Digital Indicator
1 Universal Input, 0.1% accuracy
Up to 5 Alarms and 5 alarm relays.
Dual Colour display (Red / Green)
1 Digital Input.
RS485 Modbus communication.
Nema 3 / IP65 front face protection.
1/8 DIN Horizontal Size.
Jumper free configuration.
Easily field Upgradable.
Downward compatibility with existing UDI1500 applications & wiring.

Overview

A companion for the UDC1200/1700
Based on the same technology as the UDC1200/1700 low price controllers, the UDI1700 is the ideal companion of those controllers for application requiring performance in control and accurate indication.

Moisture resistant front face
Meets NEMA 3/IP65 front face protection against dust and water.

Universal Power supply and input
Can operate on any line voltage from 90Vac to 264Vac at 50/60Hz. A low voltage 24/48Vac/dc solution is also available. All input types like thermocouples, RTDs and linear DC are configurable as standard.

Flexibility & commonality
The option boards (alarm relay output, dual alarm relay and linear output retransmission) are plug-in and autodetected for easy upgrade and low inventory. Furthermore, the unit has no jumpers!

Large visibility
A large 14 mm four digits LED display in red make the UDI1700 easy to read from a distance. A specific digit for °C or °F is provided.

Alarm strategy
Up to five soft alarms are available with or without remote relay action. The alarm types can be set on PV high or low. Alarm 1 can be latched and requires acknowledgment from the operator.

Min. and Max. indication
Maximum and Minimum values attained by the process variable since the last reset are stored for further analysis.

Time elapsed
The UDI1500 can also store the time elapsed since the alarm 1 became active. In combination with the above Max. and Min. features, it provides alarm information for more detailed analysis.

Transmitter Power Supply
Provided as an option on output 3 is 24 Volts DC power for a 2-wire transmitter.

Configuration
Easy and full configuration with straightforward menu via the instrument front face.

PV retransmission
The linear optional output 2 can be used for PV retransmission.
### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
</table>
| **Accuracy**         | *Measurement:* 0.1 % of Span ± 1 LSD  
Lineraization for T/C & RTD: Better than ± 0.2 °C for decimal range; Better than ± 0.5 °C for integer range  
*Cold junction compensation (T/C only):* Better than ± 0.7 °C |
| **Temperature Stability** | 0.01 % of span per °C                                                  |
| **Input Signal Failure** | For Thermocouple and RTDs : Upscale burnout  
For linear input: Downscale burnout (only applicable to 4-20mA) |
| **Input Sampling Rate** | Four samples per second                                                |
| **Input Filter**     | Digital filter: 0.0 (off), from 0.5 to 100.0 seconds in 0.5s increment |
| **Input Isolation**  | Universal input isolated at 2500V from all outputs and from power supply |
| **Stray Rejection**  | Common mode rejection: >120dB at 50/60Hz with negligible effect at 264V  
Serial mode rejection: >500% of span at 50/60Hz with negligible effect |
| **Approvals**        | UL and CE approved                                                      |
| **Environmental**    | EMI immunity: Complies with EN61326  
Safety considerations: comply with EN61010-1 & UL3121                |
| **Front Panel Sealing** | IP66 / NEMA3                                                          |
| **Power consumption** | 100 to 240Vac, 50/60z : 7.5VA  
20 to 48Vac, 50/60Hz : 7.5VA  
22 to 65Vdc : 5W                                                        |
| **Physical**         | Weight: 210 grams max.  
Width: 96mm/3.78 inches, Height: 48mm/1.89 inches, Depth: 100mm/3.94 inches  
Wiring connection: Screw terminals on the rear of the case (combination head) |
| **Alarms**           | Up to five soft alarms with 5 SPDT relay outputs  
Alarm types: PV high or low with direct or reverse acting  
Up to five alarm hysteresis : From 1 LSD to 10% of span  
Combination alarms : Logical "OR" or "AND"  
Alarm 1 can be latched requiring specific acknowledgment |
| **Output type**      | Output 1 :  
- Electromechanical relay output SPDT  
Output 2 :  
- Electromechanical relay output SPDT  
- Linear DC for PV retransmission  
- Dual electromechanical relays (2 SPST)  
Output 3 :  
- Electromechanical relay output SPDT  
- Dual electromechanical relays (2 SPST)  
- Transmitter power supply  
*Linear DC output :*  
Accuracy: ± 0.25% (mA @ 250Ohms, V @ 2Kohms)  
Resolution: 8 bits in 250ms (10 bits in 1 second typical, >10 bits in >1 second) |
|                      | *Electromechanical relay :*  
SPDT contact with 2 A at 120 V or 240 V (resistive load)  
Life time: > 500 000 operations at rated voltage/current. |
|                      | *Dual electromechanical relays :*  
Single pole single throw (SPST) with 2 A at 120 V or 240 V (resistive load)  
Life time: > 200 000 operations at rated voltage/current. |
|                      | *Transmitter power supply :*  
Voltage output: 20-28 Vdc with 24Vdc nominal  
Minimum load impedance: 910 ohms (22 mA and 20 Vdc) |
| **Remote Reset Input** | Voltage free or TTL compatible (External relay contact or TTL logic signal)  
To reset the latched alarm output 1 |
| **Communication Interface** | RS485: ASCII or Modbus, selectable.  
Baud Rate: 1200, 2400, 4800, 9600, 19.2K Baud  
Link Characteristics: 32 drops maximum, ASCII protocol, two wires |
**Input Actuations**

<table>
<thead>
<tr>
<th>Thermocouple types (Fixed decimal)</th>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>32-3198</td>
<td>0-1759</td>
</tr>
<tr>
<td>S</td>
<td>32-3204</td>
<td>0-1762</td>
</tr>
<tr>
<td>J</td>
<td>-328-2192</td>
<td>-200-1200</td>
</tr>
<tr>
<td>J</td>
<td>-199.9-999.9</td>
<td>-128.8-537.7</td>
</tr>
<tr>
<td>T</td>
<td>-400-752</td>
<td>-240-400</td>
</tr>
<tr>
<td>T</td>
<td>-199.9-752.0</td>
<td>-128.8-400.0</td>
</tr>
<tr>
<td>K</td>
<td>-400-2503</td>
<td>-240-1373</td>
</tr>
<tr>
<td>K</td>
<td>-199.9-999.9</td>
<td>-128.8-537.7</td>
</tr>
<tr>
<td>L</td>
<td>32-999.9</td>
<td>0-537.7</td>
</tr>
<tr>
<td>L</td>
<td>32-1403</td>
<td>0-762</td>
</tr>
<tr>
<td>B</td>
<td>211-3315</td>
<td>100-1824</td>
</tr>
<tr>
<td>N</td>
<td>32-2551</td>
<td>0-1399</td>
</tr>
<tr>
<td>C</td>
<td>32-4208</td>
<td>0-2320</td>
</tr>
</tbody>
</table>

- **RTD :** (3 wires connection)

- **PtRh20% vs 40% Pt100 (IEC) $\alpha = 0.00385$**

<table>
<thead>
<tr>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-3362</td>
<td>0-1850</td>
</tr>
<tr>
<td>-328-1472</td>
<td>-199-800</td>
</tr>
<tr>
<td>-199.9-999.9</td>
<td>-128.8-537.7</td>
</tr>
</tbody>
</table>

- **DC linear :**

<table>
<thead>
<tr>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20mA, 0-50mA, 0-5V, 0-10V</td>
<td>4-20mA, 10-50mA, 1-5V, 2-10V</td>
</tr>
</tbody>
</table>

**Operating Conditions**

<table>
<thead>
<tr>
<th></th>
<th>Reference conditions</th>
<th>Operative limits</th>
<th>Transportation and storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>20°C±2°C (68°F±4°F)</td>
<td>0°C to 55°C (32°F to 131°F)</td>
<td>-20°C to 80°C (-4°F to 176°F)</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>60-70%</td>
<td>20-95% non condensing</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>90-264Vac ±1%</td>
<td>90-264Vac</td>
<td>20-50Vac or 22-65Vdc</td>
</tr>
<tr>
<td>Frequency</td>
<td>50Hz</td>
<td>50-60Hz</td>
<td></td>
</tr>
<tr>
<td>Source resistance</td>
<td>&lt;10 ohms for thermocouple</td>
<td>1000 ohms max for thermocouple</td>
<td></td>
</tr>
<tr>
<td>Lead resistance for RTD</td>
<td>&lt;0.1 ohm/lead (PT100)</td>
<td>50 ohms per lead maximum balanced (PT100)</td>
<td></td>
</tr>
</tbody>
</table>

**Model Selection Guide**

<table>
<thead>
<tr>
<th>Key Number</th>
<th>DI170x</th>
<th>I</th>
<th>X</th>
<th>II</th>
<th>X</th>
<th>III</th>
<th>X</th>
<th>IV</th>
<th>X</th>
<th>V</th>
<th>X</th>
<th>VI</th>
<th>X</th>
<th>VII</th>
<th>X</th>
<th>VIII</th>
<th>X</th>
<th>IX</th>
</tr>
</thead>
</table>

- Display : 0=Red LEDs, 1=Green LEDs, 4=Colour change display
- Power Supply : 1 = 90 to 264Vac, 2 = 24 to 48Vac/dc
- Digital input : 0 = None, 1 = RS485, 2 = Digital Input
- Output 3 : 0 = None, 1 = Relay, 8 = Tx PS, 9 = Dual Relay Board
- Output 2 : 0 = None, 1 = Relay, 3 = Linear 0-10Volts, 4 = Linear 0-20mA, 5 = Linear 0-5Volts, 7 = Linear 4-20mA, 9 = Dual Relay board
- Output 1 : 1=Relay
- Input type : 1 = RTD or linear mV, 2 = T/C, 3 = Linear mA, 4 = Linear Volts
**External Dimensions and Panel Cutout**

UDI1700

- **90 mm - 3.78 in**
- **48 mm - 1.89 in**
- **45 mm - 1.77 in**
- **92 mm - 3.62 in**
- **45 mm - 1.77 in**
- **10 mm approximately 0.39 inch**

**Wiring Diagram**

- **Power Input**
  - DC Supply
  - AC Supply

- **Option A**
  - Digital Input
  - RS485 Comms
  - A
  - B

- **Option 1**
  - Relay Output
  - N/C
  - C
  - N/O

- **Option 2**
  - Relay Output
  - N/C
  - C
  - N/O

- **Option 3**
  - N/O
  - N/C
  - C
  - C

- **Dual Relay Board**
- **Relay Output**
- **TX Power Supply**

- **Universal Input**
  - RTD
  - T/C
  - Linear (V / mV)
  - Linear (mA)

**Distributor:**

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