BBV

Telemetry Receiver Installation Guide

Models covered

Rx400P Mark II

Pan/Tilt/Zoom/Focus/Iris
Wash/Wipe/Autopan/Lights
16 Preset positions

Building Block Video Ltd.,
17 Apex Park,
Diplocks Industrial Estate,
Hailsham, East Sussex, UK. BN27 3JU
Tel: +44 (0)1323 842727
Fax: +44 (0)1323 842728
Tech Support: +44 (0)1323 444600
web site: http://www.bbvcctv.com

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 the items are present and correct.

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.

Rx400P TECHNICAL SPECIFICATION

Power Requirements: 230Vac 50/60 (options are available for 24Vac and 110Vac supply)
IEC connector provided (screw terminals with 24Vac supply option)

Maximum Load: 5 amp at 230 volts

Receiver Current: 6VA maximum

Fuse: Transformer contains a none resetting thermal fuse in series with the primary windings. If the transformer overheats, the fuse will protect the unit by going open circuit, removing power from the transformer.

F2: Auxiliary output fuse

Supply	Output	Fuse F2
230	230	5A T
230	24	315mA T
110	110	5A T
110	24	630mA T
24	24	5A T

Outputs: 8 single-pole changeover relays (snubbed)

1. Left motor
2. Right motor
3. Up motor
4. Down motor
5. Autopan (interlocked with pan left/right)
6. Lights (1000W maximum)
7. Wash
8. Wipe

Facilities/Options: Unit auto-tunes to the coaxial telemetry signal
LED readout for continual system status
Diagnostic test switch (SW8) activates each function for two seconds in turn.
See the table for test sequences
Video launch amplifier provided with Gain and Lift controls
Camera power outlet provided.
Colour-coded outlets: Live, Neutral and Earth.
24-volt option available from factory; plugs into J5 (pre wired)

Telemetry Signals: (a) Up the co-ax telemetry signals, designed to operate over 500M of RG59/1km of CT125 co-ax; or (b) Twisted pair 20mA loop (1200,E,8,1)

Auto-Iris Output: Returns to original setting 15 seconds after key release
Level is programmable from keypad
Will drive the override input for Cosmicar or Seiko-style lens

Video Input: 1v p-p 75R terminated input via BNC socket

Video Output: 1v p-p to 4v p-p 75R impedance via BNC socket

Lens Drive: Adjustable via control VR4 /LENS, and ranges between 3 and 12 volts
Inching speed adjustable control VR3/INCH between 0% and 100% of full lens voltage One-second inching built in
Drives provided for **Zoom, Focus** and **Motorised Iris**.
Each lens drive carries a bi-colour LED to indicate correct lens drive function

Presets: Inputs are provided for preset feedback pots.
These inputs are: 10-bit resolution, pan, tilt, zoom and focus. Up to 16 preset positions can be stored within the Rx. Each position consists of a complete view, ie pan, tilt, zoom and focus settings

Other Outputs: The lights-relay output is mimicked on auxiliary output 1 (J9-2). See Installation Instructions for further details.
Spare relay-drive outputs are availabile

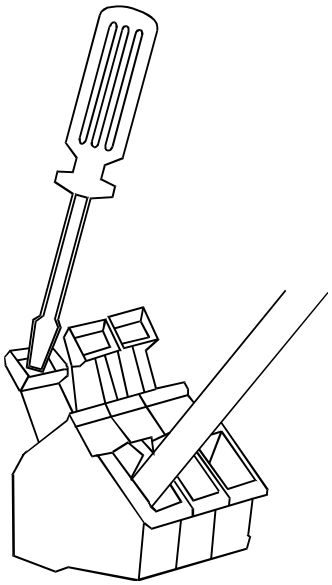
PCB Size: Width: 108 mm overall
Length: 242 mm without IEC inserted
Height: 38 mm above PCB

PCB Weight: 0.5 kg

Boxed Size Width: 190 mm
Length: 380 mm
Height: 130 mm

Boxed Weight: 2.5 kg

WAGO CONNECTERS



The WAGO series 256 PCB terminal block is 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 mm²
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

CABLING RECOMMENDATIONS FOR Rx RANGE OF RECEIVERS

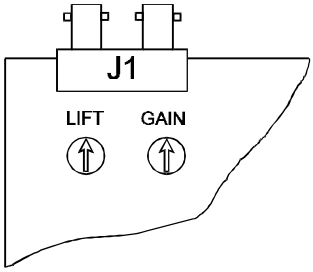
Although BBV do not specify any particular type, manufacturer or supplier of cables, the following ESD Electronic Services (01279 626777) cables have been used successfully for production and testing:

ESD Part Number:	**Description:**
071775G (100 m)	**Output Cable** 18-core 16/0.2mm PVC-insulated/PVC-sheathed cable Rated at 440 volts AC rms at 1600 Hz DEF 61-12 current rating per core 2.5 amp Maximum operating temperature: 70 degrees Celsius
038309R (100 m)	**Preset Cable** 8-core 7/0.2mm PVC-insulated, overall braid screened Rated at 440 volts AC rms at 1600 Hz DEF 61-12 current rating per core 1.0 amp Maximum operating temperature: 70 degrees Celsius

0222586G (100 m)	**Co-Ax Cable (Minimum Specification)** RG59B/U ESD radio frequency co-ax cable to BS2316 and MIL-C-17 1/0.58mm copper-covered steel wire conductor with solid polythene dielectric, bare copper wire braid and PVC sheath Characteristic impedance: 75 Ohm Capacitance: 22pF/ft
020966D (100 m)	**Orange-Coloured Lights Output Cable (1000 w)** 3183Y PVC-insulated, 3-core cable 1.25mm^2 40/0.2mm annealed copper conductor Current rating: 13 amp
0140467H (100 m)	**20mA Twisted Pair Cable (Minimum Specification)** British Telecom spec CW 1308 2-core 1/0.5mm PVC-insulated Maximum conductor resistance at 20 degrees Celsius: 97.8 ohms/km

LAUNCH AMPLIFIER

There are two variable controls, Lift and Gain, situated close to the BNC connector J1. 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.



Default Position. For shorter cable lengths, turn the relevant control anti-clockwise until the required picture quality is obtained. For longer cable lengths, turn the relevant control clockwise until the required picture clarity is obtained.

The purpose of each control is:

Lift: boosts the high-frequency signal
Gain: adjusts the gain of the video signal

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

PRESETS ON THE Rx400P

When using presets ensure correct connection of the feedback pots. Pay particular attention to ensuring that power is not connected across one end of the pot and the wiper, as damage to the feedback pot may ensue.
Beyond connecting the correct wiper to each function input, ie focus wiper to focus input etc. , the installer does not need to worry about reversing the polarity/direction of travel. If for instance the pan/tilt head has been installed upside down, the receiver will compensate for this arrangement.

Before using presets it is neccessary to use the self test function, turn SW8 ON momentarily. During the course of the self test the receiver senses the feedback pot connections. If the cabling/travel is reversed then the unit will reset the relevant direction bits within the receiver. Subsquient searches to preset should now function correctly.

DO NOT PROGRAM PRESETS CLOSE TO PHYSICAL ENDSTOPS

Rx400P INSTALLATION INSTRUCTIONS

The Rx400P requires all connections to the PCB to be made by the installer, and via terminal blocks or by plug and socket. These connections are: power, video in, video out, and pan or auxiliary outputs. See Table for the correct connections.

The Rx300 is normally supplied pre-configured to suit the application for which it is intended, and this will be either to control a mains-operated panning head or other equipment, or to control a 24-volt panning head. The unit is suitable for **230 volt** mains operation. As a factory fitted option, the receiver can be supplied to operate from 24Vac or 110Vac. This option must be specified at time of order.

For mains-voltage panning heads, the **110Vac or 230Vac** supply is made via the IEC socket J4 . (Note - for mains operations, J5 is linked Pins 1 to 4 and Pins 3 to 6.)

When using 24Vac heads, if the receiver is operating from a 110Vac or 230Vac supply either a 230/24Vac Kit or 110/24Vac Kit is used. The jumper fitted to J5 is removed and the plug supplied with the kit is connected to J5. Fuse F2 is changed to the value shown in the table on 2.

Receivers operating from 24Vac can only operate 24Vac heads. No kit is required.

When operating from a 24Vac supply, power connection is by means of a screw terminal replacing the IEC socket.

An 8 way DIL switch is provided allowing various options to be set as follows:-

SW1 Controls auto-iris remote control features (See Appendix for Lens List)

ON Cosmicar lens 2.5 - 5.5 volts
OFF Seiko/Video Technical lens 2.5 - 12 volts

SW2 Reverses zoom motor direction
SW3 Reverses focus motor direction
SW4 Reverses iris motor direction

SW5,6,7 Unused

SW8 Start receiver self test, see later in manual.

Two L.E.Ds (Error and Cable) are mounted on-board to give simple system status information. Their functions are as follows:

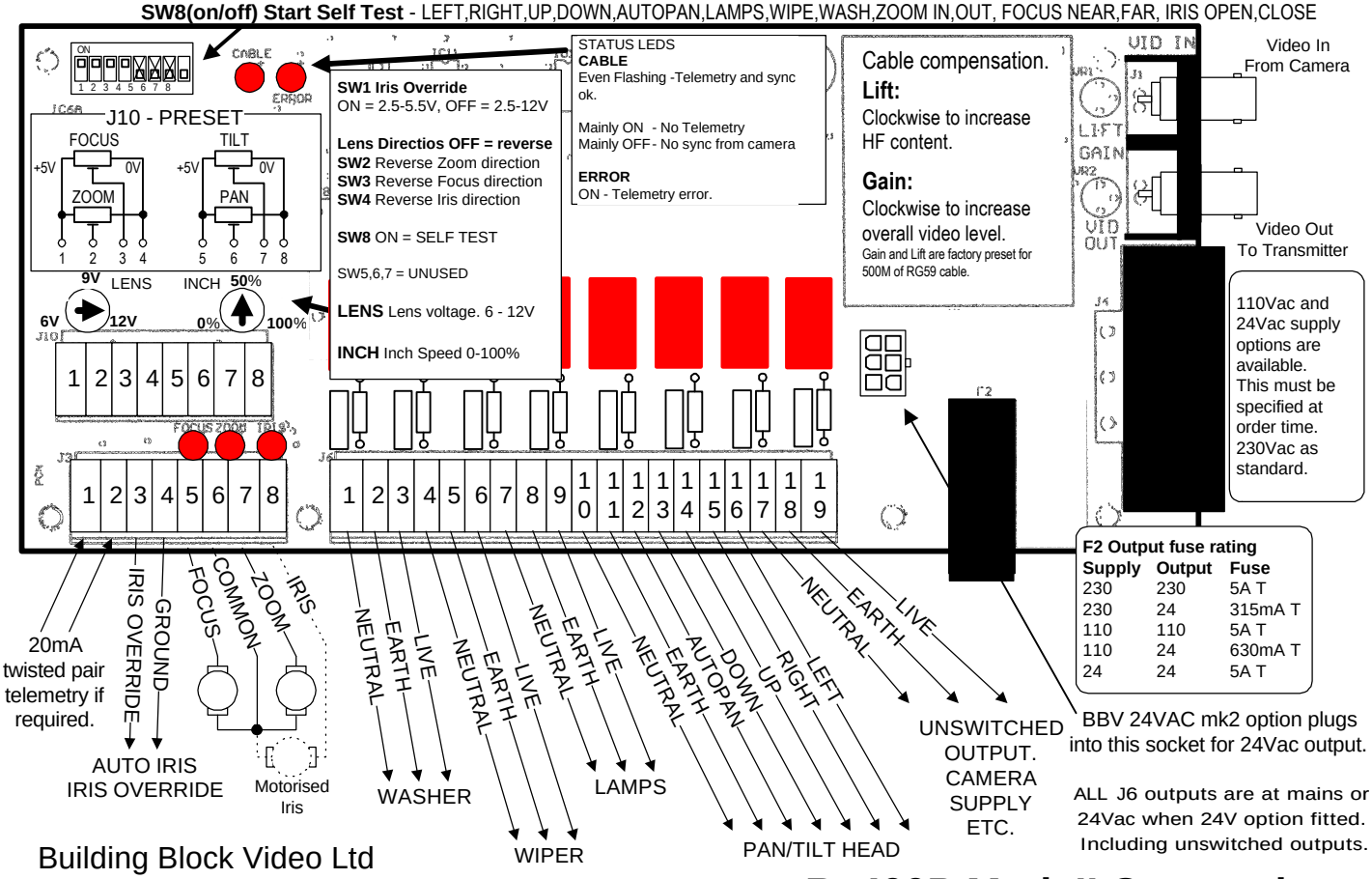
Cable LED
Regular blinking - Telemetry and sync signals OK
Blinking but mainly ON - No telemetry information from the transmitter
Blinking but mainly OFF - No sync information from the camera

Error LED
On - Transmission error (e.g. framing error, parity error)

Both LEDs
Off - No power or major PCB error

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

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



Building Block Video Ltd
17 Apex Park, Diplocks Industrial Estate, Hailsham, East Sussex, UK. BN27 3JF. Tel: +44 (0)1323 842727 Fax: +44 (0)1323 842728
Tech Support: +44 (0)1323 444600 Web site for manuals/data sheets/application notes etc. www.bbvcctv.com

Rx400P Mark II Connections

SELF-TEST AND DIAGNOSTIC SEQUENCES

The diagnostic system-and-status check, which will activate each camera function for two seconds in turn, is activated either locally by pressing a switch on the PCB, or remotely from a BBV keypad. When testing the system locally, before initiating the diagnostic system-and-status check by momentarily turning SW8 ON, ensure that the Cable LED is **on** (i.e. either flashing or continuously). If not, this indicates that either the power is not connected to the PCB, or there has been a major PCB error. Rectify accordingly.

The Error LED flashes at a two-second rate during self-test. If the Cable LED fails to extinguish, then the unit is unable to self-tune and should be returned for repair.

Order of function test:

Camera moves left
Camera moves right
Camera moves up
Camera moves down
Autopan
Lights and auxiliary output J9-2 "on"
Wiper assembly
Washer assembly
Lens zoom in
Lens zoom out
Lens focus near
Lens focus far
Auto-iris open
Auto-iris close
Iris motor drive open
Iris motor drive close
Diagnostic check complete, unit resets and continues normal operation.

CABLE CONNECTIONS FOR Rx400P UNITS

Colour	Function	Connection
	Main Cable (18-Core)	
Brown	Camera Power Live	J6-19
Green	Camera Power Ground	J6-18
Blue	Camera Power Neutral	J6-17
Red	Pan Left	J6-16
Yellow	Pan Right	J6-15
Black	Tilt Up	J6-14
White	Tilt Down	J6-13
Red/Blue	Autopan	J6-12
Green/Red	Motor Head Earth	J6-11
Turquoise	Motor Head Return	J6-10
Red /Black	Wipe Live	J6-6
Yellow/Red	Wipe Earth	J6-5
White/Red	Wipe Neutral	J6-4
Red/Brown	Wash Live	J6-3
Orange	Lens Drive Zoom Motor	J3-7
Grey	Lens Drive Motor Return (Gnd)	J3-6
Pink	Lens Drive Focus Motor	J3-5
	Auto Iris Override Ground	J3-4
Violet	Auto Iris Override	J3-3 (See A)
	20 mA Twisted Pair Connection	J3-2
	20 mA Twisted Pair Connection	J3-1
	Lighting Cable (Orange 3-Core)	
Brown	Lights Live	J6-9
Green/Yellow	Lights Earth	J6-8
Blue	Lights Neutral	J6-7
	Model 4P Presets Cable (8-Core)	
Blue	Head Preset Zero Volts	J10-8
Red	Head Preset Tilt	J10-7
Yellow	Head Preset Pan	J10-6
Purple	Head Preset +5 Volts	J10-5
Green + Screen	Lens Preset Zero Volts	J10-4
Black	Lens Preset Focus	J10-3
White	Lens Preset Zoom	J10-2
Brown	Lens Preset +5 Volts	J10-1

Note A:
When the fitted camera lens has a straight motorised iris, the Violet wire should be connected to J3-8, ***not*** J3-3