

## Application Note AN-0018

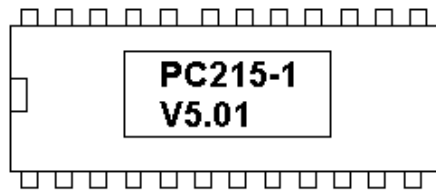
### Expansion of Quartz Routers

#### Introduction

It is often necessary to expand a routing system after a period of use and this application note covers some of the questions frequently asked.

#### Adding Extra Control Panels to an Existing System

This is an easy option in terms of physical installation but can have software compatibility issues. The first thing to check is the major software version of your master router, which will have DIP-3 in the down position. Towards the front left hand corner of the main module will be an 28 or 32 pin EPROM labelled PC215 V5.xx or on older systems PC150 V4.xx or SYS-1 V3.xx. The numbers V5, V4, and V3 are the major software version and all devices on the same Q-Link must have the same major software version. Make a note of the full software issue as it appears on the EPROM i.e 'PC215-1 V5.01'.



Next locate the systems original Quartz job number. This is found in section 1 of the manual, but may also be recorded inside the front door of the master router, and will appear as Jxxxx, i.e. J0123. If you cannot locate the job number then make a note of the serial number of the master router. The serial number will be a black bar code label something like the one below:



**V6.xx, V5.xx and V4.xx:** These versions are fully compatible with current control panel hardware. V5.xx is the factory proffered version as it is the most commonly used. Choose the control panel(s) that best fit your requirements and place an order, clearly stating the software version of your current system and the job number or master router serial number.

**V3.xx, V2.xx and V1.xx:** These versions are no longer supported on current control panel hardware. The normal action is to upgrade the entire system to V4.xx or V5.xx but note that some older products using the NEC based processor (SYS or PC-150 firmware) can only be upgraded to V4.xx due to hardware limitations. In some cases the NEC based processor (SYS or PC-150 firmware) can act as a V5.xx slave to a FU-0003 V5.xx master.

The early CP-1600 panel can only operate in a V4.xx system. In rare cases Quartz may be able to supply older panels where these are still available.

If your system includes an SMS-6000 router then please refer to the SMS-6000 section later in this document.

## Adding Extra Signal Levels to an Existing System

This is an easy option in terms of physical installation but can have software compatibility issues. The first thing to check is the major software version of your master router, which will have DIP-3 in the down position. Towards the front left hand corner of the main module will be an 28 or 32 pin EPROM labelled PC215 V5.xx or on older systems PC150 V4.xx or SYS-1 V3.xx. The numbers V5, V4, and V3 are the major software issue and all devices on the same Q-Link must have the same major software issue. Make a note of the full software issue as it appears on the EPROM i.e 'PC215-1 V5.01'.

Next locate the systems original Quartz job number. This is found in section one of the manual, but may also be recorded inside the front door of the master router, and will appear as Jxxxx, i.e. J0123. If you cannot locate the job number then make a note of the serial number of the master router. The serial number will be a black bar code label something like the one below:



**V6.xx, V5.xx and V4.xx:** These versions are fully compatible with current router hardware. Choose the type and size of router that best fits your requirements and place and order, clearly stating the software version of your current system and the job number or master router serial number.

**V3.xx, V2.xx and V1.xx:** These versions are no longer supported on router hardware. The normal action is to upgrade the entire system to V4.xx or V5.xx but note that some older products using the NEC based processor (SYS or PC-150 firmware) can only be upgraded to V4.xx due to hardware limitations. In some cases the NEC based processor (SYS or PC-150 firmware) can act as a V5.xx slave to a FU-0003 V5.xx master.

The early CP-1600 panel can only operate in a V4.xx system. In rare cases Quartz may be able to supply older routers where these are still available.

If your system includes an SMS-6000 router then please refer to the SMS-6000 section later in this document.

## Adding Inputs & Outputs within an existing Router

This is only possible if your current router is NOT fully loaded. First the part number must be examined to see what router is currently being used and a typical Quartz part number has the format Q16-SV-1608-A. The start of the part number gives a good indication of the maximum size matrix possible within a given chassis.

Part Number	Maximum size
Q1601/2	16 inputs x 1 or 2 outputs
Q16-	16 inputs x 16 outputs
Q32-	32 inputs x 32 outputs
Q1600-	16 inputs x 16 outputs
Q3200-	32 inputs x 32 outputs
Q6400-	64 inputs x 64 outputs
Q128-	128 inputs x 128 outputs, but input expandable by adding an extra chassis.
Q256-	256 inputs x 256 outputs, but expandable by adding extra chassis.

The next two letters in the part number give the signal format:

SV	Serial Video
AV	Analog Video
DA	Digital Audio
AA	Analog Audio
PR, RS	RS422 Data Router

A pair of numbers such as 1608 follows the signal format, and these denote the current router size, 16 inputs by 8 outputs in this example. If the current matrix size is less than the maximum for the chassis, then an upgrade is possible. The following list gives the upgrade method for different routers.

Current Product	Upgrade to	Method
Q16-AA-1604-S	16x8, 16x16	Requires a special plug in chip that will enable the matrix size required.
Q16-AA-1608-S	16x16	As above
Q16-AV-1604	16x8, 16x16	Requires a special plug in chip that will enable the matrix size required.
Q16-AV-1608	16x16	As above
Q16-DA-1616	32x32	Requires an expansion module that fits within the 1U chassis
Q1600-SV-1604-A	16x5, 16x6 ... 16x16	Requires H-013 reclocking output SIMM's, each SIMM adding one output
Q1600-SV-1604-A	16x5, 16x6 ... 16x16	Requires H-019 non-reclocking output SIMM's, each SIMM adding one output
Q32-AA-1604-S	16x8, 16x16	Requires a special plug in chip that will enable the matrix size required.
Q32-AA-1604-S	32x4, 32x16, 32x32	Requires a module exchange
Q32-AV-1616	32x4, 32x8, 32x16	Requires a module exchange
Q32-AV-1616	32x16, 32x32	Requires a module exchange
Q32-AV-3204	32x8, 32x16	Requires a special plug in chip that will enable the matrix size required.
Q32-AV-3216	32x32	Requires a module exchange
Q3200-SV-1616-A	17x17 up to 32x32	Requires

In all the above cases check with Quartz for current pricing.

## Adding Inputs & Output external to an existing router

### Expanding a Q6400-SV-6464-A to give additional inputs:

This requires another Q6400-SV-6464-A router. Inputs 1-64 are fed to the first router and inputs 65-128 are fed to the second router. The outputs of both routers are combined using 2x1 switches.

### Expanding a Q6400-SV-6464-A to give additional outputs:

This requires another Q6400-SV-6464-A router and four 16-channel passive signal splitters (or equivalent DA's) on the inputs. Each input signal is split and fed to both routers. Outputs 1-64 are taken from the first router and outputs 65-128 from the second router. The routers are configured slightly differently using the WinSetup program so that each router knows which outputs it is controlling.

### Expanding a Q128-SV-128128-A to give additional inputs:

This requires another Q128-SV-128128-A router but fitted with special expansion modules. Inputs 1-128 are fed to the first router and inputs 129-256 are fed to the second router. The outputs of the second router are connected to the dual output 'B' BNC connector. The output module (M-OP-SV-2AR-4-00) in the first router is replaced by the expansion version (M-OP-SV-EAR-4-00), usually by swapping with the output modules from the new router. The expansion card has additional switching on to combine the inputs from the second router.

Note that the expansion output module requires the M-FU-0005-0100 latch control module.

A special 25-way expansion control cable is required to link the two routers.

### Expanding a Q128-SV-128128-A to give additional outputs:

This requires another Q128-SV-128128-A router and eight 16-channel passive signal splitters (or equivalent DA's) on the inputs. Each input signal is split and fed to both routers. Outputs 1-128 are taken from the first router and outputs 129-256 from the second router. The routers are configured slightly differently using the WinSetup program so that each router knows which outputs it is controlling.

## SMS-6000

The SMS-6000 was a GVG/Tek product line that was designed and manufactured by Quartz in the UK. These routers and control panels were supplied to GVG between May 1995 and Sept 1998 with V3.xx or early V4.xx software. GVG supplied these systems to their customers with their own WinFig configuration software.

As these routers and panels generally use the older NEC based processor they would normally only be upgraded to the latest V4.xx software. Before upgrading, contact the factory with an entire list of the routers and control panels. Please include a brief description of each product and the external serial number, usually in the form Q1234 or B12345.

Quartz will log the equipment on their internal Technical Support database and allocate a job number. We can then locate the original product assembly and revision information. We will then be able to advise the best upgrade path.

In all cases we recommend a change from the GVG WinFig program to the Quartz WinSetup program.

### Product Part Numbers

Quartz Part Number	GVG Part Number	GVG Model Number	Description
CP1601	190160-00	SMS-C16BPS	Assy, 16 Button-per-Source Control Panel
CP3201	190161-00	SMS-C32BPS	Assy, 32 Button-per-Source Control Panel
CP1600	190162-00	SMS-CMXY	Assy, 16 Button Programmable XY Control Panel
CP3200	190163-00	SMS-CXY	Assy, Programmable XY Control Panel
Q1600-SV-1616-1	190164-00	SMS-C1616DV	Assy, 16x16 Digital Video Router
Q3200-SV-3232-1-P	190165-00	SMS-C3232DV	Assy, 32x32 Digital Video Router
Q1600-AV-1604-CWS	190166-00	SMS-C1604V	Assy, 16x4 Analog Video Router
Q1600-AV-1616-CWS	190167-00	SMS-C1616V	Assy, 16x16 Analog Video Router
Q3200-AV-3232-CWS-P	190168-00	SMS-C3232V	Assy, 32x32 Analog Video Router
Q1600-DA-1616	190169-00	SMS-C1616AE-1	Assy, 16x16 Digital Audio Router
Q1600-DA-3232	190170-00	SMS-C3232AE-1	Assy, 32x32 Digital Audio Router Single P/S
Q3200-DA-3232-P	190171-00	SMS-C3232AE-2	Assy, 32x32 Digital Audio Router Dual P/S
Q1600-AA-1604-SWB	190172-00	SMS-C1604AA	Assy, 16x4 Analog Audio Router
Q1600-AA-1616-SWB	190173-00	SMS-C1616AA	Assy, 16x16 Analog Audio Router
Q3200-AA-3232-MWB-P	190174-00	SMS-C3232A	Assy, 32x32 Analog Audio Router
Q1600-RS-0808-P	190175-00	SMS-CSSM-88	Assy, 8x8 Data Router
Q1600-RS-1616-P	190176-00	SMS-CSSM-1616	Assy, 16x16 Data Router

### EPR0M Part Numbers

Quartz Part Number	GVG Part Number	Checksum	Other Notes
SYS-1 V4.00e	159331-01 0224	A7D3D2	(18/10/96 at 10:10:10)
PC150-1 V4.xx	156056-00 6767		
CP3200 V4.xx	156060-01		