**UCAM-60C M14/65C M14**

**Data Logger**

![UCAM-60C M14](image)

**System Content**

**Data Loggers**

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<td>UCAM-60C-AC M14</td>
<td>AC</td>
<td>Optional</td>
<td>Operation keys, built-in display, printer</td>
</tr>
<tr>
<td>UCAM-60C-DC M14</td>
<td>DC</td>
<td>Optional</td>
<td>PC-controlled</td>
</tr>
<tr>
<td>UCAM-65C-AC M14</td>
<td>AC</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>UCAM-65C-DC M14</td>
<td>DC</td>
<td>Optional</td>
<td></td>
</tr>
</tbody>
</table>

**Dedicated Scanners**

UCAM-65C-DC-0 M14

**Optional**

UCAM-65C-DC-0 M14

*Japanese version: Contact us. Unless otherwise specified, English version will be delivered.

**Up to 20 k \( \times 10^{-6} \) strain with a resolution as high as 0.1 \( \times 10^{-6} \) strain measurement possible (With full bridge system)**

Common to UCAM-60C M14 and UCAM-65C M14

- Saves long-term measured data in built-in memory than the conventional products.
- Measurement up to 20 k \( \times 10^{-6} \) strain with a resolution of 0.1 \( \times 10^{-6} \) strain (With full bridge system)
- Scanning at 50 ms/channel (With dedicated scanners)
- High-speed scanning at 20 ms/channel (With dedicated scanners)
- Up to 30 channels measurement with dedicated scanners
- Up to 1000 channels measurement with external scanners

UCAM-60C M14

- Easy to understand English presentation
- Fluorescent display tube ensuring easy viewing in the field
- Built-in thermal printer for smooth confirmation of measured results

UCAM-65C M14

- Setting measuring conditions from PC and saving measured results to PC
- Interval measurement possible with no PC connected

The data logger UCAM-60C M14 is an all-in-one measuring instrument developed in full pursuit of easier field measurement. It has easy-to-operate keys, a bright readable display providing understandable presentation and a printer for immediate confirmation of measurement results. All these and more are incorporated in this compact unit to satisfy every need in field measurement.

The UCAM-65C M14 is a compact online data logger fully controlled from the PC.

**Specifications**

**Data Logger UCAM-60C M14/65C M14**

**Measuring Targets**

- Strain gages, strain-gage transducers, DC voltage-output or DC current-output instruments, civil engineering transducers with a thermal sensor, potentiometer sensors, thermal sensors
- Thermocouples and platinum resistance thermometer bulbs

**Connectable Scanners**

- USS-61B, 62B, 63B (Dedicated scanners, mounted on top of the UCAM-60C M14)
- The main unit is connected to the following scanners via the optional scanner interface.
- USB-70B series (via USI-67A)

**Measuring Targets and Connectable Scanners**

<table>
<thead>
<tr>
<th>Measuring Targets</th>
<th>Scanners</th>
<th>Dedicated Scanners</th>
<th>General Purpose</th>
<th>Civil Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strain gages</td>
<td>Quarter bridge system</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Strain-gage transducers</td>
<td>Quarter bridge (half bridge system)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Full bridge 60 to 1000 Ω</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Civil engineering transducers</td>
<td>Full bridge 350 Ω</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Constant-current excitation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Voltage</td>
<td>DC voltage-output instruments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Current</td>
<td>DC current-output instruments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Resistance (thermometer bulbs)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Potentiometer sensors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Built-in lighting arresters</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*1 TEDS compatible function is made effective by connecting TEDS installed sensor through NDIS4102 (7 pins) connector.

*2 120 to 1000 Ω in high-resolution mode.

*3 Cannot use remote sensing sensor directly.
Note 1: Scanning speeds stated above are standard maximum speeds in respective modes. Besides these, the following speeds are set for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s, and 10 s.

Note 2: Repeat measurement interval time = (Number of measuring channels × scanning speed) + data processing time (2 to 20 s). Data processing time is indeterminate, changed by measurement setting and environment.

Note 1: High-resolution mode and high-speed mode are selectable for dedicated scanners only.

Note 2: High-resolution mode is available only with full bridge system. Note 3: High-speed mode is available with full bridge system, voltage, current, and potentiometer sensor.

Operating Modes Real-time, monitor, and automatic

Measurement Functions
- Initial (Initial values are measured and stored in internal memory.)
- Measurement (Initial values are subtracted from original values.)
- Original (Raw values are measured without subtraction of initial values.)
- Easy Measurement (Auto zero balancing function is activated.) * The selected function is applied to all channels.

Coefficient Calculation Function
Multiplication by calibration coefficient, calibration by TEDS, conversion of measured values to physical quantities, scaling and correction.

Unit 59 units

Automatic Measurement Function
- Interval Measurement Measurement is automatically performed at preset time intervals.
- Trigger Measurement A relative value (certain changing quantity) or an absolute value triggers measurement.
- Trigger Interval Measurement Combination of trigger measurement and internal interruption.

Storage Internal memory Capacity: Approx. 1.8 GB

Strain Measurement (High-resolution Mode)
- Measuring Range 0 to ±60 k × 10^{-6} strain
- Resolution ±(0.05% of reading + 0.003) × 10^{-6} strain
- Accuracy ±(0.08% of reading + 0.006) × 10^{-6} strain

Note 1: Available only with full bridges system (120 to 1000 Ω). Note 2: Available only with dedicated scanners. Note 3: Resolution and accuracy can be automatically changed by Autorange function.

Note 2: Stated accuracy does not include the external shunt resistor.

Note 3: Resolution and accuracy be automatically changed by Autorange function.

Voltage Measurement (High-speed Mode)
- Measuring Range 0 to ±50 k × 10^{-6} strain
- Resolution ±(0.05% of reading + 0.003) × 10^{-6} strain
- Accuracy ±(0.08% of reading + 0.006) × 10^{-6} strain

Note 1: Resolution and accuracy can be automatically changed by Autorange function. Note 2: Available only with dedicated scanners.

Current Measurement (Standard Mode)
- Measuring Range 0 to ±500 mA
- Resolution ±0.0018 of reading + 0.0006 mA
- Accuracy ±0.003 of reading + 0.0018 mA

Note 1: Resolution and accuracy can be automatically changed by Autorange function. Note 2: Available only with dedicated scanners.

Data Process Timing
- 20 ms/channel

Initial Value Memory Range Same as measuring range.

Data Process Timing
- 20 ms/channel

Initial Value Memory Range Same as measuring range.

Data Process Timing
- 20 ms/channel

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Data Process Timing
- 20 ms/channel

Initial Value Memory Range Same as measuring range.
### Measuring Instruments

#### Data Loggers

**Measuring Range, Resolution and Accuracy**

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>-200.0 to 1,200.0 °C</td>
<td>±0.1°C</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>E</td>
<td>-200.0 to 660.0 °C</td>
<td>±0.1°C</td>
<td>±0.5°C</td>
</tr>
<tr>
<td>J</td>
<td>-200.0 to 870.0 °C</td>
<td>±0.6°C</td>
<td>±2.0°C</td>
</tr>
<tr>
<td>R</td>
<td>0.0 to 1760.0 °C</td>
<td>±0.3°C</td>
<td>±0.5°C</td>
</tr>
</tbody>
</table>

**Note:**
1. Accuracies do not include the internal reference junction compensator accuracy.
2. The reference junction compensator is switchable between internal and external.
3. Thermocouple resistance should be 1 kΩ or less.

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**Temperature Measurement with Civil Engineering Transducers**

**Scanning Speed:** 50 ms/channel

**Measuring Range, Resolution and Accuracy**

<table>
<thead>
<tr>
<th>Channel Mode</th>
<th>Measuring Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>POT.</td>
<td>0 to ±50.00%</td>
<td>±0.1%</td>
<td>±0.1% FS</td>
</tr>
</tbody>
</table>

**Note:**
- Connection is 3-wire system.

---

**Temperature Measurement with Potentiometer Sensor**

**Scanning Speed:** 50 ms/channel

**Measuring Range, Resolution and Accuracy**

<table>
<thead>
<tr>
<th>Channel Mode</th>
<th>Measuring Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>POT.</td>
<td>0 to ±50.00%</td>
<td>±0.1%</td>
<td>±0.1% FS</td>
</tr>
</tbody>
</table>

**Note:**
- Available only with dedicated scanners.

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**Temperature Measurement with Platinum Resistance**

**Thermometer Bulb (Standard Mode)**

**Scanning Speed:** 50 ms/channel

**Measuring Range, Resolution and Accuracy**

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt100</td>
<td>-200.0 to 660.0 °C</td>
<td>±0.1°C</td>
<td>±0.3°C</td>
</tr>
<tr>
<td>Pt1010</td>
<td>-200.0 to 5,000.0 °C</td>
<td>±0.1°C</td>
<td>±0.3°C</td>
</tr>
</tbody>
</table>

**Note:**
- Connection is 3-wire system.

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**Power Supply**

- AC operated version: 100 to 240 VAC (AC-operated version)
- DC operated version: 10 to 16 VDC (DC-operated version)

**Current Consumption**

- 100 VAC: 0.5 A or less (With 3 dedicated scanners mounted)
- 12 VDC: 4.0 A or less (With 3 dedicated scanners mounted)

**Dimensions**

- 360 W x 88 H x 400 D mm (Excluding protrusions) (UCAM-60C M14)
- 327 W x 88 H x 365 D mm (Excluding protrusions) (UCAM-65C M14)

**Weight**

- Approx. 6.3 kg (Including scanner) (UCAM-60C M14)
- Approx. 9.6 kg (With 3 dedicated scanners USS-62B mounted) (UCAM-60C M14)
- Approx. 5.0 kg (Including scanner) (UCAM-65C M14)
- Approx. 8.1 kg (With 3 dedicated scanners USS-62B mounted) (UCAM-65C M14)

**Standard Accessories**

- AC power cable P-18 (With 2-pin conversion plug CM-52) (AC-operated version)
- DC power cable P-76 (DC-operated version)
- Recording paper UCAM-60A-PA (1 roll for UCAM-60C M14 only), screwdriver, spare fuse, CD-R (Instruction Manual), CD-R (Control software UCS-60B for UCAM-65C M14 only)

**Optional Accessories**

- Recording paper UCAM-60A-PA (10 rolls/pack)

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**External I/O Unit UIO-67A**

**Connectable Scanners:** USB-70B

**Number of Connectors:** 20

**Cable Length:** Max. 1 km (When connecting the UPS-70B to the USB-70B.)

**Operating Temperature:** 0 to 50°C

**Operating Humidity:** 20 to 85% (Non-condensing)

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**Input Terminals:**

- Switching Terminals: 10/unit
- Input Terminals: 20 ms/channel
- Converter Terminals: 20 ms/channel
- Switching Terminals: 20 ms/channel

**Connections:**

- To lead wire by either soldering or screwing.
- NDS4102 (7 pins) connectors (US-62B)
- One-touch terminal block (JT-1A) (Optional)

**Lightning Arresters:**

- Built-in US-63B

**Applications:**

- Measuring temperature, humidity, wind speed, light intensity, moisture content, atmospheric pressure, and other physical quantities.

**Manufacturer:**

- GREENHOUSE

**Connectable Scanners:**

- USB-70B

**Number of Connectors:** 20
### USB-70B Specifications

<table>
<thead>
<tr>
<th>Models</th>
<th>USB-70B-10 (For general strain measurement)</th>
<th>USB-70B-20 (For general strain measurement, with NDIS4102 (7 pins) connectors)</th>
<th>USB-70B-30 (For civil engineering, with lightning arresters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channels</td>
<td>50/unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring Channel Mode</td>
<td>Selected for each channel from the mainframe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>USB-70B-10: Strain gages, strain-gage transducers, potentiometer, DC voltage-output instruments, thermocouples</td>
<td>USB-70B-20: Strain gages, strain-gage transducers, potentiometer, DC voltage-output instruments, thermocouples (Transducer with NDIS4102 (7 pins) connector is required)</td>
<td>USB-70B-30: Strain gages, strain-gage transducers, potentiometer, DC voltage-output instruments, thermal sensors (Thermocouples, platinum resistance thermometer bulbs, civil engineering transducers with a thermal sensor), lightning arresters built in</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Supplied from data logger</td>
<td>If the cable is extended or if 4 or more scanners are connected, an optional UPS-70B should be mounted into scanners.</td>
<td></td>
</tr>
<tr>
<td>UPS-70B Specifications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to 50°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>20 to 85% (Non-condensing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>302 W x 107 H x 500 D mm (Excluding protrusions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 7.3 kg (USB-70B-10)</td>
<td>Approx. 8.5 kg (USB-70B-20)</td>
<td>Approx. 7.7 kg (USB-70B-30)</td>
</tr>
</tbody>
</table>

**Standard Accessories**: Connection cable N-24 (1 m)

### Dimensions

![Dimensions Diagram](image-url)