HK-7002
RS-232
SerialInterfacePhotoelectricIsolator
UserManual

I.Summary

With adoption of advanced photoelectric isolation technology, HK-7002 RS-232SerialInterfacePhotoelectricIsolator,alsonamed Serial Isolator,canofferbestprotection for RS-232serialinterface deviceswitheliminationofdamagespossiblycausedupbygrounding loopvoltage,surge,lightinginduction,hotplug,etc.

Normally, RS-232 damages are hardware damages of communicationdevices,forwhichmorethan 90%ofthereasonsare bad circumstances including non-grounding at both ends of the devices,variousofsurges,lightinginduction, staticinterference,hot plug, electromagnetic interference, etc.ForexampleifdeviceAis connected todeviceBwithRS-232interface,whenthereisavoltage margin of above 50V between their grounding wires, the communication will gets unstable. RS-232 Serial Interface PhotoelectricIsolatorcantolerateapeakvoltagemarginoftransient 2,500Vrmsfor500VDConacontinuousbase,andatthesametime,it isabletoabsorbstaticandelectromagneticinterferenceforprotection ofRS-232devices.

AstheelectricandgroundingloopbetweenthetwoendsofRS-232 devicesarecompletelyblockedbytheadvancedisolation technology adoptedby us, therefore,the electric signal from oneendhasbeen turned into optical signalfortransmission to the otherend,andthe opticalreceivedbytheotherendwillbeconvertedbackintoelectric signal again. In this way, the communication devices are well protected from the interference and damages possibly caused by powergroundinglooporsurge,therefore,obviousimprovementofthe reliabilityandstabilityofthecommunicationsystemareachieved.

Our HK-7002 products are now being widely used in the applications ofpoint-to-point RS-232communicationsystem,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,programcontrolling,etc.

II.Technicalparameters

Interface:conformingtoEIARS-232andCCITTV2.4 asynchronicprotocols.
Connector:DB9connectorsforbothends.
Transmissionmode:asynchronic,fullduplex,fulltransparent.
Isolationvoltage:2,500Vrmsimpulseor500VDCcontinues.
Transmissionrate:300BPS-57,600BPS.
Power:fromRS-232interface(TXD,RTSorDTR)
Measurements:63mm*33mm*17mm
Weight:30g
Workingenvironments:-40degreesto85degrees,relative humidity5%to95%.

III.Connectorandsignal

PindistributionatRS-232DTEend

DB9Female (PIN)	RS-232C InterfaceSignal
1	Empty
2	SignaloutSOUT(TXD)
3	Signal inS I N RXD)
4	Empty
5	SignalgroundingGND
6	Empty
7	Empty
8	Empty
9	RingindicationRI

PindistributionatRS-232DCEend

DB9Female (PIN)	RS-232C InterfaceSignal
1	Protectiongroundingcable
2	SignalinSIN(RXD)
3	SignaloutSOUT(TXD)
4	DataterminalreadyDTR
5	SignalgroundingGND
6	DatadevicereadyDSR
7	RequestsendingRTS
8	ClearsendingCTS
9	RingindicationRI

IVConnectorandsignal

Conformingto EIARS-232andCCITTV2.4standards. 2-3 pin fordatasendingandreceiving,7-8pinforRTSandCTS,4-1pinforDTRandDCD,6pinforDSRand5pin forGND. RS-232 interface(TODTE): Connector: DB-25/9hole-shapedconnector tobeused.
Signal:interiorsignalcablesareseparated.

1.Modelselection

Firstofall,youhavetogetaclearideaofwhichsignalcables areusedbyyourRS-232system,thenyoucan select theproper model isolator to protect your communicationsystem. For example,forthterminalofthetraditional2,3and5lines,you can select HK-7002 isolatorwhichsupports 3-line-2-cable1-receive-1-sendmode.Andforthe5lineterminalof 2,3,4,5 and 7,youcan selectHK-7002T isolator whichsupports5-line-4-cable2-receive-2-sendmode.

2.Connectionmethod

HK-7002 canbeconnectedinserieswithbetweentheserial connection cable of the previous RS-232 and the RS-232 interface,andeitherendisOKbutyouhavetopayattentionto the direction indicated by TO DTEor TO DCE. Generally speaking,PCuserandmulti-userareDTEdevices,MODEMand terminal are DCE devices, however this general rule dose not applytoallsituations.TodecideDTEorDCEdevices,youhave tobaseyourconclusiononthesignalcableofyourdevicesRS-232interface.Forexample,itisDTEforthesignaloutputfrom DB25interfacepin2,whileitsreceivinginputisDCE.

Therefore,ifcrossedRS-232cableisusedtoconnecttwoDTE devices(e.g.terminalandmulti-users),youhave to connectthe TO DTE end totthedeviceandTODCEendtothecable,no matterwhichsideyourHK-7002isconnected.

V.Applicationareas

Variouskindofmulti-usersystemssuchasUNIX.
Protectionofmulti-userterminalandhost.
Protectionofsatellitereceiver.
Protectionofmulti-usercards.
ProtectionofATMautomatictellermachinesconnectedwith RS-232deviceswithoutpubicgrounding.
ProtectionofMODEMandrouters.