



# Installation Guide



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# IMPORTANT

## **Before you install:**

Please read the following points before servicing or installing any telemetry receiver:

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

**Safety during installation or servicing** - Particular care should be taken to isolate the pan/tilt head in order to prevent operation while engineering work is being carried out. In addition any ladder or other means of working on the receiver MUST NOT rest on the pan/tilt head as it is possible for the head to move when not expected.

**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.

**Coax grounding** - If an outside cable system is connected to the unit, be sure the cable system is grounded.

**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.

**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;
- (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 PRECAUTIONS**

All normal safety precautions as laid down by British Standards and the Health and Safety at Work Act should be observed and servicing should be referred to qualified service personnel.

## RX35X - Introduction

The RX35X is a telemetry receiver with ac pan and tilt outputs; it allows entry level control of ac pan/ tilt & zoom/ focus with a wiper auxiliary output.

The unit is suitable for 230V mains operation. As a factory fitted option, the receiver can be supplied to operate from 24V ac or 110V ac. This option must be specified at time of order.

### Telemetry

The RX35X is supports addresses 1 -32 with the following Protocols:

BBV422 @ 9600, N, 8, 1  
 PELCO P @ 4800, N, 8, 1  
 PELCO P @ 9600, N, 8, 1  
 PELCO D @ 2400, N, 8, 1  
 PELCO D @ 9600, N, 8, 1  
 SENSORMATIC RS422 @ 4800, N, 8, 2 \*  
 MOLYNX D-TYPE TELEMETRY @ 9600, E, 8, 1  
 VISTA RS485 @ 9600, N, 8, 1  
 VISTA RS485 @ 19200, N, 8, 1  
 VCL RS485 @ 9600, N, 8, 1  
 VICON RS422 @ 4800, N, 8, 1 \*  
 VICON RS422 @ 9600, N, 8, 1 \*  
 VICON RS422 @ 19200, N, 8, 1 \*

\* **NOTE** this is a 2 wire receiver. This means it will not give responses back to the control system.

### Unpacking

Inspect the packaging for signs of damage. If damage has occurred, advise the carriers and/or the suppliers immediately. Unpack the receiver carefully and check that all items are included:

Fig 1. The different build options.

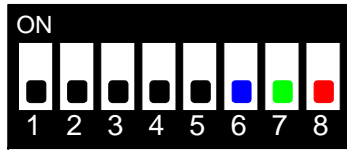
Part number	Description	Rx35X PCB	Weather proof box	IEC connector	Manual	Warranty card
RX35X	Telemetry receiver 230V ac input 230V ac output	X	X	X	X	X
RX35X/PCB	Telemetry receiver 230V ac input 230V ac output PCB only	X		X	X	X
RX35X/24	Telemetry receiver 230V ac input 24V ac output	X	X	X	X	X
RX35X/24/24	Telemetry receiver 24V ac input 24V ac output	X	X		X	X
RX35X/24/24/PCB	Telemetry receiver 24V ac input 24V ac output PCB only	X			X	X
RX35X/110/110	Telemetry receiver 110V ac input 110V ac output	X	X	X	X	X
RX35X/110/110/PCB	Telemetry receiver 110V ac input 110V ac output PCB only	X		X	X	X
RX35X/110/24	Telemetry receiver 110V ac input 24V ac output	X	X	X	X	X

Fig 2. Technical Specification

<b>Power requirements</b>	230V 50/60Hz (options are available for 24V ac or 110V ac supply)		
<b>Load</b>	5A at 230V max		
<b>Standby Current</b>	6VA max		
<b>F2: Auxiliary output fuse</b>	Supply	Output	Fuse F2
	230	230	5A T
	230	24	315mA T
	110	110	5A T
	110	24	630mA T
	24	24	5A T
<b>Outputs</b>	5 single pole changeover relays (snubbed): 1. Left motor 2. Right motor 3. Up motor 4. Down motor 5. Wiper auxiliary output 6. Zoom drive 7. Focus drive 8. Iris override		
<b>Telemetry</b>	RS485 or RS422 Simplex		
<b>Auto iris output</b>	Returns to original setting 15 seconds after key release Level programmable from keypad To drive override input for Cosmocar, or Seiko style lens		
<b>Video input</b>	1V p-p 75R terminated input via BNC socket		
<b>Video output</b>	1V – 4V p-p 75R impedance via BNC socket		
<b>Video Cabling</b>	RG59 or CT125 for more information see Cable factors data sheets		
<b>Telemetry Cabling</b>	Belden 8723		
<b>Dimensions</b>	<b>RX35X PCB</b>	<b>RX35X Boxed</b>	
Depth	100mm	190mm	
Width	190mm	380mm	
Height	38mm	130mm	
Weight	0.4kg	2.5kg	

Fig 3. RX35X INSTALLATION INSTRUCTIONS PCB Connections

**SW8(on/off) Start Self Test - LEFT, RIGHT, UP, DOWN, AUTOPAN, LAMPS, WIPE, WASH, ZOOM IN, OUT, FOCUS NEAR, FAR, IRIS OPEN, CLOSE**



SW 1 - 5 address  
See table on Page 9

SW 6 Iris type  
off = Seiko  
on = Cosmicar

SW 7 Lens voltage  
off = 12v  
on = 6v

SW 8 Self test

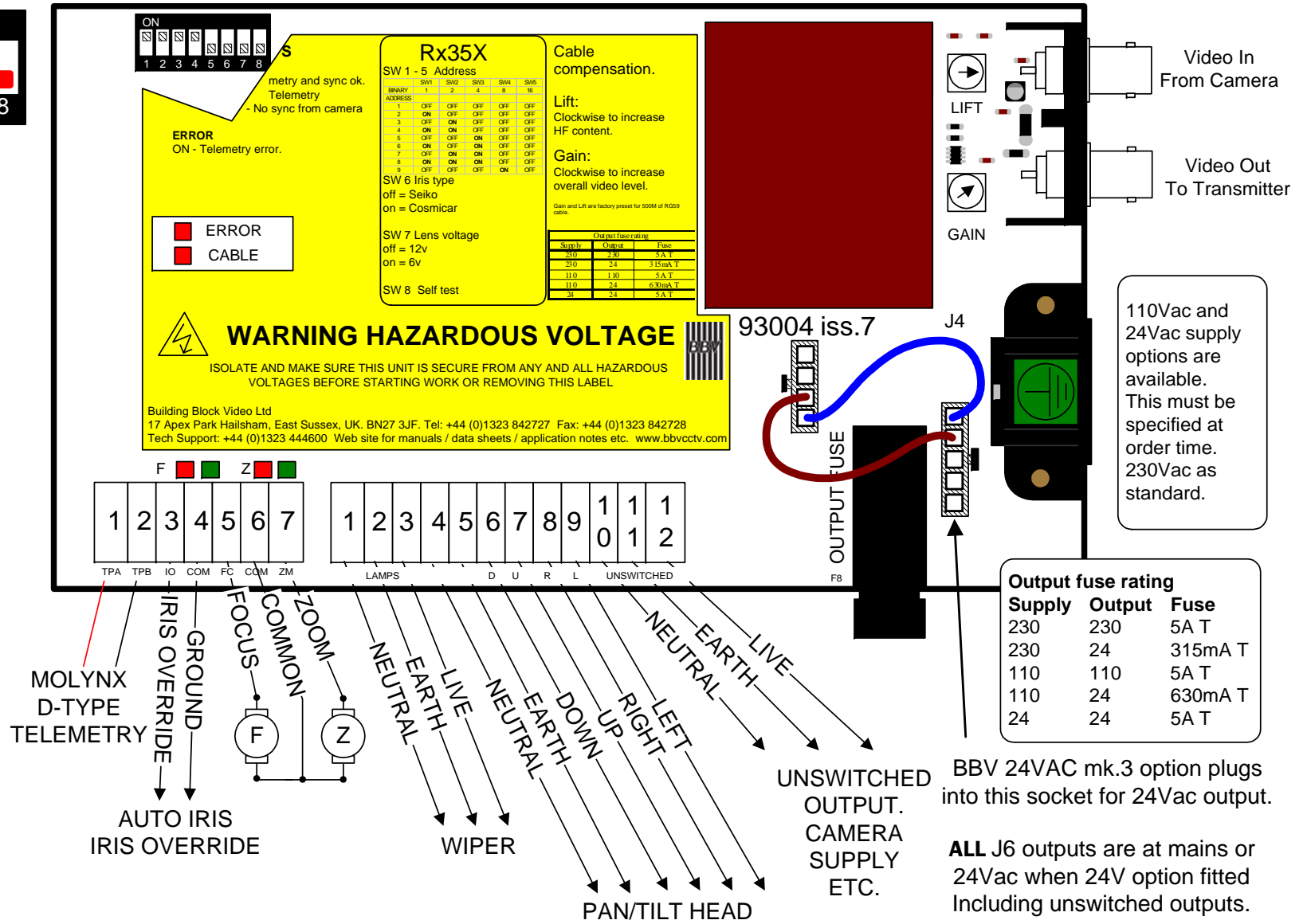
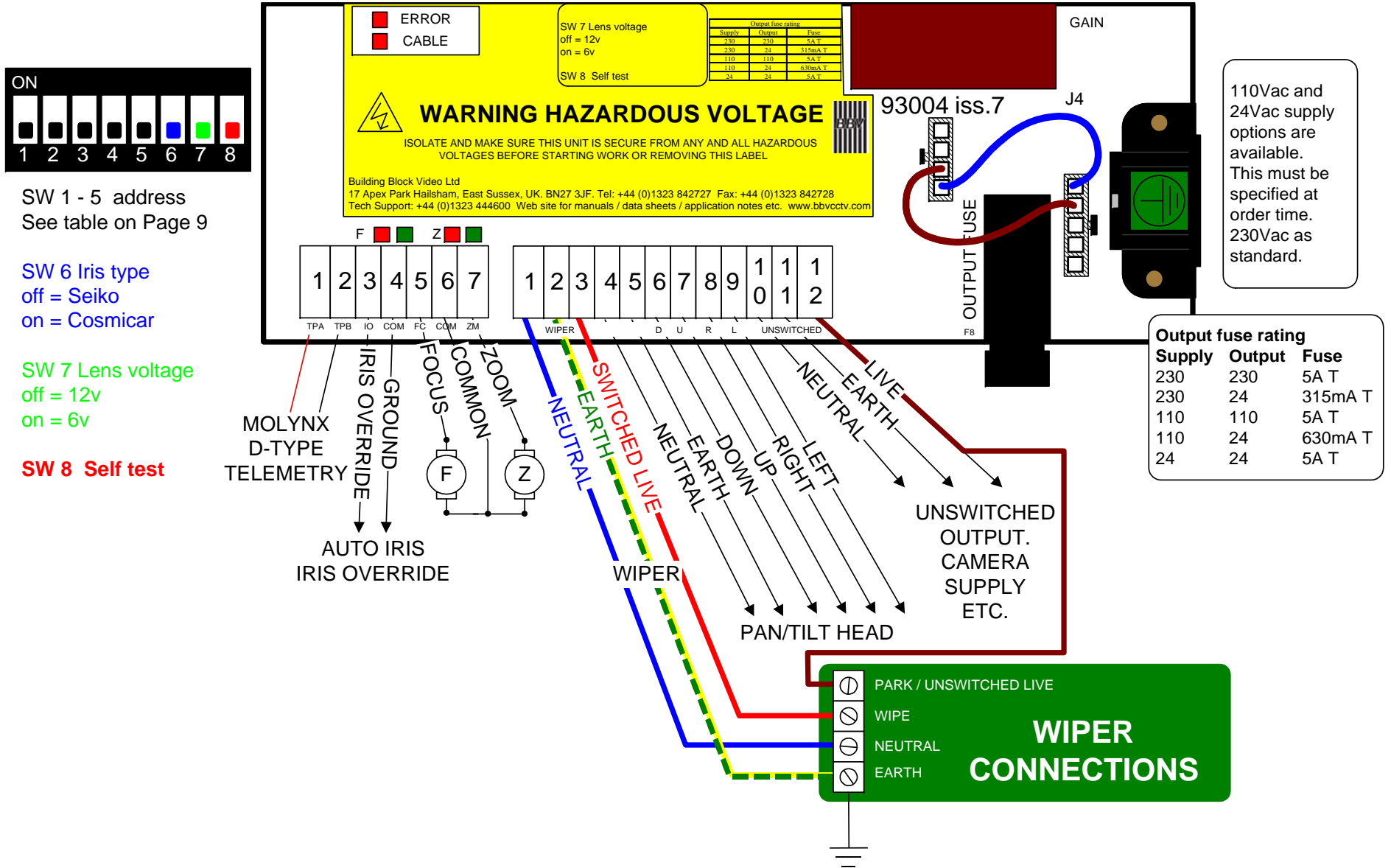


Fig 4. INSTALLATION INSTRUCTIONS PCB Connections with additional Wiper connections

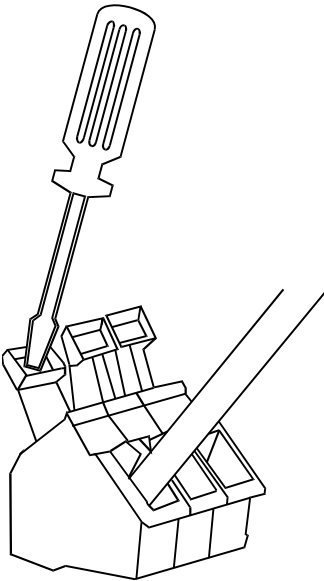
SW8(on/off) Start Self Test - LEFT, RIGHT, UP, DOWN, AUTOPAN, LAMPS, WIPE, WASH, ZOOM IN, OUT, FOCUS NEAR, FAR, IRIS OPEN, CLOSE



All connections to the PCB must be via terminal blocks or by plug and socket. These connections are: Power, video in, video out, and pan or tilt auxiliary outputs. (See Connection diagrams on page 7 & 8)

### Connecting power

The input power supply connector is J4. This is a Standard IEC connector.



### Connectors

BBV have adopted a simple to use method of attaching cables to PCBs quickly and easily. The correct method of attachment is as follows:

1. Use only cable between 0.08 and 2.5 mm<sup>2</sup>
2. Strip the cable to a length of 5 to 6 mm (0.23 in)
3. Press down the relevant terminal block lever with a screwdriver
4. Insert wire
5. Remove screwdriver

Detachment of wires is the reverse procedure of steps 3 to 5, ensuring that **power is disconnected** before starting.

Fig 5. Connection Table

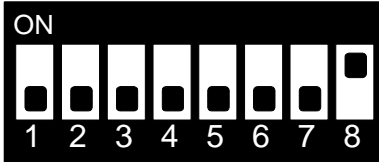
Colour of cable (this is only a guide)	Function	Connection
	<b>Main Cable (18 Core)</b>	
Brown	Camera Power Live	J6-12
Green	Camera Power Ground	J6-11
Blue	Camera Power Neutral	J6-10
Red	Pan Left	J6-9
Yellow	Pan Right	J6-8
Black	Tilt Up	J6-7
White	Tilt Down	J6-6
Green/Red	Motor Head Earth	J6-5
Turquoise	Motor Head Neutral	J6-4
Red/Blue	Wiper Function Live	J6-3
Yellow/Red	Wiper Function Earth	J6-2
White/Red	Wiper Function Neutral	J6-1
Orange	Lens Drive Zoom Motor	J3-7
Grey	Lens Drive Motor Return (Common Ground)	J3-6
Pink	Lens Drive Focus Motor	J3-5
	Auto Iris Override Ground	J3-4
Violet	Auto Iris Override	J3-3
Twisted Pair Cable	Data B TELEMETRY	J3-2
Twisted Pair Cable	Data A TELEMETRY	J3-1

## Protocol & Address selection

The RX35X is a multi protocol Receiver. To select the correct protocol and address is a simple 4 stage process:

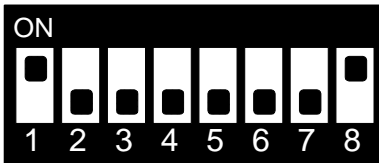
### Stage 1

Power the unit down & wait 5 seconds then turn on switch 8 (this puts the board into protocol mode)



### Stage 2

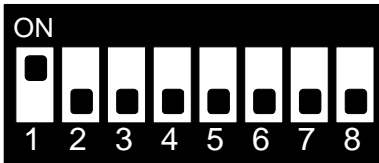
With the use of the dip switches select the protocol (see fig 6) and power up the unit.



SW1 on = BBV422

### Stage 3

Turn off Switch 8. The error light will flash to correspond with the number in the Protocol table. For example on an RX35X that has been set to BBV RS422 telemetry, the error LED will flash once. (If the number is over 10, the error LED will flash once, then pause, and then flash again – for example the error LED on an RX35X set to Vicon 9600 N 8 1 will flash once, pause, then flash twice to indicate 12.)

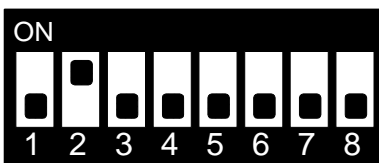


SW1 on = BBV422

Your protocol has now been selected.

### Stage 4

Use the same dipswitch to set the camera address. Check the Address Table (Fig.6a) for the dipswitch configuration, and set the dipswitches accordingly:



SW2 on = Camera Address 3 (see Fig 6A)

Fig 6. Protocol Table SW1:

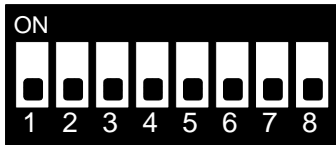
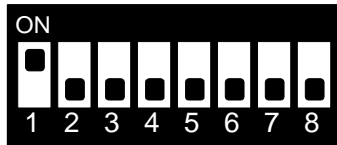
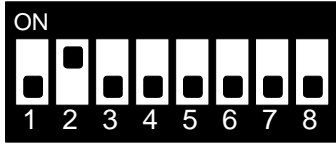
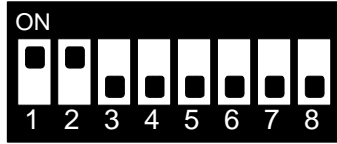
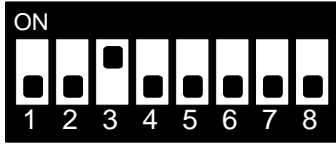
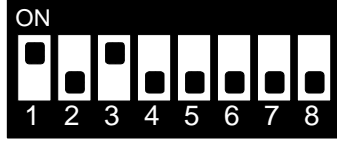
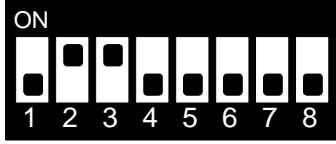
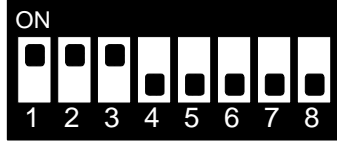
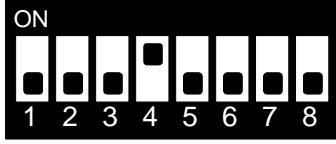
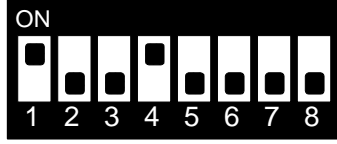
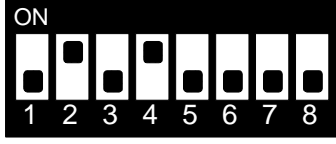
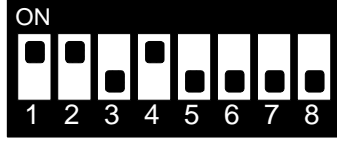
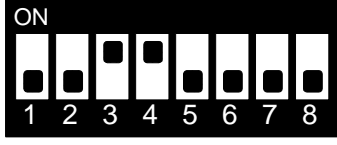
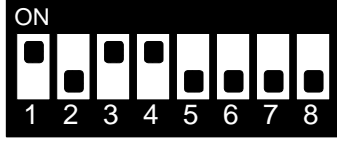
	<p>0 = TEST MODE (NO Protocol support)</p>		<p>1 = BBV422 (9600 N,8,1)</p>
	<p>2 = PELCO P (4800 N,8,1)</p>		<p>3 = PELCO P (9600 N,8,1)</p>
	<p>4 = PELCO D (2400 N,8,1)</p>		<p>5 = PELCO D (9600 N,8,1)</p>
	<p>6 = SENSORMATIC (4800 N,8,2)</p>		<p>7 = MOLYNX (9600 E,8,1)</p>
	<p>8 = VISTA (9600 N,8,1)</p>		<p>9 = VISTA (19200 N,8,1)</p>
	<p>10 = VCL (9600 N,8,1)</p>		<p>11 = VICON (4800 N,8,1)</p>
	<p>12 = VICON (9600 N,8,1)</p>		<p>13 = VICON (19200 N,8,1)</p>

Fig 6a. Address Table SW1

NOTE that camera address 1 is Binary address 0.

	SW1	SW2	SW3	SW4	SW5
	1	2	4	8	16
Address 1	OFF	OFF	OFF	OFF	OFF
Address 2	ON	OFF	OFF	OFF	OFF
Address 3	OFF	ON	OFF	OFF	OFF
Address 4	ON	ON	OFF	OFF	OFF
Address 5	OFF	OFF	ON	OFF	OFF
Address 6	ON	OFF	ON	OFF	OFF
Address 7	OFF	ON	ON	OFF	OFF
Address 8	ON	ON	ON	OFF	OFF
Address 9	OFF	OFF	OFF	ON	OFF
Address 10	ON	OFF	OFF	ON	OFF
Address 11	OFF	ON	OFF	ON	OFF
Address 12	ON	ON	OFF	ON	OFF
Address 13	OFF	OFF	ON	ON	OFF
Address 14	ON	OFF	ON	ON	OFF
Address 15	OFF	ON	ON	ON	OFF
Address 16	ON	ON	ON	ON	OFF
Address 17	OFF	OFF	OFF	OFF	ON
Address 18	ON	OFF	OFF	OFF	ON
Address 19	OFF	ON	OFF	OFF	ON
Address 20	ON	ON	OFF	OFF	ON
Address 21	OFF	OFF	ON	OFF	ON
Address 22	ON	OFF	ON	OFF	ON
Address 23	OFF	ON	ON	OFF	ON
Address 24	ON	ON	ON	OFF	ON
Address 25	OFF	OFF	OFF	ON	ON
Address 26	ON	OFF	OFF	ON	ON
Address 27	OFF	ON	OFF	ON	ON
Address 28	ON	ON	OFF	ON	ON
Address 29	OFF	OFF	ON	ON	ON
Address 30	ON	OFF	ON	ON	ON
Address 31	OFF	ON	ON	ON	ON
Address 32	ON	ON	ON	ON	ON

**SW6 Iris Type**

OFF =Seiko  
ON = Cosmicar

**SW7 Lens Voltage**

OFF = 12V  
ON = 6V

**SW8 Self Test**

ON then OFF Starts self test

## Status LEDS

Error and Cable LEDS are mounted on board to give simple system status information. Their functions are as follows:

### **Cable LED**

Flashing once a second = Heartbeat (Receiver is on but not receiving any valued data)

Fast Flashing = Receiving valued data for the address.

What to do if your cable LED is OFF:

Check you have connected power to the RX35X. If power is connected and the cable LED is still not on, please contact BBV technical support team (01323 444600) or support@bbvcctv.com.

### **Error LED - not used**

Note: As all BBV equipment is designed to auto tune and compensate for any discrepancies in the transmitter signal, there are no further adjustments that need to be made.

## LAUNCH AMPLIFIER

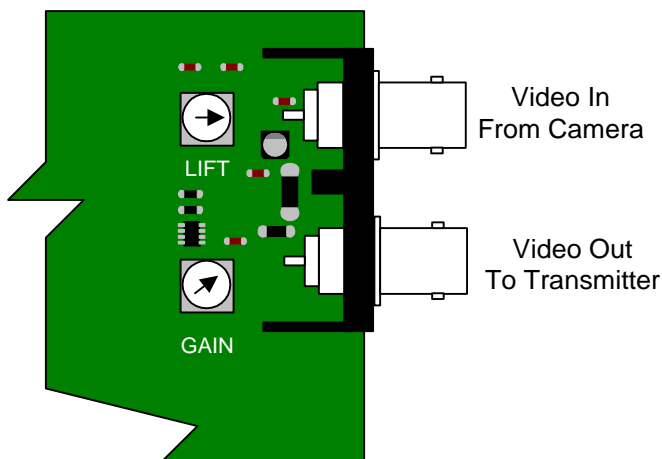
There are two variable controls, Lift and Gain, situated close to the BNC connector J1. The purpose of each control is:

**Lift:** boosts the high frequency signal. Turn clockwise to increase HF content.

**Gain:** adjusts the gain of the video signal. Turn clockwise to increase overall video level.

These are pre-adjusted for a cable distance of 500m, and are adjustable to compensate for video detail or signal losses if and when longer or shorter cable lengths are used to connect the monitor to the receiver. The correct sync level is 300mV.

Fig 7.



**ATTENTION:** Ensure that the cable is terminated at the monitor end **ONLY**

## **SELF TEST**

The diagnostic and status check is activated either locally from the PCB or via the BBV keypad.

To activate the self test locally, turn SW8 ON momentarily. This activates each camera function for two seconds in turn.

The Cable LED should be OFF; (ie not flashing or continuously.)

Fig 8. **Self test sequence**

Order of function test:	Camera moves left
	Camera moves right
	Camera moves up
	Camera moves down
	Wiper function
	Lens zoom in
	Lens zoom out
	Lens focus near
	Lens focus far
	Auto iris open
	Auto iris close
	Diagnostic check complete, unit resets and continues normal operation.

## **Random Pan**

The Random Pan feature allows the receiver to drive the head in a left or right direction at random for a random time. The head will pause for a random time between movements. Over a period of time, the head will move between the right and left end stops. This feature does not require an autopan card to be fitted to the head.

How to start Random Pan:

Issue a PATROL command from the telemetry controller. The key strokes required will vary depending upon the model of controller. Please refer to the controller handbook for details.

## **Retrofitting**

When using 24Vac heads, if the receiver is operating from an 110Vac or 230Vac supply either a 230/24Vac kit or 110/24Vac kit is used. The jumper fitted between J4 & J5 is removed and the plugs supplied with the kit are connected in its place. Fuse F2 is changed to the value shown in the Technical Specification.

**INSTALLATION INSTRUCTIONS FOR PCB BASED RECEIVERS**

**WARNING: THIS EQUIPMENT MUST BE EARTHED.**

1. **When mounting BBV receivers on metalwork, it is essential to maintain correct earthing.**
2. **CORRECT CLEARANCE.** Metal spacers M3 x 10mm long should be used to mount the PCB on the metalwork. These should be earthed to ensure optimum performance. Spacers of the correct length will ensure that minimum air gaps are exceeded.
3. Use all of the mounting points to ensure adequate support with minimum flexing when connections are made to the unit. *See diagram.*
4. In case of queries, technical assistance is available on +44 (0)1323 444600 or support@bbvcctv.com.

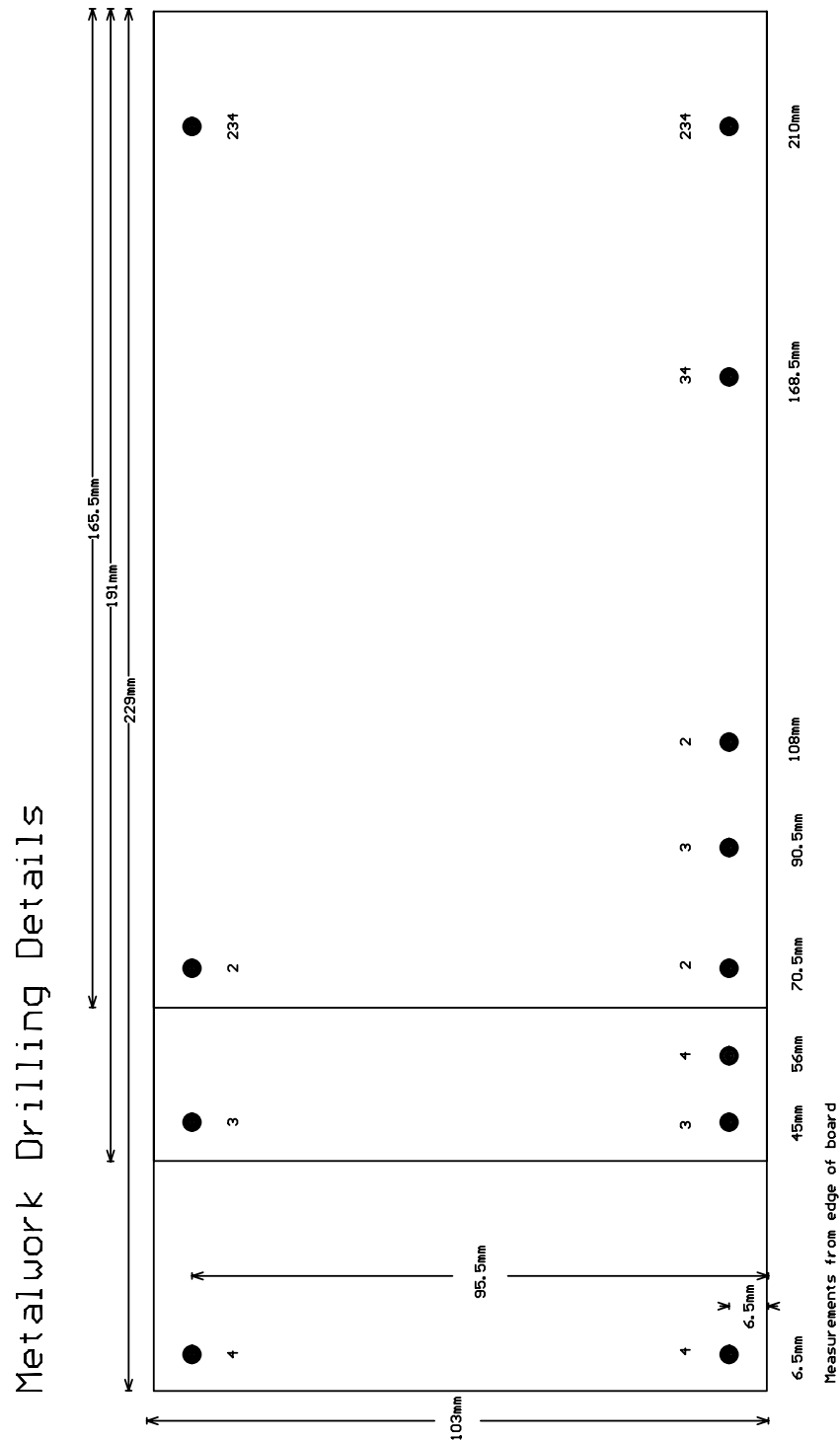


Fig 9.

## Extend your BBV Warranty from 12 months to 3 years

As of the 1<sup>st</sup> September 2008 BBV have offered our customers the opportunity to extend the standard 12 month warranty to 3 years.


You must register for the extended warranty within 12 months of the date of manufacture.

### How to register for the 3 year warranty

Registering for the new, longer 3 year warranty term is quick and easy.

Either:

Complete the warranty application card that comes in the box with your BBV product, and return it FREEPOST to BBV:







### BBV 3 Year Warranty

If this card is returned with the serial number of the product and the Installation company details BBV will extend the warranty period from 12 Months to 36 Months.

Number of Units,  Start Serial No.  Final Serial No.

Contact Name \_\_\_\_\_  
Company Name \_\_\_\_\_  
Phone Number \_\_\_\_\_  
Site Name \_\_\_\_\_  
Address 1 \_\_\_\_\_  
Address 2 \_\_\_\_\_  
Address 3 \_\_\_\_\_  
Post Code \_\_\_\_\_  
e-mail address \_\_\_\_\_

Please could you send me information especially on:  
 Rx100s  
 Rx45x & Rx55x  
 FBM Video Matrices  
 Tx1500 Video Matrices  
 Starcard & Starcard Converters  
 BBV Quad  
 Pick A Point

Do you read:    

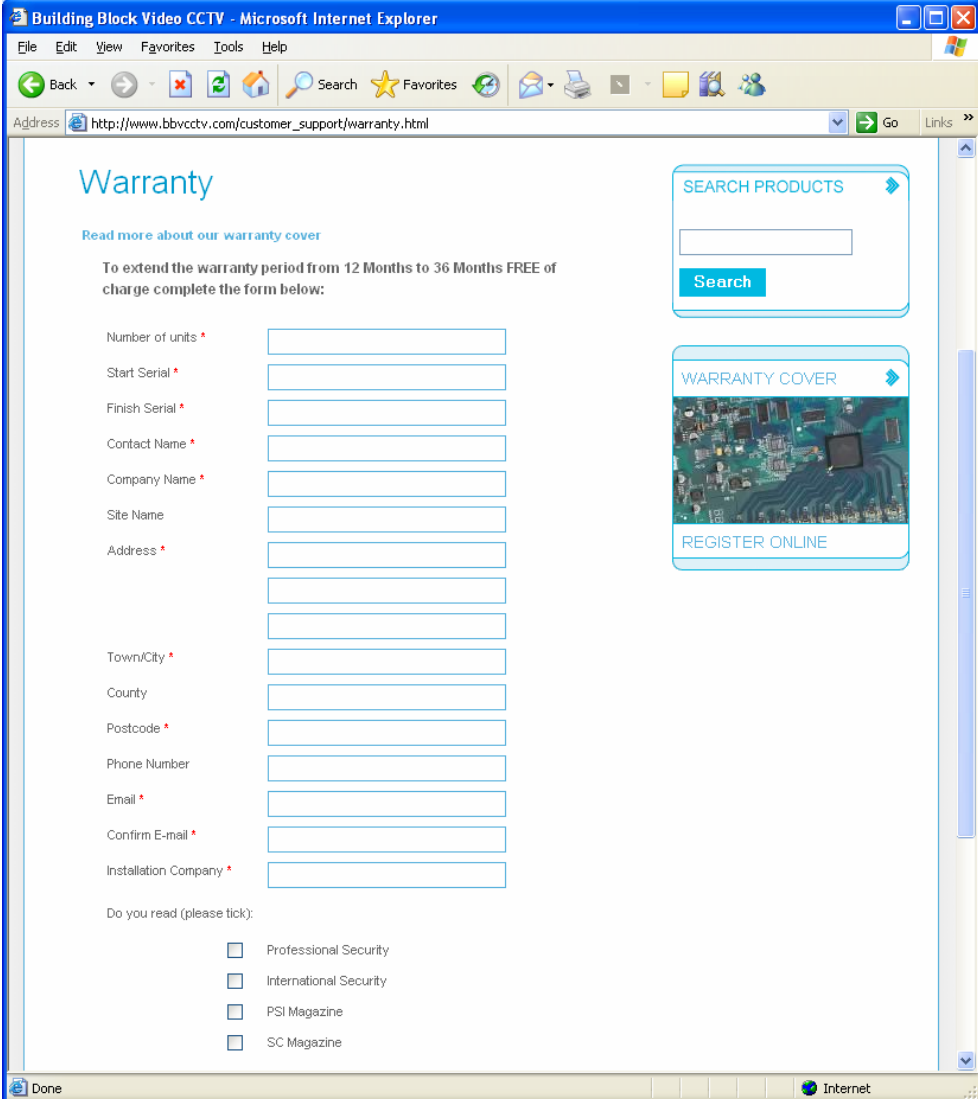
I do not require any other further product information.  
Please refer to [WWW.BBVCCTV.COM](http://WWW.BBVCCTV.COM) for terms, conditions & exclusions

VAT Reg. No. 621758439 Registered in England No. 2852921 Registered office: 17 Apex Park Diplocks Way Hailsham East Sussex UK BN27 3JU

Or alternatively:

Register online at: [www.bbvctv.com](http://www.bbvctv.com)

Simply enter your details on the 'Warranty Cover' page.



The screenshot shows a web browser window titled "Building Block Video CCTV - Microsoft Internet Explorer". The address bar shows "http://www.bbvctv.com/customer\_support/warranty.html". The page content includes a "Warranty" heading, a search box for products, and a "WARRANTY COVER" section with a "REGISTER ONLINE" button. Below this is a form with various input fields and checkboxes.

**Warranty**

Read more about our warranty cover

To extend the warranty period from 12 Months to 36 Months FREE of charge complete the form below:

Number of units \*

Start Serial \*

Finish Serial \*

Contact Name \*

Company Name \*

Site Name

Address \*

Town/City \*

County

Postcode \*

Phone Number

Email \*

Confirm E-mail \*

Installation Company \*

Do you read (please tick):

Professional Security

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