Overview
The UM33A-S connects to sensors which are connected to SENCOM Smart Adapter, model SA11. The main functions of the UM33A-S are displaying the measured values of the sensor and calibrating the sensor.
The UM33A-S can be connected to two types of sensors: pH meter and conductivity meter.

Features
- A 14-segment, white color LCD display is employed. Alphabet letters can be displayed in an easy-to-read manner. The guide display shows parameter names.
- Sensor and warning-error displays with event indicators.
- Easy to operate
  Navigation keys (SET/ENTER and Up/Down/Left/Right arrow keys) are employed to facilitate making settings.
- Indication and control of the calibration function included in the Smart Adapter
- The display range (the unit and decimal point position) is switched automatically according to the PV value. (when conductivity (SC) sensor is selected.)
- 3 additional DO (a-contact relay) (Option /AL)
- Power supply for SENCOM: 3.6 - 5.5 VDC
- 65 mm depth
  The small depth enables the mounting in a thin and small instrumented panel.
- Equipped with mA retransmission output
- Dust-proof and drip-proof
  IP66 (for front panel) (Not applicable to side-by-side close mounting.) NEMA4 (Hose-down test only)

Functional Specifications
SENCOM Smart Adapter Interface
- Communication function
  Modbus master
  Connected slave number: 1 unit
- Power supply for SENCOM: 3.6 - 5.5 VDC (max 30 mW)

Physical Interface
- Interface type: RS-485
- Protocol: Modbus/RTU
- Baud rate: 9600 bps
- Byte format
  8bit with even parity, one stop bit, one start bit.
- Instrument address: 1 (fixed)

Hardware Specifications
Display Specifications
- PV display: 5-digit, 14-segment LCD (white)
  Character height: 14.2 mm
- Data display: 5-digit, 11-segment LCD (orange)

Names of Display Parts

Retransmission Output Specifications
- Current output: 4 to 20 mA DC (for process output), 3.5 mA or less or 22 mA or more (for error indication). Load resistance of 600 Ω or less
- Current output accuracy: ±0.1% of span
  The accuracy is that in the standard operating conditions: 23 ± 2 °C, 55 ± 10 %RH, and power frequency at 50/60 Hz.
3 additional DO (a-contact relay) Specifications

- Contact type and number of outputs: contact point 1a; 3 points (common is independent)
- Contact rating: 240 V AC, 1A or 30 V DC, 1 A (resistance load)
- Use: Alarm output
  * The alarm-1 to -3 output should always be used with a load of 1 mA or more.

Safety and EMC Standards

Note: /NS option does not conform to the 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 transient overvoltage: 1500 V (*1)
    1: 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 CE marking
    EN 61326-1 Class A, Table 2, 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

Construction, Installation, and Wiring

- Dust-proof and drip-proof: IP66 (for front panel)/NEMA4 (*2)
  2: Hose-down test only
- Material: Polycarbonate (Flame retardancy: UL94V-0)
- Case color: White (Light gray) or Black (Light charcoal gray)
- Weight: 0.5 kg or less
- External dimensions (mm): 96 (W) x 48 (H) x 65 (depth from the panel face)
  (Depth except the projection on the rear panel)
- Installation: Direct panel mounting; mounting bracket, one each for left and right mounting
- Panel cutout dimensions (mm): 92 x 150 x 45
  (*3: 92 x 150 x 45 ※)(H)
- Mounting altitude: Up to 30 degrees above the horizontal. No downward titling allowed.
- Wiring: M3 screw terminal with square washer (for signal wiring and power wiring)

Power Supply Specifications and Isolation

- Power supply:
  Rated voltage: 100 – 240 V AC (+10%/-15%), 50/60 Hz
  DC/DC (+10%/-15%) (for DC option)
  Power consumption: 15 VA (DC: 7 VA, AC: 11 VA if DC option is specified)
- Data backup: Nonvolatile memory
- Power holdup time: 20 ms (for 100 V AC drive)
- Withstanding voltage
  - Between primary terminals and secondary terminals: 2300 V AC for 1 minute (UL, CSA)
  - Between primary terminals and secondary terminals: 3000 V AC for 1 minute (CE)
  - Between primary terminals: 1500 V AC for 1 minute
  - Between secondary terminals: 500 V AC for 1 minute
  (Primary terminals: Power*4 and relay output terminals; Secondary terminals: Communication terminals and functional grounding terminals.)
- Insulation resistance
  Between power supply terminals and a grounding terminal: 20 MΩ or more at 500 V DC
- Isolation specifications

<table>
<thead>
<tr>
<th>Internal circuit</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm-1 relay (contact point a) output terminals</td>
<td>Alarm-2 relay (contact point a) output terminals</td>
</tr>
<tr>
<td>Alarm-3 relay (contact point a) output terminals</td>
<td>SENCOM smart adapter Interface terminals</td>
</tr>
</tbody>
</table>

The circuits divided by lines are insulated mutually.

Environmental Conditions

Normal Operating Conditions

- Ambient temperature: -10 to 50 °C
- Ambient humidity: 20 to 90 %RH (no condensation allowed)
- Magnetic field: 400 A/m or less
- Continuous vibration at 5 to 9 Hz: Half amplitude of 1.5 mm or less, 1 oct/min for 90 minutes each in the three axis directions
- Continuous vibration at 9 to 150 Hz: 4.9 m/s² or less, 1 oct/min for 90 minutes each in the three axis directions
- Shock: 14.7 m/s², 15 seconds or less
- Altitude: 2000 m or less above sea level
- Warm-up time: 30 minutes or more after the power is turned on
- Startup time: Within 20 seconds
  *: The LCD (a liquid crystal display) is used for a display portion of this product.
  The LCD has a characteristic that the display action becomes late at the low temperature.

Transportation and Storage Conditions

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

Effects of Operating Conditions

- Effect of ambient temperature:
  Analog output: ±0.02 % of F.S./°C or less
- Effect of power supply voltage fluctuation
  Analog output: ±0.05 % of F.S. or less
  (Each within rated voltage range)
### Terminal Arrangement

#### Power supply
- 100-240 V AC power supply
- 24 V AC/DC power supply

- Allowable range: 100-240 V AC (+10%/-15%) (free voltage) 50/60 Hz shared
- 24 V AC/DC power supply: Option code (DC)

#### Contact output
- Contact output ALM
- 3 additional DO (a-contact relay)

- Relay contact rating: 240 V AC, 1 A
- 30 V DC, 1 A (resistance load)

#### mA output
- mA output
- Retransmission output
- 4-20 mA DC load resistance 600 Ω or less

#### SENCOM smart adapter interface
- SENCOM Smart Adapter terminal number
- RS-485/Supply SENCOM Smart Adapter interface
- Terminal number

#### External Dimensions and Panel Cutout Dimensions

- Unit: mm (approx. inch)
- Normal tolerance: ±(value of JIS B 0401-1998 tolerance class IT18)/2
# 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>UM33A</td>
<td></td>
<td>-S</td>
<td>Digital Indicator with Alarms</td>
</tr>
<tr>
<td>Type 1: Basic</td>
<td>0</td>
<td>-S</td>
<td>Dedicated to SENCOM HMI (provided with SENCOM smart adapter interface and retransmission output)</td>
</tr>
<tr>
<td>Type 2: Fixed code</td>
<td>0</td>
<td></td>
<td>Always &quot;0&quot;</td>
</tr>
<tr>
<td>Type 3: Fixed code</td>
<td>0</td>
<td></td>
<td>Always &quot;0&quot;</td>
</tr>
<tr>
<td>Display language</td>
<td>-1</td>
<td></td>
<td>English</td>
</tr>
<tr>
<td>Case color</td>
<td>0</td>
<td></td>
<td>White (Light gray)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>Black (Light charcoal gray)</td>
</tr>
</tbody>
</table>

**Option codes**

- [AL]: 3 additional DO (a-contact relay)
- [DC]: Power supply 24 V AC/DC
- [CT]: Coating¹
- [CV]: Terminal cover
- [NS]: Limited standards certification²

1: When the /CT option is specified, the UM33A does not conform to the safety standards (UL and CSA) and CE marking. (Products with /CT option are not intended for countries which require CE marking.)
2: /NS option does not conform to the Safety and EMC Standards. (Products with /NS option are not intended for countries which require CE marking.)

## Items to be specified when ordering

Model and suffix codes, whether User’s Manual and QIC required.

## Standard accessories

Brackets (mounting hardware), Unit label, Operation Guide

## Special Order Items

<table>
<thead>
<tr>
<th>Model code</th>
<th>Suffix code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X010</td>
<td>See the General Specifications (GS X010-01EN) (*)</td>
<td>Resistance Module</td>
</tr>
</tbody>
</table>

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

## 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.