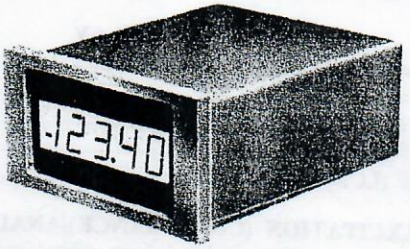
RTD TEMPERATURE INPUT DPM, 3½ & 4½ DIGIT · RS232/422 · Peak & Hold · 3-State BCD · Digital Limit · Excitation/Compliance · Analog Output · PC Compatible

MODEL 209

LED

FEATURES

- PT100, ANSI or 10W Copper
- 0.00385 or 0.003923Ω/Ω/°C, °F or °C Calibration
- Open/Shorted Sensor Detection
- Two or Three Wire RTD Input
- 1/8 DIN & NEMA Compatible Cut-Out
- 3½, 4½ Digit LED & LCD Display with/wo Dummy Digit
- 7 Power Inputs
- MTBFC: 100,000 Hours



LCD

DESCRIPTION: An ultra stable constant current source is used in the **209** (nominally .5mA) to develop the millivolt signal across the temperature dependent resistor of the RTD. A quad op amp linearizes and conditions this signal for the ±VDC input of the A/D. In the event of sensor failure (open/short), the 209 will flash its display and the over-range logic output will switch to logic 1 for external alarm control. Lead resistance compensation is automatic with 3 wire systems.

CONNECTOR(S): A standard screw type connector for power and signal input is used. The I/O ports (top board) have industry standard flat cable connectors according to the function. All mating connectors are supplied at no charge.

DISPLAY: High efficiency ±3½, ±4½ digit LED, with or without dummy digit, or its LCD high contrast low power equivalent. Dummy digit is programmable as a x10 multiplier or alpha A, C, F, H, E, L, P, etc.

INPUT RANGES: Industry's most popular ranges are standard. Contact Otek for special input ranges or scaling.

EXCITATION (COMPLIANCE) AND ANALOG CONTROL OUTPUTS: The most popular combinations to match transducers are available, (see Specifications & Ordering Information). The 4-20mA outputs are ideal for **Proportional Control.**

DIGITAL CONTROL OUTPUT OPTIONS

Option 1: BCD PARALLEL TRISTATE NON-ISOLATED, TTL compatible, bit addressable, with a 34 Pin Flat Ribbon connector.

Option 2: BCD PARALLEL TRISTATE OPTO-ISOLATED to 1500VDC, TTL compatible bit addressable, with a 34 Pin Flat Ribbon connector.

Option 3: DIGITAL PEAK & HOLD WITH RECALL holds and recalls the greatest positive and negative peak when en abled, otherwise it displays current data. A 34 Pin Flat Ribbon connector is included.

Option 4: DIGITAL LIMIT compares internal BCD data to an external BCD word (Multiplex Format) from Thumbwheel Switches or any TTL source. Its two 1 amp SPDT relays (for over and under) control external loads. It is field programmable for hysterisis of 10 or 100 counts. A 34 Pin Flat Ribbon connector is supplied.

Option 5: RS232C converts the "ULTIMA 200" to a data acquisition system. Up to 32 stations and baud rates from 150-19,200, (see Section 7, Model A81-2450).

Option 6: RS422 This is the high-speed, longer distance version of the RS232C with the same features, (Model A81-2450).

Option 7: PARALLEL BCD WITH PEAK & HOLD: This option combines both options (1 & 3) on the same board.

Option 8: 8-BIT ENCODED BCD MUX: The output of the A/D (same as display) is presented on an 8 bit BUS containing the BCD (1, 2, 4, 8) plus over-range, under-range, and sign are encoded in 3 lines. A separate strobe BCD word line is included. This system is compatible to any 8 bit BUS system. Address selection is available.

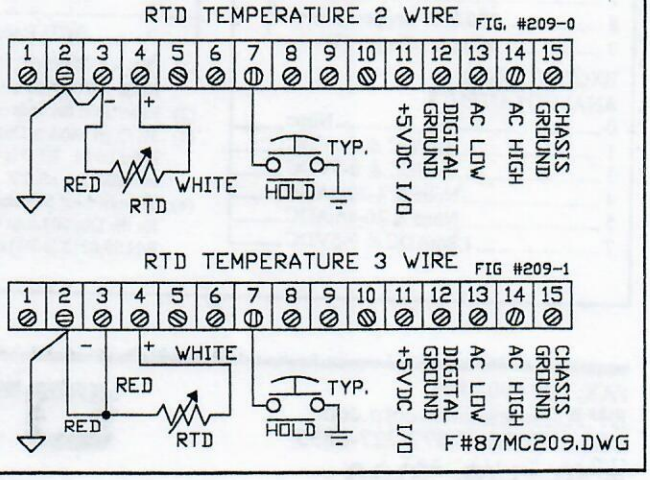
Option 9: 8-BIT ENCODED BCD OPTO-ISOLATED: Same as op tion 8 except it is opto-isolated to 1500VRMS. Power requirement is 5VDC at 100mA.

POWER INPUTS: Seven options are available: 5VDC non-isolated, 120VAC, 50-60Hz & 240VAC, 50-60Hz isolated to 1200VDC or RMS, 10VAC, 40-400Hz non-isolated, 12VDC non-isolated, 7-32VDC non-isolated and 7-32VDC isolated.

CASE: U.L. approved ABS Polycarbonate 94VO rated. Meets 1/8 DIN and NEMA panel cut out requirements.

FULL SCALE, DECIMAL POINTS, AND OTHER ADJUSTMENTS are easily accessible by removing the bezel and filter.

TYPICAL CONNECTIONS



SPECIFICATIONS AT 25°C

MAINFRAME

Excitation Current ..... 0.5mA Nominal
Input Type ..... 2 or 3 Wire Measurement
Lead Resistance Compensation ..... 20 Ohms
*Accuracy & Linearity ..... ±0.01% of F.S. ±1 count
Drift vs. Temperature ..... ±0.005% of F.S.
Operating/Storage Temperature ..... -10° to +60°C/-20° to +70°C
***Of Instrument Only** (RTD's accuracy must be considered)*

DISPLAY

LED ±3½ & 4½ ..... 0.6"
LED ±4½ w/Dummy Digit ..... 0.4"
LCD ±3½ & 4½ ALL ..... 0.5"
MTBF (LED) ..... 100,000 Hours
MTBF (LCD) ..... 80,000 Hours

EXCITATION (COMPLIANCE)/ANALOG OUTPUTS

(Non-isolated from digital ground)

10VDC Excitation ..... ±1% 30mA Max.
0-5VDC Output ..... ±1% Accuracy, Max. Load: 5mA
24VDC Compliance ..... 24VDC ±10% @ 30mA Max.
4-20mA Output ..... ±1% Accuracy, 24VDC Compliance
20-4mA Output ..... ±1% Accuracy, 24VDC Compliance
1.8mA Excitation ..... ±1% at 24VDC Compliance
NOTE: All outputs are short circuit protected.

DIGITAL CONTROL OUTPUTS (All Positive True Logic)

Tristate Parallel BCD ..... 10LPTTL Loads
3-State Par, BCD Opto-Isolated ..... 10LPTTL Loads, 1500VDC isolation, 20mA at 5VDC
Digital Limit ..... Absolute comparison, 1 amp relays at 120VAC resistive, parallel BCD serial digit select type (multiplexed)
Thumbwheel Switches ..... BCD w/Diodes
Peak & Hold ..... + or - peaks, user recall/clear by logic or switch contact
BCD Multiplex ..... Parallel digit BCD, serial digit select MSD to LSD scan
Parallel BCD with Peak & Hold is the combination of options 1 & 3 (same specifications).
RS232/422 ..... See Model A81-2450

POWER INPUTS

5VDC 50mA
Display ..... LED: 140mA; LCD Display: 20mA
Plus ..... Excitation option of 150mA, plus digital control output of 100mA. Worst case requirements (Fully Loaded): 500mA
120VAC 100mA
240VAC 50mA
7-32VDC 300mA
12VDC 300mA

ORDERING INFORMATION (11/1/00)

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DISPLAY TYPE
0 .... 3½ LED w/Dummy Zero
1 .... 4½ LED
2 .... 4½ LED w/Dummy Zero
3 .... 3½ LCD w/Dummy Zero
4 .... 4½ LCD w/Dummy Zero
5 .... 3½ LED
6 .... 3½ LCD

INPUT RANGE (1,2)
0 ..... ±200.0°C, DIN(3)
1 ..... ±200.0°F, DIN(3)
2 ..... 2000.0°C, DIN
3 ..... 2000.0°F, DIN
4 ..... 200.0°C , ANSI(3)
5 ..... 200.0°F, ANSI(3)
6 ..... 2000.0°C , ANSI
7 ..... 2000.0°F, ANSI
8 ..... 200.0°C, Copper (3)
9 ..... 200.0°F, Copper (3)

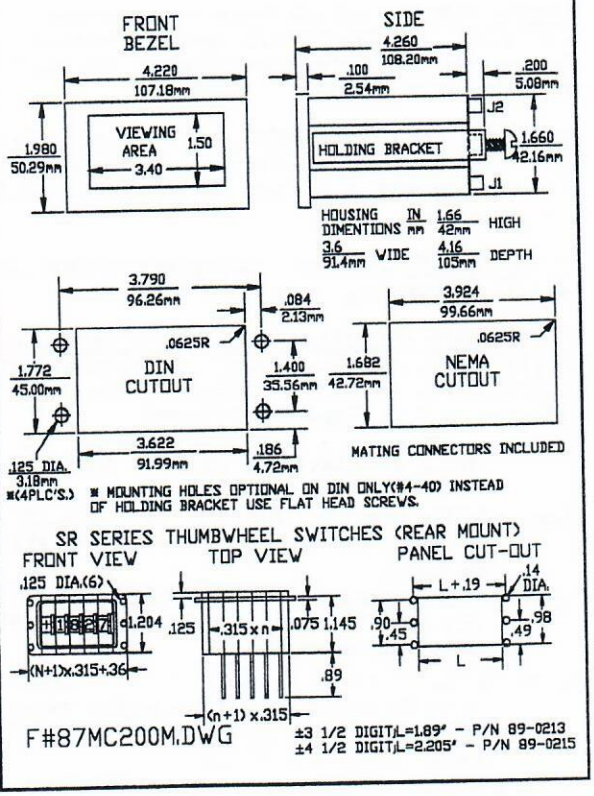
EXCITATION & ANALOG OUTPUTS
0 ..... None
1 ..... 10VDC & 0-5VDC
3 ..... 24VDC & 0-5VDC
4 ..... None & 4-20mADC
5 ..... None & 20-4mADC
7 ..... 1.8mADC & 0-5VDC

POWER INPUT
0 ..... 5VDC
1 ..... 120VAC
2 ..... 240VAC
3 ..... 10VAC
4 ..... 12VDC
5 ..... 7-32VDC
6 ..... Isolated 7-32VDC

DIGITAL CONTROL OUTPUTS
0 ..... None
1 ..... BCD Parallel
2 ..... BCD Parallel Opto-Isolated
3 ..... Peak & Hold
4 ..... Digital Limit (4)
5 ..... RS232C
6 ..... RS422
7 .. Parallel BCD with Peak & Hold
8 ..... BCD Encoded
9 ..... BCD Encoded Optoisolated

(1) DIN = 0.00385 (PT100)
ANSI = 0.003923 T.C.
(2) Resolution depends on display selected.
(3) 3½ Digit Models Only. Range shown is for DPM. RTD is limited to » 800°C » 1500°F
(4) Thumbwheel Switches are available for the Digital Limit Option, Order P/N 89-0213 (±3½) or 89-0215 (±4½)

MECHANICAL



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