LVD/HVD Demo Unit Guide

May 2009

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1 Safety and Regulatory Statements

1.1 CE Statement

The standards compliance label on the 10ZiG Q^3 contain the CE mark which indicates that this system conforms to the provisions of the following European Council Directives, laws, and standards:

- Electro Magnetic Compatibility (EMC) Directive 89/336/EEC and the Complementary Directives 92/31/EEC and 93/68/EEC:
  - EN550022, Class A; Emissions Industrial Environment
  - EN 50082-2 Immunity Industrial Environment
  - EN61000-4-2 Electro Static Discharge
  - EN61000-4-3 Radiated RF
  - EN61000-4-4 Electrical Fast Transients
  - EN61000-4-5 Surge
  - EN61000-4-6 Conducted RF
  - EN61000-4-11 Line Interruption
- Low Voltage Directive (LVD) 73/23/EEC and the Complementary Directive 93/68/EEC:
  - EN 60950:92 A1:93 & A2:93 & A3:95 & A4:96 & A11:97
  - EN60825-1:199/A11, -2

1.2 Canadian Requirements

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la Classe A respecte toutee les exigences du Regiements sur le material brouilleur du Canada.

1.3 FCC Warning

This equipment has been tested and complies with the limits for a Class A computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operating this equipment in a residential area is likely to cause harmful interference in which case the user is responsible for repairs.

10ZiG's system tests were conducted with 10ZiG's shielded cables, such as those you receive with your computer.

Changes or modifications not expressly approved by 10ZiG could void the user's authority to operate the equipment.

Operation of this device is subject to the following conditions:

? This device may not cause harmful interference.
? This device must accept interference received, including interference that may cause undesired operation.
? Cables used with this device must be properly shielded to comply with the requirements of the FCC.

1.4 Emissions Regulations Compliance

Any third-party I/O devices installed in, or connected to, a BOSaNOVA system(s) must be in accordance with the requirements set forth in the preceding Emissions Regulations statements. In the event that a third-party noncompliant I/O device is installed, the customer assumes all responsibility and liability arising there from.

1.5 Electrostatic Discharge (ESD) Precautions

Electrostatic charges can damage the integrated circuits on printed circuit boards. To prevent such damage from occurring, observe the following precautions during board unpacking and installation:

? Stand on a static-free mat.
? Wear a static strap to ensure that any accumulated electrostatic charge is discharged from your body to the ground.
? Connect all equipment together: including the static-free mat, static straps and peripheral units.
? Keep uninstalled printed circuit boards in their protective antistatic bags.
? Handle printed circuit boards by their edges, once you have removed them from their protective antistatic bags.

1.6 End of Life Plan

This box is a purchased unit. Therefore, it is the sole responsibility of the purchaser to dispose of it in accordance with local laws and regulations at the time of disposal.

This unit contains recyclable materials. The materials should be recycled where facilities are available, and according to local regulations. In some areas 10ZiG may provide a product take-back program that ensures proper handling of the product.

For more information, contact your 10ZiG representative.

2 Introduction

2.1 *10ZiG*   Q ^{3}

The Q^3 is a high-speed in-line unit designed to allow data to and from a tape device to be encrypted / decrypted on the fly.

The product was developed as a direct result of banking customers expressing concern that all their company data was being put into the hands of a courier company in readable form, while in transit to secure off site storage. All companies, banks in particular, when dealing with customer records and numbered accounts, have to respect and provide absolute confidentially. And, what is more, they have to prove to their customers that they can achieve this. Powerful security systems within the establishment can be utilized to provide security while the data is on site but, apart from password protection at an application level, the data can normally be easily read at a data level. This is where Q^3 steps in.

2.2 Rackmount Unit

2.3 Specification

Interface	Low Voltage Differential (LVD) Units	Host Low Voltage Differential (LVD) Multimode Ultra2Wide SCSI (Small Computer Systems Interface) with external termination
		Tape Low Voltage Differential (LVD) MultimodeUltra2 Wide SCSI (Small Computer Systems Interface) with internal termination
	Differential (HVD) Units	Host High Voltage Differential (HVD) Ultra Wide SCSI (Small Computer Systems Interface) with external termination
		Tape High Voltage Differential (HVD) Ultra Wide SCSI (Small Computer Systems Interface) with internal termination
Electrical		90-260 vac auto sensing
MTBF		100,000 @ 100% duty cycle
Temperature		Operating 0 to 50ºC
		Non Operating -20 to 60ºC
Dimensions	Rack mount	430 mm wide, 45 mm high, 380 mm deep

3 Outline

3.1 How does Q^3 provide a solution?

Q^3 provides on the fly data encryption or decryption to the Extended DES standards. The key that provides the start point for the encryption or decryption is made up of two parts. One of these parts is a unique secure silicon chip installed when the unit is manufactured; the other part is a firmware key installed by the end user. The silicon chip is not readable by 10ZiG or the end user and the   end user encryption key is not readable by 10ZiG, yet both parts must be in place for the encryption or decryption to work.

To provide protection against the end user encryption key being changed the Q^3 is password protected. In the unlikely event of the password being compromised, the end user encryption key cannot be read out of the Q^3. By using this system the chance of data security being compromised is minuscule. This, combined with the unique dual interlaced Extended DES mode of data encryption, gives near total protection (absolute protection is impossible).

3.2 How does it work?

The Q^3 consists of two separate sections in one unit.

The main section, the encryption section, sits on the SCSI bus between the host computer and the backup tape device. When properly installed, it takes on the SCSI ID of the target tape drive and presents this ID to the host computer. Q^3 passes through all inquiry information and therefore appears transparent to the host computer. At the heart of the encryption section lies a pair of dedicated hardware encryption and decryption engines.

The second section is a system monitor, it provides information relating to the climatic environment of the complete Q^3 system, as well as monitoring the power supplies and other critical functions not involving the encryption section.

3.3 How is Q³ controlled?

The Q^3 is controlled via an RS232 compatible serial. This port can be connected to an IBM PC compatible computer running Microsoft Windows XP and above, in which case the supplied Graphical User Interface may be used.

Alternatively all the commands the encryption unit or monitor unit can understand may be issued from a dumb terminal or a UNIX shell script.

3.4 Front Panel

The front panel includes a 4 Line by 20-character LCD status display. On the desktop unit this is a large size whilst on the rack mount it is smaller. The output is the same on both types.

The display gives the user feedback of the operations being undertaken and the devices connected.

3.5 Display

The 4 Line by 20-character display presents a variety of information to the user including subsystem status, amount of data transferred and error conditions.

During power up the unit runs a series of tests and the display is as shown below.

```
        P o w e r - O n   T e s t s .
    S u m c h e c k   E E p r o m

```

```
    P o w e r - O n   T e s t s .
        E E p r o m   O K

```

```
   Power-On Tests.
Sram Stack  Tests

```

```
   Power-On  Tests.
   Stack  Area  OK

```

```
   Power-On  Tests.
      Sram    OK

```

```
   Power-On  Tests.
   Hardware  Tests

```

```
   Power-On  Tests.
     HardWare  OK

```

The tests being completed are shown on the second line of the display. When all the POST tests are completed, and passed, the display will then show something similar to:

```
  04 : 09 : 02 .    V 1 . 05
I d 3    S E A G A T E    U L T R I U M 0
```

The top line indicates the secure status of the unit (locked or unlocked), the second line shows the status firmware date and version of the unit and the third line shows the SCSI ID and the inquiry string reported by the connected drive.

When in use the display will show something similar to that shown below.

```
      D e v i c e    R e a d y
           W r i t e
M e g a b y t e s    =          1  1
```

The first line shows that the device is ready and in secure mode.

Once the write starts other information is shown.

```
      B u f f e r s    F u l l    =      1
T R a t e    =    2 3 . 4 1    M B / S e c
           W r i t e
M e g a b y t e s    =      1  2  7  9  8
```

The top line indicates how many of the Q^3 internal buffers are being used. Often this will show empty indicating that the data from the system is not able to keep up with the attached tape drive. The second line indicates the average transfer rate over the last ten second interval.

4 Operating Procedures

4.1 Installation

Q^3 is designed to work with a single tape drive. Incorrect installation will affect whether it can work properly.

4.1.1 Connections to a stand-alone tape drive installation.

When the installation is with a single stand-alone drive then the installation is straightforward. Connect the tape drive interface cable from the connector marked as tape drive on the Q^3 and connect this to the tape drive. The tape drive must be correctly terminated. Fit the supplied terminator to one of the host ports on the Q^3 and the interface cable to the host to the remaining port. See Figure 4.1
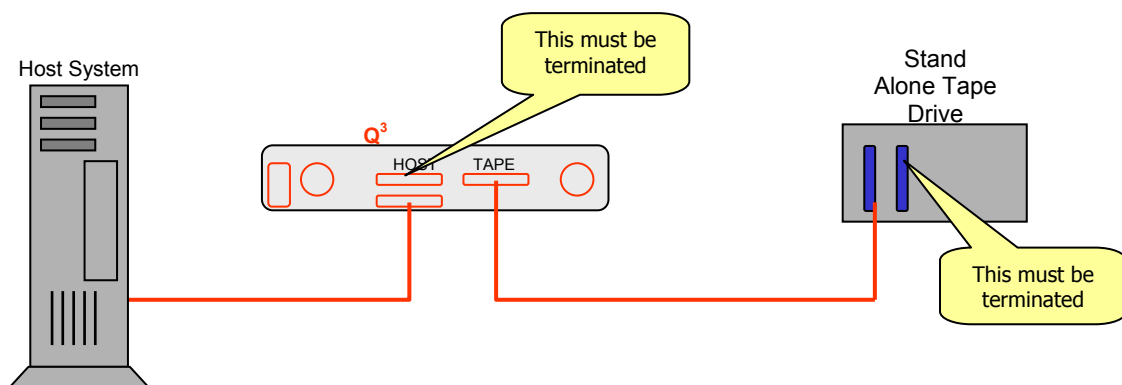

Figure 4.1 - Single drive installation

First power up the tape unit and, when this is ready, power up the Q^3. Once the power up sequence has completed the display will show the SCSI ID and the inquiry string from the tape drive. For example with a 3580 LTO drive set to SCSI ID 3 the display will indicate id3 IBM 3580 when the Q^3 tests complete.

Power on the host system and test the normal read / write capability. Note that at this point the data is not being encrypted and previously written tapes should still read. If not then check the cabling and termination. Do not proceed unless these tests are correct.

4.1.2 Connection to a tape drive fitted in a library.

When used with a tape drive fitted in a library it is important to understand the cabling method. If it is not correctly configured the library will fail to operate properly.

The following diagrams indicate the various configurations.
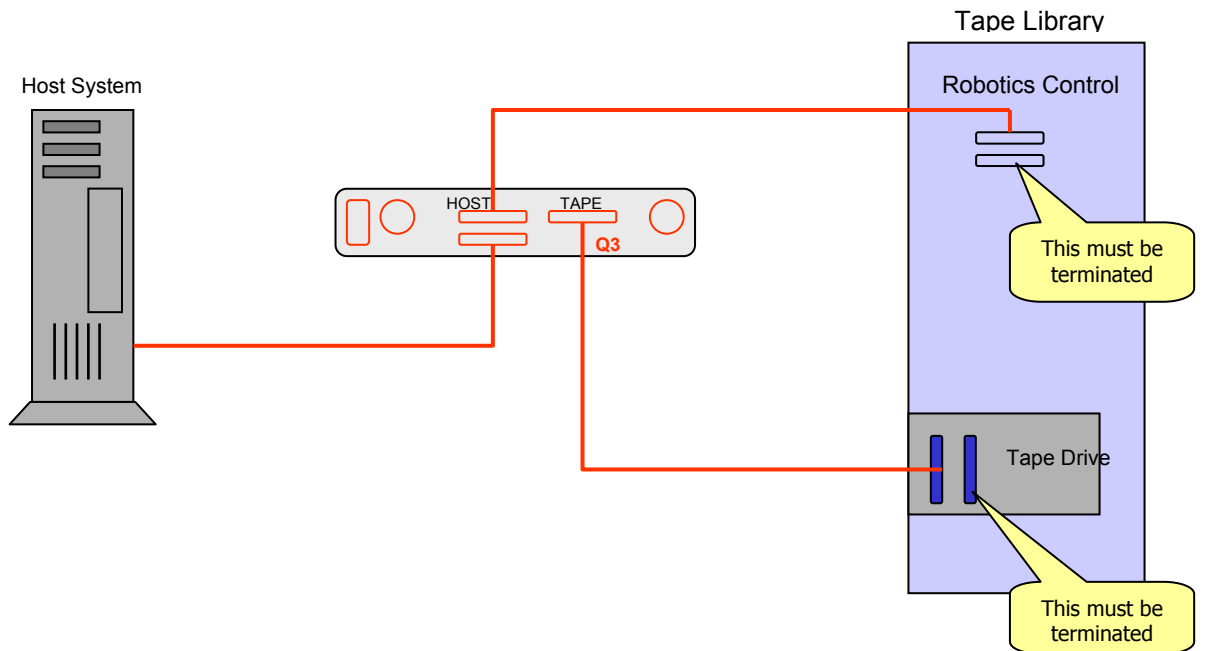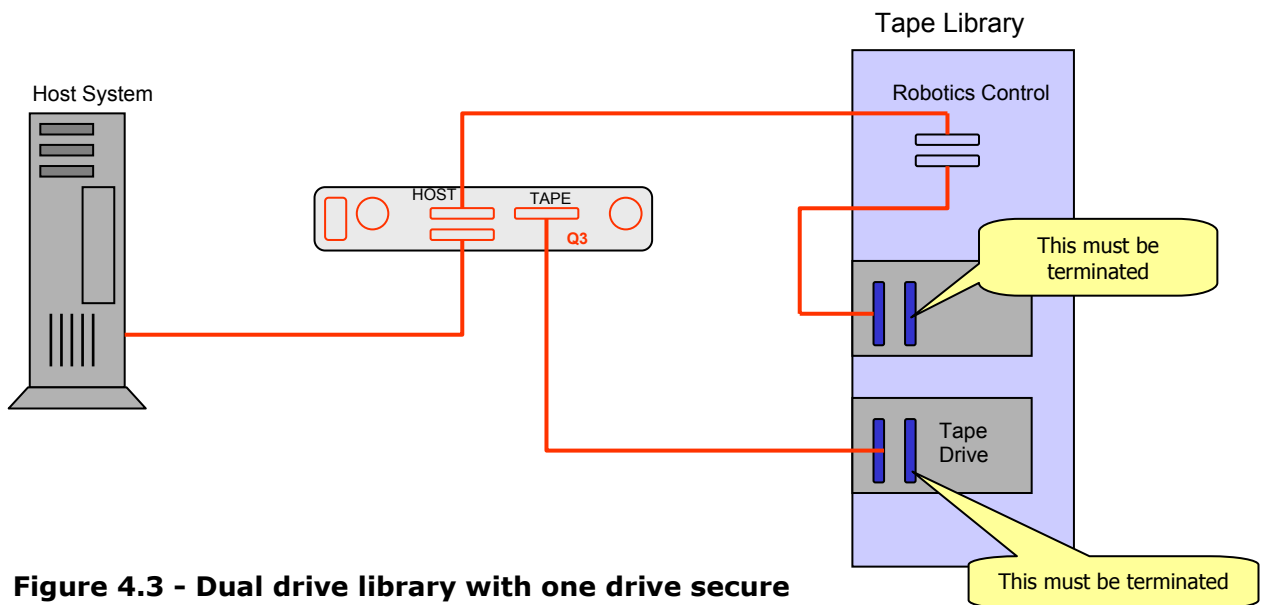

Figure 4.2 - Single drive tape library

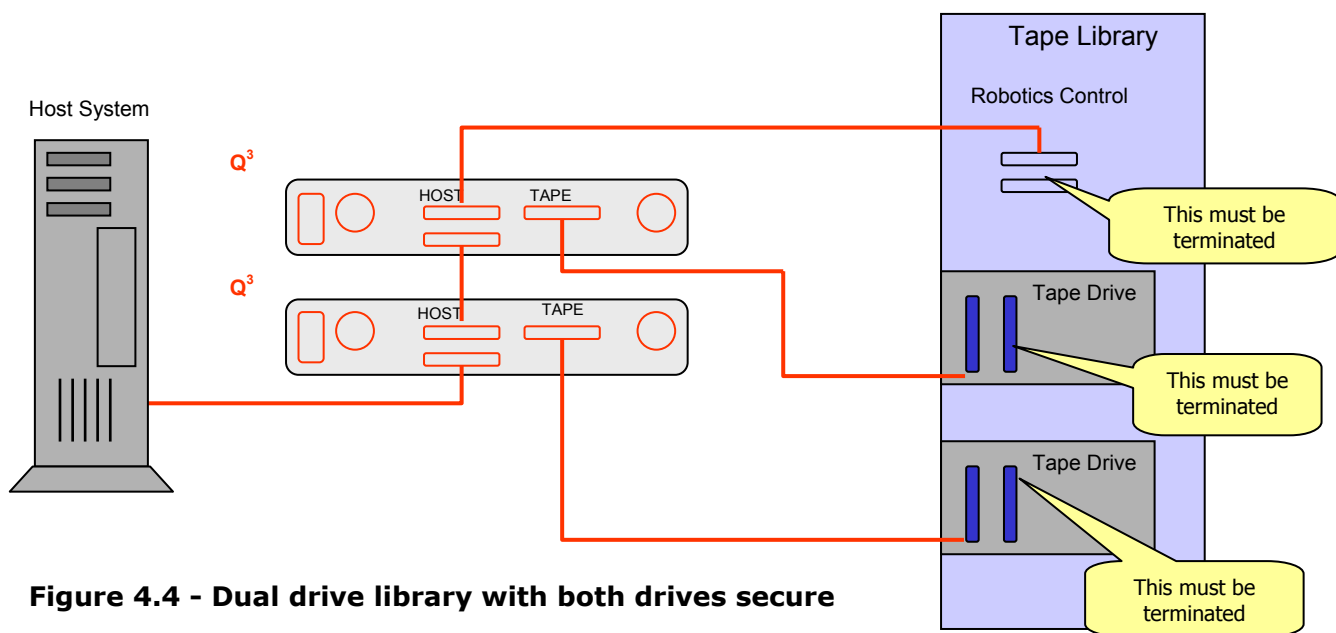**Figure 4.3 - Dual drive library with one drive secure**

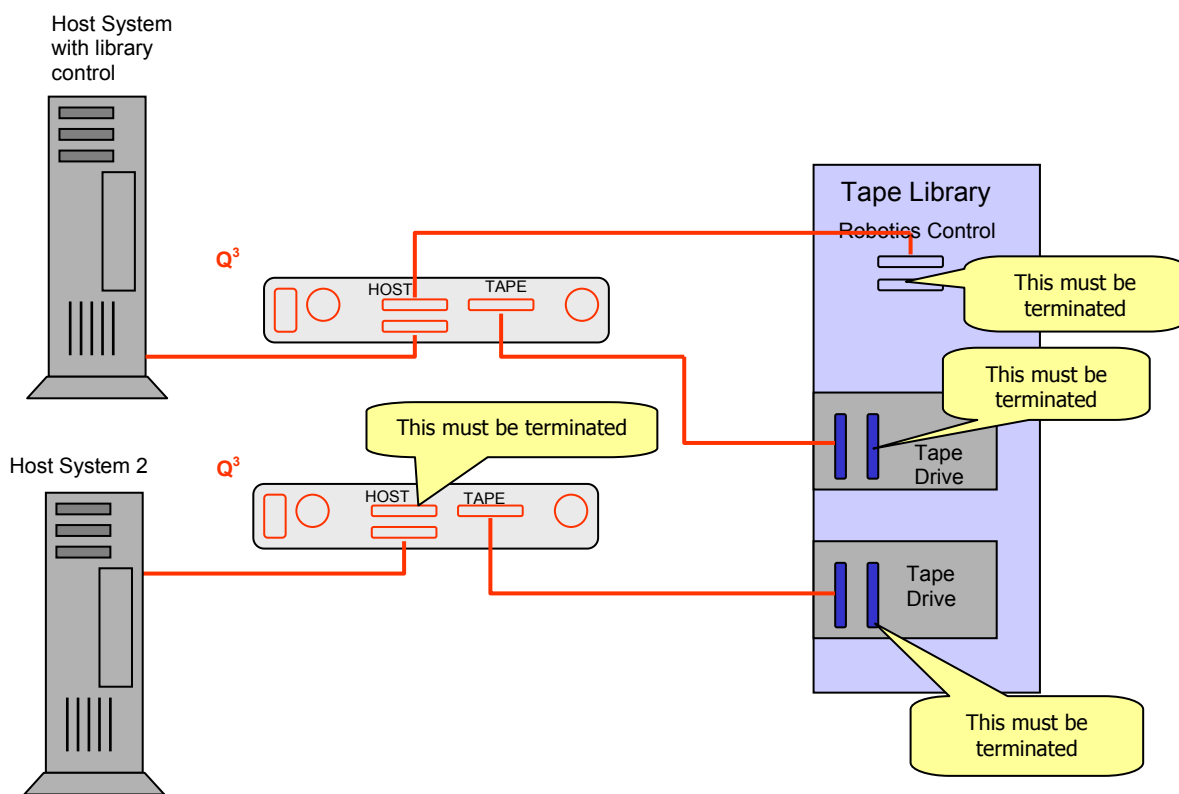**Figure 4.4 - Dual drive library with both drives secure**

Figure 4.5 - Dual drive library with dual hosts and both drives secure

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4.2 Basic Configuration

For configuration, please note the following:

You are required to enter a 32-character key. Please write down this key on the worksheet at the end of the manual and store in a safe location.

After installation of Q^3 unit is completed, configuration is made easy through a few simple steps. The exact procedure will vary depending on the level of security that is required.

There are no hardware settings to be configured by the user. The Q^3 unit will interrogate the attached tape drive at power on and will then answer to the host using the SCSI ID and inquiry string of the attached tape device.

Communication between the user and Q^3 is carried out from a dumb terminal, a PC or UNIX machine running either terminal software or a script language, or a Windows 95 and above computer by using the supplied Q^3 GUI application.

When using a dumb terminal the set up instruction in Section 5-3 can be used. These set-up instructions will assume that the user is using a dumb terminal connected to the Q^3 where the communication settings are 38,400 baud, 8 data bits, no parity and one stop bit. All commands are terminated with a carriage return (Hexadecimal 13), a line feed (Hexadecimal 10), or both.

The following section covers the use of the Q^3 GUI program to configure the unit.

The Q^3 may be configured while the tape drive is online, however it must be at BOT.

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5 Qonfig GUI

5.1 Qonfig3 Installation

Insert the Qonfig3 installation CD into your CD or DVD ROM drive.

After a few moments the CD should automatically begin the installation procedure.

If installation does not start automatically it can be started manually by browsing the CD and double clicking the setup icon.

Qonfig3 requires Microsoft .NET 2.0. If this is not installed the setup program will attempt to access the internet to find and install it.

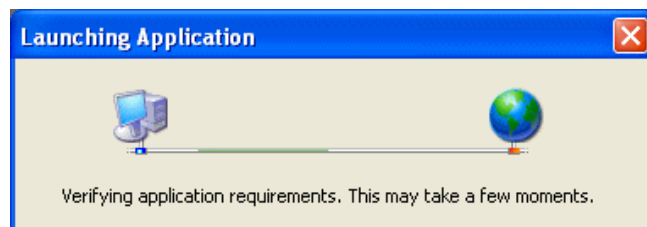If .NET is required you may be asked to reboot the PC after installation is completed – Qonfig3 installation will resume when the PC comes back up.

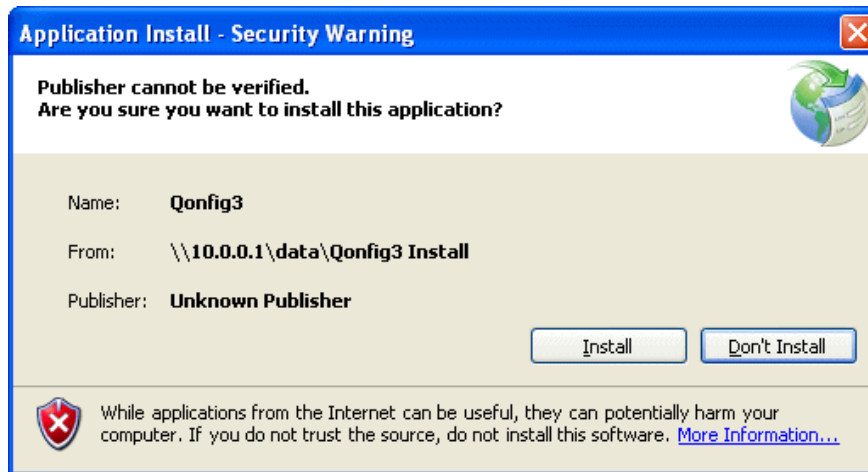You may receive the following message:

Click Run.

The system will check for required components – e.g. Microsoft .NET 2.0 …

You may receive a security warning …

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Click Install.

Once installed the application will start automatically…

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5.2 Using Qonfig3

5.2.1 Initial Setup

HARDWARE INSTALLATION

Turn on, the tape drive. When initialised turn on the Q3 unit. When initialised boot the server or vary on the drive.

NOTE: All operations require the tape to

Once loaded the initial screen will be displayed:
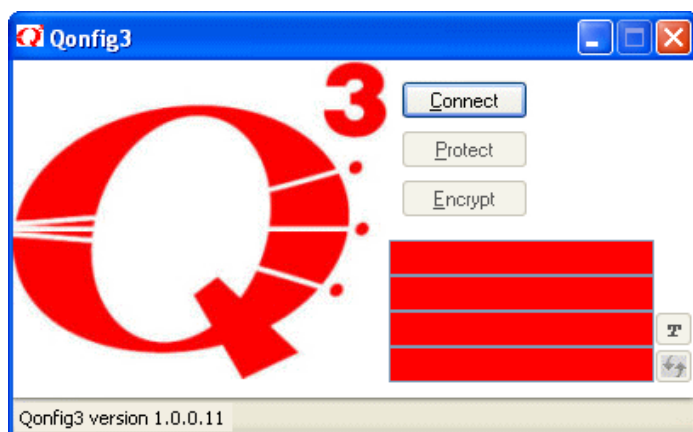
Ensure the Q3 unit is connected to your PC with a serial cable. When connected click the Connect button to initiate communication to the device.

If this is the initial setup of the unit you will be asked to set the unit password.

Click OK.
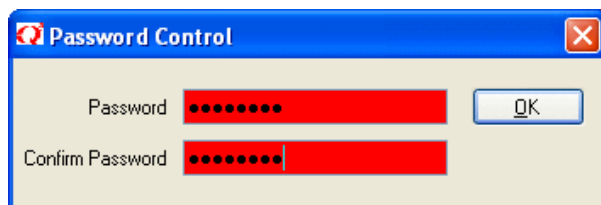
Type the password in each box then press OK.
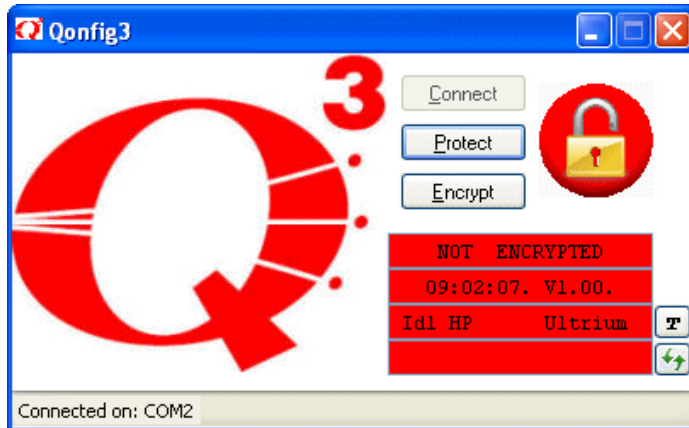
Click the Encrypt button to enter the encryption keys.

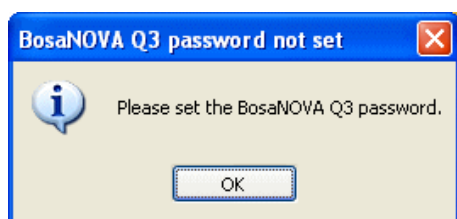Type in the password for the unit (as entered previously), then type and confirm the two user defined encryption keys.

The password must be 8 characters or more; the encryption keys are 24 characters each.
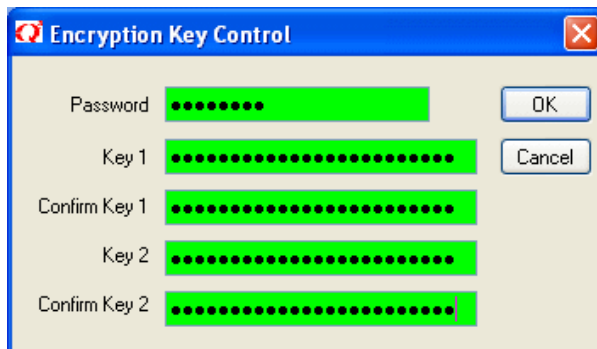
When the minimum password length of eight characters has been reached the password box will turn green. When 24 characters have been typed and the key and confirm key boxes match for each of the encryption keys these boxes will also turn green.

Click OK to set the encryption keys.
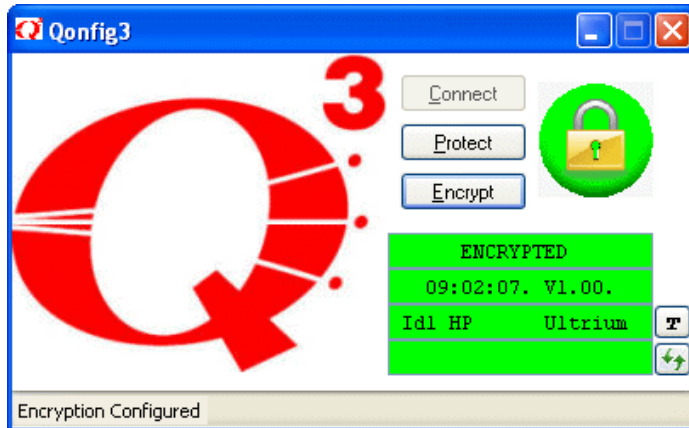
Encryption is now configured and enabled.

To toggle encryption on / off click the Encrypt button.
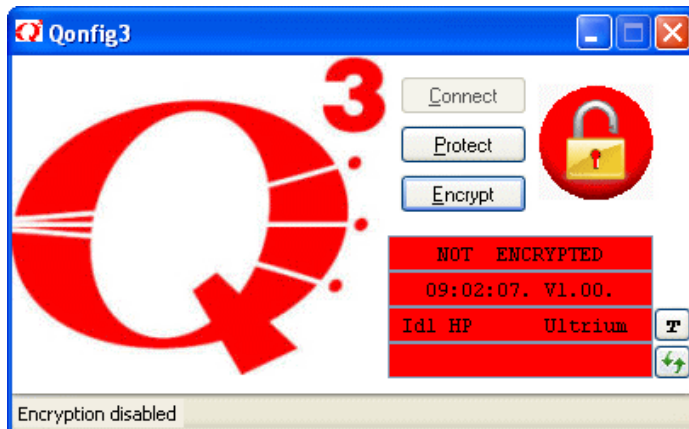
NB: The unit password is required to turn encryption on and off.

To uniquely identify the Q3 enter user defined text e.g. Tape Library 1, then click the T button to set the text.

During tape operations click the refresh button, ↔, to update the display.

5.3 Manual commands sent from a terminal

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5.3.1 Setting the Q^3 access password

This command is to prevent any unauthorised changes to the set-up of the Q^3. The command is sent from the dumb terminal to the Q^3 unit and it consists of two phases. The first phase is to set the new access password and the second phase confirms this password. The command is in the form of: -

ENPP1oldpass,newpass
ENPP2oldpass,newpass

Where oldpass is the presently configured password and newpass is the new password required.

Possible responses are:

ENTSP00 OK
ENTSP01 bad format
ENTSP02 bad command
ENTSP04 incorrect password
ENTSP05 bad sequence
ENTSP06 bad password

Example: -

To change the password from "Fred" to "John"

ENPP1Fred,John
ENPP2Fred,John

Note 1: The command is entered twice as ENPP1 and ENPP2 to ensure a valid password is entered. Entering a ENPP2 without a proceeding ENPP1 will cause the ENTSP05 response.

The default password when the Q^3 is powered on is Iamnotsecure.
When first entering your password you need to enter

ENPP1Iamnotsecure,newpass
ENPP2Iamnotsecure,newpass

For security we recommend you do not leave Q^3 in the default password.

5.3.2 Setting the encryption key

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This command is to change the used supplied encryption and decryption key. The command requires the Q³ access password to prevent any unauthorized changes to the user supplied encryption key. The command is sent from the dumb terminal to the Q³ unit and it consists of two phases. The first phase is to set the new encryption key and the second phase confirms this key has been received correctly. The command is in the form of: -

ENPK1password,keytext
ENPK2password,keytext

Where password is the existing Q³ access password and keytext: is the new encryption key required.

Possible responses are: -

ENTSK00 OK
ENTSK01 bad format
ENTSK02 bad command
ENTSK04 incorrect password
ENTSK05 bad sequence
ENTSK07 bad key

Note 1: The command is entered twice as ENPK1 and ENPK2 to ensure a valid key is entered. Entering a ENPK2 without a proceeding ENPK1 will cause the ENTSK05 response.

Example -

Change the encryption key to "IAMSAFE" where the Q³ has an access password of "Fred" the command would be: -

ENPK1Fred,IAMSAFE
ENPK2Fred,IAMSAFE

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5.3.3 Setting the operating mode

This command is to change the operating mode the Q^3 is being used for. It allows the Q^3 to work in a transparent pass through mode, thereby negating the need to take the Q^3 out of the bus by disconnecting cables. The command is sent from the dumb terminal to the Q^3 unit. The command is in the form of: -

ENPMpassword,newmode

Where password is the existing Q^3 access password and newmode is either S = Secure or N = Not Secure

Possible responses are: -

ENTSM00 OK
ENTSM01 bad format
ENTSM02 bad command
ENTSM03 bad argument
ENTSM04 incorrect password

Example: -

Change the operating mode from Not Secure to Secure where the Q^3 has an access password of "Fred".

ENPMFred,S

5.3.4 Setting the encryption level

This command is to change the encryption level that the Q^3 uses. The command is sent from the dumb terminal to the Q^3 unit. The command is in the form of: -

ENPEpassword,newlevel

Where password is the existing Q^3 access password and newlevel is either -

1 = ECB Single key
2 = CBC Single key
3 = OFB Single key
4 = CFB Single Key
5 = ECB Triple key
6 = CBC Triple key
7 = OFB Triple key
8 = CFB Triple key
9 = CBC Extended Key
10 = OFB Extended Key
11 = CFB Extended Key

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Possible responses are: -

ENTSE00 OK
ENTSE01 bad format
ENTSE02 bad command
ENTSE03 bad argument
ENTSE04 incorrect password

Example: -

Change the encryption level to Extended DES OFB assuming the Q³ has an access password of "Fred".

ENPEFred,10

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5.3.5 Setting the display screen text

This command is to change the text displayed on the display screen. The text has no functional purpose other than for information. A suggested application might be to display the name of the tape drive this Q³ is connected to. The command is sent from the dumb terminal to the Q³ unit. The command is in the form of: -

ENPDdisplayword

Where displayword is a free text string.

Possible responses are: -

ENTSD00 OK
ENTSD01 bad format
ENTSD02 bad command
ENTSD03 bad argument
Example: -

Change the display to read "DLT Rapid"

ENPD,DLT Rapid

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5.3.6 Get the firmware revision information

This command returns the Q^3 version number, date and an identifying text string. The command is sent from the dumb terminal to the Q^3 unit. The command is in the form of: -

ENPR

Possible responses are: -

ENTRPrevision,date,text
ENTSR01 bad format
ENTSR02 bad command

Where Q^3 revision level is in the form nn.nn, Q^3 revision date is in the form YYYYMMDD and text is a freeform copyright message.

Example -

ENPR

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5.3.7 Get the monitor status information

This command returns the status information from the monitor section. The command is sent from the dumb terminal to the Q^3 unit. The command is in the form of: -

ENPS

Possible responses are: -

ENTSS OK,PX,KX,EX,MX,TXXX,OX,ZX
ENTSR01 bad format
ENTSR02 bad command

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Where -

OK Indicates a good response

P = Password, 0 = Not Set, 1 = Set

K = Keystring entered, 0 = No, 1 = Yes

E = Encryption method
            1 = ECB Single key
            2 = CBC Single key
            3 = OFB Single key
            4 = CFB Single Key
            5 = ECB Triple key
            6 = CBC Triple key
            7 = OFB Triple key
            8 = CFB Triple key
            9 = CBC Extended Key
            10= OFB Extended Key
            11= CFB Extended Key

M = Mode status, 0 = Not Secure, 1 = Secure

T = RS232 response delay in milliseconds

O = Drive Status,

0 = Drive not ready or not present

1 = On line at BOT

2 = On line and away from BOT

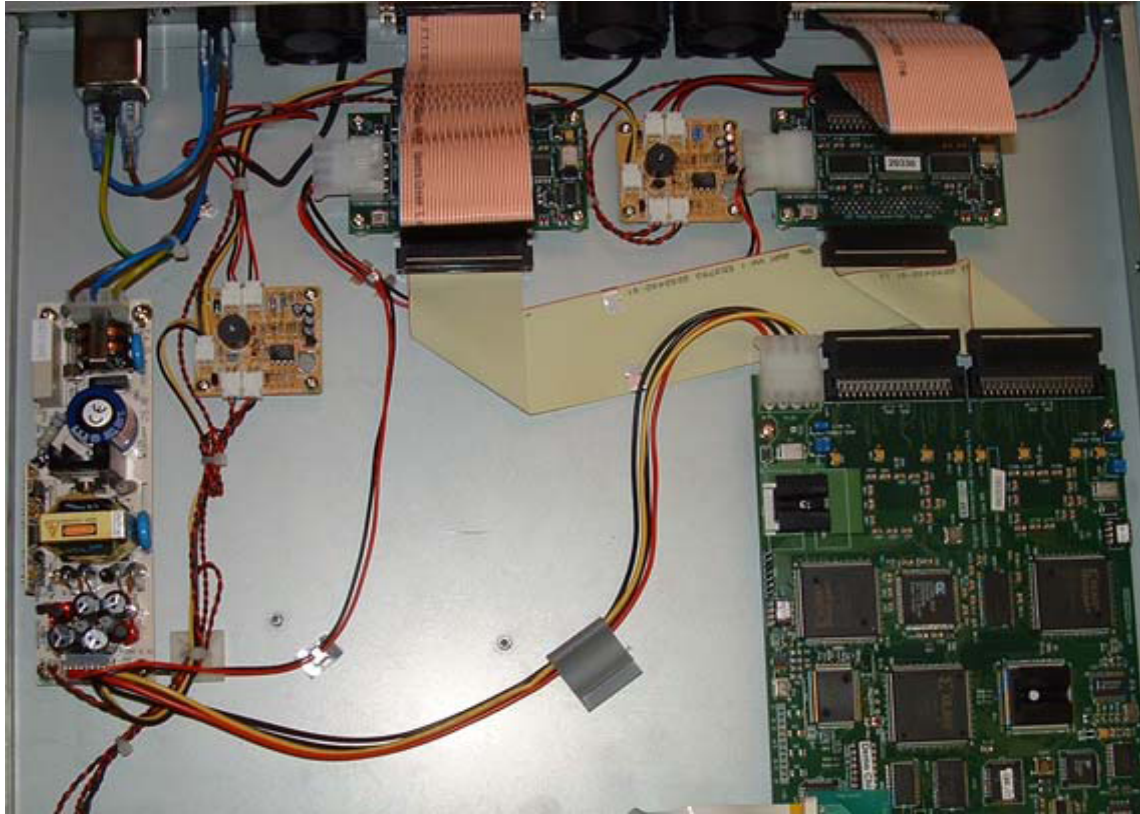Z = Self test status, 0 = failed, 1 = passed

Example -

            ENPS

ENPSS OK,P1,K1,E7,M1,T200,02,Z1

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6 Converting the Q³ demo unit from HVD (Differential) configuration to LVD configuration
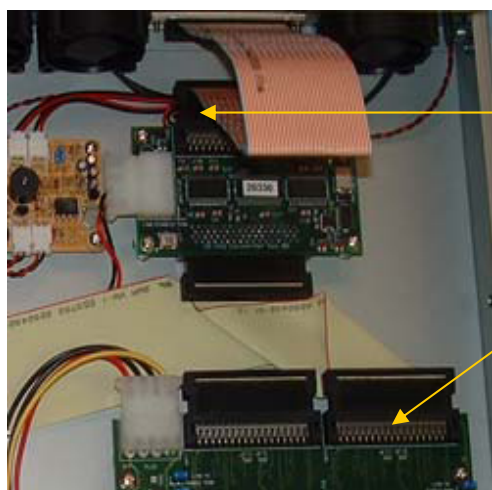
Remove the top cover by removing the two cross head screws at the rear of the unit.

The unit will look as shown below.

To convert this to an LVD unit proceed as follows:-

Remove the SCSI cable connected to the Q³ board tape socket.
Remove external tape cable from the differential converter and connect to the Q³ tape socket.

Remove cable from here and fit to Q^3 tape socket

Q^3 tape socket

Next remove the SCSI cable from the host socket on the Q^3 and leave loose. Now remove the SCSI cable from the host differential board and fit this to the host socket on the Q^3 board.
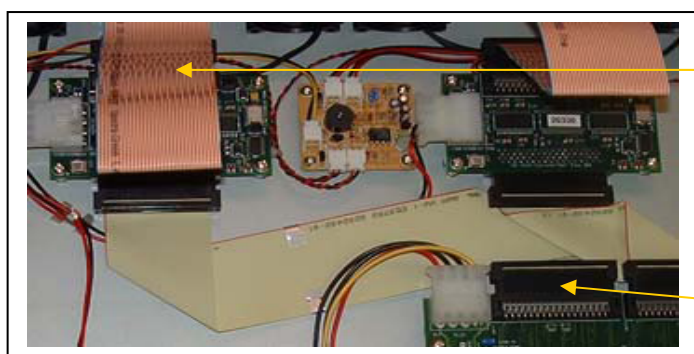
Remove this cable from host socket and connect to host socket on Q^3

Host socket on Q^3

When competed cables should look like the picture below.

The final action is to move the jumper HD6 from its position across the two pins to be parked by connected only on one pin as shown above.

7 Problem Solving

7.1 Hardware Faults

There are no user serviceable parts inside the enclosure; problem solving is therefore kept to very basic testing or configuration.

7.1.1 No display backlight

Check power supply and fuses.

7.1.2 No SCSI ID displayed

Check target tape drive is powered on.
Check cables between tape drive and Q^3.
Check target tape drives' SCSI bus is terminated.
Check target tape drive and computer host adapter is not on the same SCSI ID.

7.1.3 Cannot configure unit

Check unit is offline or tape at BOT
Check serial cable is correctly fitted.
Check communications parameters. They should be 38,400 baud, 1stop bit and no parity

7.1.4 Blank display after power up self test completes

No terminator fitted or external cable fault. Remove all cables and retry with just terminator fitted. Check terminator is the correct type.

7.1.5 Cannot write to tape

Check media write protect tab.

7.2 Configuration Faults

All of the commands that can be sent to the Q³ system can respond with a number of error codes. These codes have been kept consistent throughout the command set. The format of these error codes is: -

ENTscommandStatusMessage

Where command is the 1 character command that caused the message. Status is a two digit numeric response code and Message is a free text message describing the response.

The Response codes and their meaning are as follows: -

00	OK	command completed successfully
01	bad format	message format invalid, e.g. only 1 dollar prefix
02	bad command	message identifier invalid
03	bad argument	message contained bad argument
04	incorrect password	the wrong access password was specified
05	bad sequence	sequence error in command ENPK or ENPP
06	bad password	a new password specified in ENPP was invalid
07	bad key	an encryption key specified in ENPK was invalid

8 Appendix A - Connector Details

8.1.1 Differential SCSI (HVD)

Signal Name	68 Way Pin No	68 Way Pin No	Signal Name
+DB (12)	1	35	-DB (12)
+DB (13)	2	36	-DB (13)
+DB (14)	3	37	-DB (14)
+DB (15)	4	38	-DB (15)
+DB (P1)	5	39	-DB (P1)
Ground	6	40	Ground
+DB (0)	7	41	-DB (0)
+DB (1)	8	42	-DB (1)
+DB (2)	9	43	-DB (2)
+DB (3)	10	44	-DB (3)
+DB (4)	11	45	-DB (4)
+DB (5)	12	46	-DB (5)
+DB (6)	13	47	-DB (6)
+DB (7)	14	48	-DB (7)
+DB (P)	15	49	-DB (P)
Diffsens	16	50	Ground
Termpwr	17	51	Termpwr
Termpwr	18	52	Termpwr
Reserved	19	53	Reserved
+ATN	20	54	-ATN
Ground	21	55	Ground
+BSY	22	56	-BSY
+ACK	23	57	-ACK
+RST	24	58	-RST
+MSG	25	59	-MSG
+SEL	26	60	-SEL
+C/D	27	61	-C/D
+REQ	28	62	-REQ
+I/O	29	63	-I/O
Ground	30	64	Ground
+DB (8)	31	65	-DB (8)
+DB (9)	32	66	-DB (9)
+DB (10)	33	67	-DB (10)
+DB (11)	34	68	-DB (11)

8.1.2 Single Ended SCSI

Signal Name	68 Way Pin No	68 Way Pin No	Signal Name
Ground	1	35	-DB (12)
Ground	2	36	-DB (13)
Ground	3	37	-DB (14)
Ground	4	38	-DB (15)
Ground	5	39	-DB (P1)
Ground	6	40	-DB (0)
Ground	7	41	-DB (1)
Ground	8	42	-DB (2)
Ground	9	43	-DB (3)
Ground	10	44	-DB (4)
Ground	11	45	-DB (5)
Ground	12	46	-DB (6)
Ground	13	47	-DB (7)
Ground	14	48	-DB (P)
Ground	15	49	Ground
Ground	16	50	Ground
Termpwr	17	51	Termpwr
Termpwr	18	52	Termpwr
Reserved	19	53	Reserved
Ground	20	54	Ground
Ground	21	55	-ATN
Ground	22	56	Ground
Ground	23	57	-BSY
Ground	24	58	-ACK
Ground	25	59	-RST
Ground	26	60	-MSG
Ground	27	61	-SEL
Ground	28	62	-C/D
Ground	29	63	-REQ
Ground	30	64	-I/O
Ground	31	65	-DB (8)
Ground	32	66	-DB (9)
Ground	33	67	-DB (10)
Ground	34	68	-DB (11)

8.1.3 Low Voltage Differential

Signal Name	68 Way Pin No	68 Way Pin No	Signal Name
+DB (12)	1	35	-DB (12)
+DB (13)	2	36	-DB (13)
+DB (14)	3	37	-DB (14)
+DB (15)	4	38	-DB (15)
+DB (P1)	5	39	-DB (P1)
+DB (0)	6	40	-DB (0)
+DB (1)	7	41	-DB (1)
+DB (2)	8	42	-DB (2)
+DB (3)	9	43	-DB (3)
+DB (4)	10	44	-DB (4)
+DB (5)	11	45	-DB (5)
+DB (6)	12	46	-DB (6)
+DB (7)	13	47	-DB (7)
+P_CRCA	14	48	-P_CRCA
Ground	15	49	Ground
DIFFSENS	16	50	Ground
Termpwr	17	51	Termpwr
Termpwr	18	52	Termpwr
Reserved	19	53	Reserved
Ground	20	54	Ground
+ATN	21	55	-ATN
Ground	22	56	Ground
+BSY	23	57	-BSY
+ACK	24	58	-ACK
+RST	25	59	-RST
+MSG	26	60	-MSG
+SEL	27	61	-SEL
+C/D	28	62	-C/D
+REQ	29	63	-REQ
+I/O	30	64	-I/O
+DB (8)	31	65	-DB (8)
+DB (9)	32	66	-DB (9)
+DB (10)	33	67	-DB (10)
+DB (11)	34	68	-DB (11)

Q^3 LVD/HVD Demo unit Guide

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8.1.4 Serial

The serial connector is a 9 way "D" type female.

The pin out is as follows: -

Pin	Function
1	No Connection
2	Transmit Data
3	Receive Data
4	No Connection
5	Signal Ground
6	No Connection
7	No Connection
8	Ready to Send
9	No Connection

_____

_____

End of Manual – Encryption Key Worksheet for Records
_____

8.2 Q^3 Serial Number and Encryption Key Worksheet

Please Note:

To ensure that you are able to reconfigure your Q^3 unit in the event of a disaster recovery situation or power outage, it is vital to keep a copy of your original encryption key along with the additional unique ID chip in a separate, secure location.

Q^3 Serial Number

_____

24-Character Key(s)

Key1:

Key 2:

_____

Additional Unique ID Chip

_____

Store in safe location

To order replacement Q^3 units and/or unique ID chips, please contact:

10ZiG Technology   Phone: 866-864-5250
Technical Support   Fax: 623-516-8697
2012 W. Lone Cactus Dr.   Website: www.theq3.com
Phoenix, AZ 85027   support@theq3.com

_____

9 COMMENT FORM

We would appreciate your comments and suggestions regarding this manual. Please list any errors or suggestions for improvement.

Please send this form to the address below. We will use your comments in planning future editions.

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10 Glossary