### General Specifications

**UT55A, UT52A**

**Digital Indicating Controller**

*(Panel Mounting Type)*

**GS 05P01C31-01EN**

#### Overview

The UT55A and UT52A digital indicating controllers employ an easy-to-read, 14-segment large color LCD display, along with navigation keys, thus greatly increasing the monitoring and operating capabilities. A ladder sequence function is included as standard. The short depth of the controller helps save instrument panel space. The UT55A and UT52A also support open networks such as Ethernet communication.

The UT55A and UT52A have a DIN rail mounting type (with option code /MDL). For more details, please see General Specification GS 05P01C81-01EN.

#### Features

- **A 14-segment, active (PV display color changing function) color LCD display is employed.**
  - Two five-digit, high-resolution displays are possible.
  - Alphabet letters can be displayed in an easy-to-read manner. The guide display shows parameter names.
- **Easy to operate**
  - Navigation keys (SET/ENTER and Up/Down/Left/ Right arrow keys) are employed to facilitate making settings.
- **65 mm depth**
  - The small depth enables the mounting in a thin and small instrumented panel.
- **Ladder sequence function is included as standard.**
  - This function allows for creating a simple sequence control. Dedicated LL50A Parameter Setting Software (sold separately) allows for performing programming using a ladder language.
- **Various built-in open network functions such as Ethernet are available.**
  - Easy connection with various vendors’ PLCs is possible. (UT52A support CC-Link and RS485 communication only.)
- **Quick setting function**
  - Setting only the minimum necessary parameters for operation is possible. (For single-loop control only)
- **Equipped with a multitude of functions**
  - Universal I/O, eight control modes (cascade control, etc.), and retransmission output are included as standard. PID control, heating/cooling control, feed forward control, etc. are available.
  - LL50A Parameter Setting Software (sold separately) allows for performing programming using a ladder language.
- **Dust-proof and drip-proof**
  - IP66 (for front panel) (Not applicable to side-by-side close mounting.)
  - NEMA4 (Hose-down test only)

#### Functional Specifications

**Control Specifications**

1. **Control Mode**
   - Control functions of the controller can be set as control modes.

<table>
<thead>
<tr>
<th>Control mode</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGL (1)</td>
<td>Single-loop control</td>
</tr>
<tr>
<td>CAS1 (2)</td>
<td>Cascade primary-loop control (1)*</td>
</tr>
<tr>
<td>CAS2 (3)</td>
<td>Cascade secondary-loop control</td>
</tr>
<tr>
<td>CAS (4)</td>
<td>Cascade control</td>
</tr>
<tr>
<td>BUM (5)</td>
<td>Loop control for backup</td>
</tr>
<tr>
<td>PVSW (6)</td>
<td>Loop control with PV switching (2)*</td>
</tr>
<tr>
<td>PVSEL (7)</td>
<td>Loop control with PV auto-selector (Max./Min./Ave./Diff.)</td>
</tr>
<tr>
<td>PVHD (8)</td>
<td>Control with PV hold function</td>
</tr>
</tbody>
</table>

*1: Remote auxiliary analog input is required.

2. **Control period**
   - Selectable from 50 ms (2), 100 ms, and 200 ms

*2: Cascade control (Control mode 4) cannot be used. “Super” function or “Super 2” function cannot be used.

<table>
<thead>
<tr>
<th>Model and suffix code (See the model code)</th>
<th>Number of analog input points</th>
<th>Number of analog output points (2)</th>
<th>Number of contact input points (4)</th>
<th>Number of contact output points (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT55A</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>UT52A</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*3: Excluding control output

*4: The numbers in parentheses show the numbers of points in each model with RSP direct input.(/DR option.

*5: Excluding control output relays
Control Computation Specifications

(1) Combination of types of control and control modes

<table>
<thead>
<tr>
<th>Types of control</th>
<th>Control mode</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>PID control</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>ON/OFF control</td>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
<td>NA</td>
<td>Y</td>
</tr>
<tr>
<td>Two-position, two-level control</td>
<td></td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Heating and cooling control</td>
<td></td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Sample PI control</td>
<td></td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Batch PID control</td>
<td></td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Feedforward control</td>
<td></td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N/A</td>
</tr>
</tbody>
</table>

\( \cdot \): Available \( \cdot A \): Not Available

(2) Control Computation Function

(a) Target setting point and the number of PID parameter groups

Respectively, eight sets of target setpoints, alarm setpoints, and PID parameters can be set. For cascade control, respectively, eight sets can be set for main (primary side) and slave (secondary side).

(b) Selecting the PID parameter group

The following PID parameter groups can be selected:
- Target setpoint number (SPNO) (The PID number can be set arbitrarily.)
- Measured input zone PID
- Target setpoint zone PID
- Reached target setpoint zone PID

(c) Auto-tuning

• Tuning results can be selected from two options, Normal or Stable.
• Tuning output limit can be set. (It cannot be used in heating/cooling control.)

(d) "Super" function: Overshoot-suppressing function
(e) "Super 2" function: Hunting-suppressing function
(f) STOP preset output function
(g) Input ERROR preset output function
(h) MANUAL preset output function

(3) Operation Mode Switching

| Operation mode switching | AUTO/MANUAL and RUN/STOP switching | CASCADE/AUTO/MANUAL switching | REMOTE/LOCAL switching |

(4) Control Parameter Setting Range

<table>
<thead>
<tr>
<th>Proportional band</th>
<th>0.1 to 999.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral time</td>
<td>1 to 6000 sec. or OFF (using manual reset)</td>
</tr>
<tr>
<td>Derivative time</td>
<td>1 to 6000 sec. or OFF</td>
</tr>
<tr>
<td>ON/OFF control hysteresis (one or two hysteresis points)</td>
<td>0.0 to 100.0% of measured input range width</td>
</tr>
<tr>
<td>Preset output value</td>
<td>-5.0 to 105.0% (however, 0 mA or less cannot be output)</td>
</tr>
<tr>
<td>High/low output limiter</td>
<td>-5.0 to 105.0% Low limit setpoint &lt; high limit setpoint</td>
</tr>
<tr>
<td>Tight shut function</td>
<td>When manual control is carried out with 4 to 20 mA output, control output can be reduced to about 0 mA.</td>
</tr>
<tr>
<td>Rate-of-change limiter of output</td>
<td>0.1 to 100.0%/sec., OFF</td>
</tr>
<tr>
<td>Output deadband</td>
<td>For heating and cooling control: -100.0 to 50.0% For position proportional control: 1.0 to 10.0%</td>
</tr>
</tbody>
</table>

(5) Ladder computation period

Ladder computation period is the same as control period.

Alarm Functions

• Types of Alarm

<table>
<thead>
<tr>
<th>Measured value alarm</th>
<th>PV (measured value) high/low limit alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviation alarm</td>
<td>Deviation high/low limit alarm</td>
</tr>
<tr>
<td>Rate-of-change alarm</td>
<td>Deviation high and low limits alarm</td>
</tr>
<tr>
<td></td>
<td>Deviation within high and low limits alarm</td>
</tr>
<tr>
<td></td>
<td>Analog input PV high/low limit alarm</td>
</tr>
<tr>
<td></td>
<td>Analog input RSP (ROMOTE) SP high/low limit alarm</td>
</tr>
<tr>
<td></td>
<td>Auxiliary analog input high/low limit alarm</td>
</tr>
<tr>
<td></td>
<td>Feedback input high/low limit alarm</td>
</tr>
<tr>
<td></td>
<td>PV rate-of-change alarm</td>
</tr>
</tbody>
</table>

• Types of Alarm

<table>
<thead>
<tr>
<th>Alarm output action</th>
<th>Alarm stand-by action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alarm latch (forced reset) function</td>
</tr>
<tr>
<td></td>
<td>Alarm hysteresis</td>
</tr>
<tr>
<td></td>
<td>Alarm ON/OFF delay timer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of alarm settings</th>
<th>8 (per loop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of alarm output points</td>
<td>Up to 18 (differs by model code)</td>
</tr>
</tbody>
</table>

Contact I/O Function

This function allows for allocating the input error condition, operation condition, alarm condition or other conditions to the contact input and contact output.

<table>
<thead>
<tr>
<th>Contact input</th>
<th>AUTO/MANUAL switching</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REMOTE/LOCAL switching</td>
</tr>
<tr>
<td></td>
<td>STOP/START switching</td>
</tr>
<tr>
<td></td>
<td>Switching to CASCADE</td>
</tr>
<tr>
<td></td>
<td>Switching to AUTO</td>
</tr>
<tr>
<td></td>
<td>Switching to MANUAL</td>
</tr>
<tr>
<td></td>
<td>Switching to REMOTE</td>
</tr>
<tr>
<td></td>
<td>Switching to LOCAL</td>
</tr>
<tr>
<td></td>
<td>AUTO-TUNING START/STOP switching</td>
</tr>
<tr>
<td></td>
<td>OUTPUT TRACKING switching</td>
</tr>
<tr>
<td></td>
<td>Two-input switching</td>
</tr>
<tr>
<td></td>
<td>PV Hold</td>
</tr>
<tr>
<td></td>
<td>LCD backlight ON/OFF switching</td>
</tr>
<tr>
<td></td>
<td>Message interrupt displays 1 through 4</td>
</tr>
<tr>
<td></td>
<td>SP number specification</td>
</tr>
<tr>
<td></td>
<td>PID number specification</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact output</th>
<th>Manual preset output number specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop 1 alarms 1 through 8</td>
<td>Loop 2 alarms 1 through 8 (for cascade control)</td>
</tr>
<tr>
<td>Status output</td>
<td></td>
</tr>
</tbody>
</table>

Ladder Sequence Function

(1) Number of I/O Points

<table>
<thead>
<tr>
<th>UT55A</th>
<th>UT52A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of digital input points</td>
<td>Up to 9</td>
</tr>
<tr>
<td>Number of digital output points</td>
<td>Up to 18</td>
</tr>
</tbody>
</table>

This is limited by the number of contact I/O signal points. (See the model code.)
(2) Types of Command

<table>
<thead>
<tr>
<th>Number of commands</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Load, AND, OR, Timer, Counter, etc.</td>
</tr>
<tr>
<td>73</td>
<td>Comparison, reverse, addition/subtraction/multiplication/division, logic operation, high/low limiter, etc.</td>
</tr>
</tbody>
</table>

(3) Sequence Device

<table>
<thead>
<tr>
<th>Types of device</th>
<th>Number of points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital I/O</td>
<td></td>
</tr>
<tr>
<td>Input relay</td>
<td>9 (max)</td>
</tr>
<tr>
<td>Output relay</td>
<td>18 (max)</td>
</tr>
<tr>
<td>Internal device</td>
<td></td>
</tr>
<tr>
<td>M relay (bit data)</td>
<td>256</td>
</tr>
<tr>
<td>DAT register (data)</td>
<td>28</td>
</tr>
<tr>
<td>P register (parameter)</td>
<td>10</td>
</tr>
<tr>
<td>K register (constant)</td>
<td>30</td>
</tr>
<tr>
<td>Special device</td>
<td>Special relay (bit data)</td>
</tr>
</tbody>
</table>

* Process data and process relay can be used besides the above-mentioned.

(4) Program capacity
Max. Program capacity: 500 steps *
*: Available number of steps differs according to the parameters, using command and control period.

(5) Ladder computation period
Ladder computation period is the same as control period.

Communication Function

<table>
<thead>
<tr>
<th>Function</th>
<th>Method</th>
<th>Interface</th>
<th>Targets</th>
<th>Max connection</th>
<th>Communication Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modbus/TCP</td>
<td>Server</td>
<td>Ethernet</td>
<td>PLC and others</td>
<td>2 connections</td>
<td></td>
</tr>
<tr>
<td>PROFIBUS-DP</td>
<td>Slave</td>
<td>RS-485</td>
<td>PLC and others</td>
<td>Number of nodes: 126</td>
<td></td>
</tr>
<tr>
<td>CC-Link</td>
<td>Slave</td>
<td>RS-485</td>
<td>PLC and others</td>
<td>Number of nodes: 42 (Remote device)</td>
<td>PV, SP, OUT, ALM etc</td>
</tr>
<tr>
<td>DeviceNet</td>
<td>Slave</td>
<td>RS-485</td>
<td>PLC and others</td>
<td>Number of nodes: 64</td>
<td></td>
</tr>
</tbody>
</table>

*1: UT digital indicating controller, Signal conditioner JUXTA, Power monitor POWERCERT can be connected.

*2: UT digital indication controllers can be connected.
**Physical Interface**

**Ethernet**
- Standard: IEEE802.3 (10BASE-T, 100BASE-TX)
- Max segment length: 100m
- Max. Connecting Configuration: Cascade Max. 4 level (10BASE-T), Max. 2 level (100BASE-TX)

**RS-485**
- Standard: EIA RS-485
- Communication method: Two-wire half-duplex or four-wire half-duplex, start-stop synchronization and non-procedural
- Baud rate: 600, 1200, 2400, 4800, 9600, 19200 or 38400bps (*3)*
- Maximum communication distance: 1200m
- Terminating resistor: 220Ω (External)

*3: “38400 bps” is available only for UT55A (Type 3 code = 1) and UT52A (Type 2 code = 1)

**PROFIBUS-DP**
- Standard: Field bus (IEC61158)
- Corresponding version: DP V0
- Baud rate: 9.6k, 19.2k, 45.45k, 93.75k, 187.5k, 0.5M, 1.5M, 3M, 6M, 12M, AUTO (*4)
- Communication distance: 1200m (9.6k to 93.75k) 1000m (187.5k) 400m (0.5M) 200m (1.5M) 100m (3M to 12M)

*4: AUTO automatically sets the baud rate to that of the host controller (PROFIBUS-DP master).

**CC-Link**
- Supported version: Remote device (Ver.1.10, Ver.2.00)
- Baud rate: 156k, 625k, 2.5M, 5M, 10M bps
- Transmission distance: 1.2km (156k bps), 600m (625k bps), 200m (2.5M bps), 150m (5M bps), 100m (10M bps)
- When using optical repeater: 7.6 km (156k) to 4.3 km (10M)

**DeviceNet**
- Field bus (IEC61158)
- Baud rate: 125k, 250k, 500k bps
- Transmission distance: 500m (125k bps), 250m (250k bps), 100m (500k bps)
### Universal Input Specifications

- Number of input points: 1
- Types of input, instrument range, and measurement accuracy (see the table below)

### Display Specifications

- PV display
  - 5-digit, 14-segment active color LCD (white/red)
  - Character height: 21.5 mm for UTSSA and 13.0 mm for UT52A
- Data display
  - 5-digit, 11-segment color LCD (orange)
  - Bar graph display
  - 12-segment color LCD (orange and white)

### Hardware Specifications

#### Display Specifications

- **PV display**
  - 5-digit, 14-segment active color LCD (white/red)
  - Character height: 21.5 mm for UTSSA and 13.0 mm for UT52A
- **Data display**
  - 5-digit, 11-segment color LCD (orange)
  - Bar graph display
  - 12-segment color LCD (orange and white)

### Universal Input Specifications

- **Character height:** 21.5 mm for UT55A and 13.0 mm
- **Accuracy (see the table below)**

#### Types of input Instrument range | Accuracy

<table>
<thead>
<tr>
<th>Types of input</th>
<th>Instrument range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>270.0 to 1270.0°C</td>
<td>±0.1% of instrument range ±1 digit for less than 0°C or more</td>
</tr>
<tr>
<td>J</td>
<td>500.0 to 1000.0°C</td>
<td>±0.2% of instrument range ±1 digit for less than 0°C or more</td>
</tr>
<tr>
<td>T</td>
<td>0.0 to 400.0°C</td>
<td>±0.15% of instrument range ±1 digit</td>
</tr>
<tr>
<td>B</td>
<td>0.0 to 1800.0°C</td>
<td>±0.15% of instrument range ±1 digit for 400°C or more ±5% of instrument range ±1 digit for less than 400°C</td>
</tr>
<tr>
<td>S</td>
<td>0.0 to 1700.0°C</td>
<td>±0.15% of instrument range ±1 digit</td>
</tr>
<tr>
<td>R</td>
<td>0.0 to 1700.0°C</td>
<td>±0.15% of instrument range ±1 digit</td>
</tr>
<tr>
<td>N</td>
<td>-200.0 to 1300.0°C</td>
<td>±0.1% of instrument range ±1 digit ±25% of instrument range ±1 digit for less than 0°C or more</td>
</tr>
<tr>
<td>E</td>
<td>-270.0 to 1000.0°C</td>
<td>±0.2% of instrument range ±1 digit for less than 0°C or more</td>
</tr>
<tr>
<td>L</td>
<td>-200.0 to 1200.0°C</td>
<td>±0.2% of instrument range ±1 digit for less than 0°C or more</td>
</tr>
<tr>
<td>U</td>
<td>0.0 to 400.0°C</td>
<td>±0.15% of instrument range ±1 digit</td>
</tr>
<tr>
<td>W</td>
<td>0.0 to 2300.0°C</td>
<td>±0.2% of instrument range ±1 digit</td>
</tr>
<tr>
<td>Platinum</td>
<td>0.0 to 1390.0°C</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>Pt230-40</td>
<td>0.0 to 1900.0°C</td>
<td>±0.5% of instrument range ±1 digit for 800°C or more Accuracy not guaranteed for less than 800°C</td>
</tr>
<tr>
<td>W3/75</td>
<td>0.0 to 2000.0°C</td>
<td>±0.2% of instrument range ±1 digit</td>
</tr>
<tr>
<td>J1k</td>
<td>-200.0 to 500.0°C</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>J150</td>
<td>-150.0 to 150.0°C</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>P1k</td>
<td>-250.0 to 500.0°C</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>Standard signal</td>
<td>0.400 to 2.0000 V</td>
<td>±0.2% of instrument range ±1 digit</td>
</tr>
<tr>
<td>DC voltage</td>
<td>0.000 to 1.000 V</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>DC current</td>
<td>0.000 to 20.50 mA</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
</tbody>
</table>

The accuracy is that in the standard operating conditions: 23 ±2°C, 55 ±10%RH, and power frequency at 50/60 Hz.

*1: ±0.3°C and ±1 digit in the range between 0 and 100°C ±0.5°C ±1 digit in the range between -100 and 200°C
*2: W-5% Re/W-26% Re (Hoskins Mfg.Co.), ASTM E988

- Applicable standards: JIS, IEC and DIN (ITS-90) for thermocouples and resistance-temperature detectors (RTD)
- **Input sampling period:** Synchronized to control period
- **Burnout detection**
  - Upscale and downside of function, and OFF can be specified for the standard signal of thermocouple and resistance-temperature detector (RTD).
  - For integrated signal input, 0.1 V or 0.4 mA or less is judged as a burnout.
  - Input bias current: 0.05 μA (for thermocouple and resistance-temperature detector (RTD))
  - **Resistance-temperature detector (RTD) measured current:** About 0.16 mA
  - **Input resistance**
    - 1 MΩ or more for thermocouple/mV input
    - About 1 MΩ for voltage input
    - About 250 Ω for current input (with built-in shunt resistance)
  - **Allowable signal source resistance**
    - 250 Ω or less for thermocouple/mV input
    - Effect of signal source resistance: 0.1 μV/Ω or less
  - **Effect of wiring resistance**
    - 2 kΩ or less for DC voltage input
    - Effect of signal source resistance: about 0.01%/100 Ω
  - **Allowable wiring resistance**
    - Up to 150 Ω per line for resistance-temperature detector (RTD) input (conductor resistance between the three lines shall be equal)
    - Effect of wiring resistance: ±0.1°C/10 Ω
  - **Allowable input voltage/current**
    - ±10 V DC for thermocouple/mV/mA or resistance-temperature detector (RTD) input
    - ±20 V DC for V input
    - ±40 mA DC for mA input
  - **Noise reduction ratio**
    - 40 dB or more (at 50/60 Hz) in normal mode
    - 120 dB or more (at 50/60 Hz) in common mode
  - **Reference junction compensation error**
    - ±1.0°C (15 to 35°C)
    - ±1.5°C (-10 to 5°C and 35 to 50°C)

### Auxiliary Analog Input Specifications

- **This function can be used for remote setpoint setting, external compensating input, auxiliary input for computation, etc.**
- **Number of input points:** see the model code table.
- **For types of input, instrument range, and measurement accuracy, see the table below.**

#### Types of input Instrument range | Accuracy

<table>
<thead>
<tr>
<th>Types of input</th>
<th>Instrument range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated signal</td>
<td>0.400 to 2.000 V</td>
<td>±0.2% of instrument range ±1 digit</td>
</tr>
<tr>
<td></td>
<td>1.000 to 5.000 V</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>DC voltage</td>
<td>0.000 to 2.000 V</td>
<td>±0.2% of instrument range ±1 digit</td>
</tr>
<tr>
<td></td>
<td>0.000 to 10.00 V</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
<tr>
<td>DC voltage with High input impedance</td>
<td>0.000 to 1.250 V</td>
<td>±0.1% of instrument range ±1 digit</td>
</tr>
</tbody>
</table>

- **Input sampling period:** Synchronized to control period
- **Input resistance:** About 1 MΩ
- **Burnout detection:** Functions at standard signal Burnout is determined to have occurred if it is 0.1 V or less.
Remote Input with Direct Input Specifications (for /DR Option)

(3-wire or 4-wire when RTD is selected)
• Number of input points: 1 point
• Types of input, instrument range, and measurement accuracy are the same as those of universal input (standard), except for the table below.

<table>
<thead>
<tr>
<th>Types of input</th>
<th>Instrument range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-wire RTD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pt100</td>
<td>-200.0 to 500.0°C</td>
<td>±0.5°C ±1 digit (*)</td>
</tr>
<tr>
<td>Pt100</td>
<td>-150.00 to 150.00°C</td>
<td>±0.1% of instrument range ±1 digit (*)</td>
</tr>
</tbody>
</table>

*: ±0.5 °C ±1 digit in the range of -200.0 to 500.0 °C

• Input sampling period: Synchronized to control period
• Burnout detection: Same as universal input

Contact Input Specifications
• Number of points: 3 points (standard)
  For the maximum number of points, see the model and suffix code table.
• Input type: no-voltage contact input or transistor contact input
• Input contact capacity: 12 V DC, 10 mA or more
  Be sure to use a contact with a minimum ON current of 1 mA or less
• ON/OFF detection
  For no-voltage contact input:
  - Contact resistance 1 kΩ or less in ON state
  - Contact resistance 50 kΩ or more in OFF state
  Transistor contact input:
  - 2 V or less in ON state
  - Leak current 100 μ A or less in OFF state
• Status detection minimum hold time: control period + 50 ms
• Application: SP switching, operation mode switching, event input

Analog Output Specifications
• Number of points
  Control output (heating-side output): 1 point (standard), which is shared with transmission output
  Cooling-side output: 1 point, which is shared with transmission output
• Output functions
  Current output or voltage pulse output
• Current output
  4 to 20 mA DC or 0 to 20 mA DC/load resistance 600 Ω or less
• Current output accuracy
  ±0.1% of span (however, ±5% of span for 1 mA or less)
  The accuracy is that in the standard operating conditions: 23 ±2°C, 55 ±10%RH, and power frequency at 50/60 Hz
• Voltage pulse output
  Application: time proportional output
  ON voltage: 12 V or more/load resistance of 600 Ω or more
  OFF voltage: 0.1 V DC or less
  Time resolution: 10 ms or 0.1% of output value, whichever is larger

Retransmission Output Specifications
• Number of points: 1 point (standard), which is shared with 15 V DC loop power supply
  Additional 2 points when analog control output and cooling-side analog control output are not used
• Output function: current output
  4 to 20 mA DC or 0 to 20 mA DC/load resistance 600 Ω or less
• Current output accuracy (conversion accuracy from PV display on the set scale): ±0.1% of span (however, ±5% of span for 1 mA or less)
  The accuracy is that in the basic operating conditions: 23 ±2°C, 55 ±10%RH, and power frequency at 50/60 Hz
  This is not conversion accuracy through input and output but the performance of transmission output itself.

15V DC Loop Power Supply Specifications
• Number of points: 1 point (standard), which is shared with retransmission output
  Control output (1 point) can also be used.
• Supply voltage: 14.5 to 18.0 V DC
• Maximum supply current: about 21 mA (with short-circuit current limiting circuit)

Step Response Time Specifications
Within 500 ms (for a control period of 50 ms or 100 ms)
Within 1 s (for a control period of 200 ms)
(Response time at 63% of transmission output when a change is made stepwise in the range between 10 and 90% of input span)

Relay Contact Output Specifications
• Types of contact and number of points
  Control relay output: one 1c-contact point
  Cooling output of heating and cooling control: one 1c-contact point (For UT55A only)
  For UT52A heating/cooling output:
    - 2 1a-contact points
    - One 1c-contact point (For UT55A only)

  Alarm output: 3 1a-contact points (Common is separated)
• Contact rating
  1c-contact: 3 A at 250 V AC or 3 A at 30 V DC (resistance load)
  1a-contact:
    - For alarm output: 1 A at 240 V AC or 1 A at 30 V DC (resistance load)
    - For UT52A control relay output: 3 A at 240 V AC or 3 A at 30 V DC (resistance load)
  *: The control output should always be used with a load of 10 mA or more.
  The alarm output should always be used with a load of 1 mA or more.
• Application: time proportional output, alarm output, FAIL output, etc.
• Time resolution for control output: 10 ms or 0.1% of output value, whichever is larger

Transistor Contact Output Specifications
• Number of points: see the model and suffix code table
• Output form: open collector (sink current)
• Output contact capacity: Up to 24 V DC, 50 mA
• Output time resolution: min 50 ms
• Application: alarm output, FAIL output, etc.
Position Proportional Output Specifications

- **Position signal input**
  - Slide resistance: 100 Ω to 2.5 kΩ of total resistance
  - 100% side and slide line: with disconnection detection
  - 0% side: without disconnection detection
  - Current input: 4 to 20 mA DC (with disconnection detection)
  - Input resistance: about 330 Ω
- **Sampling period**: 50 ms
- **Measurement resolution**: 0.1% of input span
- **Position proportional relay output**
  - UT55A: Two 1a-contact points, 3 A at 250 V AC or 3A at 240 V AC or 3A at 30 V DC (resistance load)
  - UT52A: Two 1a-contact points, 3 A at 240 V AC or 3A at 30 V DC (resistance load)
  - This should always be used with a load of 10 mA or more.

Heater Break Alarm Specifications (for /HA Option)

- **Function**: Measures the heater current using an external current transformer (CT) and generates a heater break alarm when the measured value is less than the disconnection detection value.
- **Number of input points**: 2 points
- **Number of output points**: 2 points (transistor contract output)
- **CT input resistance**: about 9.4 Ω
- **CT input range**: 0.0 to 0.1 Arms (0.12 Arms or more cannot be applied)
- **Heater current alarm setting range**: OFF, 0.1 to 300.0 Arms
- **Heater current measured value display range**: 0.0 to 360.0 Arms
  - The CT ratio can be set. CT ratio setting range: 1 to 3300
- **Recommended CT**: CT from URD Co. Ltd.
  - CTL-6-S-H: CT ratio 800, measurable current range: 0.1 to 80.0 Arms
  - CTL-12L-30: CT ratio 3000, measurable current range: 0.1 to 180.0 Arms
- **Heater current measurement period**: 200 ms
- **Heater current measurement accuracy**: ±5% of CT input range ±1 digit (CT error is not included)
- **Heater current detection resolution**: Within 1/250 of CT input range span
- **Disconnection detection ON time**: Minimum 200 ms. (for time proportional output)

24 V DC Loop Power Supply Specifications (for /LP Option)

- **Application**: Power is supplied to the 2-wire transmitter.
- **Supply voltage**: 21.6 to 28.0 V DC
- **Rated current**: 4 to 20 mA DC
- **Maximum supply current**: About 30 mA (with short-circuit current limiting circuit)

Safety and EMC Standards

- **Safety**:
  - Compliant with IEC/EN 61010-1 (CE), IEC/EN 61010-2-201 (CE), IEC/EN 61010-2-030 (CE), approved by CAN/CSA C22.2 No. 61010-1 (CSA), approved by UL 61010-1.
  - Installation category: II
  - Pollution degree: 2
  - Measurement category: I (CAT I) (UL, CSA)
    - O (Other) (CE)
  - Rated measurement input voltage: Max. 10 V DC
  - Rated transient overvoltage: 1500 V (*)
  - This is a reference safety standard value for measurement category I of CSA/UL 61010-1, and for measurement category O of IEC/EN 61010-2-030. This value is not necessarily a guarantee of instrument performance.

- **EMC standards**:
  - Compliant with
    - EN 61326-1 Class A, Table 2 (For use in industrial locations),
    - EN 61326-2-3
      - The instrument continues to operate at a measurement accuracy of within ±20% of the range during testing.
    - EN 55011 Class A, Group 1
    - EN 61000-3-2 Class A
    - EN 61000-3-3
    - EMC Regulatory Arrangement in Australia and New Zealand
      - EN 55011 Class A, Group 1
  - **KC marking**: Electromagnetic wave interference prevention standard, electromagnetic wave protection standard compliance

Power Supply Specifications and Isolation

- **Power supply**
  - Rated voltage: 100 to 240 V AC (+10%/-15%), 50/60 Hz
  - 24 V AC/DC (+10%/-15%) (When the /DC option is specified)
  - Power consumption: UT55A: 18 VA (For the /DC option. DC: 9 VA, AC: 14 VA)
    - UT52A: 15 VA (For the /DC option. DC: 7 VA, AC: 11 VA)
  - **Storage**: Nonvolatile memory
  - **Allowable power interruption time**: 20 ms (at 100 V AC)
  - **Withstanding voltage**
    - 2300 V AC for 1 minute between primary and secondary terminals (UL, CSA)
    - 3000 V AC for 1 minute between primary and secondary terminals (CE)
    - 1500 V AC for 1 minute between primary terminals
    - 500 V AC for 1 minute between secondary terminals
      - Primary terminals = Power (*) and relay output terminals, Secondary terminals = Analog I/O signal terminals, contact input terminals, communication terminals, and functional grounding terminals.
    - Power terminals for 24 V AC/DC models are the secondary terminals.
  - **Insulation resistance**
    - Between power supply terminals and a grounding terminal: 20 MΩ or more at 500 V DC

24 V DC Loop Power Supply Specifications (for /LP Option)

- Application: Power is supplied to the 2-wire transmitter.
- Supply voltage: 21.6 to 28.0 V DC
- Rated current: 4 to 20 mA DC
- Maximum supply current: About 30 mA (with short-circuit current limiting circuit)
• Isolation specifications

| PV (universal) input terminal | Internal circuits Power supply |
| Remote (universal) input terminals with direct input / Remote input terminals | | |
| Aux. analog (AIN2) input terminals | | |
| Aux. analog (AIN4) input terminals | | |
| Control and transmission (analog) output terminal (not isolated between the analog output terminals) Valve position (feedback) input terminal | | |
| Control relay (c-contact) output terminal | | |
| Alarm-1 relay (a-contact) output terminal | | |
| Alarm-2 relay (a-contact) output terminal | | |
| Alarm-3 relay (a-contact) output terminal | | |
| Position proportional relay output terminal | | |
| Contact input terminal (All) RS485 communication terminal (2 ports) | | |
| 24 V DC loop power supply terminal | | |
| Contact output (transistor) terminal | | |
| Ethernet/PROFIBUS-DP/CC-Link/DeviceNet communication terminal | | |
| Current transformer input terminal | | |

The circuits divided by lines are insulated mutually.

**Environmental Conditions**

**Normal operating conditions**

- Ambient temperature: -10 to 50°C (side-by-side mounting: -10 to 40°C)
  - If the CC-Link option is specified, 0 to 50°C for UT55A, 0 to 40°C for UT52A. (side-by-side mounting: 0 to 40°C for UT55A and UT52A with CC-Link option)
- Ambient humidity: 20 to 90% RH (no condensation)
- Magnetic field: 400 A/m or less
- Continuous vibration (at 5 to 9 Hz) Half amplitude of 1.5 mm or less
  - (at 9 to 150 Hz) 4.9 m/s² or less, 1 oct/min for 90 minutes each in the three axis directions
- Rapid vibration: 14.7 m/s², 15 s or less
- Impact: 98 m/s² or less, 11 msec.
- Installation altitude: 2,000 m or less above sea level
- Warm-up time: 30 minutes or more after the power is turned on
- Start-up time within 10 s

**Transportation and Storage Conditions**

- Temperature: -25 to 70°C
- Temperature change rate: 20°C per hour or less
- Humidity: 5 to 95%RH (no condensation)

**Effects of Operating Conditions**

- **Effect of ambient temperature**
  - For voltage or TC input: ±1 μV°C or ±0.01% of F.S. (instrument range)°C, whichever is greater
  - For RTD input: ±0.05°C/°C (ambient temperature) or less
  - For current input: ±0.01% of F.S. (instrument range)°C
  - For analog output: ±0.02% of F.S./°C or less
- **Effect of power supply fluctuation:**
  - For analog input: ±0.05% of F.S. (instrument range) or less
  - For analog output: ±0.05% of F.S. or less
  - (Each within rated voltage range)
## Block Diagram

**Single Loop Control** (For the block diagrams of other control modes, see the user’s manual)

### PV input
- Target setpoints 1 to 8
- Analog input
- Output limiter
- Manual operation
- Manual preset output
- Input error preset output
- Preset output

### Communication
- RS-485, Ethernet, PROFIBUS-DP, DeviceNet, CC-Link

### Feedforward input
- DI16 equipped when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### Remote input
- Remote input can be used when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### DI8 is equipped when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### Control input
- No function is assigned to DI3.

### Input ladder calculation program (signal goes to the control computation as is when without ladder program).
For ladder program, see the LL50A Parameters Setting Software User’s Manual.

### Output ladder calculation program (signal goes to the output as is when without ladder program).
For ladder program, see the LL50A Parameters Setting Software User’s Manual.

### Remote input can be used when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### Feedforward input can be used when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### Output retransmission output
- Current or voltage pulse
- Relay
- Current or voltage pulse
  (Current when retransmission output)

### DI16 is equipped when UT55A suffix code: Type 2 = 1, 2, 4, 5, or 7; UT52A suffix code: Type 2 = 1 or 2.

### Alarm 1
- PV high limit

### Alarm 2
- PV low limit

### Alarm 3
- PV high limit

### PV display
- SP display

### Control computation
- (Current when retransmission output)

### Remote input filter
- Remote input filter

### Analog input
- Analog input
- Analog input computation

### Target selection 1 to 8

### Target (ON)/Local (OFF)
- Remote (ON)/Local (OFF) switch

### Remote input
- Remote input

### Analog input
- Analog input

### Local
- Local

### Remote
- Remote

### Input type
- Input type
- Input unit
- Input range/scale
- Analog input bias
- Square root extraction
- Analog input filter

### PMD An, Bn
- 10-seg. linearizer approx./bias

### 10-seg. linearizer approx./bias
- PMD An, Bn

### Ratio bias computation
- Ratio bias computation

### Output limiter
- Output limiter
- Manual operation
- Manual preset output
- Input error preset output

### STOP (ON)/RUN (OFF) switch
- STOP (ON)/RUN (OFF) switch

### AUTO (ON)/MAN (OFF) switch
- AUTO (ON)/MAN (OFF) switch

### Temperature
- Temperature

### Power supply
- 24 V loop power supply

### DI16
- DI16

### RS-485, Ethernet, PROFIBUS-DP, DeviceNet, CC-Link

### Remote input
- Remote input

### Analog input
- Analog input
Terminal Arrangement for UT55A Single Loop Control (for the terminal arrangements of other control modes, see the user’s manual.)

Control output

PV input

Transmit output

Contact input

Power supply

E1-terminal area

E2-terminal area

E3-terminal area

E4-terminal area

Contact input

DI

RP

E2-terminal area

E1-terminal area

301-306

307-312

DI

DO

AIN2

Factory default: No function

Function can be assigned to the terminals with no function.

Factory default: No function

Function can be assigned to the terminals with no function.

Factory default: No function

Function can be assigned to the terminals with no function.

Function can be assigned to the terminals with no function.

Factory default: No function

Function can be assigned to the terminals with no function.

Factory default: No function

Function can be assigned to the terminals with no function.
Terminal Arrangement for UT52A Single Loop Control (for the terminal arrangements of other control modes, see the user’s manual.)

- **Control output**
  - Factory default: Output type is fixed.

- **PV input**
  - Factory default: Input type is fixed.

- **Retransmission output**
  - Can be used for 15 V DC loop power supply when communication failure output is not used for retransmission output.

- **Contact output**
  - Function can be assigned to the terminals with no function.

- **Power supply**
  - Factory default: 24 V AC/DC power supply: Option code /DC

- **Terminal wiring differs in heating/cooling and proportional control. Refer to the terminals of Position proportional control and Position proportional control.**

- **Resistance load**
  - 30 V DC, 3 A

- **Contact rating**
  - 240 V AC, 3 A

- **Feedback input**
  - 0-2 V DC, 0-10 V DC

- **Current/voltage pulse output**
  - Voltage pulse (12 V), 4-20 mA DC, 0-20 mA DC, 204-20 mA DC

- **Current output range**
  - Can be changed.

- **Heater current detection input**
  - Heater current detection input

- **Heater break alarm**
  - Heater break alarm-1, Heater break alarm-2

- **Heating/cooling relay contact output**
  - Factory default: Heating-side control output is assigned.

- **Heating/cooling control output**
  - Refer to the terminals of Position proportional control.

- **Communication wiring, terminating resistor**
  - 15 V DC loop power supply

- **Connection wiring to communication wiring**
  - Can be used for 15 V DC loop power supply when communication failure output is not used for control output.

- **Current output range**
  - Can be changed.

- **Factory default**
  - Function can be assigned to the terminals with no function.

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### External Dimensions and Panel Cutout Dimensions

**UT55A**

<table>
<thead>
<tr>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 98 (25)</td>
</tr>
<tr>
<td>Height: 96 (117 min.)</td>
</tr>
<tr>
<td>Depth: 65 (117 min.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Dimensions and Panel Cutout Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>[(N-1)\times96+92]117 min.</td>
</tr>
</tbody>
</table>

“N” stands for the number of controllers to be installed. However, the measured value applies if N≥5.

Normal tolerance: ±(value of JIS B 0401-1998 tolerance class IT18)/2

**UT52A**

<table>
<thead>
<tr>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 48 (70 min.)</td>
</tr>
<tr>
<td>Height: 96 (145 min.)</td>
</tr>
<tr>
<td>Depth: 65 (145 min.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Dimensions and Panel Cutout Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>[(N-1)\times48+45]70 min.</td>
</tr>
</tbody>
</table>

“N” stands for the number of controllers to be installed. However, the measured value applies if N≥5.

Normal tolerance: ±(value of JIS B 0401-1998 tolerance class IT18)/2

### Construction, Mounting, and Wiring

- Dust-proof and drip-proof: IP66 (Front panel) (Except for side-by-side close mounting)/NEMA4 *
  - Hose-down test only
- Material: Polycarbonate resin (Flame retardancy: UL94 V-0)
- Case color: White (Light gray) or Black (Light charcoal gray)
- Weight: 0.5 kg or less
- External dimensions (mm):
  - UT55A: 96 (width) x 96 (height) x 65 (depth from the panel surface)
  - UT52A: 48 (width) x 96 (height) x 65 (depth from the panel surface)
- Mounting: Direct panel mounting; mounting bracket, one each for upper and lower mounting
- Panel cutout dimensions (mm):
  - UT55A: 92+0.8/0 (width) x 92+0.8/0 (height)
  - UT52A: 45+0.6/0 (width) x 92+0.8/0 (height)
- Mounting position: Up to 30 degrees above the horizontal. No downward tilting allowed.
- Wiring: M3 screw terminal with square washer (signal wiring and power)
### Model and Suffix Code

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT52A</td>
<td>-0</td>
<td>-00</td>
<td>Digital Indicating Controller (Power supply 100-240 V AC) (provided with retransmission output or 15 V DC loop power supply, 3 DIs, and 3 DOs)</td>
</tr>
<tr>
<td>Type 1:</td>
<td>-0</td>
<td>-00</td>
<td>Standard type</td>
</tr>
<tr>
<td>Basic</td>
<td>-0</td>
<td>-00</td>
<td>Position proportional type</td>
</tr>
<tr>
<td>control</td>
<td>-0</td>
<td>-00</td>
<td>Heating/cooling type</td>
</tr>
<tr>
<td>Type 2:</td>
<td>0</td>
<td>-00</td>
<td>None</td>
</tr>
<tr>
<td>Functions</td>
<td>0</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 6 additional DIs, 5 additional DOs, and RS-485 communication (Max. 19.2 kbps, 2-wire/4-wire))</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 1 additional DI, and RS-485 communication (Max. 19.2 kbps, 2-wire/4-wire))</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-00</td>
<td>3 additional DIs and 5 additional DOs</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input and 1 additional DI)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 6 additional DIs, and 6 additional DOs)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>-00</td>
<td>9 additional DIs and 15 additional DOs</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>-00</td>
<td>3 additional aux. analog inputs and 3 additional DIs</td>
</tr>
<tr>
<td>Type 3:</td>
<td>0</td>
<td>-00</td>
<td>RS-485 communication (Max. 38.4 kbps, 2-wire)</td>
</tr>
<tr>
<td>Open</td>
<td>networks</td>
<td>-00</td>
<td>Ethernet communication (with serial gateway function)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>DeviceNet communication (with Modbus master function)</td>
</tr>
<tr>
<td>Display</td>
<td>language (*2)</td>
<td>-00</td>
<td>English (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>German (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>French (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>Spanish (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td>Case</td>
<td>color</td>
<td>-00</td>
<td>Always “-00” (for Standard Code Model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>Black (Light charcoal gray)</td>
</tr>
</tbody>
</table>

Fixed code: Always “-00” (for Standard Code Model)

### Option codes

<table>
<thead>
<tr>
<th>Option codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/DR</td>
<td>Additional direct input (TC &amp; 3-wire/4-wire RTD) and current to Remote (1 additional aux. analog input, 1 DI to be deleted)</td>
</tr>
<tr>
<td>/LP</td>
<td>24 V DC loop power supply</td>
</tr>
<tr>
<td>/HA</td>
<td>Heater break alarm</td>
</tr>
<tr>
<td>/DC</td>
<td>Power supply 24 V AC/DC</td>
</tr>
<tr>
<td>/CT</td>
<td>Coating (*)</td>
</tr>
<tr>
<td>/MDL</td>
<td>Mount on DIN rail (without the display parts and keys) (please see the General Specifications GS 05P01C81-01EN.)</td>
</tr>
</tbody>
</table>

*1: The Type 3 code “3” can be specified only when the Type 1 code is “0” and the Type 2 code is “0.”
*2: When the LP option is specified, the RS-485 communication of the Type 2 code “1” or “2” is 2-wire system.
*3: English, German, French, and Spanish are available for the guide display.
*4: The /DR option can be specified only when the Type 2 code is “2” and the Type 3 code is “0.”
*5: The /LP option can be specified only when the Type 2 code is “0” and the Type 3 code is “0.”
*6: When the /CT option is specified, the UT52A does not conform to the safety standards (UL and CSA) and CE marking (Products with /CT option are not intended for EEA-market).

---

### Model and Suffix Code

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT55A</td>
<td>-0</td>
<td>-00</td>
<td>Digital Indicating Controller (Power supply 100-240 V AC)</td>
</tr>
<tr>
<td>Type 1:</td>
<td>-0</td>
<td>-00</td>
<td>Standard type</td>
</tr>
<tr>
<td>Basic</td>
<td>-0</td>
<td>-00</td>
<td>Position proportional type</td>
</tr>
<tr>
<td>control</td>
<td>-0</td>
<td>-00</td>
<td>Heating/cooling type</td>
</tr>
<tr>
<td>Type 2:</td>
<td>0</td>
<td>-00</td>
<td>None</td>
</tr>
<tr>
<td>Functions</td>
<td>0</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 6 additional DIs, 5 additional DOs, and RS-485 communication (Max. 19.2 kbps, 2-wire/4-wire))</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 1 additional DI, and RS-485 communication (Max. 19.2 kbps, 2-wire/4-wire))</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-00</td>
<td>3 additional DIs and 5 additional DOs</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input and 1 additional DI)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-00</td>
<td>Remote (1 additional aux. analog input, 6 additional DIs, and 6 additional DOs)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>-00</td>
<td>9 additional DIs and 15 additional DOs</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>-00</td>
<td>3 additional aux. analog inputs and 3 additional DIs</td>
</tr>
<tr>
<td>Type 3:</td>
<td>0</td>
<td>-00</td>
<td>RS-485 communication (Max. 38.4 kbps, 2-wire)</td>
</tr>
<tr>
<td>Open</td>
<td>networks</td>
<td>-00</td>
<td>Ethernet communication (with serial gateway function)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>DeviceNet communication (with Modbus master function)</td>
</tr>
<tr>
<td>Display</td>
<td>language (*2)</td>
<td>-00</td>
<td>English (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>German (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>French (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>Spanish (Default, Can be switched to other language by the setting.)</td>
</tr>
<tr>
<td>Case</td>
<td>color</td>
<td>-00</td>
<td>Always “-00” (for Standard Code Model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-00</td>
<td>Black (Light charcoal gray)</td>
</tr>
</tbody>
</table>

Fixed code: Always “-00” (for Standard Code Model)

### Option codes

<table>
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<tr>
<th>Option codes</th>
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<td>/MDL</td>
<td>Mount on DIN rail (without the display parts and keys) (please see the General Specifications GS 05P01C81-01EN.)</td>
</tr>
</tbody>
</table>

*1: When the Type 2 code is “1” or “6”, only “0” can be specified for the Type 3 code.
*2: When the /LP option is specified, the RS-485 communication of the Type 2 code “1” or “2” is 2-wire system.
*3: Additional direct input (TC & 3-wire/4-wire RTD) and current to Remote (1 additional aux. analog input, 1 DI to be deleted) |
*4: The /DR option can be specified only when the Type 2 code is “2” and the Type 3 code is “0.”
*5: The /LP option can be specified only when the Type 2 code is “0.”
*6: The /HA option can be specified only when the Type 1 code is “0.”
*7: When the /CT option is specified, the UT52A does not conform to the safety standards (UL and CSA) and CE marking (Products with /CT option are not intended for EEA-market).
- **Items to be specified when ordering**
  Model and suffix codes, whether User’s Manual and QIC required.

- **Standard accessories**
  Terminal cover, Brackets (mounting hardware), Unit label, and Operation Guide for Single-loop Control.

- **Special Order Items**

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<tr>
<th>Model code</th>
<th>Suffix code</th>
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</thead>
<tbody>
<tr>
<td>LL50A</td>
<td>-00</td>
<td>Parameter Setting Software</td>
</tr>
<tr>
<td>XS10</td>
<td></td>
<td>See the General Specifications (*) Resistance Module</td>
</tr>
</tbody>
</table>

*: Necessary to input the current signal to the voltage input terminal.

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<tr>
<th>Name</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal cover (for UT55A)</td>
<td>UTAP001</td>
</tr>
<tr>
<td>Terminal cover (for UT52A)</td>
<td>UTAP002</td>
</tr>
<tr>
<td>User’s Manual (CD)</td>
<td>UTAP003</td>
</tr>
</tbody>
</table>

- **User’s Manual**
  Product user’s manuals can be downloaded or viewed at the following URL. To view the user’s manual, you need to use Adobe Reader 7 or later by Adobe Systems.

  **URL:** http://www.yokogawa.com/ns/ut/im/