

Move into the future with reliable measurements



# UCAM-550A Series

Fast Data Logger



# From static to dynamic phenomena

## Synchronous measurement of all channels

The UCAM-550A is a fast data logger that repeatedly measures a maximum of 1000 channels at an interval of 0.02 s.

The UCAM-550A system consists of the following.

- Fast data logger UCAM-550A
- PC (To be prepared by a user.)
- Dynamic data acquisition software DCS-100A

Since the UCAM-550A measures data synchronously at a fast speed, you are able to measure a broad range of phenomena - from static to dynamic phenomena - only by using the UCAM-550A system.

The following 5 measuring units are optionally provided.

- Strain unit USS-51B (potentiometer sensors supported)
- Voltage unit USV-51B
- Thermocouple unit UST-51B
- Strain/voltage/thermocouple unit (screw-soldering) USM-51B
- Strain/voltage/thermocouple unit (one-touch) USM-52B

These measuring units support strain gages, strain-gage transducers, voltage output type sensors, potentiometer sensors, and thermocouples to measure and record strain, stress, load, pressure, displacement, voltage, and temperature.

# UCAM -550A

# Maximum 1000 channels

## From small-scale to large-scale measurements

The number of channels of the UCAM-550A is maximum 50 channels per unit. The number of channels of the UCAM-550A system is maximum 1000 channels by connecting 20 UCAM-550A units in cascade.

### Measures all channels synchronously

- The UCAM-550A adopts the system which measures all channels synchronously at a fast speed to offer fast measurement and synchronicity of data as opposed to the system which measures each channel successively.
- \* Except temperature measurements with the USM-51B/52B.

### Measures 1000 channels at 50 times/s.

1000 channels are measurable with the DCS-106A.  
With the DCS-100A (standard accessory), at most 300 channels are measurable.

### Synchronizes 20 units by LAN cables

- Synchronous cables are unnecessary.  
20 units synchronization is possible with the DCS-106A.  
With the DCS-100A (standard accessory), at most 6 units synchronization is possible.

### Controls by the DCS-100A

- The user-friendly DCS-100A is a standard accessory.

### Provides 5 measuring units optionally

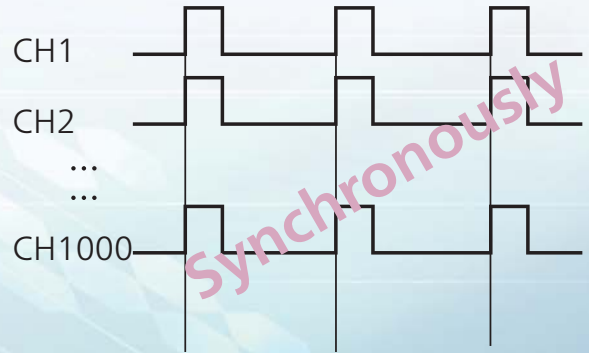
- The 5 measuring units help to build systems that match the measurement purposes freely.



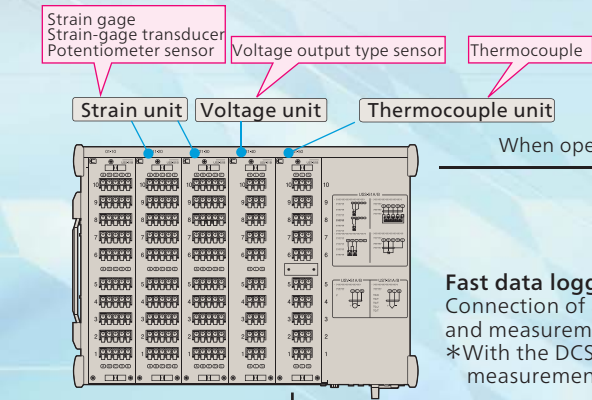
# Offers fast measurement and synchronicity of data

## Measures all channels synchronously

- The UCAM-550A measures all channels synchronously and update the data at specified intervals. Therefore the UCAM-550A can measure dynamic phenomena.
- \*Except temperature measurements with the USM-51B/52B.



# Optimizes systems based on the measuring targets and number of channels



When operating single device, directly connect a LAN cable.

LAN cable (straight)  
Between PC and UCAM: Max. 100 m (\*①)



PC

**Fast data logger UCAM-550A**  
Connection of a maximum 20 units,  
and measurement of 1000 channels possible.  
\*With the DCS-100A,  
measurement with up to 6 units and 300 channels possible.

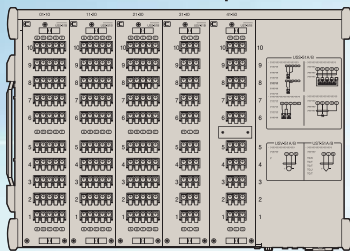


Dynamic data acquisition software  
DCS-100A

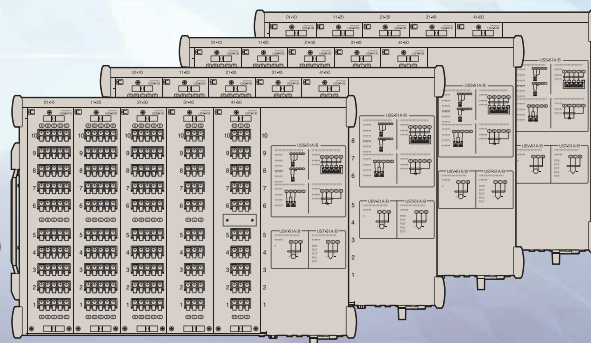


For 1000 channels  
Optional software DCS-106A

STP straight cable (\*②)  
Between UCAM and UCAM:  
Max. 100 m (\*①)



STP straight cable (\*②)  
Between UCAM and UCAM: Max. 100 m (\*①)



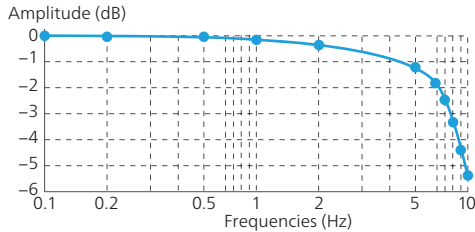
(\*①) Please consult with us if adherence to international standards requiring electromagnetic compatibility is required.  
(\*②) The STP straight cable is a shielded LAN cable.

## UCAM-550A

**Models** UCAM-550A With DCS-100A  
UCAM-550A-0 Without DCS-100A

**Channels** Maximum of 50 channels/unit  
(Possible up to 5 units of the measuring unit)  
(Each measuring unit measures 10 channels.)  
Measurement is possible up to 1000 channels at maximum by adding an optional software DCS-106A.  
\*The public command corresponds up to 20 units.  
(Max. 1000 channels)  
\*DCS-100A corresponds up to 6 units. (Max. 300 channels)

**Sampling Frequencies** 1, 2, 10, 20, and 50 Hz  
\*Frequency response depends on the measuring unit.  
USM-51B/52B\*, USS-51B, USV-51B, UST-51B: DC to 7.8 Hz  
Deviation: 0.5 to -3.5 dB  
\*For temperature measurement with USM-51B/52B using scanning mode, the updating rate is approx. 1 s.



**Measuring Functions** Original value measurement  
Measure value measurement

**Interfaces** 10BASE-T, 100BASE-TX  
Between PC and UCAM: LAN cable (straight) Max. 100 m  
Between UCAM and UCAM:  
STP straight cable (see notes) Max. 100 m  
Hub is not required.  
Note: "STP" is the initials of Shield Twisted Pair, and an STP cable is a shielded LAN cable.

**Display** LCD (20 digits x 2 lines)  
Status display LED:  
POWER (When power ON, lit green)  
MASTER (When master, lit green, when sleep, not lit)  
TRANSFER (When communications, flashing green)

**Operation Keys** UP, Down, Left, Right

**Data Storage** The measured data is stored in the PC. (No internal storage)

**Operating Temperature** 0 to 40°C

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

**Power Supply** 100 to 240 VAC  
Approx. 50 VA  
(With 5 USS-51B strain units installed, and 120 Ω load on all channels connected)

**Dimensions** 426 W x 132.5 H x 305 D mm (Excluding protrusions)

**Weight** Approx. 7 kg  
(With 5 USS-51B strain units installed)

### Standard Accessories

AC power cable P-18 (With a 2-pin conversion plug CM-39)  
Ground wire P-72  
DVD (DCS-100A, instruction manual)

## Strain/Voltage/Thermocouple Unit USM-51B/USM-52B

**Input Terminals** USM-51B: NDIS connectors, and screw-soldering terminal blocks  
USM-52B: NDIS connectors, and one-touch terminal blocks

**Channels** 10

**Measuring Targets** Strain gages, strain-gage transducers, potentiometer sensors, voltage, and thermocouples

**Bridge Excitation** 2 VDC

**Power Supply to Sensors (potentiometer sensors)** 2 VDC (applied constantly)

**Gage Factors** 2.00 fixed

**Frequency Response** DC to 7.8 Hz, deviation: 0.5 to -3.5 dB  
Except temperature measurement

**Burn-out Check** Performing burn-out when checking

**TEDS** Reads information from TEDS-installed sensors

Strain, potentiometer sensor, and voltage

Targets	Mode	Measuring range	Resolution	Accuracy
Strain	L	-19k to 19k μm/m	1 μm/m	±0.08%FS
	H	-300k to 300k μm/m	10 μm/m	
Potentiometer sensor		-50 to 50%	0.01%	±0.1%FS
Voltage		-20 to 20 V	1 mV	±0.08%FS

## Thermocouples

Types	Measuring range	Accuracy*1 (Resolution: 0.1°C)	
K	-200.0 to 1200.0°C	-200.0 to below -100.0°C	±(0.3% rdg**2 + 0.8°C)
		-100.0 to 1200.0°C	±(0.2% rdg**2 + 0.6°C)
T	-200.0 to 350.0°C	-200.0 to below -100.0°C	±(0.3% rdg**2 + 0.8°C)
		-100.0 to 350.0°C	±(0.2% rdg**2 + 0.6°C)
E	-200.0 to 800.0°C	-200.0 to below -100.0°C	±(0.3% rdg**2 + 0.8°C)
		-100.0 to 800.0°C	±(0.2% rdg**2 + 0.6°C)
J	-200.0 to 750.0°C	-200.0 to below -100.0°C	±(0.3% rdg**2 + 0.8°C)
		-100.0 to 750.0°C	±(0.2% rdg**2 + 0.6°C)
R	0.0 to 1600.0°C	0.0 to below 100.0°C	±(0.6% rdg**2 + 1.2°C)
		100.0 to 1600.0°C	±(0.5% rdg**2 + 1.0°C)
N	-200.0 to 1250.0°C	-200.0 to below -100.0°C	±(0.3% rdg**2 + 0.8°C)
		-100.0 to 1250.0°C	±(0.2% rdg**2 + 0.6°C)

\*1 Accuracy of the internal reference junction compensator  
Within ±1.0°C, when temperature balanced at input terminals, and the ambient temperature is 25 ±10°C.

Within 2.0°C, when temperature balanced at input terminals, and the ambient temperature is other than mentioned above.

\*\*2 rdg: of reading

Standard Accessories Terminal cover UM-51B

## Strain Unit USS-51B

**Channels** 10

**Measuring Targets** Strain gages, strain-gage transducers, potentiometer sensors

**Bridge Excitation** 2 VDC (applied constantly)

**Power Supply to Sensors (potentiometer sensors)** 2 VDC (applied constantly)

**Gage Factors** 2.00 fixed (Correction is possible at 2.00/Ks with the engineering value conversion function.)

Measuring range, resolution, accuracy (In static (DC) inputting)

Targets	Mode	Measuring range	Resolution	Accuracy
Strain	L	-19k to 19k μm/m	1 μm/m	±0.05%FS
	H	-200k to 200k μm/m	10 μm/m	
Potentiometer sensor		-50 to 50%	0.01%	±0.1%FS

Note: Measuring range is indicated when the initial measurement and the original value measurement are performed.

In the case of a measure value measurement, the value is of the initial measurement value subtracted in advance from that of the original measurement value.

Optional Accessories Terminal cover UT-50A

## Voltage Unit USV-51B

**Channels** 10

**Measuring Targets** DC voltage, voltage output type sensors

Measuring range, resolution, accuracy (In static (DC) inputting)

Measuring range	Resolution	Accuracy	Signal source resistance
-20 to 20 V	1 mV	±0.05%FS	50Ω or less

Optional Accessories Terminal cover UT-50A

## Thermocouple Unit UST-51B

**Channels** 10

**Measuring Targets** Temperature (thermocouple)

Measuring range, resolution, accuracy (In static (DC) inputting)

Types	Range	Measuring range	Accuracy*1
K	L	-200.0 to 437.0°C	±0.8°C
	H	-200.0 to 1200.0°C	±2.8°C
T	—	-200.0 to 350.0°C	±0.7°C
	L	-200.0 to 260.0°C	±0.5°C
E	L	-200.0 to 800.0°C	±1.7°C
	H	-200.0 to 800.0°C	±1.7°C
J	L	0 to 330.0°C	±0.6°C
	H	0 to 750.0°C	±2.0°C
R	—	0 to 1600.0°C	±2.2°C
N	L	-200.0 to below -100.0°C	±(0.4% rdg**2 + 1.0°C)
		-100 to 530.0°C	±(0.3% rdg**2 + 0.8°C)
	H	-200.0 to below -100.0°C	±(0.4% rdg**2 + 1.2°C)
		-100 to 1250.0°C	±(0.3% rdg**2 + 1.0°C)

\*1 Accuracy of the internal reference junction compensator, when temperature balanced at input terminals, and the ambient temperature is 25 ±10°C.

Type K, T, E, J, and R: Within ±0.5°C Type N: Within ±1.0°C

Note: Accuracy does not include internal standard connection accuracy.

Switching between internal and external reference junction compensator is possible. Thermocouple resistance 300 Ω or less (K type)

\*\*2 rdg: of reading

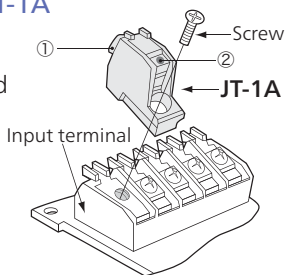
Standard Accessories Terminal cover UT-50A

## ■ Isolation transformer UPT-300B

This is used to obtain good measurement results under bad power supply conditions (strong noise, etc.).

## ■ One-touch terminal block JT-1A

A terminal block that supports one-touch connection of input lead wires, and is used for attaching input terminals. 1 for each lead wire (Sale units: 10). Note that you are not able to use the JT-1A and terminal cover at the same time. Note that errors appear when executing the internal reference junction compensation by using thermocouples.



Insert a lead wire to the ② while pressing the ① by using a ballpoint pen tip.

## ■ DCS-100A software for controlling UCAM-550A

<b>Controllable Units</b>	Max. 6 (Max. 300 channels) Max. 20 (Max.1000 channels), optional software DCS-106A is required.
<b>Interfaces</b>	LAN
<b>Data Storage</b>	The measured data is stored in the PC as a KS2 file.
<b>Sampling Frequencies</b>	1, 2, 10, 20, and 50 Hz
<b>Measuring Modes</b>	Manual, manual (Data points preset), Interval, and analog trigger
<b>Measuring Functions</b>	Measure value measurement : Measured value = Sensor output value - Initial value Original value measurement : Measured value = Sensor output value
<b>Calibration Factor Calculation</b>	ON/OFF setting in all channels of one batch Calibration factor calculation: Measured value x Calibration factor + Offset
<b>Channel Conditions</b>	Measurement, mode, range, calibration factor, offset, unit, initial value, CH name, measuring range, rated capacity, rated output, decimal digits, upper limit, lower limit (Selection of any display item is possible.)
<b>Initial Value Measurement</b>	Measures the initial value of each sensor.
<b>Manual measurement</b>	Measurement is made from a press of the REC button to a press of the STOP button or to completion of recording to the data points preset.
<b>Interval Measurement</b>	Measurement is made automatically at preset intervals from the preset starting time.
<b>Analog Trigger Measurement</b>	Start and/or stop recording based on specified trigger conditions. (Trigger level value is the fixed)

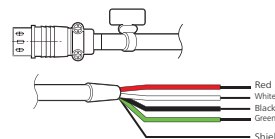
## ■ DCS-106A software for 1000 channels

<b>Measuring Targets</b>	UCAM-550A
<b>OS</b>	Windows® Vista®, 7, 8, 8.1, or 10, English/Japanese 32, 64 bits support
<b>CPU</b>	Intel Core i5 2.6 GHz or advanced
<b>Memory</b>	If 32-bit OS, 2 GB or more If 64-bit OS, 4 GB or more
<b>Display</b>	1024x768 pixels or more
<b>Channels</b>	Maximum of 1000 channels (Twenty UCAM-550A units)

## ■ Connection cable U-17 to U-20

A cable that connects a strain-gage transducer with the NDIS connector to an input terminal of a measuring unit.

Length U-17: 50 cm  
U-18: 1 m  
U-19: 2 m  
U-20: 5 m



## ■ Dummy panel UD-50A

A cover that covers the parts of a UCAM-550A that does not have a measuring unit installed.

<b>End trigger</b>	Settable
<b>Delay</b>	Both start and end max. 3000 points/channel
<b>Trigger channels</b>	Any 1 channel
<b>Trigger level</b>	Sets in physical quantity
<b>Trigger slope</b>	Up, down
<b>Changing Stroke</b>	Changes the data, before the stroke and after the stroke, when using a displacement transducer.
<b>Static Measurement</b>	Every time the DCS-100A starts recording data, the DCS-100A additionally saves the moving-averaged measured data in a single CSV format file in manual and interval modes.
<b>Burn-out Check</b>	For USM-51B/52B only
<b>TEDS</b>	Reads sensor's information and sets to channel condition automatically.(USM-51B/52B only)
<b>Setting and Loading Parameters</b>	Sets and Loads the UCAM-550A internal parameters.
<b>■ Environmental settings</b>	
<b>Hardware Configuration</b>	Setting of connected units, device name, setting for IP address Reading hardware configuration from the UCAM-550A is possible.
<b>Communication Status</b>	Checked by reading the version of the UCAM-550A
<b>OS</b>	Windows® Vista®, 7, 8, 8.1, or 10, English/Japanese 32, 64 bits support
<b>CPU</b>	Core2Duo, 2 GHz or advanced
<b>Memory</b>	If 32-bit OS, 2 GB or more If 64-bit OS, 4 GB or more
<b>Display</b>	1024x768 pixels or more

# Controls and indicators

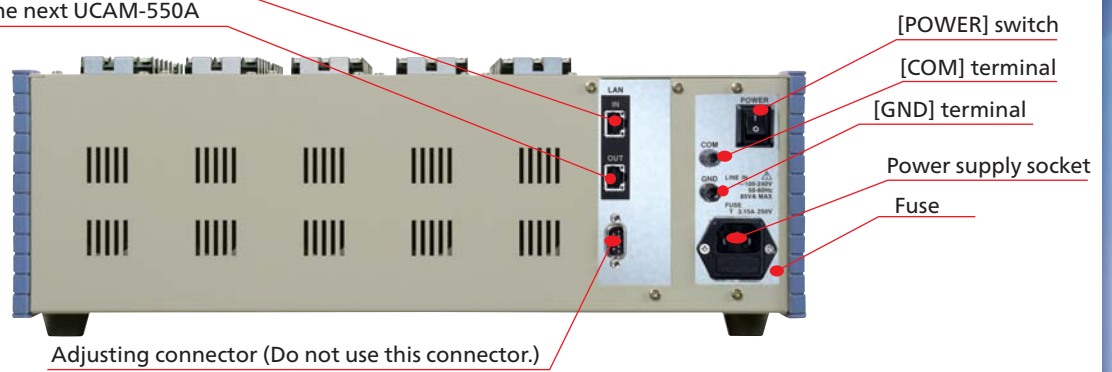
## Front panel



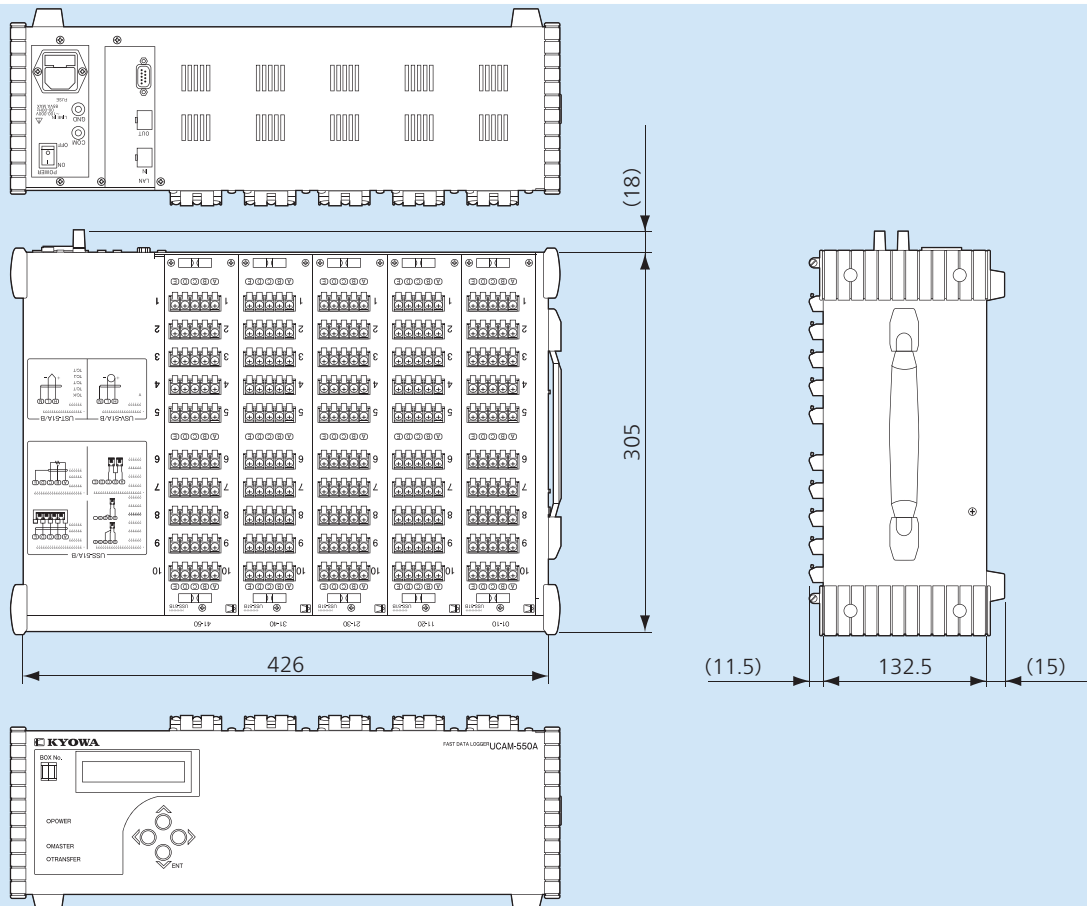
## Rear panel

LAN connector for the PC or the former UCAM-550A

LAN connector for the next UCAM-550A



# Dimensions





## Sales Network



### Americas Region

KYOWA AMERICAS INC.  
 TEL: +1-248-348-0348  
 E-mail: sales@kyowa-americas.com  
 Web: <http://www.kyowa-ei.us/>

### China

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 TEL: +86-21-6447-7770  
 E-mail: support-cn@d1.kyowa-ei.co.jp  
 Web: <http://www.kyowa-ei.cn/>

### Thailand

KYOWA DENGYO (THAILAND) CO., LTD.  
 TEL: +66-2-117-3760  
 E-mail: sales-thailand@kyowa-ei.co.th  
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### Other Countries or Regions

Please visit below URL.  
<http://www.kyowa-ei.com/>

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### Safety Precautions

Be sure to observe the safety precautions given in the instruction manual, in order to ensure correct and safe operation.

- Specifications are subject to change without notice for improvement.



JQA-0821  
 JQA-EM4824

Manufacture's Representative