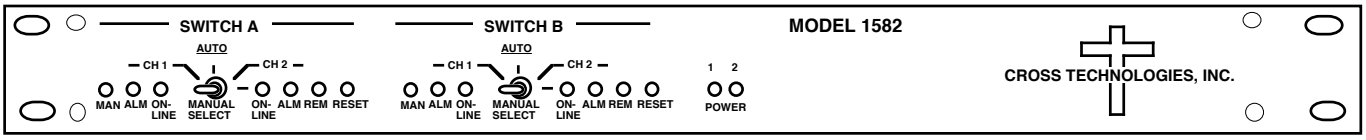
# Instruction Manual

# Model 1582-03
## Data Switch

**April 2009 Rev C**






When ordering parts from Cross Technologies, Inc., be sure to include the equipment model number, equipment serial number, and a description of the part.

**CROSS TECHNOLOGIES, INC.**

6170 Shiloh Road
Alpharetta, Georgia 30005

(770) 886-8005
FAX (770) 886-7964
Toll Free 888-900-5588

WEB www.crosstechnologies.com
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# INSTRUCTION MANUAL

## MODEL 1582-03 Data Switch

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# MODEL 1582-03 Data Switch

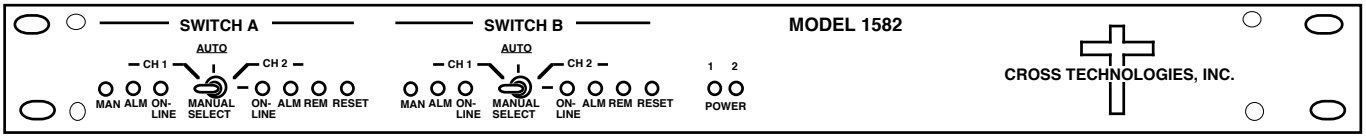
## 1.0 General

### 1.1 Equipment Description

The 1582-03 Data Switch provides Auto, Manual, or Remote relay switching between CH1 and CH2 RS232C data signals on pins 2 or 3, selectable, with pin 5 ground and the other pins of the DB9 connectors not connected. Alarm conditions are either if data is lost for a preset 1 to 9 minutes on CH1, CH2 or with external alarm contact closures. The 1582-04 has two switches in one chassis. Switching logic can be jumper selected as follows:

1. CH1 Prime Mode - Switches from CH1 to the CH2 only if CH1 alarms and CH2 is good. Switches back when CH1 no longer in alarm or both CH1 and CH2 are bad.
2. Latch to CH2 Mode - Latches to CH2 if CH1 alarms and CH2 is good. Return to CH1 only when Manual Reset switch 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 other channel is clear.

If power is lost or first applied (as alarms at power up dictate), CH1 is selected. The Manual Select switch and (when in AUTO) contact closures to Remote Select pins, select CH1 or CH2 independent of alarms. LEDs and closures indicate alarms and switch selection of CH1 or CH2 and REMOTE or MANUAL operation. Redundant power supplies.




**FRONT PANEL**

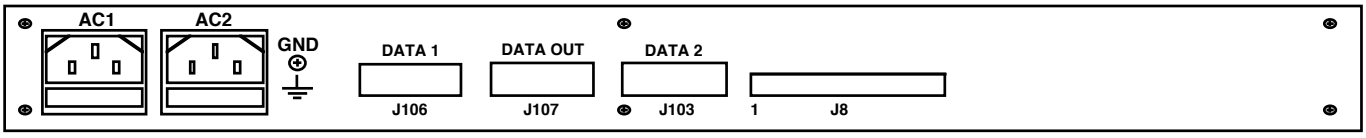
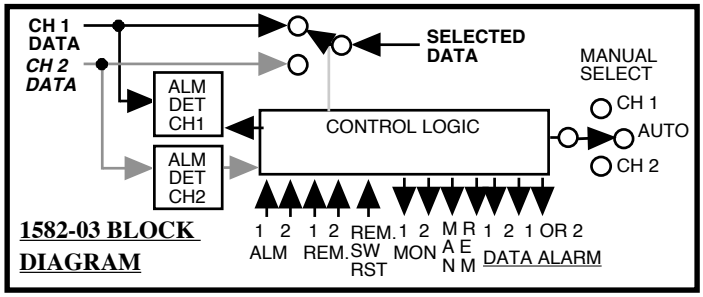



**FIGURE 1.1 Model 1582-03 Front and Rear Panels**



## 1.2 Technical Specifications

**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 REMOTE by | Resets switch to CH1 if it is good and switch is in the latch mode, Also Resets 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;100-240 ±10% VAC, 47 - 60Hz, 2A max |

*Specifications subject to change without notice

## 2.0 Installation

### 2.1 Input/Output Connectors

The following are the input and output connectors.

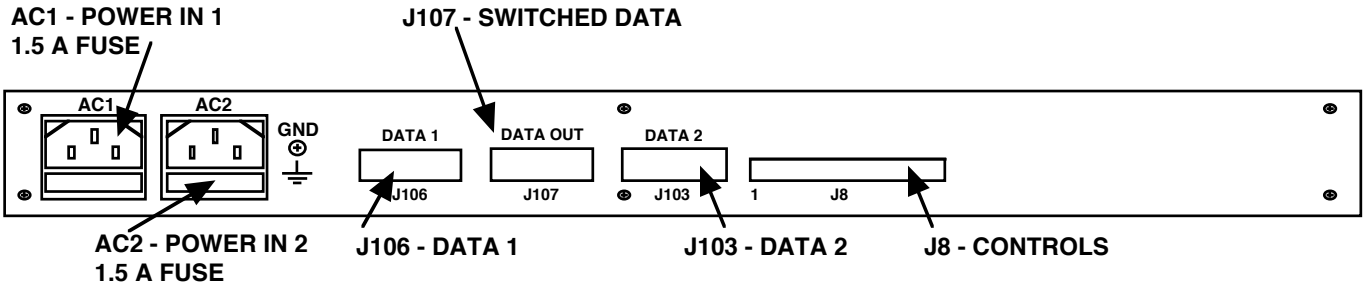



**FIGURE 2.0 1582-03 REAR PANEL**

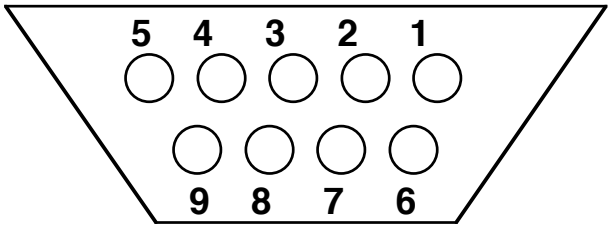



**FIGURE 2.1 DB9 PIN OUTS**

## TABLE 2.0 INPUT / OUTPUT CONNECTORS

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

| Function | Pin # | Description |
|---|---|---|
| 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)

| Function | Pin # | Description |
|---|---|---|
| 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 | *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 |

**C1, AC2 - POWER IN** - Provides AC inputs for dual power supplies.

## 2.2 Controls and Indicators

The following are the controls and indicators.

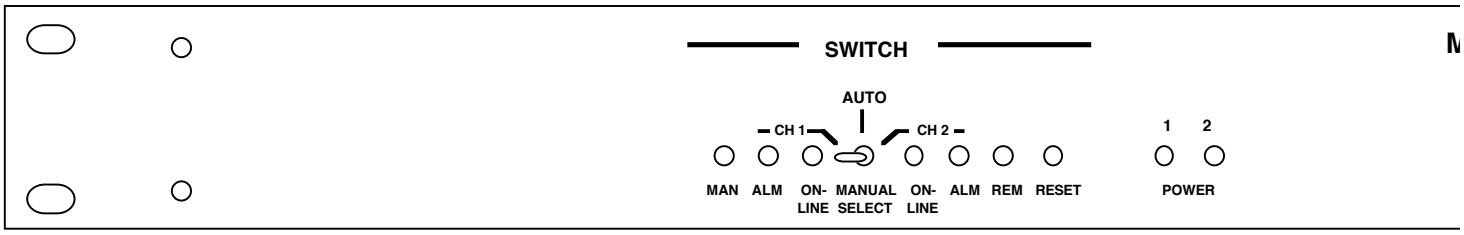



**FIGURE 2.2 1582-03 CONTROLS AND INDICATORS**

**TABLE 2.1 FRONT PANEL CONTROLS AND INDICATORS**

| Item | Description |
|---|---|
| **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:<br>LEFT - manually select Channel 1<br>center - Auto - switch position determined by alarm and Remote closures<br>RIGHT - manually select Channel 2<br>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,<br>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. Thereofre, 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 b e given to the connection of the equipment to the supply circuit and the effect that overloading of cicuits 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 euipment 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.
    4.1. AC Fuse - The fuse is a 5 mm X 20 mm, 2 amp slow blow (Type T) and is inserted in the far slot in the drawer below the AC input as shown in Figure 2.3. There is a spare fuse in the near slot. If a fuse continues to open, the power supply is most likely defective.

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.

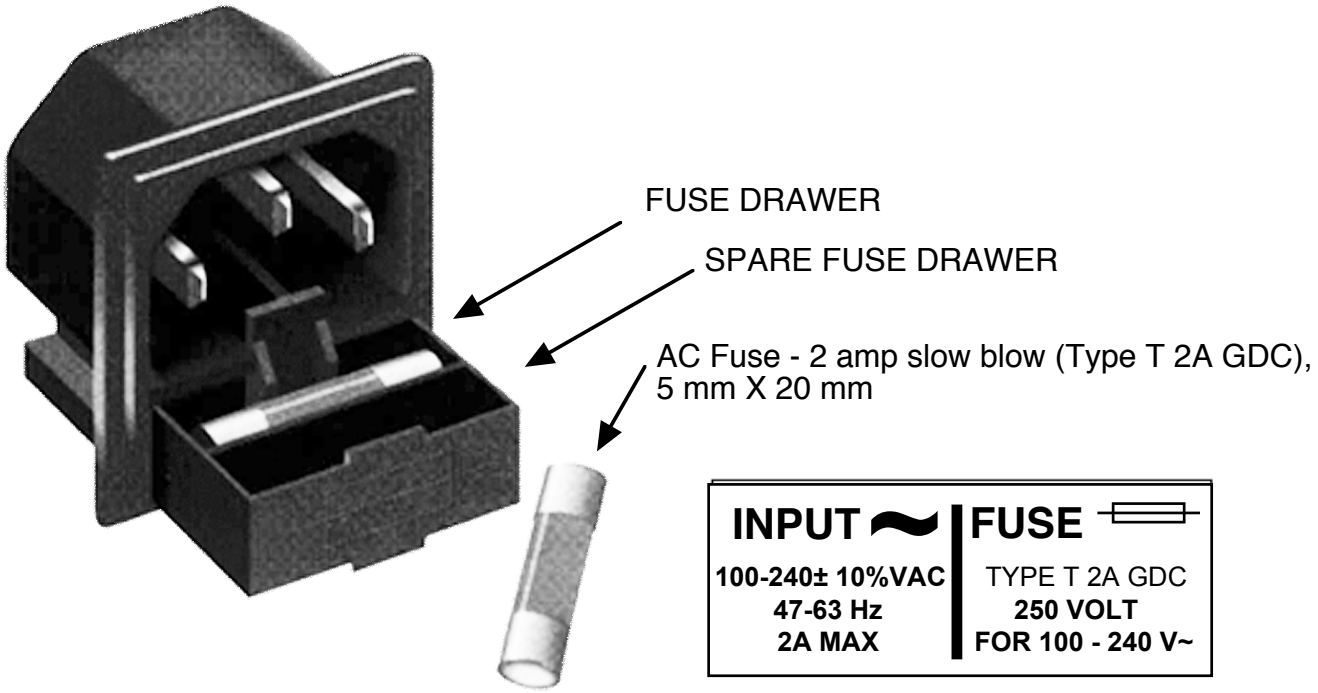



**FIGURE 2.3 AC INPUTS AND FUSES**

## 2.6 Environmental Use Information

**A**. **Rack-Mounting** - To mount this equipment in a rack, please refer to the installation instructions located in the user manual furnished by the manufacturer of your equipment rack.

**B. Mechanical loading** - Mounting of equipment in a rack should be such that a hazardous condition does not exist due to uneven weight distribution.

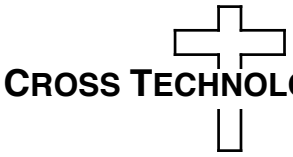
**C**. **Elevated operating ambient temperature** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack may be greater than room ambient temperature. Therefore, consideration should be given to Tmra.

**D. 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. Additional space between unit may be required.

**E. 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 over current protection and supply wiring. Appropriate consideration of equipment name plate rating should be used, when addressing this concern.

**F. 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).

**G. Top Cover** - There are no serviceable parts inside the product so, the Top Cover should not be removed. If the Top Cover is removed the ground strap and associated screw MUST BE REINSTALLED prior to Top Cover screw replacement. FAILURE TO DO this may cause INGRESS and/or EGRESS emission problems.



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