The DIS874 and DIS974 provide a display, optional isolated DC output voltage or current proportional to any thermocouple input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability. All controls are accessible by removing the gasketed front access panel. The display controls are wide ranging so that they can be calibrated to display engineering units.

### DESCRIPTION

Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

Upscale burnout protection is provided as though the input goes offscale high. Option B provides downslope burnout protection (unit behaves as though the input goes low).

Standard DIS874 and DIS974 provide thermocouple linearization using analog circuitry, which has certain limitations. Its specifications are summarized in Table 1. Option LL, digital linearization, provides superior performance as listed under the specifications.

### TYPICAL APPLICATIONS

Temperature indication, monitoring, control, data acquisition, HI/LO control, etc.

### SPECIFICATIONS

#### INPUT RANGE

- select any type thermocouple (minimum span 5 mV)
- ±10 V, 10 mA max load (min span 0.2 V)

#### OPTIONS SA, DA SETPOINT

- each alarm 0 to 100% of span

#### DEADBAND

- 0.25% to 100% of span

#### RELAY CONTACTS (spdt)

- Resistive Load
  - 5 A max, 150 W max,
  - 240 VAC max, 30 VDC max
- Inductive Load
  - ½ HP max at 120/240 VAC

#### OUTPUT RIPLE (Peak-to-Peak)

- <0.1% of span

#### ISOLATION

- Output / Input
  - >500 megohms
- Breakdown Voltage
  - >600 VAC rms
- RESPONSE TIME (Range Dependent)
  - ≤100 ms

#### OPEN SENSOR INDICATION

- full scale

#### ACCURACY

- ±0.1% of span at endpoints

### DIS874 AND DIS974

**THERMOCOUPLE INPUT PROCESS INDICATOR**

**3½ AND 4½ DIGIT DISPLAYS**

### FEATURES

- Provides 3½ or 4½ Digit Display
- Display Calibrated in Engineering Units 
  (°C, °F, °K, etc.)
- Proportional to any Thermocouple
- Input Cold Junction Compensated
- Fully Isolated Output and/or 0, 1, or 2 Alarms (Optional)
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- 5 mV Minimum Input Span
- Unlimited Choice of Input / Output Ranges
- Upscale Burnout Protection (Downscale Available)
- Analog and Digital Linearization Options Available
- Fits Standard 1/8 DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

### LINEARITY

**Standard**

**LINEARITY (Option LL)**

- ±2°C (3.6°F) or better ±0.5°C (0.9°F)
- for types J, K, T, E or N if range is between -200 and +200°C (~328 and +392°F)

### COMMON MODE REJECTION

- 120 dB, DC to 60 Hz

### DISPLAY

**DISPLAY (974)**

- Digit Size
  - .56" LED, 3½ digits, ±19999
- Decimal Point
  - ±1.9.9.9.9
- Control Range
  - Zero
- ±19999
- Span
  - min span 10/max span 20000

### POWER

- 115 VAC ±10%, 50 or 60 Hz
- 230 VAC ±10%, 50 or 60 Hz
- 4 W max

### DISPLAY

- Update 3/sec

### OPERATING TEMPERATURE

- 14°F to 140°F/-10°C to 60°C

### TEMPERATURE STABILITY

- ±(0.02% of span + 1.3 µV)/°C max

### TABLE 1

#### DIS874/974 STANDARD LINEARIZATION ACCURACY, BASE-METAL THERMOCOUPLES

<table>
<thead>
<tr>
<th>T/C TYPE</th>
<th>LOW TEMP RANGES (HIGH END = 0°C)</th>
<th>ELEVATED-ZERO RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIMIT FOR ±1% OF SPAN</td>
<td>LIMIT FOR ±2% OF SPAN</td>
</tr>
<tr>
<td>E</td>
<td>0/500°C 32/392°F</td>
<td>0/1000°C 32/1832°F</td>
</tr>
<tr>
<td>J</td>
<td>0/1000°C 32/1832°F</td>
<td>0/1200°C 32/2192°F</td>
</tr>
<tr>
<td>K</td>
<td>0/800°C 32/1472°F</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>0/500°C 32/392°F</td>
<td>0/1200°C 32/2192°F</td>
</tr>
<tr>
<td>T</td>
<td>0/400°C 0/752°F</td>
<td>0/400°C 0/752°F</td>
</tr>
</tbody>
</table>

### DIS874 AND DIS974 LINEARIZATION ACCURACY, PLATINUM THERMOCOUPLES

<table>
<thead>
<tr>
<th>T/C TYPE</th>
<th>ELEVATED-ZERO RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>±3% of span for 500/1820°C (932/3308°F)</td>
</tr>
<tr>
<td>R &amp; S</td>
<td>±1.5% of span for 800/1820°C (1472/3308°F)</td>
</tr>
</tbody>
</table>

#### Within specified range limits.
**ACCESSORIES**

**DIS874 AND DIS974**

No accessories available at this time.

**MOUNTING**

The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

---

**DIMENSIONS**

Inches [mm]

**CONNECTIONS**

<table>
<thead>
<tr>
<th>TERMINAL</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERM 1</td>
<td>Output -</td>
<td></td>
</tr>
<tr>
<td>TERM 2</td>
<td>Output +</td>
<td></td>
</tr>
<tr>
<td>TERM 3</td>
<td>T/C Input +</td>
<td></td>
</tr>
<tr>
<td>TERM 4</td>
<td>T/C Input -</td>
<td></td>
</tr>
<tr>
<td>TERM 5</td>
<td>Shield (Common)</td>
<td></td>
</tr>
<tr>
<td>TERM 6</td>
<td>Alarm 1 NC</td>
<td></td>
</tr>
<tr>
<td>TERM 7</td>
<td>Alarm 1 C</td>
<td></td>
</tr>
<tr>
<td>TERM 8</td>
<td>Alarm 1 NO</td>
<td></td>
</tr>
<tr>
<td>TERM 9</td>
<td>Alarm 2 NC</td>
<td></td>
</tr>
<tr>
<td>TERM 10</td>
<td>Alarm 2 C</td>
<td></td>
</tr>
<tr>
<td>TERM 11</td>
<td>Alarm 2 NO</td>
<td></td>
</tr>
<tr>
<td>TERM 12</td>
<td>Power AC L1</td>
<td></td>
</tr>
<tr>
<td>TERM 13</td>
<td>Power AC L2</td>
<td></td>
</tr>
<tr>
<td>TERM 14</td>
<td>Power AC L2</td>
<td></td>
</tr>
</tbody>
</table>