

Model 1992-Z1A

Rack Mount Isothermal Termination Panel

**INSTRUCTION MANUAL**

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WARRANTY  
DWP

# Isothermal Termination Panel

A 1U-high panel with 31 thermocouple terminations

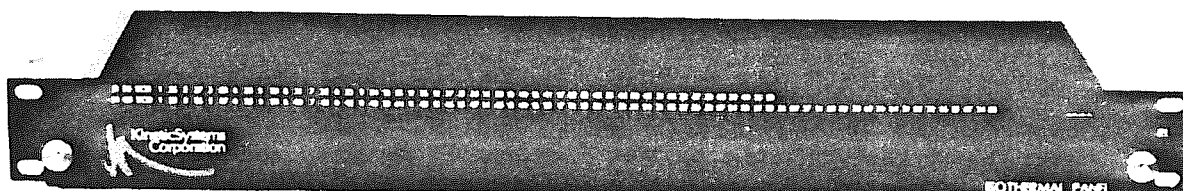
1992

## Features

- Up to 72 I/O terminations with 19" rack mounting
- Internal reference junction
- Dependable cage clamp connections to field wiring
- Test points available on each terminal

## Typical Applications

- Field wiring terminations
- Module I/O termination
- General purpose patch panel
- General purpose temperature measurement
- Distributed environmental temperature control & monitoring
- Temperature control in material processing

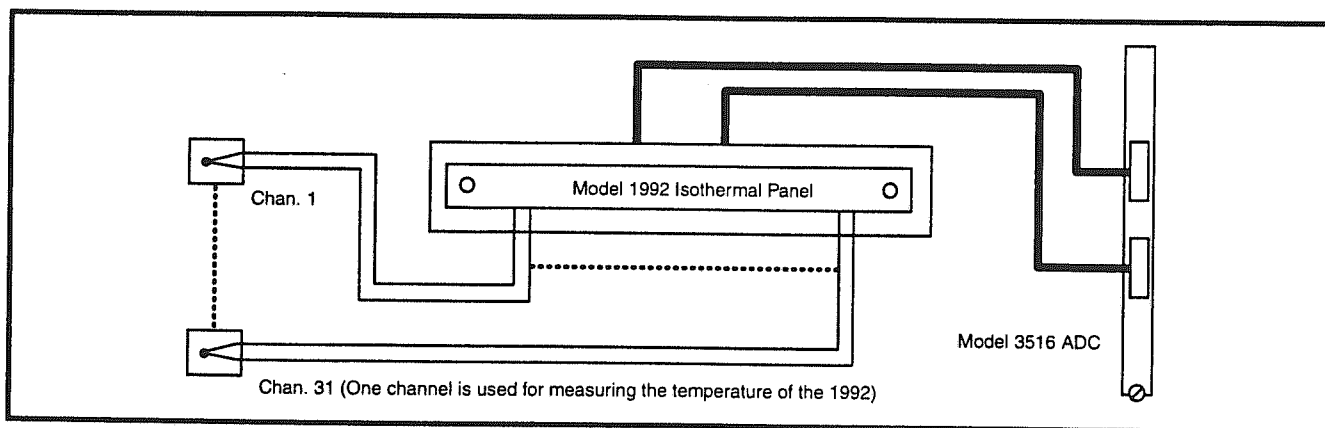


## General Description *(Product specifications and descriptions subject to change without notice.)*

The 1992 Isothermal Panel provides a reference junction for up to 31 thermocouples. When configured for non-isothermal operation, the panel permits termination of up to 72 I/O terminations. Arranged for 19-inch rack mounting, the panel occupies only one 4.45 centimeters (1 3/4 inches) of rack height.

The 1992 uses 72 LMI steel cage clamp terminals to receive field wiring. Each terminal accepts a single solid or stranded conductor in wire sizes ranging from AWG 22 to AWG 14. The rear panel has two 50P Amphenol Ribbon connectors, one 50S High Density connector, and one 68S High Density connector for a wide variety of applications.

## Simplified Block Diagram



## Ordering Information

Model 1992-Z1A Isothermal Termination Panel, rack mount

## Related Products

Model 5819-Exyz	Cable, 50P high density to 50P high density
Model 5819-Fxyz	Cable, 50P high density to 50S high density
Model 5819-Hxyz	Cable, 50P high density to 50P Amphenol ribbon
Model 5855-Bxyz	Cable, 50S Amphenol ribbon to 36 AMP rectangular
Model 5868-Cxyz	Cable, 68P high density to 68P high density
Model 5868-Dxyz	Cable, 68P high density to 68S high density

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## **FRONT PANEL**

For each terminal, the front panel describes which pin of which connector is connected. The front panel labelling is designed so the 1992 can be rotated 180 degrees to accept field wiring from the top of the terminal block.

## **CONNECTORS**

The 1992 provides a variety of connection options for maximum system flexibility.

J3 (50S High Density) is connected to the first 50 terminals of the terminal block. The other 22 terminals are not connected to J3. (Refer to Table 1)

J4 (68S High Density) is connected to the first 68 terminals of the terminal block. The other 4 terminals are not connected to J4. (Refer to Table 1)

P2 and P5 (50P Amphenol Ribbons) are distributed evenly across all 72 terminals. The first 36 terminals are connected to P2, and the second 36 terminals are connected to P5. The other 14 pins of the Amphenol Ribbon connectors are not connected. (Refer to Table 1)

Table 1 shows the connection from each terminal to each connector. The terminals are numbered in increasing order from left to right.

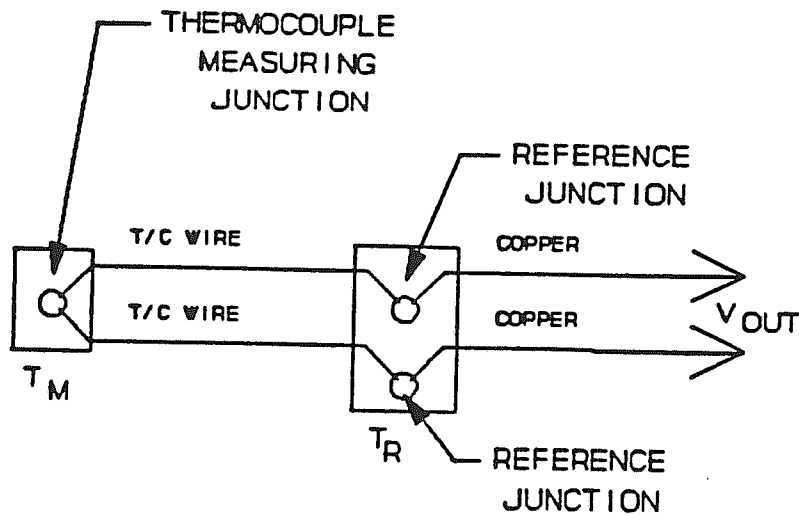
**TABLE 1 - CONNECTOR LAYOUT**

#	50P Amphenol Ribbon	68S High Density	50S High Density
1	P2 - 1	J4 - 1	J3 - 1
2	P2 - 26	J4 - 35	J3 - 26
3	P2 - 2	J4 - 2	J3 - 2
4	P2 - 27	J4 - 36	J3 - 27
5	P2 - 3	J4 - 3	J3 - 3
6	P2 - 28	J4 - 37	J3 - 28
7	P2 - 4	J4 - 4	J3 - 4
8	P2 - 29	J4 - 38	J3 - 29
9	P2 - 5	J4 - 5	J3 - 5
10	P2 - 30	J4 - 39	J3 - 30
11	P2 - 6	J4 - 6	J3 - 6
12	P2 - 31	J4 - 40	J3 - 31
13	P2 - 7	J4 - 7	J3 - 7
14	P2 - 32	J4 - 41	J3 - 32
15	P2 - 8	J4 - 8	J3 - 8
16	P2 - 33	J4 - 42	J3 - 33
17	P2 - 9	J4 - 9	J3 - 9
18	P2 - 34	J4 - 43	J3 - 34
19	P2 - 10	J4 - 10	J3 - 10
20	P2 - 35	J4 - 44	J3 - 35
21	P2 - 11	J4 - 11	J3 - 11
22	P2 - 36	J4 - 45	J3 - 36
23	P2 - 12	J4 - 12	J3 - 12
24	P2 - 37	J4 - 46	J3 - 37
25	P2 - 13	J4 - 13	J3 - 13
26	P2 - 38	J4 - 47	J3 - 38
27	P2 - 14	J4 - 14	J3 - 14
28	P2 - 39	J4 - 48	J3 - 39
29	P2 - 15	J4 - 15	J3 - 15
30	P2 - 40	J4 - 49	J3 - 40
31	P2 - 16	J4 - 16	J3 - 16
32	P2 - 41	J4 - 50	J3 - 41
33	P2 - 17	J4 - 17	J3 - 17
34	P2 - 42	J4 - 51	J3 - 42
35	P2 - 18	J4 - 18	J3 - 18
36	P2 - 43	J4 - 52	J3 - 43

**TABLE 1 Cont'd - CONNECTOR LAYOUT**

#	50P Amphenol Ribbon	68S High Density	50S High Density
37	P5 - 1	J4 - 19	J3 - 19
38	P5 - 26	J4 - 53	J3 - 44
39	P5 - 2	J4 - 20	J3 - 20
40	P5 - 27	J4 - 54	J3 - 45
41	P5 - 3	J4 - 21	J3 - 21
42	P5 - 28	J4 - 55	J3 - 46
43	P5 - 4	J4 - 22	J3 - 22
44	P5 - 29	J4 - 56	J3 - 47
45	P5 - 5	J4 - 23	J3 - 23
46	P5 - 30	J4 - 57	J3 - 48
47	P5 - 6	J4 - 24	J3 - 24
48	P5 - 31	J4 - 58	J3 - 49
49	P5 - 7	J4 - 25	J3 - 25
50	P5 - 32	J4 - 59	J3 - 50
51	P5 - 8	J4 - 26	Not Connected
52	P5 - 33	J4 - 60	Not Connected
53	P5 - 9	J4 - 27	Not Connected
54	P5 - 34	J4 - 61	Not Connected
55	P5 - 10	J4 - 28	Not Connected
56	P5 - 35	J4 - 62	Not Connected
57	P5 - 11	J4 - 29	Not Connected
58	P5 - 36	J4 - 63	Not Connected
59	P5 - 12	J4 - 30	Not Connected
60	P5 - 37	J4 - 64	Not Connected
61	P5 - 13	J4 - 31	Not Connected
62	P5 - 38	J4 - 65	Not Connected
63	P5 - 14	J4 - 32	Not Connected
64	P5 - 39	J4 - 66	Not Connected
65	P5 - 15	J4 - 33	Not Connected
66	P5 - 40	J4 - 67	Not Connected
67	P5 - 16	J4 - 34	Not Connected
68	P5 - 41	J4 - 68	Not Connected
69	P5 - 17	Not Connected	Not Connected
70	P5 - 42	Not Connected	Not Connected
71	P5 - 18	Not Connected	Not Connected
72	P5 - 43	Not Connected	Not Connected

\* Indicates which channels can be connected to internal reference when monitoring thermocouples. When selected by the switch, these terminals cannot be used for I/O connections.



$T_M$  = Temperature being monitored  
 $T_R$  = Temperature reference

**FIGURE 1 - ISOTHERMAL REFERENCE JUNCTION**

### ISOTHERMAL REFERENCE

The actual voltage created at the output of the 1992 is a function of the difference between the temperature being measured and the reference temperature. In mathematical terms  $V_{OUT} = f(T_M - T_R)$ .

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

In the case where  $T_R$  is some other fixed known temperature, the voltage at  $V_{OUT}$  would be offset by an amount proportional to that temperature. (This temperature would have to be included to compensate in software for the offset introduced). An isothermal reference is provided by the 1992 to measure  $T_R$ . When used with the appropriate signal conditioning module the isothermal reference output will provide a current equal to 1  $\mu\text{A/K}$ .

The isothermal reference may be switched to any one of five different locations. Five switches are available on the rear panel; one for each isothermal location. When a switch is pressed, the corresponding terminals are disconnected from the rear panel

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connector and the isothermal reference is connected in its place. Only one switch should be pressed at a time.

If the 1992 is not being used as an isothermal panel, all switches should be in the out position.

Table 2 shows which switch controls which connector. The terminals are numbered in increasing order from left to right as viewed from the rear panel.

**TABLE 2 - ISOTHERMAL SWITCHES**

Switch Location	Enables Isothermal at Location
1	J4 (68S High Density) Pins 33,67
2	J3 (50S High Density) Pins 24,49
3	J3 (50S High Density) Pins 25,50
4	P5 (50P Amphenol Ribbon) Pins 1,26
5	P2 (50P Amphenol Ribbon) Pins 1,26

**TEST POINTS**

Test points are available on each terminal block and are located above the captive screw. The testing hole is .078" (2 mm) in diameter and is designed to accept standard multimeter test leads.



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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:

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Repair Service Center  
900 North State Street  
Lockport, IL 60441

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