

**FEATURES**

- Linear current output 1  $\mu$  A/K
- Wide range -55°C to 150°C
- Two-terminal device: voltage in/ current out
- Laser trimmed to .5°C over full range (AD590K)
- Wide power supply range: +4V to 30V

**APPLICATIONS**

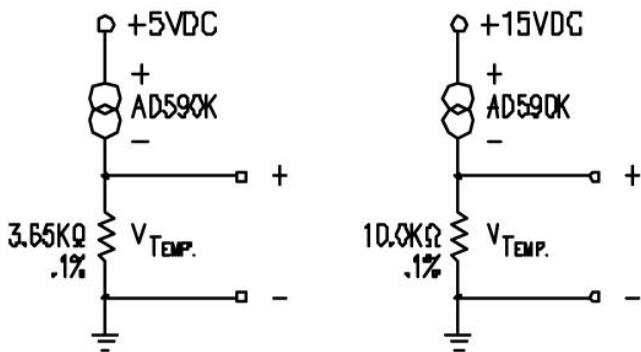
- Accurate temperature measurement and control
- OSA, hot/ chilled water temperature sensing

**DESCRIPTION**

The AD590 is a two-terminal integrated circuit temperature transducer which produces an output current proportional to absolute temperature. For supply voltages between +4V and +30V the device acts as a high impedance, constant current regulator passing 1 mA/K. Laser trimming of the chip's thin film resistors is used to calibrate the device to 298.2mA output at 298.2 Kelvin (+258°C).

The AD590 is particularly useful in remote sensing applications. The AD590 is insensitive to voltage drops over long lines due to its high impedance current output. Any well insulated shielded twisted pair is sufficient for operation hundreds of feet from the receiving circuitry.

**WIRING CONFIGURATION**



$V_{T @ 55^{\circ}F} = 1.0436V$   
 $V_{T @ 140^{\circ}F} = 1.21599V$

$V_{T @ 55^{\circ}F} = 2.8593V$   
 $V_{T @ 140^{\circ}F} = 3.3315V$

**AD590-DUCT PROBE**



**AD590-PIGTAIL LEADS (12" OR 96")**



**SPECIFICATIONS**

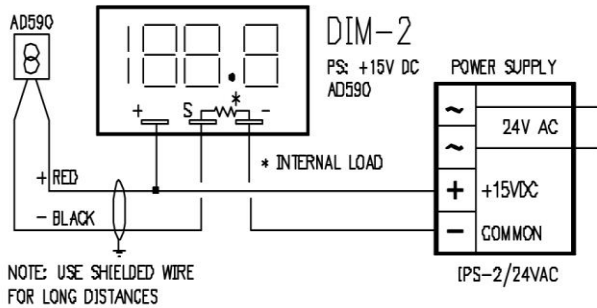
SIZE:	92 metal package with 12" wire pigtail leads
MOUNTING:	Duct probe or 3" well
POWER:	4 to 30VDC
OUTPUT SIGNALS:	1 $\mu$ A/K
LINEARITY:	$\pm 0.5^{\circ}C$ over -55°C to 150°C
ACCURACY:	$\pm 1^{\circ}C @ +25^{\circ}C$

**ORDERING INFORMATION**

- AD590-D** Temperature sensor with 8" duct probe
- AD590-P** Temperature sensor with 12" pig tails
- AD590-D** Temperature sensor with 96" duct probe

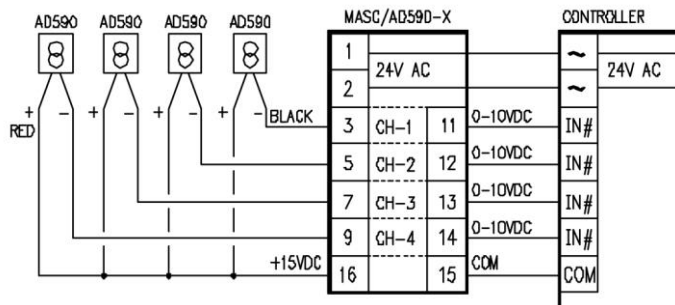
# ANALOG DEVCIE TEMPERATURE SENSOR AD590

## APPLICATION 1 AD590 TEMPERATURE INDICATION



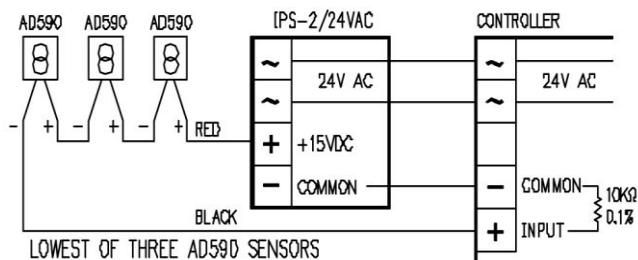
The AD590 sensor can be used in a standalone temperature INDICATION BY USING A +15VDC SUPPLY AND A DIM3 LCD display.

## APPLICATION 3 AD590 SIGNAL CONVERSION



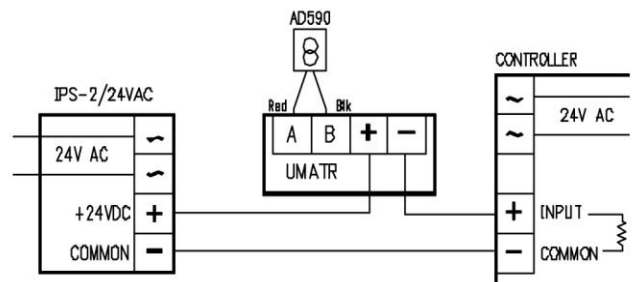
The MASC 4 channel signal converter permits the AD590 sensors to be used with any DDC Controller. Each channel can be customized for a variety of temperature ranges. The MASC provides the + 15VDC reference voltage and load resistors.

## APPLICATION 5 LOWEST OF 3 AD590 SENSORS



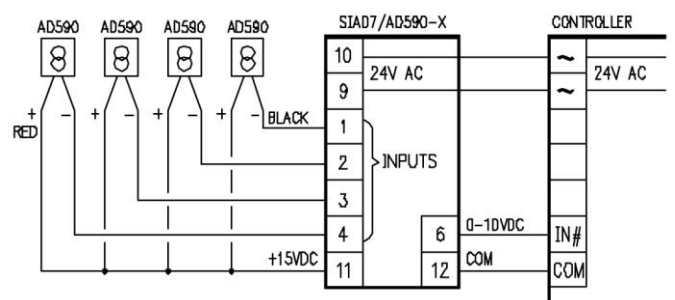
The AD590 sensor when connected in series will perform a lowest temperature selection. A +15VDC power supply is recommended and a load resistor of 10.0K Ohms with a 0.1% tolerance rating.

## APPLICATION 2 AD590 WITH LOOP TRANSMITTER



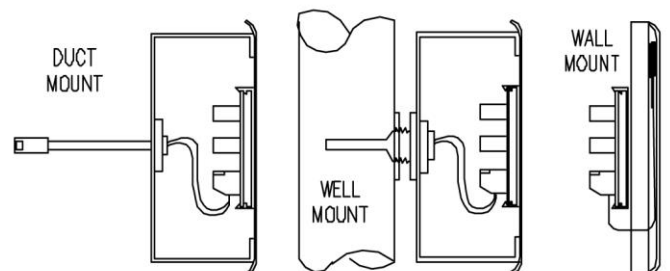
The AD590 sensor with a UMATR 4-20mA 2 wire loop transmitter, is used for long signal runs and in electrically noisy environments.

## APPLICATION 4 AD590 SIGNAL SELECTION



The SIA07 can be configured for up to five AD590 sensors and then select either the highest or lowest temperature, or average temperature. The SIA07 provides the + 15VDC reference voltage and load resistors for each sensor.

## APPLICATION 6 HOUSING FOR AD590 SENSOR



The AD590 sensor can be mounted in an 8" duct probe, 3 - 8" deep well, or in a Vandal Resistant Wall Mount (VRWM) sensor housing. The UMATR 2 wire transmitter is used when distances exceed 100+ feet exist between sensor and controller.