Model 1991

16-channel Isothermal Panel

INSTRUCTION MANUAL

December, 1989

SPECIAL OPTION

Model 1991-S001

16-channel Isothermal Panel

January, 1991

*****SPECIAL OPTION*****

16-channel Isothermal Panel

The Model 1991-S001 is the same as the model 1991-Z1A except that the cable is 10 meters long.

JRH:rem(WP)
January 21, 1991

Model 1991

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MLH:rem(WP\MLH)

KineticSystems Corporation

Standardized Data Acquisition and Control Systems **1991**

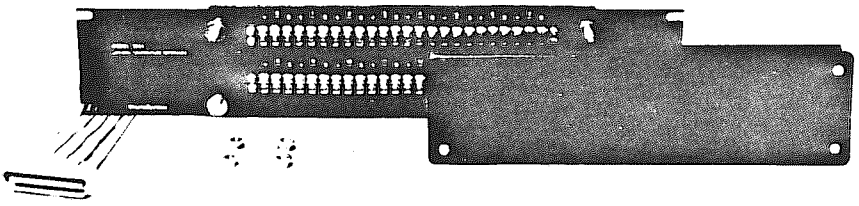
16-channel Isothermal Panel

FEATURES

- **16 input channels**
- **Internal reference junction**
- **Thermally isolated housing**
- **Standard 19-inch rack mounting**

APPLICATIONS

- **Use with 3525 Temperature Monitor or 3516 Scanning A/D Converter**
- **General-purpose temperature measurement**
- **Distributed environmental temperature control and monitoring**
- **Temperature control in material processing**



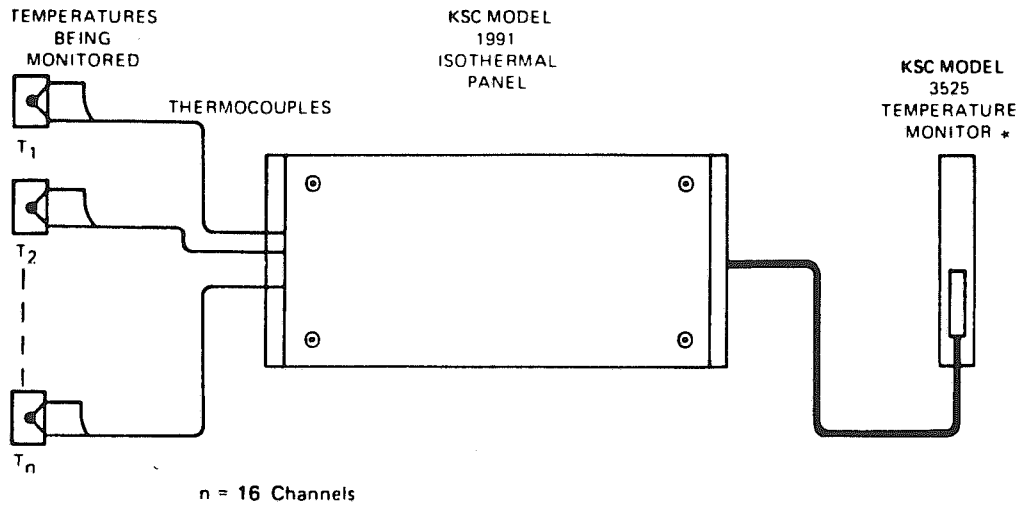
GENERAL DESCRIPTION

The Model 1991 Isothermal Panel provides automatic "cold junction" compensation for up to 16 thermocouples. The input wires from the measuring junction of each thermocouple are connected to a set of copper terminals in the 1991. A pair of signal terminals and a shield terminal are provided for each channel. Use of the shield is optional. A 1.8 meter (6 foot) cable is included.

All channels are coupled by high thermal conductivity material and isolated from temperature variations by a foam-filled box. A monitor channel measures the temperature of the internal plate. This information is forwarded to the Model 3525 Temperature Monitor, causing the effects of the cold junction thermocouples to be subtracted from the readings. When used with the Model 3516 Scanning A/D Converter, this information is read as an analog value on one of the 16 channels. Two 1991 panels are required to provide 32 channels for the 3516.

(Product specifications and descriptions subject to change without notice.)

SIMPLIFIED BLOCK DIAGRAM



*Two 1991s are required for use with the Model 3516 Scanning A/D Converter.

ORDERING INFORMATION

Weight: 4.54 kg. (10 lb.)

Model 1991-Z1A	—	16-channel Isothermal Panel for Model 3525 (includes 1.8 m cable - 6')
Model 1991-V1A	—	16-channel Isothermal Panel for Model 3516 (includes 1.8 m cable - 6')
Accessories	—	None

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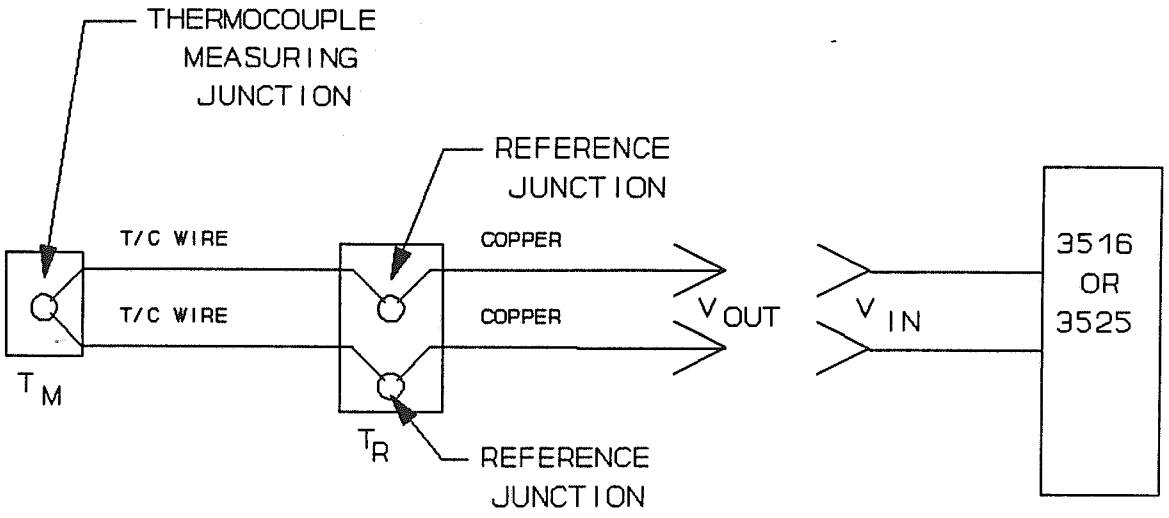
Model 1991

THERMOCOUPLE REFERENCE JUNCTION INFORMATION



T_M = Temperature being measured
T_R = Temperature reference

The actual voltage created at the input to the 3516 or 3525 is a function of the difference between the temperature being measured and the reference temperature. In mathematical terms $V_{in} = f(T_M - T_R)$.

In the diagram shown above using a pair of T/C wire, if T_R is held at a fixed known temperature, then V_{in} is a function only of the temperature being measured. If the reference junctions are maintained at $T_R = 0°C$, then V_{out} would be dependent only on T_M. $(T_M - 0°C) = T_M$.

In the case where T_R is some other <u>fixed</u> known temperature, the voltage at V_{out} would be offset by an amount proportional to that temperature. (This temperature would have to be included in the 3525 software to compensate for the offset introduced).

If the KSC Model 1991 is used with the 3525, T_R is the temperature of the 1991. Even though this temperature is not fixed, it is monitored by the 3516 or 3525 and can then be used to compensate for the offset introduced by T_R. The advantage to using the 1991 is that it does not require any power. The other methods described above require some external power source to maintain T_R at a constant temperature.

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2. Obtain a Return Authorization (RA) Number.
3. Initiate a purchase order for the estimated repair charge if the product is out of warranty.
4. Include a description of the problem and your technical contact person with the product.
5. Ship the product prepaid with the RA Number marked on the outside of the package to:

KineticSystems Company, LLC
Repair Service Center
900 North State Street
Lockport, IL 60441

Telephone: (815) 838-0005
Facsimile: (815) 838-4424
Email: tech-serv@kscorp.com