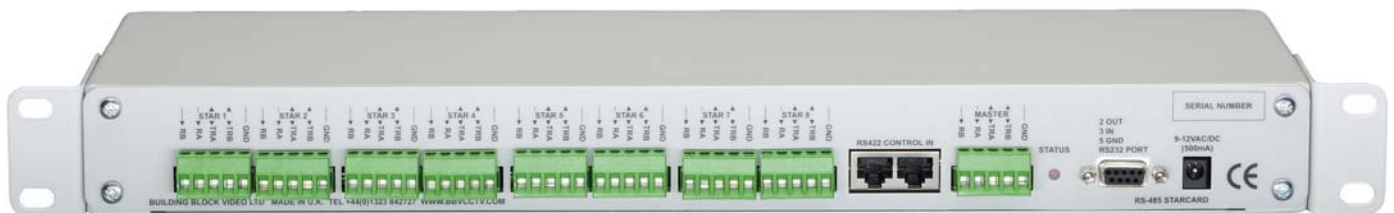




RS485/422 STARCARD



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 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.

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.

Coax 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.

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

WARNING

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

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

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

Technical Specification

Power Requirements	9Vdc 500mA
Inputs	2 or 4 wire RS485 (switch selectable)
Outputs	8 x 2 or 4 wire RS485/422 (switch selectable – DEFAULT 4 WIRE) Maximum cable run approx. 4000 Feet/1200M
Facilities	LED as power and data indication
Other Outputs	RS232 monitor output via chassis mounted DB9 connector.
Boxed Dimensions	Available to mount in BBV TX1500 sub rack or fitted in 19" 1 U rack 100mm deep rack mountable case.
Options	STARCARD/CONVERTER internally fitted Telemetry Protocol Conversion board

The OPTIONAL STARCARD/CONVERTER MODE is used to drive an increasing library of 3rd party protocols from BBV and compatible equipment.

Please refer to the additional STARCARD/CONVERTER manual addendum for details.

2. INTRODUCTION

GENERAL

The RS485/422 Starcard is designed to simplify the installation of RS485/422 telemetry systems.

Eight individual outputs are provided. Each output can be connected to a single dome/receiver or up to 32 domes/receivers wired as a daisy chain. When the domes/receivers are wired as a daisy chain, the last unit's RS485/422 must be terminated and the intermediate units must be unterminated. With a single dome connected to each output, the RS485/422 must be terminated.

The Starcard can be used with either 2 wire, half duplex; 4 wire, full duplex or simplex systems.

It has been tested with the Panasonic FS616 multiplexer in 2 and 4 wire modes and with the SX350 video matrix in 2 wire mode.

The Starcard can also be used with simplex RS485/422 links, for example the RS485 output of DM System Sprite and Digital Sprite range of multiplexers, Integral Technologies DVX range amongst others.

The Starcard is not protocol independent and will work at up to 19200 baud. It is recommended that when used with extended cable distances and/or noisy environments 9600 baud is used to prevent control problems.

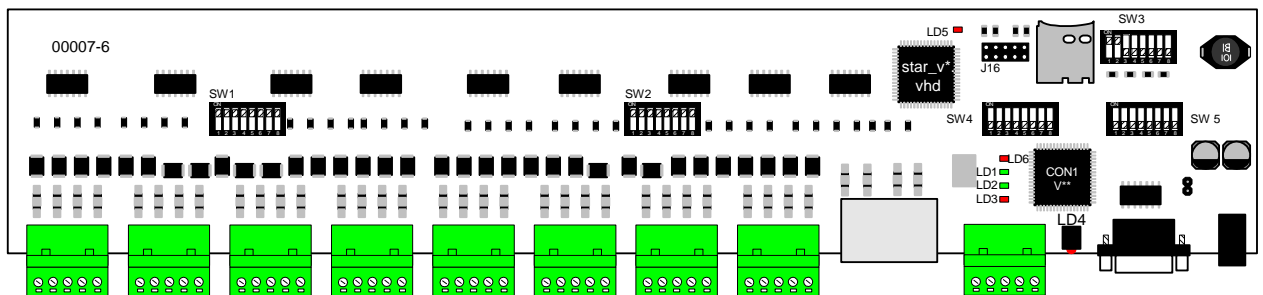
A RS232 serial output is provided via a DB9F to aid with diagnostic and trouble shooting.

What is 2 wire and 4 wire

2 wire is used with half duplex (command and response) systems. Generally telemetry uses simplex telemetry, ie command only. In this case the starcard will be set to 4 wire. This allows use with both simplex (using 2 wire) or full duplex (using 4 wire) systems. Unless you are using a known half duplex, 2 wire, system then set the starcard to 4 wire.

The following pages showing wiring details when used in 2 and 4 wire systems.

Internal view of starcard showing switch settings



Starcard PCB Switches

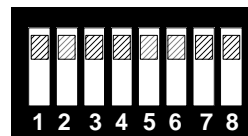
SW1 - RS485 line termination for outputs 1 - 4 ON = termination ON (Default)

SW1/1 & 1/2 = Output 1 termination

SW1/3 & 1/4 = Output 2 termination

SW1/5 & 1/6 = Output 3 termination

SW1/7 & 1/8 = Output 4 termination



SW1 setting showing termination ON

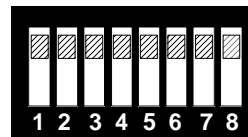
SW2 - RS485 line termination for outputs 5 - 8 ON = termination ON (Default)

SW2/1 & 2/2 = Output 5 termination

SW2/3 & 2/4 = Output 6 termination

SW2/5 & 2/6 = Output 7 termination

SW2/7 & 2/8 = Output 8 termination



SW2 setting showing termination ON

SW3 - Option selection .

SW3/1 and SW3/2 - RS485 input line termination ON = termination ON (Default)

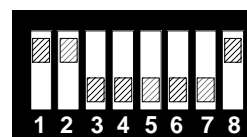
SW3/3-7 MUST BE OFF

SW3/8 - 2 or 4 wire selection .

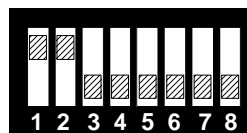
ON = 2 WIRE (HALF DUPLEX),

OFF = 4 WIRE (SIMPLEX OR FULL DUPLEX)

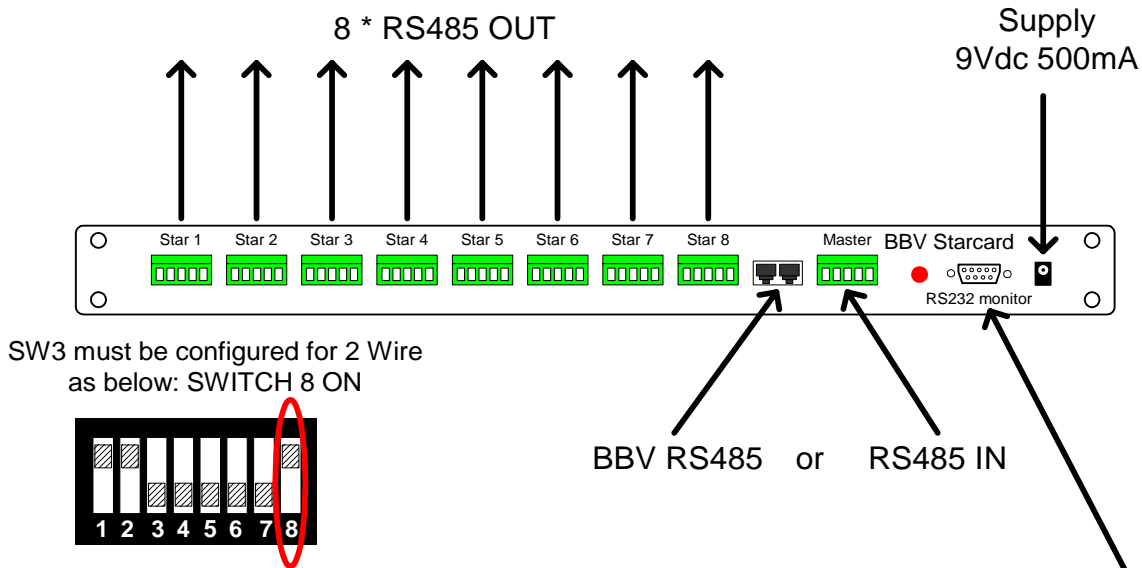
SW3 setting showing
2 wire mode (HALF DUPLEX)
and RS485 input termination ON



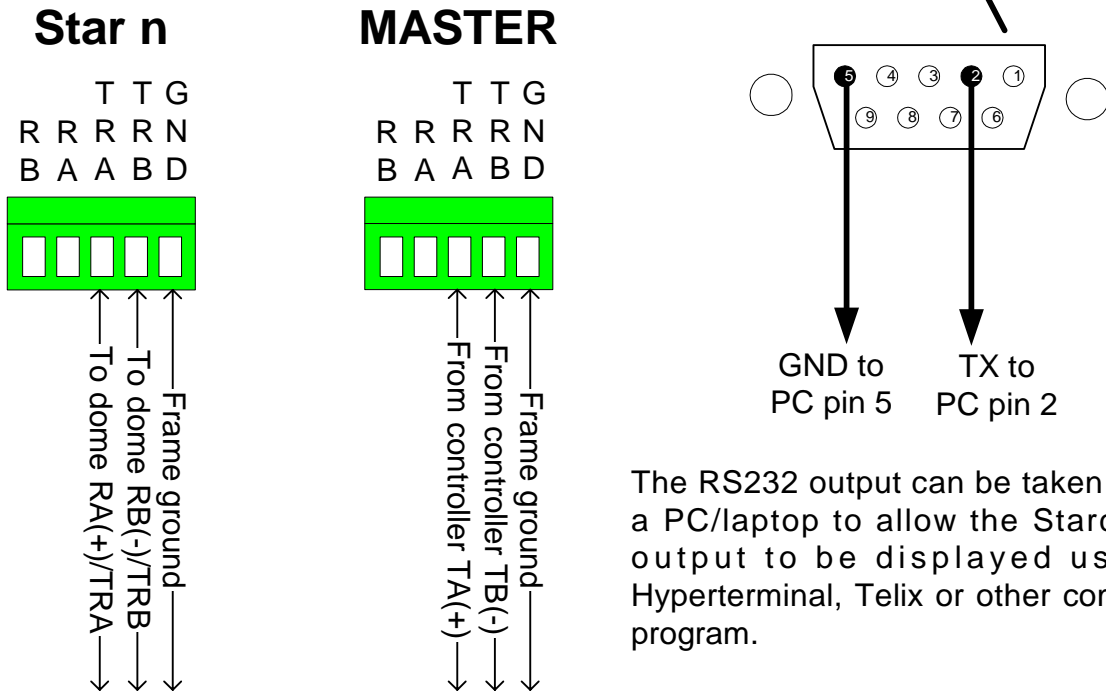
SW3 setting showing
4 wire mode (SIMPLEX or FULL DUPLEX)
and RS485 input termination ON



2 wire half-duplex mode



Close up view showing RS485 connection into and out of the Starcard.



The RS232 output can be taken into a PC/laptop to allow the Starcard output to be displayed using Hyperterminal, Telix or other comms program.

RS485 network length maximum 1200M per output.

Please remember to terminate the last dome of each output.

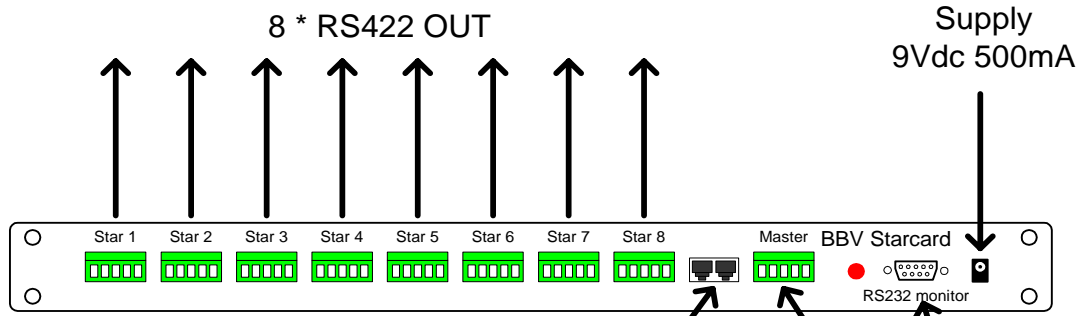
2 wire RS485 notes.

1. Ensure that the dome/receiver is set for 2 wire telemetry, half-duplex.
2. The controller must be set for 2 wire using either a rear panel switch or menu access. Half duplex must be selected from within the setup menu.
3. Baud rates for the controller and dome/receivers must be the same. It is advisable to use 9600 baud to reduce the possibility of corrupted data causing intermittent control.

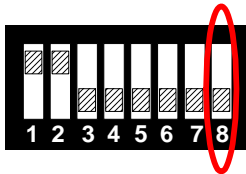
Panasonic Specific notes:

- FS616 - A single RS485 output is available. Connect the RS485 output to the starcard as shown.
- SX350 - Two RS485 outputs are available.
- SX550/850 - Not required as each matrix RS485 output card has eight individual outputs.

4 wire full-duplex mode

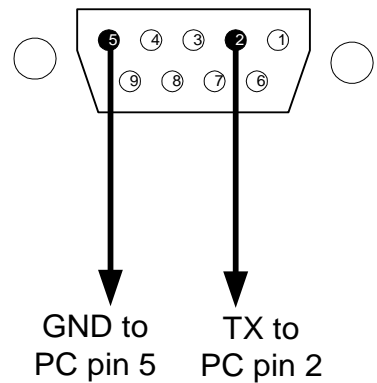
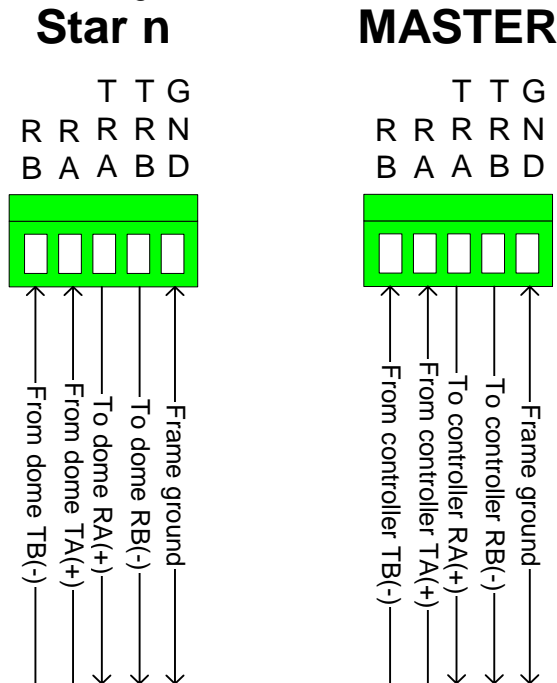


SW3 must be configured for 4 Wire as below: SWITCH 8 OFF



BBV RS422 or RS422 IN

Close up view showing RS422 connection into and out of the Starcard.



The RS232 output can be taken into a PC/laptop to allow the Starcard output to be displayed using Hyperterminal, Telix or other comms program.

RS422 network length maximum 1200M per output.

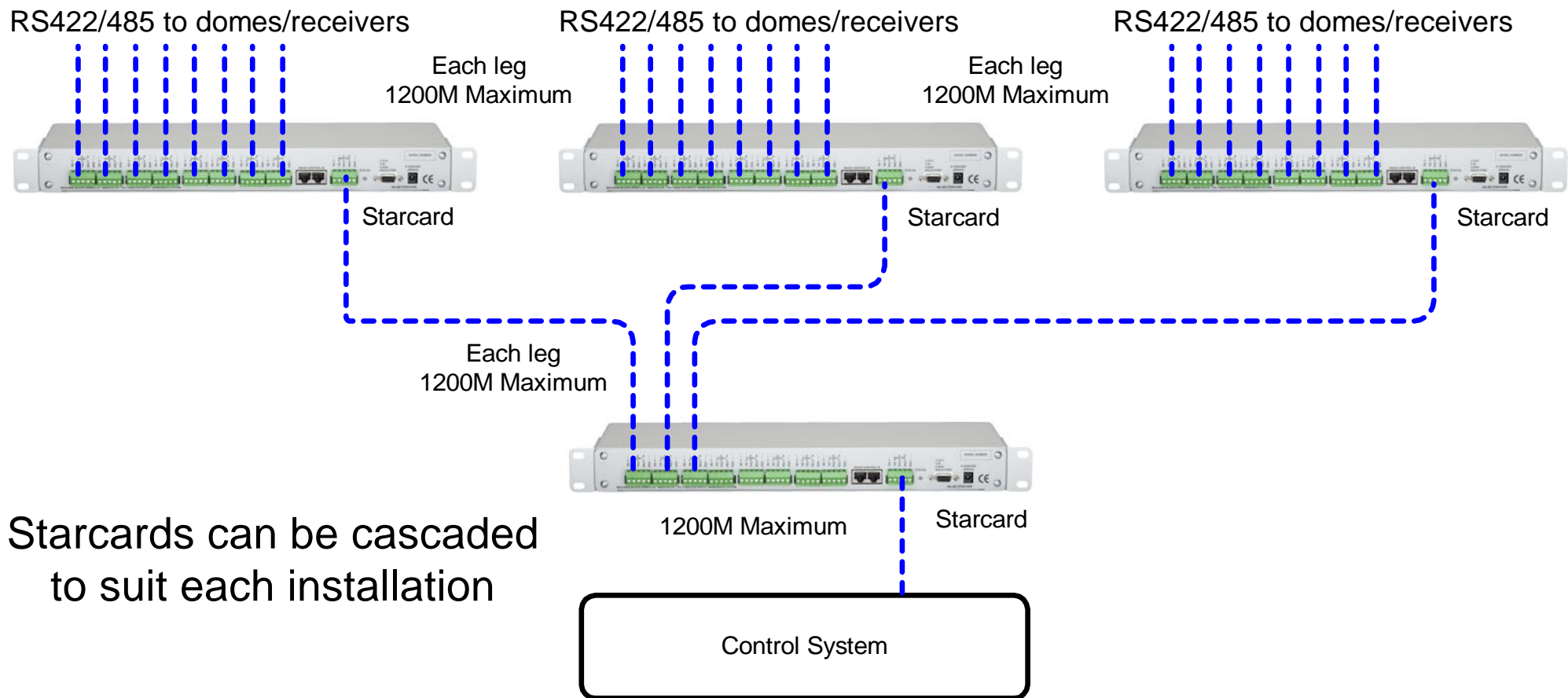
Please remember to terminate the last dome of each output.

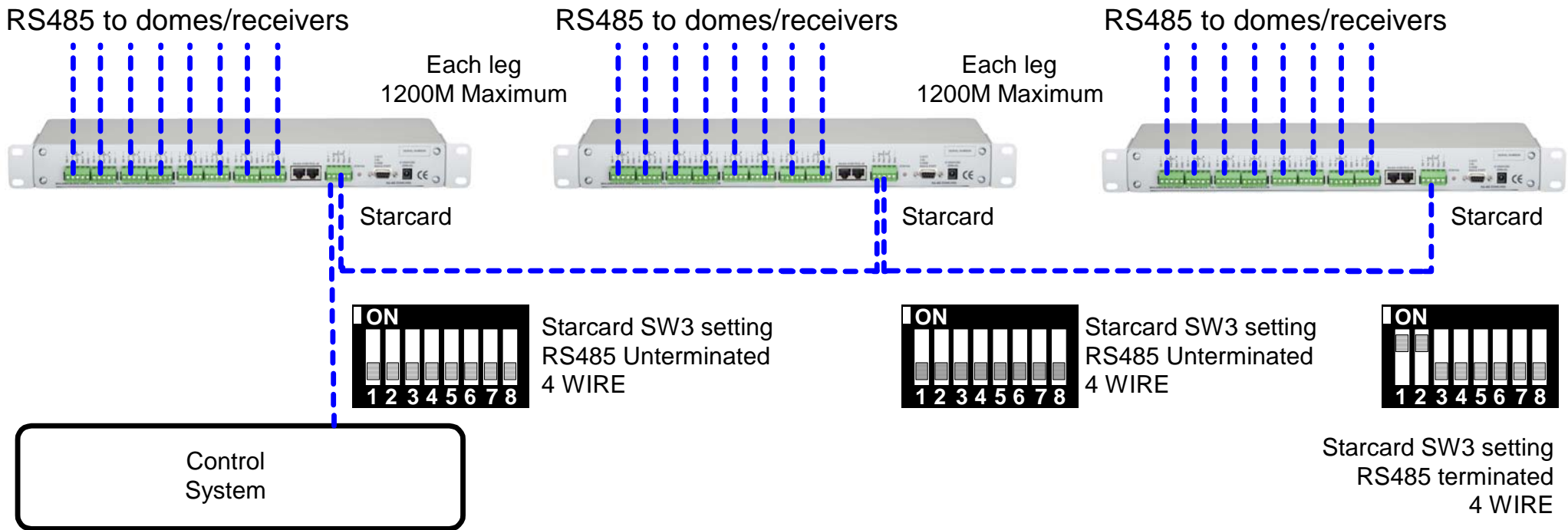
4 wire RS422 notes.

1. Ensure that the dome/receiver is set for 4 wire telemetry, full-duplex.
2. The controller must be set for 4 wire using either a rear panel switch or menu access. Full duplex must be selected from within the setup menu.
3. Baud rates for the controller and dome/receivers must be the same. It is advisable to use 9600 baud to reduce the possibility of corrupted data causing intermittent control.

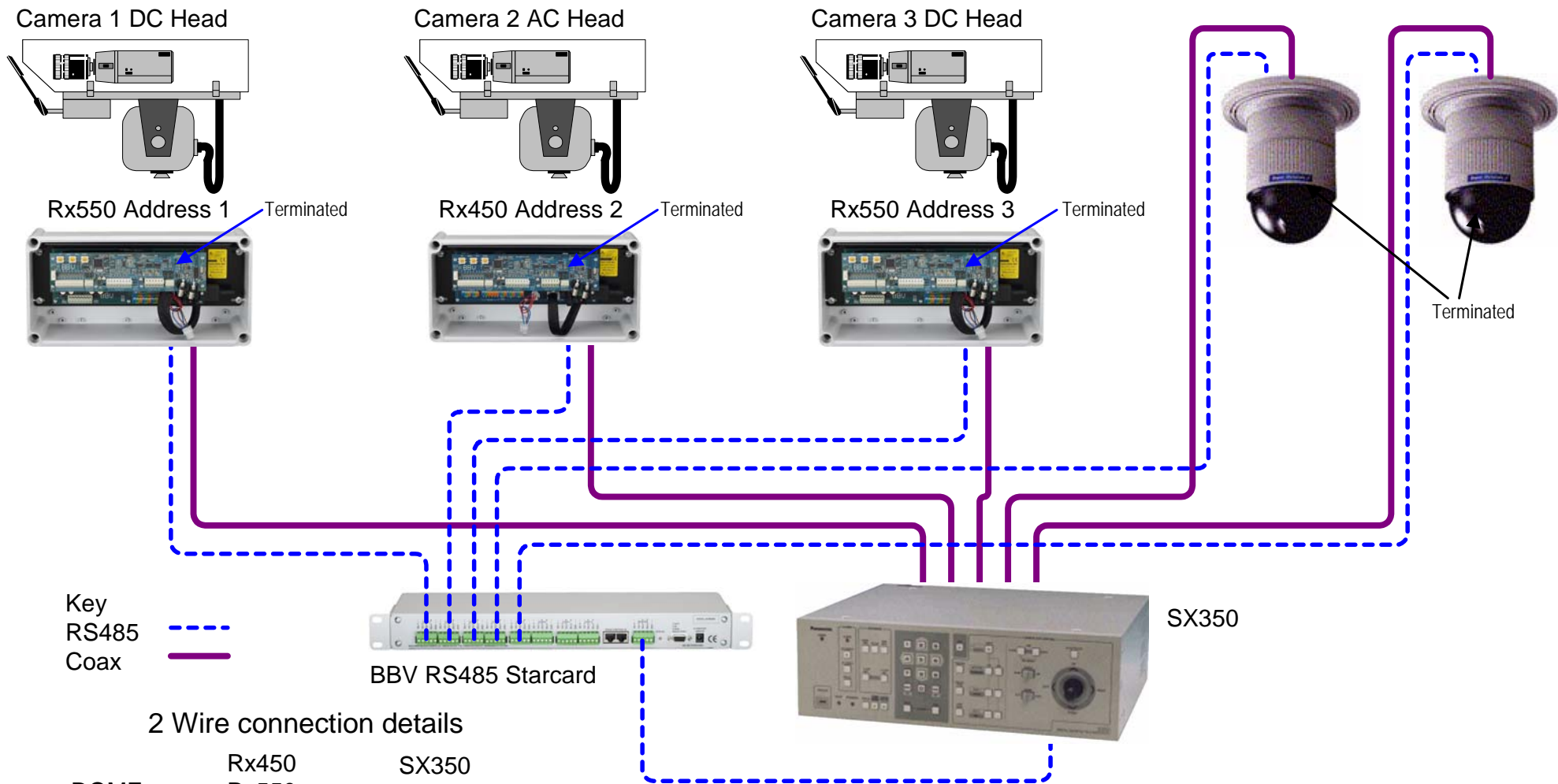
Panasonic Specific Notes:

- FS616 - A single RS485 output is available. Connect the RS485 output to the starcard as shown.
- SX350 - Not compatible with 4 wire telemetry.
- SX550/850 - Not required as each matrix RS485 output card has eight individual outputs.

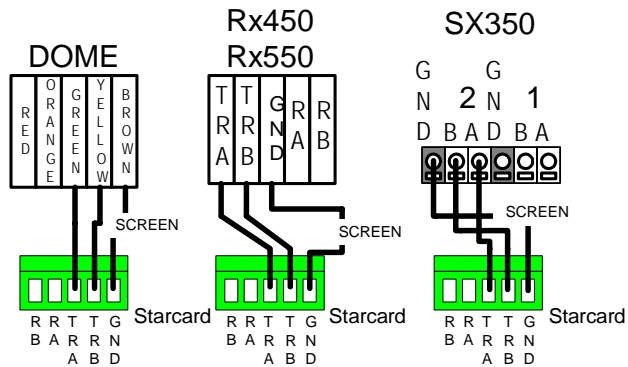




On single direction RS485, multiple StarCards can be daisy chained to provide multiple outputs.

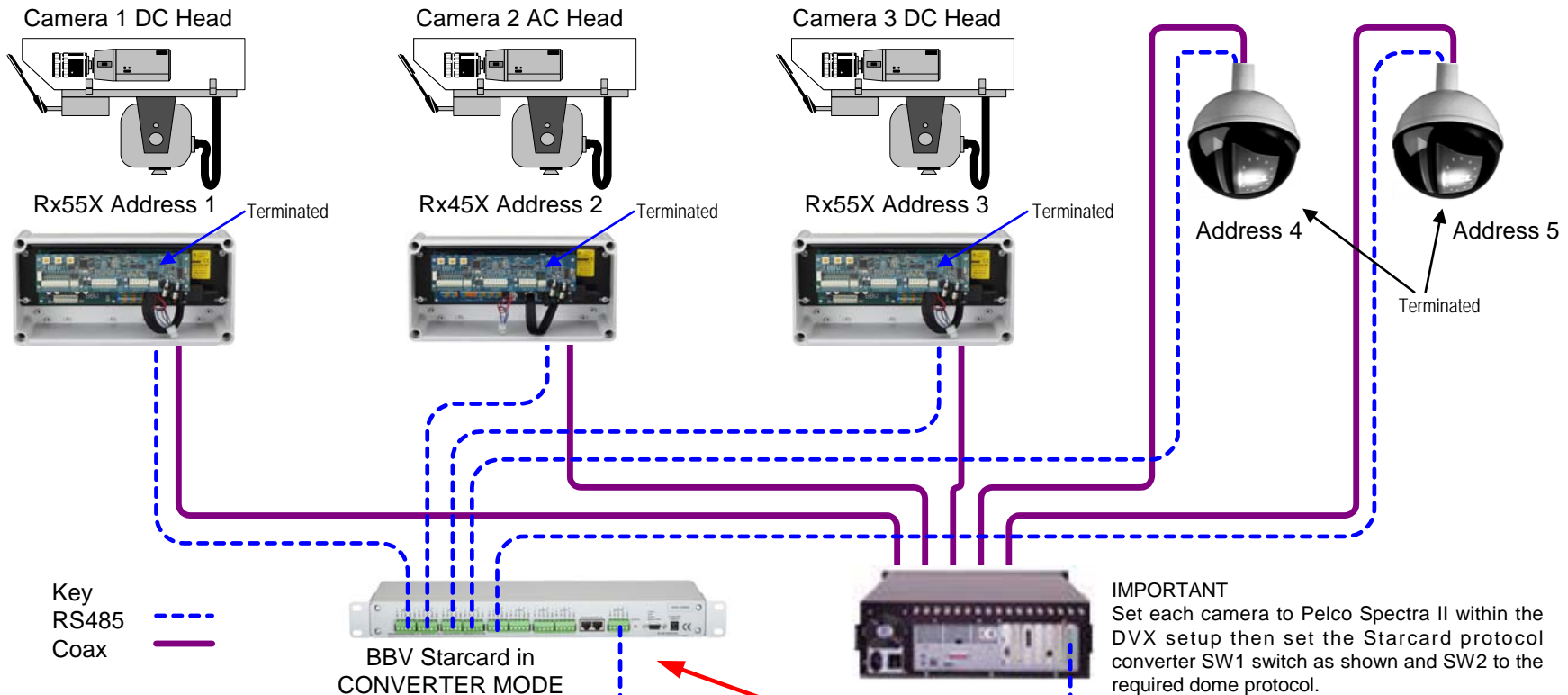


2 Wire connection details



Panasonic SX-350 Wiring Details

The SX350 has two individual RS485 ports. Each port may be connected to a separate Starcard. The diagram on the left shows a connection to port 2.



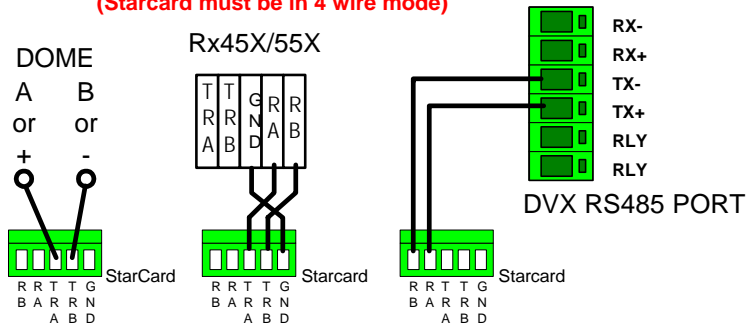
IMPORTANT
Set each camera to Pelco Spectra II within the DVX setup then set the Starcard protocol converter SW1 switch as shown and SW2 to the required dome protocol.

Key
RS485 ---
Coax —

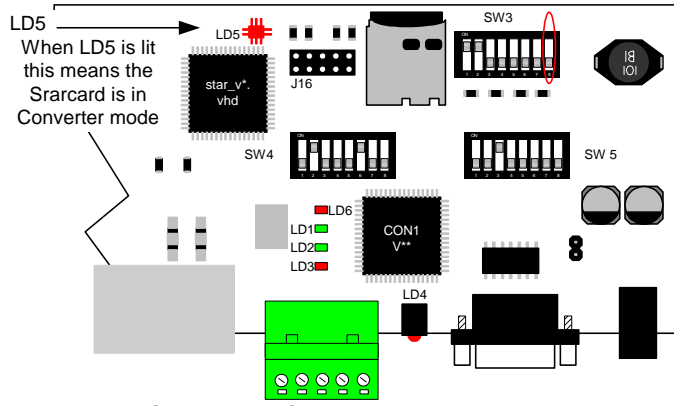
BBV Starcard in
CONVERTER MODE

Converter switch settings for VCL conversion.

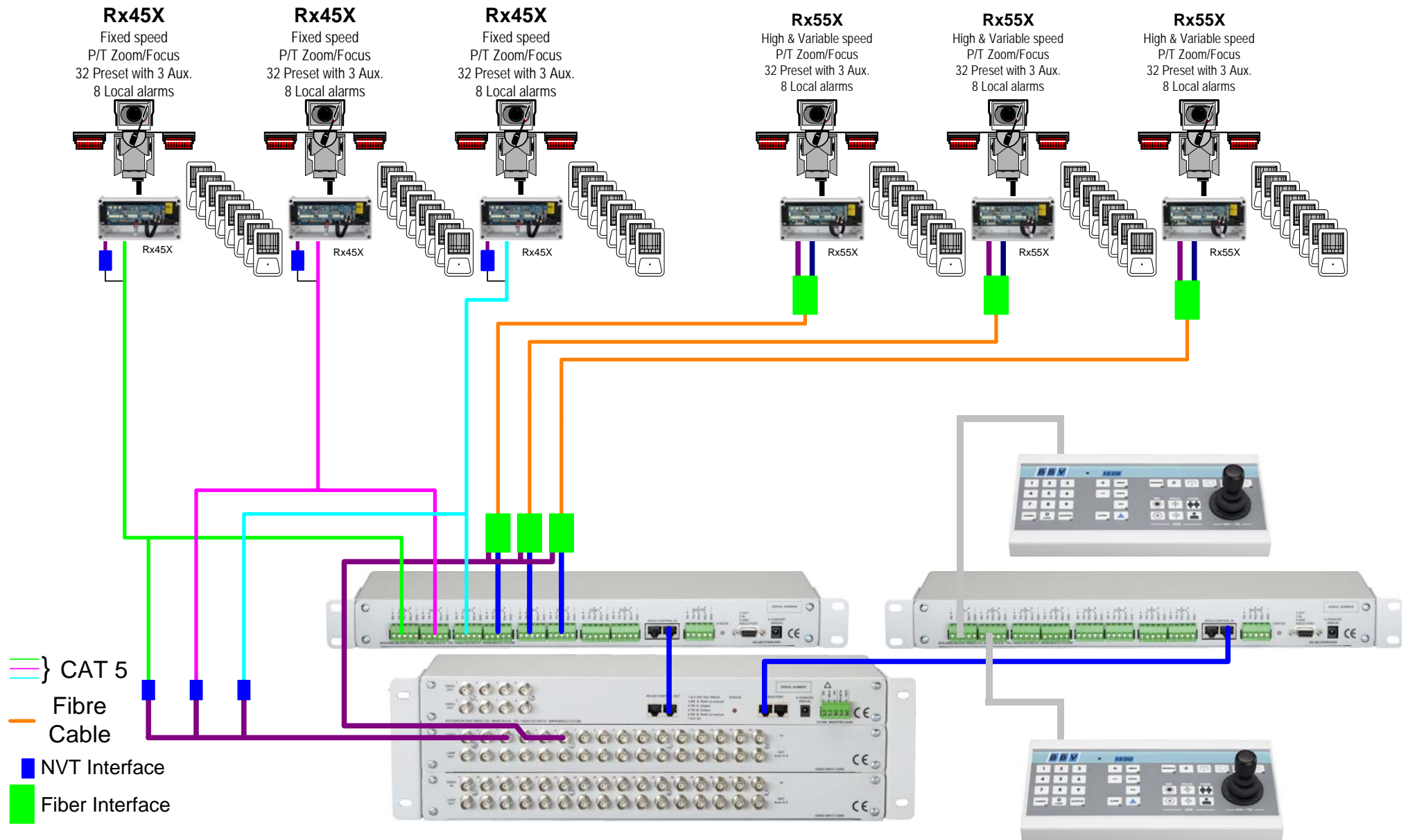
RS485 connection details
(Starcard must be in 4 wire mode)



SW4 - Pelco D, 2400,E,8,1 SW5- VCL 9600,N,8,1 4 Wire Mode



Starcard in Converter mode when used with Integral Technologies DVX



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Other BBV products.

Product	Description
TX300	Single camera desktop telemetry transmitter with BBV up-the-coax & 20mA telemetry, Pan/Tilt/Lens & Lights
TX400	As TX300 inc Wash, Wipe, Autopan, 8 presets, preset patrol.
TX400DC/RS485	As TX400 including joystick for proportional Pan/Tilt control with RS485 Output.
TX1000 MK2	8 or 16 camera, 2 monitor telemetry transmitter. Up to 2 keyboards. BBV up-the-coax and RS422 standard with options for alarm inputs and 20mA telemetry.
TX1500	Mid size matrix 16 – 96 camera, 8 monitor. Up to 4 control positions (keyboard & remote control) options for alarms, remote control, BBV up-the-coax and RS485 telemetry.
FBM range	Large size matrix. Configurable up to 4096 cameras and 64 monitor outputs. Up to 16 control positions (keyboard & remote control) options for alarms, remote control RS485/RS422 telemetry with various options. Please call to discuss requirements.
RX100	Dome Interface with options to drive a large library of dome cameras. BBV up-the-coax and 20mA telemetry.
RX100/BAX	Dome Interface with options to drive a large library of dome cameras. BAXALL up-the-coax telemetry.
RX200	AC receiver for Pan only heads or static cameras, Wash/Wipe/Lights. BBV up-the-coax and 20mA telemetry.
RX300	AC receiver for Pan/Tilt/Zoom/Focus/Iris Override and 1 Auxiliary output. BBV up-the-coax and 20mA telemetry.
RX400P	AC full function receiver. PTZFI 4 Auxiliary outputs, 16 presets. BBV up-the-coax and 20mA telemetry.
RX45X (AC) RX55X (DC) Multi RS485 protocol and BBV up-the-coax telemetry receivers	Multiple RS485/422 and BBV up-the-coax controllable AC and DC receivers. These receivers are controlled from an expanding range of serial protocols as listed below. 110/230Vac supply. PTZFI, 64 presets, preset patrol, 8 local alarm inputs, 12V 500mA supply output. OSD for remote diagnostics. 3 Aux. outputs RX55X or 4 Aux. outputs RX45X. Optional Privacy board. BBV RS485, COAX & 20mA, BAXALL COAX, DENNARD RS485, MOLYNX, PELCO P/D RS485, VCL/HONEYWELL RS485, PHILIPS/BOSCH RS485 (OPTIONAL BI-PHASE INPUT), SENSORMATIC/AD RS422 VICON RS422 & CIRRUS AUDIO MONITORING
RX450/550	PANASONIC RS485 Protocol only version of RX45X/55X.
CTI16 CTI8	Multi-protocol serial converter that gives either 8 or 16 channels of up-the-coax control (BBV Coax protocol). BBV RS422, Dennard RS485, Pelco P, Pelco D, Philips/Bosch RS485/232, VCL RS485, Sensormatic RS422, Molyntx, Vicon
STARCARD STARCARD/CONVERTER	8 * RS485 output, 2 wire simplex RS422, 4 wire full-duplex RS422, 2 wire half-duplex RS485. Optional STARCARD/CONVERTER offering protocol conversion to drive an increasing range of 3 rd party protocols.
ACCESSORIES	TxLD (bidirectional RS422-RS232 converter) 98005 (bidirectional 20mA-RS232 converter) AD RS422 (American Dynamics) protocol converters