

**Instruction Manual
for T/CMate™
Series 200
Thermocouple Cold-junction
Compensators**

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GENERAL

The Ectron Series 200 thermocouple cold-junction compensators allow any following instrumentation amplifier to be used as a thermocouple amplifier. The T/CMate™ accepts the thermocouple signal, provides precision cold-junction compensation to copper wires, and adapts the signal for amplification. A unique optical isolator provides isolated power for the compensation circuitry from any dc power source of 5 V to 15 V, eliminating the need for batteries. The strain-gage excitation supply available from Ectron conditioner-amplifiers provides ideal power. Jumpers allow selection of the appropriate compensation for four thermocouple types.

SPECIFICATIONS

Thermocouple Types: E, J, K, and T, selectable by plug jumper.

Input Thermocouple Connection: Two thermocouple wires plus shield attach to a terminal-block assembly.

Dc Power: 5 to 15 V dc regulated at 50 mA, nominal; usually supplied by the amplifier-conditioner's excitation supply, but can be any such supply.

Isolation between Signal and Input Power: 100 MΩ and 75 pF. Breakdown voltage is 300 V.

Reference Temperature: 0°C (32°F).

Size: Model 200: 30 mm high, 30 mm wide, and 51 mm long (1.18" × 1.18" × 2.00") plus 165-mm (6.5") cable.

Model 201: 30 mm high, 30 mm wide, and 51 mm long (1.18" × 1.18" × 2.00") plus 165-mm (7.5") cable and PT06A-10-6P(SR) connector.

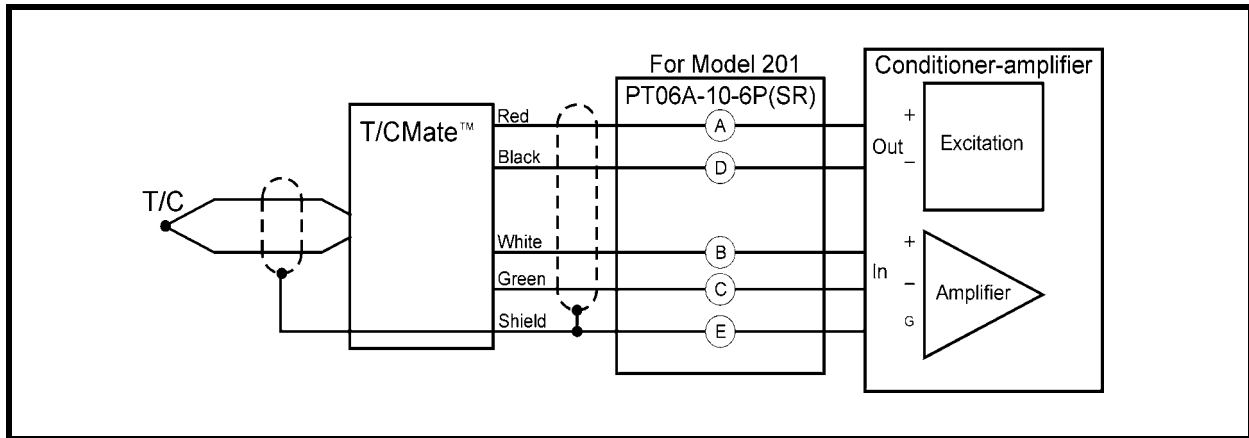
Weight: Model 200: 65 g (2.3 oz).

Model 201: 88 g (3.1 oz).

Accuracy, including ambient variation of 25°C ±25°C

T/C Type	Accuracy
E	< ±1.0°C
J	< ±1.0°C
K	< ±1.0°C
T	< ±1.0°C

Output: The Model 200 has a 165-mm (6.5") cable with wires for the compensated T/C output signal with shield plus two leads for input power. The Model 201 has a PT06A-10-6P(SR) connector attached to the cable to mate with the input connectors of the Ectron Models E408-6, R408-14, E513-6A, and R513-16 enclosures.



Typical Connections

OPERATION

When thermocouple signals are amplified or converted to digital signals, the T/C wires must first be connected to copper wires. Thermocouple junctions are formed when copper and T/C wires connect causing unwanted error voltages. The T/CMate™ eliminates these errors.

Connections: Attach the thermocouple wires to the screw terminals observing the polarity shown on the label. The negative T/C wire normally has red insulation. For the least noise and best accuracy, shielded thermocouple wire should be used with the shield connected to the shield terminal.

Plug Jumpers: Set the plug jumper to match the thermocouple type being used: E, J, K, or T.

Operate-Zero Switch: Use the toggle switch to zero the amplifier. When in the zero position, the thermocouple input is electrically disconnected and the output of the T/CMate™ (amplifier input) is shorted. The shield remains connected in the T/CMate™. Put the switch to the operate position to use the T/CMate™.

Power: Connect the power leads to any dc power source between 5 and 15 volts, usually the excitation supply of the following conditioner-amplifier. Reverse-polarity protection is provided.

Warranty

All Ectron instruments are warranted against defects in material and workmanship for a period of one year from date of shipment to the original purchaser. Ectron agrees to repair or replace any assembly or component (except expendable items such as fuses, lamps, and batteries) found to be defective during this period. Ectron's obligation under this warranty is limited solely to repairing or replacing, at its option, any instrument that in Ectron's sole opinion proves to be defective within the scope of the warranty when returned to the factory or to an authorized service center. Transportation to the factory or service center is to be prepaid by the purchaser. Shipment should not be made without the prior authorization of Ectron. This warranty does not apply to products repaired or altered by persons not authorized by Ectron, or not in accordance with instructions furnished by Ectron. If the instrument is defective as a result of misuse, improper repair, alteration, neglect, or abnormal conditions of operation, repairs will be billed at Ectron's normal rates. Ectron assumes no liability for secondary charges of consequential damages as a result of an alleged breach of this warranty, and, in any event, Ectron's liability for breach of warranty under any contract or otherwise shall not exceed the purchase price of the specific instrument shipped and against which a claim is made. This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for Ectron any liability in connection with the sale of our products other than as is set forth herein.

PROCEDURE FOR SERVICE

If a fault develops, notify Ectron or its local representative, giving full details of the difficulty. Include the model and serial numbers. On receipt of this information, service date or shipping instructions will be furnished. If shipment is indicated, forward the instrument, freight prepaid, to the factory or to the authorized service center indicated in the instructions.

DAMAGE IN TRANSIT

The instrument should be tested as soon as it is received. If it is damaged in any way, a claim should be filed with the carrier. A full report of the damage should be obtained by the claims agent, and that report should be forwarded to us. Ectron will advise the disposition to be made of the equipment and arrange for repair or replacement. Please include model and serial numbers in all correspondence referring to the instrument.

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