RX10X

Multi Protocol Dome Interface Receiver

Installation Guide

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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 unit 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.

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 coaxial power connector mounted at the edge of the PCB for low voltage 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.

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 dome in order to prevent operation while engineering work is being carried out on the RX10X.

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.

2. INTRODUCTION

GENERAL

The RX10X telemetry interface is designed to allow control of a variety of integrated dome cameras using BBV's range of up-the-coax telemetry transmitters. See appendix A for a complete list of supported domes.

RX10X TECHNICAL SPECIFICATION

Power Requirements: 12 – 36VDC
24VAC from the dome supply (excluding the Dennard dome**)**
This unit is supplied with a 2.1mm Jack power fly lead. In addition a PSU 3 (12V 1A in line PSU) can be ordered from BBV

Current Consumption: 100mA maximum @ 12VDC

Features:
- Two PCB construction.
- Serial data output 2 wire RS232/422/485
- Up to 16 preset positions can be stored within the RX10X

Engineering Facilities:
- Unit auto-tunes to the coaxial telemetry signal
- 7 Segment LED readout for continual system status
- Data out LED
- Video launch amplifier provided with Gain and Lift controls

.

Telemetry Signals: Telemetry signals either:
- Up-the-coax max distances: 250M of RG59
  500M of CT125/RG11
- Or twisted pair 0-20mA current loop: 300 Ohm close loop impedance maximum

Video Input: 1V p-p 75Ω terminated input via BNC socket
Video Output: 1V p-p to V p-p 75Ω impedance via BNC socket

Presets: Up to 16 full scene preset positions can be stored within the interface depending upon the model of dome

Dimensions:

Length	69mm
Width	57mm
Height	36mm

Weight 130 grams

Temperature range: -10° Celsius to +40° Celsius

TRANSMITTER COMPATIBILITY CHART

	TX300	TX400	TX400DC	TX1000	TX1000DC	TX1500
Variable Speed	2 Speeds	2 Speeds	Proportional Joystick	2 Speeds	Proportional Joystick	Proportional Joystick
Fixed Speed	✓	✓	✓	✓	✓	✓
Zoom	✓	✓	✓	✓	✓	✓
Focus	✓	✓	✓	✓	✓	✓
Iris	✓	✓	✓	✓	✓	✓
Pre-sets	–	8	8	16	16	16
Patrols	–	2	2	2	2	2
Lights	✓	✓	✓	✓	✓	✓
Autopan	–	✓	✓	✓	✓	✓
Camera Functions	–	✓	✓	✓	✓	✓

CABLE CONNECTION METHOD

Fig 1. Cable connection method

CABLING RECOMMENDATIONS FOR THE RX10X INTERFACE.

COAX

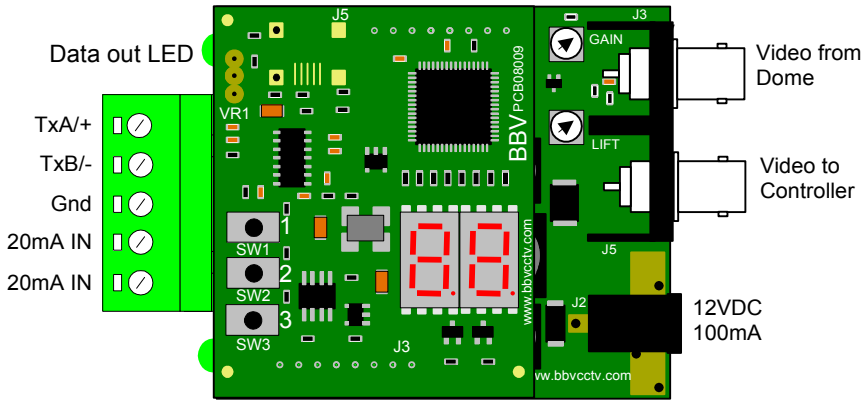
TWISTED PAIR

Cable Type	Inner conductor	Dielectric	Braiding	Outer cover:	Impedance	Capacitance	External Diameter	Attenuation figures in dB/100m at 5Mz.
RG59 COAX	Solid core 0.58mm	Polythene	Plain copper, >90% coverage	Black PVC, UV resistant	75 Ω ± 1Ω	53 pF/metre nominal	6.2mm nominal	≤2.1 dB/100m
CT125 COAX	Solid core 1.25mm	Cell PE SEMI Air Spaced	0.15mm x 64 (Braid) BARE COPPER + CU FOIL COVERAGE:55% PITCH : 65:80	Black PVC, UV resistant	75 Ω ± 1Ω	54 pF/metre nominal	9.8mm nominal	≤2.0 dB/100m
CW1308 TWISTED PAIR	Solid core 0.50mm	NA	All cables contain a screen comprising of an aluminum tape with a backing that ensures adhesion to the bedding (Moisture Barrier). The tape screen is applied in contact with a 0.80mm tinned copper drain wire.	PVC,		500 pF/500 mtrs @ 1 kHz (Max)	5.2mm nominal	

3. INSTALLATION

The RX10X requires all connections to the PCB to be made by the installer, via terminal blocks or by plug and socket. These connections are: power in, video in, video out, and serial data to dome. See Fig.2 below for correct connections.

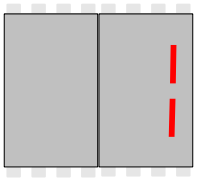
Fig. 2 Iss2 PCB connections

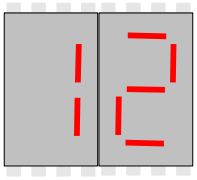


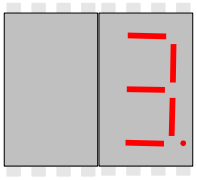
Function	Connector	PCB	Type
Power in	J2	Bottom	2.1mm coaxial
Video in	J3	Bottom	BNC SOCKET
Video out	J5	Bottom	BNC SOCKET
20mA Twisted Pair Telemetry in	J6 Pins 1 & 2	Bottom	Green 5 Way IMO
Serial RS232/422/485 to dome	J6 Pins 3, 4 & 5	Bottom	Green 5 Way IMO

4. SETUP

On power up the unit will display the following information in order:

Version  This would mean version 1

Protocol  This would mean Protocol 12

Mode  This would mean Mode4 3

To change either the protocol or the options value:

Press the centre button (sw2) a value between 0 and 32 will be displayed.

Protocol select (protocol selection table is on page 10)
By holding the top button (sw1) down the value shown on the display will decrement through the available values. By holding the bottom button (sw3) down the value shown on the display will increment through the available values.

Once the required value is displayed then press the centre button (sw2) again and the display will show '- -', to indicate that the value has been entered .Then the option value will then be displayed.

Mode select (mode selection table is on page 11)
By holding the top button (sw1) down the value shown on the display will decrement through the available values. By holding the bottom button (sw3) down the value shown on the display will increment through the available values.

Once the required value is displayed then press the centre button (sw2) again and the display will show '- -', to indicate that the value has been entered. It will then show the software version, the protocol & finally the option number. Then you will see a red flashing dot to show the RX10X is running.

Protocol Selection Table

Protocol	Data out	Dome or Camera	Protocol Number	Camera Address	Page Number	VISTA Up The Coax Supported
Laptop De-Bug	38400,N,8,1	PC TEST	**00**	None	14	NO
Pelco P	9600,N,8,1	Spectra & Esprit	**01**	01	22	***YES***
Pelco D	2400,N,8,1	Spectra & Esprit	**02**	01	21	NO
VCL485	9600,N,8,1	Microsphere & Orbiter range	**03**	01	25	***YES***
Vicon	9600,N,8,2	Surveyor Range, SVFT & S10	**04**	01	26	NO
Videcon	9600,N,8,1	VCP451& VHCD 860	**05**	01	27	NO
Videcon	2400,N,8,1	VHSD870	**06**	01	28	NO
Sensormatic RS422	4800,N,8,2	Ultra Dome 5, 6, 7 & 8	**07**	01	24	***YES***
Dennard	9600,N,8,1	2040, 2050, 2055 & 2060	**08**	01	16	NO
Panasonic 650	19200,N,8,1	*WV-CSR400 WV-CSR600 & WV-CSR650*	**09**	01	19	NO
Panasonic 850	19200,N,8,1	WV-CVS 850 & WV-CVS 960	**10**	01	20	***YES***
JVC	9600,E,8,1	TK-C655B, 675B, TK-C675E, TK-C675BE & 676	**11**	01	18	***YES***
Vista	9600,N,8,1	Power Dome Range	**12**	01	29	NO
Philips RS232/485	9600,N,8,1	LTC 0929/15	**13**	01	23	NO
Genie ASD276 & ASD376	2400,N,8,1	ASD276 & ASD376	**14**	01	17	NO

Please note VISTA Up The Coax supported dome protocols have been tested on a limited number of VISTA control system it is the responsibility of the customer to prove compatibility with the RX10X and you systems particular VISTA transmitter.

Options

Each protocol supports different features which are triggered by selecting different modes in the RX10X. The following table indicates how to choose the correct mode number. Please refer the dome specific information later in the manual the different mode selects different options to be implemented.
For example mode number 01 has just option 1 on. This will cause the dome to go back to preset 1 after 5 minutes of inactivity. This will stop a patrol that might be started by a keypad.

Option 5 Vista mode this allows the following domes JVC TK-C655B, 675B, TK-C675E, TK-C675BE & 676, Panasonic WV-CVS 850 & WV-CVS 960, Pelco P-Spectra & Esprit, Sensormatic Ultra Dome 5, 6 & 7 and VCL Microsphere & Orbiter range to be controlled by Vista up the coax.

Option & Mode Selection Table

Option 5	Option 4	Option 3	Option 2	Option 1	Mode Number
OFF	OFF	OFF	OFF	OFF	**00**
OFF	OFF	OFF	OFF	**ON**	**01**
OFF	OFF	OFF	**ON**	OFF	**02**
OFF	OFF	OFF	**ON**	**ON**	**03**
OFF	OFF	**ON**	OFF	OFF	**04**
OFF	OFF	**ON**	OFF	**ON**	**05**
OFF	OFF	**ON**	**ON**	OFF	**06**
OFF	OFF	**ON**	**ON**	**ON**	**07**
OFF	**ON**	OFF	OFF	OFF	**08**
OFF	**ON**	OFF	OFF	**ON**	**09**
OFF	**ON**	OFF	**ON**	OFF	**10**
OFF	**ON**	OFF	**ON**	**ON**	**11**
OFF	**ON**	**ON**	OFF	OFF	**12**
OFF	**ON**	**ON**	OFF	**ON**	**13**
OFF	**ON**	**ON**	**ON**	OFF	**14**
OFF	**ON**	**ON**	**ON**	**ON**	**15**
ON	OFF	OFF	OFF	OFF	**16**
ON	OFF	OFF	OFF	**ON**	**17**
ON	OFF	OFF	**ON**	OFF	**18**
ON	OFF	OFF	**ON**	**ON**	**19**
ON	OFF	**ON**	OFF	OFF	**20**
ON	OFF	**ON**	OFF	**ON**	**21**
ON	OFF	**ON**	**ON**	OFF	**22**
ON	OFF	**ON**	**ON**	**ON**	**23**
ON	**ON**	OFF	OFF	OFF	**24**
ON	**ON**	OFF	OFF	**ON**	**25**
ON	**ON**	OFF	**ON**	OFF	**26**
ON	**ON**	OFF	**ON**	**ON**	**27**
ON	**ON**	**ON**	OFF	OFF	**28**
ON	**ON**	**ON**	OFF	**ON**	**29**
ON	**ON**	**ON**	**ON**	OFF	**30**
ON	**ON**	**ON**	**ON**	**ON**	**31**

DIAGNOSTIC AIDS

A 7 segment LED display is mounted on the top PCB this gives system status information. The meanings of the values are as follows:

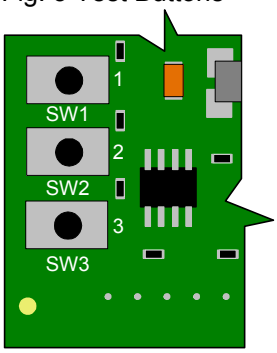
The value	Description	The value	Description
.	All OK (Flashing red dot)	9.0	No Video
L.	Sending a pan left to the dome	9.1	No telemetry carrier detected
r.	Sending a pan right to the dome	9.2	No coax start bit detected
.u	Sending a tilt up to the dome	9.3	Coax parity error
.d	Sending a down up to the dome	9.4	No coax stop bit detected or frame error
		9.5	Twisted pair parity error
		9.6	Twisted pair over run error

During the operation of the unit you will see a red flashing dot in the middle of the 7 segment LED display this means the unit is working.

The RX10X is designed to auto-tune and compensate for any discrepancies in the transmitted telemetry signal; there are no further adjustments that need to be made.

The RX10X has an in built facility that enables you to test the communications between the RX10X & the dome. This is done by pressing SW1 and the dome will pan left or press SW3 and the dome will pan right, on releasing the button the dome will stop.

Fig. 3 Test Buttons



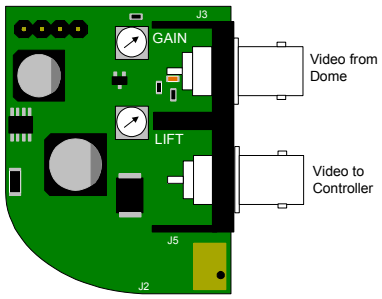
SW1 Makes the dome Pan Left

SW3 Makes the dome Pan Right

VIDEO LAUNCH AMPLIFIER AND CABLE LENGTH COMPENSATION

The interface features a video launch amplifier with two variable controls situated close to the BNC connectors: Lift and Gain. These are pre-adjusted for a cable distance of 500m of CT125, and are adjustable to compensate for video detail or signal losses if and when longer or shorter cable lengths are used to connect the telemetry transmitter to the interface.

Fig. 4 Launch Amplifier



The purpose of each control is:

GAIN varies the overall signal level.

LIFT boosts the high frequency component of the video signal. If the high frequency component is too low, picture appears 'washed out' and lacking detail.

Default position adjusted for 500M of CT125.
For shorter cable lengths, turn the GAIN control anti-clockwise until 1V p-p is present at the telemetry transmitter. For longer cable lengths, turn the GAIN control clockwise until 1V p-p is present at the telemetry transmitter.

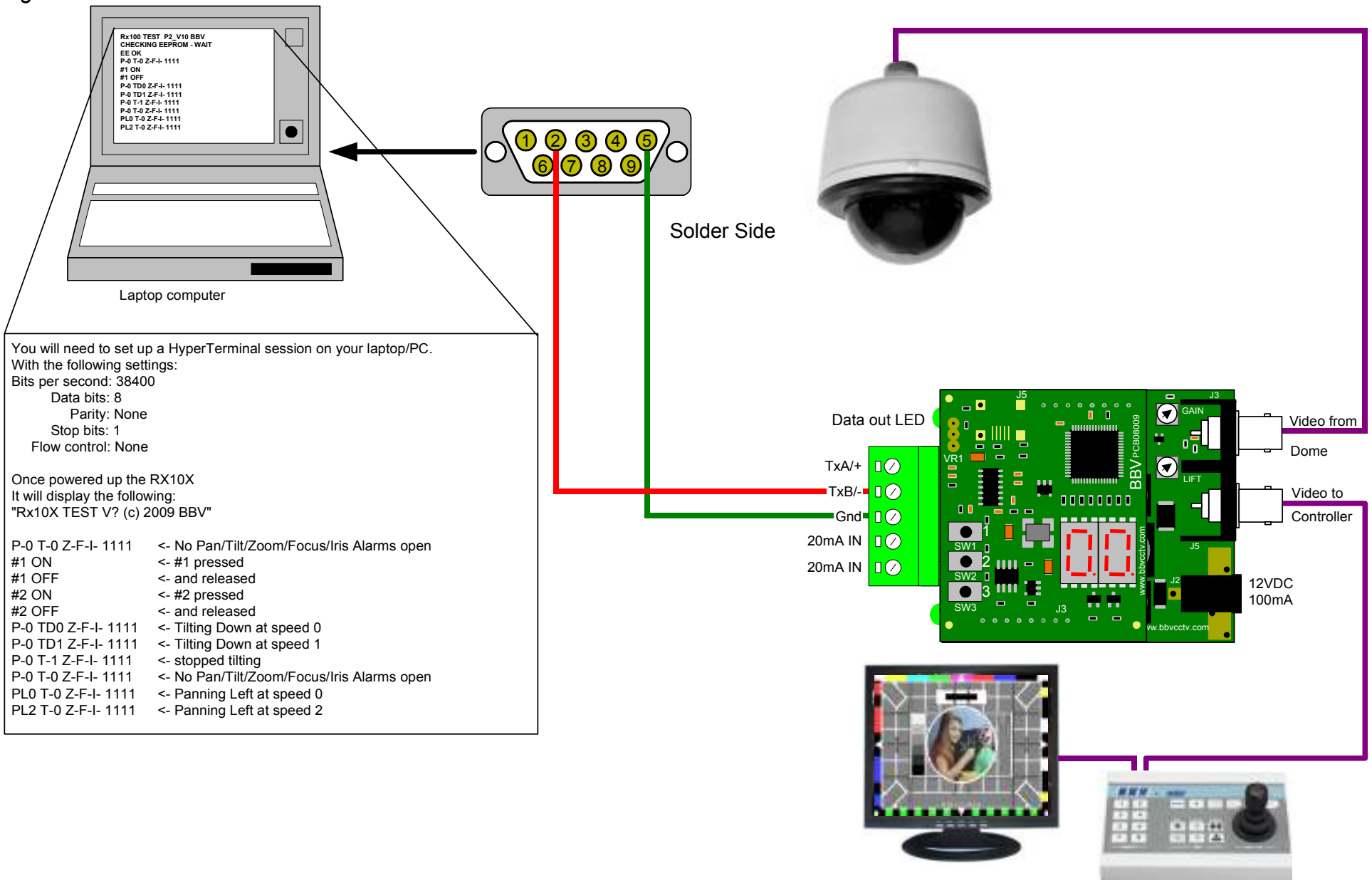
1. SYSTEM SCHEMATIC DIAGRAMS

Fig. 5 COAX Control

Fig. 6 20mA Control

RX10X in test mode

Fig7 test mode



You will need to set up a HyperTerminal session on your laptop/PC.
With the following settings:
Bits per second: 38400
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None

Once powered up the RX10X
It will display the following:
"Rx10X TEST V? (c) 2009 BBV"

P-0 T-0 Z-F-I- 1111	<- No Pan/Tilt/Zoom/Focus/Iris Alarms open
#1 ON	<- #1 pressed
#1 OFF	<- and released
#2 ON	<- #2 pressed
#2 OFF	<- and released
P-0 TD0 Z-F-I- 1111	<- Tilting Down at speed 0
P-0 TD1 Z-F-I- 1111	<- Tilting Down at speed 1
P-0 T-1 Z-F-I- 1111	<- stopped tilting
P-0 T-0 Z-F-I- 1111	<- No Pan/Tilt/Zoom/Focus/Iris Alarms open
PL0 T-0 Z-F-I- 1111	<- Panning Left at speed 0
PL2 T-0 Z-F-I- 1111	<- Panning Left at speed 2

Dome specific information

Dennard 2040, 2050, 2055 & 2060	16
GENIE ASD276 & ASD376	17
JVC TK-C655B, 675B, *TK-C675E, TK-C675BE* & 676	18
Panasonic WV-CSR400, WV-CSR600 & WV-CSR650	19
Panasonic WV-CVS 850 & WV-CVS 960	20
Pelco Spectra & Esprit (D protocol) 2400	21
Pelco Spectra & Esprit (P protocol) 9600	22
Philips Auto Dome (RS232/485)	23
Sensormatic Ultra Dome 5, 6 & 7 (RS422 Only)	24
VCL Microsphere / Obiter range	25
Vicon Surveyor Range, SVFT & S10	26
Videcon VCP451& VHCD 860	27
Videcon VHSD 870	28
Vista Power Dome	29

Protocol 08

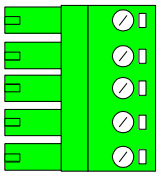
Dennard 2040, 2050, 2055 & 2060 dome. The RX10X can not be powered from the same supply as the Dennard dome.

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus
16 full scene presets (additional presets can be programmed using dome's menu)
2 preset patrols

Dennard 2040, 2050, 2055 & 2060	TX400DC	TX1000	TX1500
Dome User Menu	'#' 1	'#' WASH	1 '#'
Dome Supervisor Menu	'#' 2	'#' WIPE	2 '#'
Dome Service Menu	'#' 3	'#' AUTOPAN	3 '#'

The domes internal Sequence 001 can be started by pressing AUTOPAN. The sequence must be programmed from the dome supervisor menu.

RS485 control of dome using the following connections:



RX10X	Dome Cable	7 pin plug	Description
J6/1			
J6/2			
J6/3			
J6/4	Bs Green	Pin 3	DATA -
J6/5	Bs Yellow	Pin 4	DATA +

The Dome must be addressed as 1 this is achieved by setting **BLUE** rotary sw. to **0** & **YELLOW** rotary sw. to**1**

Notes:

Accessing the dome menus.
Press relevant key combination to display menu. To select highlighted menu item, perform a Goto preset 1 function as follows: - TX1500 press 1 followed be the preset key, TX1000 Hold the PRESET key and tap the CAM1 key, Tx400 press the PRESET1 key.

The cursor can be moved using the standard pan/tilt keys or joystick. If the cursor direction is reversed, the pan and tilt cursor directions can be reversed from the SUPERVISOR, USER OPTIONS, CURSOR CONTROL REVERSE menu.

Presets positions greater than 17 can be programmed using the dome's menu and can be built into dome sequences. Please refer to dome manual for specific instructions regarding programming of sequences.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity

Protocol 14

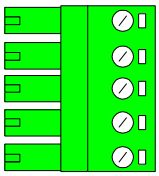
GENIE ASD276 & ASD376
PELCO D 2400

Variable speed manual Pan/Tilt & Zoom/Focus
16 Full scene presets.
2 preset patrols.
Pattern Tour playback using AUTOPAN

GENIE ASD276 & ASD376	TX400DC	TX1000	TX1500
DOME Menu (preset 95)	'#' 1	'#' WASH	1 '#'
Call SWING (preset 131)	'#' 2	'#' WIPE	2 '#'
Run SWING 1 (preset 141)	'#' 3	'#' AUTOPAN	3 '#'
Call GROUP1 (preset 151)	'#' 4	'#' LIGHTS	4 '#'

Pattern Tour 1 playback = press AUTOPAN (preset 131)

The dome and RX10X are linked using RS485 for control and video for the camera signal.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	TX-/B	DATA -
J6/5	TX-/A	DATA +

Notes

Dome Address	1 ON, 2-8 OFF	Address 1	1 '#'
Baud Rate	1-3 OFF	Pelco D, 2400	2 '#'
Termination	4 ON	RS485 Termination On	3 '#'

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Protocol 11

JVC TK-C655B, 675B, *TK-C675E, TK-C675BE* & 676

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus can be enabled/ disabled from the dome menu.
16 Full scene presets.
2 preset patrols.
Slow patrol or dome autopan from controller AUTOPAN key
Vista up the coax Option 5

TK-C676	TX400DC	TX1000	TX1500	Vista Mux
OPEN MENU and BACK (Twice)	'#' 1	'#' WASH	1 '#'	Goto Preset 25 (x2)
SET	'#' 2	'#' WIPE	2 '#'	Goto Preset 26
Toggle ExDR	'#' 3	'#' AUTOPAN	3 '#'	Goto Preset 27
Cycle Mono Mode	'#' 4	'#' LIGHTS	4 '#'	Goto Preset 28

TK-C675B **Option 4**	TX400DC	TX1000	TX1500	Vista Mux
SHUTTER SPEED	'#' 1	'#' WASH	1 '#'	Goto Preset 25 (x2)
BACKLIGHT AREAS	'#' 2	'#' WIPE	2 '#'	Goto Preset 26
AGC 0,12,20dB	'#' 3	'#' AUTOPAN	3 '#'	Goto Preset 27
DOME RESET	'#' 4	'#' LIGHTS	4 '#'	Goto Preset 28

A dome reset sets the camera as follows:-
Shutter to 1/50 sec, Backlight comp. off AGC to 20dB

The dome will display any change of Shutter Speed, Backlight or AGC for a short period.

RS485 control of dome using the following connections:

Notes:

Camera switch settings:
MACHINE ID – set both rotary switches to '0'
8 way DIL switch, all OFF apart from 8 which should be ON to enable the RS485 termination, point-to-point, simplex.

On screen display of preset position, P01 - P16 or MANUAL during manual control. The on screen display can be enabled/disabled using dome switch SW3, ON = Display off, OFF = Display on.

Options Function
Option 1: Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 2: Will perform a slow patrol between programmed presets when AUTOPAN pressed.

Option 3: on to allow the ExDR and MONO mode status to be displayed. Have this off if you are programming a dome camera title and do not want to display the ExDR and MONO status.

Option 4: TK-C675B mode.

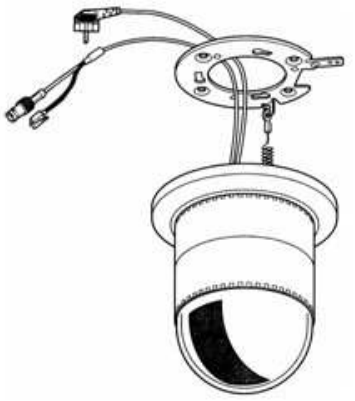
Option 5: Vista receive mode

DOME MENU
Pressing #1 twice will display the dome's menu. The joystick is then used to navigate through the dome menu. #2 sends a SET command to the dome and #1 twice whilst the menu is displayed sends a BACK command.
If the #1 command doesn't work press a focus key before sending #1.

Pressing #1 FOUR times within 2 seconds will display the dome's service menu.

Protocol 09

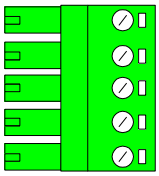
Panasonic WV-CSR400 series.
WV-CSR600 series.
WV-CSR650 series.



Variable speed Pan/Tilt.
Zoom/Focus, Auto focus, Iris Open/Close (Auto focus with 600 & 650 series)
16 full scene presets (600 & 650 series dome)
2 preset patrols (600 & 650 series dome)
Autopan (600 & 650 series dome)

WV-CSR400 WV-CSR600 & WV-CSR650	TX400DC	TX1000	TX1500
ENTRY/EXIT dome menu	'#' 1	'#' WASH	1 '#'
SET (select menu item)	'#' 2	'#' WIPE	2 '#'
ESC (back to previous menu)	'#' 3	'#' AUTOPAN	3 '#'
SPECIAL2 (for special menus)	'#' 4	'#' LIGHTS	4 '#'

Autopan is started by selecting Autopan on the Transmitter. The Autopan stops can be programmed from within the dome menu. Please refer to dome user manual for exact details.



RX10X	Dome Cable	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	YELLOW	DATA -
J6/5	GREEN	DATA +

Notes:

IMPORTANT: Dome settings: Select dome address 01. Communications must be 19200, N, 8, 1. If dome cannot be controlled, see dome manual section to reset dome to factory default.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

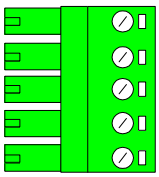
Protocol 10

Panasonic WV-CVS 850 & WV-CVS 960

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus, Iris Open/Close (Hold for auto-iris)
16 full scene presets
2 preset patrols
Autopan/Patrol learn-play using autopan key
Vista up the coax Option 5

Panasonic WV-CS850 / 860 / 960	TX400DC	TX1000	TX1500	Vista MUX
ENTRY/EXIT dome menu	'#' 1	'#' WASH	1 '#'	Goto Preset 25
SET (select menu item)	'#' 2	'#' WIPE	2 '#'	Goto Preset 26
ESC (back to previous menu)	'#' 3	'#' AUTOPAN	3 '#'	Goto Preset 27
SPECIAL2 (for special menus)	'#' 4	'#' LIGHTS	4 '#'	Goto Preset 28

The dome's internal PATROL can be LEARNED using the dome menu. Setting the AUTO PAN KEY to PATROL will allow the patrol to be PLAYED by pressing AUTOPAN on the controller.



RX10X	Dome Cable	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	YELLOW	DATA -
J6/5	GREEN	DATA +

Options Functions
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 3 A dome RESET ALL command can be sent by selecting option 3 and sending '#'4 twice with in 5 seconds. This can only be done when not within the menu. **Care must be used with this command as the dome is set to default and user settings are erased.**

Option 5 Vista receive mode

Dome Switch settings:
The following procedure must be followed to ensure that the dome is set-up correctly for terminated 4 wire RS485 at 19200 Baud and address 1. Remove the dome from its base before each step and reconnect to the base after changing the switches.

Step 1: Address switches 2, 4 and 5 ON
Step 2: Address switches 1, 3, 4 and 5 ON
Step 3: Address switches 1 and 8 ON. 4 Way switch 1 ON to select 4 wire, terminated RS485.

Protocol 02

Pelco Spectra & Esprit

(D-mode protocol 2400 N 8 1)

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus
16 full scene presets
2 preset patrols
Dome Pattern definition and playback

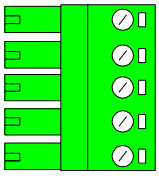
Pelco protocol	TX400DC	TX1000	TX1500
Display dome menu (preset 95)	'#' 1	'#' WASH	1 '#'
Reset Head	'#' 2	'#' WIPE	2 '#'
Pattern define start	'#' 3	'#' AUTOPAN	3 '#'
Pattern define stop	'#' 4	'#' LIGHTS	4 '#'

To record a Pattern, direct the camera to the required starting position. Hold '#' and tap 'AUTOPAN'. The dome will now record pan/tilt and lens movement up to a time limit. To stop the recording, hold '#' and tap 'LIGHTS'. To play the recorded Pattern, press the AUTOPAN key only. The dome will repeatedly run the Pattern until either the joystick is moved or the data delay is turned on.

Menu access:
Use '#' WASH to display menu. Navigate using the joystick and IRIS OPEN to select. When used with control systems without iris keys, e.g. DM Digital Sprite Lite, use *889 003 or *889 10 10 3

RS485 control of dome. Data rate, 2400 Baud, No parity, 8 Data bits, 1 Stop bits

Connection details:



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	RX-	DATA -
J6/5	RX+	DATA +

Notes:
*Check with the DM multiplexer manual for exact procedure for entering * commands.*

Dome settings: Select dome address 1, D-MODE PROTOCOL and 2400, N, 8, 1.

Options Function
Option 1: enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 2: is used to select the function that is used to drive the Esprit AUX outputs.

Option 3: is used to send a goto preset 95 or a save preset 95 when #1 is sent to the Rx10X.
OFF = sends a save preset 95
ON = sends a goto preset 95

Function	OFF	ON (Esprit AUX No)
LIGHTS	1	2
WIPER	2	1
WASHER	3	3

Protocol 01

Pelco Spectra & Esprit

(P-mode protocol 9600 N 8 1)

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus
16 full scene presets
2 preset patrols
Dome Pattern definition and playback
Vista up the coax Option 5

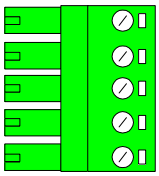
Pelco protocol	TX400DC	TX1000	TX1500	Vista Mux
Display dome menu (preset 95)	'#' 1	'#' WASH	1 '#'	Goto Preset 25
Reset Head	'#' 2	'#' WIPE	2 '#'	Goto Preset 26
Pattern define start	'#' 3	'#' AUTOPAN	3 '#'	Goto Preset 27
Pattern define stop	'#' 4	'#' LIGHTS	4 '#'	Goto Preset 28

To record a Pattern, direct the camera to the required starting position. Hold '#' and tap 'AUTOPAN'. The dome will now record pan/tilt and lens movement up to a time limit. To stop the recording, hold '#' and tap 'LIGHTS'. To play the recorded Pattern, press the AUTOPAN key only. The dome will repeatedly run the Pattern until either the joystick is moved or the data delay is turned on.

Menu access:
Use '#' WASH to display menu. Navigate using the joystick and IRIS OPEN to select. When used with control systems without iris keys, e.g. DM Digital Sprite Lite, use *889 003 or *889 10 10 3

RS485 control of dome. Data rate, 9600 Baud, No parity, 8 Data bits, 1 Stop bits

Connection details:



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	RX-	DATA -
J6/5	RX+	DATA +

Notes:
*Check with the DM multiplexer manual for exact procedure for entering * commands.*

Dome settings: Select dome address 1, P-MODE PROTOCOL and 9600, N, 8, 1.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 2: is used to select the function that is used to drive the Esprit AUX outputs.

Option 3: is used to send a goto preset 95 or a save preset 95 when #1 is sent to the Rx10X.
OFF = sends a save preset 95
ON = sends a goto preset 95

Option 5 Vista receive mode

Function	OFF	ON (Esprit AUX No)
LIGHTS	1	2
WIPER	2	1
WASHER	3	3

Protocol 13

Philips AutoDome including G3A and G3B

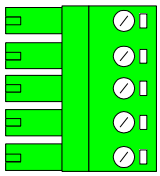
(RS232/RS485 control only, not Bi-Phase compatible)

Variable speed Pan/Tilt..
Zoom/Focus, Auto focus.
16 full scene presets.
2 preset patrols.
Dome AutoPlay record & playback.
Preshot title,
Zone title,
Menu Access

Philips protocol		TX400DC	TX1000	TX1500
Display Menu	(Aux 46)	'#' 1	'#' WASH	1 '#'
Program Zone Title	(Aux 63)	'#' 2	'#' WIPE	2 '#'
Record AutoPlay start/stop	(Aux 100)	'#' 3	'#' AUTOPAN	3 '#'
RESET DOME!	(Set 899)	'#' 4	'#' LIGHTS	4 '#'

RS232 & RS485 control of dome. Data rate, 9600 Baud, No parity, 8 Data bits, 1 Stop bits

Connection details:



RX10X	Dome Connection RS232	Dome Connection RS485	Description
J6/1			
J6/2			
J6/3	Gnd		Gnd
J6/4	RxD	TxD	DATA -
J6/5	Not Used	RxD	DATA +

Notes:
Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 3
OFF – preset title text is programmed following a save preset command by automatically issuing an aux (62) command.
ON – the preset text command is not sent and the existing text is retained.

The dome must be RS232 controllable. BI-PHASE domes cannot be controlled.
Dome settings: Select dome address #0 or #1. Communications must be 9600, N, 8, 1. The G3 Basic address is software programmable; however as default the dome is addressed as #0. If the dome address is not #0 or #1 then the dome will require reprogramming using a Philips controller or turn on option 2.

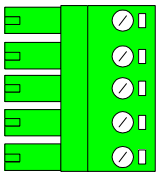
Protocol 07

Sensormatic Ultra Dome 5, 6 & 7

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus, Iris Open/Close
7 full scene presets
2 preset patrols
Pattern 1 define – play using Autopan key
Vista up the coax Option 5

Sensormatic Speeddome	TX400DC	TX1000	TX1500	Vista Mux
Dome menu	'#' 1	'#' WASH	1 '#'	Goto Preset 25
Start/Stop Pattern 1 Definition*	'#' 2	'#' WIPE	2 '#'	Goto Preset 26

RS485 control of dome 4800 Baud, No parity, 8 data bits, 2 stop bits.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	RS422 IN-/Data In-	DATA -
J6/5	RS422 IN+/Data In+	DATA +

Notes:

Accessing the dome menus.
Press either '#'1, '#'WASH , 1 '#' or Goto Preset 25 (when in Vista mode) to Enter Menu. Pan/Tilt/zoom/focus functions are then used to navigate through menu structure. Please refer to individual dome manual for exact operation of menu.

Save User defined pattern
Press either '#'2, '#'WIPE, 2 '#' or Goto Preset 26 (when in Vista mode) to start recording user defined pattern. Then use Pan, Tilt & zoom functions to make the pattern you require then press either '#'2, '#'WIPE , 2 '#' or Goto Preset 26 (when in Vista mode) to stop the recording of the user defined pattern.

IMPORTANT:
Dome settings: Select dome address 01 or 001.
Communications must be 4800, N, 8, 2 – RS422, ***NOT SensorNet.***

The interface software is based on 1997 protocol and has been tested with Ultradome IV, Ultradome VI and original Speeddome.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 1 + 2 both on to start preset patrol after 5 minutes if inactivity.

Option 5 Vista receive mode

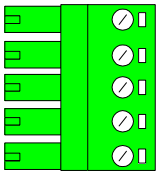
Protocol 03

VCL Microsphere / Orbiter range.

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus following a Zoom In/Out.
16 Full scene presets.
2 preset patrols.
Slow preset tour. Started by pressing AUTOPAN
Program up to 16 privacy zones
Vista up the coax Option 5
Additional commands:
AUTOPAN: Pressing the AUTOPAN key will run the domes preset tour at slow speed between the patrol 1 preset position.

VCL Dome	TX400DC	TX1000	TX1500	Vista Mux
180 degree pan flip	'#' 1	'#' WASH	1 '#'	Goto Preset 25
Privacy SET (Toggle Mono/Colour)	'#' 2	'#' WIPE	2 '#'	Goto Preset 26
Privacy CLEAR (Auto Mono/Colour)	'#' 3	'#' AUTOPAN	3 '#'	Goto Preset 27
Reset dome parameters	'#' 4	'#' LIGHTS	4 '#'	Goto Preset 28

The dome and RX10X are linked using RS485 for control and video for the camera signal.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	D -	DATA -
J6/5	D +	DATA +

Notes:
The dome address must be set at 1 for all the cameras that are controlled using a RX10X. With an Orbiter Gold, set the address to 1 with all switches of DILSW2 ON. Select VCL protocol with all switches of DILSW1 OFF. Check with the dome manual if you have any doubts.

If the slow preset tour is running, start patrol 1 & 2 is inhibited. A manual goto preset and lens control will stop the tour leaving the AUTOPAN led on until the next manual pan command.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Privacy zone programming.
Option 2 must be **ON** to allow programming of privacy zones.

- The keystrokes shown assume use of a TX1500. Use the keystroke shown above if using another controller.

Option 5 Vista receive mode

Programming a zone
The RX10X can be used to program 16 privacy zones, 100 – 115. The same procedure that is used to program a preset position is used to program or clear a privacy zone. To instruct the RX10X to program privacy zoon , zoom until the object you wish to mask fill the entire screen then press 2# followed by program preset 1 – 16. The screen will then go blank showing that the privacy zone has been set.

Clearing a zone
To clear/delete privacy zone press 3# followed by program preset 1 – 16. The relevant privacy zone will then be disabled.

Mono/Colour switching
If manual mono/colour switching is required then option 2 must be **OFF**. This will disable the privacy zone set/clear features.

Protocol 04

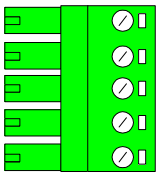
Surveyor Range, SVFT & S10.

Variable speed Pan/Tilt.
Zoom/Focus, Auto focus with manual override.
16 full scene presets (additional presets available using dome's menu)
2 preset patrols

Additional commands:
RUN TOUR 80.
Pressing the AUTOPAN key will start the dome's Tour 80. The tour is programmable using the dome's menu and allows a complex preset patrol, autopan or auto tour to be programmed. Refer to the dome programming manual for exact details.

Vicon Dome	TX400DC	TX1000	TX1500
*Dome Menu – Store preset 94 (also AP once in menu)	'#' 1	'#' WASH	1 '#'
AI (used as escape in menu)	'#' 2	'#' WIPE	2 '#'
AUX1	'#' 3	'#' AUTOPAN	3 '#'
AUX2	'#' 4	'#' LIGHTS	4 '#'

RS485 control of dome using the following connections:



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	COMM IN -	DATA -
J6/5	COMM IN +	DATA +

Notes:
Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

On first entering the menu, the dome may autopan and/or access the pan/tilt menu. This is acceptable and simply pressing the AI function will allow the main menu to be displayed.

If the dome's tour 80 is running, start patrol 1 & 2 is inhibited. Accessing the dome menu.
Press '#'1 to display menu. Use pan/tilt keys or joystick to move cursor. '#'1 now acts as the AP key and '#'2 as the AI key as described on screen. '#'3 and '#'4 are used as AUX1 and AUX2 during menu programming.

Presets positions greater than 17 can be programmed using the dome's menu. These can be built into Tour 80 which is started by pressing the AUTOPAN key. Please refer to dome manual for specific instructions.

IMPORTANT:
Dome switch settings for the Surveyor: S1 selects dome address, please set to address 1, SW1/1=ON others OFF.
S2 is used to select control method and video standard. Set to Simplex data S2/3 = ON & VPS with S2/2=OFF. (SW2 1, 5, 6, 7 & 8= OFF)

For other versions of dome that do not support auto baud rate detect ensure that baud set for 9600.
Please check Vicon manual to confirm switch settings.

Protocol 05

Videcon VCP451 & VHCD 860

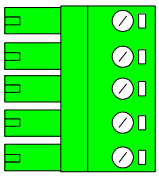
Application Notes

Variable speed Pan/Tilt.
16 Full scene presets.
2 RX10X preset patrols.
Pattern Tour 1 learn and playback using AUTOPAN
Privacy zone support
IR Filter CUT using LIGHTS. Lights ON = FILTER OFF, Lights OFF = FILTER ON

Videcon Dome	TX400DC	TX1000	TX1500
Display MENU	'#' 1	'#' WASH	1 '#'
Display Privacy Menu	'#' 2	'#' WIPE	2 '#'
Record Pattern Tour 1	'#' 3	'#' AUTOPAN	3 '#'
Stop Recording	'#' 4	'#' LIGHTS	4 '#'

Pattern Tour 1 playback = press AUTOPAN

The dome and RX10X are linked using RS485 for control and video for the camera signal.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	D -	DATA -
J6/5	D +	DATA +

Notes:
The dome switches must be as follows to select Pelco P, 9600 baud and address 1.
SW1, 1 ON, 2-7 OFF. SW2, 1 & 2 ON, Protocol switch 1-4 all OFF

When navigating the dome's menu or privacy setup use the joystick and IRIS OPEN and CLOSE.
The dome manual has detailed information on the menu structure and privacy setting.

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 2 ON to allow LIGHTS to switch the IR CUT filter ON/OFF when used with a day/night dome.

Protocol 06

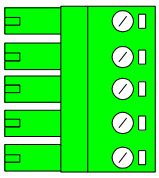
VIDECON VHSD 870
PELCO D 2400 or 9600 BAUD

Variable speed manual Pan/Tilt & Zoom/Focus
16 Full scene presets.
2 preset patrols.
Pattern Tour playback using AUTOPAN
Privacy zone support from within dome Menu

Videcon VHSD 870 Dome	TX400DC	TX1000	TX1500
DOME Menu (preset 95)	'#' 1	'#' WASH	1 '#'
Call SWING (preset 141)	'#' 2	'#' WIPE	2 '#'
Call GROUP1 (preset 151)	'#' 3	'#' AUTOPAN	3 '#'
Call GROUP2 (preset 152)	'#' 4	'#' LIGHTS	4 '#'

Pattern Tour 1 playback = press AUTOPAN (preset 131)

The dome and RX10X are linked using RS485 for control and video for the camera signal.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	TX-/B	DATA -
J6/5	TX-/A	DATA +

Notes
The dome switches must be as follows:
Dome Address: 1 ON, 2-7 OFF (Address 1)

Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes if inactivity.

Option 2 Selection of baud rate.

OFF	Pelco D, 2400 baud	Protocol and Baud: 1 – 5 OFF, 6 ON
ON	Pelco D, 9600 baud	Protocol and Baud: 1, 4, 6 ON 2, 3 & 5 OFF

When navigating the dome's menu or privacy setup use the joystick and FOCUS NEAR and FOCUS FAR. The dome manual has detailed information on the menu structure and privacy setting.

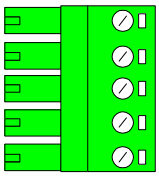
Protocol 12

Vista Power Dome

Variable speed Pan/Tilt.
Zoom/Focus, Focus/Iris Override returning to auto after Zoom In/Out.
16 Full scene presets.
2 preset patrols. (PATROL1 = RX10X patrol and PATROL 2 = dome's TOUR)
Learned tour playback using AUTOPAN key.
Program up to 16 privacy zones

Vista Power Dome	TX400DC	TX1000	TX1500
Display MENU	'#' 1	'#' WASH	1 '#'
ENTER in MENU	'#' 2	'#' WIPE	2 '#'
ESC in MENU	'#' 3	'#' AUTOPAN	3 '#'

The dome and RX10X are linked using RS485 for control and video for the camera signal.



RX10X	Dome Connection	Description
J6/1		
J6/2		
J6/3		Gnd
J6/4	RS485 B -	DATA -
J6/5	RS485 A +	DATA +

Notes:
The dome address must be set at 1 for all the cameras that are controlled using a RX10X. Check with the dome manual to enable the correct setup of the dome.

If the learned tour playback is running, start patrol 1 is inhibited.
Options Function
Option 1 Enable datum mode goto preset 1 after 5 minutes of inactivity.

Option 1 + 2 both on to start dome TOUR2 instead of goto Preset 1 after 5 minutes if inactivity.

Option 3 reverses the pan direction.

The dome's TOUR2 must be programmed from within the domes menu. Please refer to the dome manual for details.

Trouble shooting guide

Symptom: No video from interface.
Possible causes:
Camera is not powered or not connected to ‘Video from camera’ BNC on interface.
Check power and cabling.
Interface is not powered.
Check power.
Video out not connected to ‘Video to controller’ BNC on interface.
Check cabling.
If the after following the above check list video still not present then remove both BNCs from the interface and connect together using a female/female barrel connector to check video path from camera to control point.

Symptom: No camera control but data out LED lights when the joystick is moved.
Possible causes:
Dome data cable is not connected correctly.
Check cabling, most commonly due to data cables swapped.
Dome configuration switches if fitted not set correctly.
Check configuration.
Interface not seeing Telemetry signal.
Check that telemetry is present on video cable using either oscilloscope or adjust v.hold on monitor to view frame blanking period and check for black/white band. If missing, power down/up the transmitter. Should this fail, swap video between working and non-working channels.
Earth loops can interrupt telemetry operation if sufficiently severe.
If hum bars are apparent, fit isolation transformer to coaxial cable.
Check the two red 7 segment LED displays mounted on the top PCB on interface see page 11.

If the problem persists having followed the above steps, technical assistance can be received from Building Block Video. Tel: +44 (0)1323 444600

--- Blank for your notes ---

Extend your BBV Warranty from 12 months to 3 years

As of the 1st 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._____

Do you read.

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

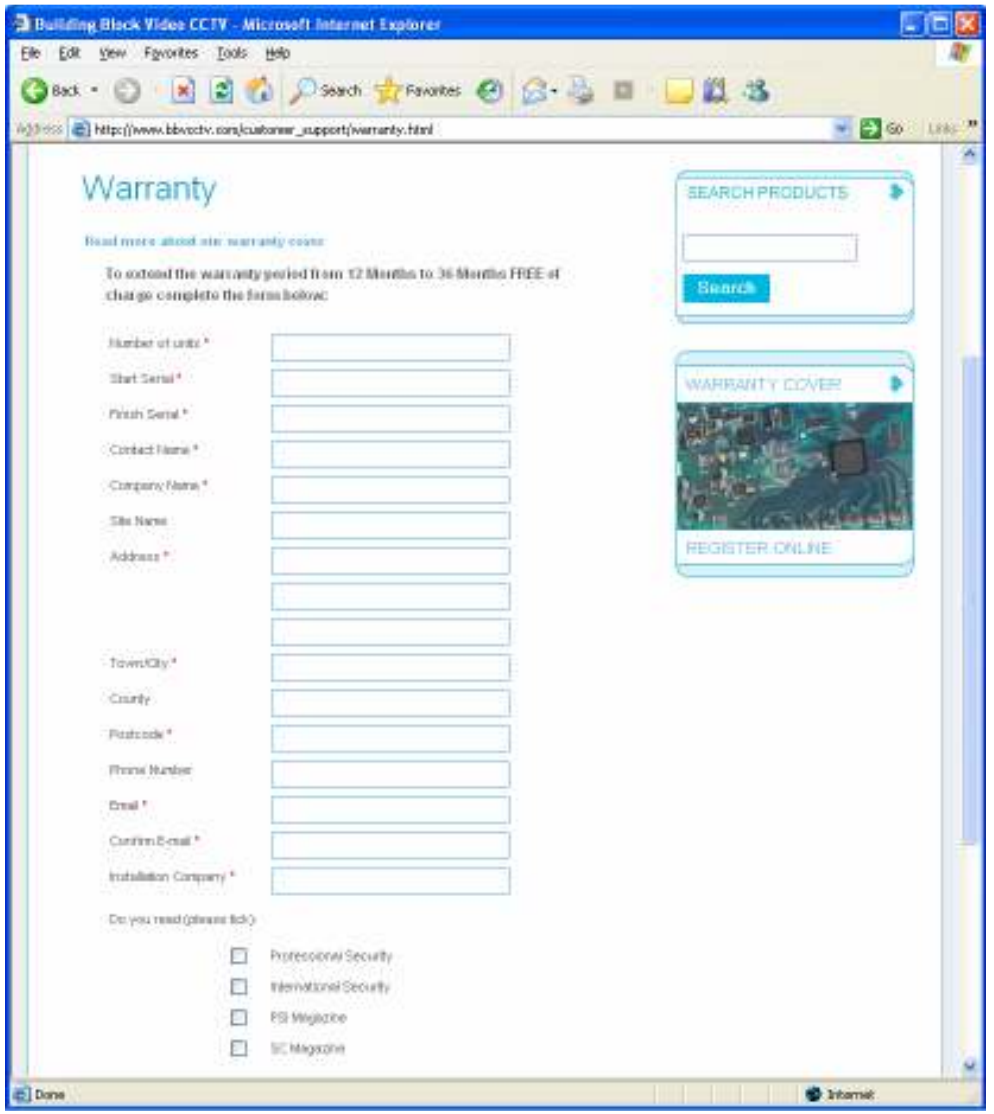
☐ I do not require any other further product information,

Please refer to 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.bbvcctv.com
Simply enter your details on the 'Warranty Cover' page.



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