BEWATOR
A Siemens Business

COAXIALATOR Installation Manual

This manual provides the information you will need in order to install and configure a COAXIALATOR. We recommend that you read through it at least once before you begin the installation. Please note the following:

The COAXIALATOR should be installed by competent, qualified personnel in accordance with the latest national standards. These include:

NACOSS National Approval Council for Security Systems

NACP20 Code of Practice for installation and maintenance of Closed Circuit Television Systems

IEE Requirements for Electrical Installations, BS 7671

UK Data Protection Act 1998 - CCTV Data Protection Codes of Practice

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the 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. Operation of this equipment in a residential area is likely to cause harmful interference and the user may be required to correct this. Shielded cables should be used with this unit to ensure compliance with class A limits.

Product Overview

The COAXIALATOR is an ‘over the coax’ telemetry transmitter and telemetry protocol converter with video switching capabilities. The COAXIALATOR allows up to 16 Bewator domes and telemetry receivers to be controlled with C-Type (Coax) telemetry derived from RS485 or the USB ports of Bewator DVRs, Bewator matrix controllers, 3rd party DVRs and other controllers, or from a PC based front end.

Table of Contents

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Chapter 1 - Installation

This first chapter of the manual covers the physical and electrical installation of the COAXIALATOR unit.

Product Range		Art No.
COAX-CONTROL	COAXIALATOR, 16 Loop Through C-Type (Coax) channels, 4 monitor outputs (2 with text), 2 RS485 / 1 dual channel USB telemetry channels	80-377

Introduction

The COAXIALATOR allows control of Bewator domes and receivers at COAX only installations from control systems or DVRs that output camera telemetry over RS485 or USB.
The COAXIALATOR also allows the analogue cameras to be switched to monitors under control of a suitable DVR or control system.

Box Contents

Prior to installation confirm that the following are in the box:

- 1 x Coaxialator Unit
- 1 x Mains Cable UK
- 1 x Mains Cable EU (3 pin SCHUKO)
- 1 x USB A-B 3m lead
- 1 x Boxed PSU
- 1 x CD Rom
- 1 x Installation Manual
- 1 x RS485 2 part green connector plugged into the PCB

Tools Required

Installing the COAXIALATOR requires only a basic tool kit, including:

- Terminal screwdriver (flat-bladed)
- Pozi drive screwdriver
- Suitable tools for chosen fasteners for fitting

Choosing a Location for the COAXIALATOR

The COAXIALATOR unit should be located in a position that allows the most convenient routing and connection of the required cabling. Factors to consider are proximity to the power supply, connections to the telemetry controller(s), connections to local monitors and connections to cameras/receivers.

THE UNIT IS NOT WEATHERPROOF AND IS FOR INTERNAL USE ONLY.

Installation Procedure - In brief

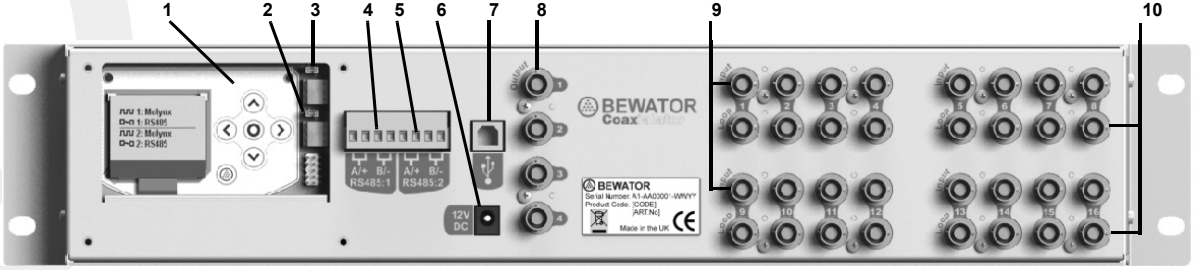
The COAXIALATOR is very straightforward to install; these are the basic steps required:

- Select a suitable location for the installation to allow the most suitable access to the required cabling (power, telemetry, cameras etc.).
- Mount the COAXIALATOR in the selected position using appropriate fasteners for the mounting substrate.
- Route and connect all of the required cabling to the COAXIALATOR.
- Power up the COAXIALATOR.
- Set-up the COAXIALATOR to operate correctly with your chosen controller using the LCD panel, set Protocol (e.g. MOLYNX) and set Interface (e.g. RS485 or USB), for each of the required telemetry channels.
- Install PC USB drivers if using the USB port.
- If more than 16 cameras are being used (and therefore more than one COAXIALATOR), set the unit address from within the Main Menu.

Mounting the COAXIALATOR

The COAXIALATOR is designed to fit into a standard 2U rack, or can alternatively be mounted to a wall or other surface using suitable fixings. Select fasteners suitable for the particular installation, bearing in mind the material of the substrate or the type of rack the COAXIALATOR is being fitted to.

COAXIALATOR External Connections and Controls

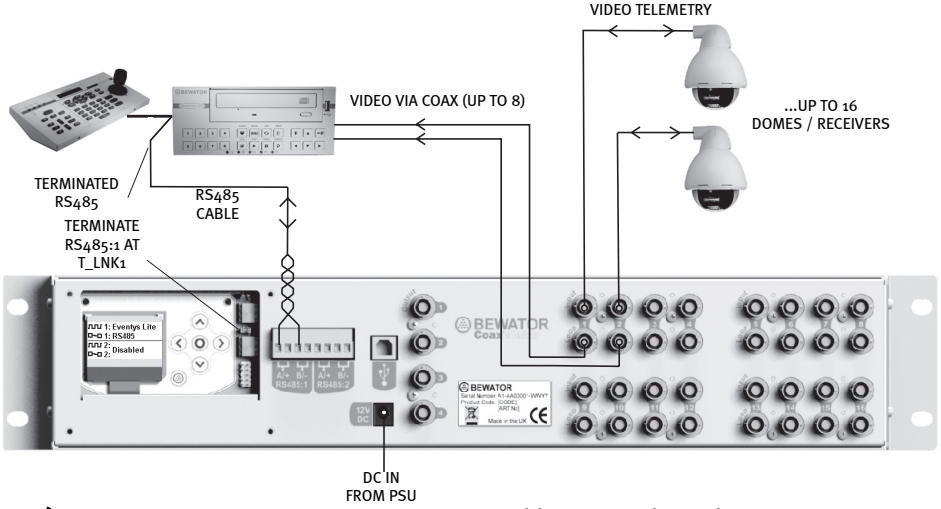


1	LCD Panel	The LCD screen and the keyboard are used for configuration, explained in Chapter 2	Note: To gain access to the LCD panel and the termination jumpers, remove the external cover, described in Chapter 2
2	Termination Jumper RS485 Channel 1	The two ends of each RS485 channel used should be terminated. Generally, this will be the last COAXIALATOR and the control equpment. The COAXIALATOR will perform one end of the termination for each channel if the jumper link is 'made'.	
3	Termination Jumper RS485 Channel 2		
COAXIALATOR Connections			
4	RS485 Telemetry Channel 1	RS485 telemetry from the control system should be connected to these terminals; this allows control from two different control systems. The cable should be a suitable twisted pair cable wired A/+ to A/+ and B/- to B/- (two terminals are provided for each connection).	OPTIONAL
5	RS485 Telemetry Channel 2		OPTIONAL
6	DC In	Connect to 12v power supply unit (supplied)	REQUIRED
7	Dual USB Channel	A DVR or PC should be connected to this port. One USB connection provides two telemetry channels. To use the USB port, the Windows USB drivers on the CD provided should be installed as described on page 3-2.	OPTIONAL
8	Monitor Out	Up to 4 local monitors can be connected to the monitor outputs. Channels 1 and 2 may be configured to display text. Video passes through these connections.	OPTIONAL
9	Camera Inputs	Up to 16 receivers and domes can be connected to the camera inputs. Video and C-Type (Coax) telemetry passes through these connections.	REQUIRED (At least 1)
10	L-T (Loop) Out	Up to 16 video outputs connected to a DVR or monitors. Filtered video passes through these connections.	OPTIONAL

COAXIALATOR Connections to External Equipment

Connections to the COAXIALATOR will vary between installations. Provided on the following pages are five connection examples of the most common applications. The diagrams show all connections from the COAXIALATOR to external equipment and the necessary termination, with configuration instructions for each. The COAXIALATOR is configured via the LCD panel and is detailed in Chapter 2.

COAXIALATOR control using Bewator Eventys Lite keyboard and Eventys Lite Family DVR

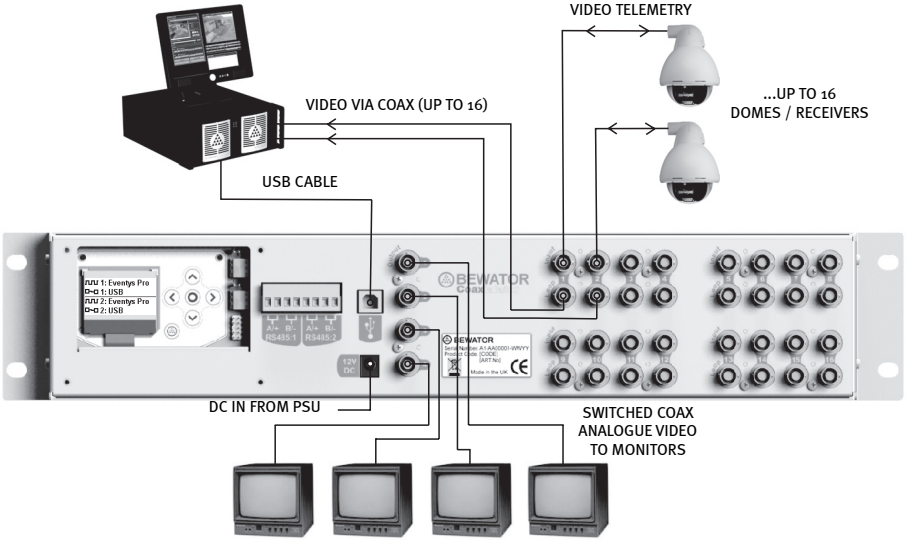


Protocol Setup (see Chapter 2)

1. Set the correct protocol for Comms channel 1
   Main Menu » Setup Comms ch1 » Protocol » Eventys Lite
   Main Menu » Setup Comms ch1 » Interface » RS485
2. Disable Comms channel 2
   Main Menu » Setup comms ch2 » Interface » Disabled

Note: When the COAXIALATOR is setup with Eventys Lite protocol, the Eventys Lite unit should be setup to output Molynx protocol.

COAXIALAT OR control using Bewator Eventys Pro DVR with analogue video switching

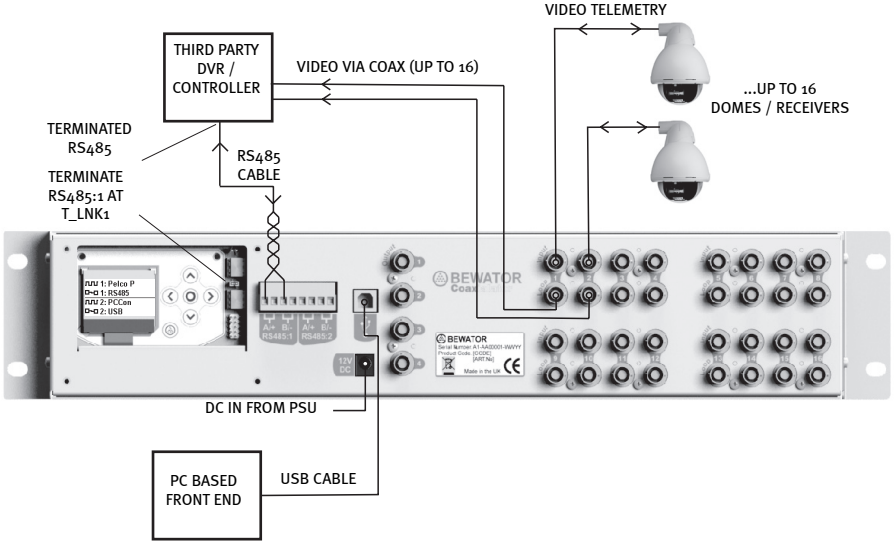


Protocol Setup (see Chapter 2)

1. Set the correct protocol for Comms channel 1 (Camera Control)
   Main Menu » Setup Comms ch1 » Protocol » Eventys Pro
   Main Menu » Setup Comms ch1 » Interface » USB
2. Set the correct protocol for Comms channel 2 (Video Switching)
   Main Menu » Setup Comms ch2 » Protocol » Eventys Pro
   Main Menu » Setup Comms ch2 » Interface » USB
3. Set Comms channel priority timeout to 0 seconds
   Main Menu » Comms Priority » Timeout » 0

Note: When the COAXIALATOR is setup with Eventys Pro protocol, the Eventys Pro unit should be setup to output PCCON protocol. To install the PCCON driver on an Eventys Pro, see the installation instructions in Chapter 3.

COAXIALATOR control using a third party DVR/Controller and a PC based control interface

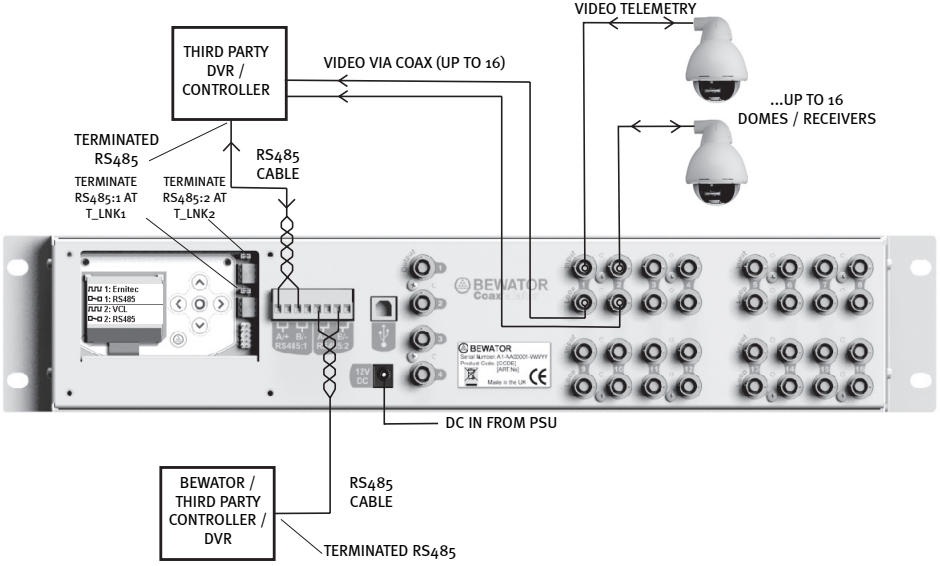


Protocol Setup (see Chapter 2)

1. Set the correct protocol for Comms channel 1
   Main Menu » Setup Comms ch1 » Protocol » Pelco P
   Main Menu » Setup Comms ch1 » Interface » RS485
2. Set the correct protocol for Comms channel 2
   Main Menu » Setup Comms ch2 » Protocol » PCCon
   Main Menu » Setup Comms ch2 » Interface » USB

Note: When using more than one control system, it is necessary to set the Comms Priority and the Timeout (found in the Main Menu). The Priority decides which telemetry channel takes control in the event of both controllers issuing telemetry at the same time. The Timeout Period specifies the length of time the other channel is locked out once the priority channel has stopped issuing telemetry.

COAXIALATOR control using a combination of 2 Bewator / Third Party Controllers / DVRs



Protocol Setup (see Chapter 2)

1. Set the correct protocol for Comms channel 1
   Main Menu » Setup Comms ch1 » Protocol » Ernitec
   Main Menu » Setup Comms ch1 » Interface » RS485
2. Set the correct protocol for Comms channel 2
   Main Menu » Setup Comms ch2 » Protocol » VCL
   Main Menu » Setup Comms ch2 » Interface » RS485

Note: When using more than one control system, it is necessary to set the Comms Priority and the Timeout (found in the Main Menu). The Priority decides which telemetry channel takes control in the event of both controllers issuing telemetry at the same time. The Timeout Period specifies the length of time the other channel is locked out once the priority channel has stopped issuing telemetry.

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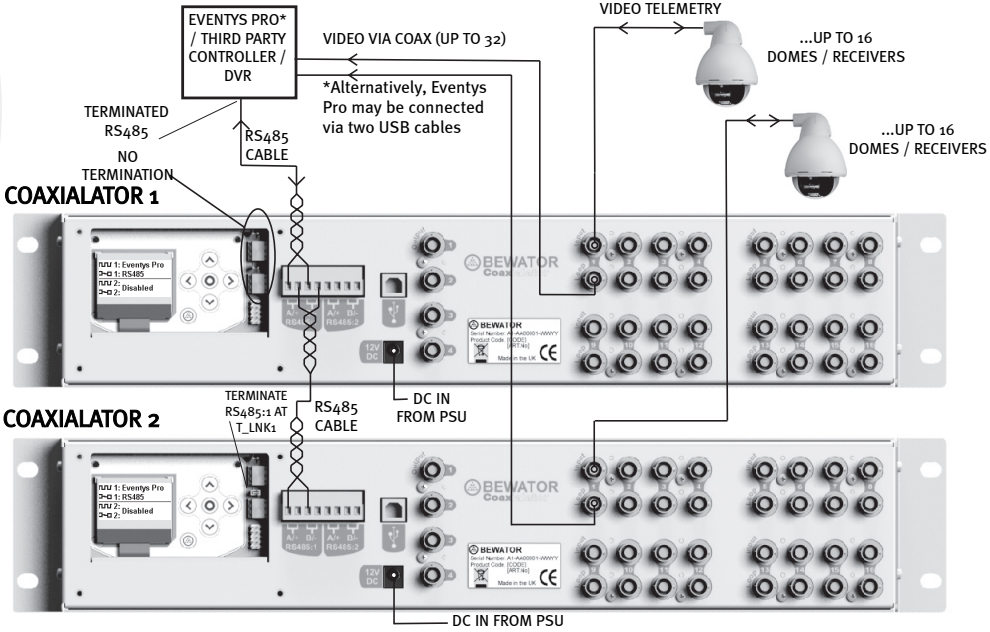
COAXIALATOR control of up to 32 cameras using Bewator / Third Party Controller DVR



Protocol Setup (see Chapter 2)

1. Set the correct protocol for Comms Channel 1 on COAXIALATOR 1 and COAXIALATOR 2
   Main Menu » Setup Comms ch1 » Protocol » Eventys Pro
   Main Menu » Setup Comms ch1 » Interface » RS485
2. Disable Comms channel 2 on COAXIALATOR 1 and COAXIALATOR 2
   Main Menu » Setup Comms ch2» Interface » Disabled
3. Set the unit address for COAXIALATOR 2
   Main Menu » Unit Adress » 2

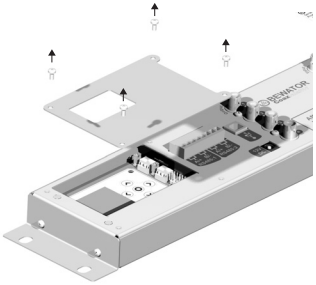
Chapter 2 - COAXIALATOR Configuration

All of the COAXIALATOR functions and settings are configured using a menu system viewed on the LCD screen and controlled using the six adjacent keys.

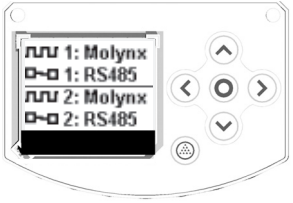
COAXIALATOR Configuration

Once the physical installation of the COAXIALATOR is complete it needs to be configured to use the correct telemetry protocols and unit address. To allow this to be carried out, the COAXIALATOR is fitted with a LCD display and a simple keyboard.

To access the LCD Key Panel and the Telemetry Termination Jumpers, the external cover should be removed.



By default, the display indicates the input protocol and interface for each of the two telemetry channels. The keyboard can be used to control a menu system that provides access to a number of settings.



Keys and their functions

Used to enter a menu or select an option.

Scrolls through the available options.

Navigates between options.
Note: The left key allows you to go back up a level in the menus.

Switches the display into 'live video' mode for test purposes from the normal status screen but has alternative uses clearly specified from some menus.

Once 'live video' mode is chosen, use the arrow keys and the button to select a camera to view and control.

Further presses of the button switch the function of the arrow keys between 'Pan and Tilt', 'Zoom and Focus' and 'Adjust Brightness'.

Pressing the button will exit this mode; alternatively this mode will exit after 2 minutes of inactivity.

The COAXIALATOR Main Menu

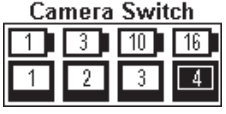
Provides access to the configuration settings in the COAXIALATOR unit.

Setup Comms ch 1 or 2 Select a telemetry protocol and an interface. The baud rate, parity, number of data bits and direction settings can also be configured if required.

Comms Priority Select which input channel will take control if both input devices are attempting to control cameras at the same time. You can also select how long the timeout period will be, during which the other channel will be locked out.

Unit Address Setting the unit address sets the camera and monitor range for cameras and monitors connected to a specific unit. Each unit has 16 cameras and 4 monitors so unit 2, for example, would control cameras 17-32 and monitors 5 - 8.

Camera Switch Select the camera displayed on each monitor; for test purposes only.



Coax Telem Chans Configure which of the 16 camera channels have C-Type (Coax) telemetry available.

Setup Mon Text Set the position that the Camera Number and Camera Text will appear on the monitor.
Note: For monitor 1 and 2 only.

Setup Cam Text Set a 24-character name and a 3-digit number for each of the 16 cameras that will appear as monitor text.

LCD Contrast Adjust the LCD display contrast to improve readability in difficult lighting situations.

Temperature Displays the COAXIALATOR's current on-board temperature.

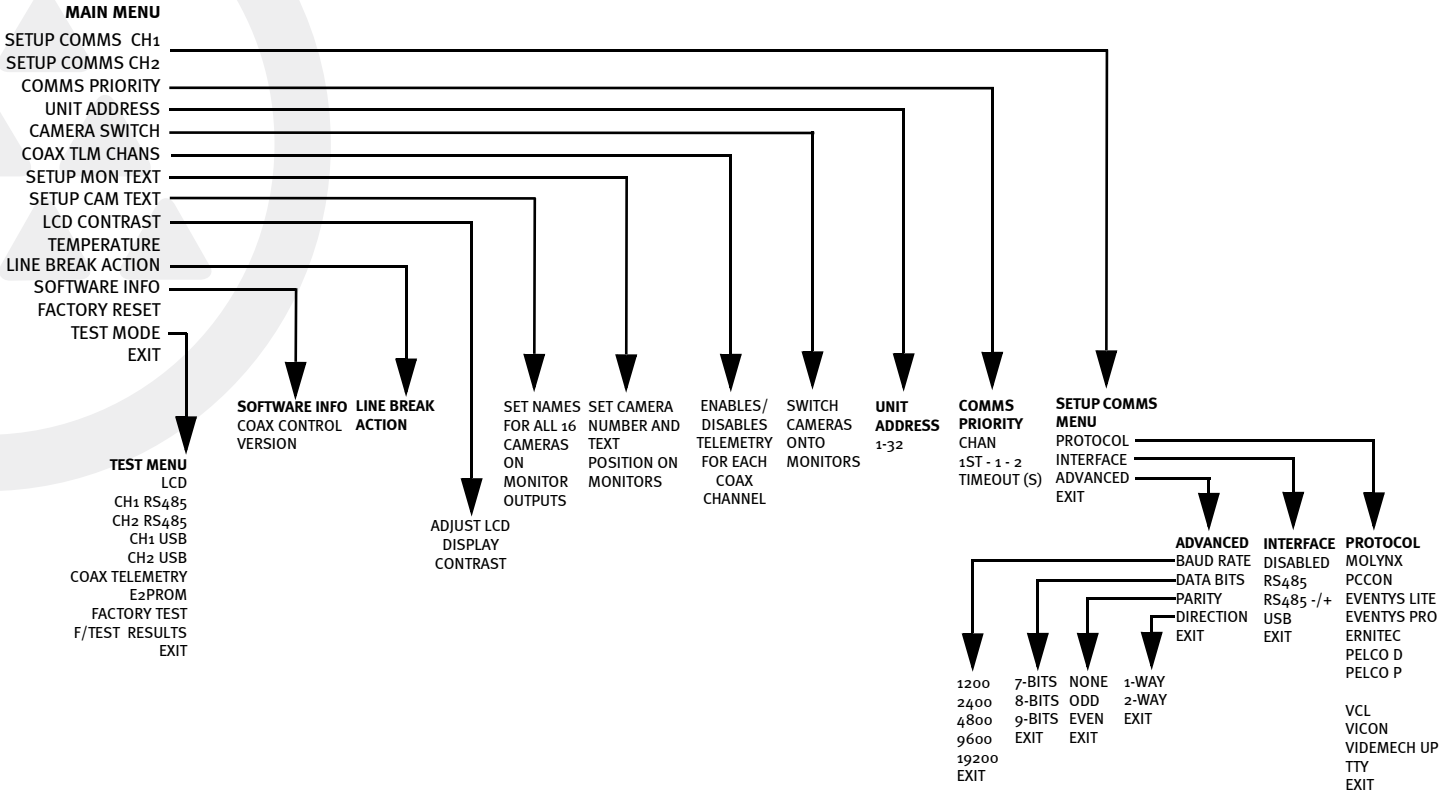
Line Break Action › TTY Mode When checked (on) a line break on the telemetry port will force the COAXIALATOR into TTY mode which is used for software upgrades and is not normally required.
[Down key] = checked (on)
[Up key] = unchecked (off)

Software Info Displays the software version details.

Factory Reset Resets the COAXIALATOR configuration back to the factory default settings.

Test Mode Opens the test menu.

The COAXIALATOR Main Menu



Chapter 3 - COAXIALATOR Software Driver Installation

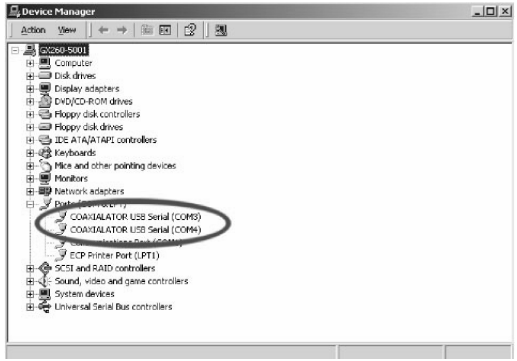
This Chapter details the steps needed to install the drivers neccessary to control the COAXIALATOR from a PC.

Installing PC USB drivers for COAXIALATOR

The following instructions describe installing the USB drivers. Once complete, the COAXIALATOR will appear as two com ports on the PC and can be selected on the COAXIALATOR from within each channels interface menu.

1. Insert the CD provided and close the browser window if it appears automatically.
2. Once the COAXIALATOR has powered up, connect the USB lead supplied from the PC to the COAXIALATOR and wait for the Found New Hardware Wizard to appear.
3. Select 'Next' from the Found New Hardware Wizard.
4. Select 'Next' again to search for a suitable driver.
5. Ensure the CD-ROM box is ticked and select 'Next'.

6. When Windows finds the driver, select 'Next'.
7. Select 'Finish'. The process is then repeated for the 2nd channel.
8. When the installation is complete, it is possible to check that the installation has been successful.
   Open the Control Panel, select 'System' and view the 'Hardware' tab. Click on 'Device Manager', the two additional serial ports can now be viewed.



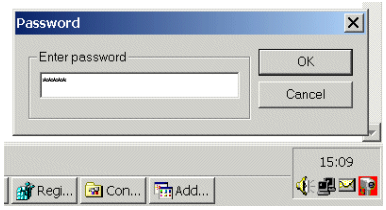
Eventys Pro Operation with COAXIALATOR

Note: Ensure the Eventys Pro PCCON3 driver is up to date - it should be **version 1.3.3** or later.

Uninstalling the existing PCCON3 Driver

1. Before removing the existing driver, it is necessary to stop the watchdog from restarting the Eventys DVR so that the control panel can be accessed. To do this, right click on the camera icon in your system tray and select exit.

Now enter the password and select ok. The default password is '32dvr'.



2. To remove the existing driver, open the Control Panel and select 'Add or Remove Programs'. Select the existing PCCON3_PTZ driver (if it is available) and click 'Remove'. (If it is not listed then it is not already installed so this step is not necessary.)
3. Finally re-boot the unit to restart the watchdog.

Installing the new PCCON3 Driver

1. To install the new driver (available on the CD), double click on the .MSI file and follow the on-screen instructions.

Make sure the COAXIALATOR is connected via its USB lead, it is switched on and its comms settings for both channels 1 and 2 are set to 'Eventys Pro' protocol and 'USB' interface, (see page 1-6).

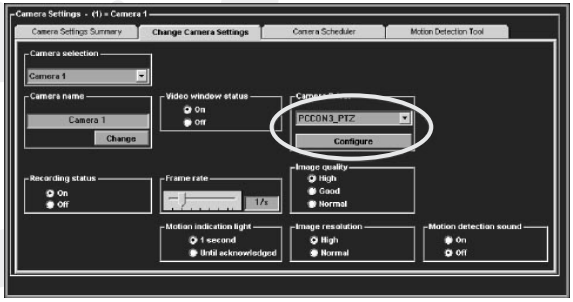
To Enable Eventys Pro to Control Cameras

1. Within Eventys Pro, go to Settings by clicking the 'Settings/ Exit' icon and selecting 'Settings'.

2. The following window will be displayed.

Select 'Camera Settings'.

3. This will display the Camera Settings window.



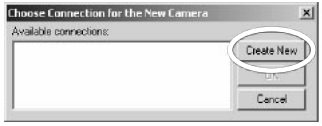
Select the 'Change Camera Settings' tab and select 'PCCON3_PTZ' as the Camera Driver. Click on 'Configure'.

Note:

If no cameras have been set up yet it will be necessary to specify which port is to be used for camera control.

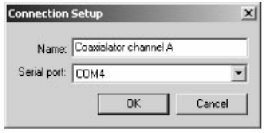
If one or more cameras have already been set up it is not necessary to reconfigure the port. You will be taken directly to the 'Camera Setup' menu.

4. The 'Choose Connection for the New Camera' box is displayed



Click on 'Create New'.

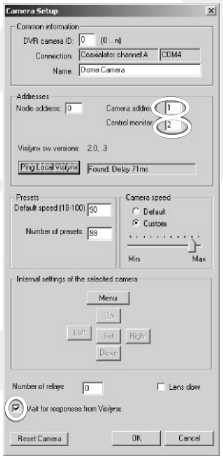
5. Select the first of the USB COM ports added when the COAXIALATOR's USB drivers were installed.



Give it a suitable name.

6. Select OK to confirm these settings. The PCCON3_PTZ Driver Setup menu is displayed, where one or more cameras can be added.

7. Select 'Add Camera' to add a new camera (or 'Configure Camera' to change the settings for an existing camera).



Set up the camera as follows -

Camera Address - set to the address of the receiver you wish to control as that camera number. These normally start at 1. (Do not change the 'DVR Camera ID' which is already set.)

Control Monitor - set the monitor on the COAXIALATOR which will be used to switch the camera being controlled. It should not be a monitor on which any other camera switching is to take place or on which sequences are to be run.

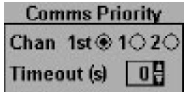
Wait for responses from Visilynx - check this box.

Repeat this for all the cameras connected to the COAXIALATOR that you wish to control.

When complete, the settings can be saved.

Enable Eventys Pro to Switch Cameras on a Monitor

Note: If you are going to use the camera switching function at the same time as using camera control, ensure the Timeout setting is set to 'o' within the Comms Priority menu of the COAXIALATOR.

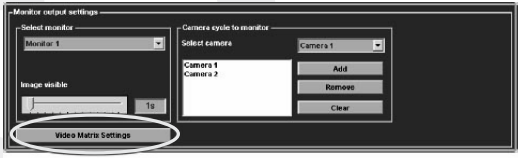


1. Within Eventys Pro, go to Settings by clicking the 'Settings/ Exit' icon and selecting 'Settings'.

2. The following window will be displayed.

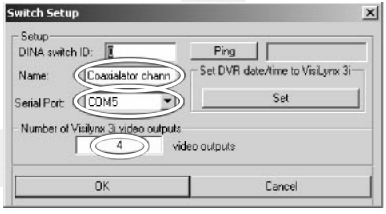
Select 'Monitor Output Settings'.

3. The Monitor Output Settings menu is displayed.



Select 'Video Matrix Settings'.

4. The Switch Setup menu is displayed



Select the second USB COM port on the COAXIALATOR (the first one has been used for camera control) for the 'Serial Port' and give it an appropriate name.
The Number of Video Outputs should be set to 4.

Switch cameras on a monitor

1. Right-click on the Monitor Control icon of the main screen.

The Monitor Control section is displayed.
Note: If the Monitor Output Settings icon is not displayed, it may be necessary to uninstall the Eventys Pro V3i driver using the control panel, and then re-install it from the Eventys Pro CD.

2. To switch cameras, select the required monitor and then select the camera you wish to view.
Note: Do not switch cameras on the monitor that is dedicated to camera control. This may interfere with camera control.

Chapter 4 - Telemetry Controller Operation & Set-up

This chapter explains how to operate the COAXIALATOR using a telemetry controller and describes the Protocol tables.

Telemetry Controller Operation and Set-up

Control Protocol

COAXIALATOR can accept control telemetry from a number of Bewator and 3rd party protocols. The default communication settings for each protocol are shown in the table below, although these settings can be overriden from the LCD menus.

Protocol	Baud Rate	Parity	Data Bits	Direction
Molynx	9600	Even	8-bits	1-way
PCCon	9600	Even	8-bits	2-way
Eventys Lite	9600	Even	8-bits	1-way
Eventys Pro	9600	Even	8-bits	2-way
Ernitec	2400	None	8-bits	1-way
Pelco D	2400	None	8-bits	1-way
Pelco P	4800	None	8-bits	1-way
VCL	9600	None	9-bits	1-way
Vicon	4800	None	8-bits	2-way
Videmech UP	9600	Odd	8-bits	1-way
TTY	9600	None	8-bits	2-way

When using 3rd Party control equipment, a keyboard may occasionally not have buttons or menus used to control some functions available on Bewator domes and receivers. In these situations, alternative buttons or key-press combinations can be used and are specified below.

Protocol	Operation	User Action
Pelco P & D	AutoFocus ON	[1][F4]
Pelco P & D	AutoFocus OFF	[1][F5]
Pelco P & D	Night Mode	[4][F4]
Pelco P & D	Day Mode	[4][F5]
Ernitec (ERNA)	AutoFocus ON	[AUTO] then either [FN] or [FF]
Ernitec (ERNA)	AutoFocus OFF	[FN] or [FF]
Ernitec (ERNA)	Night Mode	[4][AUX ON]
Ernitec (ERNA)	Day Mode	[4][AUX OFF]
Ernitec (ERNA)	Insert Preset into Stack	[*n*][SHIFT]+[INS]
Ernitec (ERNA)	Delete Preset from Stack	[*n*][SHIFT]+[DEL]
Ernitec (ERNA)	Clear Stack	[ESCAPE][AUX OFF]
Ernitec (ERNA)	Sequence Dwell Time	[*n*][TIME]
VCL	AutoFocus ON	[FOCUS AUTO]
VCL	AutoFocus OFF	[FN] or [FF]
VCL	Day/Night Mode	[AUX]
VCL	Start Preset Tour	[1][AUTOPAN]
Videmech Universal	AutoFocus ON	[AUX 1] On
Videmech Universal	AutoFocus OFF	[AUX 1] Off
Videmech Universal	Night Mode	[LAMPS] On
Videmech Universal	Day Mode	[LAMPS] Off
Vicon	AutoFocus	[AUX 2]
Vicon	Day/Night Mode	[AUX 3]
Vicon	Tour Recall	[AUTOPAN]
Vicon	Wipe	[AUX 4]
Vicon	Wash	[AUX 5]
Vicon	Aux 2	[AUX 6]

PCCON Supported Commands

Listed below are the PCCON commands that are supported by the COAXIALATOR.

Developers should see the the PCCON 3 developers guide (INS00296) for further details.

@1	**@2**	**@3**
@4	**@5**	**@6**
@7	**@8**	**@9**
@10	**@11**	**@12**
@13	**@16**	**@39**
@40	**@41**	**@42**
@47	**@55**	

PCCON format 3 is also supported (node number is ignored).

Chapter 5 - Specifications

This final chapter of the manual covers the COAXIALATOR specifications.

Specifications

ELECTRICAL	
Input Voltage (external PSU)	110-230V AC @ 50/60Hz 0.5amp max.
Input Voltage (COAXIALATOR)	12V DC @ 1.25amp, supplied from external PSU, Centre pin positive
Connections	Video: BNC Coax (75 Ohm CCTV cable), VBS 1.0 Vp-p, 75 Ohms PAL (Sync. Negative)
	Power: UK and EU (3-pin Schuko) mains IEC cable
	Telemetry: C-Type (Coax): BNC (75 Ohm CCTV cable) RS485: Screw Terminal Block (Twisted pair cable 100-120 Ohm) USB: Type B connector
Electromagnetic Compatability	Compliant with EMC directive 89/336/EC Conforms to Part 15 of the FFC Rules, Class A digital device
MECHANICAL	
Mounting	19" Rack mount or Wall
Weight (Boxed)	2.5kg
Construction	Sheet metal Ral 7035 Satin Gloss Powder Coat finish
ENVIRONMENTAL (Indoor only)	
Operating Temp.	0 to +40°C
Humidity	20% to 80% (non-condensing)
Storage Temp.	-20 to +60°C
MTTR	30 minutes
MTBF	35,000 hrs (electric parts)

All specifications are subject to change without prior notice.

EC DECLARATION OF CONFORMITY

Name of Manufacturer: Bewator

Address of Manufacturer: Brecon House
Llantarnam Park
Cwmbran
NP44 3AB

Declares under our sole responsibility that the product(s):

Product Name : Coaxialator

Model Number(s) : Coax-Control

Product Options : None

Conform to the provisions of the EMC directive (89/336/EC, as amended).
Conform to the provisions of the Low Voltage Directive (73/23/EC, as amended).

The following Harmonised European Standards have been applied:

EN 61000-6-3:2001	Electromagnetic Compatibility - Generic emission standard.
EN 50130-4: 1996 +A1 +A2	Electromagnetic Compatibility - Immunity requirements for components of fire, intruder and social alarm systems.
EN 60 950-1: 2001	Information technology equipment. Safety. General requirements.

In accordance with the "CE Marking" Directive 93/68/EEC. The mark will be applied to the product.

I declare that as the authorised responsible person, that the products herewith are in conformity with the stated standards and other related documents.

Cwmbran
Date: 10-03-2006

Robert Cotterill (Managing Director)