

INSTRUCTION MANUAL

MODEL 1582-03 Data Switch

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1582-03 DATA SWITCH

1.0 General

1.1 Equipment Description

The 1582-03 Data Switch provides Auto, Manual, or Remote relay switching between CH1 and CH2 data signals (RS232C) on pin 2 with pin 5 ground and the other pins of the DB9 connectors not connected. Alarm conditions on CH1 and CH2 detect if data is lost for a preset 1 to 9 minutes (factory set) on the CH1 and CH2 input or if a contact closure occurs (to ground or an open, selectable). Switching logic can be factory set as follows:

1. **CH1 Prime Mode** - Switches from CH1 to the CH2 only if CH1 alarms and CH2 is good. Switches back to CH1 when it is no longer in alarm or when both CH1 and CH2 are in alarm
2. **Latch to CH2 Mode** - Latches to CH2 if CH1 alarms and CH2 is good. Return to CH1 only when Manual Reset button is pushed or Remote Reset pin is grounded and if no alarm on CH1.
3. **Minimum Auto switching, Initial Channel Select (ICS) Mode** Switch stays on channel last selected by Manual or Remote selection after return to AUTO. AUTO switching occurs only if current channel alarms and the other channel is clear.

When power is first applied and there are no alarms, CH1 is selected. On power loss CH1 is the selected channel. The Manual Select switch and contact closures to Remote Select pins (when in Auto), select CH1 or CH2 independent of alarms. LEDs indicate alarm and switch conditions for CH1 and CH2, REMOTE or MANUAL operation, and power on. Data connectors are DB9, female. Contact closure inputs and outputs are via barrier strip. Dual power supplies provide redundant power to the 1582-03. The chassis is a 1 3/4" rack mount.

Factory set mode is typically **(3) Minimum Auto switching, Initial Channel Select (ICS) Mode.**

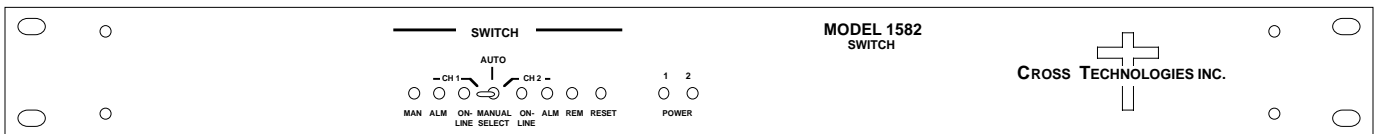


FIGURE 1.0 1582-03 DATA SWITCH

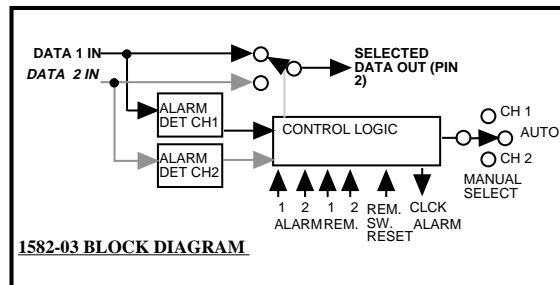


FIGURE 1.1 1582-03 BLOCK DIAGRAM

1.2 Technical Specifications (Each Switch)

Data Characteristics

Input/Output	RS232C
Data rate	128 kbps, maximum
Connectors, data	DB9, female
Pin Switched	2
Ground pin	5

Switch Characteristics

Type	Relay, non-blocking
Isolation	>40 dB to 128 kbps
Switch after data loss	1 to 9 minutes (factory set)
Switch time	≤10 milliseconds after command to switch
Contact resistance	≤10Ω, < 1Ω typ
Configuration	SPDT
Connectors, data	DB9, Female
Conn, alarm/controls	Barrier Strip

Controls

MANUAL SELECT	Manually select CH1, CH2, or AUTO operation. If operating in the ICS mode, the last channel manually selected (CH1 or CH2) will be the initial channel if both channel alarms are clear or both channels are in alarm.
SWITCH RESET	Resets switch to CH1 if it is good and switch is in the latch mode, Also Resets REMOTE by returning operation to AUTO

Indicators, LEDs

CH1 ON-LINE	Turns green when Channel 1 is selected
CH2 ON-LINE	Turns green when Channel 2 is selected
MANUAL	Turns red when the Manual Select switch manually selects channel 1 or 2.
ALARM CH1	Turns red when CH1 data alarms or on external alarm input (closure or open, selectable)
ALARM CH2	Turns red when CH2 data alarms or on external alarm input (closure or open, selectable)
POWER 1	Turns green when power is applied to AC1 input on the rear panel
POWER 2	Turns green when power is applied to AC2 input on the rear panel
REMOTE	Turns amber when REMOTE control is active

Other

Mechanical	19 inch standard chassis 1.75"high X 12" deep
Power	Redundant power supplies; 90 - 260 VAC, 47 - 63Hz, 20 watts

*Specifications subject to change without notice

2.0 Installation

2.1 Input/Output Connectors

The following are the input and output connectors.

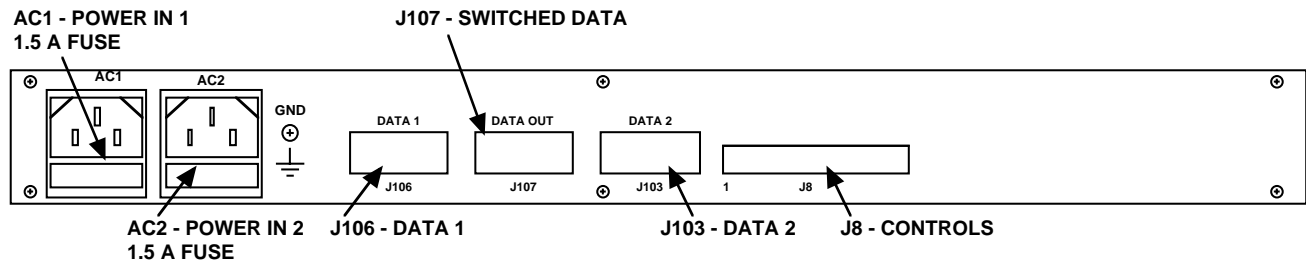


FIGURE 2.0 1582-03 REAR PANEL

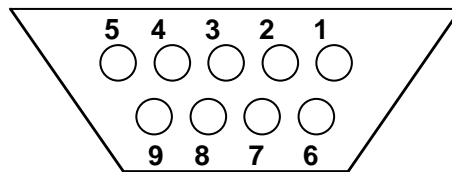


FIGURE 2.1 DB9 PIN OUTS

TABLE 2.0 INPUT / OUTPUT CONNECTORS

J103, J106, J107 - DATA CONNECTORS (FIGURE 2.1)

<u>Function</u>	<u>Pin #</u>	<u>Description</u>
DATA	2	RS232C Levels
GROUND	5	Ground
NOT CONNECTED	1,3,4,6,7,9	Not connected

J8 - MONITORS AND CONTROLS CONNECTOR (FIGURE 2.0)

<u>Function</u>	<u>Pin #</u>	<u>Description</u>
ALARM 1 IN	13	Ground or Open (selectable by JP102) gives Ch 1 alarm
ALARM 2 IN	14	Ground or Open (selectable by JP102) gives Ch 2 alarm
REMOTE 1 IN	1	When in Auto, momentary ground on this pin selects Ch 1
REMOTE 2 IN	2	When in Auto, momentary ground on this pin selects Ch 2
REMOTE RESET IN	4	When in LATCH mode, ground resets switch to Ch 1, resets Remote to Auto
REMOTE INDICATION	15	*Open collector output (< 5Ω) to gnd when in REMOTE mode.
MANUAL INDICATION	8	*Open collector output (< 5Ω) to gnd when in MANUAL mode.
SWITCH 1 MON	11	**Relay closure to J8 pin 6 (<5Ω) when selected data is channel 1 data..
SWITCH 2 MON	12	**Relay closure to J8 pin 6 (<5Ω) when selected data is channel 2 data.
SWITCH MON COMMON	6	Common pin for SWITCH 1, 2 MONITOR
DATA ALARM	9	*Open collector (< 5Ω) to gnd when data on CH1 or CH2 is lost
DATA CH1 ALARM	5	*Open collector (< 5Ω) to gnd when data on CH1 is lost
DATA CH2 ALARM	10	*Open collector (< 5Ω) to gnd when data on CH2 is lost
GROUND	3,7	Ground
		*Max voltage able to be connected to this is +20 VDC @ 30ma
		**Max voltage to be connected to this is +30 VDC@ 100 ma

AC1, AC2 - POWER IN - Provides AC inputs for dual power supplies.

2.2 Controls and Indicators

The following are the controls and indicators.

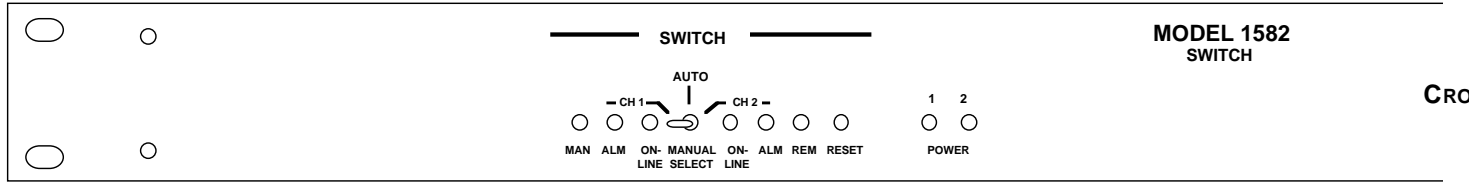


FIGURE 2.2 1582-03 CONTROLS AND INDICATORS

TABLE 2.1 FRONT PANEL CONTROLS AND INDICATORS

<u>Item</u>	<u>Description</u>
CH1 ON-LINE LED	Turns green when Channel 1 is selected
CH2 ON-LINE LED	Turns green when Channel 2 is selected
MANUAL LED	Turns red when the Manual Select switch manually selects channel 1 or 2.
ALARM CH1 LED	Turns red when Channel 1 data times out or on external alarm input
ALARM CH2 LED	Turns red when Channel 2 data times out or on external alarm input
REMOTE LED	Turns amber when REMOTE control is active
MANUAL SELECT	3-position switch as follows: LEFT - manually select Channel 1 center - Auto - switch position determined by alarm and Remote closures RIGHT - manually select Channel 2 If operating in the ICS mode, the last channel manually selected (CH1 or CH2) will be the initial channel when Manual Switch is returned to Auto if both channel alarms are clear or both channels are in alarm.
SWITCH RESET	Resets switch to CH1 if it is good and switch is in the latch mode, Also resets Remote selection to normal AUTO operation
POWER 1 LED	Turns green when power is applied to AC1 input on the rear panel
POWER 2 LED	Turns green when power is applied to AC2 input on the rear panel

2.3 Mechanical

The 1582-03 is housed in a 1RU (1-3/4"H x 19"W x 12"D) rack mountable chassis. The unit is rack mounted by attaching the front panel to a rack through the four holes at the edges of the panel.

2.4 Time Out Alarm

The length of time after data is removed before a loss of data alarm is indicated can be factory set from 1 to 9 minutes in 1 minute increments.

2.5 Installation/Operation

1. Install the 1582-03 in the equipment rack.
 - 1.1. Elevated operating ambient - If installed in a closed or multi-unit rack assembly, the operating ambient of the rack may be greater than the room ambient. Therefore, considerations should be given to the Tmra.
 - 1.2. Reduced air flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
 - 1.3. Mechanical loading - Mounting of equipment in a rack should be such that a hazardous condition is not achieved due to uneven loading.
 - 1.4. Circuit overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be given supply connections.
 - 1.5. Reliable earthing - Reliable earthing of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connection to the Branch (use of power strips).
2. Connect data to the DB-9 DATA connectors (J106, 107, 103).
3. Connect to signals on the MONITORS AND CONTROLS connector, J8, as desired (see Figure 2.0, Table 2.0)
4. Connect power via two power cords
5. Manually switch between channels 1 and 2 and be sure switching occurs
6. Switch to Auto. Alarm channel 1 and note that automatic switching occurs. Remove alarm to channel 1 and note that the output switches as desired. Push RESET if in LATCH mode. Repeat for Channel 2.
7. Check that Ch 1 and Ch 2 are selected when in Auto and momentary ground is applied to J8 pins 1 and 2. Momentarily ground remote Reset pin 4 on J8 to return to Auto operation.