Move into the future with reliable measurements

KYOWA

UCAM-550A Series

Fast Data Logger

TEDS

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.

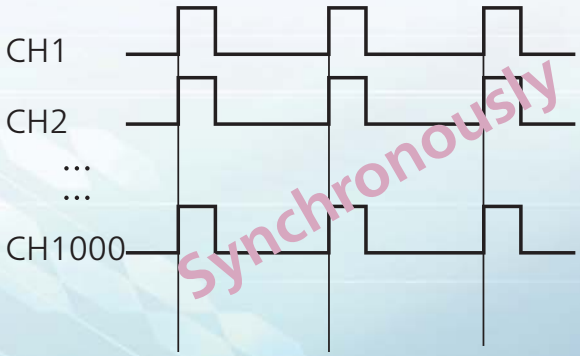
Provides 5 measuring units optionally

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

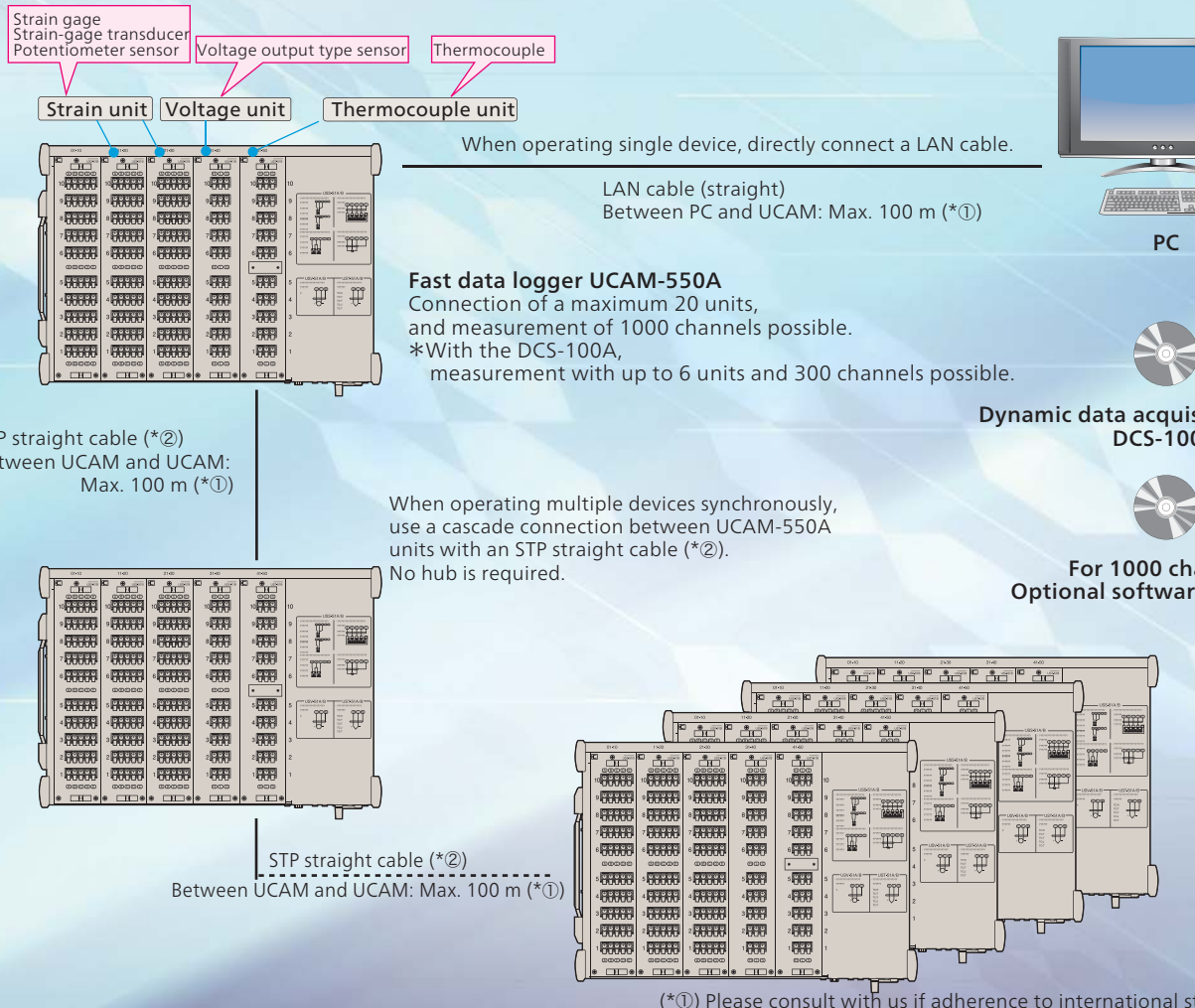
Offers fast measurement and synchronicity of data

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.



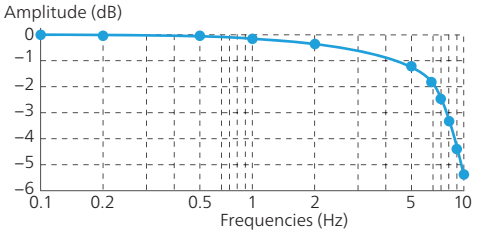
Optimizes systems based on the measuring targets and number of channels



(*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 to1200.0°C	±2.8°C
T	—	−200.0 to 350.0°C	±0.7°C
E	L	−200.0 to 260.0°C	±0.5°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

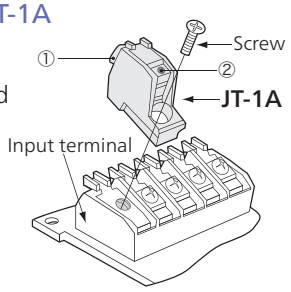
Standard Accessories Terminal cover UT-50A

■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

Controllable Units	Max. 6 (Max. 300 channels) Max. 20 (Max.1000 channels), optional software DCS-106A is required.
Interfaces	LAN
Data Storage	The measured data is stored in the PC as a KS2 file.
Sampling Frequencies	1, 2, 10, 20, and 50 Hz
Measuring Modes	Manual, manual (Data points preset), Interval, and analog trigger
Measuring Functions	Measure value measurement : Measured value = Sensor output value - Initial value Original value measurement : Measured value = Sensor output value
Calibration Factor Calculation	ON/OFF setting in all channels of one batch Calibration factor calculation: Measured value x Calibration factor + Offset
Channel Conditions	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.)
Initial Value Measurement	Measures the initial value of each sensor.
Manual measurement	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.
Interval Measurement	Measurement is made automatically at preset intervals from the preset starting time.
Analog Trigger Measurement	Start and/or stop recording based on specified trigger conditions. (Trigger level value is the fixed)
End trigger	Settable
Delay	Both start and end max. 3000 points/channel
Trigger channels	Any 1 channel
Trigger level	Sets in physical quantity
Trigger slope	Up, down
Changing Stroke	Changes the data, before the stroke and after the stroke, when using a displacement transducer.
Static Measurement	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.
Burn-out Check	For USM-51B/52B only
TEDS	Reads sensor's information and sets to channel condition automatically.(USM-51B/52B only)
Setting and Loading Parameters	Sets and Loads the UCAM-550A internal parameters.

■Environmental settings

Hardware Configuration	Setting of connected units, device name, setting for IP address Reading hardware configuration from the UCAM-550A is possible.
Communication Status	Checked by reading the version of the UCAM-550A
OS	Windows® Vista®, 7, 8, 8.1, or 10, English/Japanese 32, 64 bits support
CPU	Core2Duo, 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

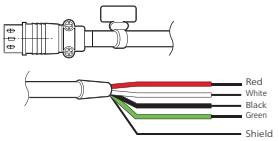
■DCS-106A software for 1000 channels

Measuring Targets	UCAM-550A
OS	Windows® Vista®, 7, 8, 8.1, or 10, English/Japanese 32, 64 bits support
CPU	Intel Core i5 2.6 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
Channels	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



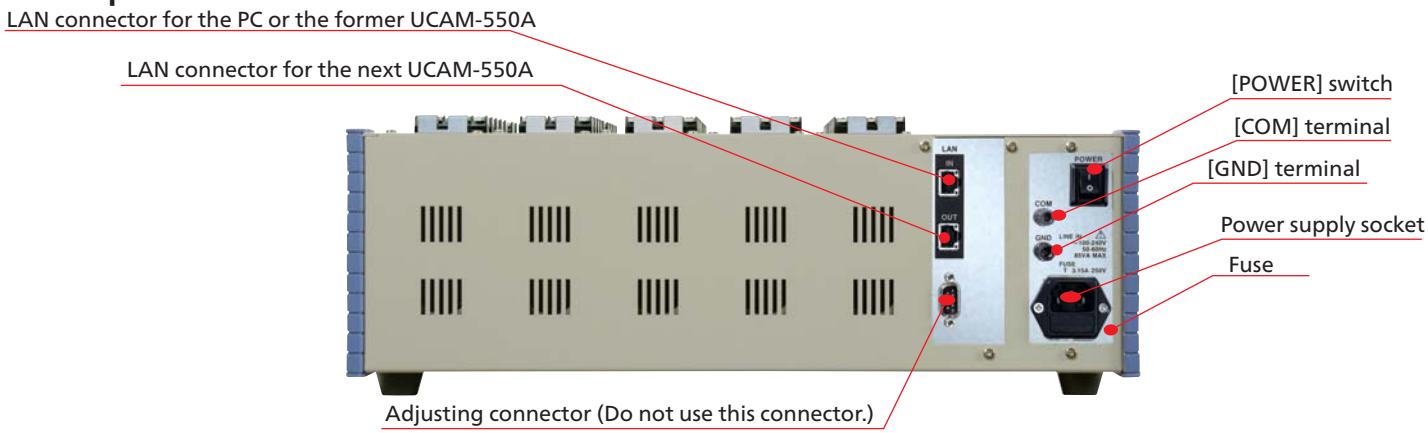
■Dummy panel UD-50A

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

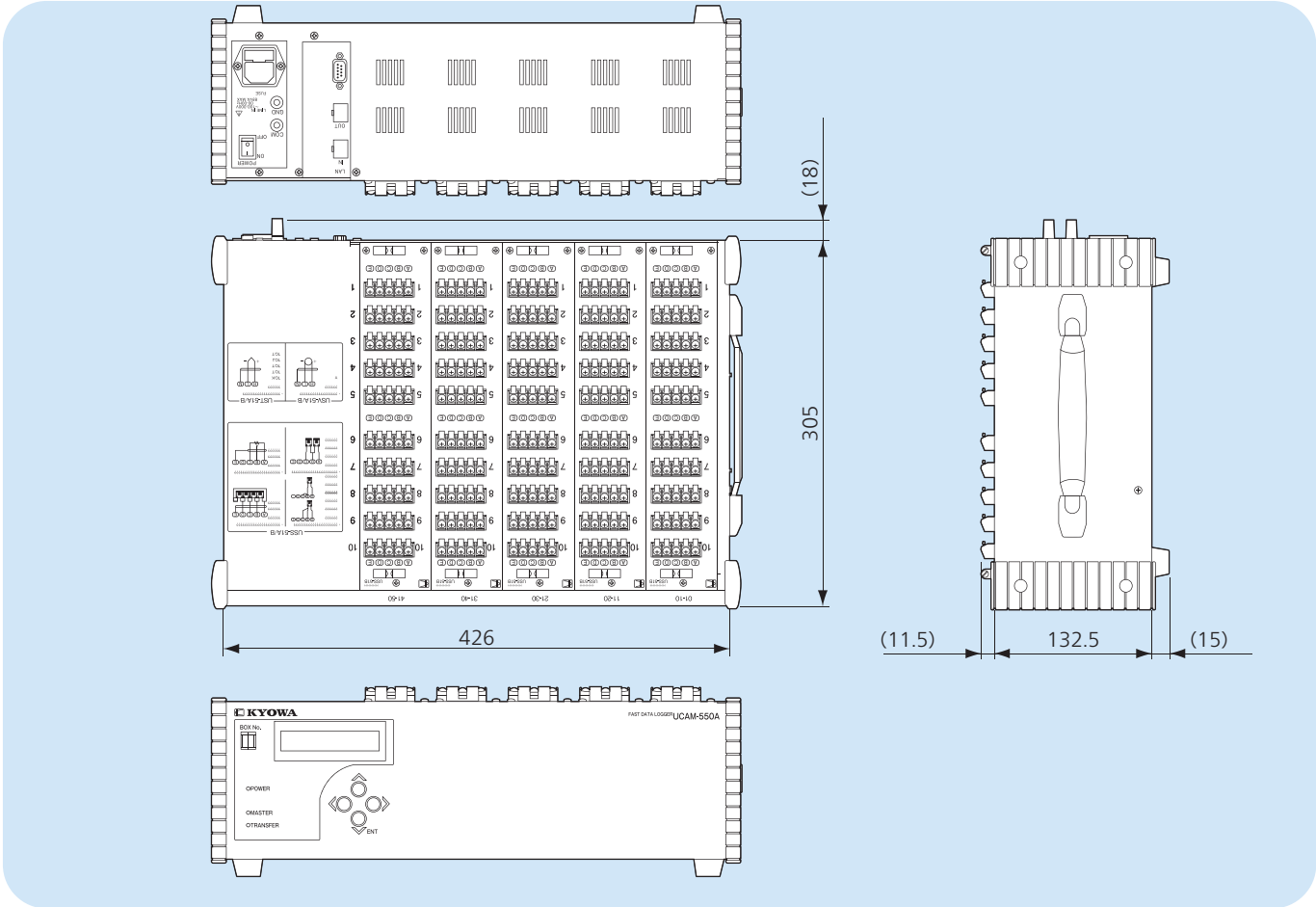
Controls and indicators

Front panel

Rear panel



Dimensions



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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.

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Manufacture's Representative

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