# DAS-TEMP

**32-Channel Temperature Measurement Board**

## Functional Description

The DAS-TEMP is a 32 channel temperature measurement board for the IBM PC/XT/AT and compatibles. The DAS-TEMP is an ideal system for making moderate range temperature measurements. A DAS-TEMP based system is typically more accurate than similar thermocouple based systems in the –25 °C to 105 °C range and costs less than RTD-based configurations.

| ORDER | DESCRIPTION |
|---|---|
| **DAS-TEMP** | 32-Channel Temperature Measurement Board with software on 3.5 inch disks |
| **OPTIONS** | |
| **STA-TEMP** | Screw Terminal Accessory Board |
| **C-1800** | DAS-TEMP to STA-TEMP Cable |
| **AC2628-C1** | 1 1⁄2 -Inch Long Temperature Probe |
| **AC2628-C6** | 6-Inch Long Temperature Probe |
| **AC2629-SS** | Compression Fitting |
| **MS-DAS-TEMP** | Additional Hardware and Software Manual |

The sensors used by the DAS-TEMP are two terminal current sources whose output current is directly proportional to absolute temperature. The sensors output 1µA/°Kelvin. The probes have a measurement range from –25°C to 105°C. The current output operating mode of these sensors make the system immune to wiring resistance variations and most noise sources. The sensors are encapsulated in steel tubes that are ¼″ diameter. The probes are available in two lengths 6″ and 1½″. A ¼″ compression fitting is also available. The sensors come with 3′ of #24 stranded Teflon coated wire.

### Software

DAS-TEMP provides three levels of software support:

- Pop-Up Control Panel for monitoring temperatures and logging data without programming.
- File I/O Driver for controlling the board from any software language via simple file read and write commands.
- Mode Call Driver for controlling the board via simple subroutine calls. These calls are much faster than those made using the File I/O Driver, but are somewhat more difficult to use.

The DAS-TEMP may be programmed to reject unwanted line frequencies under software control (50, 60, or 400 Hz rejection). The DAS-TEMP has a scan rate of 200, 30, or 25 samples/s.

See the Software Section beginning on page 295 for more information on any of these software packages.

### AC2628 Series Sensors

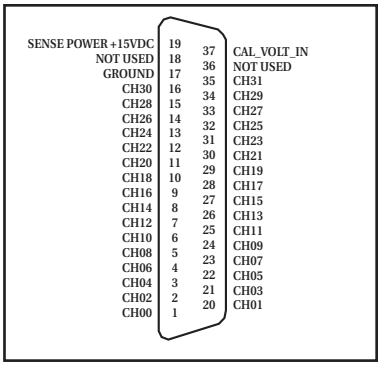
There are two temperature probes available for the DAS-TEMP board. These two probes are based on the industry standard AD592 semiconductor temperature sensor. The AC2628-C1 is a 1 ½ inches long, ¼ inch diameter stainless steel probe. The AC2628-C6 is similar, but is 6 inches long. Both probes provide 3 feet of teflon coated lead wire. (A compatible stainless steel compression fitting is available.) The standard sensors cover a range of –25 to 105°C with a maximum uncalibrated accuracy of 1.0°C. The standard AC2628 series have a nonlinearity of 0.35°C over their full temperature range (0.15°C over the 0–70°C range). The sensors have excellent long-term stability (0.1°C/month non-cumulative).

**FEATURES**

- **32 channels of temperature measurement**
- **Up to 200 samples per second**
- **–25°C to 105°C range**
- **Accepts industry standard semiconductor temperature sensors**
- **Current source sensors are extremely noise immune**
- **0.1°C minimum temperature resolution**
- **Easy-to-use software**

**APPLICATIONS**

- **Laboratory measurements**
- **Temperature-based alarm systems**
- **Energy management systems**
- **Environmental monitoring**
- **Process monitoring**




*Connector Pin Assignment*

## SPECIFICATIONS

For best performance, the conversion rate should be set at half the frequency of line power. The following table shows the resolutions and conversion speeds that work best for the three most common power frequencies.

| LINE FREQ | SAMPLES PER SEC | RESOLUTION IN °C |
|---|---|---|
| 60 Hz | 30 | 0.015 °C |
| 50 Hz | 25 | 0.0125 °C |
| 400 Hz | 200 | 0.1 °C |

## ACCURACY (BOARD ONLY)

**200/30/25 SAMPLES PER SECOND:** ±0.1 °C

## TOTAL SYSTEM ACCURACY (Total Board & Probe)

0 to 70 °C: ±0.8°C
**–25 TO 105 °C:** ±1.0°C
**LONG TERM DRIFT:** ±0.1°C per month
**REPEATABILITY:** ±0.1°C
**ABSOLUTE MAX TEMP RANGE OF PROBE:** –45 to 125°C

## POWER REQUIREMENTS

**+5V:** 600 mA max
**+12V:** 40 mA max

## DIMENSIONS

9.0 in L × 4.25 in H × 0.75 in D
(22.9 cm × 10.89 cm × 1.9 cm)



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