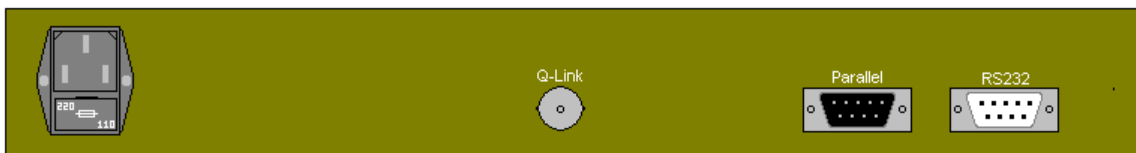


## Application Note AN-0012

### SI-0001 Serial Interface

As standard, Quartz routers have one or two optional serial (RS232/422) ports for connection to third party equipment. This is normally adequate, because as the system grows in complexity, more routers are added to the system, and so the number of serial ports also increases.

However, some systems have only a few routers but require many serial ports. In this case the one or two RS232/422 ports on each router is limiting. The SI-0001 can be used to add extra serial ports. Multiple SI-0001 units can be stacked together to give yet more serial ports. Each SI-0001 can support a different remote control protocol, selectable from an installed list of eight core protocols. More protocols are available by Q-Link upload.

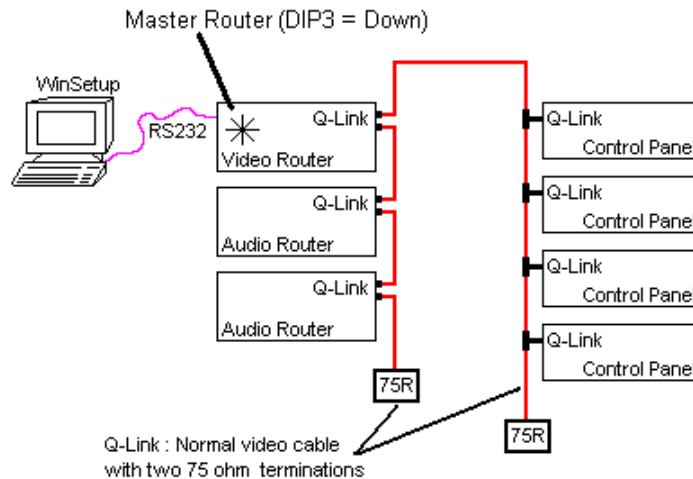


Rear view of SI-0001

This application note describes the hardware and software requirements of the Quartz equipment and shows typical uses.

### Typical Quartz Router System

Quartz routers use a communication system called QLink that allows routers and panels to be connected together using a single co-ax video cable. A typical Quartz router system is shown below



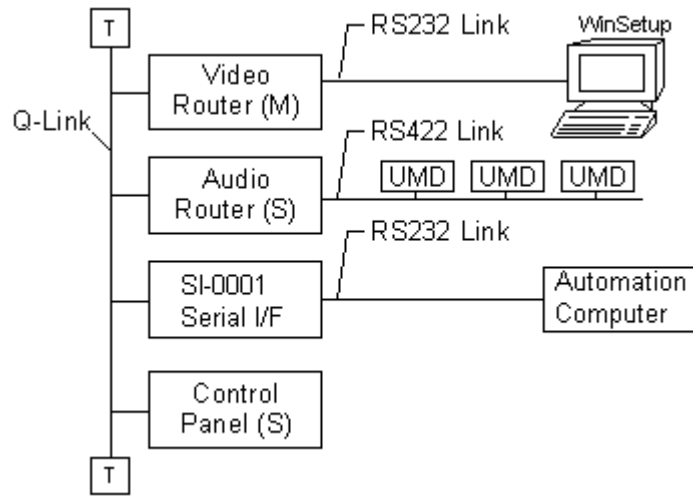
The router system has one of the routers set as a master (M), in this case the video router. The master holds the system setup and controls the Q-Link communication. All other Quartz routers and control panels are slave (S) devices.

The RS232 (or RS422) link allows either the setup of the router to be changed (only if connected to the master) or the computer to control the router. For the RS232/422 link to work the router should have DIP-2 in the DOWN position and the FU-0003 link for RS232 or RS422 must be set correctly.

The system will support 64 devices on the Q-Link with a maximum of 16 routers. With a typical system using four routers (video + dual audio + time code) this leaves 60 panels that can be added.

### SI-0001 Typical Application

The SI-0001 is mains powered and provides a conversion from RS232/422 data to the Quartz Q-Link system. A router system using a SI-0001 is shown below



In this example the Video router serial port is being used for the WinSetup program. The audio router serial port is being used to drive a Under Monitor Display (UMD) system. A third serial port is required for an automation system and the SI-0001 is used for this.

### Router Configuration

The master router must have its setup changed, using WinSetup, to include an SI-0001. Use the System->Special Interface menu item and select the SI-0001.

### SI-0001 Protocols Supported

The SI-0001 has 15 core protocols built in to allow communications with other manufacturer's equipment. The protocols are part of the SI-0001 internal firmware and so new firmware must be uploaded via the Q-Link and Firmware Manager to support a protocol not in the core list. Each SI-0001 within one system can support a different protocol. The currently installed protocols can be identified by Firmware Manager (-C for the core protocols).

The core protocols supported in factory delivered SI-0001's are

No	Protocol Name	Who controls Who
-1	Quartz Standard	Computer controls Quartz.
-2	TSL UMD	Quartz controls TSL
-5	F-F-Master	Quartz controls Quartz (master system)
-7	Omnibus Panel	Omnibus controls Quartz (panels only)
-9	Nvision	Quartz controls Nvision
-13	Probel SW-P-02	Pro-bel controls Quartz
-17	Probel SW-P-08	Quartz controls Pro-bel
-19	GVG Horizon	Quartz controls GVG Horizon
-22	GVG 10XL ASCII	GVG controls Quartz
-23	GVG 10XL SMPTE	GVG controls Quartz
-24	GVG HX-GPI	GVG controls Quartz
-25	Panasonic Cart	Panasonic controls Quartz
-27	Probel SW-P-02	Quartz controls Probel (opposite of -13)
-28	Leitch VIA 32	Quartz controls Leitch VIA 32
-29	Pesa	Quartz controls Pesa

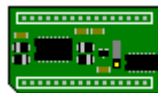
The table below shows most of the protocols supported but you should refer to AN-0006 for the most up to date information.

No	Protocol Name	Who controls Who
-1	Quartz Standard	Computer controls Quartz.
-2	TSL UMD	Quartz controls TSL
-3	Probel simple	Pro-bel controls Quartz
-4	EBU Geneva	EBU controls Quartz
-5	F-F-Master	Quartz controls Quartz (master system)
-6	K-Scope	K-Scope controls Quartz (single router)
-7	Omnibus Panel	Omnibus controls Quartz (panels only)
-8	Utah	Utah controls Quartz
-9	Nvision	Quartz controls Nvision
-10	NTL Pathfinder	NTL controls Quartz
-11	Probel SW-P-04	Quartz controls Pro-bel UMD
-12	F-F-Slave	Quartz controls Quartz (slave system)
-13	Probel SW-P-02	Pro-bel controls Quartz
-14	Image Video	Image Video controls Quartz
-15	DMV 3000 PSR	Quartz controls DMV (NTL)
-16	BTS	Quartz controls BTS
-17	Probel SW-P-08	Quartz controls Pro-bel
-18	GVG 20-Ten	Quartz controls GVG 20TEN
-19	GVG Horizon	Quartz controls GVG Horizon
-20	Quartz Panel Link	Controller for Quartz serial panels
-21	Sony DVS-V1616	Quartz controls Sony
-22	GVG 10XL ASCII	GVG controls Quartz
-23	GVG 10XL SMPTE	GVG controls Quartz
-24	GVG HX-GPI	GVG controls Quartz
-25	Panasonic Cart	Panasonic controls Quartz
-26	Maddox	Quartz controls Maddox
-27	Probel SW-P-02	Quartz controls Probel (opposite of -13)
-28	Leitch	Quartz controls Leitch (Via 32)
-29	Pesa	Quartz controls Pesa
-30	Thomson SW-P-62	Thomson controls Quartz (mixer serial cue)
-31	GVG Periph I/F II	GVG 1200 Mixer stores/recalls routes on E-Mem
-32	Sony Flexicart	Sony controls Quartz
-33	Quasar UMD	Quartz controls Quasar UMD
-34	Philips DD Mixer	Quartz supplies XBAR idents to DD Series mixer
-35	Sony VTR (9 pin)	Quartz controls Sony VTR's and reads status
-36	Sony DVS Mixer	Sony controls Quartz serial tally protocol
-37	GVG M2100	Automation system controls Quartz QMC-MCS
-38	GVG SMS-7000	Quartz controls GVG SMS-7000 MCPU (native)
-39	Philips/BTS	Philips/BTS controls Quartz (opposite of -16)

Quartz Standard (type -1) ASCII protocol is implemented by Drake Automation, Louth Automation, Omnibus (for router control), BBC BNCS, and ABIT Automation. The -5 protocol can be used to control Vistek routers.

### Setting RS232 or RS422 Mode

The SI-0001 uses the CI-0003 module to provide the serial port hardware. This is a small module that can be fitted inside most Quartz control panels. A single link controls the selection of RS232 (position 2) or RS422 (position 4) mode.



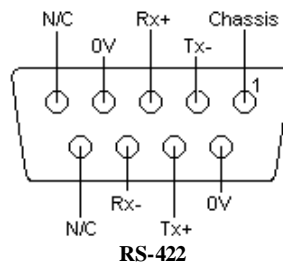
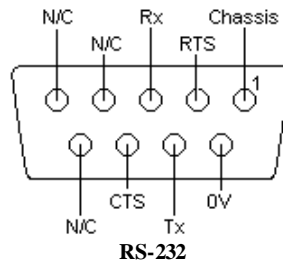
The SI-0001 will be provided with the CI-0003 already installed. If removing the CI-0003 take care not to bend the pins. When installing a CI-0003 module take care to align the pins with the sockets.

### Switch Settings

On all products the DIP-2 switch must be set in the down position and reset pressed before the serial port will function correctly. The currently installed and selected communications protocol will then be enabled.

### The RS232/422 connector

Before using this connector check that the correct protocol is installed, that the CI-0003 link for RS232 (2 position) or RS422 (4 position) has been set, and DIP-2 has been set to the DOWN position and reset pressed.



There is an alternative naming convention for RS422 signals.

Tx+ = TxB      Tx- = TxA      Rx+ = RxB      Rx- = RxA

### The Parallel Connector

This is provided on control panels for connection to the joystick override buttons fitted in most Camera Control Units (CCU's). It can also be used to connect simple GPI type interfaces into the router. It cannot provide any tally outputs. It can be used on the SI-0001 if required.

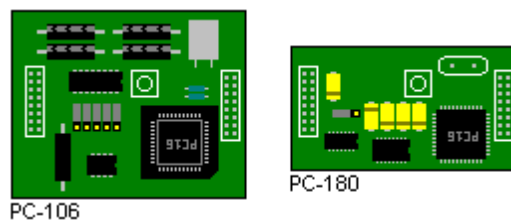
## Appendix A: Older Product

Earlier versions of the SI-0001 had only a single protocol installed and required a firmware (EPROM) change for different protocols.

Very early SI-0001 interfaces used the PU-0003 processor module (NEC based) and these can be identified by the Q\_Link BNC being located at the right hand side of the rear panel.



The early SI-0001 used the CI-0001 module to provide the serial port hardware, of which there were two versions.



These early SI-0001 units were provided with the CI-0001 already installed. If removing the CI-0001 take care not to bend the pins. When installing a CI-0001 module take care to align the pins with the sockets. Also check that the central mounting hole lines up with the hole in the main PCB.