Video Image Detection System (SVS-1)
User Guide – Part C
Hardware Wiring Diagram

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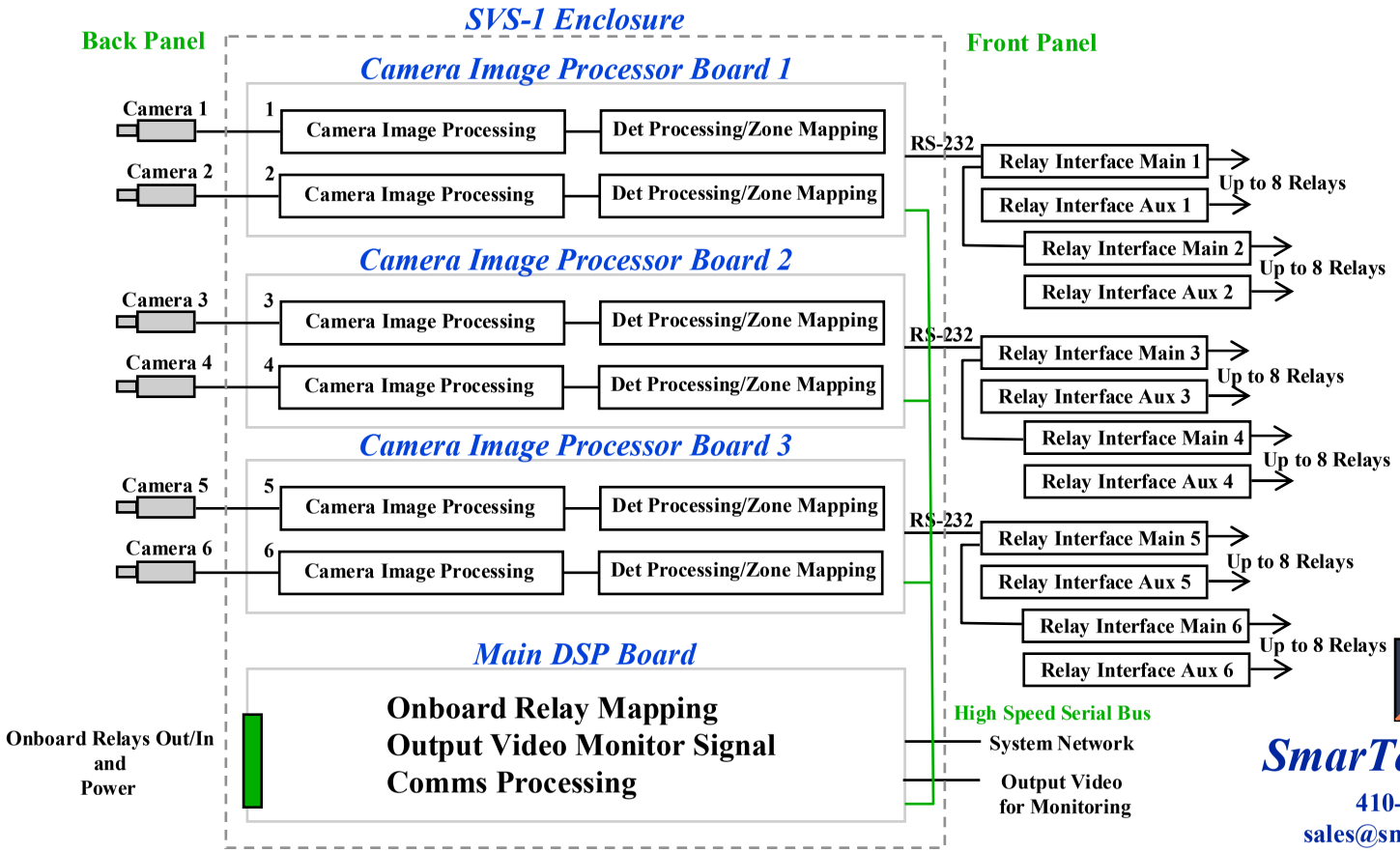
SVS-1 Architecture and Interfaces

The SVS-1 system is modular, and may be configured or populated with the right number of processor boards to meet each customer's requirements. A fully populated SVS-1 is made up of three Camera Image Processor DSP Boards and one Main DSP Board. Each Camera Image Processor DSP Board in the SVS-1 implements two camera processing channels with each having a unique ID number (SVS0001, SVS0002, SVS0003, …, SVS0006).

For robust vehicle detection performance, the end user may combine any number of the thirty (30) detection line zones per camera channel to form a resultant Lane Group (up to 10 LGs per camera channel). Each LG may be output via the onboard back panel connector (up to 10 relays) or via External Relay Interface Cards (1 or 2 RI cards per camera channel, 1 Main and 1 Aux).



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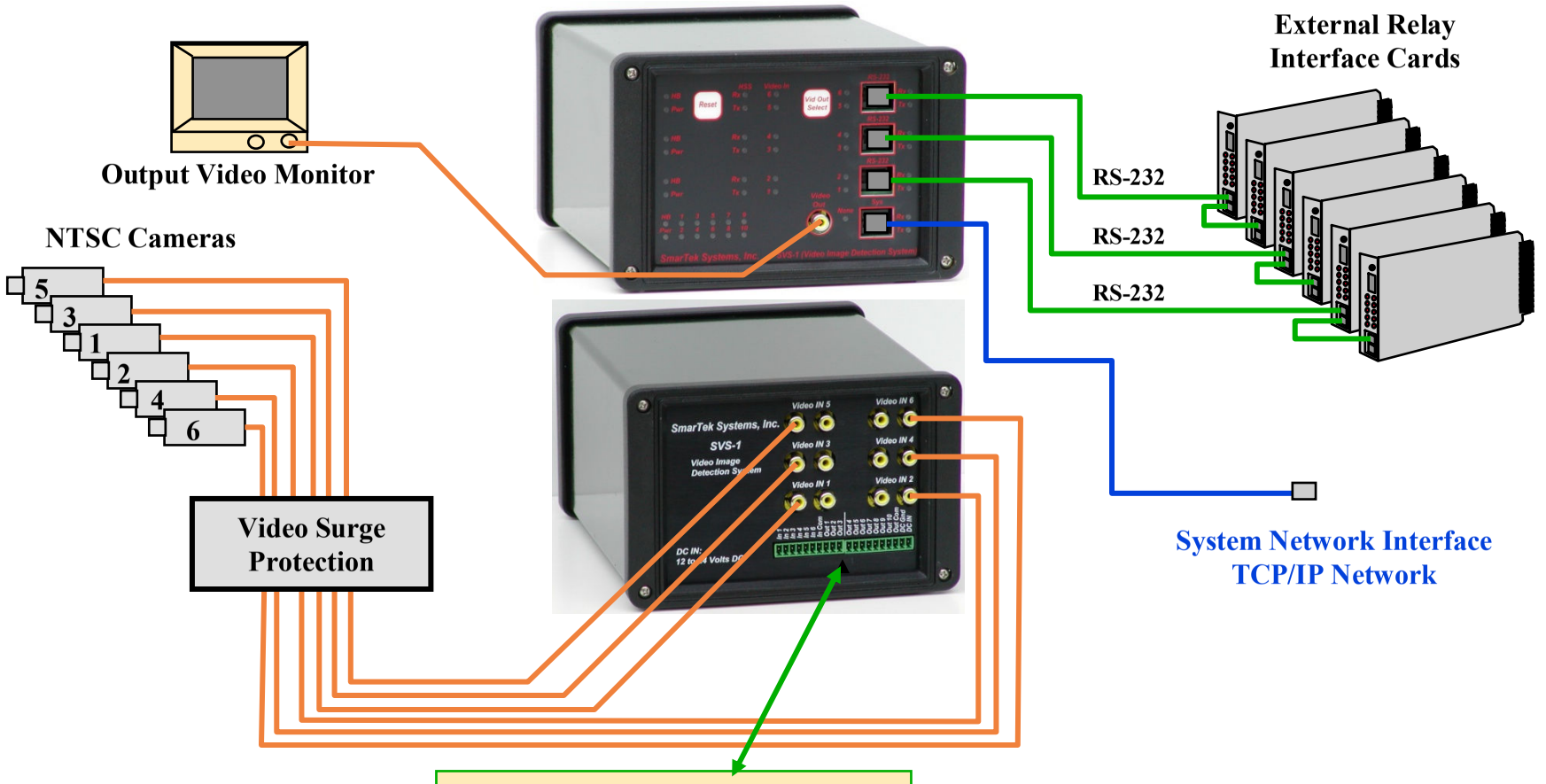
SVS-1 Hardware Wiring Diagram



Rear Panel Green Connector

1 Input 1	11 Output Relay 4
2 Input 2	12 Output Relay 5
3 Input 3	13 Output Relay 6
4 Input 4	14 Output Relay 7
5 Input 5	15 Output Relay 8
6 Input 6	16 Output Relay 9
7 Input Com	17 Output Relay 10
8 Output Relay 1	18 Output Relay Com
9 Output Relay 2	19 VDC Ground
10 Output Relay 3	20 VDC In

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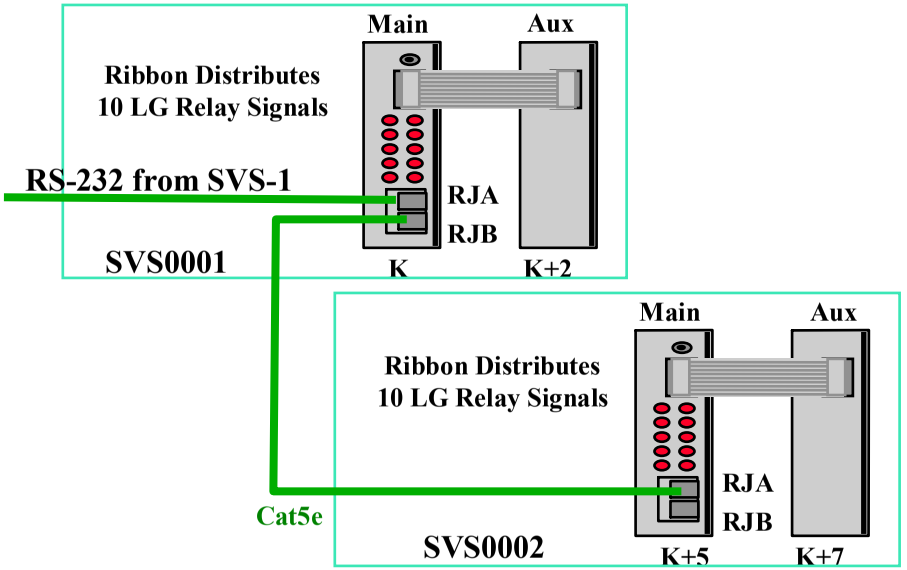
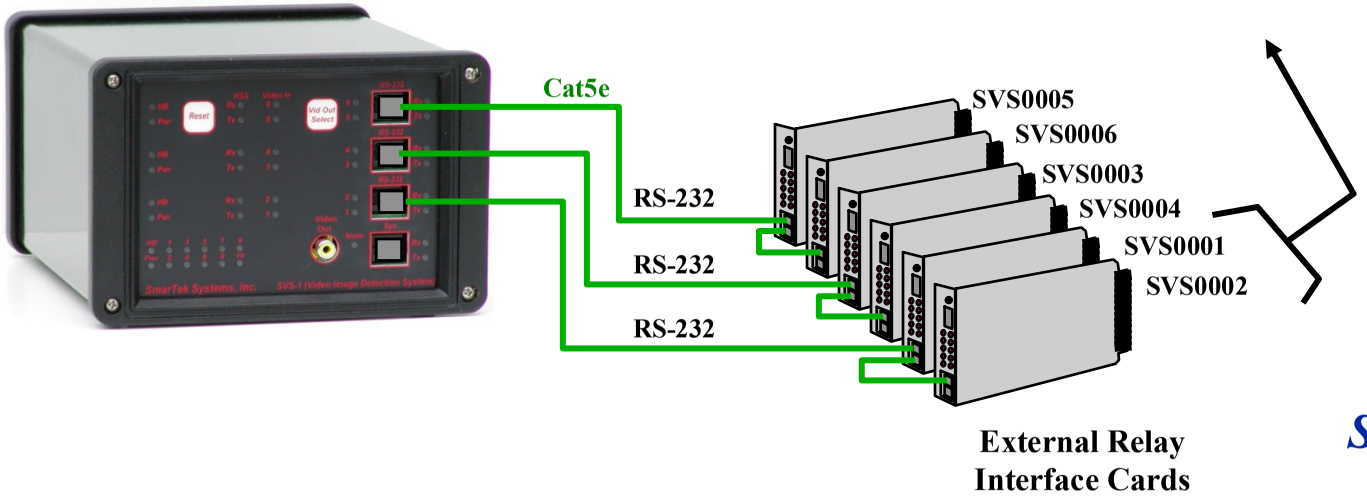
SVS-1 External Relay Interface Detail

Up to ten Lane Group Signals per camera channel may be combined and distributed using a Type 170 External Relay Interface Main card and an Auxiliary card. There are four Detector Channels for the Main RI card and four Detector Channels for the Aux RL card.

Note that each card (Main or Auxiliary) maps up to four Detector Channels to the card edge and thus, to the cardfile backplane. Two relays (F and W) are mapped to the slot the card is in and two relays (S and Y) are mapped to the adjacent lower numbered slot (left adjacent slot looking from the front). This mapping is standard for any Type 170 cardfile slot and for only the even slots of a TS-2 cardfile.





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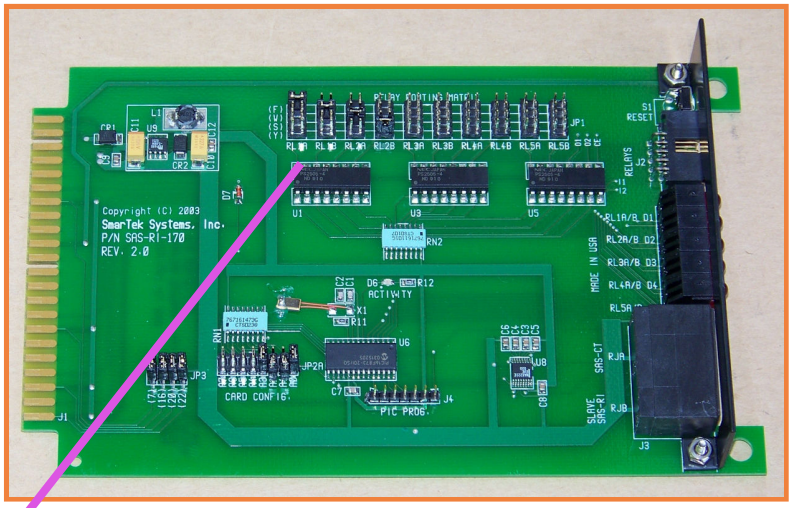
SVS-1 External Relay Interface Detail – Main Card Edge Relay Routing

Each SmarTek Systems Relay Interface Main card has a relay routing header matrix onboard. This header matrix uses push pin jumpers and provides completely flexible mapping of each input relay signal (up to 10) to each standard card edge position (up to 4).

Relays F and W are mapped to the cardfile slot the card is in. Relays S and Y are mapped to the adjacent lower numbered slot (left adjacent slot looking at the front of the cardfile). This mapping is standard for any Type 170 cardfile slot and only the even slots of a TS-2 cardfile.

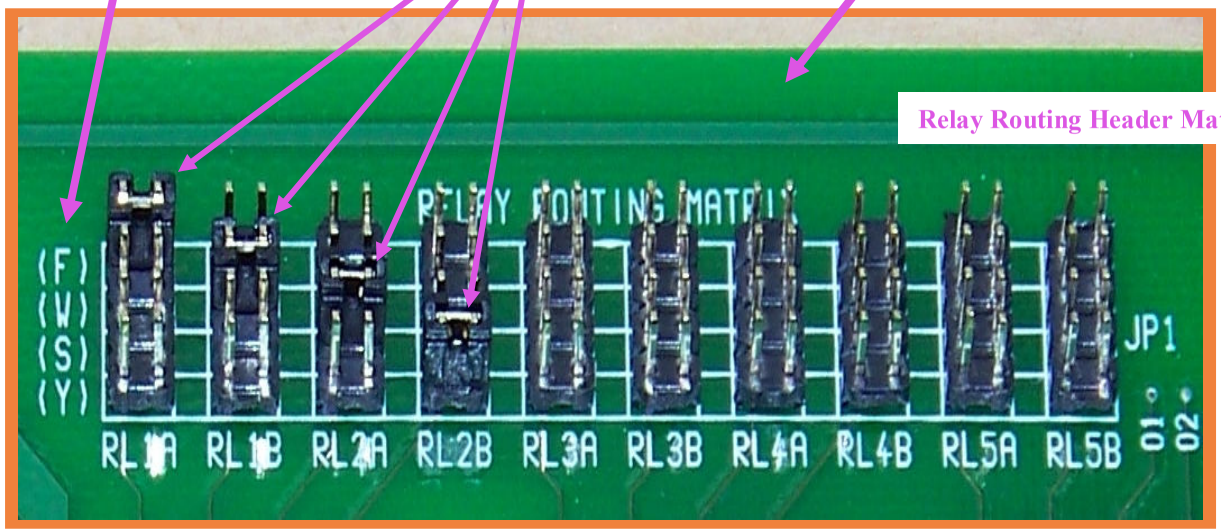


When using the SVS Main Relay Interface Card with the SVS-1, place the push-pin jumpers on the diagonal headers for RL1A to F, RL1B to W, RL2A to S, and RL2B to Y as shown below.

Card Edge Relay Positions

Jumpers

Push Pin Jumpers Connect Each of ten Relays to a card edge relay position (i.e. RL2B to Y)



Relay Routing Header Matrix

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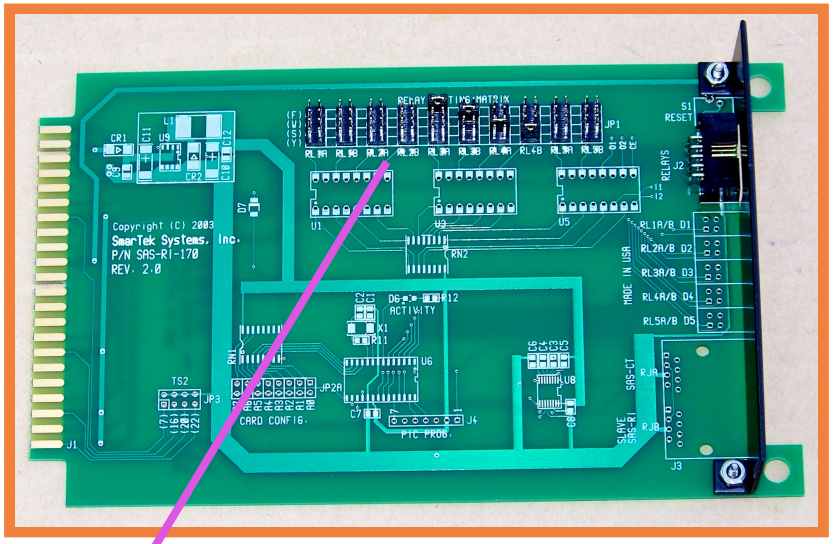
SVS-1 External Relay Interface Detail – Auxiliary Card Edge Relay Routing

Each SmarTek Systems Relay Interface Auxiliary card has a relay routing header matrix onboard. This header matrix uses push pin jumpers and provides completely flexible mapping of each input relay signal (up to 10) to each standard card edge position (up to 4).

Relays F and W are mapped to the cardfile slot the card is in. Relays S and Y are mapped to the adjacent lower numbered slot (left adjacent slot looking at the front of the cardfile). This mapping is standard for any Type 170 cardfile slot and only the even slots of a TS-2 cardfile.

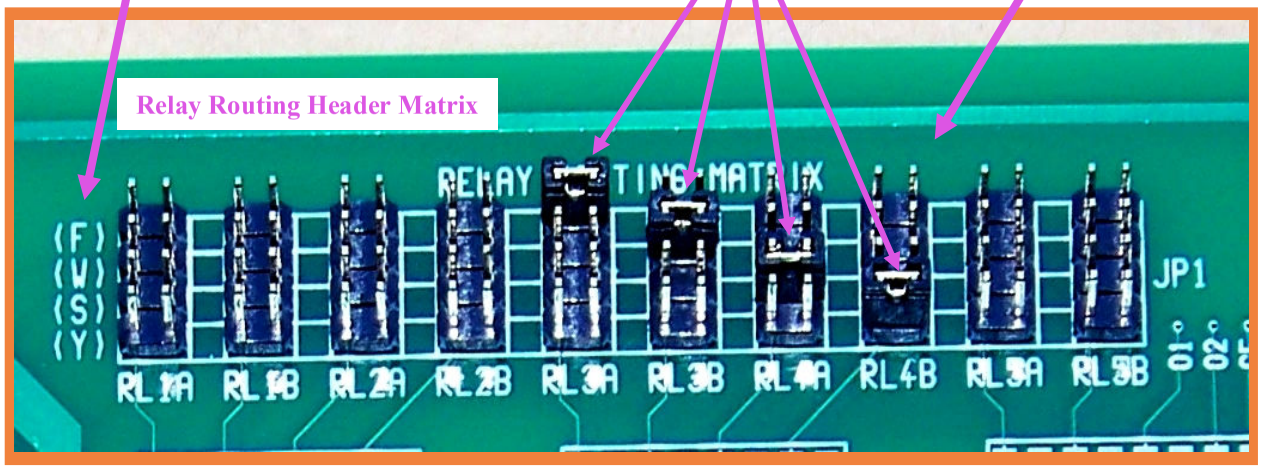
When using the SVS Auxiliary Relay Interface Card with the SVS-1, place the push-pin jumpers on the diagonal headers for RL3A to F, RL3B to W, RL4A to S, and RL4B to Y as shown below.



Card Edge Relay Positions

Jumpers

Push Pin Jumpers Connect Each of ten Relays to a card edge relay position (i.e. RL2B to Y)



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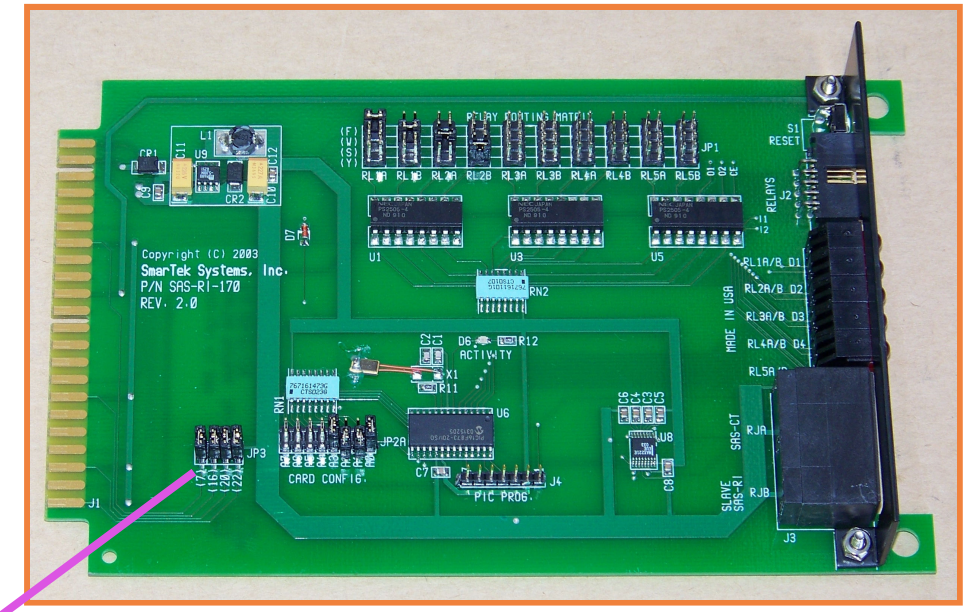
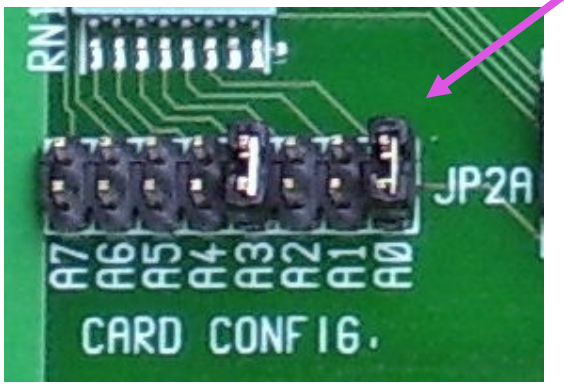
SVS-1 External Relay Interface Detail – Main Card ID Configuration

Each SmarTek Systems Relay Interface Main card is configured to have an ID corresponding to a specific SVS-1 Camera Processing Channel (SVS0001, SVS0002, etc.).

Push pin jumpers are installed on the JP2A header to set the card's ID. The table below shows the jumper configuration for the RI card corresponding to each SVS-1 ID. JP2A headers A4, A5, A6, and A7 are left open.



RI Card Configuration Headers (JP2A)



JP2A Push Pin Jumper Installation to Set Main RI Card ID

	SVS0001	SVS0002	SVS0003	SVS0004	SVS0005	SVS0006
A0	Yes	No	Yes	No	Yes	No
A1	No	Yes	Yes	No	No	Yes
A2	No	No	No	Yes	Yes	Yes
A3	Yes	Yes	Yes	Yes	Yes	Yes

Yes-Install Jumper, No Leave Open

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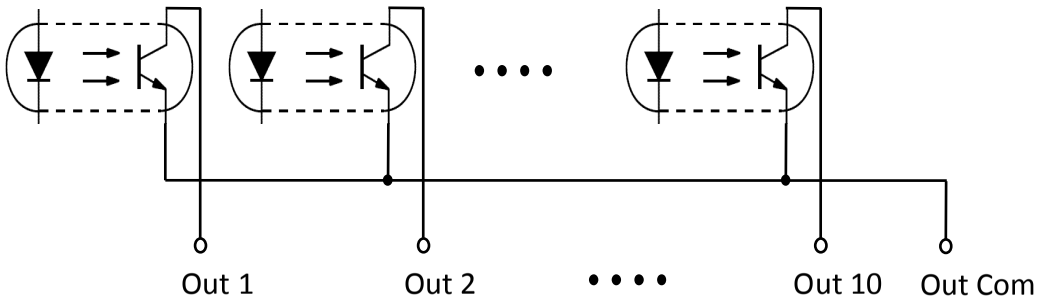
SVS-1 On Board Connector Opto-Isolated Output Circuit Diagram



Rear Panel Green Connector

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5 Input 5	15 Output Relay 8
6 Input 6	16 Output Relay 9
7 Input Com	17 Output Relay 10
8 Output Relay 1	18 Output Relay Com
9 Output Relay 2	19 VDC Ground
10 Output Relay 3	20 VDC In

Active Low (Inactive High) State: Transistor Conducts
Active High (Inactive Low) State: Transistor Does Not Conduct

Absolute Maximum Ratings
Out n to Out Com Voltage: 80 V
Sink Current: 50 mA

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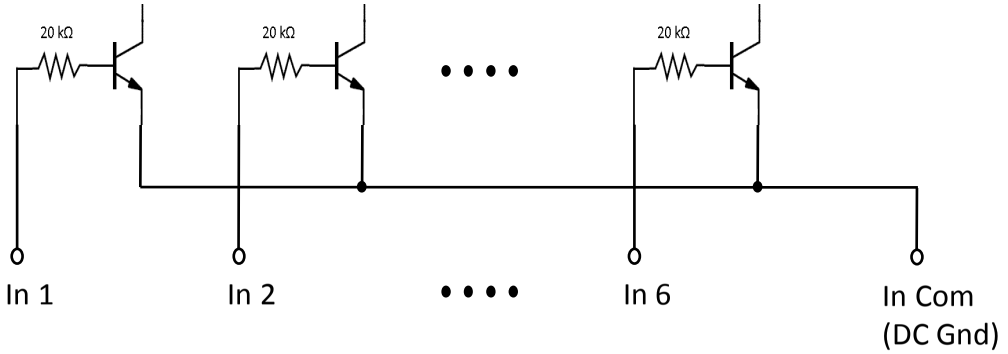
SVS-1 On Board Connector Digital Input Circuit Diagram



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6 Input 6	16 Output Relay 9
7 Input Com	17 Output Relay 10
8 Output Relay 1	18 Output Relay Com
9 Output Relay 2	19 VDC Ground
10 Output Relay 3	20 VDC In

On Input Voltage Range: 3.3 V to 25 V
Off Input Voltage Range: 0 V to 0.6 V

Absolute Maximum Ratings
Input Voltage: 25 V
Reverse Input Voltage: -6 V

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