

## Description

The Sine Systems model SIP-8 Status Input Panel is to be used with the RFC-1/B Remote Facilities Controller. It consists of a long PC board mounted on a 1.75 inch (1U) rack panel. The SIP-8 connects to the RFC-1/B and any existing RP-8 Relay Panels via a 16 conductor flat cable. The cable is supplied with the RFC-1/B.

The RP-8 Relay Panel package contains these items:

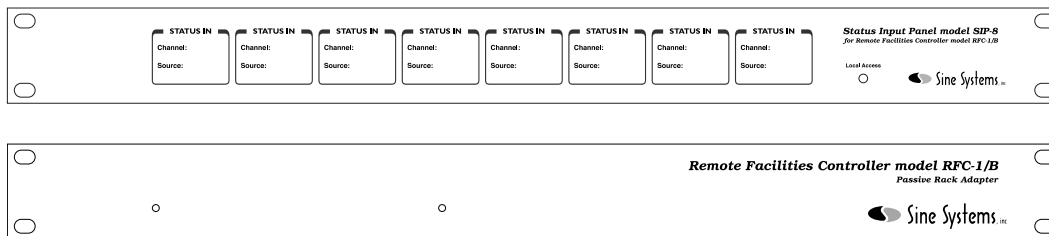
- 8 Channel Status Input Panel model SIP-8
- connector for flat cable
- documentation

The flat cable connector attaches to the existing flat cable. A new cable is not included and is typically not needed.

While the names are similar, do not confuse the SIP-8 Status Input Panel with the SP-8 Surge Protector--they are not interchangeable. The SIP-8 provides an RFC-1/B system with eight status-only inputs. The SIP-8 can be used in addition to (or in place of in some instances) the RP-8 Relay Panel. The SP-8 is an accessory board that mounts on top of an RP-8 Relay Panel and provides surge suppression on the telephone line and telemetry inputs.

## Installation

The RFC-1, RP-8 and SIP-8 are designed to be mounted in a standard 19 inch equipment rack. The system generates little heat and can be mounted in any convenient location. The SIP-8 panel(s) should be mounted at a location that is convenient to the sources that will be connected to it.



The cable included with the RFC-1/B system has one connector at each end. If this is a new installation with only a single SIP-8 status panel, attach the flat cable to the RFC-1/B at one end and the SIP-8 at the other.

If the SIP-8 Relay Panel is being added to an existing RFC-1/B system, an additional connector must be added to the existing flat cable so that the additional panel can operate in the system. Details for installing the new cable connector are provided below.

## Flat Cable Connection

Most system I/O occurs through the 16 conductor flat cable that connects the RFC-1/B, RP-8 and SIP-8. Each I/O panel requires a connection on this cable. There is only one cable. Connectors are added to it as needed.

### Adding a Flat Cable Connector

Care must be taken when installing an additional connector on the flat cable. The connector cannot be removed easily after it is attached. A large pair of pliers or a small vice will be needed to attach the connector.



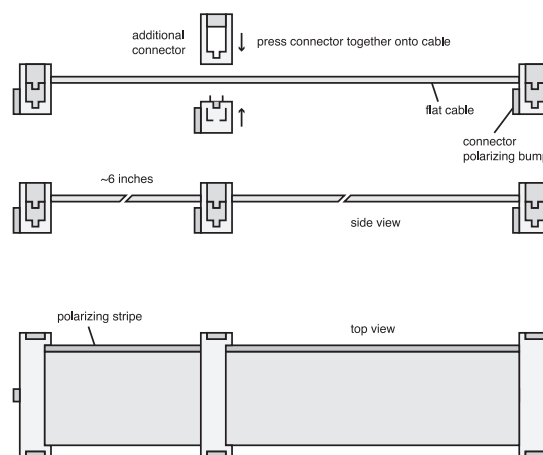
**WARNING!**

Note the proper orientation of the new connector on the cable before attaching it. Match the polarizing features of the new connector to those of the connectors that are already installed. All connectors should face the same direction. The red polarizing stripe on the flat cable will be on the same side of all connectors when the cable is attached to the devices.

To attach a connector on the flat cable:

- 1) Determine proper orientation of the connector on the flat cable
- 2) Separate the two parts of the connector and place them over the flat cable at the appropriate location
- 3) Verify position and orientation of the connector on the cable
- 4) Press the two parts of the connector together so that the metal spikes pierce the insulation of the cable

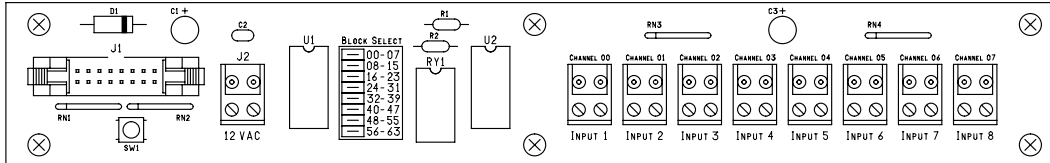
Allow at least 6 inches between connectors so that there is enough cable to mount the relay panels in the rack. The connectors can be further apart if necessary.



Ensure that the connector is aligned directly across the cable. If the connector is at an angle, the metal teeth on the connector may penetrate the cable insulation at the wrong points and short the conductors or miss them entirely.

## Electrical Connections

All connections to the SIP-8 are made through pluggable connectors for easy removal during installation and service. All connections are made from the back of the device once installed in the rack.



## Power Connection

Each SIP-8 has an input connector labeled 12 VAC to supply system power. The power supply can be connected to any RP-8 or SIP-8 to power the system. *Power only needs to be applied to one RP-8 for the entire system.*

## Status Input Connections

The SIP-8 provides the RFC-1/B with the ability to sense dry switch or relay contacts without the need for an external voltage source. The external switch contacts need to be rated for at least 12 VDC. Current draw through the contacts is typically about 10 mA. Each status input has a 4.7K Ohm pull-up resistor.

Connections to the SIP-8 are made through two-conductor screw terminal connectors. The screw terminal connectors can be removed for easier installation. Grasp the connector firmly and pull it away from the panel; there are no locks or catches. The connector can be plugged onto the terminal posts in several directions: flush or vertical with cable exit up or down. Choose the position that is most convenient.

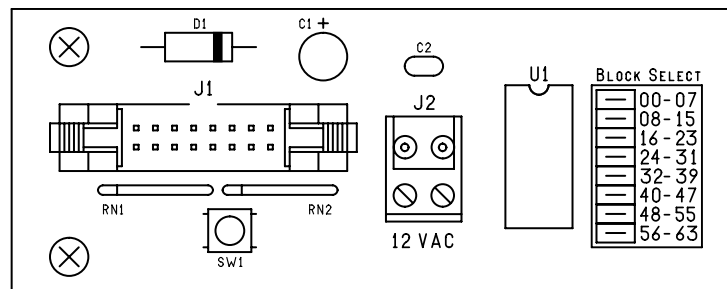
When connecting dry contacts from a switch or relay, status inputs are not polarized. Common and normally open or normally closed connections can be connected to either of the two terminals. Voltage will be switched into the telemetry circuit when the switch or relay of the external device is closed (on).

### Setup

Complete installation and setup instructions can be found in the *Installation and Operation* manual for the RFC-1/B Remote facilities controller. This documentation contains information for adding the SIP-8 to an existing system.

### Channel Block Selection

Like the RP-8, each SIP-8 responds to a specific range of channel numbers. Channels are distributed in blocks of eight channels by the RFC-1/B. A jumper on the SIP-8 labeled “Block Select” determines which block of channels an SIP-8 recognizes.



Place the jumper on the pair of pins next to the appropriate range of channel numbers for each SIP-8. Ensure that each RP-8 and SIP-8 in a system is set to a different block (range of channels). Blocks are usually used continuously from channel 00 up but a block of channels may be skipped if necessary.

### Programming

Complete operating instructions can be found in the *Installation and Operation* manual for the RFC-1/B Remote Facilities Controller.

The default telemetry channel programming is sufficient in most cases. A channel can respond as both an analog and a status channel in the default settings. The telemetry sample provided by the SIP-8 is large enough to force a channel to respond with status indications. When using the SIP-8 and the default telemetry settings, a channel will deliver the reading “status off” when the switch or relay is open and “status on” when the switch or relay is closed.

It is possible to program status indications other than “status off” and “status on”. A table of status options is in the RFC-1/B *Installation and Operation* manual in the telemetry channel programming instructions. More programming information including step-by-step instructions can also be found at our web site <http://www.sinesystems.com>.

### **Programming Example**

Note: For this example to be useful, users should be familiar with the RFC-1/B programming mode. Users who are unfamiliar with programming mode should refer to the RFC-1/B *Installation and Operation* manual.

In this example we will program Channel 01 to respond as a status only channel with the message “off” when no voltage is present and “on” when sufficient voltage is present. Status channel settings are programmed in place of a unit word in the telemetry channel settings. The security code is assumed to be the factory default.

- Step 1 Enter the Advanced Programming Mode: 80  
2 Enter the Advanced Programming Security Code: 4150
- 3 Enter the starting address (from the Address Table) for Channel 00 telemetry units: 0004  
4 Find off/on in the Unit Word Exceptions--Status Table and get the values V1 and V2: V1=0, V2=6  
5 Enter V1 for the on/off status option: 0  
6 Press the # key to enter this value and increment to the next address in memory  
7 Enter V2 for the on/off status option: 6  
8 Press the # key to write this value and increment to the next address in memory
- 9 Press the \* key to exit the programming mode

Scale and decimal point are ignored on status channels--leave them at the factory settings.

Every channel can be set up independently. Change the starting address in the example above to the address appropriate for the channel you are programming.

### **Operation**

Complete operating instructions can be found in the *Installation and Operation* manual for the RFC-1/B Remote Facilities Controller. This documentation contains information for adding a status panel to an existing system.

#### **Local Access Button**

Each panel has a small button toward the right side labeled “Local Access”. Pressing this button will activate the RFC-1/B system through the local telephone port. Buttons on all relay panels and status panels operate exactly the same when multiple panels are used.

#### **Telemetry Calibration**

Unlike the RP-8 relay panel, there are no calibrations on the SIP-8. The SIP-8 senses dry switch or relay contacts with a preset voltage that does not require calibration.

**Component Layout**

