EDWARDS

Instruction Manual

USB / RS232 & SLTA-10 / LON

Description	Item Number
USB Pump RS232 Interface Kit	D372-15-805
SLTA-10 Pump LON Interface Kit	D372-15-810

EDWARDS

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Contents

1 Introduction

1.1 Scope and definitions

This manual provides installation, operation and maintenance instructions for the use of two Edwards interface kits:

- D372-15-805 USB Pump RS232 Interface Kit

    o to connect a PC's USB port to an Edwards pump's RS232 port

- D372-15-810 SLTA-10 Pump LON Interface Kit

    o to connect a user-provided SLTA-10 to an Edwards pump's LON port

Read this manual before you install and operate either of those kits.

Important safety information is highlighted as WARNING and CAUTION instructions; you must obey these instructions. The use of WARNINGS and CAUTIONS is defined below.

WARNING

Warnings are given where failure to observe the instruction could result in injury or death to people.

CAUTION

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

The following IEC warning labels appear on the pump:

Warning – refer to accompanying documentation.

Warning – Edwards offers European customers a recycling service.

The units used throughout this manual conform to the SI international system of units of measurement.

1.2 Description

1.2.1 D372-15-805 USB Pump RS232 Interface Kit

The main component of this kit is D49951139, and Edwards cable assembly with a PC USB TYPE A plug at one end and a pump RS232 5-way XLR plug at the other end.

A USB⇔RS232 adapter, manufactured by FTDI, is built into the USB plug. The 5-way XLR plug is intended to be connected into an Edwards pump's PDT socket.

The kit also includes D37370726, an Edwards cable assembly to convert the 5-way XLR plug to an RJ12 plug, for use with older pumps where the PDT connector is an RJ12 socket.

The primary purpose for this kit is to allow an Edwards pump with an RS232 interface to be supported using various Edwards PC software tools such as EST (Edwards Support Toolkit), FEUU (Flash EPROM Upgrade Utility) and others. So, the final component of this kit is D37215870, an Edwards CD-ROM containing FTDI USB drivers for the Windows operating-system, along with this instruction manual. Note that the CD-ROM does not contain the actual Edwards PC software support tools, which must be acquired separately.

1.2.2 D372-15-810 SLTA-10 Pump LON Interface Kit

The main component of this kit is D49951141, an Edwards cable assembly with two 2-way Weidmuller plugs at one end and a pump LON 4-way XLR plug at the other end.

The two Weidmuller connectors plug into a SLTA-10, an RS232⇔LON adapter box, which is manufactured by Echelon. The black Weidmuller connector carries 24 volts power from the pump to the SLTA-10. The orange Weidmuller connector carries LON network communications between the SLTA-10 and the pump.

The kit does not include the actual SLTA-10, which the user must purchase separately, either directly from Echelon http://store.echelon.com/network_interfaces.asp or from an Echelon distributor such as AVNET Express or RS.

There are several variants of the SLTA-10. The one required for use with Edwards pumps is "SLTA-10/TP-78 Serial LonTalk Adapter" and the Echelon part number is "73352R". It is very important to purchase that specific variant, which is the only one that has the "TP-78" (Twisted Pair – 78k baud) transceiver compatible for use with Edwards pumps.

The SLTA-10 has an RS232 9-way D-sub socket, which is intended to be connected to a PC via an appropriate interface cable. However, neither the user-provided SLTA-10 nor the Edwards provided SLTA-10 Pump LON Interface Kit provide such an interface cable. The user must purchase their own means of connecting their PC to the SLTA-10. Edwards recommends, but does not supply, suitable USB⇔RS232 adapters from FTDI: e.g.

US232R-10 Premium USB-Serial Converter   US232R-100 Premium USB-Serial Converter

The '-10' and '-100' specify the cable length: 10cm (~4") or 100cm (~40"), respectively.

Those FTDI US232R-10 and US232R-100 products can be ordered directly from their on-line shop http://apple.clickandbuild.com/cnb/shop/ftdichip or from distributors such as DigiKey, Farnell, Mouser or RS. They can also be ordered from EasySync, via their own web-site http://www.easysync-ltd.com/category/115/usb-to-rs232.html z

whose part-numbers are ES-U-1001-R10 and ES-U-1001-R100, respectively.

When using a USB⇔RS232 adapter with the SLTA-10, the connector locking nuts on both parts tend to clash with each other.
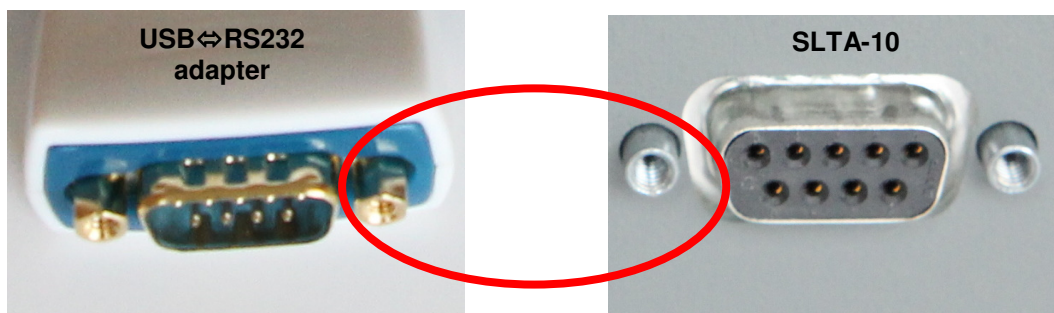
**These locking nuts clash
when plugged into each other**

The SLTA-10 Pump LON Interface Kit therefore includes a 9-way D-sub "gender changer" (a back-to-back 9-way D-sub plug and 9-way D-sub socket) whose own locking screws can be removed, allowing it to be fitted between the USB⇔RS232 adapter and the SLTA-10.

Remove these locking screws
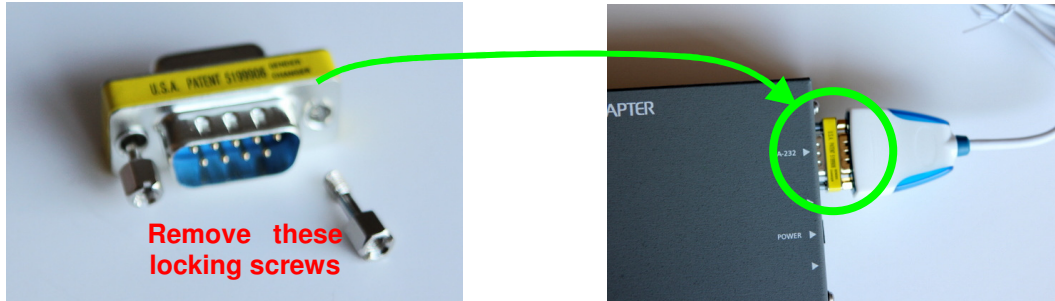
The sole purpose for this kit is to allow an Edwards pump with a LON interface to be supported via an SLTA-10 using various Edwards PC software tools such as EST, FEUU and others. So, the final component of this kit is D37215870, an Edwards CD-ROM containing Echelon LON drivers and associated utilities for the Windows operating-system, along with this instruction manual. Note that the CD-ROM does <u>not</u> contain the actual Edwards PC software support tools, which must be acquired separately.

This table shows which Edwards pump controller generations and types include a LON interface.

	LON	RS232	ETHERNET
Gen 1 (iQ, Mk1 iH)	✓	✗	✗
Gen 2 (Mk2–5 iH/iL, iF)	✓	✓	✗
Gen 3 (IPX/EPX EUC, iGX/GX OTB, pHMB)	✓	✓	✓
Gen 4 (iXH/iXL, pXH, GXS/CXS)	✗	✓	✓
System Controllers (Various)	✗	✓	✓

Note that it is only necessary to connect a PC to a pump controller via a LON interface for Gen 1 pumps: iQ and Mk1 iH. All later generations of pumps have an RS232 interface, which is the Edwards recommended method for using with Edwards PC support software tools.

1.2.3 Interface Kit Summary

If you need to run Edwards PC software tools to support a Gen 1 pump (iQ or Mk1 iH) then you must connect the PC to the pump via its LON interface. The currently preferred method for doing that is to purchase your own FTDI USB⇔RS232 adapter and your own Echelon SLTA-10 RS232⇔LON adapter and to use them in conjunction with D372-15-810, the Edwards SLTA-10 Pump LON Interface Kit.

However, if you need to run Edwards PC software tools to support a Gen 2 or later generation pump (Mk2-5 iH, iL, iF, IPX/EPX EUC, iGX/GX, iXH/iXL, GXS/CXS) then you should connect the PC to the pump via its RS232 interface. The currently preferred method for doing that is to use D372-15-805, the Edwards USB Pump RS232 Interface Kit.

2 Technical Data

2.1 D372-15-805 USB Pump RS232 Interface Kit

2.1.1 Electrical

USB powered, +5V dc from the PC

15mA operating supply current

USB 2.0 full speed compatible

USB Type A male connector

Pin 1: VCC (+5V dc)

Pin 2: Data-

Pin 3: Data+

Pin 4: Ground

RS232 EIA-232 compatible

RS232 XLR 5-way male connector

Pin 1: 0V / Return

Pin 2: n/c (no connection)

Pin 3: TXD (transmit data from the pump to the PC)

Pin 4: RXD (receive data to the pump from the PC)

Pin 5: n/c

2.1.2 Operating Temperature

0° to +60°C

2.1.3 Cable

UL2464, 24 AWG, 5mm diameter

1.8m length

2.1.4 Certifications

CE

FCC

RoHS

The active part of the D372-15-805 USB Pump RS232 Interface Kit is a USB adapter cable assembly manufactured by FTDI: their part number is USB-RS232-WE-1800-BT

Edwards adds the 5W XLR connector to that FTDI product, which is already CE marked and meets European and FCC EMC standards. FTDI's Declaration of Conformity is shown below, indicating compliance with the European EMC Directive.

CE CERTIFICATE

Ref No.: NEI-EMC-1-E0808027
Date of Issue: Aug. 27, 2008

This is to certify that the product listed in follows was (were) tested in the Neutron EMC Laboratory to comply with the required criteria levels of the follow-mentioned Generic Standards or Product Family Standard(s) and/or Basic Standard(s) based-on the essential conformity requirements of EMC Directive of 2004/108/EC.

Equipment	RS232 signal level cable
Model Name	USB-RS232-WE-5000-BB; USB-RS232-WE-5000-TT; USB-RS232-WE-5000-BT;
	USB-RS232-WE-4000-BB; USB-RS232-WE-4000-TT; USB-RS232-WE-4000-BT;
	USB-RS232-WE-3000-BB; USB-RS232-WE-3000-TT; USB-RS232-WE-3000-BT;
	USB-RS232-WE-2000-BB; USB-RS232-WE-2000-TT; USB-RS232-WE-2000-BT;
	USB-RS232-WE-1800-BB; USB-RS232-WE-1800-TT; USB-RS232-WE-1800-BT
Brand Name	FTDI
Applicant	Future Technology Devices Int'l Ltd.
Address	373 Scotland Street, Glasgow, G5 8QB, United Kingdom
Measurement	EN 55022: 2006 Class B
Method	EN 55024: 1998+A1: 2001+A2: 2003

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-EMC-1-E0808027) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TUV Rheinland and TAF according to the ISO-17025 quality assessment standard and technical standard(s). The test data contained in the referenced test report relate only to the EUT sample and item(s) tested.

Andy Chiu
Authorized Signatory

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ilac-MRA   TAF
Testing Laboratory
0659

2.2   D372-15-810 SLTA-10 Pump LON Interface Kit

2.2.1 Electrical

Weidmuller 2-way black connector, type 1716470000

Pin 1 & Pin 2: power-supply, polarity insensitive

Weidmuller 2-way orange connector, type 1281760000

Pin 1 & Pin 2: LON network, polarity insensitive

LON XLR 4-way male connector

Pin 1: 0V / Return

Pin 2: +24V dc (from the pump)

Pin 3 & Pin 4: LON network, polarity insensitive

2.2.2 Operating Temperature

0° to +60°C

2.2.3 Cable

Belden 8723, 22 AWG, approximately 4mm diameter

1.8m length

2.2.4 Certifications

RoHS

NOTE: The Edwards SLTA-10 Pump LON Interface Kit contains no active parts. This kit needs to be used in conjunction with a user-supplied USB⇔RS232 adapter, such as those recommended from FTDI, and an Echelon SLTA-10 RS232⇔LON adapter.

Refer to the documentation accompanying those user-supplied items for their own technical data.

3 Installation

3.1 Unpack and inspect

Remove all packing materials and check the contents. If any item is damaged, notify your supplier and the carrier within three days; state the relevant PC interface kit Item Number together with your order number and your supplier's invoice number.

Description	Item Number
USB Pump RS232 Interface Kit	D372-15-805
SLTA-10 Pump LON Interface Kit	D372-15-810

CAUTION

Do not use either type of PC interface kit if it is damaged.

Check that you have received the items listed for the relevant PC interface kit. If any item is missing, notify your supplier in writing within three days.

D372-15-805 USB Pump RS232 Interface Kit		
Quantity	**Description**	**Check ☑**
1	D49951139 USB⇔5W XLR, PC to Pump RS232 cable assembly	☐
1	D37370726 5W XLR⇔RJ12 cable assembly	☐
1	D37215870 Drivers and instruction manual CD-ROM	☐

| D372-15-810 SLTA-10 Pump LON Interface Kit		
Quantity	**Description**	**Check ☑**
1	D49951141 2xWeidmuller⇔4W XLR, SLTA-10 to Pump Lon cable assembly	☐
1	500003076 9W Sub-D gender changer	☐
1	D37215870 Drivers and instruction manual CD-ROM	☐

3.2 Install the D372-15-805 USB Pump RS232 Interface Kit

NOTE: You must install the FTDI USB driver software from the CD-ROM <u>before</u> you connect the D49951139 USB⇔5W XLR, PC to Pump RS232 cable assembly to your PC

The CD-ROM contains the latest (as of Dec 2011) FTDI driver software for the Windows XP and Windows 7 operating-systems, 32-bit (x86) and 64-bit (x64) versions. Edwards PCs generally have Windows XP 32-bit (x86) installed but from January 2012 new Edwards PCs will come with Windows 7 64-bit (x64) installed.

Follow these steps precisely:

1.   Install the FTDI USB driver by inserting the **D37215870 CD-ROM** and navigating to the **FTDI DRIVERS** folder.

2.   Read the **README FTDI.pdf** file and then double-click the USB driver installation file **CDM20814_Setup.exe**

3.   Click **Run** on this dialog box
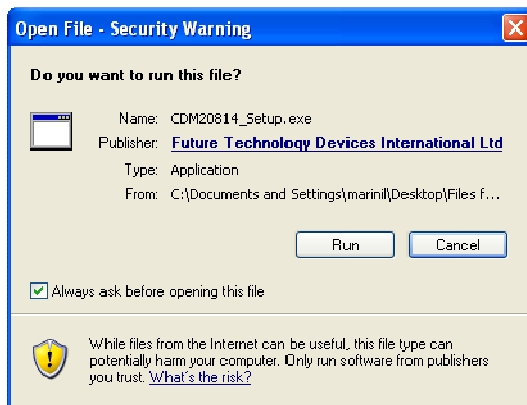
4.   A Windows command window will be displayed briefly while the relevant USB drivers are installed for your particular version of Windows.

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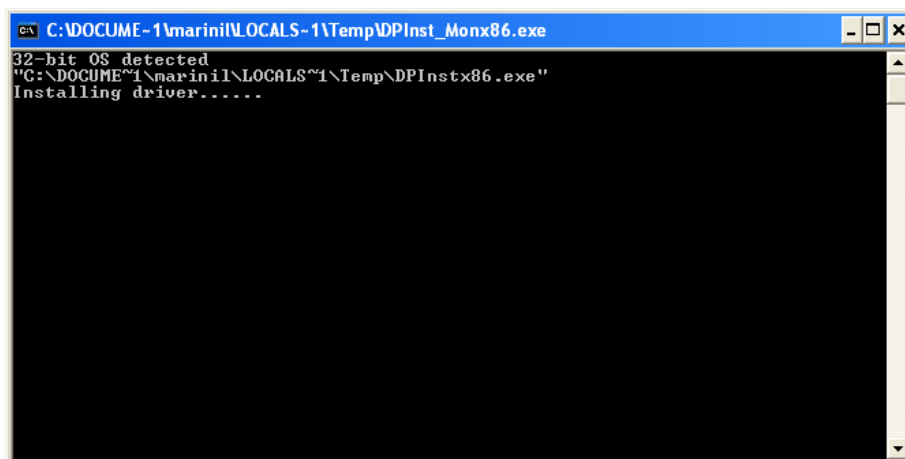
5. Once that command window disappears then the USB drivers have been installed then take the D49951139 USB⇔5W XLR, PC to Pump RS232 cable assembly and plug the USB end into any one of the PC's USB ports.

    You may briefly see messages pop up indicating that Windows has sensed the new USB device has been plugged in and, after a short delay, confirming that the device is now ready for use.

6. Once Windows has recognised the new USB device is plugged in and has confirmed it is ready for use, find out what COM port number has been assigned by Windows to your new USB⇔RS232 adapter by navigating to

    Start | **Control Panel** | **System** | **Hardware** | **Device Manager**
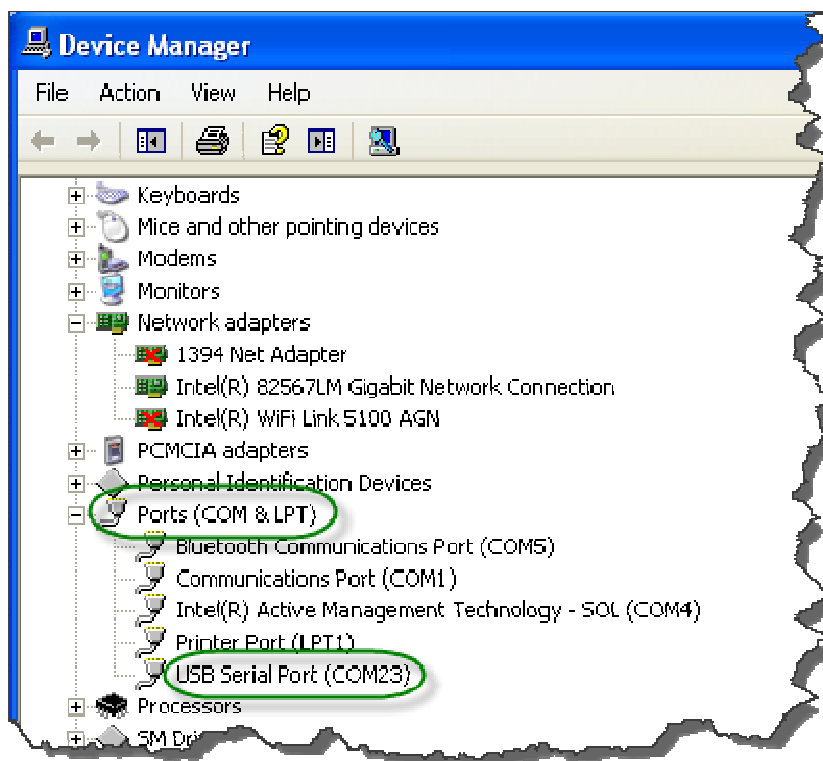
    In this example, Windows has designated the USB⇔RS232 adapter as COM port 23, but your system is likely to assign a different COM port number. Make a note of the COM port number, for use later when configuring the communications settings of Edwards PC software support tools.

7. The final step is to configure an important parameter associated with this USB serial port. Double-click on the **USB Serial Port (COMn)** entry, under **Ports (COM & LPT),** then navigate to **Port Settings**. Leave all values there unchanged but click on the **Advanced…** button and under **BM Options** change the **Latency Timer (msec)** to **2**. Then click **OK** to close **Advanced…** and click **OK** again to close **Port Settings**. Finally, close the **Device Manager** and **System Properties** windows.

8. Plug the XLR end of the D49951139 USB⇔5W XLR, PC to Pump RS232 cable into an Edwards pump with a compatible 5W XLR RS232 / PDT socket. Make use of the kit's D37370726 adapter if the Edwards pump has a compatible RJ12 RS232 / PDT socket.

    See Section 4 for tips on operation with Edwards PC software support tools.

3.3 Install the D372-15-810 SLTA-10 Pump LON Interface Kit

NOTE: You must install the FTDI USB driver software from the CD-ROM <u>before</u> you connect an FTDI USB⇔RS232 adapter to the PC. You must then install the Echelon OpenLDV <u>and</u> SLTA-10 specific drivers and utility software from the CD-ROM <u>before</u> you connect to the SLTA-10. You must also connect the D49951141 2xWeidmuller⇔4W XLR, SLTA-10 to Pump Lon cable assembly to a powered pump before attempting to use the SLTA-10, because that cable provides power to the SLTA-10 from the pump.

The CD-ROM contains the latest (as of Dec 2011) Echelon drivers and utility software for the Windows XP operating-system. It will also work with Edwards PC software support tools, under the Windows 7 32-bit operating-system but only if those tools are run in "Windows XP (Service Pack 3) Compatibility Mode". The SLTA-10 drivers and utility are <u>not</u> compatible with the Windows 7 64-bit operating-system.

Follow these steps precisely:

1. If you intend using the Edwards recommended, but user-supplied, FTDI US232R-10 or -100 Premium USB-Serial Converter, to connect your PC to the SLTA-10, then follow steps 1 – 7 of Section 3.2, above. The FTDI US232R-x products use exactly the same FTDI USB⇔RS232 interface chip, and therefore exactly the same Windows drivers, as used in the D49951139 USB⇔5W XLR, PC to Pump RS232 cable. Of course, in step 5 above, you plug in the FTDI US232R-x USB⇔RS232 adapter instead of the Edwards D49951139 USB⇔RS232 adapter.

However, if a different user-supplied USB⇔RS232 adapter is to be used then follow the equivalent instructions provided with that alternative adapter.

2. Install the Echelon OpenLDV (generic driver for all LON devices) by inserting the **D37215870 CD-ROM** and navigating to the **ECHELON DRIVERS** folder.

3. Read the **README ECHELON.pdf** file and then double-click the OpenLDV driver installation file **153-0411-01A_OpenLDV400.exe**
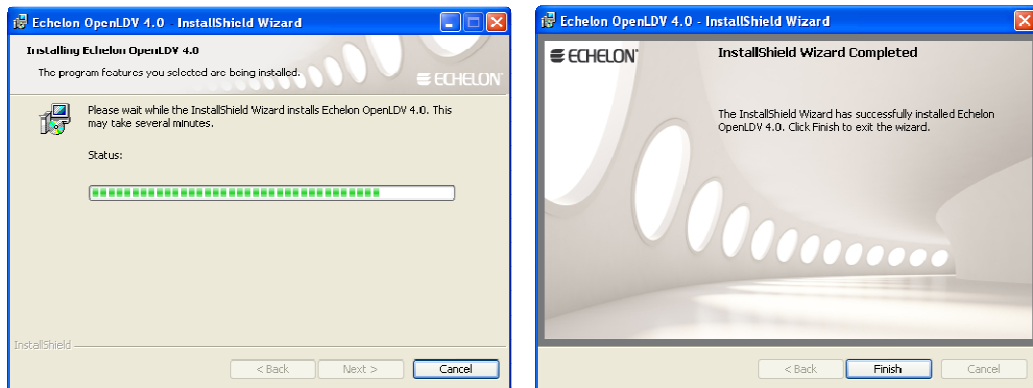
4. Click **Run** on this dialog box
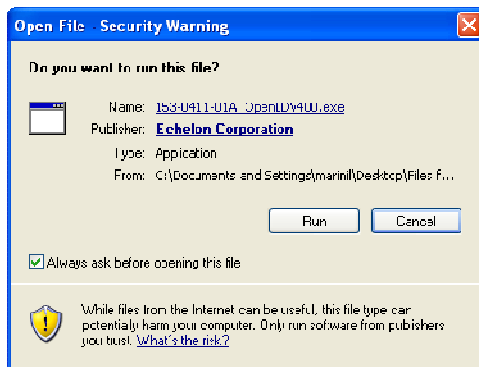
which will result in these two windows appearing in succession
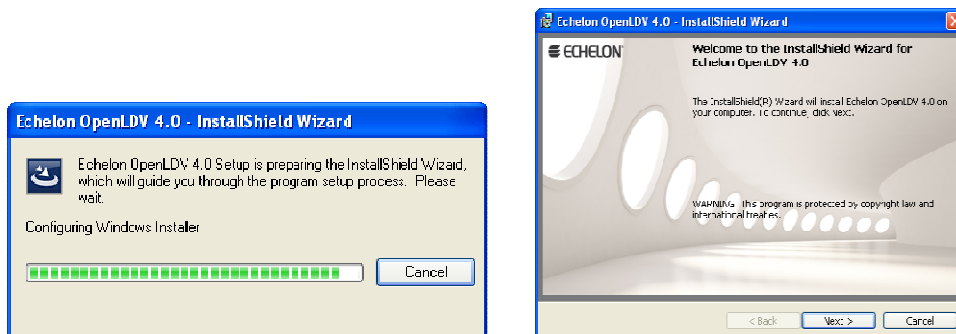
The following sequence of installation wizard boxes will then appear when the appropriate **Next**, **Install** etc. buttons are clicked.
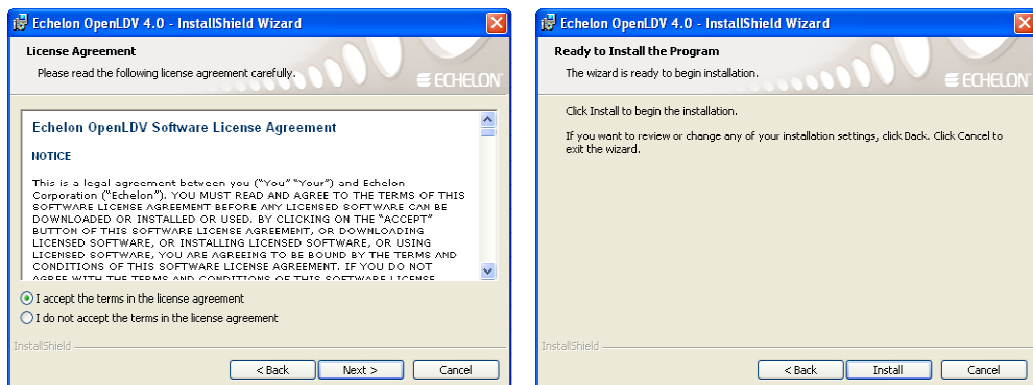
On completion, the following **LonWorks Interfaces** utility icon will appear in the Windows **Control Panel**.

Note: the SLTA-10 does not require the user to do anything with that utility.

5.   Install the Echelon SLTA-10 software (specific SLTA-10 driver and SLTALink Manager utility) from the **D37215870 CD-ROM** in the **ECHELON DRIVERS** folder by double-clicking the installation file **153-0409-01A_slta10_Windows.exe**
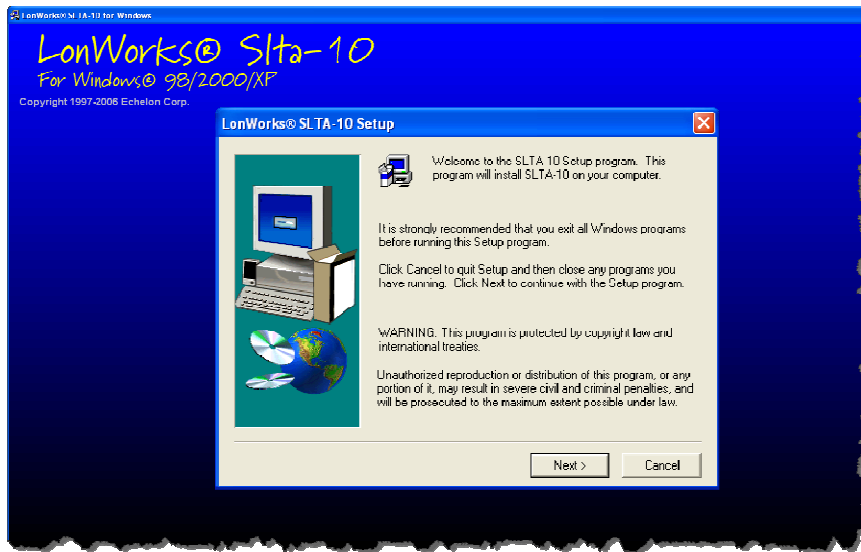
6.   Click **Run** on the next dialog box

which will result in this dialog box appearing.
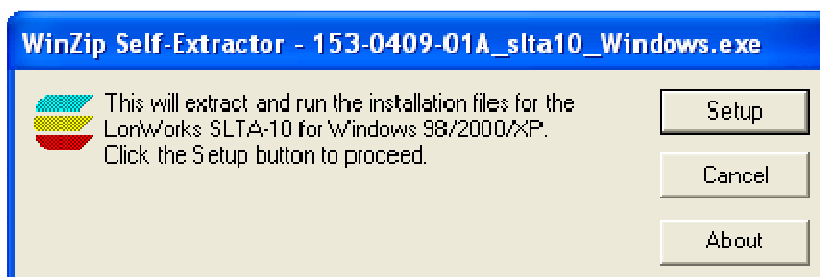
7. Click **Setup,** which will briefly display this
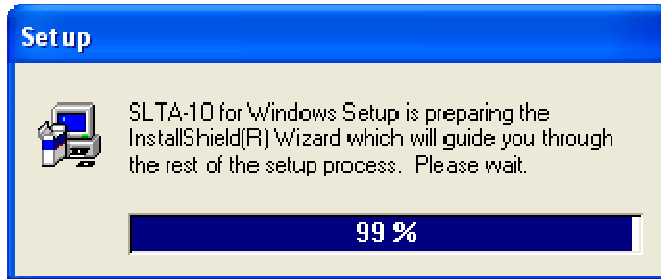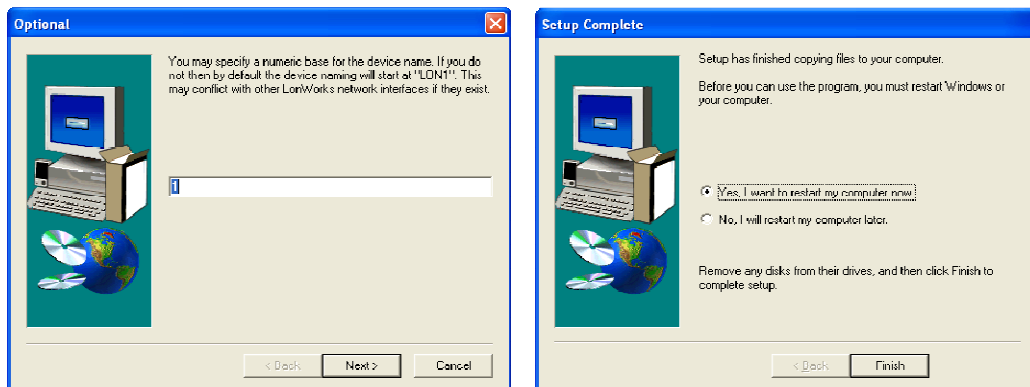

followed by

The following sequence of installation wizard boxes will then appear when the appropriate **Yes**, **Next** etc. buttons are clicked.
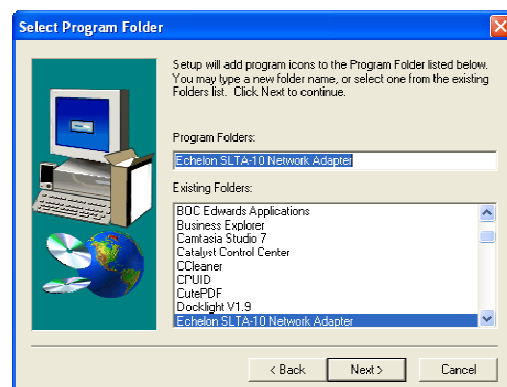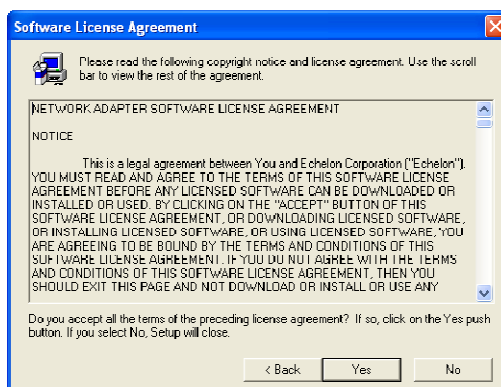
On completion of the installation wizard, and after restarting your computer, the **SLTALink Manager** utility icon will be visible in the Windows system tray, indicating that it is now running. That utility is also accessible via **Start** | **All Programs** | **Echelon SLTA-10 Network Adapter** | **SLTALink Manager**.
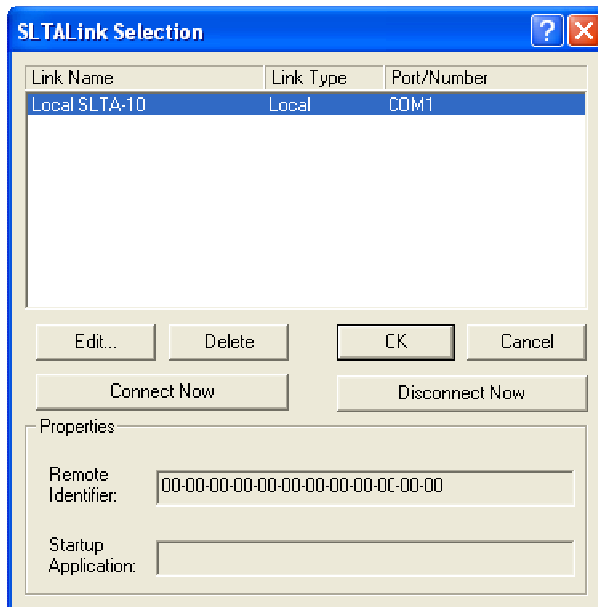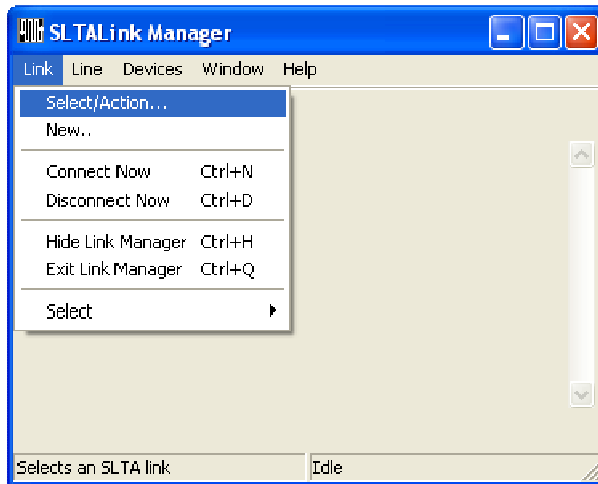
The SLTALink Manager can now be configured.

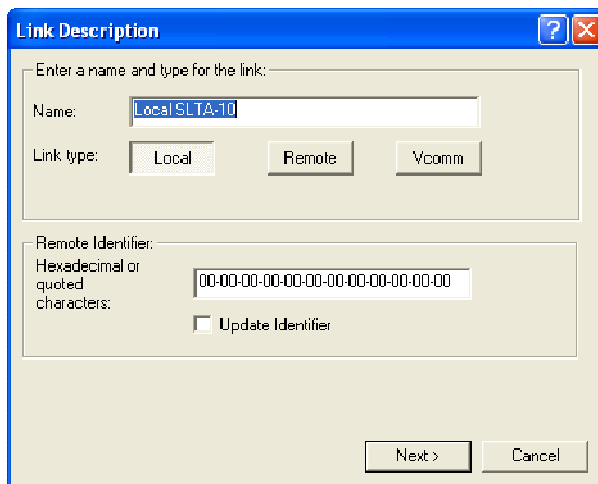8. Open the **SLTALink Manager** utility, either by double-clicking the icon in the Windows system tray or via the Start menu.
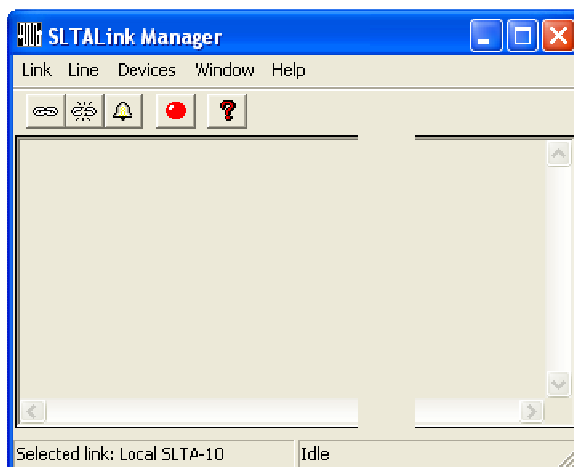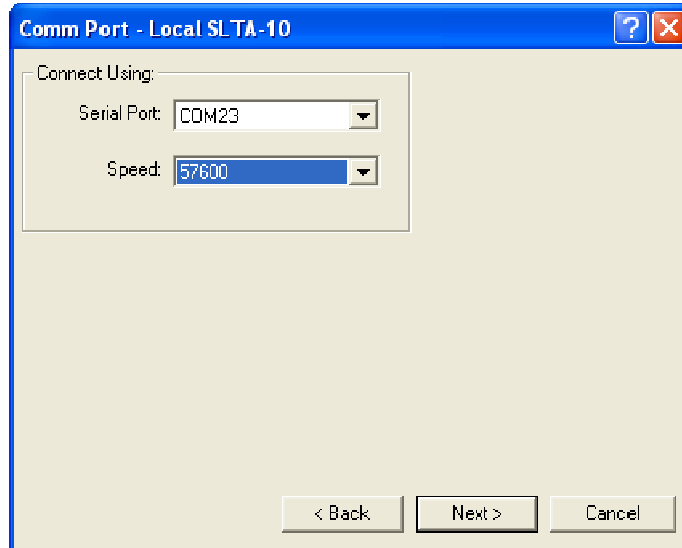
9. Select **Link** | **Select/Action…**

10.   Click the **Edit…** button

11.   Click **Next** and select the **Serial Port COM** number that your USB⇔RS232 adapter is using. Also set the **Speed** to **57600** baud.

The example, below, shows COM23 selected because that happened to be the COM port number reported in Step 6 or Section 3.2, above.


12.   Click **Next** then **Finish** then **OK** to return to the main **SLTALink Manager** screen**.**

13.   Set the SLTA-10 configuration switches as shown here

SWITICH UP ■   ■ ■ ■ ■ ■
SWITCH DOWN   ■ ■
1 2 3 4 5 6 7 8

Read the label on the underside of the user-supplied SLTA-10 for the meaning of the switch settings.

14. Use the D49951141 2xWeidmuller⇔4W XLR, SLTA-10 to Pump Lon cable assembly to connect the SLTA-10 directly into an Edwards pump with a compatible 4W XLR LON socket.

15. Apply power to the pump and confirm that the SLTA-10 is powered on, as indicated by its green LED, next to the black Weidmuller connector, being illuminated.

16. Connect the FTDI or other USB⇔RS232 adapter to the SLTA-10's 9W Sub-D connector, via the 500003076 9W Sub-D gender changer.
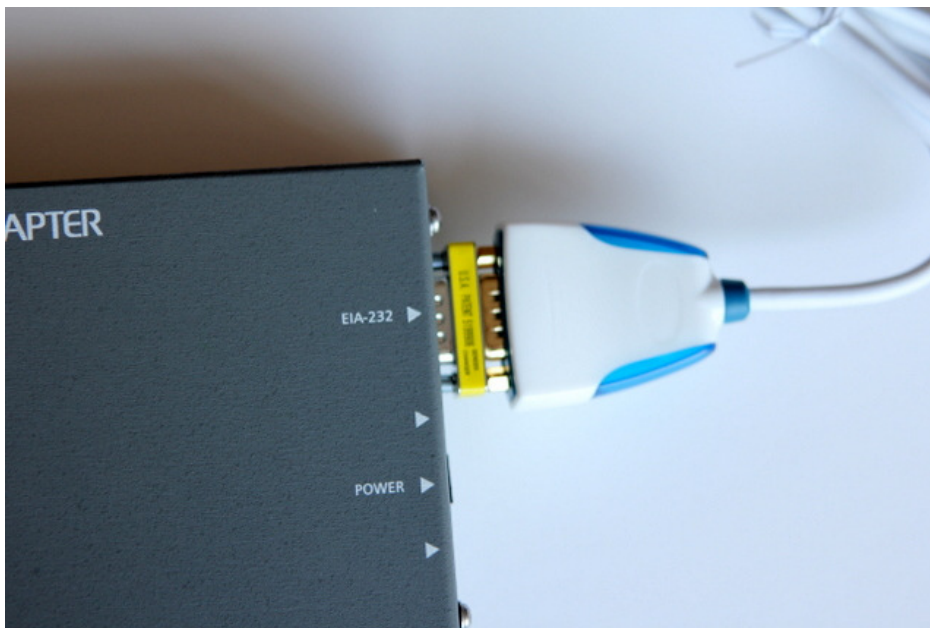
17. To initiate a connection between the PC and the SLTA-10, click the SLTALink Manager's Link Chain icon ⌬ or, from the menu, select **Link** | **Connect Now**
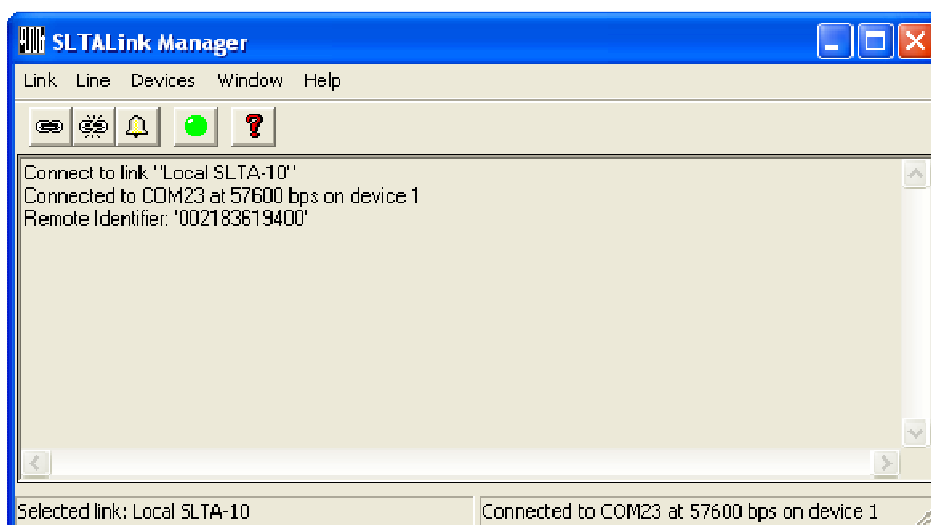
If a Remote Identifier string does not get displayed immediately (your string will be different from the example above) then try disconnecting and reconnecting, by clicking the ⚘ button followed by the 🔗 button.

If the Remote Identifier string is still not displayed then try stopping the SLTALink Manager program, then power-cycle the SLTA-10 (by removing the black Weidmuller connector for ten seconds then re-inserting it), then re-start SLTALink Manager and try connecting again by clicking the 🔗 button.

See Section 4 for tips on operation with Edwards PC software support tools.

4 Operation

Once the USB Pump RS232 Interface Kit and/or SLTA-10 Pump LON Interface Kit have been installed, as described in Section 3, they are intended to be operated with Edwards PC software support tools. Users should familiarise themselves with the specific instructions associated with the relevant software tool. The following sections describe how to configure RS232 and LON communications in CDU, EST and FEUU.

4.1 Using USB Pump RS232 Interface Kit with Edwards PC tools

4.1.1 CDU

In CDU, select **Options** | **PLF Communications Settings** the click the **Add a new interface** button.
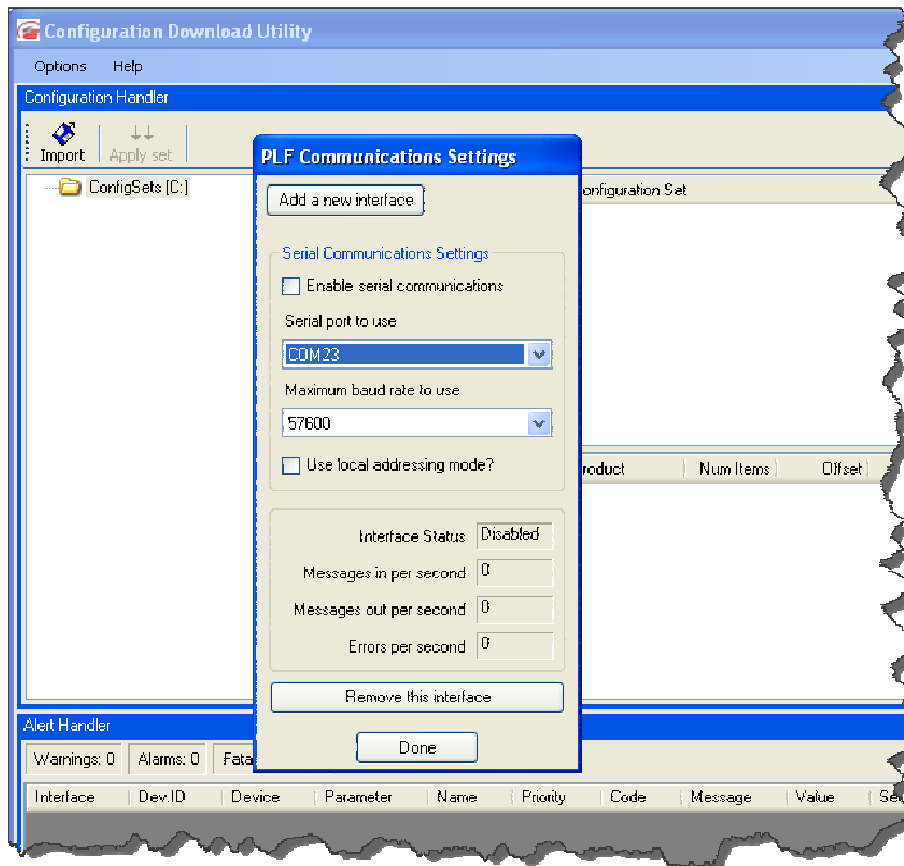
Select the relevant COM port number (the one that Windows has assigned to the Edwards USB⇔RS232 adapter) from the Serial port to use drop-down box and set the Maximum baud rate to use to 57600. Tick the Enable serial communications checkbox and click the Done button. If CDU does not immediately indicate that communication via the relevant COM port has started then try re-starting CDU.

4.1.2 EST

In EST, select **Options** | **PLF Communications Settings** the click the **Add a new interface** button.
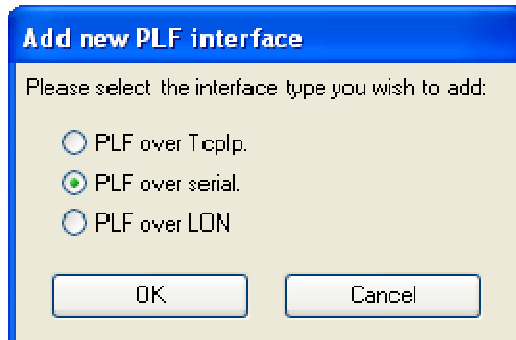
Select **PLF over serial** then click **OK**
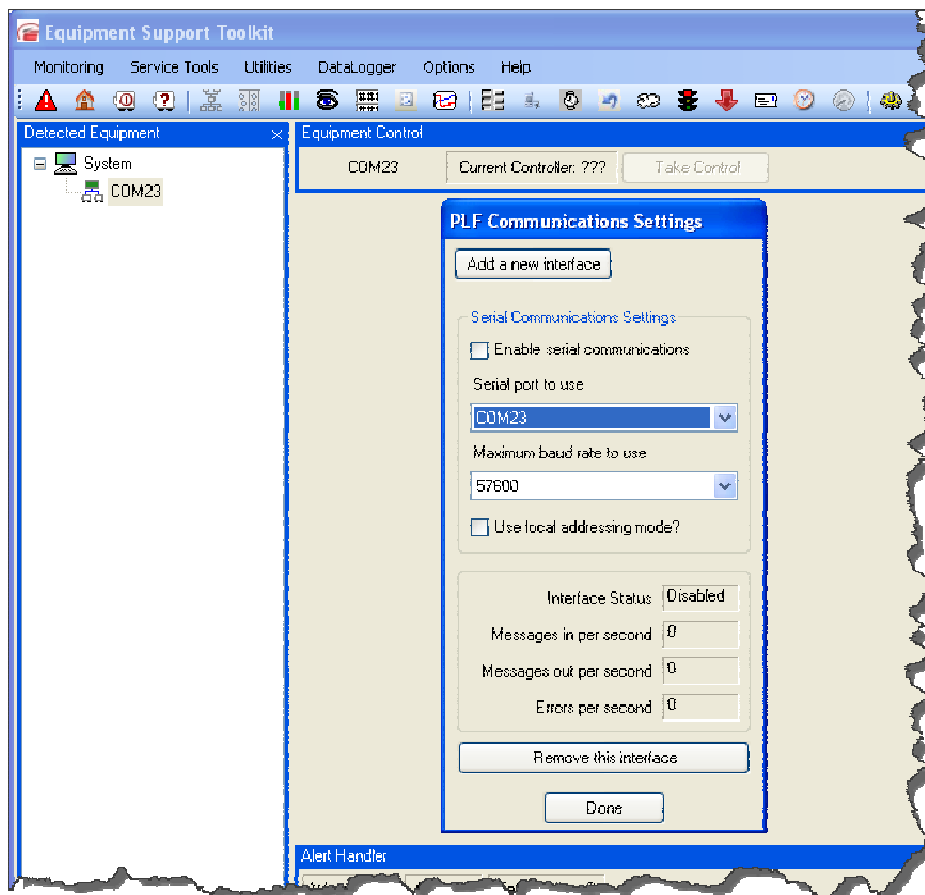
Select the relevant COM port number (the one that Windows has assigned to the Edwards USB⇔RS232 adapter) from the **Serial port to use** drop-down box and set the **Maximum baud rate to use** to **57600**. Tick the **Enable serial communications** checkbox and click the **Done** button. If the Detected Equipment display does not immediately indicate that communication via the relevant COM port has started then try re-starting EST.

4.1.3 FEUU

If FEUU fails to start, possibly because it hasn't recognised a previously configured RS232 COM port number, then exit FEUU, navigate to **C:\Program Files\Edwards\FEUU** and delete the **FEUU.INI** file. Then restart FEUU. If FEUU displays this message
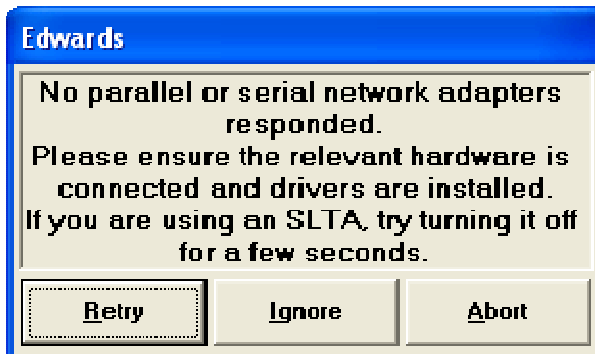
Then click the **Ignore** button.

Use the instructions provided with FEUU to **Logon** then select **Utilities** | **Communications Options**
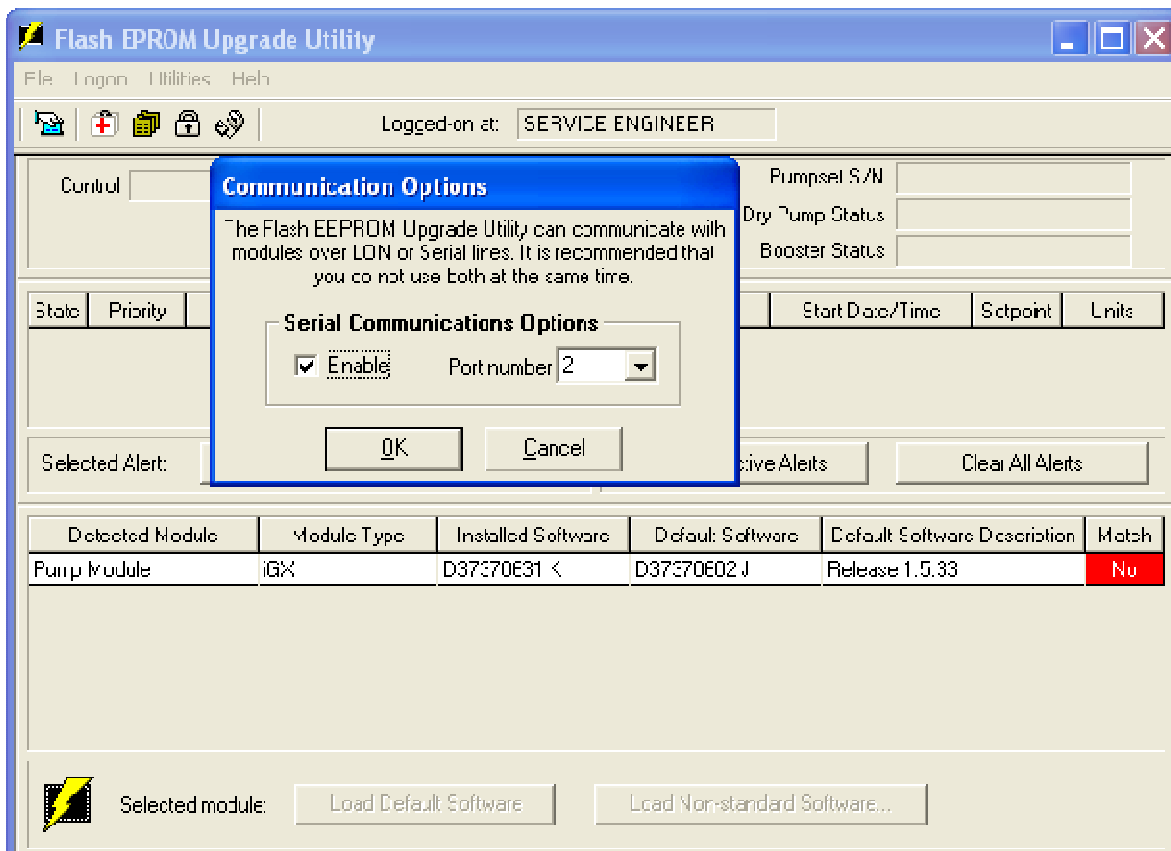
Set the **Port number** to the relevant COM port number (the one that Windows has assigned to the Edwards USB⇔RS232 adapter), tick the **Enable** checkbox and click the **OK** button.

NOTE: The FEUU software constrains COM port numbers to a maximum of COM15. If Windows allocated a higher COM port number to the USB⇔RS232 adapter then, using **Start** | **Control Panel** | **System** | **Hardware** | **Device Manager**, double-click on the USB Serial Port (COMn) entry, under Ports (COM & LPT), then navigate to Port Settings. Leave all values there unchanged but click on the Advanced… button and manually choose an alternative **COM Port Number** within the valid range for FEUU: i.e. < COM16. Make sure that BM Options change the Latency Timer (msec) remains set to 2. Then click OK to close Advanced… and click OK again to close Port Settings.
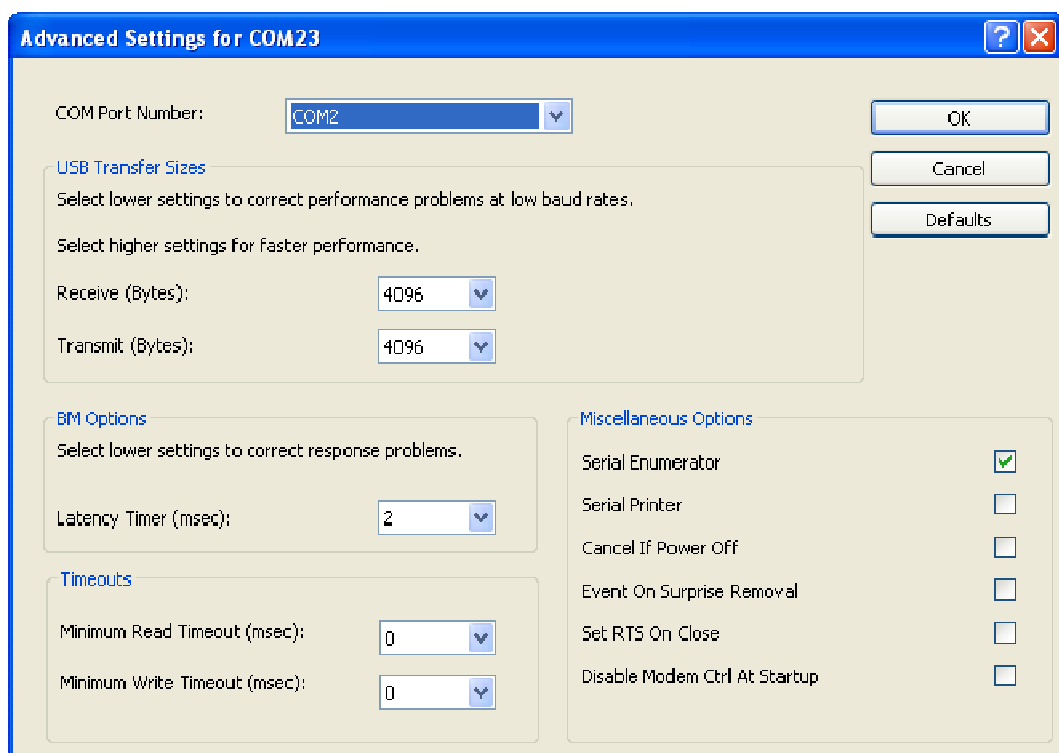
4.2 Using SLTA-10 Pump LON Interface Kit with Edwards PC tools

4.2.1 CDU

CDU does not support a LON interface to the pump. CDU can only be used with an RS232 interface to the pump.

4.2.2 EST

Note that EST, up to an including EST 3.0.0.1, automatically install an older version of OpenLDV (version 3.4) as part of the EST installation. OpenLDV 4.0 must therefore be installed <u>after</u> EST has been installed, otherwise it will get over-written by OpenLDV 3.4

when EST gets installed. Future versions of EST, from EST 3.0.0.2 onwards, will not install OpenLDV as part of the EST installation.

Make sure that SLTALink Manager is configured and running before starting EST.

In EST, select **Options** | **PLF Communications Settings** the click the **Add a new interface** button.
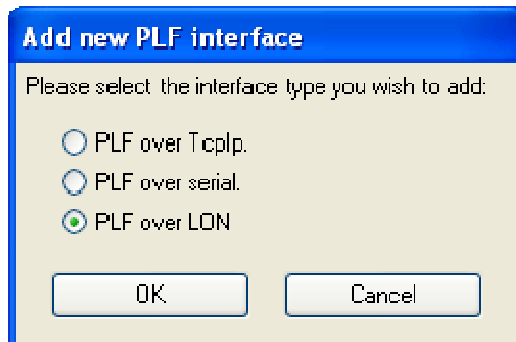
Select **PLF over LON** then click **OK**
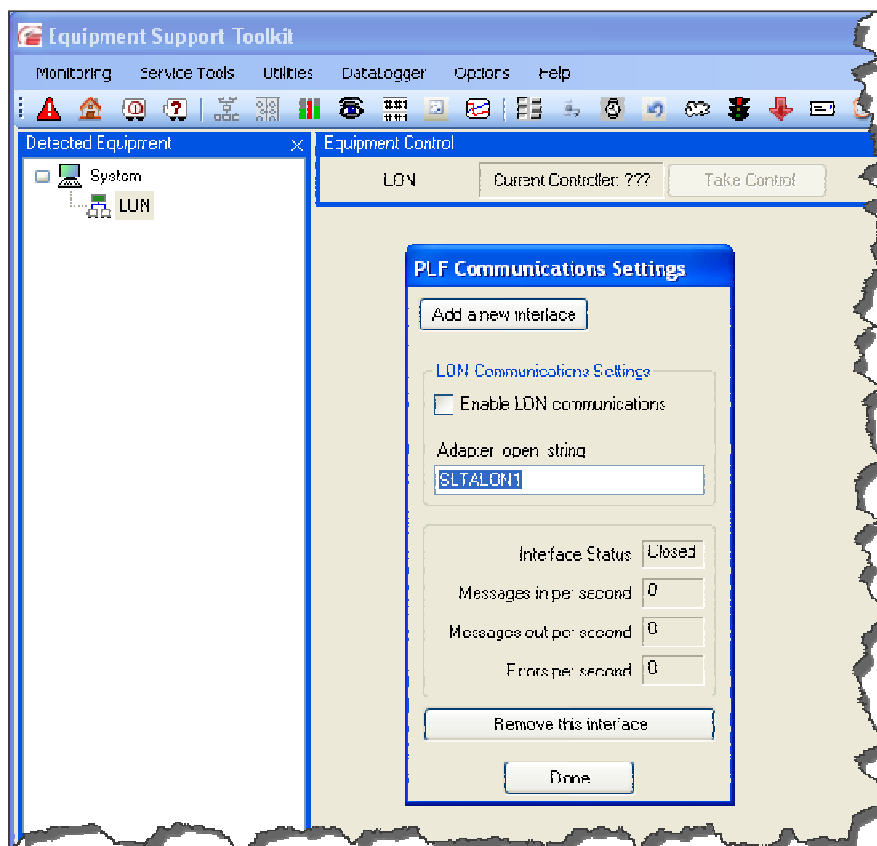

Type **SLTALON1** into the **Adapter open string** text box, then tick the **Enable LON communications** checkbox and click the **Done** button. If the Detected Equipment display does not immediately indicate that LON communication has started try re-starting EST.

4.2.3 FEUU

Make sure that OpenLDV 4.0 has been installed and that SLTALink Manager is configured and running before starting FEUU.

If FEUU fails to start, possibly because it hasn't recognised a previously configured but now invalid RS232 COM port number, then exit FEUU, navigate to **C:\Program Files\Edwards\FEUU** and delete the **FEUU.INI** file. Then restart FEUU.

FEUU should immediately recognise the SLTA-10 is present and start the LON communications without requiring any further configuration.

5   Maintenance and Safety

5.1 Inspect the connections

Do the following checks each time you use either of these interface kits:

- Inspect each cable assembly and check for any signs of damage: e.g. discoloured or deformed insulation, bare wires visible. Repair or replace any damaged cable.

- Inspect each connector and check for any signs of damage: e.g. bent, discoloured or missing pins. Replace any damaged item.

- Inspect all connections and check they are secure. Push home any loose connections and, where available, make use of locking mechanisms.

CAUTION

Ensure that all cables are arranged such that they do not present a trip hazard and do not block access to the work space.

5.2 Communication problems

5.2.1 Fault finding the USB Pump RS232 Interface Kit

If this interface kit does not work then check the following.

Check	Action
Is the PC on?	Ensure that the electrical supply to the PC is switched on and that the PC itself is switched on.
Has the PC booted up properly?	Ensure that the Windows desktop is displayed on the PC screen and that it is responsive to keyboard and mouse activity.
Is the D49951139 USB⇔5W XLR, PC to Pump RS232 cable assembly plugged in at both ends?	Check that the USB⇔RS232 adapter is correctly connected to the PC's USB port and to the pump's 5-way XLR (or RJ12 via the adapter cable) RS232 / PDT port.
Does Windows recognise that the USB adapter is plugged in?	Go to Start	Control Panel	System	Hardware	Device Manager	Ports (COM & LPT) and verify that you can see USB Serial Port (COMn).

Is the relevant PC software support tool running?	Ensure that EST or FEUU or other relevant software support tool has been launched and is responsive to keyboard and mouse activity.
Has the PC software support tool been configured to use the USB adapter's correct COM port number?	Follow the instructions of the relevant software tool, e.g. EST or FEUU, and confirm that it is configured to use COMn, where n is the same number as seen in the previous check/action.
Do either of the USB⇔RS232 adapter LEDs flash when the USB connector is plugged into the PC?	If not, then the USB⇔RS232 adapter may be faulty. Try it on a different PC.
Is the pump on?	Ensure that the electrical supply to the pump is switched on.

5.2.2 Fault finding the SLTA-10 Pump LON Interface Kit

If this interface kit does not work then check the following.

Check	Action
Is the PC on?	Ensure that the electrical supply to the PC is switched on and that the PC itself is switched on.
Has the PC booted up properly?	Ensure that the Windows desktop is displayed on the PC screen and that it is responsive to keyboard and mouse activity.
Has an appropriate FTDI or other USB⇔RS232 adapter been plugged into the PC and the SLTA-10?	Check that the USB⇔RS232 adapter is correctly connected to the PC and to the SLTA-10, via the 9-way D-sub gender changer.
Does Windows recognise that the USB adapter is plugged in?	Go to Start | Control Panel | System | Hardware | Device Manager | Ports (COM & LPT) and verify that you can see USB Serial Port (COMn).
Do either of the USB⇔RS232 adapter LEDs flash when the USB connector is plugged into the PC?	Not all third-party USB⇔RS232 adapters have built-in LEDs but if yours does and they do not flash then the USB⇔RS232 adapter may be faulty. Try it on a different PC.

Continued on the next page…

Is the D49951141 2xWeidmuller⇔4W XLR, SLTA-10 to Pump Lon cable assembly plugged in at both ends?	Check that both the black and the orange Weidmuller connectors are firmly connected to the SLTA-10… and check that the 4-way XLR is correctly connected to the pump's LON port.
Is the SLTA-10 powered, with its green LED on?	Check that the pump is powered on. (The SLTA-10 is powered via the pump's XLR and the black Weidmuller connector)
Is the pump on?	Ensure that the electrical supply to the pump is switched on.
Is the SLTALink Manager utility running?	If you cannot see the SLTALink Manager icon in the Windows System Tray then go to Start	All Programs	Echelon SLTA-10 Network Adapter	SLTALink Manager to launch it.
Has SLTALink Manager been configured to use the USB adapter's correct COM port number?	Configure SLTALink Manager to use COMn, where n is the same number as seen via Device Manager
Is the SLTALink Manager successfully communicating with the SLTA?	Confirm that a Remote Identifier number has been returned from the SLTA-10 and is displayed within the SLTALink Manager. If no Remote Identifier is seen then try using the SLTALink Manager's disconnect and connect functions to re-connect to the SLTA-10. If that fails then stopping the SLTALink Manager, then power-cycling the SLTA-10 then restarting the SLTALink Manager and its connect function.-
Has the Edwards PC software support tool been started and configured to use SLTALON1 as the Lon adapter's open string?	Follow the instructions of the relevant software tool, e.g. EST or FEUU, and confirm that it is configured to use SLTALON1 Lon adapter's open string.

6 Storage and Disposal

6.1 Storage

Re-use or replace any protective packing materials and store the interface kits in clean dry conditions. When required for use, install the interface kits as described in Section 3.

6.2 Disposal

Edwards interface kits or any of their components must be disposed of safely in accordance with all local and national safety and environmental requirements.

7 Abbreviations

CD   Compact Disk

CDU   Configuration Download Utility

cm   Centimetre(s). 100cm = 1 metre. 1cm = 0.4 inch, approximately.

dc   Direct current

EMC   Electro-Magnetic Compatibility

EST   Equipment Support Toolkit, an Edwards PC software program that provides a wide range of semicon pump control, configuration, monitoring and updating functions. EST has replaced the older SEM, Single Equipment Monitor, software tool.

FCC   Federal Communications Commission, the US authority for EMC standards

FEUU   Flash EPROM Upgrade Utility, an Edwards PC software program used to change the software in a pump controller.

FTDI   Future Technology Devices International, the company that designs and manufactures the active part, i.e. the actual USB⇔RS232 adapter, used in the USB Pump RS232 Interface Kit. They also manufacture their own standard USB⇔RS232 adapters, which Edwards does not supply but Edwards recommends for use with the SLTA-10 Pump LON Interface Kit.

LED   Light Emitting Diode

LON   Short for LonWorks, an Echelon brand name for their industrial network standard, which was adopted by Edwards for use in the iQ (Gen 1), iH (Gen 2) and iGX (Gen 3) families of pumps. It was dropped for iXH / iXL (Gen 4) pumps.

n/c   No connection. Do not connect anything to the associated pin(s).

PC   Personal Computer

PDT   Portable Display Unit, an Edwards hand-held device allow an operator to perform basic control and monitoring functions of a pump.

TP-78 Twisted Pair - 78k baud, the particular LON network transceiver variant used in Edwards pumps.

USB   Universal Serial Bus, the most common connection technology standard used by desktop and laptop PCs, allowing a PC to exchange data with the connected device. The USB standard defines several types of USB connector. Most PCs have two or more Type A USB sockets built-in. The USB Pump RS232 Interface Kit has a Type A USB plug, allowing it to be plugged into a PC's USB port.

V   Volts

XLR   XLR has become a de facto standard for a family of connectors widely used in the audio industry due to their robust metal housings and latching mechanism. Edwards pumps tend to have a 4-way XLR socket for LON and/or a 5-way XLR socket for RS232 / PDT. The USB Pump RS232 Interface Kit has a 5-way XLR plug, allowing it to be plugged into a pump's PDT XLR socket. The SLTA-10 Pump LON Interface Kit has a 4-way XLR plug, allowing it to be plugged into a pump's LON XLR socket.