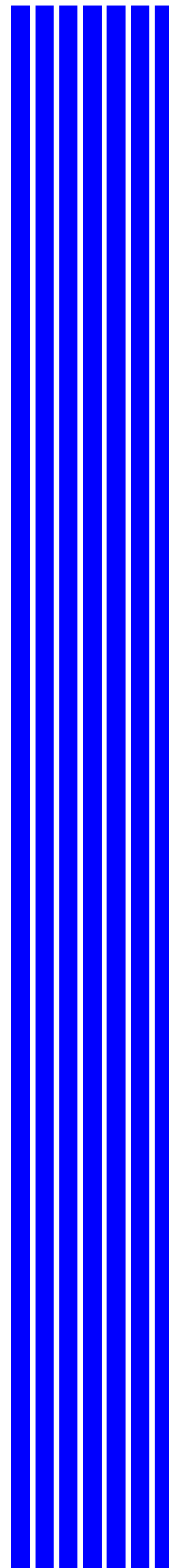# Receiver Installation Guide

BBV

Models covered

Rx450 Panasonic RS485 compatible
AC preset telemetry receiver

Software Version 12 (17/2/2000)

1. 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 the internal electronics of this unit to water or dampness; for example, in an unprotected outdoor installation, or in any area classified as a wet location. The unit as supplied conforms to ingress protection rating IP 67. This rating will be affected by any holes made in the enclosure. Cable entry points should be protected by the use of suitably rated glands and/or flexible conduit. It is not necessary to make further holes in the enclosure for mounting purposes, as mounting holes are provided at the corners of the enclosure outboard of the seal between enclosure and lid.

Accessories - Do not attach this unit to an unstable stand, bracket or mount. The unit may fall, causing serious injury to a person and serious damage to the unit.

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.

Power Connector - This unit is equipped with a two-part connector mounted at the edge of the PCB for mains power input. Do not attempt to alter this connector in any way.

Power Cord Protection - Power supply cords should be routed so that they are not likely to be trapped, pinched or otherwise damaged by items in close proximity to them, whether inside the unit or outside it. Particular attention should be paid to cords at plugs, connection units and the point of exit from the unit.

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.

Co-ax Grounding - If an outside cable system is connected to the unit, be sure the cable system is grounded.

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 on the Rx450 receiver.

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.

2. INTRODUCTION

GENERAL

The Rx450 receiver is designed to control AC-operated pan/tilt mechanisms using a Panasonic control system.

The Rx450 receiver is supplied in an IP 67 rated enclosure. It will be necessary to make suitable holes in the enclosure to permit cable entry and exit. Adequately rated cable glands and or flexible conduit should be used at all times to avoid compromising the protection afforded by the enclosure as supplied. Any holes made in the enclosure for any other purpose should be sealed with a non-hardening waterproof sealant, taking care to ensure that the internal electronics are not contaminated. Enclosure mounting holes are provided at the corners of the enclosure outboard of the seal between enclosure and lid.

The Rx450 receiver has been tested with the following Panasonic units.
WJ-FS616   16 camera video multiplexer
WJ-SX550A   matrix switcher
WJ-SX350   matrix switcher

Technical Specification

Power Requirements   86 - 265Vac (24Vac option)

Max Load   5A @ 230V   (1150 W)

Receiver Current Draw   24VA max

Fuses   Auxiliary fuse   F2   5A T   (20mm cartridge)

Outputs   8 single pole relays (snubbed)
1. Left Motor   5. Autopan (Interlocked with Pan)
2. Right Motor   6. Lights (1000W max)
3. Up Motor   7. Wash
4. Down Motor   8. Wipe

Facilities   LED readout for continual system status.
        Programming menu with On Screen Display.
REMOTELY ADJUSTABLE   Video launch amplifier provided with cable length adjustment
        12Vdc/750mA camera power provided.
        Colour coded outlets – live, neutral, earth and low voltage.
        24Vac output option available.

Telemetry Signal   2 or 4 wire RS485 - Panasonic compatible.

Auto Iris Output   Returns to original setting 15 seconds after key release. Level
        programmable from controller.

Video Input   1v p-p 75Ω terminated input via BNC socket.

Video Output   1v to 4v p-p 75Ω impedance via BNC socket.

Lens Drive
REMOTELY ADJUSTABLE   Adjustable via menu between 6 and 12 volts. Inching speed selectable via
        menu between 0 - 12v. 1 second inching built in. Provides drive for
        Zoom & Focus. Each lens drive carries a bi-colour LED to indicate
        direction and drive voltage.

Presets   Inputs are provided for pan, tilt, zoom & focus preset feedback pots.
        These are 10 bit resolution. Upto 32 full-scene presets can be stored
        within the Rx450, i.e. pan, tilt, zoom, focus.

Other Outputs   RS485 Serial port available to drive advance features on selected
        cameras.

Additional Information   Autopan or Random Pan
        Sequential preset patrol. The preset dwell is programmable individually.
        Datum - return to preset 1 after programmable duration of inactivity.
        Iris output - either direct drive for 3 motor lens or Autoiris override voltage
        for Seiko/Cosmicar lenses etc.
        8 alarm inputs, volts free normally closed contacts. A single opening volts
        free contact sums the alarms either immediately or as the preset is
        approached. If a video transmission system is activated with the alarm
        output, then setting the alarm to delayed prevents unwanted frames being
        transmitted.

Options   24Vac output option available. Either 230Vac/24Vac or 110Vac/24Vac.

CABLE CONNECTION METHOD

<u>Fig. 1: Wago connectors</u>
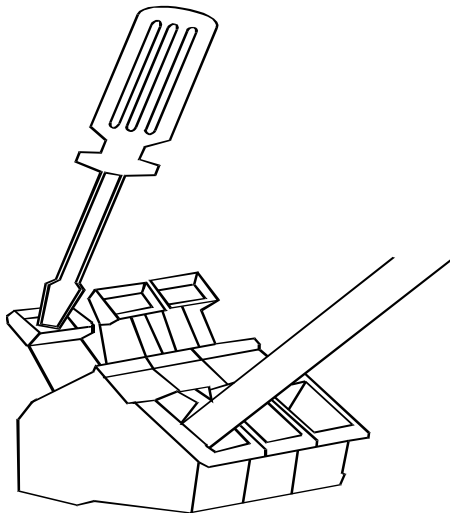
The WAGO series 256 PCB terminal block is a simple-to-use method of attaching cables to PCBs quickly and easily. Prepare cables as follows:
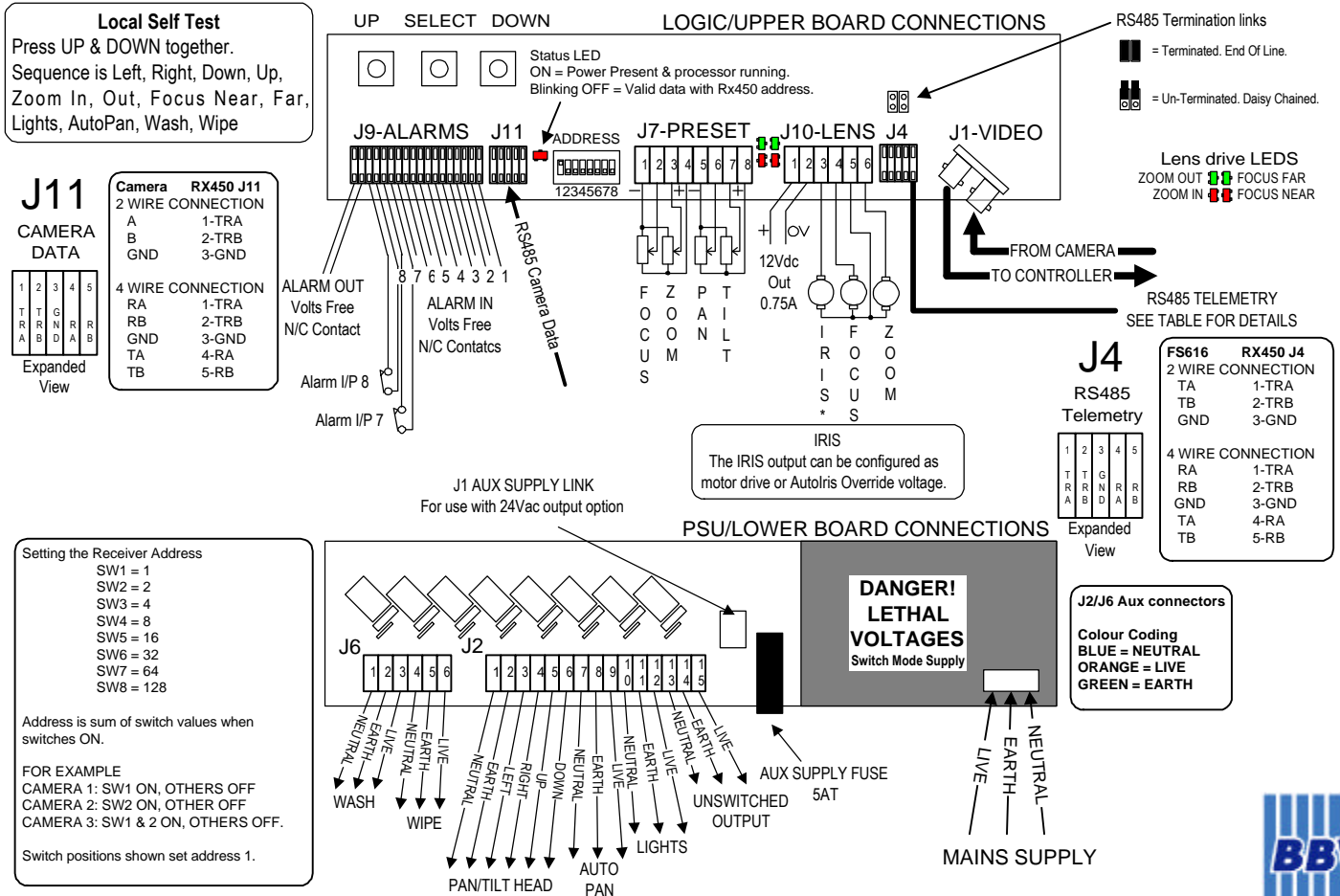
1. Use only cable between 0.08 and 2.5 mm²
2. Strip the cable to a length of 5 to 6 mm (0.23 in)
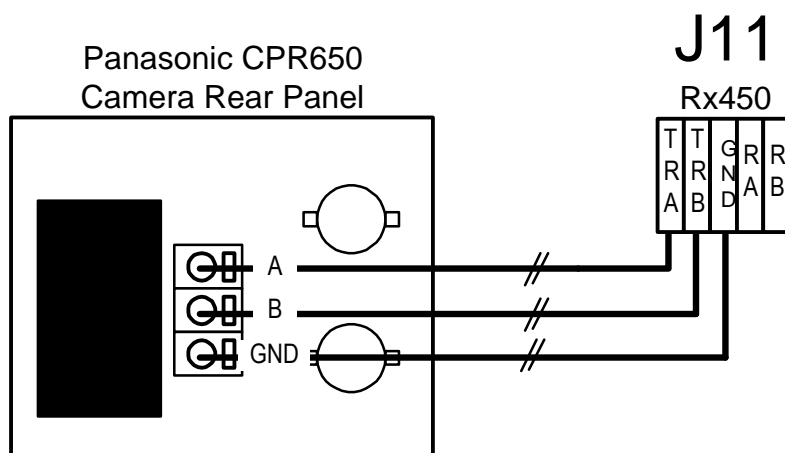
The correct method of attachment is as follows:
1. Press down the relevant terminal block lever with a suitable screwdriver;
2. Insert wire;
3. Remove screwdriver.

The procedure for detaching wires is the reverse of the 3 attachment steps, ensuring that **power is disconnected** before starting.
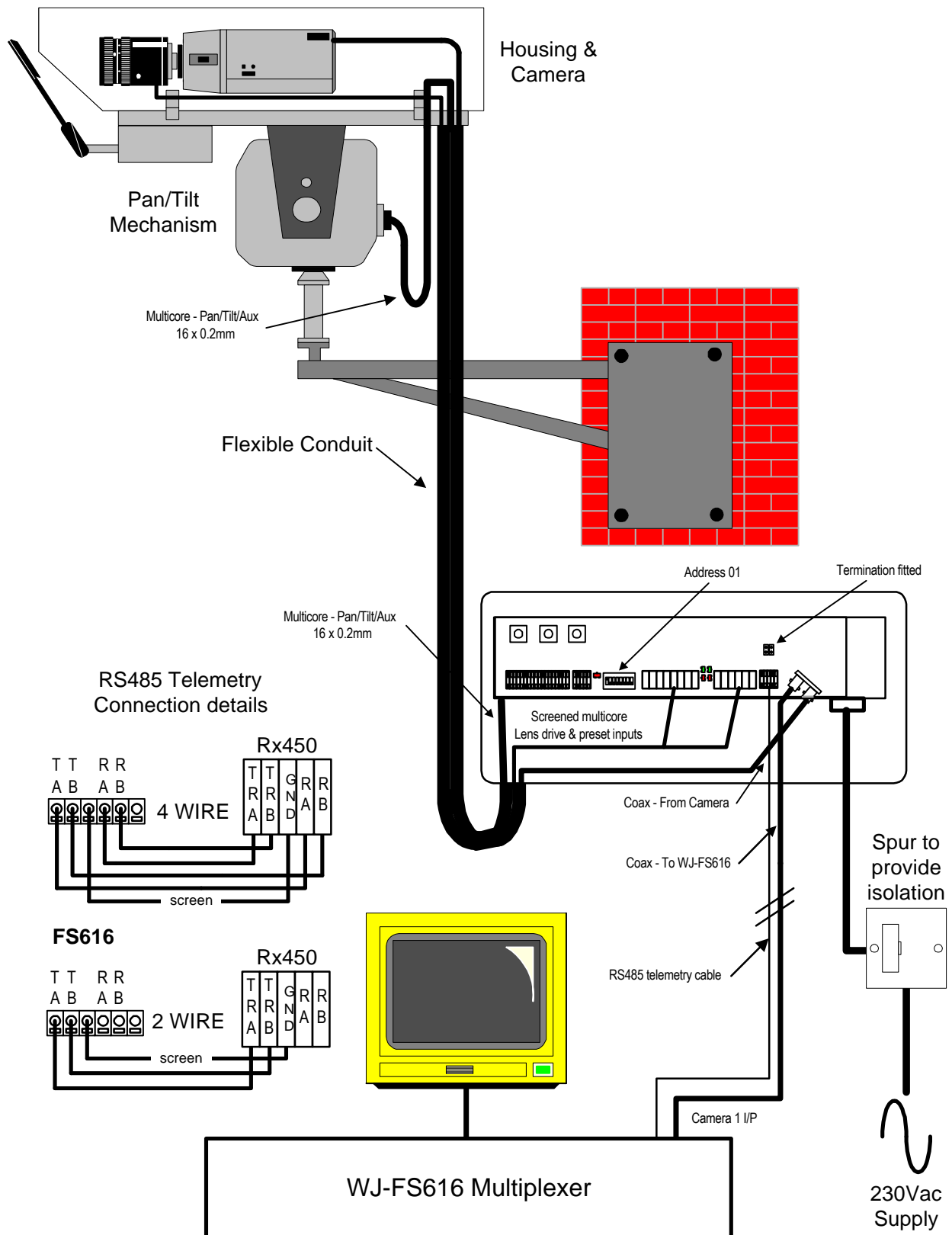
3. INSTALLATION

Local Self Test
Press UP & DOWN together.
Sequence is Left, Right, Down, Up,
Zoom In, Out, Focus Near, Far,
Lights, AutoPan, Wash, Wipe

UP   SELECT   DOWN

LOGIC/UPPER BOARD CONNECTIONS

RS485 Termination links

▮▮ = Terminated. End Of Line.

▫▫ = Un-Terminated. Daisy Chained.

Status LED
ON = Power Present & processor running.
Blinking OFF = Valid data with Rx450 address.

J9-ALARMS   J11   ADDRESS   J7-PRESET   J10-LENS   J4   J1-VIDEO

12345678

RS485 Camera Data

FROM CAMERA
TO CONTROLLER

Lens drive LEDS
ZOOM OUT ▮▮ FOCUS FAR
ZOOM IN ▮▮ FOCUS NEAR

J11
CAMERA DATA

Camera	RX450 J11
2 WIRE CONNECTION	
A	1-TRA
B	2-TRB
GND	3-GND
4 WIRE CONNECTION	
RA	1-TRA
RB	2-TRB
GND	3-GND
TA	4-RA
TB	5-RB

Expanded View

ALARM OUT
Volts Free
N/C Contact

ALARM IN
Volts Free
N/C Contatcs

Alarm I/P 8

Alarm I/P 7

FOCUS ZOOM PAN TILT

12Vdc Out 0.75A

IRIS* FOCUS ZOOM

IRIS
The IRIS output can be configured as
motor drive or AutoIris Override voltage.

J1 AUX SUPPLY LINK
For use with 24Vac output option

PSU/LOWER BOARD CONNECTIONS

J4
RS485 Telemetry

Expanded View

RS485 TELEMETRY
SEE TABLE FOR DETAILS

FS616	RX450 J4
2 WIRE CONNECTION	
TA	1-TRA
TB	2-TRB
GND	3-GND
4 WIRE CONNECTION	
RA	1-TRA
RB	2-TRB
GND	3-GND
TA	4-RA
TB	5-RB

Setting the Receiver Address
SW1 = 1
SW2 = 2
SW3 = 4
SW4 = 8
SW5 = 16
SW6 = 32
SW7 = 64
SW8 = 128

Address is sum of switch values when switches ON.

FOR EXAMPLE
CAMERA 1: SW1 ON, OTHERS OFF
CAMERA 2: SW2 ON, OTHER OFF
CAMERA 3: SW1 & 2 ON, OTHERS OFF.

Switch positions shown set address 1.

J6   J2

**DANGER!
LETHAL
VOLTAGES**
Switch Mode Supply

J2/J6 Aux connectors

Colour Coding
BLUE = NEUTRAL
ORANGE = LIVE
GREEN = EARTH

WASH   WIPE   PAN/TILT HEAD   AUTO PAN   LIGHTS   UNSWITCHED OUTPUT

AUX SUPPLY FUSE 5AT

LIVE   EARTH   NEUTRAL

MAINS SUPPLY

Rx450(AC) Panasonic Compatible Telemetry Receiver Connection details

Panasonic CPR650
Camera Rear Panel

J11
Rx450

TRA TRB GND RA RB

A
B
GND

Connecting Rx450 to Panasonic CPR650 Camera

Example connection diagrams.

Housing & Camera

Pan/Tilt Mechanism

Multicore - Pan/Tilt/Aux
16 x 0.2mm

Flexible Conduit

Address 01

Termination fitted

Multicore - Pan/Tilt/Aux
16 x 0.2mm

Screened multicore
Lens drive & preset inputs

RS485 Telemetry Connection details

Rx450

T T   R R
A B   A B   4 WIRE

T R A T R B G N D R R A R R B

screen

FS616

Rx450

T T   R R
A B   A B   2 WIRE

T R A T R B G N D R R A R R B

screen

Coax - From Camera

Coax - To WJ-FS616

RS485 telemetry cable

Spur to provide isolation

Camera 1 I/P

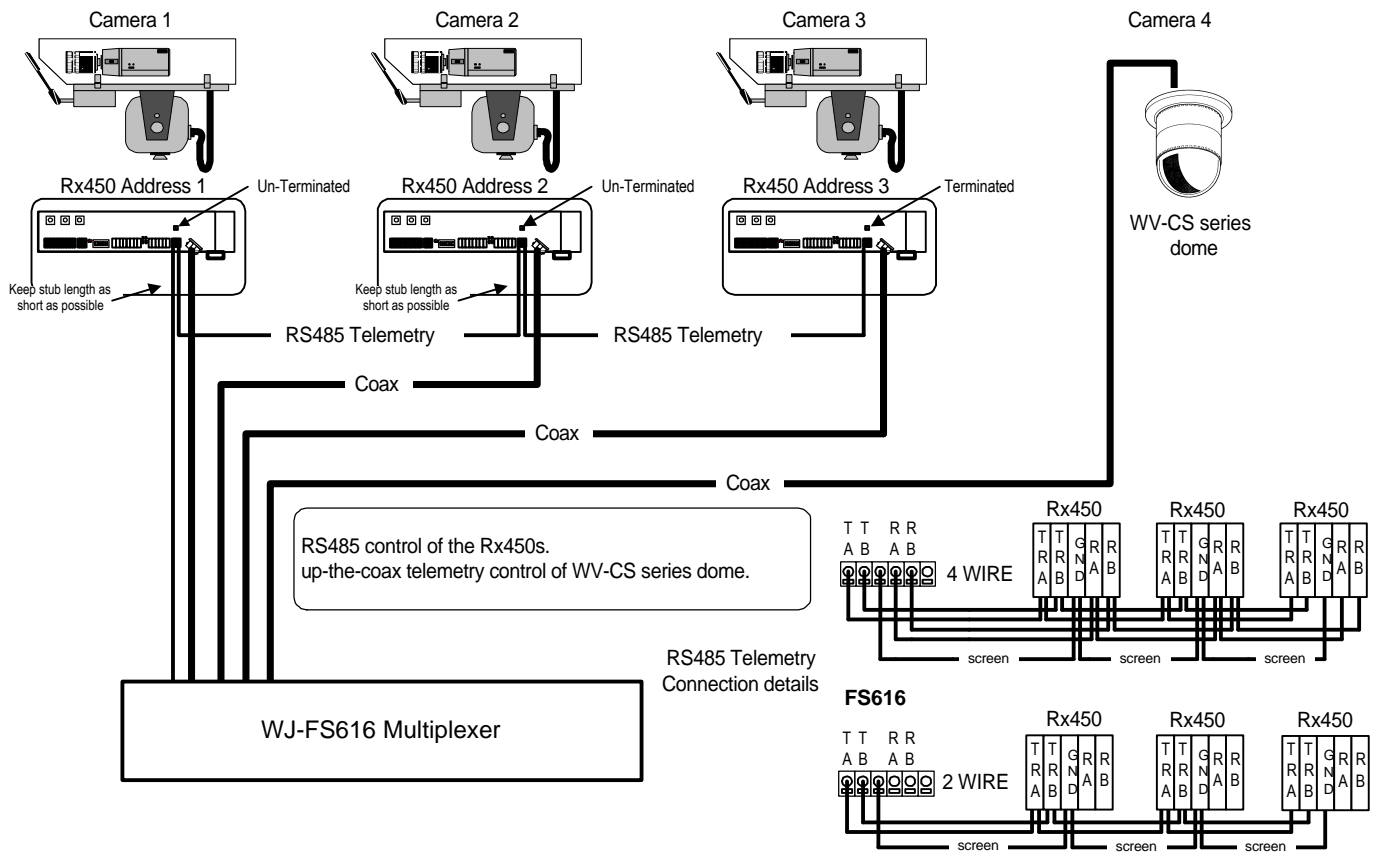WJ-FS616 Multiplexer

230Vac Supply

Single Rx450 with WJ-FS616

Multiple Rx450 with WJ-FS616

Multiple Rx450 and RS485 controlled domes with WJ-FS616

Multiple Rx450 and up-the-coax telemetry controlled dome with WJ-FS616

The receiver comprises of two pcbs. The low voltage logic board is mounted above the cage whilst the high voltage psu and head output board is mounted within the cage.

DO NOT OPERATE THE RECEIVER WITH THE CAGE TOP REMOVED.

The logic board area of the cage lid can be removed by gently lifting the board whilst pressing the cage 'fingers'. The head and auxiliary cables can now be connected to the board and the mains supply connected to the supplied connector.

Replacing the cage lid is a reverse of the above procedure.

The low voltage connection can now be made to the logic board.

Each receiver on a network must have a unique address. The following table shows the switch settings for receiver address 1 - 16.

ADDRESS	SW1 (1)	SW2 (2)	SW3 (4)	SW4 (8)	SW5 (16)	SW6 (32)	SW7 (64)	SW8 (128)
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF

RS485 Telemetry
Connection details
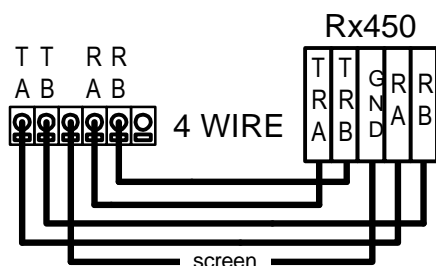
The RS485 telemetry data can operate over either 2 or 4 wire cable. Both the FS616 and the Rx450 must be set accordingly. The following diagram shows cable connections for 2 and 4 wire modes.
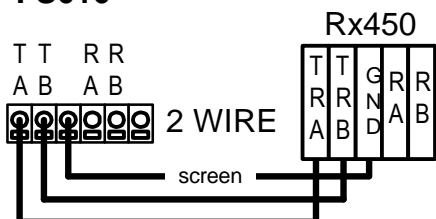
BBV recommend the use of 4 wire telemetry at 9600 baud.

Setting 2 wire telemetry.
FS616
Set the switch on rear panel of FS616 to 2 wire.
Select half duplex from `SETUP/SYSTEM/COM PORT SETUP/RS-485.`

Setting 4 wire telemetry.
FS616
Set the switch on rear panel of FS616 to 4 wire.
Select full duplex from `SETUP/SYSTEM/COM PORT SETUP/RS-485.`

RX450
2/4 wire telemetry selection is covered in later pages of this manual.

Ensure that both the Rx450 and the FS616 baud rate are the same. The default is 19200 baud although **it is recommended to use 9600**. The Rx450 baud rate is set on the `BAUD RATE` line of the `MAIN/RECEIVER/COMMUNICATIONS/MENU`. The FS616 baud is set from `SETUP/SYSTEM/COM PORT SETUP/RS-485 BAUD RATE`.

In the `CABLE COMP/VD2/DATA SETUP` screen of the `SYSTEM MENU` of the FS616, set the data column to camera number for each cam having a Rx450 connected.

4. SETUP

DIAGNOSTIC AIDS

A single diagnostic LED labelled POWER provides indication of presence of power and also data from the multiplexer.

When the Rx450 is powered, the LED illuminates.

The LED will blink when the Rx450 has received correct telemetry data with the same address as DIP switch address. The LED will not blink off if either the telemetry data is invalid or if the data is addressed to another Rx450 or dome.

Additional diagnostic aids are available in the Rx450 **MAIN/RECEIVER/DIAGNOSTICS** menu. (see later)

CABLE LENGTH COMPENSATION

The Rx450 incorporates a remotely adjustable high quality launch amplifier to compensate for video cable losses over extended cable distances.

The gain of the launch amplifier can be adjusted in the Rx450 **LAUNCH AMP GAIN** line of the **MAIN/RECEIVER/OPTIONS** menu. The gain can be varied from 0 - 255, the higher the number, the higher the gain. The default value is 4. As the amplifier gain is increased, high frequency lift is also increased.

SELF-TEST AND DIAGNOSTIC SEQUENCE

The diagnostic system-and-status check, which will activate each receiver function for two seconds in turn, is activated by selecting **SELF TEST** from the Rx450 **MAIN/RECEIVER/TEST** menu. The self test can also be activated by pressing both the **UP** and **DOWN** buttons on the Rx450 top pcb, allowing self test of a stand alone receiver.

The Rx450 OSD displays the self test progress with two status lines as shown below.

FUNCTION ← this line will show the current function being driven.

Pxxxx Txxxx Zxxxx Fxxxx ← the xxxx indicate preset pot values for pan, tilt, zoom and focus. Each value should change smoothly as the corresponding function is driven.

Functions:	Active output
PAN LEFT	J2/LEFT
PAN RIGHT	J2/RIGHT
TILT DOWN	J2/DOWN
TILT UP	J2/UP
ZOOM IN	J10/ZM
ZOOM OUT	J10/ZM
FOCUS NEAR	J10/FC
FOCUS FAR	J10/FC
AUX LIGHTS	J2/LIGHTS
AUX AUTOPAN	J2/AUTOPAN
AUX WASHER	J6/WASH
AUX WIPER	J6/WIPE
Diagnostic check complete, Rx450 resets and continues normal operation.	

During the self test, the presence and sense of each preset input is recorded. The status of each preset is displayed on the **AXIS FLAGS** line of the **MAIN/RECEIVER/DIAGNOSTICS** menu. **P**, **T**, **Z** and **F** will be displayed if the Pan, Tilt, Zoom or Focus preset have been found.

PROGRAMMING THE Rx450

An easy to use menu structure allows programming of the receiver's advanced features. The menu can be accessed either local to the receiver using the three push buttons on the RX450 logic pcb or remotely using the FS616 keyboard.

The three buttons on the Rx450 logic board allow navigation through the menu structure. Pressing the **SELECT** button displays the `MAIN MENU`. Pressing the **UP** and **DOWN** buttons move the flashing highlight up or down. Pressing **SELECT** again allows the selected sub menu to be displayed or a value to be changed. To exit the menu structure, select `EXIT` from the `MAIN MENU`. The Rx450 will now reset and resume normal operation.

When using the FS616 keyboard, press and hold the relevant camera number key on the CAMERA/PRESET POSITION keypad and press the **SET-UP/ESC** on the CURSOR/CAMERA CONTROL keypad. Navigate up and down using the **UP** and **DOWN** cursor keys. Both **LEFT** and **RIGHT** act as the SELECT button. To exit from the menu press and hold **FUNCTION** and press **SET-UP/ESC** on the CURSOR/CAMERA CONTROL keypad. The Rx450 will now reset and resume normal operation.

Rx450 MENU STRUCTURE

```
┌──────────┐
│   MAIN   │
└──────────┘

┌──────────┬────────────────────────────────────────────────────────────────┐
│  CAMERA  │                           RECEIVER                              │
└──────────┴────────────────────────────────────────────────────────────────┘
```

COMMUNICATIONS	PRESETS	ALARMS	OPTIONS	DIAGNOSTICS	DEFAULTS	TEST
BAUD RATE	PATROL DWELL	ALARM 1-8	LAUNCH AMP GAIN	VERSION NO	RESET RECEIVER	SELF TEST
MAIN DATA (2/4 WIRE)	DISPLAY PAT	NEXT	MAIN LENS VOLTS	AXIS FLAGS	CLEAR ALL PRESETS	LENS OFFSET
CAMERA DATA (2/4 WIRE)	PRESET NUMBER		INCH LENS VOLTS	MAX TEMP	RETURN	NET TRAFFIC
MENU UNLOCK	DELETE?		IRIS TYPE	DISPLAY POTS		RETURN
RETURN	PATROL A INC	**ALARM 2**	DC IRIS LEVEL	RESETS		
	INDIVID DWELL		ZOOM FOCUS IRIS	WATCHDOGS		
	RETURN	DISPLAY ALARM	DATUM DELAY	HOURS USE		
		DELAYED ALARM	WASH DELAY SECS	PRESET CALLS		
		BACK RETURN	NEXT	INCEPT DATE		
				RETURN		

```
┌────────────────────┐
│      OPTIONS 2     │
│                    │
│  RANDOM PAN DELAY  │
│  DISPLAY AUX OSD   │
│  TEXT ON LINE      │
│  BACK              │
│  RETURN            │
└────────────────────┘
```

Navigation keys:
Use the UP and DOWN keys to move selected line. LEFT or RIGHT can be used to either select the next menu or to cycle through displayed value.

NEXT will display the next screen with multi screen menus and BACK will display the previous screen.
eg, NEXT from ALARMS will display ALARM 2. BACK from ALARM 2 will display ALARMS.

RETURN will display the previous menu.
Eg, RETURN from ALARM 2 will display RECEIVER.

THE Rx450 MENU SYSTEM IN DETAIL

Please refer to the menu structure on the previous page to help navigation through the menu structure.

Rx450 COMMS MENU

BAUD RATE	**9600**	1200/2400/4800/**9600**/19200
MAIN DATA	**4 WIRE**	2 WIRE/4 WIRE:Rx450 to CONTROLER
CAMERA DATA	**2 WIRE**	2 WIRE/4 WIRE:Rx450 to CAMERA
MENU UNLOCK	**LOCK**	LOCK/UNLOCK:SET to UNLOCK before changes other lines.
RETURN		Return to RECEIVER MENU

Rx450 PRESET MENU

PATROL DWELL	**xxM xx**	PATROL DWELL Minutes and Seconds
DISPLAY PAT	**YES**	**YES/NO** : Display text during patrol
PRESET NUMBER	**1**	1-32:preset number to delete/include in patrol etc
DELETE ?	**ACTIVE**	Current preset can be deleted. **ACTIVE**=present, **DEL**=not present
PATROL A INC	**IN**	**IN/OUT**:**IN**=current preset is included in the patrol
INDIVID DWELL	**xxM xx**	Dwell during patrol
RETURN		Return to RECEIVER MENU

RX450 ALARM MENU 1

ALARM 1	**ON**	**ON/OFF**:
ALARM 2	**ON**	Each alarm can be enabled/disabled
ALARM 3	**ON**	individually.
ALARM 4	**ON**	
ALARM 5	**ON**	
ALARM 6	**ON**	
ALARM 7	**ON**	
ALARM 8	**ON**	
NEXT		Display ALARM MENU 2 screen

RX450 ALARM MENU 2

DISPLAY ALARM	**ON**	**ON/OFF:ON** ='ALARM' displayed following an alarm.
DELAYED ALARM	**OFF**	**ON/OFF:ON** =The alarm message is generated as the head approaches the preset position. Prevents a triggered video transmission system from sending 'blurred' frames. The transmission system is only triggered as the head nears preset. **OFF** =The alarm is generated immediately.
BACK	**RETURN**	Return to the RECEIVER MENU or Back to prev screen

RX450 OPTIONS MENU

LAUNCH AMP GAIN 4	**0-255**: video cable length correction.
MAIN LENS VOLTS 12V0	**3-12V**:lens drive voltage
INCH LENS VOLTS 12V0	**0-12V**:inching voltage (first second of travel)
IRIS TYPE MOTOR	**MOTOR/COSMI/SEIKO**: Motorised or auto iris.
DC IRIS LEVEL NA	if auto cosmi or seiko adjust AI voltage level here
ZOOM FOCUS IRIS N N N	**Y/N**: direction, **Y**=direction reversed. **N**=Normal
DATUM DELAY OM O	**0-63.45**mins: Time to return to preset 1, **0**=Never
WASH DELAY SECS 5	**1-5**: Duration of WASH output in seconds following WIPE

NEXT   display OPTIONS 2 screen

RX450 OPTIONS MENU 2

RAN PAN DELAY 1	**0-10**:Random Pan delay. **1**=fast, **10**=slow. **0**=autopan only
O = AUTOPAN	Autopan requires a optional card within the pan/tilt head.
DISPLAY AUX OSD DISP	**ON/OFF**: **ON** = show auxiliary output status on screen
TEXT ON LINE 11	**1-11**: Position of status line on screen, **1** = top, **11** = bottom

BACK   **RETURN**   Return to the RECEIVER MENU or Back to prev screen

RX450 DIAGNOSTICS

VERSION NO	12	Software version
AXIS FLAGS	PTZF	Preset inputs for Pan,Tilt,Zoom,Focus detected if shown.
MAX TEMP	30	Maximum enclosure temperature in °C
DISPLAY POTS	OFF	**ON/OFF**: **ON**=test use shows feedback pot values
RESETS	3	Number of times RX450 powered off/on
WATCHDOGS	0	Number of watchdog resets (supply glitch problems)
HOURS USE	1000	Number of hours RX450 powered up
PRESET CALLS	1243	Number of goto presets received
INCEPT DATE	17/02/00	software date.
RETURN		Return to RECEIVER menu

RX450 DEFAULTS MENU

RESET RECEIVER	Reset receiver settings to factory defaults. CAUTION.
CLEAR ALL PRESETS	Delete all preset positions only.
RETURN	Return to RECEIVER menu

RX450 TEST MENU

SELF TEST	Starts RX450 self test procedure
LENS OFFSET	Allows Zoom lens output to be set to 0V
NET TRAFFIC	BBV use only. Displays RS485 telemetry information.
RETURN	Return to RECEIVER menu

LENS OFFSET

Used to set the lens drive output to 0V when the lens is not driven. Some modern lens motors are very sensitive and can drive even with less than 1V drive. The **LENS OFFSET** option allows the lens output to be set to 0V using the following procedure.

1) Connect a voltmeter set to DC volts between the Zoom drive output and ground.
2) Select the LENS OFFSET menu using the receiver keys.
3) Use the LEFT/RIGHT keys to increase/decrease the voltage until the meter shows 0V.
4) Press the CENTRE key to accept this setting.

RX450 USER GUIDE

Select the camera to control using the camera select keys of FS616.

Manual control of the pan/tilt head and lens is accomplished by pressing the relevant key/s on the CURSOR/CAMER CONROL keypad. Multiple functions can be controlled simultaneously. E.g. Pan Left and Tilt Down.

To move the pan/tilt head to a preset position, press PRE-POSI on the CURSOR/CAMERA CONTROL keypad followed by the preset number, 1-16, on the CAMERA/PRESET POSITION keypad. If this preset has been programmed, the head/lens will move to show the preset position.

Note: preset functions require a preset head for pan/tilt positioning and a preset lens for zoom/focus positioning.

Rx450 characters displayed.

W   Wipe auxiliary output is active

L   Lights auxiliary output is active

⇆   Random Pan is running

Control of auxiliary outputs and preset programming use a simple menu.
The menu is accessed by pressing AUTO on the CURSOR/CAMERA CONTROL keypad. The following menu is displayed. After approx 15 seconds the menu disappears. When a line is changed, the menu will disappear after 2-3 seconds.

```
ALARM MENU
RANDOM PAN      OFF        or        AUTOPAN    OFF
PATROL          OFF
LIGHTS          OFF
WASH/WIPE       OFF
PROG PRESETS    OFF

CANCEL
```

The UP and DOWN keys move the flashing highlight up and down, LEFT or RIGHT either toggle the state ON/OFF etc or if the ALARM MENU line is flashing, the ALARM MENU is displayed.

RANDOM PAN / AUTOPAN: RANDOM PAN will be displayed if the RAND PAN DELAY in OPTIONS MENU 2 is none zero. When RANDOM PAN is selected, the head starts a random panning sequence until either a manual command or a local alarm occurs. Should the RAND PAN DELAY be set to 0, then the AUTOPAN auxiliary output is activated. Autopan requires an optional card to be fitted in the pan/tilt head. This card will pan the head from end stop to end stop until either a manual command or local alarm occurs. If DISPLAY AUX OSD is set to DISP in the OPTIONS 2 menu then an arrow is displayed showing the direction of pan travel.

PATROL: Starts the preset patrol. If DISPLAY PAT is set to YES the receiver displays PATROL and the current preset number. Pressing one of the pan/tilt keys will stop the patrol and manual control is resumed.

LIGHTS: The lights auxiliary output is turned on/off with this line. If DISPLAY AUX OSD is set to DISP in the OPTIONS 2 menu then a light symbol is displayed whilst the lights are on.

WASH/WIPE: The WIPE auxiliary output is turned on and the WASH auxiliary output is activated for the time set in the OPTIONS menu. If DISPLAY AUX OSD is set to DISP in the OPTIONS 2 menu then an umbrella symbol is displayed whilst the wiper output is on.

ALARM MENU: This item displays the ALARM MENU allowing the local alarms to be enabled/disabled individually.

```
RX450 ALARM MENU
ALARM 1    ON
ALARM 2    ON
ALARM 3    ON
ALARM 4    ON
ALARM 5    ON
ALARM 6    ON
ALARM 7    ON
ALARM 8    ON

NEXT
```

Use the UP and DOWN keys to select an alarm input. The Left or Right key will toggle the state from ON/OFF. When the alarms have are configured correctly, select the NEXT line to resume normal operation.

Alarm inputs are normally closed. The alarm is activated when contact open. Note: The multiplexer/matrix alarm mode must be set to AUTO1.

PROG PRESETS: Allows preset positions to be programmed. The receiver will display PROGRAM after the menu disappears. In this mode 'goto preset' commands are used to program a preset position. Move the pan/tilt head and lens to the scene to be saved.

Please ensure that all the directions ARE NOT AT A LIMIT STOP as intermittent preset operation could occur. Press PRE-POSI on the CURSOR/CAMERA CONTROL keypad followed by the preset number required on the CAMERA/PRESET POSITION keypad. Several preset positions can be programmed whilst PROGRAM is displayed. To return to normal operation, go into the menu and set PROG PRESET to OFF. The receiver no longer displays PROGRAM and normal control is resumed.

Note: preset functions require a preset head for pan/tilt positioning and a preset lens for zoom/focus positioning.