

UCAM-60C M14/65C M14

Data Logger



Up to $20 \text{ k} \times 10^{-6}$ strain with a resolution as high as 0.1×10^{-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. (Built-in memory: Approx. 1.8 GB)
- Measurement up to $20 \text{ k} \times 10^{-6}$ strain with a resolution of 0.1×10^{-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 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.

System Content

Data Loggers			
Models	Power Supply	Control Software UCS-60B	Features
UCAM-60C-AC M14	AC	Optional	Operation keys, display, printer
UCAM-60C-DC M14	DC		
UCAM-65C-AC M14	AC	Standard	Fully controlled from the PC Operation keys, display, printer none
UCAM-65C-AC-0 M14	AC	Optional	
UCAM-65C-DC M14	DC	Standard	
UCAM-65C-DC-0 M14	DC	Optional	
Dedicated Scanners USS-61B* (TEDS compatible)			
(Optional)	USS-62B* (With NDIS4102 (7 pins) connectors, TEDS compatible)(*1)		
	USS-63B* (For civil engineering, with lightning arresters, TEDS compatible)		
	*The dedicated scanner measures 10 channels/unit.		
	The main unit accommodates up to 3 dedicated scanners.		
External Scanners	The main unit is connected to the following scanners via the optional scanner interface.		
	USB-70B (Via scanner interface USI-67A)		
Scanner Interfaces	USI-67A for USB-70B		
External I/O Unit	UIO-60A		
Control Software	UCS-60B		

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

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

Measuring Targets			Scanners	Dedicated Scanners USS-61B USS-62B USS-63B	External Scanners	
					General purpose	Civil engineering
				USB-70B-10/20	USB-70B-30	
Strain gages and Strain-gage transducers (*3)	Quarter bridge system	120 Ω	Yes	Yes	Yes	
		240 Ω	Yes	Yes	Yes	
	350 Ω	Yes	Yes	Yes		
	Quarter bridge (true-dummy system)	120 Ω	Yes	Yes	Yes	
		350 Ω	Yes	Yes	Yes	
	Half bridge 60 to 1000 Ω	Active dummy system	Yes	Yes	Yes	
		Active active system	Yes	Yes	Yes	
		Common dummy system		Yes	Yes	
	Full bridge 60 to 1000 Ω (*2)	Opposite-leg active system	Yes	Yes	Yes	
		Full bridge system	Yes	Yes	Yes	
Civil engineering transducers	Full bridge 120 Ω	Constant-current excitation	Yes			
	Full bridge 350 Ω	Constant-current excitation Transducers with a thermal sensor	Yes	Yes	Yes	
Voltage	DC voltage-output instruments		Yes	Yes	Yes	
Current	DC current-output instruments		Yes	Yes	Yes	
Temperature	Thermocouples	K (CA)	Yes	Yes	Yes	
		T (CC)	Yes	Yes	Yes	
		E (CRC)	Yes	Yes	Yes	
		J (IC)	Yes	Yes	Yes	
		R	Yes	Yes	Yes	
	Platinum resistance thermometer bulbs	Pt100 (new JIS)	Yes		Yes	
JPt100(old JIS)		Yes		Yes		
Potentiometer sensors			Yes	Yes		
Built-in lightning arresters			Yes (*1)		Yes	

(*1) With USS-63B mounted.

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

(*3) Cannot use remote sensing sensor directly.



Data Loggers

Channels

- Max. 30 with dedicated scanners
- Max. 1000 with external scanners connected
- Max. 1000 with dedicated scanners and external scanners connected

Input Terminals

- Can connect to lead wires through either soldering or screwing.
- (screw: M3 with metal plate)
- NDIS4102 (7 pins) connectors (USS-62B)

Switching Terminal Semiconductor relays**Scanning Speed**

- 50 ms/channel (Standard mode)
- 0.28 s/channel (High-resolution mode)
- 20 ms/channel (High-speed mode)

Scanners	Line Frequencies	
	50 Hz Zone	60 Hz Zone
Dedicated scanner (Standard mode)	50 ms/channel	
Dedicated scanner (High-resolution mode)	0.28 s/channel	
Dedicated scanner (High-speed mode)	20 ms/channel	
USB-70B (Standard mode only)	60 ms/channel	58.4 ms/channel

- Notes: 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.
2. High-resolution mode and high-speed mode are selectable for dedicated scanners only.
3. High-resolution mode is individually switchable for desired channels.
- High-speed mode is only collective switching for all channels of dedicated scanners.
- Repeat measurement interval time = (Number of Measuring channels * scanning speed) + data processing time (2~20 s)
- Data processing time is indeterminate, changed by measurement setting and environment.

Scanning Speed	Measuring Targets		
	Standard Mode (50 ms/CH)	High-resolution Mode (0.28 s/CH)	High-speed Mode (20 ms/CH)
Strain (Gage & transducer)	Yes	Yes	Yes
Voltage/current-output sensor	Yes		Yes
Civil engineering transducer	Yes		
Temperature sensor (TC, Pt)	Yes		
Potentiometer sensor	Yes		Yes

- Notes: 1. High-resolution mode is available only with Full bridge system.
2. High-speed mode is available 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.)
- Measure (Initial values are subtracted from original values.)
- Original (Raw values are measured without subtraction of initial values.)
- Easy Measure (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 interval measurement.

Storage Internal memory
Capacity: Approx. 1.8 GB**●Strain Measurement (Standard Mode)**

- Constant Voltage Excitation** Approx. 2 or 5 VDC
- Constant Current Excitation** Approx. 5.7 mA (Bridge resistance 350 Ω)
Approx. 16.7 mA (Bridge resistance 120 Ω)
- Scanning Speed** 50 ms/channel
- Gage Factor** 2.00 fixed (Coefficient calculation function enables correction with 2.00/Ks.)

Initial Value Memory Range Same as measuring range.**Measuring Range, Resolution and Accuracy**

Measuring Range	Resolution	Accuracy
0 to $\pm 50 \text{ k} \times 10^{-6}$ strain	1×10^{-6} strain	$\pm(0.05\% \text{ of reading} + 1) \times 10^{-6}$ strain
$\pm 50 \text{ k}$ to $\pm 500 \text{ k} \times 10^{-6}$ strain	10×10^{-6} strain	$\pm(0.05\% \text{ of reading} + 10) \times 10^{-6}$ strain

- Notes: Resolution and accuracy be automatically change by Autorange function

●Strain Measurement (High-resolution Mode)

- Constant Voltage Excitation** Approx. 5 VDC
- Constant Current Excitation** Approx. 16.7 mA
(Bridge resistance 350 Ω)
- Scanning Speed** 0.28 s/channel
- Initial Value Memory Range** Same as measuring range.
- Gage Factor** 2.00 fixed (Coefficient calculation function enables correction with 2.00/Ks.)

Measuring Range, Resolution and Accuracy

Measuring Range	Resolution	Accuracy
0 to $\pm 20 \text{ k} \times 10^{-6}$ strain	0.1×10^{-6} strain	$\pm(0.05\% \text{ of reading} + 0.3) \times 10^{-6}$ strain
$\pm 20 \text{ k}$ to $\pm 200 \text{ k} \times 10^{-6}$ strain	1×10^{-6} strain	$\pm(0.05\% \text{ of reading} + 3) \times 10^{-6}$ strain

- Notes: 1. Available only with full bridges system
2. Bridge resistance should be 120 to 1000 Ω for bridge excitation with constant voltage.
3. Bridge resistance should be 350 Ω for bridge excitation with constant current.
- Measuring range 0 to $15 \text{ k} \times 10^{-6}$ strain
0 to $150 \text{ k} \times 10^{-6}$ strain
4. Available only with dedicated scanners.
5. Resolution and accuracy be automatically change by Autorange function

●Strain Measurement (High-speed Mode)

- Constant Voltage Excitation** Approx. 2 VDC
- Constant Current Excitation** Approx. 5.7 mA (Bridge resistance 350 Ω)
Approx. 16.7 mA (Bridge resistance 120 Ω)
- Scanning Speed** 20 ms/channel
- Gage Factor** 2.00 fixed (Coefficient calculation function enables correction with 2.00/Ks.)

Initial Value Memory Range Same as measuring range.**Measuring Range, Resolution and Accuracy**

Measuring Range	Resolution	Accuracy
0 to $\pm 50 \text{ k} \times 10^{-6}$ strain	1×10^{-6} strain	$\pm(0.08\% \text{ of reading} + 3) \times 10^{-6}$ strain
$\pm 50 \text{ k}$ to $\pm 500 \text{ k} \times 10^{-6}$ strain	10×10^{-6} strain	$\pm(0.08\% \text{ of reading} + 30) \times 10^{-6}$ strain

- Notes: 1. Available only with full bridges system (120 to 1000 Ω)
2. A available only with dedicated scanners.
3. Resolution and accuracy be automatically change by Autorange function

●Voltage Measurement (Standard Mode)

- Scanning Speed** 50 ms/channel
- Initial Value Memory Range** Same as measuring range

Measuring Range, Resolution and Accuracy

Range Mode	Measuring Range	Resolution	Accuracy	Input Resistance
V/500 mV	0 to $\pm 50.000 \text{ mV}$ ± 50.00 to $\pm 500.00 \text{ mV}$	$1 \mu\text{V}$ $10 \mu\text{V}$	$\pm(0.05\% \text{ of reading} + 0.003) \text{ mV}$ $\pm(0.05\% \text{ of reading} + 0.03) \text{ mV}$	10 M Ω or more
V/50 V	0 to $\pm 5.0000 \text{ V}$ ± 5.000 to $\pm 50.000 \text{ V}$	$100 \mu\text{V}$ 1 mV	$\pm(0.05\% \text{ of reading} + 0.0002) \text{ V}$ $\pm(0.05\% \text{ of reading} + 0.002) \text{ V}$	1 M Ω or more

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

●Voltage Measurement (High-speed Mode)

- Scanning Speed** 20 ms/channel
- Initial Value Memory Range** Same as measuring range

Measuring Range, Resolution and Accuracy

Range Mode	Measuring Range	Resolution	Accuracy	Input Resistance
V/500 mV	0 to $\pm 50.000 \text{ mV}$ ± 50.00 to $\pm 500.00 \text{ mV}$	$1 \mu\text{V}$ $10 \mu\text{V}$	$\pm(0.08\% \text{ of reading} + 0.006) \text{ mV}$ $\pm(0.08\% \text{ of reading} + 0.06) \text{ mV}$	10 M Ω or more
V/50 V	0 to $\pm 5.0000 \text{ V}$ ± 5.000 to $\pm 50.000 \text{ V}$	$100 \mu\text{V}$ 1 mV	$\pm(0.08\% \text{ of reading} + 0.0006) \text{ V}$ $\pm(0.08\% \text{ of reading} + 0.006) \text{ V}$	1 M Ω or more

- Notes: 1. Resolution and accuracy be automatically change by Autorange function.
2. Available only with dedicated scanners

●Current Measurement (Standard Mode)

- Scanning Speed** 50 ms/channel
- Initial Value Memory Range** Same as measuring range

Measuring Range, Resolution and Accuracy

Channel Mode	Measuring Range	Resolution	Accuracy
I/50 mA	0 to $\pm 50.00 \text{ mA}$	$10 \mu\text{A}$	$\pm(0.05\% \text{ of reading} + 0.01) \text{ mA}$

- Notes: 1. External shunt resistor (High-accuracy 250 Ω) is required.
2. Accuracy does not include resistance error of external shunt resistor.

●Current Measurement (High-speed Mode)

- Scanning Speed** 20 ms/channel
- Initial Value Memory Range** Same as measuring range

Measuring Range, Resolution and Accuracy

Channel Mode	Measuring Range	Resolution	Accuracy
I/50 mA	0 to $\pm 50.00 \text{ mA}$	$10 \mu\text{A}$	$\pm(0.08\% \text{ of reading} + 0.01) \text{ mA}$

- Notes: 1. Available only with dedicated scanners.
2. External shunt resistor (High-accuracy 250 Ω) is required.
3. Accuracy does not include resistance error of external shunt resistor.

● Temperature Measurement with Thermocouple (Standard Mode)

Scanning Speed 50 ms/channel

Measuring Range, Resolution and Accuracy

Type	Measuring Range	Resolution	Accuracy	Internal Reference Junction Compensator Accuracy
K	-200.0 to 1230.0 °C	0.1 °C	±0.7 °C	±0.5 °C (With input terminal temperature balanced in an ambient) (Temp. range of 0 to 50 °C)
T	-200.0 to 400.0 °C		±0.7 °C	
E	-200.0 to 660.0 °C		±0.5 °C	
J	-200.0 to 870.0 °C		±0.6 °C	
R	0 to 1760.0 °C		±2.2 °C	

Notes: 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.

● Temperature Measurement with Civil Engineering Transducers with a Thermal Sensor (Standard Mode)

Scanning Speed 50 ms/channel

Measuring Range, Resolution and Accuracy

Measuring Range	Resolution	Accuracy
-50.0 to 200.0 °C	0.1 °C	±0.5 °C

Notes: 1. Target physical quantity and temperature are measured in a single channel.
2. Strain measuring range are the same as in strain measurement in standard mode.

● Temperature Measurement with Platinum Resistance Thermometer Bulb (Standard Mode)

Scanning Speed 50 ms/channel

Measuring Range, Resolution and Accuracy

Type	Measuring Range	Resolution	Accuracy
Pt100	-200.0 to 660.0 °C	0.1 °C	±0.3 °C
JPt100	-200.0 to 510.0 °C		

Note: Connection is 3-wire system.

● Measurement with Potentiometer sensor (Standard Mode)

Scanning Speed 50 ms/channel

Initial Value Memory Range Same as measuring range

Sensor Power Supply Approx. 2 VDC

Potentiometer Resistance 1 to 10 kΩ

Measuring Range, Resolution and Accuracy

Channel Mode	Measuring Range	Resolution	Accuracy
POT.	0 to ±50.00%	0.01%	±0.1% FS

● Measurement with Potentiometer sensor (High-speed Mode)

Scanning Speed 20 ms/channel

Initial Value Memory Range Same as measuring range

Sensor Power Supply Approx. 2 VDC

Potentiometer Resistance 1 to 10 kΩ

Measuring Range, Resolution and Accuracy

Channel Mode	Measuring Range	Resolution	Accuracy
POT.	0 to ±50.00%	0.01%	±0.1% FS

Note: Available only with dedicated scanners.

Internal Timer Real time clock is built-in. (Battery backup)

Display Fluorescent display tube
128x64 dots (UCAM-60C M14)

Printer Printing Thermal
Paper width 58 mm (24 characters/line)
Printing speed 60 mm/s (Max.) (UCAM-60C M14)

Interface RS-232C
LAN (10BASE-T/100BASE-TX)
USB2.0 (Collects measurement data by USB Flash Drive.)
Notes: 1. Measurement data cannot be saved directly to USB memory.
Notes: 2. USB Flash Drives
Capacity: 32 GB or less, File Format: FAT32
Notes: 3. Recommend USB Flash Drives: GH-UFI-XSD2G (Manufacturer: GREENHOUSE)

File Conversion Binary measurement data can be converted to CSV. (UCAM-60C M14)

Self Diagnosis Function
Checks display (UCAM-60C M14),
printer (UCAM-60C M14),
bridge excitation, leadwire-off,
input/output resistance,
insulation resistance, mode, etc.

TEDS

Interface: IEEE1451.4 Mixed Mode Transducer Interface Class2
Applicable sensor: Should have information written in accordance with IEEE template No.33.
Cable length should be 30m or less.
(With dedicated scanner USS-61B/62B/63B.)

Operating Temperature 0 to 50 °C

Operating Humidity 20 to 85% (Non-condensing)

Setting Maintenance Function

ACOM at measurement circuit is switchable
between floating and GND connect.

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

* DC operated version has power control function.

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

Weight

Approx. 6.3 kg (Excluding scanner) (UCAM-60C M14)
Approx. 9.6 kg (With 3 dedicated scanners USS-62B mounted) (UCAM-60C M14)
Approx. 5.0 kg (Excluding scanner) (UCAM-65C M14)
Approx. 8.3 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-RP (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), ground wire P-72

Optional Accessories Recording paper UCAM-60A-RP (10 rolls/pack)

■ Dedicated Scanner USS-61B/62B/63B

Models USS-61B (TEDS compatible)
USS-62B (With NDIS4102 (7 pins) connectors, TEDS compatible)
USS-63B (For civil engineering measurement, TEDS compatible, with lightning arresters)

Channels 10/unit

Switching Terminals Semiconductor relays

Input Terminals Connect to lead wire by either soldering or screwing.

NDIS4102 (7 pins) connectors (USS-62B)
One-touch terminal block (JT-1A) (Optional)

Lightning Arresters Built in USS-63B

Operating Temperature 0 to 50 °C

Operating Humidity 20 to 80% (Non-condensing)

Dimensions 320 W × 28 H × 80 D mm (Excluding protrusions)

Weight USS-61B: Approx. 0.8 kg

USS-62B: Approx. 1.1 kg

USS-63B: Approx. 1.0 kg

Standard Accessories

NDIS4102 (7 pins) connector caps (Pre-attached to connectors, USS-62B only), terminal cover, channel label, short bar ML-1000-3H1

■ Scanner Interfaces USI-67A

Connectable Scanners USB-70B

Number of Scanners Max. 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)

Dimensions 99 W × 50 H × 163 D mm (Excluding protrusions)

Weight Approx. 170 g

USI-67A



■ External I/O Unit UIO-60A

Output ALARM signal 4 channels (High/low limit checking)

BUSY signal 1 channel

Input START signal 1 channel

STOP signal 1 channel

RESET signal 1 channel

RAINFALL signal 1 channel

Operating Temperature 0 to 50 °C

Operating Humidity 20 to 85% (Non-condensing)

Dimensions 90 W × 50 H × 180 D mm
(Excluding protrusions)

Weight Approx. 140 g

Standard Accessories

Screwdriver

External Scanner USB-70B

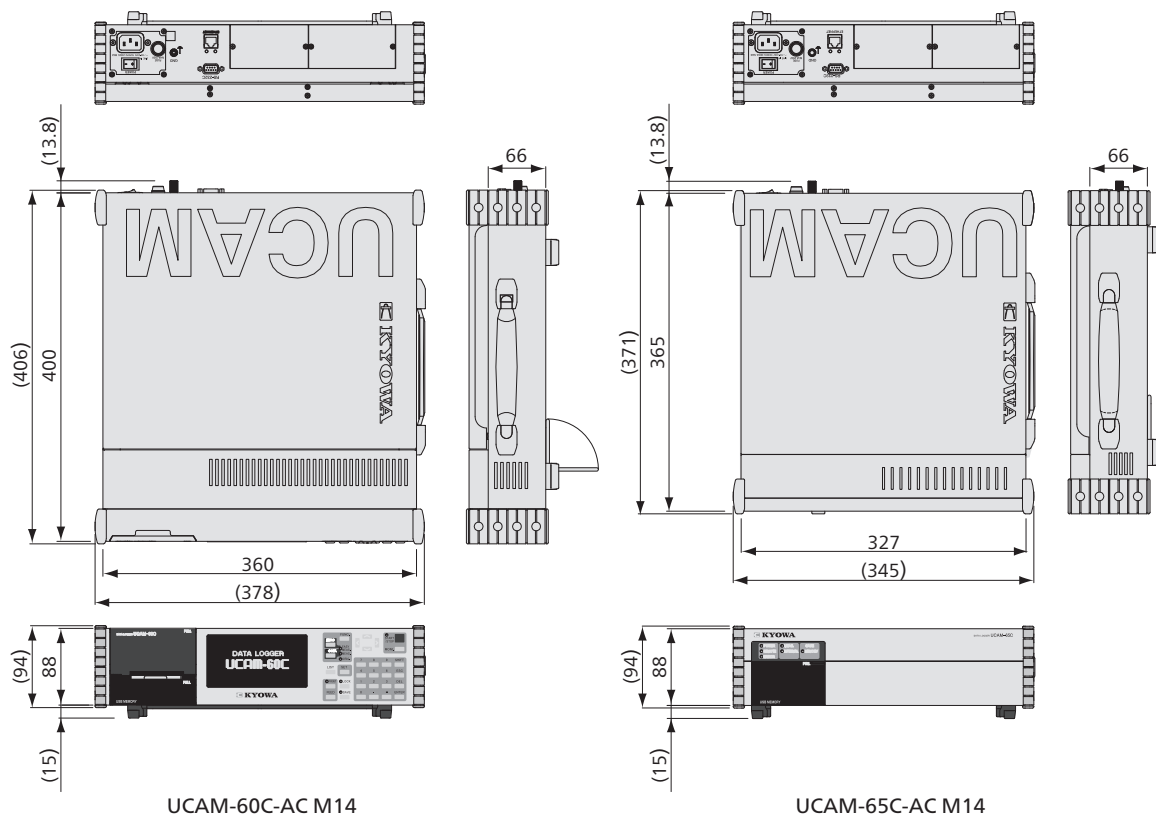


Models	USB-70B-10 (For general measurement) USB-70B-20 (For general measurement, with NDIS4102 (7 pins) connectors) USB-70B-30 (For civil engineering)
Measuring Targets	Strain gages Strain-gage transducers DC voltage 0 to ± 50 V DC current 0 to ± 50 mA Thermocouples K, T, E, J, N, B, S, R Platinum resistance thermometer bulbs Pt100, JPt100 (USB-70B-30) Civil engineering transducers with a thermal sensor (USB-70B-30) Potentiometer sensors
Channels	50/unit
Connection data loggers	UCAM-60C M14, UCAM-65C M14 An optional Scanner Interface USI-67A is required.
Number of Connection	Up to 20 19 if there are 30 channels in the data logger
Input Terminals	Screw-soldering terminal blocks (M3 screw with washer) NDIS4102 (7 pins) connectors (USB-70B-20) Receptacle PRC90-231BR10-7F Applicable plug ex. PRC03-12A10-7M10.5 Built-in lightning arresters (USB-70B-30)

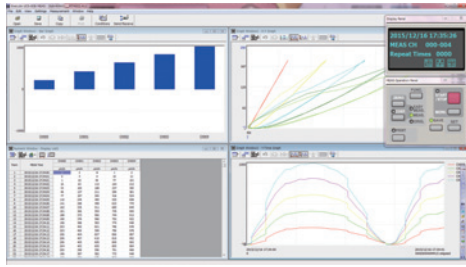
Switching Elements	Semiconductor relays
Measuring Mode	Every channel set by the data logger
Measuring Channel Number	The upper 2-digit from every 10 channels are set with digital switches
Power Supply	Supplied from data logger. If the cable is extended or if 4 or more scanners are connected, an optional UPS-70B should be mounted into the scanners.
Dimensions	302 W x 107 H x 500 D mm (Excluding protrusions)
Weight	USB-70B-10: Approx. 7.3 kg (Excluding UPS-70B) USB-70B-20: Approx. 8.5 kg (Excluding UPS-70B) USB-70B-30: Approx. 7.7 kg (Excluding UPS-70B)
Option	Built-in AC Power Unit UPS-70B 100 to 240 VAC (100 to 127 VAC or 220 to 240 VAC automatic switchover)

Standard Accessories Phillips precision screwdriver
Connection cable N-24 (1 m)

Dimensions



Control Software UCS-60B



Operating Environment

OS	Windows® 8/8.1, Windows® 10
	English/Japanese, 32/ 64 bits support
CPU	Core 2 Duo, 2 GHz or advanced
Memory	If 32-bit OS, 2 GB or more
	If 64-bit OS, 4 GB or more
Display	1024 × 768 pixels or more
External Connection	Serial port: RS-232C, standard serial port or a port connectable to USB-serial conversion adaptor
	LAN port: For Ethernet communication
	GP-IB

Measuring Condition Setting Functions

Controllable UCAMs	UCAM-60C/65C
Measuring Channels	CH000 to CH999
Measurement Functions	EASY MEAS., MEAS., ORIG., INITIAL
Repeat Times	0 to 9999 (0: Infinite)
Calibration Coefficient Calculation	ON/OFF selectable
Channel Conditions	Scanner type, measuring channel mode, scanning speed, calibration coefficient, number of digits below decimal point, unit, offset, reference temperature, initial value, channel name (within 18 alphanumerics)
Interval Measurement Conditions	Starting date/time, time interval
Trigger Measurement Conditions	Trigger channel (Up to 4 channels), AND/OR between trigger channels, trigger value, offset, repeat times 0 to 9999 (0: Infinite), number of steps up to 99
Trigger Interval Measurement Conditions	Trigger channel (Up to 4 channels), reference value of trigger channel, AND/OR between trigger channels, time interval, repeat times 0 to 9999 (0: Infinite), number of steps up to 99
Measuring Condition File	Reading/saving possible
Calculation Condition Setting Functions	
Calculation Condition File	Reading/saving possible
Measurement Functions	MEAS check, initial value measurement, monitor measurement (max. 40 channels), real-time measurement, automatic measurement (interval, trigger measurement, trigger interval), change stroke measurement

Numeric Display of Measured Data

Numeric Window	List of the most recent data in real-time or automatic measurement
Display Formats	List of all data, list of data by measurement point, initial values, check results
Monitor Window	Data obtained in monitor measurement
Graphic Display of Measured Data	
Types of Graph	Y-Time graph, Y-Cycle graph, X-Y graph, bar graph
Display Channels	Max. 20 (max. 10 sets of channels in X-Y graph)
Display Operations	Zooming X and Y axes, auto scaling of X and Y axes, cursor

Data Available on Display	Depends on the number of measuring channels as follows:
	100 channels or less 10000 data
	200 channels or less 5000 data
	500 channels or less 2000 data
	501 channels or more 1000 data
Measured Data Saving Formats	KU1, UCAM-70A (ASCII), CSV, XLS (MS-Excel format)
TEDS	Reads information from TEDS-installed sensors.

Reproduce Program

KU1 format files, UCAM-70A format files (compatible with both ASCII and binary) and UCAM-500A/B format files can be read/saved, displayed and cut/converted into CSV or XLS format files.

Calculation Condition Setting Functions

Calculation Condition File Reading/saving possible

Numeric Display of Measured Data List of all data

Graphic Display of Measured Data

Types of Graph	Y-Time graph, Y-Cycle graph, X-Y graph, bar graph
Display Channels	Max. 20 (max. 10 sets of channels in X-Y graph)
Display Operations	Zooming X and Y axes, auto scaling of X and Y axes, cursor
Display Condition File	Reading/saving possible

Restrictions

To save or convert measured data into an XLS format file, the number of channels and the number of data are limited to the following:

Channels	Max. 250
Data	Max. 10000

Note that the UCS-60B is not compatible with measuring/calculation/display condition files compiled with the UCS-25A.

