



**WARNING!**

*Only qualified technical personnel should attempt to install this device. An attempt to install this device by a person who is not technically qualified could result in a hazardous condition to the installer or other personnel, and/or damage to this device or other equipment. Please ensure that proper safety precautions have been made before installing or maintaining the DCA-2.*

## Description

The Sine Systems DCA-2 Telemetry Amplifier is typically used to increase the voltage of a telemetry sample when it is too small to generate an accurate reading with the RFC-1. The RFC-1 will give a full scale reading with as little as one volt applied at the telemetry input. The vast majority of broadcast equipment can generate an adequate sample voltage without assistance.

The DCA-2 uses a precision instrumentation amplifier to provide user-adjustable gain from 2 to 20. This enables the RFC-1 to generate a full scale reading for devices that provide a sample as small as .05 volt DC.

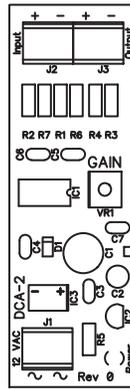


Figure 1; DCA-2 Telemetry Amplifier

The DCA-2 package consists of an amplifier board assembly with a small section of plastic mounting track and a set of installation instructions with engineering documentation.

Model DCA-2/PS is identical to model DCA-2 except that it includes a power supply. Consult the installation section of this documentation for detailed information on powering the DCA-2.

## Installation

*Before installing the DCA-2 Telemetry Amplifier, remove all electrical power to the RP-8 Relay Panel and RFC-1 Remote Facilities Controller. Disconnect the flat cable that connects the RFC-1 and RP-8. Power down or adjust the device to be monitored so that there is no voltage on the telemetry samples.*

*The connectors on the RP-8 and SP-8 may have exposed points. The points are sharp and may carry live signals. Be careful working around them to avoid shock and/or injury.*

### Mounting the DCA-2

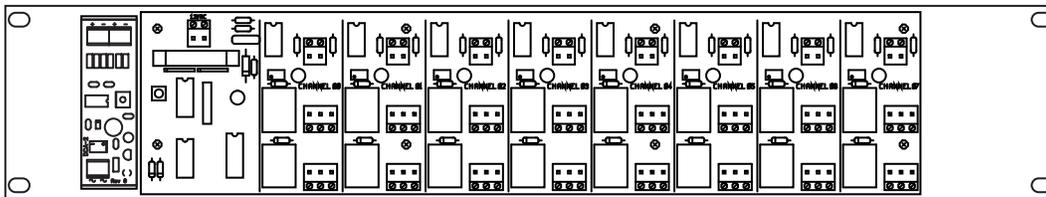
The DCA-2 is small enough to be mounted on the metal panel of the RP-8. It should fit at either end of the panel without interfering with the rack mounting flanges. The plastic snap track is backed with heavy-duty double-sided tape. If the rack design does not permit mounting in this fashion, the DCA-2 can be mounted in any convenient nearby location. Make the telemetry leads as short as possible and used shielded cable to reduce noise.

### Electrical Connections

The DCA-2 has connections for the input signal, output signal and power supply. Be sure to observe proper polarity on the telemetry input and output signals. The power connection is not polarity sensitive. The LED on the DCA-2 will illuminate when power is applied.

- Connect the OUTPUT + and - terminals to the selected telemetry input on the RP-8
- Connect the INPUT + and - terminals to the telemetry sample of the device to be monitored
- Connect the power supply at either the POWER terminals

The DCA-2 draws very little current so it can usually be powered from the RFC-1 supply. Simply connect a pair of wires from power connector on the RP-8 to the POWER terminals on the DCA-2. *Do not connect any other devices in this manner! System failure or erratic behavior may result.*



*Figure 2; DCA-2 mounted on left side of RP-8 panel*

There is no external low voltage supply when the RAK-1 Intelligent Rack Adapter is used. In this case the DCA-2 must be powered with an auxiliary power supply. A small 12-volt AC supply is available as an optional accessory for installations that require auxiliary power.

### Gain Adjustment

The DCA-2 amplifier gain is adjusted using a single-turn potentiometer labeled "GAIN". The gain can be adjusted from 2 to 20. The factory setting is 5 which is appropriate for telemetry inputs in the range 0.2 to 2.0 volts.

The RFC-1/B can generate a full-scale reading with as little as 1 volt DC. The maximum voltage that should be applied to a telemetry input is 10 volts DC. This is also the maximum safe output voltage of the DCA-2.

Be careful not to set the DCA-2 gain too high to avoid damaging the amplifier. Consider the *maximum* voltage that the input sample may have and be sure that the output voltage from that input does not exceed 10 volts.

$$\text{input voltage} \times \text{gain} = \text{output voltage}$$

Any noise that is present on the source will be amplified along with the DC voltage. Care should be taken to limit noise and RF interference on the telemetry sample. The DCA-2 provides bypass capacitors to filter the telemetry sample at the input of the amplifier. Keep cables as short as possible and use shielded cable when possible.

Schematic Diagram

