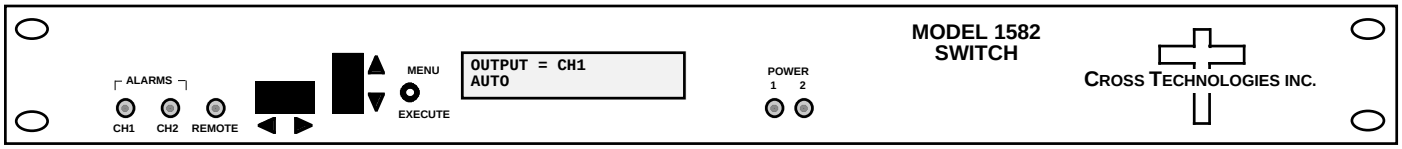
Instruction Manual

Model 1582-10M
Protection Switch

January 2009 Rev O



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INSTRUCTION MANUAL

MODEL 1582-10M PROTECTION SWITCH

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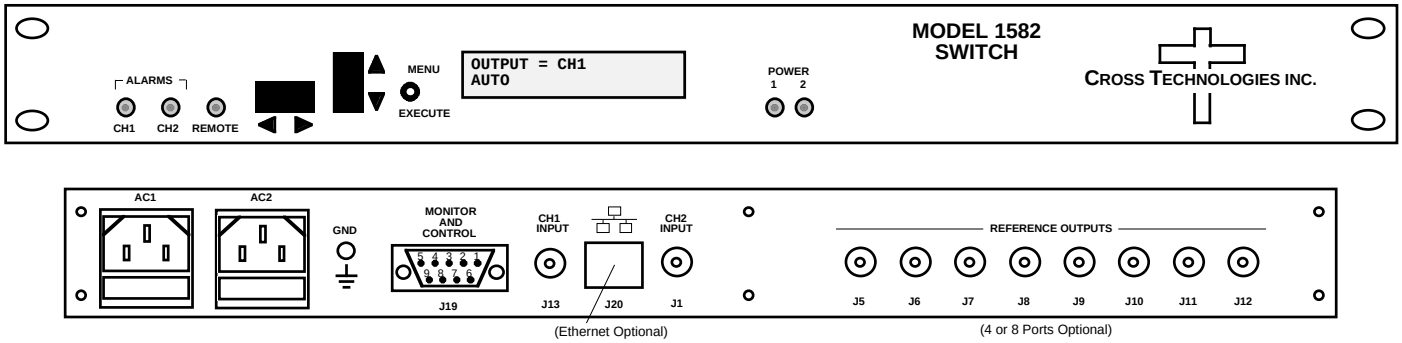
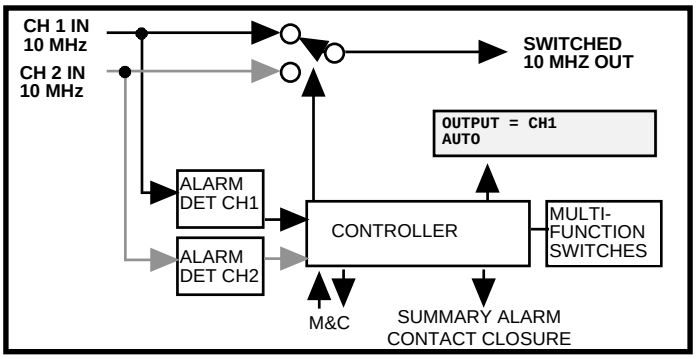
MODEL 1582-10M Protection Switch

1.0 General

1.1 Equipment Description - The 1582-10M 1:1 Switch, 10 MHz provides Auto, Manual or Remote relay switching between CH1 and CH2, 10 MHz signals. Alarm conditions on CH1 and CH2 are a level drop below -6 dBm of the 10 MHz signal. The 1582-10M switches from CH1 to CH2 only if CH1 alarms and CH2 is good. The unit switches back when CH1 is no longer in alarm or both CH1 and CH2 are bad. When power is lost and when power is applied (as alarms at power up dictate), CH1 is selected. Front panel LEDs indicate CH1 and CH2 alarms, Remote mode (yellow), and redundant power supplies on (green). Multi-function push button switches select Auto, Local, or Remote operation and the signal path in the Manual mode. Remote operation via the RS232/RS485 M&C interface allows selection of CH1 or CH2 and indicates switch position and alarm status. A contact closure to ground indicates if either or both CH1, CH2 are in alarm. An LCD display shows Auto, Local or Remote operation and the signal path. Connectors are BNC, female for the 10 MHz signals and DB9 for M&C and for the alarm contact closure output. The 1582-10M is a 1RU chassis with redundant power supplies fed by separate fused 100-240 ±10% VAC AC input connectors.



1582-10M FRONT AND REAR PANEL



1582-10M BLOCK DIAGRAM

1.2 Technical Specifications

1582-10M Technical Specifications

Switch Characteristics

Impedance	75 ohms
Type	Non-latching Relay
Isolation	>50 dB DC to 10 MHz
Switch level/time	≤-6±1dB / ≤100 milliseconds
Insertion Loss	≤1 dB
Configuration	SPDT

Alarm and Control, M&C

Alarm output signal	Form C relay: 30VDC, 0.5A max
M & C Interface	RS232C or RS485, selectable, (Ethernet Optional)
M & C Signal	38.4 kB baud rate

Controls, Indicators

Mode Select	Local/Remote, Auto/Manual - push-button switches, contact closures, or remote selection
Power On Status	Green LEDs, (PS1, PS2),
Remote Select Status	Yellow LED, M&C serial
Manual Select Status	M&C serial
Alarm Status	Red LEDs , External Form C contact closure, M&C serial

Connectors, Other

Ext. Alarm, M&C Conn.	DB9 (female)
10 MHz In/Out	BNC, female, 75 ohm
Size	1 RU, 19 inch standard chassis 1.75” high X 16.0” deep
Power	Redundant 100 - 240 ±10% VAC, 47 - 63 Hz, 20 W max. power supplies

Options

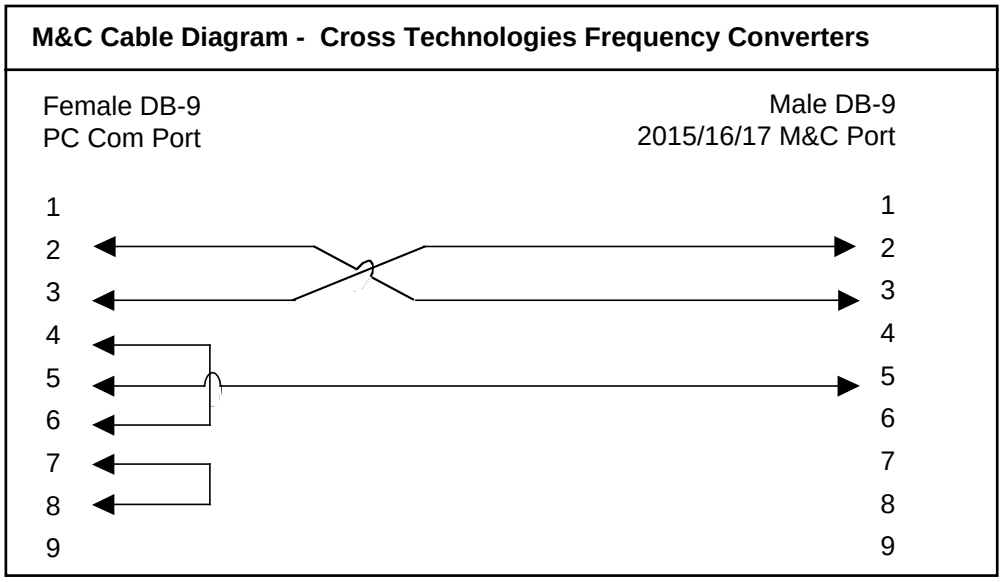
- 4	4 - 75Ω outputs
- 8	8 - 75Ω outputs
- W8	Ethernet M&C

*Specifications subject to change without notice

1.3 Monitor and Control Interface

A) Remote serial interface

Protocol: RS-232C, 9600 baud rate, no parity, 8 data bits, 1 start bit, and 1 stop bit.
(RS-232C, RS-422, or **RS-485 - option -Q**)



Connector: Rear panel, DB-9 female

J10 Pinouts (RS-232C/422/485)	
Pin	**Function**
1	Rx-
2	Rx+ (RS-232C)
3	Tx+ (RS-232C)
4	Tx-
5	GND
6	Alarm Relay: Common
7	Alarm Relay: Normally Open
8	Not Used
9	Alarm Relay: Normally Closed

1.4 M&C Commands

The following tables summarize the commands and status queries applicable to the 1582-10M Protection Switch.

* **PLEASE NOTE:** The two character {aa} prefix, shown in the table below, is present ONLY when RS485 is selected.

Table 2.0 Model 1582-10M - M&C Remote Commands

Table 2.0: Model 1582-10M	**M&C Remote Commands**	
Commands	**Syntax**	**Description**
Remote Select	{aaCRx}	where:
		x = 0: clears remote selections
		x = 1: remote select CH1
		x = 2: remote select CH2
In Auto Switching Mode	{aaCMx}	where:
		x = 0: disables min. auto switching mode
		x = 1: enables min. auto switching mode

1.5 M&C Queries

Table 2.1 Model 1582-10M - M&C Status Commands

Table 2.1: Model 1582-10M	**M&C Status Commands**	
Commands	**Syntax**	**Description**
Model # and firmware version	{aaSV}	returns: {aaSV 1582-10M v 400} model # & firmware version
Remote Select Status	{aaSR}	returns: {aaSAx} where:
		X = 0 if no remote selections
		X = 1 if CH1 is remotely selected
		X = 2 if CH2 is remotely selected
In Auto Switching Mode Status	{aaSM}	returns: {aaSMx} where:
		X = 0 if min. auto switching is disabled
		X = 1 if min. auto switching is enabled

Continued on page 7 ...

Table 2.2 Model 1582-10M - M&C Status Commands - Continued

Table 2.1: Model 1582-10M M&C Status Commands - Continued		
Status Commands	**Syntax**	**Description**
Alarms Status	{aaSA}	returns: {aaSAxy} where:
		X = 0 if CH1 is not alarmed
		X = 1 if CH1 is alarmed
		y = 0 if CH2 is not alarmed
		y = 1 if CH2 is alarmed
Switch Position	{aaSP}	returns: {aaSPxy} where:
		X = 1 if CH1 is selected
		X = 2 if CH2 is selected
		y = 0 if switch mode is Auto
		y = 1 if switch mode is Remote
		y = 2 if switch mode is Manual

2.0 Installation

2.1 Mechanical - The 1582-10M is rack mounted by attaching the front panel to a rack through the four holes at the edges of the panel.

2.2 Front and Rear Panel Controls and Indicators - The following are the front and rear panel controls and indicators.

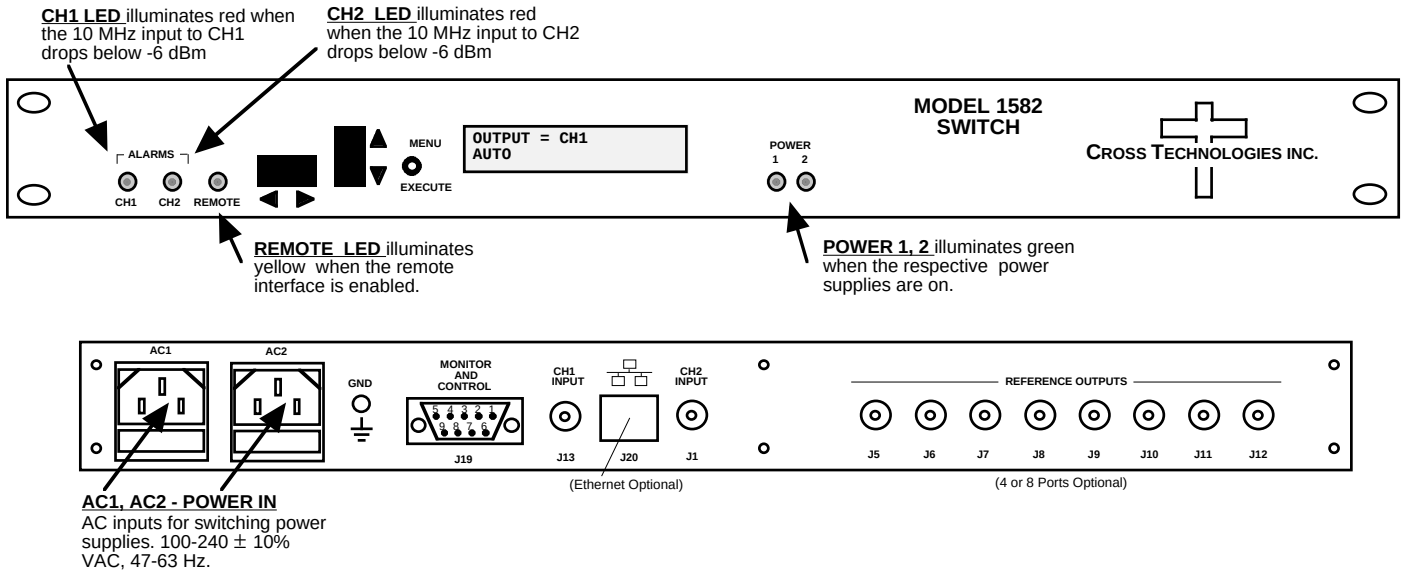


FIGURE 2.3 1582-10M Front AND REAR Panel Controls and Indicators

2.3 Installation / Operation

2.3.1 Installing and Operating the 1582-10M, Protection Switch Section

1. Connect primary 10 MHz signal to CH1 In/out, J13
2. Connect backup 10 MHz signal to CH2 In/out, J1
3. Connect selected 10 MHz output, J5, to external equipment.
4. Connect primary 100-240 ±10% VAC, 47 - 63 Hz to AC1 on the back panel.
5. Connect secondary 100-240 ±10% VAC, 47 - 63 Hz to AC2 on the back panel.
6. Set the gain for -10 to +30 dB. Make sure the output stays within -20 to 0 dBm with the gain selected
7. 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.
   NOTE: If a fuse continues to open, the power supply is most likely defective.

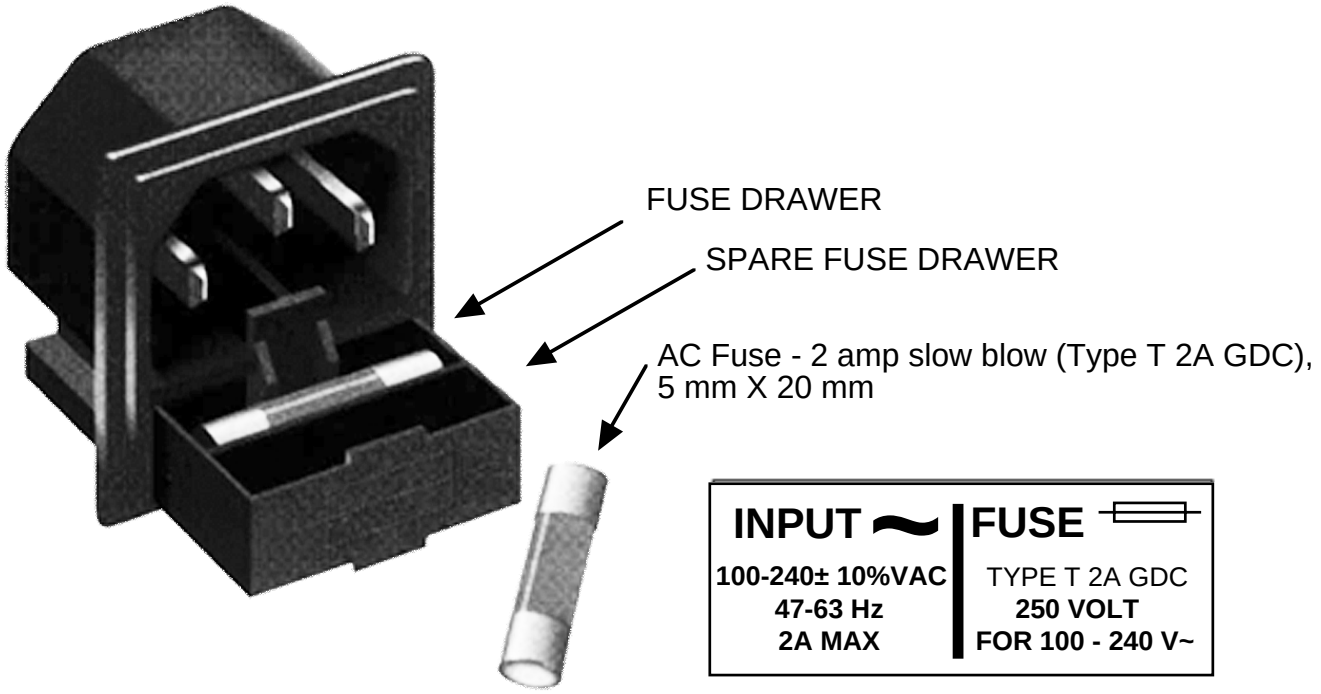


FIGURE 2.4 Fuse Location and Spare Fuse

2.4 Menu Settings

2.4.1 Functions

This section describes operation of the front panel controls. There are three operator switches, the LCD display and alarm indicator LEDs. All functions for the equipment are controlled by these components. The functions are (see Figure 2.3):

Power Up
Normal Display

Menu 1 Manual Select
Menu 2 Remote Enable
Menu 3 Interface
Menu 4 RS-485 Address
Menu 5 Minimum Auto Switching

Save Menu When "R" is selected in any above menu, or when the end is reached (after Menu 11)

All program changes must start with the operation of the Menu/Execute switch and must also end with the operation of the Menu/Execute switch verified by the "Save Settings?" Menu. If this sequence is not followed, none of the changes will take effect. If programming is initiated and no operator action takes place for approximately 12 seconds (before the final press of the Menu/Execute switch) the display will revert to its previous status and you will need to start over.

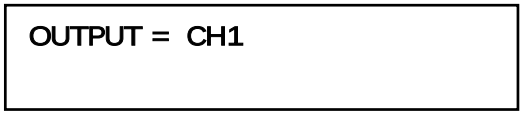
2.5 Power On Settings

NOTE: THE LAST STATUS OF A UNIT IS RETAINED EVEN WHEN POWER IS REMOVED. WHEN POWER IS RESTORED, THE UNIT WILL RETURN TO IT'S PREVIOUS SETTINGS.

When power is first applied, the LCD display goes through three steps.

1. The LCD goes black to show all segments are functioning.
2. The software version will be displayed.

3. The selected output of the switch is displayed.



The unit is now operational and ready for any changes the operator may desire.

2.5.1 Control Switches

1. Menu/Execute - Any change to the programming of the unit must be initiated by pressing the Menu/Execute switch and completed by pressing the Menu/Execute switch.
2. Horizontal Switch - This switch is mounted so its movement is horizontal and moves the cursor left or right.
3. Vertical Switch - This switch is mounted so its movement is vertical and has two functions:
   a. During frequency , gain changes, the vertical movement will raise or lower the number in the direction of the arrows.
   b. For other functions such Mute on/off, the vertical switch will alternately turn the function on or off regardless of the direction operated.

2.5.2 Minimum Auto Switching

When minimum auto switching is enabled the switch will remain in its presently selected position unless the selected channel alarms AND the other channel is not alarmed. This mode may be desirable in situations where one of the channels is frequently coming in and out of alarm.

2.5.3 Alarm Indications

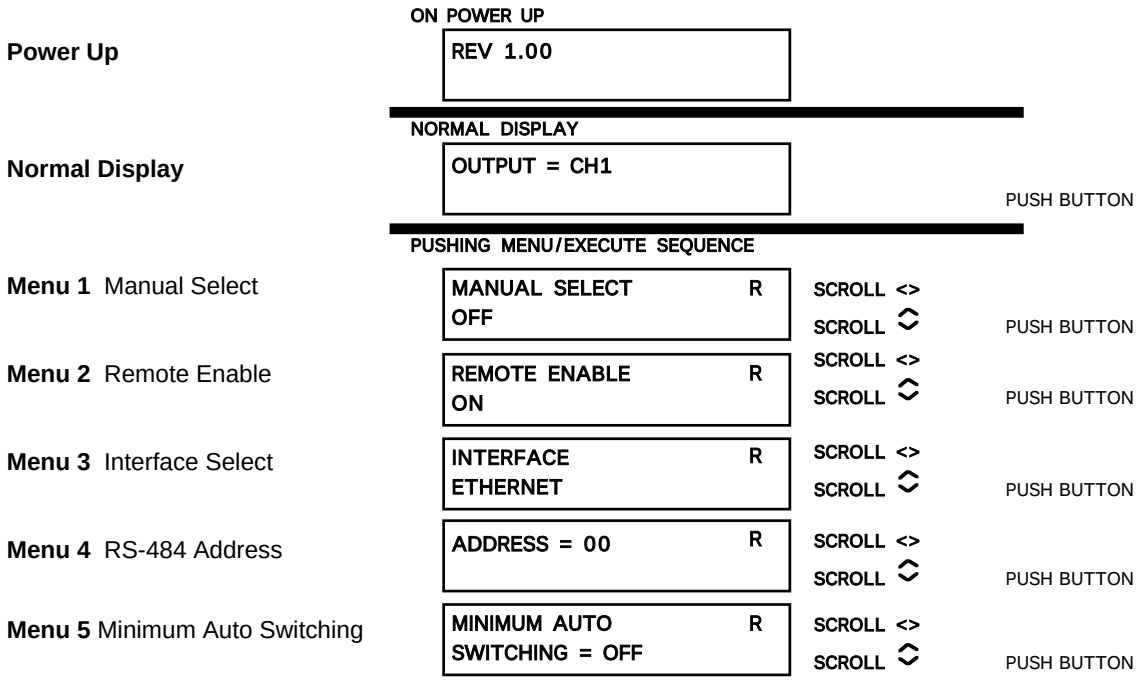


FIGURE 2.5 Menu Display and Sequences

2.6 Use Information

A. **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.

B. **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.

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

D. **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.

E. **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).

F. **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 RE-INSTALLED prior to Top Cover screw replacement. FAILURE TO DO this may cause INGRESS and/or EGRESS emission problems.

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