



AD RS422 Single Channel Converter
Sensormatic/AD RS422 protocol converter



Installation Guide



Designed and manufactured in the UK by
Building Block Video Ltd.,
17 Apex Park,
Diplocks Industrial Estate,
Hailsham, East Sussex, BN27 3JU UK.
www.bbvctv.com



Technical support for this product is available
by calling Tyco Helpdesk on 0870 123 8787

PRE-INSTALLATION CHECKS AND SAFETY PROCEDURES

UNPACKING

Check Packaging - Upon taking delivery of the unit, inspect the packaging for signs of damage. If damage has occurred, advise the carriers and/or the suppliers immediately.

Check Contents - Upon taking delivery of the unit, unpack the receiver carefully and check that all the items are present and correct. If any items are missing or damaged, contact your equipment dealer.

Retain Packaging - The shipping carton is the safest container in which to transport the unit. Retain undamaged packaging for possible future use.

IMPORTANT SAFETY PRECAUTIONS

Read Instructions - All relevant safety, installation and operating instructions should be read before attempting to install, connect or operate the unit.

Retain Instructions - All safety, installation and operating instructions should be retained for future reference.

Heed Warnings - All warnings on the unit and in any relevant safety, installation or operating instructions should be adhered to.

Cleaning - Unplug the unit from the power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Water and Moisture - Do not expose this unit to water or dampness; for example, in an unprotected outdoor installation, or in any area classified as a wet location.

Power Sources - This unit should be operated only from the type of power source indicated on the manufacturer's label. If you are not sure of the type of power supply you intend to use, consult your equipment dealer or local power company. For units intended to operate from battery power or other sources, refer to operating instructions.

Overloading - Do not overload outlets and extension cords, as this can result in fire or electric shock.

Object and Liquid Entry - Never push objects of any kind into the unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on or inside the unit.

Servicing - Servicing of the unit should only be undertaken by qualified service personnel, as opening or removing covers may expose you to dangerous voltages or other hazards.

Damage Requiring Service - Servicing by qualified personnel should be carried out under the following conditions:

- (a) When the power-supply cord or plug is damaged;
- (b) If liquid has been spilled, or objects have fallen into, the unit;

- (c) If the internal electronics of the unit have been exposed to rain or water;
- (d) If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to normal operation;
- (e) If the unit has been dropped or the enclosure is damaged;
- (f) If the unit exhibits a distinct change in performance. This indicates a need for service.

Replacement Parts - If replacement parts are required, ensure that only replacement parts recommended by the product manufacturer are used.

Safety Check - Upon completion of any service or repairs to the unit, safety checks should be performed to ensure that the unit is in proper operating condition.

Pre-installation Checks - It is recommended that the unit be bench-tested prior to installation on the site.

Adhere to Safety Standards - All normal safety precautions as laid down by British Standards and the Health and Safety at Work Act should be observed.

WARNING

TO PREVENT DANGER OF FIRE OR SHOCK, DO NOT EXPOSE THE INTERNAL COMPONENTS OF THIS EQUIPMENT TO RAIN OR MOISTURE.

The “lightning flash with arrowhead” symbol inside an equilateral triangle is used to warn the user of this equipment that there are sufficiently high voltages within the enclosure to constitute a risk of electric shock.

The “exclamation point” symbol inside an equilateral triangle is used to alert the user of this equipment to important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Technical Specification

Power Requirements	9Vdc 300mA
Inputs	4 wire Sensormatic/AD RS422 – RJ45 socket (4800, N, 8 1)
Outputs	1 x Simplex RS422 or Full Duplex RS422 (protocol dependant) Maximum cable run 400 Feet/1200M
Facilities	3 front panel diagnostic leds
Other Outputs	RS232 monitor output via chassis mounted DB9 connector.

Software Version History

V4 19 August 2005	1. Integrated support for switch selectable output protocol. MOLYNX 4 wire, VISTA ECLIPSE (Pelco D, 2400,N,8,1), Pelco D and Pelco P (choice of baud rates, 2400, 4800, 9600 and Even, Odd or No parity)
V3 27 July 2005	1. Temp version to drive Vista Eclipse (Pelco D, 2400,N,8,1) only.
V2 12 March 2004	1. Slight improvements during site visit to Athens.
V1 6 Dec 2003	1. Original version for Athens 2004 driving Molynx telemetry.

INTRODUCTION

GENERAL

The converter is designed to allow control of third party domes from Sensormatic and AD control systems using RS422 telemetry.

Each converter drives a single dome via either simplex 2 wire RS422 or 4 wire full-duplex RS422 depending on the specific dome protocol.

An RS232 serial output is provided which allows a PC to view the telemetry that is being sent to the domes/telemetry receivers for diagnostic purposes.

INTELLEX DVR

When used with an Intellex DVR either a USB/RS232 converter and BBV TXLD is also required or a RCSN422 converter is used to generate AD RS422 from SensorNet.

Please read the later section for rough details of configuring the Intellex to use Edgeport USB RS232 converter.

MEGA POWER MATRIX

AD RS422 is connected directly to one of the matrix RS422 ports.

AD 2083 CODE CONVERTER

These are used to generate AD RS422 from hi-speed telemetry with the older AD matrix systems. The AD RS422 Single Channel Converter connects directly to one of the AD 2083 RS422 ports.

The following table shows the output protocols that are supported.

Output Protocol	Menu	Presets	Patrol
MOLYNX 4 WIRE RS422 (9600, E, 8, 1)	YES	Absolute positions - limited by controller or if controller supports direct preset calls.	Via matrix tour
VISTA ECLIPSE (PELCO D:2400, N, 8, 1)	YES	Via Menu or if controller supports direct preset calls.	Via Menu
PELCO P (2400, 4800, 9600 Baud) (None, Even, Odd Parity)	YES	Only if dome/receiver supports presets from menu or controller supports direct preset calls.	Via controller tour if supports direct preset calls.
PELCO D (2400, 4800, 9600 Baud) (None, Even, Odd Parity)	YES	Only if dome/receiver supports presets from menu or controller supports direct preset calls.	Via controller tour if supports direct preset calls.

Notes concerning preset positions:

The majority of AD/Sensormatic controllers use absolute preset positioning which means the matrix/controller requests the current pan/tilt/zoom/focus position from the dome/receiver. The matrix/controller saves this information and uses it to instruct the dome/receiver to move to these absolute positions during a preset call.

This requires that duplex (talk and listen) telemetry is used. With most other systems domes/receivers are only talked to and the dome stores the preset position information.

Later versions of the AD RS422 protocol document mention direct preset calls which only requires simplex (talk only) telemetry. Please check which type of preset commands the matrix/controller you are using supports with Tyco/AD/Sensormatic technical support.

RS232 serial port.

The DB9M connector provides the ability to use a Laptop PC to monitor the data being sent out of the converter via a standard RS232 null modem cable.

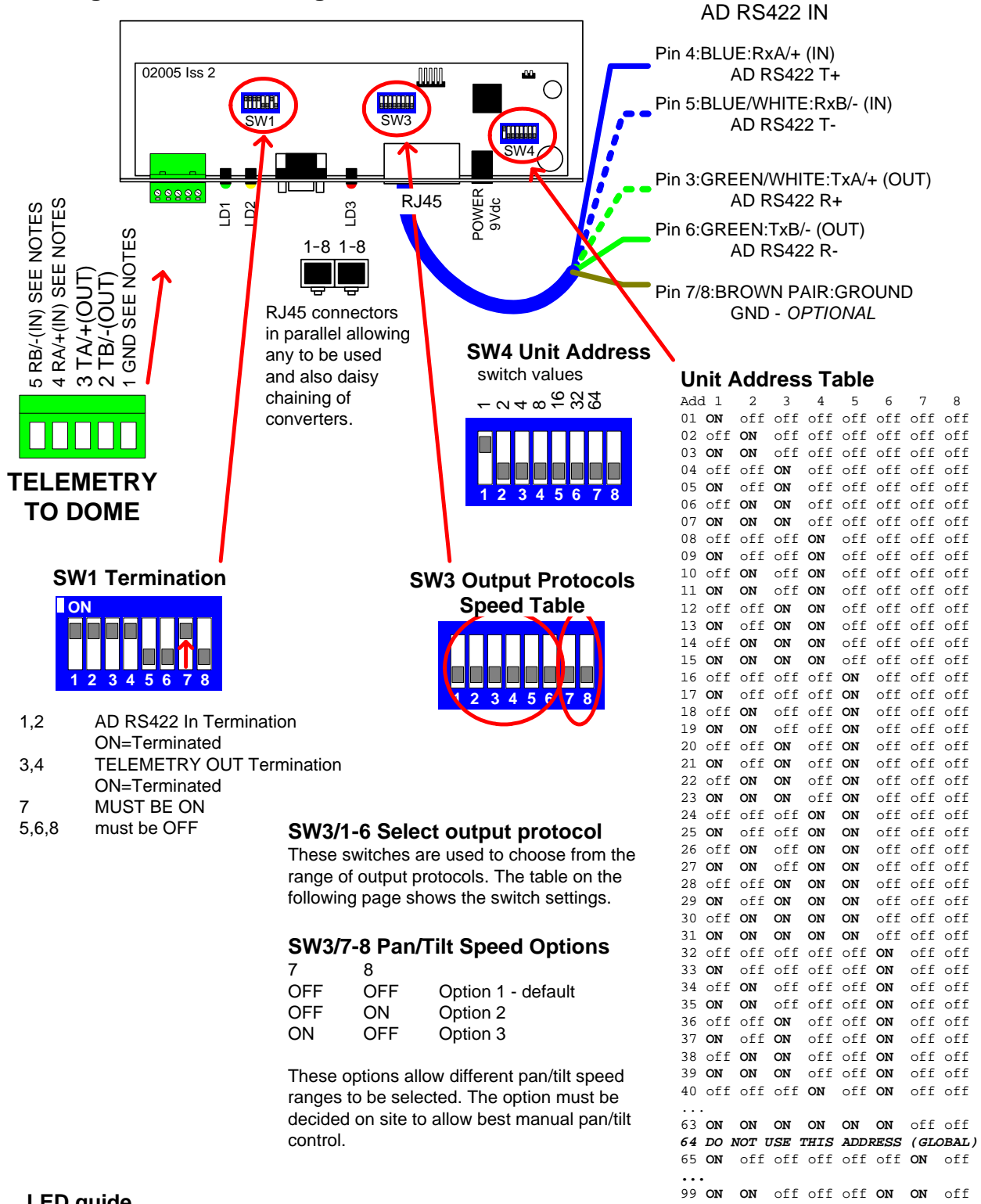
On power up or if SW3 or SW4 switches are altered the unit sends the current protocol, baud rate and parity settings. Please set the PC comms settings to 9600,N,8,1 first. After the message is sent the baud rate is changed to the setting relevant to the SW3 setting.

A power up message example is shown below:

```
BBV AD Converter CONV2V4 www.bbvctv.com
AD RS422:4800,N,8,1 -> MOLYNX:9600,E,8,1
```

AD RS422 Single Channel Converter

Wiring and switch settings



LED guide

- GREEN LD1 – telemetry OUT (When Molynx selected - OFF, when navigating receiver menu ON)
- YELLOW LD2 – AD/Sensormatic RS422 telemetry IN.
- RED LD3 – short flash once per second heart beat. A LONG FLASH = Checksum Error

SW3/1-6 Output protocol selection table is shown on the following page.

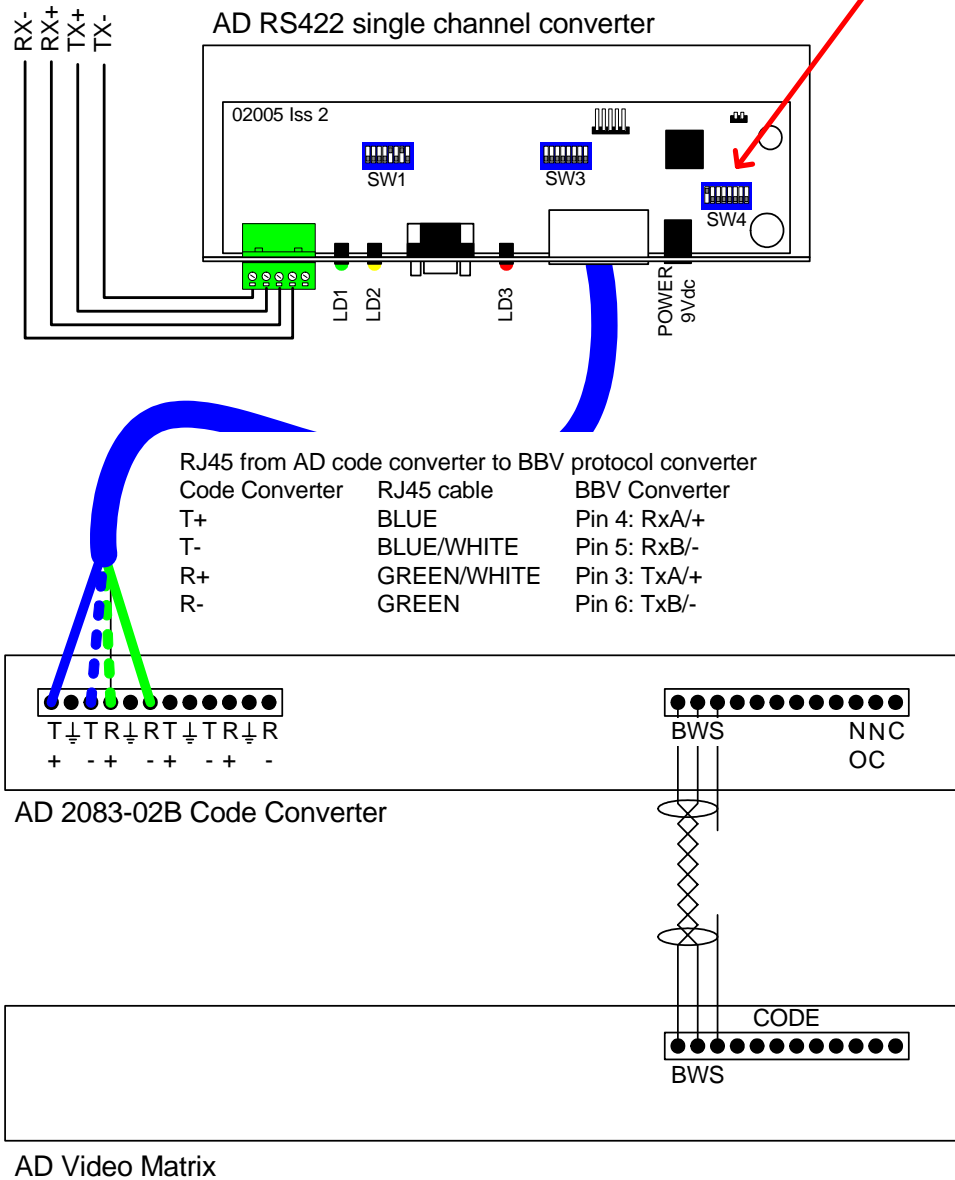
SW3/1-6 Output protocol selection

PROTOCOL	1	2	3	4	5	6
MOLYNX (FULL DUPLEX: 9600,E,8,1)	off	off	off	off	off	off
VISTA ECLIPSE	ON	off	off	off	off	off
SIMPLEX, PELCO D: 2400,N,8,1 ADDRESS 1	ON	off	off	off	off	off
PELCO D: SIMPLEX 2400,N,8,1	off	ON	off	off	off	off
PELCO D: SIMPLEX 2400,E,8,1	ON	ON	off	off	off	off
PELCO D: SIMPLEX 2400,O,8,1	off	off	ON	off	off	off
PELCO D: SIMPLEX 4800,N,8,1	ON	off	ON	off	off	off
PELCO D: SIMPLEX 4800,E,8,1	off	ON	ON	off	off	off
PELCO D: SIMPLEX 4800,O,8,1	ON	ON	ON	off	off	off
PELCO D: SIMPLEX 9600,N,8,1	off	off	off	ON	off	off
PELCO D: SIMPLEX 9600,E,8,1	ON	off	off	ON	off	off
PELCO D: SIMPLEX 9600,O,8,1	off	ON	off	ON	off	off
PELCO P: SIMPLEX 2400,N,8,1	ON	ON	off	ON	off	off
PELCO P: SIMPLEX 2400,E,8,1	off	off	ON	ON	off	off
PELCO P: SIMPLEX 2400,O,8,1	ON	off	ON	ON	off	off
PELCO P: SIMPLEX 4800,N,8,1	off	ON	ON	ON	off	off
PELCO P: SIMPLEX 4800,E,8,1	ON	ON	ON	ON	off	off
PELCO P: SIMPLEX 4800,O,8,1	off	off	off	off	ON	off
PELCO P: SIMPLEX 9600,N,8,1	ON	off	off	off	ON	off
PELCO P: SIMPLEX 9600,E,8,1	off	ON	off	off	ON	off
PELCO P: SIMPLEX 9600,O,8,1	ON	ON	off	off	ON	off

Connecting to AD 2083 code converter and matrix.

Output
 Simplex uses RX pair
 Duplex uses RX & TX

Set the address with SW4
 to match the output of the
 AD code converter.

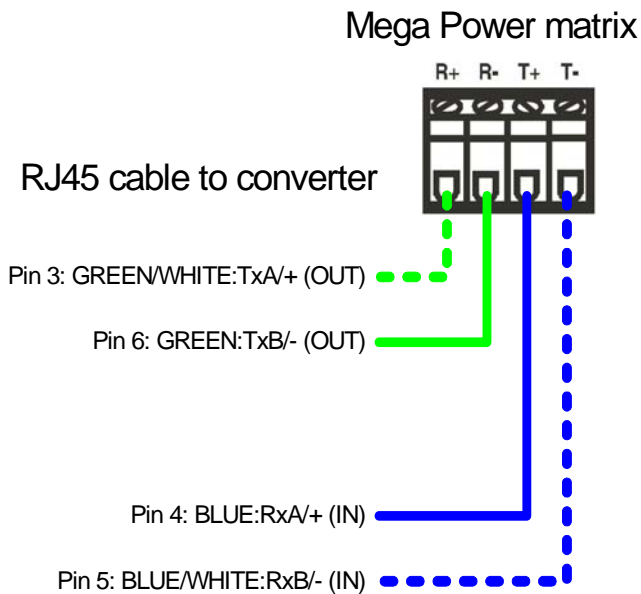


Setting up steps.

1. Set unit address with SW4
2. Make all connections to AD Code Converter and BBV converter.
3. Power BBV converters.
4. Power up AD Code Converter

The AD Code Converter interrogates devices to check for a connected camera shortly after power up. If the BBV converter is not connected or powered off then the AD Code Converter will NOT send ptz commands. Power the AD Code Converter off/on to force another poll.

Connecting to Mega Power matrix RS422 output.



Connect the converter as shown using the supplied CAT5 cable.

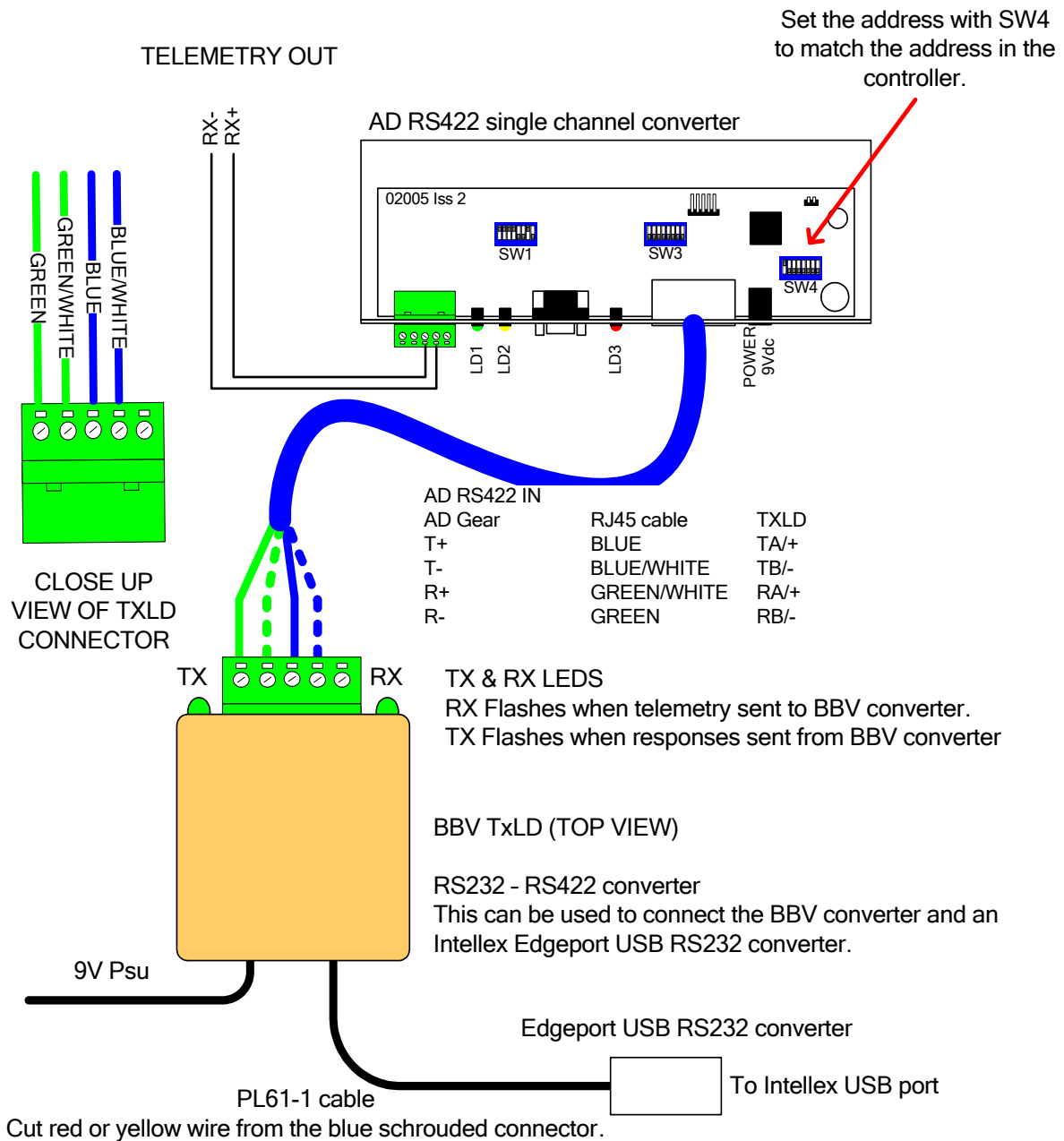
Converters can be daisy chained by connecting together with additional CAT5 cables.

Setting up steps.

1. Set unit address with SW4
2. Make all connections to between the matrix and the BBV converter.
3. Power BBV converters.
4. Power up matrix or press the matrix reset switch

The matrix interrogates devices to check for a connected camera shortly after power up. If the BBV converter is not connected or powered off then the matrix will NOT send ptz commands. Either power the matrix off/on or press the reset button to force another poll.

Connecting to Intellex with Edgeport USB RS232 converter and BBV/TXLD



A BBV TXLD (RS232-RS422) adapter is required which links between the Edgeport USB RS232 converter and the AD single channel converter as shown.

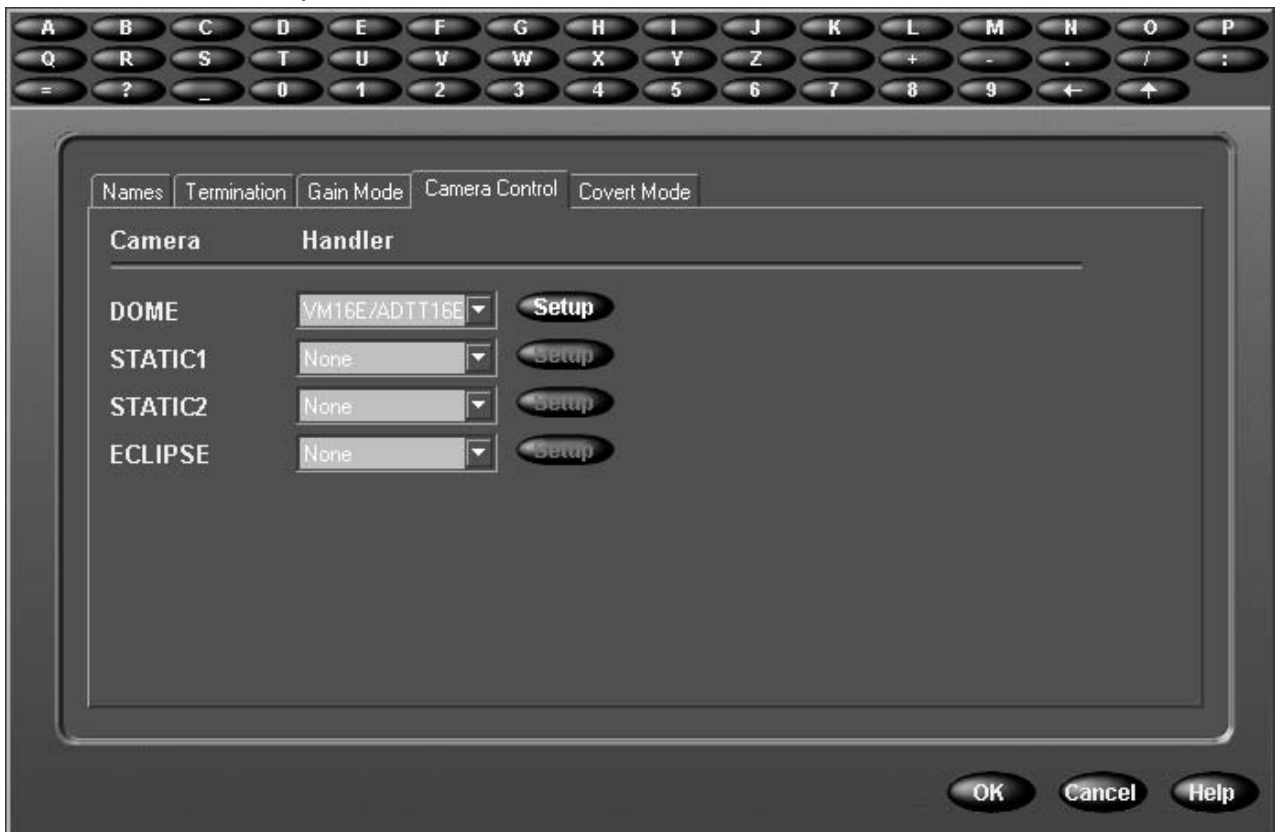
The following pages describe how to add the Edgeport USB RS232 converter to an Intellex.

INTELLEX – Adding the Edgeport USB/RS232 converter

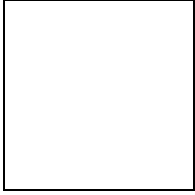
At the setup screen select CAMERAS



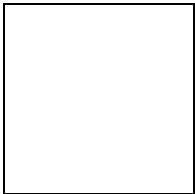
In the CAMERA setup screen select the CAMERA CONTROL TAB



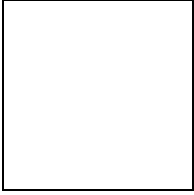
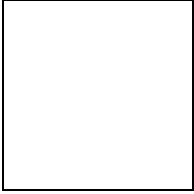
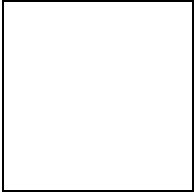
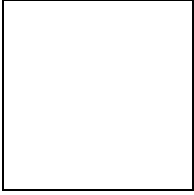
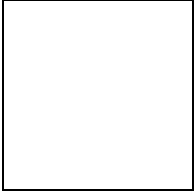
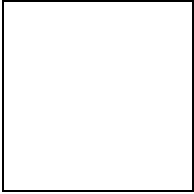
In the CAMERA CONTROL window select RS422 Dome from the HANDLER drop down menu for the camera to be controlled by the BBV converter. The SETUP button will become active, click the SETUP button



Select the Telemetry address for the camera (NB this may be different from the Video channel you have the camera connected to on Intellex), see BBV converter notes for further guidance. From the COMM PORT drop down select the port address of the Edgeport USB to Serial converter (NB - DO not use MUX or Com1). Click OK and exit out of the Intellex camera setup, configuration of the Intellex is complete for use with the BBV Protocol converter.

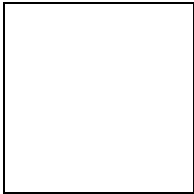


The following pictures are Windows screenshots for checking Edgeport setup if it does not appear in the Intellex setup, if not found in the DEVICE MANAGER window the engineer should call the TYCO Helpdesk in ECHT for support 0870 123 8787.



MOLYNX

A 4 wire connection is required between the converter and the Molynx RX318DX receivers as follows:



The receiver menu can be toggled ON/OFF by pressing the following keys:

IRIS OPEN and **FOCUS FAR OR FOCUS NEAR** and **ZOOM WIDE**

The joystick can be switched between ptz control and menu navigation as follows:

3 ON for MENU NAVIGATION and **3 OFF** for ptz control.

Use **FOCUS FAR** or **FOCUS NEAR** to send a SET when navigating the receiver menu.

The WASH output can be switched with **1 ON** and **1 OFF**.

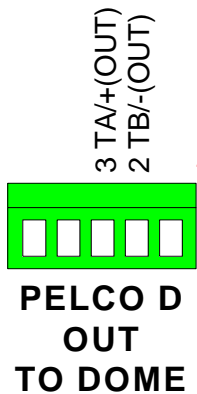
The WIPE output can be switched with **2 ON** and **2 OFF**.

The converter supports absolute preset positioning and the maximum number of presets is limited by the Sensormatic matrix. Additionally if the matrix supports direct preset commands up to 7 or 96 can be used depending on the exact command that the matrix uses.

Preset tours must use the Sensormatic matrix system Tour feature. Refer to the matrix manual for exact procedure.

VISTA ECLIPSE

Simplex, 2 wire connection between the converter and the dome



Connect the dome's video output A to the matrix/DVR camera input and set the BBV converter address to match the address configured at the matrix/DVR, generally the address will be the same as the camera input.

During normal operation one of the focus keys switches between camera view, full screen, quad, fisheye. Etc. In multi screen view the other focus key chooses the area of the screen to control. The small triangle shows the virtual screen that will be controlled.

The receiver menu can be toggled ON/OFF by pressing the following keys:

IRIS OPEN and **FOCUS FAR OR FOCUS NEAR** and **ZOOM WIDE**

Use **IRIS OPEN FOR ENTER** and **IRIS CLOSE FOR ESC** when navigating the receiver menu.

The converter supports direct preset commands which can limit preset functionality with some AD/Sensormatic devices which use absolute position for presets.

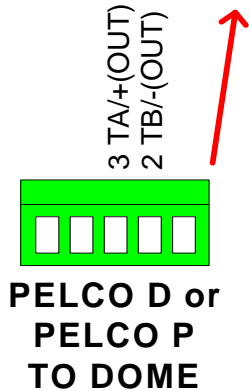
The converter has been tested with a touch tracker and RCSN422, MP48 and 2083 code converter and an Intellex with an Edgeport USB RS232 converter.

Touch tracker and Intellex supported calling preset 1,2,3 and 4. The presets must be programmed from the Vista Eclipse menu. This is accessed with the 3 finger shuffle as normal.

The Intellex does not currently support menu access however!

PELCO P and PELCO D

Simplex, 2 wire connection between the converter and the dome



The receiver menu can be toggled ON/OFF by pressing the following keys:

IRIS OPEN and **FOCUS FAR OR FOCUS NEAR** and **ZOOM WIDE**

Use **IRIS OPEN FOR ENTER** and **IRIS CLOSE FOR ESC** when navigating the receiver menu.

The converter supports direct preset commands which can limit preset functionality with some AD/Sensormatic devices which use absolute position for presets.

The converter has been tested with a touch tracker and RCSN422, MP48 and 2083 code converter and an Intellex with an Edgeport USB RS232 converter.

Touch tracker and Intellex supported calling preset 1,2,3 and 4. The presets must be programmed from the Vista Eclipse menu. This is accessed with the 3 finger shuffle as normal.

The Intellex does not currently support menu access however!

Other BBV products.

Product	Description
TX300	Single camera desktop telemetry transmitter with BBV up-the-coax & 20mA telemetry, Pan/Tilt/Lens & Lights
TX400	As TX300 inc Wash, Wipe, Autopan, 8 presets, preset patrol.
TX400DC	As TX400 including joystick for proportional Pan/Tilt control.
TX1000 MK2	8 or 16 camera, 2 monitor telemetry transmitter. Up to 2 keyboards. BBV up-the-coax and RS422 standard with options for alarm inputs and 20mA telemetry.
TX1500	Mid size matrix 16 – 96 camera, 8 monitor. Up to 4 control positions (keyboard & remote control) options for alarms, remote control, BBV up-the-coax and RS485 telemetry.
FBM range	Large size matrix. Configurable up to 4096 cameras and 64 monitor outputs. Up to 8 control positions (keyboard & remote control) options for alarms, remote control RS485 telemetry with various options. Please call to discuss requirements.
RX100	Dome Interface with options to drive a large library of dome cameras. BBV up-the-coax and 20mA telemetry.
RX200	AC receiver for Pan only heads or static cameras, Wash/Wipe/Lights. BBV up-the-coax and 20mA telemetry.
RX300	AC receiver for Pan/Tilt/Zoom/Focus/Iris Override and 1 Auxiliary output. BBV up-the-coax and 20mA telemetry.
RX400P	AC full function receiver. PTZFI 4 Auxiliary outputs, 16 presets. BBV up-the-coax and 20mA telemetry.
RX400DC	24Vdc high/variable speed receiver. 16 presets, 8 local alarm inputs, 3 Auxiliary outputs. BBV up-the-coax and 20mA telemetry.
RX45X (AC) RX55X (DC) Multi RS485/422 protocol and up-the-coax telemetry receivers	Multiple RS485/422 and up-the-coax controllable AC and DC receivers. These receivers are controlled from an expanding range of serial protocols as listed below. 110/230Vac supply. PTZFI, 64 presets, preset patrol, 8 local alarm inputs, 12V 500mA supply output. OSD for remote diagnostics. 3 Aux. outputs RX55X or 4 Aux. outputs RX45X. Optional Privacy board. BBV RS485 and COAX, BAXALL ALTERNATE & STANDARD COAX, PELCO P/D RS485, VCL/HONEYWELL RS485, PHILIPS/BOSCH RS485 (OPTIONAL BI-PHASE INPUT), DENNARD RS485 SENSORMATIC/AD RS422
RX450/550	PANASONIC RS485 Protocol only version of RX45X/55X.
STARCARD STARCARD/CONVERTER	8 * RS485 output, 2 wire simplex RS422, 4 wire full-duplex RS422, 2 wire half-duplex RS485. Optional STARCARD/CONVERTER offering protocol conversion to drive an increasing range of 3 rd party protocols.
ACCESSORIES	TxLD (bidirectional RS422-RS232 converter) 98005 (bidirectional 20mA-RS232 converter)

Please call BBV for any sales or technical advise with any of these products
+44(0)1323 444600