Signal
1	---
2	Signal out SOUT(TXD)
3	Signal S (XD)
4	---
5	Signal grounding GND
6	---
7	---
8	---
9	Ring indication RI

Pin distribution at RS-232 DCE end

DB9 Female (PIN)	RS-232C Interface Signal
1	Protection grounding cable
2	Signal in SIN(RXD)
3	Signal out SOUT(TXD)
4	Data terminal ready DTR
5	Signal grounding GND
6	Data device ready DSR
7	Request sending RTS
8	Clear sending CTS
9	Ring indication 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: 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.

2. Connection method

STM232 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 RS232 interface in your device. For example, it is DTE for the signal output from pin 2, while its receiving input is DCE.

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.