

TEC-5020A/5021 Temperature Controllers

- ◆ **Three Separate Sensor Channel Inputs and One Control Output**
- ◆ **24 V PWM Output, 10 or 17 Amp**
- ◆ **Integral Anti-Windup Feature**
- ◆ **Safety Interlock Capability**
- ◆ **Software-Programmed Sensor Switching “on-the-fly”**
- ◆ **Programmable PID, Sensor Parameters and Dead Band**
- ◆ **Optional 3 digit Remote Temperature Display (5020A only)**

Racal Instruments™ TEC-5020A and TEC-5021 temperature controllers are designed to provide temperature measurement and control in conjunction with a number of temperature sensors and (thermoelectric cooler) TEC heat sources/sinks. The low-cost, high-performance design is suited both to end-user as well as OEM use in semiconductor, military/aerospace, medical, and industrial control applications.

The TEC 5020A/5021 provides a high power, fully-functional temperature controller in a small package. In addition, both units provide the powerful capability of being able to switch between external sensors such as an embedded thermal diode and an RTD sensor via software control. Thus saving manual intervention to switch sensors.

The TEC-5020A is designed to drive TECs with pulse-width-modulated currents up to 10 A, while the TEC-5021 will provide currents of up to 17 A.

The units are designed to work with both RTD and diode temperature sensors as well as directly accepting voltage as a control input. RTD and control coefficients are fully-programmable, as are PID and Dead Band, thus providing greater flexibility in the applications that can be addressed.

Safety Interlock

Both controllers provide two interlock signals: one normally high (open) and one normally low (shorted), that disable the PWM output whenever either input is not at the required levels.

Anti-Windup

Windup problems, which are caused when a control input saturates, are avoided because of a built-in integral anti-windup feature.

5020A/5021 SPECIFICATIONS

ELECTRICAL PERFORMANCE

Accuracy - RTD Input*

+/- 0.5° C for 100-ohm sensor value (specified with Alpha programmed to 0.00385.)

Accuracy - Diode Input*

+/- 0.2% R_{dg} +/- 20 mv. Assuming a 0.6 V sensor having a temperature coefficient of 2 mV/degree.

This error is equivalent to a temperature uncertainty of approximately 0.6 degrees.

Accuracy - Voltage Input*

+/- 0.2% R_{dg} +/- 20 mv

Output

24 V PWM
10 A (5020A)
17 A (5021)

MECHANICAL

Dimensions

4.75" H x 4.0" W x 9.0" D (5020A)
4.96" H x 4.35" W x 10.0" D (5021)

Weight

3 lbs (5020A)
4 lbs (5021)

AC Power Connector

IEC 3-pin
115/230 V AC

ENVIRONMENTAL DATA

Temperature

Operating: 0° C to 50° C
Storage: -20° C to 70° C

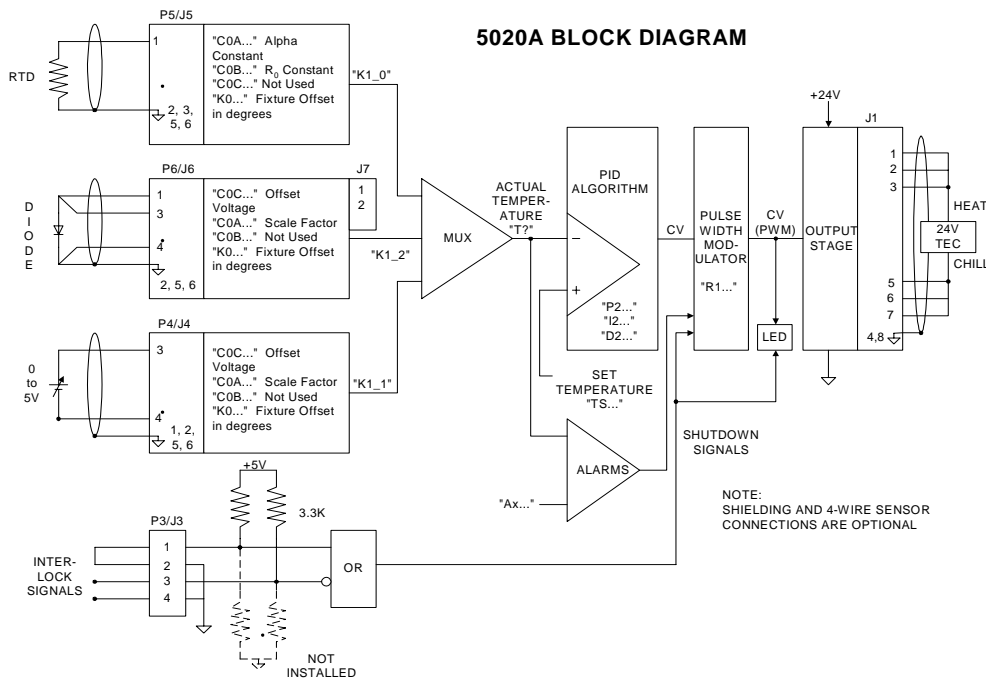
Humidity

Operating: 0 to 80% non-condensing
Storage: 0 to 95% non-condensing

COMMUNICATIONS BUS

RS-232 at 19,200 baud.
Connector is a nine pin female DSUB.

*The accuracy can be improved through a more thorough factory calibration. Contact EADS North America Defense Test and Services for more information.



ORDERING INFORMATION

MODEL/DESCRIPTION

Racal Instruments 5020A Temperature Controller
Optional 3 digit external display for 5020A
Racal Instruments 5021 Temperature Controller
Racal Instruments 5020A, 5021 User Manual

PART NUMBER

407851
405202-001
407944
980876

The EADS North America Defense Test and Services policy is one of continuous development, consequently the equipment may vary in detail from the description and specification in this publication.



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