Data Loggers

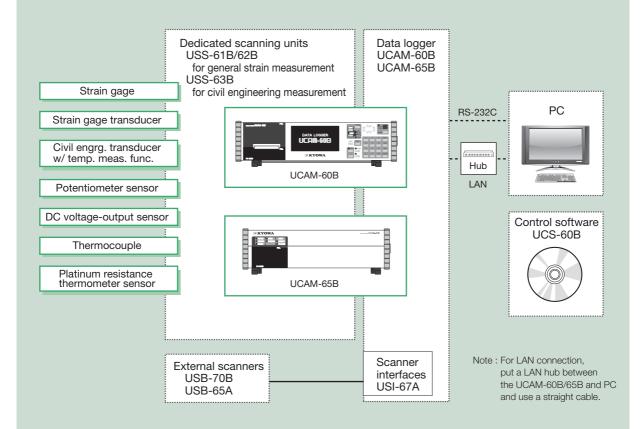
Data loggers are designed to measure static strain, a phenomenon where the subject strain does not change at all or slowly changes. As seen in load tests of largescale structures, static strain is often measured in several hundred channels and under dozens of load conditions. Data loggers are available in 2 types: stand-alone and PC-controlled. Both are oriented to automatic multichannel measurement as intelligent, expansible systems. A data logger can stably measure microvolt signals in strain/stress measurement indoors and outdoors. Besides that advantage, some recently developed data loggers have a processing capability incorporated into the portable package.

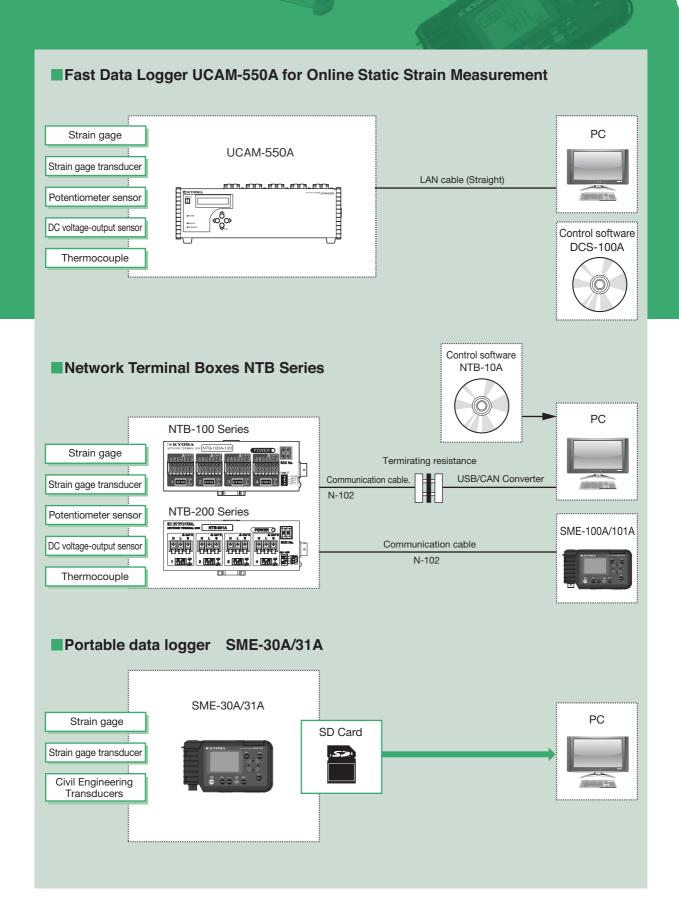
Advancements in electronic components, progress in multimedia in information-related fields and downsizing of equipment have generated the following demands:

- Simultaneous measurement of various static variables including strain/stress, load, pressure, acceleration, displacement, torque, voltage and temperature
- •Visual presentation of the progressive status of measurement and function that enables smooth progression of measurement while accepting the engineer's judgment.
- Ounattended measurement
- More compact and lightweight design
- Capability to measure not only static phenomena but also events changing at a frequency of several Hz
- Efficient measurement and data collection through Internet or Ethernet LAN

Static Strain Data Loggers

UCAM-60B, Universal Stand-Alone Type UCAM-65B, Online Type



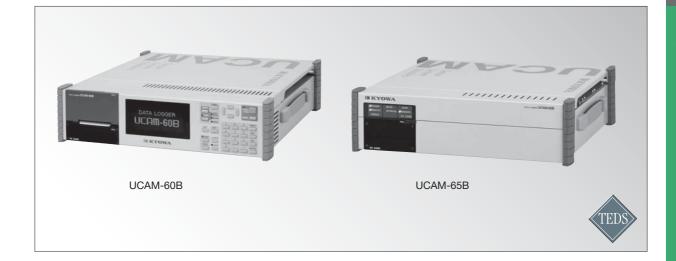


3₋₂₅ **DATA LOGGERS**

Data Logg	er Selection	Chart
-----------	--------------	-------

Model	Max Number of			Sac	nnin	g Spe	ed (s	sec)			Applicable Sensor	PC Inter face	Power	Ref Page
		0.001	0.02	0.05	0.28	0.5	1	2	5	10			Supply	
All-In-One Data Logger UCAM-60B PC-Controlled Data Logger UCAM-65B	1000		0	•	•	0	0	•	0	•	Straingage Straingage transducer Civil engineering transducer (maybe equipped with temp meas function) Potentiometer sensor voltage output sensor Temperature (Ther mo-couple, platinum resistance temperature bulbs)	LAN RS-232C	AC85 to 264V or DC10 to 16V	3-26
Fast Data Logger UCAM-550A	1000			neous sec fo				l chanı nels	nels		Straingage Straingage transducer Potentiometer sensor voltage -output sensor Thermocouple	LAN	AC100 to 240V	3-35
Fast Data Logger UCAM-500B	1000	50) times		to 100) chan		chanr and 1 t		sec	Straingage Straingage transducer Potentiometer sensor voltage -output sensor Thermocouple	LAN	AC85 to 264V	3-32
Network Terminal Boxes NTB-100 Series NTB-201A NTB-201A NTB-100A-120 NTB-101A-350 NTB-201A The dispersion on location is possible by the compact size and wire one line connection. The field measurement is disitalized.	396										Straingage Straingage transducer Civil engineering transducer (maybe equipped with temperatwre meas function DC Voltage-output sensor DC current output sensor Thermocouple	Dedicated Interface	DC 11 to 16V	3-39
Portable Data Logger SME-30A/31A	1					•	•				Straingage Straingage transducer	SD card	AA size alkaline battery (2pieces) SME-31A is compatible with AC adabfer.	3-44

UCAM[®]-60B,65B Data Loggers



Can measure up to 20000 $\mu\text{m/m}$ with a resolution as high as 0.1 $\mu\text{m/m}.$ (%When using for Full bridge system)

UCAM-60B

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

UCAM-65B

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

Common to UCAM-60B and UCAM-65B

- Measurement up to 20,000 m/m with a resolution of 0.1 m/m (XWhen using for Full bridge system)
- Scanning at 50 ms/channel with internal scanners
- High-speed scanning at 20 ms/channel with internal scanners
- Oup to 30 channel measurement with internal scanners
- Oup to 1000 channel measurement with external scanners
- PC card slot ensuring easy data collection
- DC operated version for operation where no AC outlet is avalaible
- •Can automatically set the gage mode for each channel by detecting the channel mode corresponding to the connected strain gage or strain gage transducer.
- TEDS compatible (with internal scanner USS-61B/62B/ 63B mounted; for TEDS, refer to page 8-21)
- Control software UCS-60B (optional for UCAM-60B) enables control through PC connected via Ethernet LAN or RS-232C. (When connecting via Ethernet LAN, use a straight cable and LAN hub.)

(Note 1) For TEDS, refer to P.9-15.

(Note 2) When connecting via Ethernet LAN use a straight cable and LAN hub

The data logger UCAM-60B is an all-in-one measuring instrument developed in full pursuit of easier field measurement. 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-65B is a compact online data logger fully.

The UCAM-65B is a compact online data logger fully controlled through the PC.

Both models can connect to, and simultaneously input signals from, strain gages, strain gage transducers, civil engineering transducers with temperature measuring function, potentiometer sensors, thermocouples and DC voltage-output instruments. They are also compatible with TEDS-installed sensors having information conforming to IEEE template No. 33. While measurement in a maximum 30 channels is possible with the mainframe only, external scanners enable measurement in a maximum 1000 channels. Measured results are stored in internal memory. And for easy data transfer to PC, measured results can also be saved in a flash ATA card or CF card inserted into the PC card slot. Furthermore, Ethernet LAN and RS-232C interfaces are provided standard for connection to the PC, and the control software UCS-60B enables the PC to not only control the UCAM-60B/65B but also perform data processing for rosette analysis, etc. in the field by directly collecting data.

System Components

Data Logger

(Main Unit)

DATA LOGGERS

	00/11/1 000 / 10		optional			
	UCAM-60B-DC	DC only	Optional			
	UCAM-65B-AC	AC only	Standard			
	UCAM-65B-AC-0	7 to only	Optional			
	UCAM-65B-DC	DC only	Standard			
	UCAM-65B-DC-0	DC Only	Optional			
Dedicated Scanners :	USS-61B for genera	al purpose				
	USS-62B for genera	al purpose w	ith NDIS connectors*1			
USS-63B for civil engineering with lightning arrester						
The main unit can accommodate up to 3 dedicated						
scanners.						
External Scanners : The main unit can connect to the following scanners						
	via the optional sca	inner interfa	ce.			
	USB-70 series via scanner interface USI-67A					
Scanner Interfaces :	USI-67A for USB-7	0 series				
External Input/Output	It Unit : UIO-60A					
Control Software :	UCS-60B					
*1 TEDS-compatible f	function is made offe	octive by co	ppecting			

Power Supply Control Software UCS-60B

Optional

AC only

Model

UCAM-60B-AC

1. TEDS-compatible function is made effective by connecting TEDS-installed sensor through NDIS connector.

Specifications

Data Loggers UCAM-60B/65B

- Applicable Sensors :
- Strain gages, strain gage transducers, civil engineering transducers
- with temperature measuring function, DC voltage-output or
- DC current-output instruments, potentiometer sensors,
- thermal sensors (thermocouples and platinum resistance
- thermometer bulbs)

	Sc	Dedicated	General	l Scanner Civil engineering	
Applicat	le Sensors	Scanner	USB- 70B- 10/20	USB- 70B- 30	
	_	120Ω			
	Quarter bridge method	240Ω			
	methou	350Ω			
	Quarter bridge method	120Ω			
and	(true-dummy method)	240Ω			
strain gage		Active-dummy method			
transducers	Half bridge method 60 to 1000	Active-active method			
	00101000	Common dummy method			
	Full bridge method	Opposite side active method			
	60 to 1000 *3	Full-bridge method			
Civil	Full bridge method 120	Constant-current excitation			
engineering	Full bridge method	Constant-current excitation			
transducers	350	With temp. measuring function			
Voltage	DC voltage	e-output instruments			
Current	DC curren	t-output instruments			
		K(CA)			
	Thermocouples	T(CC)			
- ·		E(CRC)			
Temperature		J(IC)			
		R			
	Platinum	Pt100 (new JIS)			
	thermometer bulbs	JPt100 (old JIS)			
	Potentiomet				
	Built-in lightn	0	• (*1)		
	Scanner in	terface *3	Not required	-67A	
2. Use eit		nted. anner interfaces for gh-resolution mode.			

Number	of	Measuring	Channels :
--------	----	-----------	------------

Max. 30 with dedicated scanners

- Max. 1000 with external scanners connected
- Scanning Speed :
- 50 ms/channel (standard mode)
- 280 ms/channel (high-resolution mode), individually selectable for
- desired channels 20 ms/channel (high-speed mode),
- collectively selectable for all channels of dedicated scanners

Scame Scame Dedicated scanner (standard mode) 50 ms/channel Dedicated scanner (high-resolution mode) 280 ms/channel Dedicated scanner (high-speed mode) 20 ms/channel	
Dedicated scanner (high-resolution mode) 280 ms/channel Dedicated scanner (high-speed mode) 20 ms/channel USB-70 series (standard mode only) 60 ms/channel 58.4 m Note : Scanning speeds stated above are standard maximum s respective modes. Besides these, the following speeds for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s ar 5 s ar	lz Zone
Dedicated scanner (high-speed mode) 20 ms/channel USB-70 series (standard mode only) 60 ms/channel 58.4 m Note : Scanning speeds stated above are standard maximum s respective modes. Besides these, the following speeds for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s ar	
USB-70 series (standard mode only) 60 ms/channel 58.4 m Note : Scanning speeds stated above are standard maximum s respective modes. Besides these, the following speeds for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s ar	
Note : Scanning speeds stated above are standard maximum s respective modes. Besides these, the following speeds for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s ar	
respective modes. Besides these, the following speeds for each individual channel: 0.28 s, 0.5 s, 1 s, 2 s, 5 s ar	s/channel
Scanning Speed Standard Mode High-Resolution High-	can be set nd 10 s
	Speed Mode ms/channel)
Strain (gage & transducer)	•
Voltage/current-output sensor × Civil engineering transducer ×	×
Temperature sensor (TC, Pt)	×
Potentiometer sensor • ×	•
Notes : 1. High-resolution mode and high-speed mode are se dedicated anners only. 2. High-resolution or high-speed mode is available on 4-gage method.	
Operating Modes : Real-time, Monitor, and Automatic Measurement Functions	
Initial : Initial values are measured and stored in internal me	,
(except for temperatures measured by civil engine	-
	u values.
Measure : Initial values are subtracted from original values (except for temperatures measured by civil eng	nineering
transducers with temperature measuring func	
Easy Measure : Auto zero balancing function is activated.	don).
	fficient
Note: The selected function is applied to all channels. Coef Calculation Function: Multiplication by calibration coefficier	
calibration by TEDS, conversion of m	
values to physical quantities,	leasuleu
scaling and correction.	
Engineering Units : 59 units	
Automatic Measurement Functions	
Trigger Measurement :	
A relative value (certain changing quantity) or an absolute	value
triggers measurement. In addition to the usual trigger fun	
a variable trigger function is provided with which the trigger	
changes at each step during measurement. With this specia	
a trigger value and the number of measurement times (re	
under the trigger condition can be registered for each step	-
a series of automatic measurements in the order of steps	
The maximum number of steps available for setting is 15	
number of repeat times may be a value selected from a r	
1 to 9999 or infinite.	angeor
Trigger channel : 1 desired channel	
Trigger value : A desired real number of 6 effective figures or les	e Reference
Reference value : A mount of level shift to determine the first t	
(selected from the same range as for the trig	
Number of repeat times : 1 to 9999 (0 for infinite times)	iger values
Number of measurement steps · Maximum 15	
Number of measurement steps : Maximum 15 Measured data	-
Measured data	
Measured data	
Measured data 700 500	
Measured data 700 500 300 Reference value 100 Start of measurement Start of TEP 0 (3 times) STEP 1 (2 times)	P 2
Measured data 700 500 300 Reference value 100 Start of measurement Start of measure Measure Measure Measure Measure STEP 0 (3 times) STEP 0 (2 times)	
Measured data 700 500 300 Reference value 100 Start of measurement Start of Measure Measure Measure Measure Measure Start of Weasure Measure Measure Measure Measure Start of Weasure Measure Measure Measure Measure Start of Value to trigger STEP 0 (3 times) Value to trigger STEP 1 Value to trigger STEP 1 INTERVAL MEASUREMENT: Measurement is automaticall	Trigger STEP 2
Measured data 700 500 300 Reference value 100 Start of measurement Start of measurement Start of Measure Measure Measure Measure Measure Start of Measure Measure Measure Measure Measure STEP 0 (3 times) STEP 0 (3 times) STEP 1 (2 times) STE 0 Value to trigger STEP 1 INTERVAL MEASUREMENT: Measurement is automaticall performed at preset time intervals.	Trigger STEP 2
Measured data 700 500 300 Reference value 100 Start of measurement Start of Weasure Measure Measure Measure Measure Start of Weasure Measure Measure Measure Measure Start of Weasure Measure Measure Measure Measure Start of Value to trigger STEP 0 Value to trigger STEP 1 INTERVAL MEASUREMENT: Measurement is automaticall	rigger STEP 2 y second

of 00 and 00:00:01 to 99 and 12:59:59)
Number of repeat times : 1 to 9999 (0 for infinite times)
Maximum number of steps : 15
Interval measurement ON
Ist meas. 2nd meas. 3rd meas. 4th meas. 5th meas. 6th meas.
It meas. 10 min., 10 min., 15 min., 15 min.

STEP 1 (2 times)

STEP 0 (3 times)

Measurement start time

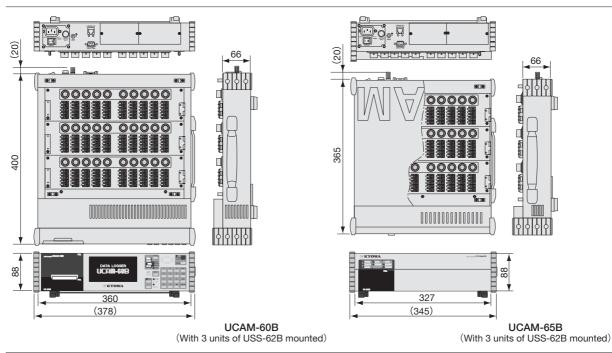
TRIGGER IN	NTERVAL MEAS	UREMEN	NT :		Current Measure	ement (Standard Mode)
Combina	tion of trigger me	easureme	ent and interval meas	urement.	Scanning speed	: 50 ms/channel
Trigger val	ue: Absolute value	e Number	of measurement times:	Max. 9999	Initial value mem	ory range : Same as meas
Interval ti	me: Available in a				Measuring range	e, Resolution and Accurac
		,	3 hours:59 minutes:5	9 seconds	Channel Mode Measure	uring Range Resolution
	tion : Internal me				1/50mA 0 to	±50.00mA 10μA (±0.0
			city depends on the o	card.	Notes : 1. External	shunt resistor (high-accuracy
	surement (Stand	dard Mod	de):			ccuracy does not include the
Bridge excit						ement (High-Speed Mode
	voltage excitation		ox. 2 or 5 VDC		Scanning speed	
	current excitatio					ory range : Same as meas
	. 5.7 mA (bridge		,		Measuring range	e, Resolution and Accurac
			r (0.5 mm²) shielded (cable)	Channel Measu	Iring Range Resolution
	16.7 mA (bridge		/		Widde	
			r (0.5 mm²) shielded (cable)		:50.00 mA 10µA ±(0.08
	peed : 50 ms/ch				2. External	e only with dedicated scanner shunt resistor (high-accuracy
Gage factor	r : 2.00 fixed (coe	efficient c	alculation function er	nables		ccuracy does not include the ex
	correction with	1 2.00/Ks)			asurement with Thermoc
			s measuring range		Scanning speed	
Measuring rar	nge, Resolution	and Accı	uracy		Measuring range	e, Resolution and Accurac
Measuri	0 0	esolution	Accuracy		Type Measuring	Range Resolution Accura
0 to ±50000			±(0.05% of reading +		K -200.0 to 12	
±50000 to 5	500000µm/m 10	0 μm/m	±(0.05% of reading +	10)µm/m	T -200.0 to 40	
Strain Measure	surement (High-	-Resoluti	on Mode):		E -200.0 to 66	
Constant vo	oltage excitation	: Approx	. 5 VDC		J -200.0 to 8	
Constant cu	urrent excitation	: Approx.	16.7 mA (bridge resist	ance 350Ω)	R -0 to 1760.0	
			nm²) shielded cable)	<u>,</u>	Notes : 1. Accurac	ies do not include the internal
	peed : 280 ms/cł		,		compen	sator accuracy.
			alculation function er	ables	2. The refer and exte	rence junction compensator is ernal
ugo luotoi	correction with					couple resistance should be 1
Initial value m	emory range : S		/			easurement with Civil Eng
-	nge, Resolution					re Measuring Function (S
			,			
	<u> </u>	esolution	Accuracy		Scanning speed	
0 to ±20000		.1µm/m	±(0.05% of reading +			e, Resolution and Accurac
	· · · · · ·	1μ m/m	$\pm (0.05\% \text{ of reading } +$		Measuring Ran	
2. Brid	dge resistance should	l be 350Ω f	od (bridge resistance 12 or bridge excitation with co	instant current.	-50.0 to 200.0°	
3. Mei	asuring range is 0 to 1	5000 µm/m	n for bridge excitation with c		Notes : 1. Target p	hysical quantity and temperat
-	ailable only with de				2. Strain m	le channel. leasuring ranges are the same
	surement (High-	-Speed N	/lode)		in stand	ard mode.
Bridge excit	tation				Temperature Me	easurement with Platinum
Constant	voltage excitation	on: Appro	ox. 2 VDC		Thermometer Bu	ulb (Standard Mode)
	voltage excitation		ox. 2 VDC		Thermometer Bu Scanning speed	ulb (Standard Mode)
Constant	0	on:			Scanning speed	ulb (Standard Mode)
Constant Approx	current excitation	on: resistanc		cable)	Scanning speed Measuring range	ulb (Standard Mode) : 50 ms/channel e, Resolution and Accurac
Constant Approx (up te	current excitation	on: resistanc	the 350 Ω) or (0.5 mm ²) shielded	cable)	Scanning speed Measuring range	LIB (Standard Mode) : 50 ms/channel A Resolution and Accurac Measuring Range -200.0 to 660.0°C
Constant Approx (up to Approx	current excitation 5.7 mA (bridge 5 km with a 4-0 . 16.7 mA (bridge	on: resistanc conducto e resistar	be 350Ω) or (0.5 mm ²) shielded nee 120Ω)		Scanning speed Measuring range Type Pt100	Ib (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range -200.0 to 660.0°C 0.1
Constant Approx (up to Approx (up to	current excitation 5.7 mA (bridge 5 km with a 4-0 . 16.7 mA (bridge	on: resistanc conducto e resistan conducto	the 350 Ω) or (0.5 mm ²) shielded		Scanning speed Measuring range Type Pt100 JPt100	Mathematical Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range -200.0 to 660.0°C -200.0 to 510.0°C
Constant Approx (up to Approx (up to Scanning sp	current excitation 5.7 mA (bridge 5 km with a 4-o 16.7 mA (bridge 2 km with a 4-o peed : 20 ms/ch	on: resistanc conducto e resistan conducto annel	ce 350Ω) or (0.5 mm²) shielded ice 120Ω) or (0.5 mm²) shielded	cable)	Scanning speed Measuring range Pt100 JPt100 Note : Connection	Mathematical Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range -200.0 to 660.0°C -200.0 to 510.0°C
Constant Approx (up to Approx (up to Scanning sp	current excitation 5.7 mA (bridge 5 km with a 4-or 16.7 mA (bridge 2 km with a 4-or 2 km with a 4-or peed : 20 ms/ch : 2.00 fixed (coer	on: resistanc conducto e resistan conducto annel efficient c	ce 350Ω) or (0.5 mm²) shielded ice 120Ω) or (0.5 mm²) shielded alculation function er	cable)	Scanning speed Measuring range Pt100 JPt100 Note : Connection	Measuring Range Resolution and Accurac -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor
Constant Approx (up tr Approx (up tr Scanning sp Gage factor	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 2.2 km with a 4 beed : 20 ms/ch r: 2.00 fixed (cost correction with	on: resistanc conducto e resistan conducto annel efficient c n 2.00/Ks)	ze 350Ω) or (0.5 mm²) shielded ice 120Ω) or (0.5 mm²) shielded alculation function er	cable)	Scanning speed Measuring range Pt100 JPt100 Note : Connection	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor : 50 ms/channel (standard)
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 2.2 m with a 4 beed : 20 ms/ch 1.2.00 fixed (cost correction with memory range :	on: resistanc conducto e resistan conducto annel efficient c n 2.00/Ks Same as	ze 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range	cable)	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor : 50 ms/channel (standard 20 ms/channel (high-spir)
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 0.2 km with a 4 peed : 20 ms/ch r : 2.00 fixed (coe correction with memory range : range, Resolution	on: resistanc conducto e resistar conducto annel efficient c 1 2.00/Ks Same as on and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed	Lib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 : 200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor : 50 ms/channel (standard 20 ms/channel (high-spring) same as meas
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuri	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 2.16.7 mA (bridge 2.2 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution	on: resistanc conducto e resistan conducto annel efficient c 1 2.00/Ks same as on and Ac esolution	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy Accuracy	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su	Lib (Standard Mode) : 50 ms/channel p, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system 1 ith Potentiometer Sensor 20 ms/channel (standard 20 ms/channel (high-springry range : Same as meas upply : Approx. 2 VDC
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r 0 to ±50000	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 2.0 m with a 4 beed : 20 ms/ch r: 2.00 fixed (cost correction with memory range range, Resolution ng Range 0 µm/m 1	on: resistanc conducto e resistar conducto annel efficient c n 2.00/Ks : Same as on and Ac esolution 1 µm/m	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er alculation function er b s measuring range curacy <u>Accuracy</u> ±(0.08% of reading +	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 : 3-wire system 0.1 is 3-wire system 0.1 : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spriver) 0.1 : org/range : Same as meas 0.1 : org/range : Same as meas 0.1
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r 0 to ±50000 ±50000 to 8	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 beed : 20 ms/ch r : 2.00 fixed (cost correction with memory range : range, Resolution ng Range Re 0 µm/m 1 500000µm/m 1	on: resistanc conducto e resistar conducto annel efficient c 1 2.00/Ksj : Same as on and Ac esolution 1 µm/m 0µm/m	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy Accuracy ±(0.08% of reading + ±(0.08% of reading +	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 : 50 ms/channel 0.1 : 50 us of 510.0°C 0.1 : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spiory range : Same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n <u>Measuring n</u> 0 to ±50000 ±50000 to 5 Notes : 1. Av	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 peed : 20 ms/ch : 2.00 fixed (coe correction with memory range : range, Resolution ng Range n 500000 µm/m 1 ailable only with 4-	on: resistanc conducto e resistar conducto annel efficient c 1 2.00/Ks Same as on and Ac esolution 1 µm/m 0µm/m gage mett	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy <u>Accuracy</u> ±(0.08% of reading + ±(0.08% of reading + hod	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 : 3-wire system 0.1 is 3-wire system 0.1 : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spriver) 0.1 : org/range : Same as meas 0.1 : org/range : Same as meas 0.1
Constant Approx (up to Approx (up to Scanning sp Gage factor Initial value Measuring n Measuring n 0 to ±50000 ±50000 to 5 Notes : 1. Av 2. Av	current excitation current excitation current excitation construction construction construction construction currection with construction currection with currection with currection with currection with currection with currection cu	on: resistanc conducto e resistan conducto annel efficient c 1.2.00/Ks s Same as on and Ac esolution 1 µm/m 0µm/m gage mette edicated s	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy <u>Accuracy</u> <u>4</u> (0.08% of reading + ±0.08% of reading + hod canners.	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 : 50 ms/channel 0.1 : 50 us of 510.0°C 0.1 : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spiory range : Same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac
Constant Approx (up to Approx (up to Scanning sp Gage factor Initial value Measuring n Measuring n Measuring sp 0 to ±50000 ±50000 to 5 Notes : 1. Av 2. Av	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 peed : 20 ms/ch : 2.00 fixed (coe correction with memory range : range, Resolution ng Range n 500000 µm/m 1 ailable only with 4-	on: resistanc conducto e resistan conducto annel efficient c 1.2.00/Ks s Same as on and Ac esolution 1 µm/m 0µm/m gage mette edicated s	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy <u>Accuracy</u> <u>4</u> (0.08% of reading + ±0.08% of reading + hod canners.	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode	Ib (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system 1 20 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spiory range : Same as meassingply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Resolution on Accurac 0 to ±50.00% 0.01
Constant Approx (up to Approx (up to Scanning sp Gage factor Measuring to Measuring to 0 to ±50000 ±50000 to 5 Notes : 1. Av 2. Av	current excitation current excitation current excitation construction construction construction construction currection with construction currection with currection with currection with currection with currection with currection cu	on: resistanc conducto e resistan conducto annel efficient c 1 2.00/Ks s Same as on and Ac esolution 1 µm/m 0µm/m gage mett edicated so ndard M	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy <u>Accuracy</u> <u>4</u> (0.08% of reading + ±0.08% of reading + hod canners.	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT.	Ib (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensol 1: 50 ms/channel (standard 20 ms/channel
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring tr 0 to ±50000 ±50000 to 6 Notes : 1. Av 2. Av	current excitation current excitation curren	on: resistance conducto e resistance conducto annel efficient c 1.2.00/Ks s Same as on and Ac esolution 1. μ m/m 0 μ m/m odum/m angage mette edicated so n and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy <u>Accuracy</u> <u>4</u> (0.08% of reading + ±0.08% of reading + hod canners.	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection	Ib (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensoi 1: 50 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (high-spu oory range : Same as meas pply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range Resolution 30.01 0 to ±50.00% 0.01
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n <u>Measuring n</u> <u>Measuring n</u> <u>Measuring n</u> <u>Notes : 1. Av</u> 2. Av Voltage Me Scanning sp Initial value	current excitation current excitation curren	on: resistanc conducto e resistan conducto annel efficient c 1.2.00/Ks c Same as on and Ac esolution 1.μm/m 0,μm/m gage mette edicated so ndard M annel c Same as	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) is measuring range curacy ±(0.08% of reading + ±(0.08% of reading + iconners. ode) is measuring range	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B)	Ib (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Senson ith Potentiometer Senson 20 ms/channel (high-spi ory range : Same as meas pply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Resolution and Accurac 0 to ±50.00% 0.01 is 3-wire system 0.1
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r Measuring sp Notes : 1. Av Voltage Me Scanning sp Initial value	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 beed : 20 ms/ch r : 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution	on: resistanc conducto e resistar conducto annel efficient c a 2.00/Ks : Same as n and Ac esolution 1 μm/m 0μm/m gage mett edicated s ndard M annel : Same as n and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) is measuring range curacy ±(0.08% of reading + ±(0.08% of reading + iconners. ode) is measuring range	cable) nables 3) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B)	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor ith Potentiometer Sensor 20 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (high-spi same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurace Measuring Range Measuring Range Resolution and Accurace Measuring Range Resolution and Scurace : Resolution and Accurace 0.01 is 3-wire system : Real-time clock is built : Real-time clock is built (battery backup 5 year : Fluorescent display tub 5
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r Measuring sp Notes : 1. Av Voltage Me Scanning sp Initial value	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coor correction with memory range : range, Resolution ng Range Resolution	on: resistanc conducto e resistar conducto annel efficient c a 2.00/Ks : Same as n and Ac esolution 1 μm/m 0μm/m gage mett edicated s ndard M annel : Same as n and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) is measuring range curacy ±(0.08% of reading + ±(0.08% of reading + iconners. ode) is measuring range	cable) nables	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B)	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor ith Potentiometer Sensor 50 ms/channel (standar 20 ms/channel (standar 20 ms/channel (high-spi yory range : Same as meas ipply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Resolution 0 to ±50.00% 0.01 is 3-wire system : Real-time clock is built (battery backup 5 year) : Real-time clock is built (battery backup 5 year B) : Fluorescent display tut 128 x 64 dots Printer (
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n <u>Measuring n</u> Measuring n <u>Notes : 1. Av</u> 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 beed : 20 ms/ch r : 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks; Same as n and Ac esolution 1 μm/m gage metted acticated s n and Ac esolution Same as n and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) is measuring range ccuracy <u>Accuracy</u> <u>i</u> (0.08% of reading + i±(0.08% of reading + i±(0.08% of reading + canners. ode) is measuring range ccuracy <u>Accuracy</u>	cable) nables 3) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B)	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system Ith Potentiometer Sensor ith Potentiometer Sensor 50 ms/channel (standar 20 ms/channel (standar 20 ms/channel (high-spi y Approx. 2 VDC visistance : 1 to 10 kΩ e, Resolution and Accurac Measuring Range Measuring Range Resolution and Accurac 0 to ±50.00% 0.01 is 3-wire system : Real-time clock is built (battery backup 5 year : Real-time clock is built (battery backup 5 year B) : Fluorescent display tut 128 x 64 dots Printer (
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r Measuring sp Notes : 1. Aw Voltage Me Scanning sp Initial value	current excitation 5.7 mA (bridge 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.2 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolution ng Range Re 0 µm/m 1 500000µm/m 1 silable only with 4- ailable onl	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks : Same as n and Ac esolution 1 μm/m 0μm/m gage metted annel : Same as n and Ac Resolution f L μ V	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range curacy ±(0.08% of reading + ±(0.08% of reading + hod canners. ode) s measuring range curacy	cable) nables 3) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 55	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system Ith Potentiometer Sensor ith Potentiometer Sensor 50 ms/channel (standar 20 ms/channel (standar 20 ms/channel (high-spi y Approx. 2 VDC visistance : 1 to 10 kΩ e, Resolution and Accurac Measuring Range Measuring Range Resolution 0 to ±50.00% 0.01 is 3-wire system : : Real-time clock is built (battery backup 5 year B) : Fluorescent display tut 128 x 64 dots Printer (Thermal 38 mm (24 characters/line),
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n 0 to ±50000 ±50000 to ± Notes : 1. Av 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode	current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.4 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coor correction with memory range : range, Resolution ng Range Resolution peed : 50 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV	on: resistanc conducto e resistar conducto annel efficient c a 2.00/Ks : Same as n and Ac esolution 1 μm/m 0μm/m gage metted annel : Same as n and Ac son and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy (0.08% of reading + ±(0.08% of reading + hod canners. ode) s measuring range ccuracy Accuracy ±(0.05% of reading + 3)	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 52 Printing speed : 65	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system Ith Potentiometer Sensor ith Potentiometer Sensor 50 ms/channel (standar 20 ms/channel (standar 20 ms/channel (high-spi y: Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range 0 to ±50.00% 0.01 is 3-wire system) y: Read-time clock is built (battery backup 5 year b: Ruorescent display tut 128 x 64 dots Printer (Thermal 36 mm (24 characters/line), 30 mm/sec 300 mm/sec
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Measuring n Voltage Me Scanning sp Initial value Measuring n Range Mode	current excitation current excitation curren	on: resistanc conducto e resistan conducto annel efficient c 1.2.00/Ks s Same as on and Ac esolution 1 μm/m 0μm/m annel s Same as on and Ac esolution f annel s Same as on and Ac solution f 1μ V 10 μV 100 μV	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) is measuring range ccuracy <u>Accuracy</u> <u>i</u> (0.08% of reading + i±(0.08% of reading + i±(0.08% of reading + canners. ode) is measuring range ccuracy <u>Accuracy</u>	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power sL Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 5 Printing speed : 6 PC Card Slot : 6	Ib (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system Ith Potentiometer Sensor ith Potentiometer Sensor 50 ms/channel (standar 20 ms/channel (standar 20 ms/channel (high-spi y: Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range 0 to ±50.00% 0.01 is 3-wire system) y: Real-time clock is built (battery backup 5 year b: Fluorescent display tut 128 x 64 dots Printer (Thermal 36 mm (24 characters/line), 30 mm/sec Conforms with PCMCIA Ve 20 conforms with PCMCIA Ve
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Notes : 1. Av Voltage Me Scanning sp Initial value Measuring n Range Mode V/500mV V/50V	current excitation 5.7 mA (bridge 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.2 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution memory range : range, Resolution Measuring Range 0 to ±50.000 mV ±50.000 to 50.000 mV 15.0000 to 50.000 mV	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks/ : Same as n and Ac esolution 1 μm/m gage metle dicated s n and Ac Resolution 2 Same as n and Ac Resolution 1 μ V 10 μ V 10 μ V 10 μ V	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy ±(0.08% of reading + ±(0.08% of reading + node) s measuring range ccuracy ±(0.05% of reading + 3) ±(0.05% of reading + 2) ±(0.05% of reading + 2)	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : 1 Paper width : 5 Printing speed : 6 PC Card Slot : 6	ulb (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system 1 20 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-spiory range : Same as meas 10 kΩ a, Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range Resolution to
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring r Measuring r Measuring sp Notes : 1. Av Voltage Me Scanning sp Initial value Measuring r Range Mode V/500mV V/50V	current excitation 5.7 mA (bridge 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.2 m with a 4 peed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution peed : 50 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV ±50.000 to 50.000 mV asurement (Hig)	n: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks : Same as n and Ac esolution 1 μm/m 0μm/m gage metle edicated s n and Ac Resolution 2 Same as n and Ac Resolution 1 μ V 10 μ V 10 μ V 10 μ V 1 m V	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy ±(0.08% of reading + ±(0.08% of reading + node) s measuring range ccuracy ±(0.05% of reading + 3) ±(0.05% of reading + 2) ±(0.05% of reading + 2)	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection I Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 5 Printing speed : 6 PC Card Slot : 0	ulb (Standard Mode) : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system 1 20 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-sproory range : Same as meassingply : Approx. 2 VDC sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Resolution built 0 to ±50.00% 0.01 is 3-wire system 128 × 64 dots Printer (battery backup 5 year B) : Fluorescent display tut 128 × 64 dots Printer (fhormal 8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter 30 mercially ava
Constant Approx (up to Approx (up to Scanning sy Gage factor Measuring n Measuring n Measuring n Measuring n Notes : 1. Av 2. Av Voltage Me Scanning sy Initial value Measuring n Range Mode V/500mV V/50V	current excitation current excitation curren	on: resistance conducto annel efficient c annel efficient c 2.00/Ks; same as on and Ac esolution 1 µm/m 0 µm/m gage mettedicated s n and Ac esolution 1 µ V 10 µV 10 µV 1 mV h-Speed annel	be 350Ω) pr (0.5 mm²) shielded loce 120Ω) pr (0.5 mm²) shielded alculation function er s measuring range ccuracy 4(0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + ccuracy broad canners. ode) s measuring range ccuracy 4(0.05% of reading + 3) ±(0.05% of reading + 2) Mode)	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 55 Printing speed : 67 PC Card Slot : 67 A	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensol 1: 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-sprivory range : Same as meas 20 ms/channel (high-sprivory range : Same as meas pply : Approx. 2 VDC sistance : 1 to 10 kΩ c, Resolution and Accurac Measuring Range Resolution and Accurac B) : Fluorescent display tut 128 x 64 dots Printer (Thermal S8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter RS-232C and LAN (10BAS
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n 0 to ±50000 ±50000 to 5 Notes : 1. Av 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode V/500mV V/50V	current excitation current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.2 m with a 4 peed : 20 ms/ch : 2.00 fixed (coor correction with memory range : range, Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution peed : 50 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV ±50.00 to 500.00 mV ±50.00 to 500.00 mV ±50.00 to 500.00 mV 25.000 to 200 mS/ch memory range : 0 to ±50.000 mV 25.000 to 500.00 mV 15.000 to 500.00 mV 15.0000 to 500.00 mV 15.00	on: resistanc conducto e resistan conducto annel efficient c 1 2.00/Ks s Same as on and Ac solution 1 µm/m 0,µm/m gage mette edicated so n dard M annel s Same as on and Ac Pesolution 1 µ V 10 µ V 100 µV 1 mV h-Speed annel s Same as	ce 350Ω) or (0.5 mm²) shielded ice 120Ω) ir (0.5 mm²) shielded alculation function er s measuring range curacy Accuracy ±(0.08% of reading + ±(0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 55 Printing speed : 67 PC Card Slot : 67 Clock Conversion : 67 Printing Speed : 67 Printing Speed : 67 Clock Conversion : 67 Clo	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 :s 3-wire system ith Potentiometer Sensol : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-sprivory range : Same as meas : 90 ms/channel (high-sprivory range : Same as meas : 90 rung - X VDC sistance : 1 to 10 kΩ c, Resolution and Accurac Measuring Range Resolution and Accurac B) : Fluorescent display tut 128 x 64 dots Printer (Thermal S8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter RS-232C and LAN (10BAS CSV conversion SV
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n <u>Measuring n</u> O to ±50000 ±50000 to 5 Notes : 1. Av 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode V/500mV V/50V	current excitation current excitation curren	on: resistanc conducto e resistan conducto annel efficient c 1 2.00/Ks s Same as on and Ac solution 1 µm/m 0,µm/m gage mette edicated so n dard M annel s Same as on and Ac Pesolution 1 µ V 10 µ V 100 µV 1 mV h-Speed annel s Same as	ce 350Ω) or (0.5 mm²) shielded ice 120Ω) ir (0.5 mm²) shielded alculation function er s measuring range curacy Accuracy ±(0.08% of reading + ±(0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : 55 Printing speed : 67 PC Card Slot : 67 A	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 :s 3-wire system ith Potentiometer Sensol : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-sprivory range : Same as meas : 90 ms/channel (high-sprivory range : Same as meas : 90 rung - X VDC sistance : 1 to 10 kΩ c, Resolution and Accurac Measuring Range Resolution and Accurac B) : Fluorescent display tut 128 x 64 dots Printer (Thermal S8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter RS-232C and LAN (10BAS CSV conversion SV
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n (0 to ±50000 ±50000 to ±50000 (±50000 to ±50000 (±50000 to ±50000) (±50000 to ±50000) (±500000 to ±50000) (±500000) (±50000 to ±50000) (±500000 to ±50000) (±5000000 to ±50000) (±500000 to ±50000) (±500000 to ±50000) (±5000000 to ±50000) (±500000 to ±50000) (±500000 to ±50000) (±500000 to ±50000) (±500000000) (±500000000000) (±5000000000000000000000000000000000000	current excitation 5.7 mA (bridge 5.7 mA (bridge 5.5 m with a 4-4 16.7 mA (bridge 5.2 m with a 4-4 preed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolutio ng Range Resolutio ng Range Resolutio ng Range Resolutio ng Range Resolutio 1500000µm/m 1 111 1500000µm/m 1 112 1500000µm/m 1 102 1500000µm/m 1 1500000µm/m 1 150000µm/m 1 150000µm/m 1 150000µm/m 1 150000µm/m 1 150000µm/m 1 150000µm/m 1 15000µm/m 1 15000µm/	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks; same as on and Ac esolution 1 μm/m oµm/m gage met edicated s n and Ac Resolution 1 μ V 10 μ V 10 μ V 1 00 μ V 1 mV h-Speed annel s Same as on and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy Accuracy (0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + s measuring range ccuracy (0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range ccuracy (0.05% of reading + 2) (0.05% of r	cable) nables 3) μm/m 30) μm/m 30) μm/m 10 M Ω or more 1 M Ω or more	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : E Printing speed : C PC Card Slot : C File Conversion : C Self-diagnosis Fun	ulb (Standard Mode) : 50 ms/channel c, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 :s 3-wire system ith Potentiometer Sensol : 50 ms/channel (standard 20 ms/channel (standard 20 ms/channel (high-sprivory range : Same as meas : 90 ms/channel (high-sprivory range : Same as meas : 90 rung - X VDC sistance : 1 to 10 kΩ c, Resolution and Accurac Measuring Range Resolution and Accurac B) : Fluorescent display tut 128 x 64 dots Printer (Thermal S8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter RS-232C and LAN (10BAS CSV conversion SV
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Voltage Me Scanning sp Initial value Measuring n Range Mode V/500W V/50V	current excitation current excitation 5.7 mA (bridge 5.5 m with a 4 16.7 mA (bridge 5.2 m with a 4 peed : 20 ms/ch : 2.00 fixed (coor correction with memory range : range, Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution mg Range Resolution peed : 50 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV ±50.00 to 500.00 mV ±50.00 to 500.00 mV ±50.00 to 500.00 mV 25.000 to 200 mS/ch memory range : 0 to ±50.000 mV 25.000 to 500.00 mV 15.000 to 500.00 mV 25.000 to 500.00 mV 15.000 to 500.00 mV 15.0000 to 500.00 mV 15.00	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks; same as on and Ac esolution 1 μm/m oµm/m gage met edicated s n and Ac Resolution 1 μ V 10 μ V 10 μ V 1 00 μ V 1 mV h-Speed annel s Same as on and Ac	ce 350Ω) or (0.5 mm²) shielded ice 120Ω) ir (0.5 mm²) shielded alculation function er s measuring range curacy Accuracy ±(0.08% of reading + ±(0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range	cable) nables 3) μm/m 30) μm/m 30) μm/m	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B)	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Senson 20 ms/channel (standard 20 ms/channel (high-spinory range : Same as meas pory range : Same as meas pply : Approx. 2 VDC sistance : 1 to 10 kΩ p, Resolution and Accurac Measuring Range Resolution 0 to ±50.00% 0.01 is 3-wire system 0.1 : Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range 0 to ±50.00% 0.01 is 3-wire system 0.1 : Real-time clock is built (battery backup 5 year B) : Fluorescent display tut 128 x 64 dots Printer (Thermal S8 mm (24 characters/line), 30 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava CF card (ATA card adapter RS-232C and LAN (10BAS CSV conversion ction :
Constant Approx (up to Approx (up to Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Notes : 1. Av 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode Scanning sp Initial value Measuring n Range Mode Scanning sp Initial value Measuring n Range Mode	Current excitation Current excitation Current excitation Solution 2 km with a 4-4 16.7 mA (bridge 0 2 km with a 4-4 preed : 20 ms/ch r: 2.00 fixed (coe correction with memory range : range, Resolution ng Range Resolution poeed : 50 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV ±5.000 to 50.000 mV asurement (Hig poeed : 20 ms/ch memory range : range, Resolution Measuring Range 0 to ±50.000 mV	on: resistanc conducto e resistan conducto annel efficient c a 2.00/Ks; same as on and Ac esolution 1 μm/m gage met edicated s n and Ac Resolution 1 μ V 10 μ V 10 μ V 1 mV h-Speed annel s Same as on and Ac	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy Accuracy (0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + s measuring range ccuracy (0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range ccuracy (0.05% of reading + 2) (0.05% of r	cable) hables 3) μm/m 30) μm/m 30) μm/m 10 M Ω or more 1 M Ω or more 10 M Ω	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B)	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor 20 ms/channel (standarr 20 ms/channel (high-spu 20 ms/channel (high-spu sistance : 1 to 10 kΩ a, Resolution and Accurac Measuring Range Measuring Range Resolution and Accurac 1: S-wire system 0.01 is 3-wire system
Constant Approx (up tr Approx (up tr Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Voltage Me Scanning sp Initial value Measuring n Range Mode V/500W V/50V	current excitation current excitation 5.7 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.20 ms/ch r: 2.00 fixed (coe correction with memory range: range, Resolution ng Range 0. µm/m 1 500000µm/m 1 1 500000µm/m 1 1 500000 1 50000 to 50000m/m 1 1 50000 to 50000 mV 1 50000 to 50000 mV 1 1 1 1 1 1 1 1 1 1 1 1 1	on: resistance conducto annel efficient c annel efficient c 2.00/Ks; same as on and Ac esolution 1 µm/m 0 µm/m gage metle dicated s n and Ac Resolution 1 µ V 10 µV 10 µV 1 mV h-Speed annel same as on and Ac	be 350Ω) pr (0.5 mm²) shielded ince 120Ω) pr (0.5 mm²) shielded alculation function er s measuring range ccuracy Accuracy ±(0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + canners. ode) s measuring range ccuracy ±(0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range ccuracy	cable) nables 3) μm/m 30) μm/m 30) μm/m 30) μm/m 1 M Ω or more 1 M Ω or more	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B)	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor : 50 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (standarr yory range : Same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ s, Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range Resolution to to ±50.00% 0.01 is 3-wire system 0 to ±50.00% 0.01 is 3-wire system 128 x 64 dots Printer (: Fluorescent display tut 128 x 64 dots Printer (128 x 64 dots Printer (: Thermal 38 mm (24 characters/line), 50 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava 25 card (ATA card adapter 32-322C and LAN (10BAS 25V conversion 25V conversion ction resistance, mode, etc. 50 de is availabe only for ded
Constant Approx (up to Approx (up to Scanning sp Gage factor Initial value Measuring n Measuring n Measuring n Notes : 1. Av 2. Av Voltage Me Scanning sp Initial value Measuring n Range Mode Scanning sp Initial value Measuring n Range Mode Scanning sp Initial value Measuring n Range Mode	current excitation 5.7 mA (bridge 5.5.7 mA (bridge 5.5.7 mA (bridge 5.5.7 mA (bridge 5.5.7 mA (bridge 5.5.7 mA (bridge 5.2.00 fixed (coe correction with memory range : 2.0.0 fixed (coe correction with memory range : 500000 µm/m 1 ailable only with 4- ailable only with 4-	on: resistance conducto e resistance conducto annel efficient c 2.00/Ks; s Same as on and Ac esolution 1 µm/m 0 µm/m gage mettedicated s n and Ac esolution 1 µ V 10 µV 10 µV	ce 350Ω) or (0.5 mm ²) shielded ice 120Ω) or (0.5 mm ²) shielded alculation function er) s measuring range ccuracy Accuracy (0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + s measuring range ccuracy (0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range ccuracy (0.05% of reading + 2) (0.05% of r	cable) nables 3) μm/m 30) μm/m 30) μm/m 30) μm/m Resistance 10 M Ω or more 1 M Ω or more 10 M Ω or more 1 M Ω	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : E Printing system : T Paper width : E Printing speed : C PC Card Slot : C Self-diagnosis Fun Checks display, p resistance, insulat resistance and mo	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Reso -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor ith Potentiometer Sensor 20 ms/channel (standar: 20 ms/channel (standar: 20 ms/channel (standar: 20 ms/channel (standar: 20 ms/channel (standar: yory range : Same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ a, a, Resolution and Accurace Measuring Range Measuring Range Resolution 0 to ±50.00% 0.01 is 3-wire system 0:): Real-time clock is built (battery backup 5 year B): Fluorescent display tut 128 x 64 dots Printer ('hermal 58 mm (24 characters/line), 60 mm/sec Conforms with PCMCIA Ve Conforms with PCMCIA Ve Coccepts a commercially ava CSV conversion Ction : crinter, bridge excitation, lea fion resistance, mode, etc. 1 ode is availabe only for ded y :
Constant Approx (up tr Approx (up tr Scanning sy Gage factor Initial value Measuring n <u>Measuring n</u> O to ±50000 ±50000 to ± Notes : 1. Av 2. Av Voltage Me Scanning sy Initial value Measuring n Range Mode V/500mV V/50V	current excitation current excitation 5.7 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.67 mA (bridge 5.20 ms/ch r: 2.00 fixed (coe correction with memory range: range, Resolution ng Range 0. µm/m 1 500000µm/m 1 1 500000µm/m 1 1 500000 1 50000 to 50000m/m 1 1 50000 to 50000 mV 1 50000 to 50000 mV 1 1 1 1 1 1 1 1 1 1 1 1 1	on: resistance conducto e resistance conducto annel efficient c 2.00/Ks; s Same as on and Ac esolution 1 µm/m 0 µm/m gage mettedicated s n and Ac esolution 1 µ V 10 µV 10 µV	be 350Ω) pr (0.5 mm²) shielded ince 120Ω) pr (0.5 mm²) shielded alculation function er s measuring range ccuracy Accuracy ±(0.08% of reading + ±(0.08% of reading + ±(0.08% of reading + canners. ode) s measuring range ccuracy ±(0.05% of reading + 3) ±(0.05% of reading + 2) Mode) s measuring range ccuracy	cable) hables 3) μm/m 30) μm/m 30) μm/m Hesistance 10 M Ω or more 1 M Ω or more 10 M Ω or more 10 M Ω or more	Scanning speed Measuring range Pt100 JPt100 Note : Connection Measurement w Scanning speed Initial value mem Sensor power su Potentiometer re Measuring range Channel Mode POT. Note : Connection Clock (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Display (UCAM-60B) Printing system : T Paper width : E Printing system : T Paper width : E Printing speed : C PC Card Slot : C Self-diagnosis Fun Checks display, p resistance, insulat resistance and mo TEDS Compatibility Interface : IEEE 1	ulb (Standard Mode) : 50 ms/channel : 50 ms/channel a, Resolution and Accurac Measuring Range Resolution -200.0 to 660.0°C 0.1 -200.0 to 510.0°C 0.1 is 3-wire system ith Potentiometer Sensor : 50 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (standarr 20 ms/channel (standarr yory range : Same as meas upply : Approx. 2 VDC sistance : 1 to 10 kΩ s, Resolution and Accurac Measuring Range Resolution and Accurac Measuring Range Resolution to to ±50.00% 0.01 is 3-wire system 0 to ±50.00% 0.01 is 3-wire system 128 x 64 dots Printer (: Fluorescent display tut 128 x 64 dots Printer (128 x 64 dots Printer (: Thermal 38 mm (24 characters/line), 50 mm/sec 20 mm/sec Conforms with PCMCIA Ve Accepts a commercially ava 25 card (ATA card adapter 32-322C and LAN (10BAS 25V conversion 25V conversion ction resistance, mode, etc. 50 de is availabe only for ded

Scanning spee	ed : 50 ms/	channel	nouoj		
Initial value me	emory rang	e : Same	as measuri	ing	range
Measuring ran	ge, Resolu	tion and A	Accuracy		
Channel Mode Me I/50mA 0	asuring Ran to ±50.00m				Accuracy reading + 0.01) mA
Notes : 1. Extern 2. State	nal shunt res d accuracy c	istor (high- loes not ind	accuracy 25 clude the ex	i0Ω tern) is required. al shunt resistor.
Current Meas	urement (H	ligh-Spee	ed Mode)		
Scanning spee					
Initial value me				ing	range
Measuring ran	ge, Resolu	tion and A	Accuracy	_	
Channel Mea	asuring Rang	ge Resolutio	n	A	ccuracy
	o ±50.00 mA			of r	eading + 0.01) mA
Notes : 1. Availa 2. Exter	nal shunt res	istor (high-	accuracy 25	ω) is required.
-					hunt resistor accuracy.
Scanning spee			nermocou	pie	s (Standard Mode)
Measuring ran			Accuracy		
	ing Range	Resolution	Accuracy	Internal	Reference Junction Compensator Accuracy
	1230.0 °C	Ticsolution	±0.7°C		0.5 °C
	400.0 °C		±0.7°C	(wi	th input terminal nperature balanced
	660.0 °C	0.1°C	±0.5°C	in a	an ambient)
J -200.0 to R -0 to 176	<u>870.0 °C</u>	-	±0.6°C ±2.2°C		mperature range of 0 50 °C)
Notes : 1. Accu	racies do no			ferei	nce junction
comp	ensator acc	uracy.			able between internal
and e	xternal.				
	nocouple res				
Temperature with Tempera			-		ing Transducers
Scanning spee		-	ction (Stai	lua	
Measuring ran			Accuracy		
Measuring F	• ·	Resolu	,		Accuracy
-50.0 to 200		0.1			±0.5°C
Notes : 1. Targe	t physical qu ingle channe		temperature	car	n be measured
2. Strair	measuring	ranges are	the same as	s in s	strain measurement
Temperature	ndard mode		Platinum R	lesi	stance
Thermometer					
Scanning spee	ed : 50 ms/	channel			
Measuring ran	ge, Resolu	tion and A	Accuracy		
Туре		ng Range	Resoluti	ion	Accuracy
Pt100 JPt100	-200.0 to		0.1°C		±0.3°C
Note : Connectio					
Measurement			Sensor		
Scanning spee	ed: 50 ms	/channel (standard n	nod	e)
			high-speed		
Initial value me				ing	range
Sensor power Potentiometer					
Measuring ran					
Channel Mode			Resolutio	n	Accuracy
POT.	0 to ±8		0.01%		±0.1% FS
Note : Connectio	on is 3-wire s	system			
Clock (UCAM-60	,		k is built in		
Display (UCAM-			p 5 years). solav tube		
Display (UCAIVI-			Printer (UC	:AN	1-60B)
Printing system		<u>x o i doto</u>		// uv	
Paper width :		4 charact	ers/line), U	CAN	M-60A-RP
Printing speed :	60 mm/se	ЭС			
PC Card Slot :			/ICIA Ver. 4		
					flash ATA card or
Interfaces :			adapter red	-	ed).)0BASE-TX)
File Conversion			(IUDAGE-	17 10	
Self-diagnosis F		5.501			
		idge excita	ation, leadw	/ire-	off, input/output
					ing of input/outut
resistance and		ailabe only	for dedica	ted	scanners.
TEDS Compatib			Tur 1		
					nterface Class 2
with IEEE temp					n in accord-ance
Operating Temp			-	- 100	
0 to 50°C, 20 t					

Power Supply : AC85 to 264V, 50/60Hz (AC-operated version)	External Input/Output Unit UIO-60A
10 to 16 VDC (DC-operated version)	Output: ALARM signal: 4 channels (high/low limit checking)
Note : DC-operated version has power control function.	BUSY signal : 1 channel
Current Consumption:	Input : START signal : 1 channel
0.5 A or less: 100 VAC (with 3 dedicated scanners mounted)	STOP signal : 1 channel
4 A or less: 12 VDC (with 3 dedicated scanners mounted)	RESET signal: 1 channel
Demensions :	RAINFALL signal : 1 channel
UCAM-60B: 360(W) x 88(H) x 400(D) mm (excluding protrusions)	Operating Temperature & Humidity Range :
UCAM-65B: 327(W) x 88(H) x 365(D) mm (excluding protrusions)	0 to 50°C, 20 to 85% RH (noncondensing)
Weight : UCAM-60B: Approx. 8 kg	Dimensions : 90(W) x 50(H) x 180(D) mm
UCAM-65B: Approx. 4.6 kg	(excluding protrusions),
Standard Accessories	Weight : Approx. 140g
AC power cable P-18 with conversion adapter CM-39 (AC-operated	External Scanners USB-70B
version) DC power cable P-57 (DC-operated version)	Models :
Recording paper UCAM-60A-RP (1 roll for UCAM-60B only) Screwdriver, Spare fuse, Instruction Manual	USB-70B-10 (for general strain measurement)
CD-R (Control Software UCS-60B for UCAM-65B only)	USB-70B-20 (for general strain meas., with NDIS connectors)
Optional Accessories Recording Paper UCAM-60A-RP (10 rolls/pack)	USB-70B-30 (for civil engineering, with lightning arrester)
	Number of Measuring Channels : 50/unit
Dedicated Scanners USS-61B/62B/63B	Measuring Channel Mode :
Models : USS-61B (TEDS compatible)	Selected for each channel from the mainframe
USS-62B (with NDIS connectors, TEDS compatible)	Connectable Sensors :
USS-63B (for civil engineering measurement,	
TEDS compatible, with lightning arrester)	USB-70B-10 : Strain gages, strain gage transducers,
Number of Measuring Channels : 10/unit	potentiometer Sensors,
Switching Terminals : Semiconductor relays	DC voltage-output instruments, thermocouples
Input Terminals : Can connect to leadwires through either soldering	USB-70B-20 : Strain gages, strain gage transducers,
or screwing.	potentiometer Sensors,
NDIS connectors (USS-62B)	DC voltage-output instruments, thermocouples
One-touch terminal block JT-1A (optional)	(trans-ducers with NDIS connector can be connected
Lightning Arrester: Provided (USS-63B only)	USB-70B-30 : Strain gages, strain gage transducers,
Operating Temperature & Humidity Range :	potentiometer Sensors,
0 to 50°C, 20 to 85% RH (noncondensing)	DC voltage-output instruments,
Dimensions : 320(W) x 28(H) x 80(D) mm (excluding protrusions)	thermal Sensors (thermo-couples, platinum resistan
Weight: USS-61B : Approx. 800 g (including terminal cover)	thermometer bulbs, civil engineering transducers wi
USS-62B : Approx. 1 kg (including terminal cover)	temperature measuring function);
USS-63B : Approx. 900 g (including terminal cover)	lightning arrester built in
Standard Accessories	Power Supply: Supplied from data logger If the cable is extended
Terminal cover, Channel label and for USS-62B, NDIS connector caps (pre-attached to connectors)	or if 4 or more scanners are connected, an optional
	UPS-70B should be mounted into scanners.
Scanner Interfaces USI-67A	UPS-70B operates on 90 to 132/180 to 264 VAC
Connectable Scanners : USB-70 series	(no switchover required), 50/60 Hz
Number of Connectable Scanners : Max. 20	Operating Temperature & Humidity Range :
Operating Temperature & Humidity Range :	0 to 50°C, 20 to 85% RH (noncondensing)
0 to 50°C, 20 to 85% RH (noncondensing)	Dimensions : 302(W) x 107(H) x 500(D) mm (excluding protrusion
Dimensions : 99(W) x 50(H) x 163(D) mm (excluding protrusions),	Weight : Approx. 7.7 kg (USB-70B-30)
Weight: Approx. 160 g	Approx. 8.5 kg (USB-70B-20)



USI-67A



UCS-60B Control Software



User friendly of control software for data logger.

- Can control UCAM-60A/B, UCAM-65A/B, UCAM-20PC and UCAM-500A/B.
- Numeric window presenting data in list format
- Up to 50 graph windows on display, maximum 20 channels of data per graph
- Various data saving formats: Kyowa standard KU1, UCAM-70A, CSV and XLS (Excel format)
- Data processing (arithmetic operation, statistic operation and rosette analysis)
- Read/write of measuring/calculating condition files
- Printer output
 - When connecting the data logger to the PC via LAN port, use a straight cable and LAN hub.

The UCS-60B enables the PC to control a data logger and to present measured/calculated data on graph and numeric windows, thereby enhancing the performance of the data logger.

Specifications

PC Require	ments
Processor :	Pentium III 1 GHz or the equivalent
Memory :	512 MB or more
Hard Disk :	Blank space 20 MB or more
Display :	Resolution 1024 x 768 dots or more, 256 colors or more
OS :	Microsoft Windows 98/
	SE/Millennium/2000
	Professional/
	XP (32-bit)/
	Vista (32-bit)
Serial Port :	For RS-232C communication
LAN Port :	For Ethernet communication
GPIB Port :	For GPIB communication
Measureme	ent-Related Functions
Controllable	e Data Loggers : UCAM-60A/B, UCAM-65A/B, UCAM-20PC,
	UCAM-500A/B (UCS-60B is provided standard
	for UCAM-65A/B and UCAM-500A/B.)
Number of (Channels : 2000 (within 2000 channels in total of measuring,
	temperature and calculating channels)

Measuring Condition Setting Functions :
System setting (setting of internal/ external scanners, etc.)
Measuring channel range, measuring function and scanning speed
depend on the applied data logger.
Measuring Channels: 000 to 999
Measuring Functions : EASY MEAS., MEASURE VALUE,
ORIGINAL VALUE, INITIAL VALUE
Repeat Times : 0 to 999 (0: Infinite) Calibration Coefficient Calculation : 0 V/OEE activing page/block
Calibration Coefficient Calculation : ON/OFF setting possible
Channel Conditions : Type of scanner, measuring channel mode,
calibration efficient, number of digits below
decimal point, unit, ffset, temperature reference value, initial value, scanning speed,
channel name (within 18 alphanumerics)
Interval Measurement Conditions : Starting date/time, interval,
number of measuring times (0 to 999; 0 = Infinite),
number of steps (up to 99)
Trigger Measurement Conditions : Trigger channels (desired 4 channels),
reference values of trigger channels, AND/OR between trigger channels,
trigger values, number of measuring times (0 to 999; 0 = infinite),
number of steps (up to 99)
Trigger Interval Measurement Conditions :
Trigger channels (desired 4 channels), reference values of trigger
channels, AND/OR between trigger channels, interval, number of
measuring times (0 to 999; 0 = infinite), number of steps (up to 99)
Reading/Saving Measuring Condition File Setting Channel Conditions
from TEDS-installed Sensor
Automatic Reading of Channel Mode :
Possible for strain gages and strain gage transducers connected to
internal scanners of UCAM-60A/B and UCAM-65A/B
Reading/Saving Calculation Condition File : Possible
Measurement Functions :
Measurement check, initial value measurement,
monitor measurement (max. 40 channels), real-time measurement,
automatic measurement (interval, trigger, trigger interval),
stroke change (single channel/measuring channel range)
X Monitor, trigger or trigger interval measurement can be used for
setting calculation target channels.
Digital Indication of Measured Data :
Real-time measurement and automatic measurement results in a list,
results of measurement check, initial value easurement and
monitor measurement in the conventional format Number of numeric windows : Max. 1
Number of numeric windows : Max. 1 Number of monitor windows : Max. 1
Graphic Indication of Measured Data :
Types of Graph : Y-Time, Y-Cycle, X-Y, bar graph, 1 channel/ graph,
20 channels/graph
Number of Display Channels : Max. 20 (max. 10 sets of channels with
X-Y graph) Cursor indication, scale enlargement,
auto scale, scale setting for each individual channel
Number of Graph Windows : Max. 50 Number of measured data
available on display depends on the number
of channels
as follows : 100 channels 10000
200 channels 5000
200 channels 5000 500 channels 2000
500 channels 2000
500 channels 2000 1000 channels 1000
500 channels 2000 1000 channels 1000 1001 channels 500
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.)
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats :
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats : kyowa standard KU1.UCAM-70A, csv, xls (excel) Print Function : Numeric and graphic data can be printed out.
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats : kyowa standard KU1.UCAM-70A, csv, xls (excel) Print Function : Numeric and graphic data can be printed out. The built-in printer of UCAM-60A/B can be set to ON or OFF.
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats : kyowa standard KU1.UCAM-70A, csv, xls (excel) Print Function : Numeric and graphic data can be printed out. The built-in printer of UCAM-60A/B can be set to ON or OFF. Reading Information of TEDS-installed Sensor :
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats : kyowa standard KU1.UCAM-70A, csv, xls (excel) Print Function : Numeric and graphic data can be printed out. The built-in printer of UCAM-60A/B can be set to ON or OFF. Reading Information of TEDS-installed Sensor : Possible for UCAM-60B/65B only
500 channels 2000 1000 channels 1000 1001 channels 500 (Maximum number of monitor measurement data available on display is 1000.) Measured Data Saving Formats : kyowa standard KU1.UCAM-70A, csv, xls (excel) Print Function : Numeric and graphic data can be printed out. The built-in printer of UCAM-60A/B can be set to ON or OFF. Reading Information of TEDS-installed Sensor :

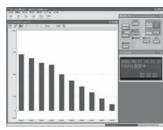
temperature and calculating channels)

DATA LOGGERS

_		١
		1
	••	J
	\mathbf{U}	
	\mathbf{D}	
	\mathbf{O}	
	X	
	G)	
	<u> </u>	
	Π	
	5	

	ble File Formats :
	UCAM-70A (ASCII/binary compatible). n to reproduction of data saved in these formats,
	are enables coupling of files in the same formats,
	of a desired portion, and converting to CSV orXLS format.
	aving Calculation Conditon File : Possible
Numeric In	dication of Measured Data : Numeric window where
measured	d data is listed and can be edited as desired.
	of numeric windows available on single screen : Max. 1
	lication of Measured Data :
	ndowsTypes of Graph : Y-Time, Y-Cycle, X-Y
	l/graph, 20 channels/graph of Display Channels : Max. 20 (max. 10 sets of channels
	with X-Y graph)
Cursor in	dication, scale enlargement, auto scale,
	ing for each individual channel
	of Graph Windows available on single screen : Max. 50
	aving Display Condition File : Possible
	ion : Numeric and graph windows can be printed out.
	n-Related Functions
	Inputtable Characters in Expression : 100
Intrinsic Fu	
MAX	To obtain the maximum value among channels
MIN	To obtain the minimum value among channels
SUM	To obtain the sum of data in all channels
AVG	To obtain the average of data in all channels
STD	To obtain the standard deviation in all channels
DEV	To obtain the standard deviation in %
MAT	To obtain the maximum value in a channel
SUT	To obtain the minimum value in a channel To obtain the sum of data in a channel
AVT	To obtain the average of data in a channel
STT	To obtain the standard deviation in a channel
PRE	To obtain the previous data in a channel Counting
CNT	To obtain the number of measuring times Rosette Analysis
HMX	To obtain the maximum principal strain
HMN	To obtain the minimum principal strain
HSM	To obtain the maximum shearing strain
SMX	To obtain the maximum principal stress
SMN SSM	To obtain the minimum principal stress
DEG	To obtain the maximum shearing stress To obtain principal strain direction Trigonometric Functions
SIN	Sine
COS	Cosine
TAN	Tangent
ASI	Arc sine
ACO	Arc cosine
ATA	Arc tangent
Restriction	-
	asured data in the XLS format or to convert the measured an XLS format file, the number of channels and the number
	d values are restricted as follows:
	of channels : Max. 250
Number	of measured values :Max. 10000
	annot read any measuring condition file, calculation
UCS-60B c	e and display condition file compiled with UCS-25A.
condition file	
condition file Restrictions	s on UCAM-20PC
condition file Restrictions 1) EASY I	MEASURE function cannot be used.
condition file Restrictions 1) EASY I 2) Numbe	MEASURE function cannot be used. er of monitor channels: Max. 20
condition file Restrictions 1) EASY I 2) Numbe 3) No cor	MEASURE function cannot be used. er of monitor channels: Max. 20 npatible with TEDS.
condition file Restrictions 1) EASY I 2) Numbe 3) No cor Restrictions	MEASURE function cannot be used. er of monitor channels: Max. 20 mpatible with TEDS. s on UCAM-500A/B
condition file Restrictions 1) EASY I 2) Numbe 3) No cor Restrictions 1) EASY I	MEASURE function cannot be used. er of monitor channels: Max. 20 mpatible with TEDS. s on UCAM-500A/B MEASURE function cannot be used.
condition file Restrictions 1) EASY I 2) Number 3) No cor Restrictions 1) EASY I 2) Number	MEASURE function cannot be used. er of monitor channels: Max. 20 mpatible with TEDS. s on UCAM-500A/B MEASURE function cannot be used. er of monitor channels: Max. 50
condition fill Restrictions 1) EASY I 2) Number 3) No cor Restrictions 1) EASY I 2) Number 3) Compa	MEASURE function cannot be used. er of monitor channels: Max. 20 mpatible with TEDS. s on UCAM-500A/B MEASURE function cannot be used.

Measured Data Monitor Windows

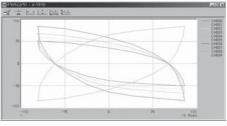


Bar Graph Window



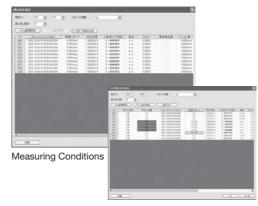
Numeric Window

Data Reproduce Window



X-Y Graph

Condition Setting Windows



TEDS Information



System Management

(第四)1692世紀-		
DIDATAN		
7+16-00 FC	GRIEDT	
	04-304Ept(734-)	
Terabella ROE	Generation	
MRY-THE	18	
CHART	LICAM TEL TOOL INC.	21120
WANGERE	LICANTEUTING HTM	1
(/\$13.8E	DCAMPESTINGITS	F 3
HYPE	LICANTESTINI TRO	E

Data Filing Conditions

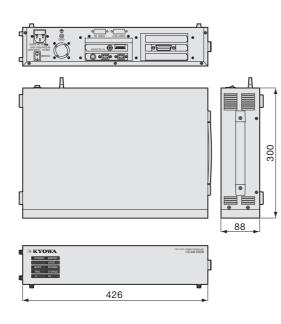
UCAM®-500B Fast Data Logger •Can Measure Quasi-Dynamic Phenomena



Maximum 1000 measuring channels. Flexibly coping with small to large scale measurement

- Simultaneous sampling of all channels, ensuring simultaneity of data
- Applicable for measurement of static to quasi-dynamic phenomena changing at several Hz
- High-speed semiconductor memory ensuring long-term data logging
- Intrinsic functions for data processing such as rosette analysis
- All operations from PC
- Compatible with varieties of sensors

Note : For LAN connecion, use a LAN hub and straight cable.



Dimensions

The UCAM-500B is a fast data logger system which can simultaneously sample variables at multiple points at a maximum rate of 50 times per second.

The system is composed of fast data logger scanner(s) USB-500A, the fast data logger controller UCAM-500B which records measured data at high speed, and a PC in which the control software UCS-60B is installed for setting, controlling and data collection. The scanner and controller are black boxes having no operating switches and controls.

Scanning speeds include 1 time per second for 1000 channels and 50 times per second for 100 channels, making the system applicable for measurement of static to quasi-dynamic phenomena. In addition, the strain unit, voltage unit and temperature unit can be mounted to the scanner, enabling the system to connect to strain gages, strain gage transducers, potentiometer sensors, voltageoutput instruments and thermocouples. The scanner provides a maximum 50 channels and the controller can connect to a maximum 20 scanners, enabling the system to measure variables at a maximum 1000 points.

Signals from sensors are digitized by A-D converters in the scanner, and then transferred to the controller via the dedicated interface. The controller stores the data in a built-in semiconductor memory and whenever commanded from the PC, the controller transfers the data to the PC. Since control commands of the controller are disclosed, users can create their original software to configure the optimum system for a specific measuring purpose.

Specifications

	500B	Frequency Response Range : DC to 7.8 Hz (deviation 0.5 dB/ Amplitude (dB)	0.0 0
Number of Connectable Scanners (US	/		
1 to 20 (maximum	,	-1	
Functions : Receives data from		-2	
and stores it in me			177
Transfers data to F	РС.	-3	-11-4
Measuring Modes : Real-time		-4	1-11
interval		-5	
trigger			5
monitor		Frequency (Hz)	
Measurement Functions : initial, origina	l, measure	Interface : Dedicated interface between controller and scanner	and
Initial Value Memory Range : Same as	measuring range of scanner	between each scanner	
Conversion to Physical Quantities into	Engineering Units :	Dedicated interface cable 2 m long (provided standa	ard fo
Through multiplication of measured va	alues (strain, voltage,	each scanner), total extensible length up to 185 m	
potentiometer signals) by preset coeff	icients. (For details, refer to	Operating Temperature/Humidity Range :	
specifications of the control software.	· · · · · · · · · · · · · · · · · · ·	0 to 40°C, 20 to 85% RH (noncondensing)	
Memory : 64 MB (backed for approx. 4	years at 20°C)	Power Supply : AC85 to 264V, 50/60 Hz, approx. 50 VA	
Measured data is stored in this semic		Dimensions: 426(W) x 133(H) x 300(D) mm (excluding protr	Jsion
parameters of calculation channels ca	/	Weight : Approx. 6.5 kg (with 5 USS-51A strain units mounted	
Maximm Number of Storing Times:		Standard Accessories	,
Number of Channels	Max. Number of Storing Times (Approx.)	AC power cable P-18 (1.8 m long with conversion adapter	
50	120000	Dedicated interface cable 2 m long, T-type BNC connector, Grounding conductor, Spare fuse (in fuse holder)	
100	60000		
200	30000	Strain Unit USS-51A	
300	20000	Number of Measuring Channels : 10	
400	15000	Applicable Sensors : Strain gages, strain gage transducers,	
500	12000	potentiometer sensors	
	10000	Bridge Excitation : 2 VDC, constant voltage (regularly applied)	
600			
700	8500	Potentiometer Supply : 2 VDC, constant voltge (regularly appl	ed)
700 800	7500	Potentiometer Supply : 2 VDC, constant voltge (regularly appl Gage Factor : 2.00 fixed (conversion to engineering unit function)	
700 800 900	7500 6500		
700 800	7500	Gage Factor : 2.00 fixed (conversion to engineering unit function enables correction with 2.00/Ks)	on
700 800 900	7500 6500 6000	Gage Factor : 2.00 fixed (conversion to engineering unit function enables correction with 2.00/Ks) Signal Range Mode Measuring Range Resolution Adv Output: 0 to ±19000 µm/m 1 µm/m 1	
700 800 900 1000 Interfaces : Dedicated interface between	7500 6500 6000 n controller and scanner	Gage Factor : 2.00 fixed (conversion to engineering unit function enables correction with 2.00/Ks) Signal Range Mode Measuring Range Resolution Active Activ	on
700 800 900 1000 Interfaces : Dedicated interface between Total extensible length up to	7500 6500 6000 n controller and scanner 0 185 m	Gage Factor : 2.00 fixed (conversion to engineering unit function enables correction with 2.00/Ks) Signal Range Mode Measuring Range Resolution Addition Strain L 0 to ±19000 µm/m 1 µm/m ±0.000 µm/m 1 µm/m ±0.000 µm/m ±0.0000 µm/m ±0.00	cura
700 800 900 1000 Interfaces : Dedicated interface between	7500 6500 6000 n controller and scanner 0 185 m	Gage Factor : 2.00 fixed (conversion to engineering unit function enables correction with 2.00/Ks) Signal Range Mode Measuring Range Resolution Acc Strain L 0 to ±19000 µm/m 1 µm/m ±0. H 0 to ±200000 µm/m 10 µm/m ±0.	on cura 05% 1% F

interval measurement, etc.; backed for approx. 8 years at 20°C) Operating Temperature/Humidity Range : 0 to 40°C, 20 to 85% RH (noncondensing)

Power Supply : AC85 to 264V, 50/60 Hz, approx. 50 VA Dimensions : 426(W) x 88(H) x 300(D) mm (excluding protrusions)

Weight : Approx. 6 kg

Standard Accessories Control software UCS-60B (CD-R)

AC power cable P-18 (with conversion adapter CM-33)

Synchronous cable US-50A 2 m long T-type BNC connector, BNC terminator, Grounding conductor, Spare fuse (in fuse holder), Instruction manual

The following are optional dedicated accessories.

	Fast Data Logger Scanner USB-500A					
Applicabl	e Sensors	Measuring Unit	Strain Unit USS-51A	Voltage Unit USV-51A	Thermocouple Uni UST-51A	
	1-gage	120Ω				
	method	350Ω				
Strain gage	1-gage method	120Ω				
	(true-dummy)	350Ω				
Strain gage	2-gage method	Active-dummy				
transducer	120 to 1000Ω	Active-active				
	4-gage method	Opposite side active				
	120 to 1000Ω	Full-bridge				
Potentiom	eter sensor	1 to10kΩ				
Voltage-ou	tput sensor	±20.0V				
		K(CA)				
		T(CC)				
Thermo	ocouple	E(CRC)				
		J(IC)				
		R				

Number of Measuring Channels : 50

(with 5 measuring units mounted, 10 channels per unit) Data Update :

Data Update	Number of Measuring Channels	Number of Scanners
1 time/sec	1 to 1000	1 to 20
2 times/sec	1 to 500	1 to 10
10 times/sec	1 to 200	1 to 4
20 times/sec	1 to 200	1 to 4
50 times/sec	1 to 100	1 to 2
To update data a	at 10 times/sec, 20 times/sec or 5	0 times/sec, scanners

should be connected with each other using synchronous cable US-50A.

		de (dB)			
	-1				
	-2				
	-3			!!	- + 1 - + + + 1
	-4				
	-5				
	-60.1	0.2	0.5 1 Frequency	2 / (Hz)	5 10
Interface	: Dedicate	d interface b	etween contro		nner and
	between	each scanne	ər		
			able 2 m long	0	
Operating		nner), total e ture/Humidi	xtensible lengt	in up to 185	m
			condensing)		
			50/60 Hz, appi	rox. 50 VA	
Dimensio			x 300(D) mm		rotrusions)
Weight : /	Approx. 6.	5 kg (with 5	USS-51A strai	n units mour	nted)
	Accessories	_			
			ong with conv		
			long, T-type I fuse (in fuse h		lor,
	nit USS-51		,	,	
		ng Channels	s :10		
		-	es, strain gage	e transducers	З,
		potentiom	eter sensors		
-			tant voltage (re		
		-	constant voltg		
Gage Fac			rsion to engine n with 2.00/Ks		nction
				,	
Signal	Range Mo		suring Range ±19000μm/m	Resolution 1 μm/m	Accuracy
Strain	L			ι μπ/π	±0.05% FS
	Н	0 to ±	200000µm/m	10 µm/m	10.0070 F3
Note : T	ometer Sens he stated neasureme	measuring nt mode. Ir	to ±50% V ranges are fo MEASURE r	0.01% Vith static (DC r INITIAL or mode, the r	±0.1% FS) signal input ORIGINAL ange is the
Note : T m re fr	he stated heasureme esult obtair om the orig USS-51A	measuring measuring ant mode. Ir ned by subt ginal value. M1 for trans M6 with one	to ±50% V ranges are fo	0.01% Vith static (DC r INITIAL or mode, the r e-measured DIS connect	±0.1% FS) signal input ORIGINAL ange is the initial value
Note : T m fr fr Voltage U Number o	he stated he stated heasureme esult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measuri	measuring mt mode. Ir ned by subt ginal value. M1 for trans M6 with one ina mg Channels	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N p-touch clamp s : 10	0.01% Vith static (DC r INITIAL or node, the r. e-measured DIS connect style termina	±0.1% FS) signal input ORIGINAL ange is the initial value
Note : T m fr fr Voltage U Number o	he stated he stated heasureme esult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measuri	measuring mt mode. Ir ned by subt ginal value. M1 for trans M6 with one ina mg Channels	to ±50% v ranges are fo n MEASURE r racting the pr aducers with N e-touch clamp	0.01% Vith static (DC r INITIAL or node, the r. e-measured DIS connect style termina	±0.1% FS) signal input ORIGINAL ange is the initial value
Note : T mr fr Voltage L Number of Applicabl	he stated heasureme sult obtair om the orig USS-51A USS-51A Joit USV-5 of Measurin e Sensors ng Range	measuring measuring nt mode. In ed by subt ginal value. M1 for trans M6 with one ing Channels : DC voltage Resolution	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s: 10 p, voltage-outp Accuracy	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina put sensor Signal Source	±0.1% FS) signal input ORIGINAL ange is the initial value or al board e Resistance
Note : T mr fr Voltage L Number of Applicabl	he stated heasureme ssult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measurin e Sensors	measuring int mode. Ir ned by subt ginal value. M1 for trans M6 with one ing Channels : DC voltage	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s: 10 s, voltage-outp Accuracy ±0.05% FS	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina but sensor Signal Source 50 Ω c	±0.1% FS ⁽²⁾ signal input ⁽²⁾ ORIGINAL ange is the initial value ⁽²⁾
Note : T mref fr Voltage L Number of Applicabl Measuri 0 to ±2	he stated heasureme esult obtair om the orig USS-51A USS-51A Juit USV-5 of Measurir e Sensors ng Range	sor 0 measuring int mode. Ir ned by subt ginal value. M1 for trans M6 with one ing Channels : DC voltage Resolution 1 mV	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s: 10 s, voltage-outp Accuracy ±0.05% FS	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina put sensor Signal Source	±0.1% FS ⁽²⁾ signal input ⁽²⁾ ORIGINAL ange is the initial value ⁽²⁾
Note : T re fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc	he stated heasureme soult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measurir e Sensors ng Range 20.000 V	measuring mt mode. In ed by subt ginal value. M1 for trans M6 with one ing Channels : DC voltage Resolution 1 mV t UST-51A	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s : 10 s, voltage-outp ±0.05% FS v	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina but sensor Signal Source 50 Ω c	±0.1% FS ⁽²⁾ signal input ⁽²⁾ ORIGINAL ange is the initial value ⁽²⁾
Note : T re fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of	he stated heasureme soult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measurir e Sensors ng Range 20.000 V ouple Unit of Measuri	sor 0 measuring nt mode. In ed by subt ginal value. M1 for trans M6 with one ing Channels : DC voltage Resolution 1 mV t UST-51A ng Channels	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s : 10 Accuracy ±0.05% FS v s : 10	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina but sensor Signal Source 50 Ω c	±0.1% FS ⁽²⁾ signal input ⁽²⁾ ORIGINAL ange is the initial value ⁽²⁾
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc	he stated heasureme esult obtain USS-51A USS-51A USS-51A USS-51A USS-51A USS-51A Onit USV-5 of Measuri e Sensors ng Range 20.000 V Ouple Uni le Sensors	sor 0 measuring int mode. Ir ned by subt yinal value. M1 for trans M6 with one int mg Channels : DC voltage 1 mV t UST-51A ng Channels : Thermocco	to ±50% v ranges are fo n MEASURE r racting the pr aducers with N a-touch clamp s : 10 a, voltage-outp ±0.05% FS v s : 10 uples	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina but sensor Signal Source 50 Ω c	±0.1% FS) signal input ORIGINAL ange is the initial value for a board P Resistance or less) signal input
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl	he stated heasureme soult obtair om the orig USS-51A USS-51A Jnit USV-5 of Measurir e Sensors ng Range 20.000 V ouple Unit of Measuri	sor 0 measuring int mode. In ed by subt jinal value. M1 for trans M6 with one ina value. M1 for trans M6 with one ina value. M1 for trans M6 with one ina value. M2 va	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N s-touch clamp s : 10 Accuracy ±0.05% FS v s : 10	0.01% Vith static (DC r INITIAL or mode, the r e-measured DIS connect style termina but sensor Signal Source 50 Ω c	±0.1% FS ⁽²⁾ signal input ⁽²⁾ ORIGINAL ange is the initial value ⁽²⁾
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Applicabl	he stated heasureme esult obtain USS-51A USS-51A USS-51A USS-51A USS-51A USS-51A Onit USV-5 of Measuri e Sensors ng Range 20.000 V Ouple Uni le Sensors	sor 0 measuring nt mode. Ir need by subt final value. M1 for trans M6 with one ita mg Channels : DC voltage Resolution 1 mV t UST-51A mg Channels : Thermoco Measu -200.0 -200.0	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N p-touch clamp s: 10 Accuracy ±0.05% FS v s: 10 uples ring Range to 437.0°C to 1200.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 Ω c Vith static (DC Resolution 0.1°C 0.1°C	±0.1% FS :) signal input :) GRIGINAL ange is the initial value :or al board • • Resistance or less :) signal input • • • • • • • • • • • • •
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl	he stated heasureme easult obtain DUSS-51A DUSS-51A DUSS-51A Jnit USV-5 of Measuring e Sensors ng Range 20.000 V ouple Unit of Measuring le Sensors Range Mode L H	sor 0 measuring int mode. Ir need by subt M6 with one inal value. M1 for trans M6 with one inal value. M1 for trans M6 with one inal value. M1 for trans M6 with one inal value. M2 value.	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N e-touch clamp s : 10 e, voltage-outp ±0.05% FS v v s : 10 uples ring Range to 1200.0°C to 350.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 Ω c Vith static (DC Vith static (DC Resolution 0.1°C 0.1°C	±0.1% FS Signal input ORIGINAL ange is the initial value or al board e Resistance or less Signal input ±0.8°C ±0.8°C ±0.7°C
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Applicabl	he stated heasureme easult obtain DUSS-51A DUSS-51A DUSS-51A Jnit USV-5 of Measuring e Sensors ng Range co.coo V ouple Unit of Measuring le Sensors Range Mode L H 	sor 0 measuring int mode. Ir need by subt med by subt med by subt inal value. M1 for trans M6 with one inal mg Channels : DC voltage Tesolution 1 mV t UST-51A ng Channels : Thermoco Measu -200.0 -200.0 -200.0	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N e-touch clamp s : 10 (to 437.0°C to 1200.0°C to 260.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 \O c Vith static (DC Vith static (DC Resolution 0.1°C 0.1°C 0.1°C	±0.1% FS c) signal input c) GRIGINAL ange is the initial value for a board e Resistance or less c) signal input Accuracy ±0.8°C ±2.8°C ±0.7°C ±0.5°C
Vote : T re fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl Type F K T E	he stated heasureme easult obtain DUSS-51A DUSS-51A DUSS-51A Jnit USV-5 of Measuring e Sensors ng Range 20.000 V ouple Unit of Measuring le Sensors Range Mode L H	sor 0 measuring int mode. Ir need by subt M1 for trans M6 with one int DC voltage Resolution 1 mV t UST-51A ng Channels : Thermoco Measu -200.0 -200.0 -200.0 -200.0	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N e-touch clamp s : 10 e, voltage-outp ±0.05% FS v s : 10 uples to 437.0°C to 350.0°C to 260.0°C to 800.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 Ω c Vith static (DC Ni [°] C 0.1 [°] C 0.1 [°] C 0.1 [°] C	±0.1% FS Signal input ORIGINAL ange is the initial value cor al board board cor e Resistance or less) signal input <u>Accuracy ±0.8°C ±0.7°C ±1.7°C ±1.7°C </u>
Voltage L Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl	he stated heasureme easult obtain DUSS-51A DUSS-51A DISS-	sor 0 measuring int mode. In ed by subt ginal value. M1 for trans M6 with one int mg Channels : DC voltage Resolution 1 mV t UST-51A mg Channels : Thermoco Measur -200.0 -200.0 -200.0 0 -200.0	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N e-touch clamp s : 10 (to 437.0°C to 1200.0°C to 260.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 \O c Vith static (DC Vith static (DC Resolution 0.1°C 0.1°C 0.1°C	±0.1% FS S S Signal input ORIGINAL ange is the initial value cor al board board board cor tess bignal input tor tess cor ±0.8°C ±2.8°C ±0.5°C ±1.7°C ±0.3°C ±1.9°C
Vote : T re fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl Type F K T E	he stated heasureme soult obtair om the orig USS-51A USS-51A USS-51A USS-51A Jnit USV-5 of Measuri e Sensors ng Range 20.000 V ouple Uni of Measuri le Sensors Range Mode L H H L	sor 0 measuring int mode. In ed by subt inal value. M1 for trans M6 with one inal value. M1 for trans M6 with one inal value. DC voltage Resolution 1 mV t UST-51A mg Channels : Thermoco Measu -200.0 -200.0 -200.0 0 0 0	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N -touch clamp s : 10 Accuracy ±0.05% FS v s : 10 uples ring Range to 437.0°C to 350.0°C to 260.0°C to 350.0°C to 330.0°C to 330.0°C to 330.0°C	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina put sensor Signal Source 50 \O c Vith static (DC Vith static (DC Resolution 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C 0.1°C	±0.1% FS Signal input ORIGINAL ange is the initial value cor al board board cor e Resistance r less v) signal input to.8°C ±0.8°C ±0.8°C ±0.8°C ±0.5°C ±0.5°C ±1.7°C ±0.3°C ±1.9°C ±2.2°C
Note : T re fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Applicabl Type F K T E J R Note: Th ja R R R	he stated peasureme soult obtain om the orig USS-51A USS-51A Jnit USV-5 of Measurine e Sensors ng Range 20.000 V Couple Unit of Measurine le Sensors Range Mode L H L H L H H L h H c ccuracy is t 25°C ±10 reference ternal and	sor 0 measuring int mode. In lead by subtiant and value. Minode med by subtiant file MG with one Minode med by subtiant file Ing Channels DC voltage Ing Channels DC voltage Resolution 1 mV Ing Channels Thermocol - 200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 -200.0 0 uracy. The in ±0.5 °C (with °C). junction cod external.	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N -touch clamp s: 10 Accuracy ±0.05% FS v s: 10 uples ring Range to 437.0°C to 1200.0°C to 260.0°C to 260.0°C to 260.0°C to 300.0°C to 300.0°C v do not includd terral reference h input termina pmpensator i	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 \O c Vith static (DC Resolution 0.1°C	±0.1% FS :) signal input ORIGINAL ange is the initial value :or al board • Resistance or less ·) signal input • Accuracy ±0.8°C ±0
Note : T mref fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Number of Applicabl Type F K T E J R Note: Tr au ar F	he stated peasureme soult obtain om the orig USS-51A USS-51A Jnit USV-5 of Measurine e Sensors ng Range 20.000 V Couple Unit of Measurine le Sensors Range Mode L H L H L H H L h H c ccuracy is t 25°C ±10 reference ternal and	sor 0 measuring int mode. In tend by subtinal value. Main of trans M6 with one 11 for trans M6 with one Main of trans M6 with one 11 mV Main of trans M6 with one 12 mV Main of tra	to ±50% v ranges are fo h MEASURE r racting the pr sducers with N e-touch clamp s : 10 e, voltage-outp to 0.05% FS v v s : 10 uples to 437.0°C to 350.0°C to 350.0°C to 350.0°C to 350.0°C to 350.0°C to 750.0°C to 750.0°C v v do not include ternal reference h input termina	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 \O c Vith static (DC Resolution 0.1°C	±0.1% FS :) signal input ORIGINAL ange is the initial value :or al board • Resistance or less ·) signal input • Accuracy ±0.8°C ±0
Note : T mr fr Voltage L Number of Applicabl Measuri 0 to ±2 Thermoc Applicabl Type F K T E J R Note: Tr ju ar R T F T Terminal	he stated beasureme soult obtain om the orig USS-51A USS-51A USS-51A USS-51A Init USV-5 of Measurine e Sensors ng Range 20.000 V Ouple Unit of Measurine te Sensors Couple Unit of Measurine te Sensors the Sensor	sor 0 measuring nt mode. In lead by subtiant and value. In mode. In subtiant and value. M1 for trans M6 with one In mode. In transformation in and value. Img Channels In mode. In mode. In mode. In transformation in mV t UST-51A In mode.	to ±50% V ranges are fo h MEASURE r racting the pr sducers with N -touch clamp s: 10 Accuracy ±0.05% FS V s: 10 uples ring Range to 437.0°C to 350.0°C to 350.0°C to 350.0°C to 350.0°C to 350.0°C v do not includ ternal reference n input termina compensator i	0.01% Vith static (DC r INITIAL or mode, the r. e-measured DIS connect style termina out sensor Signal Source 50 \O c Vith static (DC 0.1°	±0.1% FS :) signal input ORIGINAL ange is the initial value or al board e Resistance or less) signal input Accuracy ±0.8°C ±0.8°C ±0.8°C ±0.7°C ±0.5°C ±1.7°C ±0.5°C ±1.7°C ±0.3°C ±2.2°C) signal input al reference compensato our e balanced le betweer contact us.

Rack-Mounting Brackets	
JIS rack-mounting bracket UR-50A for UCAM-500B	
EIA rack-mounting bracket UR-51A for UCAM-500B	
JIS rack-mounting bracket UR-52A for USB-500A	
EIA rack-mounting bracket UR-53A for USB-500A	
Rack/drawer-mounting bracket UR-54A for USB-500A	

3-34

Synchronous Cable US-50A Required for data update at 10 times per second or more with 2 to 4 scanners. One each synchronous cable is provided standard for each scanner. 1 synchronous cable is required to operate 3 scanners in synchronizaton, and 2 synchronous cables are required to operate

4 scanners in synchronization.

Connection Cables U-17 to U-20 (Refer to page 8-3.)

Dummy Panel UD-50A

To cover the portion of USB-500A to which no measuring unit is mounted.

■Isolation Transformer UPT-300B

Use this isolation transformer to obtain good measurement results where adverse power environment may cause noise, etc.

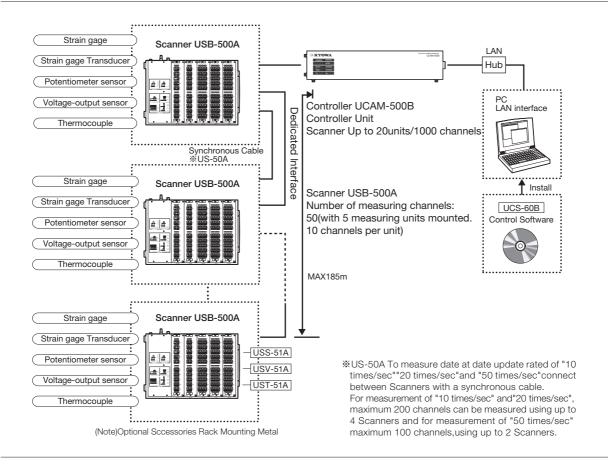
One-Touch Terminal Board JT-1A

Mounted to the input terminal of the measuring unit, the JT-1A enables quick fitting of the input leadwire cable. It will be used for one each leadwire cable. (10 pieces per pack)

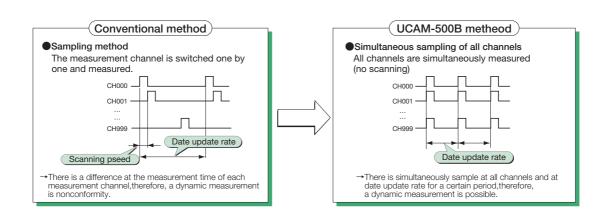
Control Software UCS-60B

Standard accessory to the UCAM-500B. For details, refer to page 3-30.

System Configurations



All channels simultaneously sampling



UCAM[®]-550A Fast Data Logger •Can Measure Quasi-Dynamic Phenomena



Sampling all channels simultaneously (up to 1000 channels) At a sampling frequency of 50Hz

- •All-channel simultaneous sampling
- Continuous/simultaneous measurement of 1000 channels at the maximum of 50 times/seconds.
- It can synchronize in 20 sets units by a LAN cable.
- Dynamic data acquisitition software Control by DCS-100A (Optional)
- Three types of measuring units are included.

UCAM-550A is a high-speed logger system which can measure 1000 channels (at maximum) repeatedly at a sampling frequency, and consists of the following:

- Fast data logger UCAM-550A which records the measured data at high-speed
- •The PC performing the operation such as setting/ controlling/data recording (Prepare it separately.)
- Dynamic data acquisition software DCS-100A (Optional)

Since this instrument can measure simultaneously at high-speed, only this system can correspond to a wide variety of phenomena measurement; from the static phenomena to the pseudodynamic phenomena.

The measuring unit to be mounted has prepared the following three types:

- Strain unit USS-51B (Corresponds to Potentiometer type sensor)
- ●Voltage unit USV-51B
- •Thermocouple unit UST-51B

Because the system corresponds to the strain gage, the strain gage transducers, the voltage output type sensor, the potentiometer type sensor, and thermocouples, it can measure/record voltage and temperature including strain, stress, load, pressure, displacement.

Since the measuring channel number can connect in cascade at maximum 50 channels

in one unit and up to 20 units,

measurement of 1000 channels at maximum is possible, enabling measurements from small

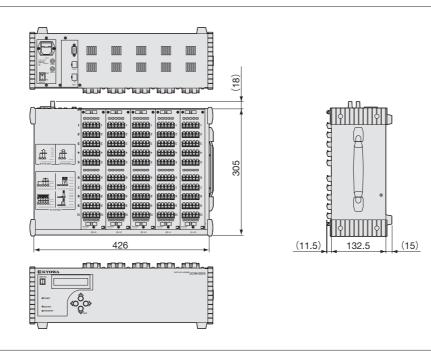
to large-scale.

Specifications

/lodel :	UCAM-550A with DCS-100A				
	UCAM-550-0 without DCS-100A				
	00/ 11/10	oo o malou bo	0 100/1		
leasuring	n object a	nd measuring un	it ·		
	y object u	Unit		Malta and Linit	Thormocourle Unit
Measuring	a object				Thermocouple Unit
Strain gage	1gage	120Ω			
Silalii yaye	methods	350Ω			
Strain gage	2gage	Active dummy methods	ě		
transducer	methods 120 to 1000Ω	Active active methods	•		
1000000	4gage	Opposite side active methods			
	120 to 1000Ω	Bridge methods			
Potentiomete	er type sensor	1 to 10kΩ			
Volt	tage	±20V		•	
		K(CA)			
		T(CC)			
Temperature	Thermocouple				
		J(IC)			
		R			
lumber o	f measurii	tion of channel n ng channels : nannels/unit (Mixe			e up to 5
Jumber o Maximu units of	f measurin m of 50 ch the measu	ng channels : nannels/unit (Mixe	ed palletizin	g is possibl	
Number o Maximu units of (Each m	f measurin m of 50 ch the measuring u	ng channels : nannels/unit (Mixe iring unit)	ed palletizin 10 channel	g is possibl Is per one u	unit.)
Number o Maximu units of (Each m Measure	f measurin m of 50 ch the measu neasuring u ement is p	ng channels : nannels/unit (Mixe ıring unit) ınit can measure	ed palletizin 10 channel	g is possibl Is per one u	unit.)
Jumber o Maximu units of (Each m Measure multi-un	f measurin m of 50 ch the measu neasuring u ement is pr it synchron	ng channels : nannels/unit (Mixe iring unit) unit can measure ossible up to 100	ed palletizin 10 channel 00 channels	g is possibl Is per one u at maximu	unit.) m using the
Jumber o Maximu units of (Each m Measure multi-un	f measurin m of 50 ch the measu neasuring u ement is p it synchron ublic comr	ng channels : nannels/unit (Mixe iring unit) unit can measure ossible up to 100 nous operation.	ed palletizin 10 channel 00 channels	g is possibl Is per one u at maximu	unit.) m using the
Number o Maximu units of (Each m Measure multi-un *The p chanr	f measurin m of 50 ch the measu neasuring u ement is p it synchroi ublic comm nels).	ng channels : nannels/unit (Mixe uring unit) unit can measure ossible up to 100 nous operation. mand correspond	ed palletizin 10 channel 00 channels ds up to 20	g is possibl Is per one u at maximu units (Maxi	musing the
Vumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS-	f measurin m of 50 ch the measu neasuring u ement is p nit synchron ublic comm nels). 100A corre	ng channels : nannels/unit (Mixe iring unit) unit can measure ossible up to 100 nous operation. mand correspond asponds up to 6	ed palletizin 10 channel 00 channels ds up to 20 units (Maxir	g is possibl Is per one u at maximu units (Maxi	musing the
Maximu Units of (Each m Measure multi-un *The p chanr *DCS- Sampling	f measurin m of 50 ch the measu leasuring u ement is p ublic comm hels). 100A corre frequency	ng channels : nannels/unit (Mixe iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50	ed palletizin 10 channel 00 channels ds up to 20 units (Maxir DHz	g is possibl Is per one u at maximu units (Maxii num 300 cl	musing the
Jumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respo	f measurin m of 50 ch the measu leasuring u ement is p it synchroi ublic comm hels). 100A corre frequency	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 cf the measu- leasuring u ament is p it synchror ublic comr lels). 100A corre frequency onse frequ 51A/B, US	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or W-51A/B, UST-5	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurii m of 50 cł the measuring u easuring u easuring u itt synchroru ublic comm hels). 100A corre frequency onse frequ 51A/B, US ection: 0.5	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurii m of 50 cł the measuring u easuring u easuring u itt synchroru ublic comm hels). 100A corre frequency onse frequ 51A/B, US ection: 0.5	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or W-51A/B, UST-5	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurii m of 50 cł the measu easuring u easuring u easuring u bit synchroi ublic com tels). 100A corre frequency onse frequi 51A/B, US section:0.5:	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 cł the measu- ieasuring u ement is p ment is p ment is p it synchroi ublic comr fequency 100A corre frequency 51A/B, US cotion: 0.5 Ampitt 0 -1 -2	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 cł the measu- ieasuring u easuring u ement is p it synchroi ublic comr els). 100A corre frequency 51A/B, US section: 0.5: Amplitt 0 -1 -1	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 cł the measu- ieasuring u ement is p ment is p ment is p it synchroi ublic comr fequency 100A corre frequency 51A/B, US cotion: 0.5 Ampitt 0 -1 -2	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 cł the measu- ieasuring u ement is p ment is p	ng channels : nannels/unit (Mixi iring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl Is per one u at maximu units (Maxii num 300 cl iring unit.	musing the
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 ch the measuring u easuring u easuring u easuring u easuring u easuring u ent is p measuring u ent is p measuring u ent is p measuring u ent is p ent is p	ng channels : nannels/unit (Mixe irring unit) unit can measure ossible up to 100 nous operation. mand correspond esponds up to 6 r : 1, 2, 10, 20, 50 ency depends or V-51A/B, UST-5: dB to -3.5dB) ude (dB)	ad palletizin 10 channels 10	g is possibl s per one u at maximu units (Maxii num 300 cl iring unit. 7.8Hz	unit.) m using the mum 1000 hannels).
Aumber o Maximu units of (Each m Measure multi-un *The p chanr *DCS- Sampling *Respon USS-	f measurin m of 50 ct the measu- ieasuring u ement is p ment is p	ng channels : nannels/unit (Mixe irring unit) unit can measure ossible up to 100 nous operation. mand correspond asponds up to 6 r : 1, 2, 10, 20, 50 ency depends or iV-51A/B, UST-5 dB to -3.5dB) uae (dB)	ed palletizin 10 channels 00 channels ds up to 20 units (Maxir DHz n the measu	g is possibl s per one u at maximu units (Maxiu num 300 cl iring unit. 7.8Hz	musing the

Measuring f	unction : Original measurement
	Major measurement
Interface :	10 BASE-T, 100BASE-TX
E	Between PC-UCAM
	LAN Cable (Straight) Maximum 100m
E	Between UCAM-UCAM
	STP Straight Cable (Refer to notes)
	Maximum 100m
1	Note: "STP" of STP cable is abbreviated for Shield Twisted
	Pair, and the STP cable is a LAN cable with a shield.
Display : L	ED (20 digits x 2 lines)
l	ED status display : (In power on, green light-up)
1	MASTER (While in master, a green lamp lights up, while in
5	sleeve, the light goes out)
-	RANSFER (In communicating, the green lamp blinks)
Operation k	ey : Right/left or up/ down keys
Data storag	e : Measured data is stored on the PC (No internal storage)
Temperatur	e and humidity range for use :
Temperati	ure : 0 to 40°C
Humidity	20 to 85%RH (No condensation)
Power supp	ly : Approximately 50VA
	(Implement 5 USS-51A/B strain units when connecting
	to all channels at 120 Ω load)
Outside dim	nension : 426(W)×132.5(H)×305(D)
	Projection not included
Mass Appr	oximately : 7kg (When implementing the 5 USS-51B strain units)

Dimensions



DATA LOGGERS

R

Н

	purpose o		<u> </u>			General purp
Measur	ing unit Strai	n unit US	S-51B			Insulation tran
Namber	r measuring ch	nannels : 1	0			Use it in order to
Applical	ble sensors m	easuring o	bject :			cases as unrelia
Strain	gage, strain g	age transd	ucers			One-touch terr
Poten	tiometer type :	sensor				This is a termina
	excitation: 2 \			0 / 11	,	one-touch, and
Potentic	ometer drive p	ower supp	ly:2 VDC co	nstant voltag	je	lead wire. (Sale
			(Applied c	onstuntly)		the terminal cov
Gauge f	actor: 2.00 fix	ked				standard contac
	(Correc	tion is poss	sible at 2.00/k	s with the er	ngineering	
	value co	onversion fi	unction)			While pressing
Measuri	ing range, reso	olution, acc	curacy (In sta	tic (DC) inpu	itting) :	tip of something
Signal	Range Mod	e Meas	uring Range	Resolution	Accuracy	pen, insert the
	1		19000µm/m	1 μm/m		
Strain	Н	0 to ±2	200000µm/m	10 µm/m	±0.05% FS	
Poter	ntiometer Senso	r 0	to ±50%	0.01%	±0.1% FS	
	dust UT-50				ection from	
		A			ection from	Connection ca
Voltogo					ection from	This is a cable to
	unit USV-51	В	0		ection from	This is a cable to standard conne
Namber	unit USV-51 measuring ch	B nannels : 1		· · ·	ection from	This is a cable to standard conne Length : U-17
Namber Measuri	unit USV-51 measuring ch ing target : DC	B nannels : 1 Voltage, v	oltage output	type sensor		This is a cable to standard conne Length : U-17 U-18
Namber Measuri Measuri	unit USV-51 measuring ch ing target : DC	B nannels : 1 Voltage, vo plution, acc	oltage output curacy (In sta	type sensor tic (DC) inpu	itting) :	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri Measuri	unit USV-51 measuring ch ing target : DC ing range, reso uring Range	B nannels : 1 voltage, v plution, acc Resolution	oltage output curacy (In sta Accuracy	type sensor tic (DC) inpu Signal Source	itting) : 9 Resistance	This is a cable to standard conne Length : U-17 U-18
Namber Measuri Measuri Measuri	unit USV-51 measuring ch ing target : DC ing target : DC ing range, resc uring Range it ±20.000 V it	B nannels : 1 Voltage, vo plution, acc Resolution 1 mV	oltage output curacy (In sta Accuracy ±0.05% FS	type sensor tic (DC) inpu Signal Source 50 Ω c	itting) : e Resistance or less	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri Measuri	unit USV-51 measuring ch ing target : DC ing target : DC ing range, resc uring Range it ±20.000 V it	B nannels : 1 voltage, vo blution, acc Resolution 1 mV on protectio	oltage output curacy (In sta Accuracy	type sensor tic (DC) inpu Signal Source 50 Ω c	itting) : e Resistance or less	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option	unit USV-51 measuring ch measuring ch ing target : DC measuring ch ing range, resc measuring ch uring Range measuring ch ±20.000 V measuring ch Input section dust UT-50	B nannels : 1 2 voltage, vo polution, acc Resolution 1 mV on protection A	oltage output curacy (In sta Accuracy ±0.05% FS	type sensor tic (DC) inpu Signal Source 50 Ω c	itting) : e Resistance or less	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option	unit USV-51 measuring ch ing target : DC ing range, reso uring Range ±20.000 V	B nannels : 1 voltage, v blution, acc Resolution 1 mV on protectio A UST-51B	oltage output curacy (In sta Accuracy ±0.05% FS on/terminal c	type sensor tic (DC) inpu Signal Source 50 Ω c	itting) : e Resistance or less	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber	unit USV-51 measuring ch ing target : DC ing target : DC ing range, resc uring Range I ±20.000 V Input section dust UT-50. input unit	B hannels : 11 Voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 1	oltage output curacy (In sta Accuracy ±0.05% FS on/terminal c	type sensor tic (DC) inpu Signal Source 50 Ω α over for prot	itting) : e Resistance or less	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri	unit USV-51 measuring ching target : DC ing target : DC ing range, resc aring Range ±20.000 V Input section dust UT-50. incouple unit measuring ching	B hannels : 11 Voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 1 mperature (oltage output curacy (In sta Accuracy ±0.05% FS on/terminal c 0 Thermocoupl	type sensor tic (DC) inpu Signal Source 50 Ω α over for prot	Itting) : a Resistance or less ection from	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri Measuri	unit USV-51 measuring ching target : DC ing target : DC ing range, resc aring Range ±20.000 V Input section dust UT-50. couple unit measuring ching target : Tering target : Tering range, resc	B hannels : 11 c voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc	oltage output curacy (In sta Accuracy ±0.05% FS on/terminal c 0 Thermocoupl	type sensor tic (DC) inpu Signal Source 50 Ω α over for prot	Itting) : a Resistance or less ection from	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri Measuri	unit USV-51 measuring ch ing target : DC ing range, resc aring Range ±20.000 V Input section dust UT-50. bcouple unit measuring ch measuring ch ing target : Ter	B hannels : 11 Voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc Measur	oltage output curacy (In sta Accuracy ±0.05% FS on/terminal c 0 Thermocoup! curacy (In sta	type sensor tic (DC) inpu Signal Source 50 Ω c over for prot e) tic (DC) inpu	tting) : e Resistance or less ection from tting) :	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri Measuri	unit USV-51 measuring ching target : DC ing target : DC ing range, resc uring Range ±20.000 V Input section dust UT-50. couple unit measuring ching target : Tering target : Tering range, resc Range Mode	B hannels : 11 Voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc Measur -200.0	oltage output curacy (In sta 4.005% FS on/terminal c 0 Thermocoupl curacy (In sta ing Range	type sensor tic (DC) inpu Signal Source 50 Ω c over for prot e) tic (DC) inpu Resolution	ttting) : a Resistance or less ection from ttting) : Accuracy	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri Measuri	unit USV-51 measuring ching target : DC ing range, resc uring Range ±20.000 V Input section dust UT-50. ing target : Ter measuring ching target : Ter ing range, resc Range Mode L H	B hannels : 11 > voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc Measur -200.0 -200.0	oltage output curacy (In sta ±0.05% FS on/terminal c 0 Thermocoupl curacy (In sta ing Range to 437.0°C to 1200.0°C to 350.0°C	type sensor tic (DC) inpu Signal Source 50 Ω c over for prot e) tic (DC) inpu Resolution 0.1°C 0.1°C	tting) : = Resistance or less ection from tting) : Accuracy ±0.8°C ±2.8°C ±0.7°C	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri 0 to Option Thermo Namber Measuri Measuri K	unit USV-51 measuring ching target : DC ing target : DC ing range, resc uring Range ±20.000 V Input sectic dust UT-50 couple unit r measuring ching target : Ter ing range, resc Range Mode L H L	B hannels : 11 > voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc Measur -200.0 -200.0 -200.0	Ottage output curacy (In sta Accuracy ±0.05% FS con/terminal c 0 Thermocoupl curacy (In sta ing Range to 3250.0°C to 3260.0°C	type sensor tic (DC) inpu Signal Source 50 Ω c over for prot e) tic (DC) inpu Resolution 0.1°C 0.1°C 0.1°C	ttting) : = Resistance or less ection from ttting) : Accuracy ±0.8°C ±2.8°C ±0.7°C ±0.5°C	This is a cable to standard conne Length : U-17 U-18 U-18
Namber Measuri Measuri Oto Option Thermo Namber Measuri Measuri Type K	unit USV-51 measuring ching target : DC ing range, resc uring Range ±20.000 V Input section dust UT-50. ing target : Ter measuring ching target : Ter ing range, resc Range Mode L H	B hannels : 11 > voltage, vo blution, acc Resolution 1 mV on protection A UST-51B hannels : 11 mperature (blution, acc -200.0 -200.0 -200.0 -200.0	oltage output curacy (In sta ±0.05% FS on/terminal c 0 Thermocoupl curacy (In sta ing Range to 437.0°C to 1200.0°C to 350.0°C	type sensor tic (DC) inpu Signal Source 50 Ω c over for prot e) tic (DC) inpu Resolution 0.1°C 0.1°C	tting) : = Resistance or less ection from tting) : Accuracy ±0.8°C ±2.8°C ±0.7°C	This is a cable to standard conne Length : U-17 U-18 U-18

0 to 1600.0°C 0.2°C Note : Measuring range is indicated when the initial measurement and the original measurement are performed. In the case of a major measurement, the value is of the initial measurement value deducted in advance from the original measurement value.

0 to 750.0°C

0.1°C

±1.9°C

±2.2°(

Standard Accessories Input section protection/terminal cover for protection from dust UT-50A

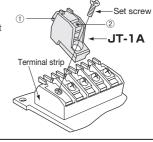
e optional goods

ormer UPT-300B

Use it in order to obtain good measurement results	at a site where such
cases as unreliable power supply or when much no	pise is expected.
One-touch terminal block JT-1A	

lock capable of connecting the input lead wire with in be mounted on the input terminal. Use 1 unit per 1 units in 10 pieces) Upon mounting this terminal block, can not be used. When performing the internal compensation with a thermocouple, an error occurs.

with a small ke a ballpoint d wire to 2.



e U-17 to 20

connect the strain gauge type converter with NDIS or plug to the input terminal of the measuring unit.

0cm m m m

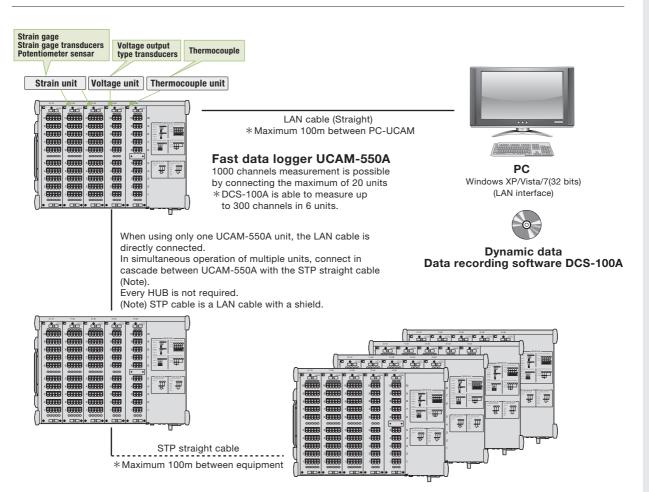
æ 8 m F

DCS-100A UCAM-550A control specification

DCS-100A UCAM-550A control specification
Connection unit number : Maximum of 6 units (Maximum 300CH)
Data recording : The measured data is stored to the PC hard disk as
a KS2 file.
Sampling frequency: 1, 2, 10, 20, 50Hz
Measuring mode : Manual, Manual (Recorded data number is designated),
Interval, analog trigger
Measuring function : Major, original
Major : Measured value = Sensor output value - Initial value
Origina I: Measured value = Sensor output value
Calibration factor computation : ON/OFF setting in all CHs of one batch
Calibration factor computation : Measured value X Calibration factor + Offset
CH conditions : Measurement, measuring CH mode, range,
calibration factor, offset, unit, initial value, CH name,
number of decimal places rated capacity, rated output
(Optional selection for display items is possible)
Initial value measurement : Measure the initial value of each sensor.
Manual measurement : Perform data recording up to the designated data
number from REC, or between REC and STOP.
Interval measurement : Perform automatic data recording by setting the
data acquisition starting time and for the data
recording interval.
Analog trigger measurement : Perform the start/stop of the data
recording by the set trigger conditions.
(Trigger standard value is the fixed
absolute value trigger)
End trigger : Settable
Delay amount : Maximum 3000 data/CH together with start/stop
Trigger CH : Arbitrary 1CH
Trigger level : Set by the engineering value
Trigger slope : Startup/shutdown

Turning fund	tion
0	-in for parameter : Read-in and settings for the internal
, i i i i i i i i i i i i i i i i i i i	parameter of UCAM-550A are possible
Environment	al setting
Hardware	configuration setting :
Connec	tion unit number, equipment name, setting for IP address
Read-in	of the measuring unit configuration from UCAM-550A is
possible	
Communi	cation checks : Perform the UCAM-550A version read-in.
Operation	n environment
OS :	Windows XP, Windows Vista, Windows 7
	(64 bits version Japanese/English)
	(32 bits in the case of Windows XP it corres ponds)
CPU :	Pentium 4 2GHz equivalent or more
	In the case of Windows XP,
	PentiumII 1GHz equivalent or more
Memory :	2G bytes or more
	In the case of Windows XP, 512M bytes or more
Display :	Resolution: 1024×768 or more
	Display color: (16 bits or more)
HDD :	When installing, 20M bytes + measured data storage
Interface :	100Base-TX

System Configurations



NTB Series Network Terminal Boxes



A revolutionary concept of measurement has emerged

- The wide area, decentralized arrangement will be useful for the infrastructure of building and civil engineering.
- Network output is compliant to CAN, requiring a single wire to build the network.
- Measurement can be started immediately when the instrument is connected to a computer.
- •Various ways of interlocking and connection are provided, broadening system applications.
- Compact, lightweight and affordable, allowing a smallsized system to be built on site easily.
- Digitizing data adjacent to the sensor allows noise resistant digital data to be transmitted.

Signals from a sensor are usually digitized through an amplifier and A/D converter via a bridge box, and the digital data is processed on a computer or a dedicated system.

NTB-100A Series network terminal boxes revolutionize this process signals from a sensor are immediately digitized and fed to a computer for data processing.

These NTBs not only streamline signal processing, but also contributes to eliminating extra cable thereby reducing cost of labor and installation.

By placing an NTB near a sensor, only a single communication cable is required to build a wide area network (a total distance of 1 km), which is also useful because the digital transmission is hardly affected by noise.

A single unit can measure 4 channels, and up to 8 units can be connected, for measurement of a maximum of 32 channels is possible.

The NTB, which directly connects various sensors including strain gages, facilitates digital measurement in the field such as construction or building site, or for indoor experiments and researches.

Handy logger SME-100A allows a wider range of measurement with its.

Specifications

· · · · · · · · · · · · · · · · · · ·					
Network data collector models					
Model	Bridge excitation	Sensor input terminal	1-gage resistance		
NTB-100A-120	Constant-voltage	One-touch lock terminal	120Ω		
NTB-101A-120	Constant-voltage	Screw soldering terminal	120Ω		
NTB-100A-350	Constant-voltage	One-touch lock terminal	350Ω		
NTB-101A-350	Constant-voltage	Screw soldering terminal	350Ω		
NTB-110A-350	Constant-voltage	One-touch lock terminal	For 4-gage only		
NTB-111A-350	Constant-voltage	Screw soldering terminal	For 4-gage only		
*Control Software NTB-10A Standard accessory.					

Measuring network data collector object

Detals				Gaporal ru	NTB model	Civil engineerin
Bridge excitation	Applicable sensor			General-pu measu		Civil engineering measurement
excitation				NTB-100A-120 NTB-101A-120	NTB-100A-350 NTB-101A-350	NTB-110A-350 NTB-111A-350
NTB	Strain gage	Quarter gage method	120Ω	×	×	×
models and applicable	Strain gage	Half bridge method 120 to 1000Ω	350Ω Active-active method	•	•	×
sensors	transducer	Full bridge method 120 to 1000Ω	Full bridge	•	•	×
Constant	Civil	4-gage	Full bridge method	×	×	
current	engineering transducer	method 350Ω	Civil engineering transducer with temperature	×	×	•
channels	: 4					
Scanning	g speed :	Approx.	0.5 sec/ch	annel for 0	to ± 30000	µm/m
		Approx.	1 sec/char	nnel for ± 30)000 µm/m	or
			-	neering tra		h
				iring functio		
Bridge ex	citation			onstant-vo		
				constant-cu	urrent bridg	e excitatio
Accertion	a rango		e resistanc	,		
vieasurii	ig range		easuremer	n (constant-	voltage bride	
				(constant-c		-
				ment with ci	-	
				suring functi	-	
Resolutio	on : Stra	in measure				
	0 to	± 30000 μ	m/m : 1 µr	n/m		
				/m : 10 µm,	/m	
				nt with civil e		transduce
	with	temperatu	re measuri	ng function	0.1°C	
Accuracy	: Stra	in measure	ment			
	0 to	± 30000 µ	m/m : ± (0	.05% rdg. +	- 2) µm/m	
	± 30	0000 to ± 3	00000 µm	/m : ± (0.19	% rdg. + 20) µm/m
		-		nt with civil e		transduce
				ng function	± 0.5°C	
TEDS :		d from TED				
				names (Ky		
				using "OPT		
				to CAN, ca	DIE EXTENSIO	n up to 1kr
-		ature rang		0 50°C		tion)
-	-	ty range :		85%RH (no 16VDC	o condensa	ition)
Power su		. (during on			nt voltago bri	dao ovoitatio
		A or less		/DC) Consta dby : 60mA	-	uye excitatio
•		r save mod		-	01 1633	
				eration: 70	mA or less	
				ower save		mA or less
				28 (H) × 55 (D)		
				× 110 (D) mr		
Weight :	One-touc	ch lock type	e : Approx.	310g		
		ldering typ				
Standar Accessor	ies P-72 Bun	2(ground w npon (rubbe	vire), Wire er feet), Sc), P-57(DC connectio rewdriver (fo soldering	n seals or one-touch	
Optiona Accessor	al USE ies Tern	B-CAN con ninating res	verter	LEAFLI CANTE	GHT HS RM120	
	Con DIN	adaptor nection bo rail mounti		SA-10A CN-1A	A-ED2	
	Y ca Con	ible imunicatio	n cable 1n	N-103 n N-102		
	Con	nmunicatio	n cable 3n	n H-1168		
		nmunicatio		n H-1168 m H-1168		
				our sales o		
				oles other t		

Temperature Measurement Unit NTB-201A



- Enables composite measurement to voltage sensor and thermocouple
- Enables composition to NTB-100A series
- •The wide area, decentralized arrangement will be useful for the infrastructure of building and civil engineering.
- Network output is compliant to CAN, requiring a single wire to build the network.
- •Measurement can be started immediately when the instrument is connected to a computer.
- •Various ways of interlocking and connection are provided, broadening system applications.
- Compact, lightweight and affordable, allowing a small-sized system to be built on site easily.
- Digitizing data adjacent to the sensor allows noise resistant digital data to be transmitted.

Operating Environment

OS :	Windows XP, Vista, Windows 7		
	(32-bit Japanese/English Edition)		
CPU: Pentium4, : 2 GHz or higher			
Memory :	emory: 1GB or more (2GB or more for Windows Vista)		
Display :	Resolution : 1024×768 dots or more		
	Color : Full Color or more		
USB-CAN Converter : Model LEAFLIGHT HS			
Terminating resistance CANterm : 120 Ω			

Specifications

Network Data Collector Number of measuring channel : 4 Scanning speed : Approx. 0.5 sec/channel

Applicable sensors : DC voltage-output, Thermocouple Voltage-output measurement :

Range	Measuring range	Resolution	Accuracy	Signal Source Resistance
10V	0 to ±10.0000V	100 µ V	±(0.1% rdg+0.0003V)	Approx. 1M Ω
50V	0 to ±50.000V	1mV	±(0.1% rdg+0.003V)	Approx. 1M Ω

Thermocouple :

Туре	Measuring range	Resolution	Accu	racy	The internal reference junction accuracy
к	-200.0 to +1230.0°C		-200.0 to -100°C or less -100.0 to +1230.0°C	±(0.2% rdg+0. 3°C) ±(0.1% rdg+0. 2°C)	±0.5°C (with input terminal
т	-200.0 to +400.0°C		-200.0 to -100°C or less -100.0 to +400.0°C	±(0.2% rdg+0. 3°C) ±(0.1% rdg+0. 2°C)	temperature balanced in an ambient
E	-200.0 to +660.0°C	0.1°C	-200.0 to -100°C or less -100.0 to +660.0°C	±(0.2% rdg+0. 3°C) ±(0.1% rdg+0. 2°C)	temperature range of 0 to 50°C)
J	-200.0 to +870.0°C		-200.0 to -100°C or less -100.0 to +870.0°C	±(0.2% rdg+0. 3°C) ±(0.1% rdg+0. 2°C)	±1.0°C (with input terminal
R	-200.0 to +1760.0°C		0.0 to +100°C or less +100.0 to +1760.0°C	±(0.2% rdg+0. 8°C) ±(0.125% rdg+0. 6°C)	temperature balanced in an ambient temperature range of -10 to 0°C or less)
N	-200.0 to +1300.0°C		-200.0 to -100°C or less -100.0 to +1300.0°C	±(0.2% rdg+0. 3°C) ±(0.1% rdg+0. 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. The thermocouple resistance should be $1k\Omega$ or less

Check function : Power save mode :	Burnout check. Provided ON/OFF using "OPT.3" DIP switch.	
Power save mode :	Provided ON/OFF using "OPT.3" DIP switch.	
Power save mode : Provided ON/OFF using "OPT.3" DIP switch.		
Interface :	Dedicated interface conforming to CAN,	
Operating temperature	e range : -10 to 50°C	
Operating humidity rar	nge: 20 to 85%RH (no condensation)	
Power supply :	11 to 16VDC	
Current consumption :		
	(during operation at 12VDC) Constant-voltage	
bridge excitation Operation : 100mA or less		
Standby : 60mA or less		
Standby (in power save mode) : 40mA or less		
Constant-current bridge excitation		
Operation : 70mA or less		
	Standby : 60mA or less	
	Standby (in power save mode) : 40mA or less	
Dimensions :		
One-touch lock type :	150 (W)×28 (H) × 55 (D) mm (excluding protrusions)	
Screw soldering type :	150 (W)×28 (H) × 110(D) mm (excluding protrusions)	
Weight :	Approx. 320g	
(NOTE) TEDS function i	s unusable.	

NTB-10A is remote control software for Network Terminal Box by PC. Enables display for graphic and numeric on PC.

DATA LOGGERS

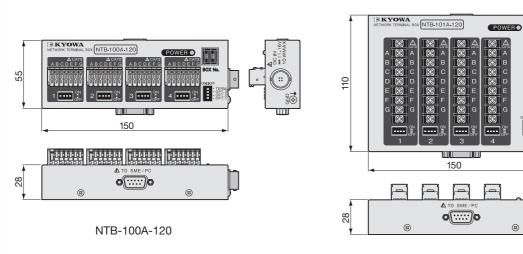
Network Terminal Box Control Software NTB-10A

For remote control of network terminal boxes from a PC, and displaying				
measurement data in graphs or a numeric format on the PC screen.				
Specifications :	Number of measuring units: NTB-100A series: 1			
	to 99 (The number of MAX CHs is 396.)			
Measuring funct	ion : Relative (relative value) measure data with an			
	initial unbalance value deducted.			
	ZERO measurement: Measure initial unbalance value.			
CH conditions :	Meas channel ON/OFF, CAL coeffcient calculation ON/			
	OFF, Relative measurement ON/OFF, CAL coeffcient,			
	Offset, Unit, Dec, digits, Ref resist,			
	CH Name (20 characters)			
Meas condition	file: Load and save			
Meas operation : MONITOR Meas:Measure ZERO value during				
	MONITOR measurement INTERVAL Meas,			
	File dividing function of the measured data:			
	Not divide, every hour, every day.			
Interval meas :	Interval Start Time, Interval Time, Repeat 0 to 9999			
	(0 to infinite) The number of interval measuring steps: 5			
Numeric display function of measured data : The number of available				
Numeric Display : 1				
Display switching function : List only Numeric display: Arbitrary 1 CH to MAX				
	5 CHs. Font size (Large, Medium, Small)			
Graph display function of measured data :				
Graph type : Y-YIME, BAR graph(with perk hold function)				

Graph type : Y-YIME, BAR graph(with perk hold function)
With the auto scale function during the measurement

Measured data	saving function:			
The measured data is saved with the CSV format.				
TEDS compatible : Load the information of the TEDS sensor and				
automatically set it to the CH condition,				
	CH Name writable to the TEDS information			
	(KYOWA sensor only, within 28 characters)			
Dimension setti	ng of the recorded data : Saved in the hard disk of the PC.			
File split :	No split			
	Split every hour			
	Split every day			
System Require	ements :			
CPU :	Pentium4 2GHz or higher			
OS :	Microsoft Windows XP (32-bit)			
	Microsoft Windows Vista (32-bit)			
Memory :	1 GB or more			
	2 GB or more for Vista			
VistaHard disk	: At least 10 MB free disk space			
	(Not including the size of data file to be created)			
Display resolu	ition : 1024 × 768 minimum			
Colors :	Full color or higher			
USB-CAN co	nverter : Model LEAFLIGHT HS			

Dimensions



NTB-101A-120

ON4 DOFF

3

(2

.

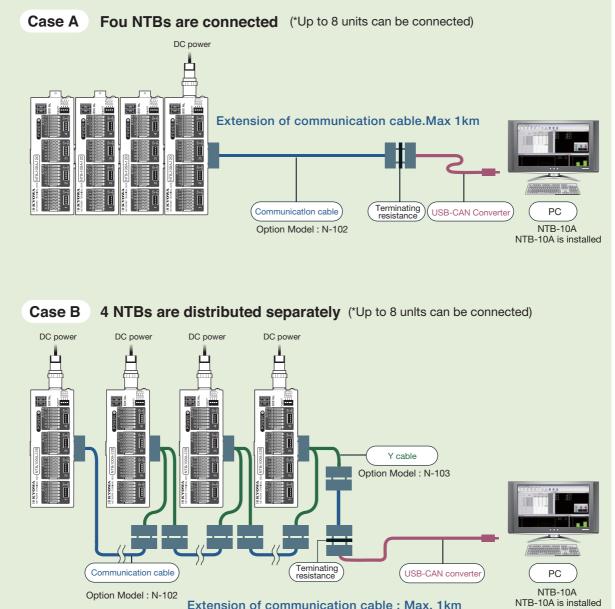
30 ®

ш

0



The figure below is a chart of connecting wires where the Network Terminal Box is connected with the PC.



Extension of communication cable : Max. 1km

Handy Data Logger SME-100A/101A

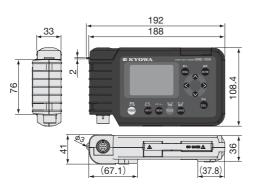


Connect the SME-100A/101A to the NTB-100A series for digital measurement of 33 channels.

- •Fits in Hand and Easy to Use.
- Compact and light weight
- Built in bridge circuit for direct connection of a strain gage
 Wide measuring range: ±300,000 µm/m
- Data saved in SD card can be read and controlled by a PC
- Driven by AA batteries (sold separately)
- TEDs compatible

The strap is useful for field inspection and for confirming proper sensor installation. The SD card (option) simplifies data transmission to PC. Using the attached input cable, a strain gage can easily be connected.

Dimensions



Specifications

Number of r	neasuring channels : 1 (in independent use of the logger)
	Max. 33 channels with NTBs connected
	to the logger $*33$ channels = 1 + 32
	from 8 NTBs
Sampling fre	equency : (In independent use, or NTB-dependent when
	connected to NTBs)
	Approx. 0.5 sec : 0 to ± 30000 μm/m
	Approx 1 sec: ± 30000 µm/m or more
	: Temperature measurement with civil engineering
M	transducer with temperature measuring function
Measureme	nt mode : RELATIVE mode
	(the zero value is subtracted from measurements)
	*"Zero" denotes the initial unbalance during strai
Arithmotic o	measurement, and can be acquired at any time. peration : Calculation using a coefficient
	sensor: Strain gages, strain gage transducers,
	civil engineering transducers with temperature
	measuring function
	Strain Gage Resistance strain gauge application
	1 -gage method $120, 240, 350\Omega$
	2, 4gage method 120 to 1000Ω
Bridge excit	ation : Constant-voltage bridge excitation: Approx. 2VDC
	Constant-current bridge excitation: Approx. 5.6mA
	(bridge resistance 350Ω)
Measuring r	ange : Strain measurement
0	0 to ± 300000 µm/m (constant-voltage bridge excitation)
	0 to ± 20000 µm/m (constant-current bridge excitation)
	Temperature measurement with civil engineering transduc
	with temperature measuring function -30.0°Cto 70.0°C
Resolution :	Strain measurement
	0 to ± 30000 μm/m : 1 μm/m
	± 30000 to ± 300000 μm/m : 10 μm/m
	Temperature measurement with civil engineering transduc
	with temperature measuring function 0.1°C
Accuracy :	(NDIS one-touch connector, 4-gage connection)
	Strain measurement
	0 to ± 30000 µm/m : ± (0.05% rdg. + 2) µm/m
	± 30000 to ± 300000 μm/m : ± (0.1% rdg. + 20) μm/m
	Temperature measurement with civil engineering transduc
	with temperature measuring function $\pm 0.5^{\circ}C$
Check funct	ion : Insulation resistance measurement : 2 to $100M\Omega$
	Resistance measurement : 0 to $20k\Omega$
Interval mea	surement : 1 minute to 99 hours 59 minutes in 1-minute step
01	Starting date/time: year/month/day/hour/minute
Storage :	SD card (optional)
Applicable S	SD card : 256MB, 512MB, 1GB, 2GB (FAT16)
Disalauri	(SDHC is not applicable)
Display : TEDS :	Monochrome LCD, 128 × 64 dots Read from TEDS sensors
IED3.	Operator input of channel names
	(Kyowa ID only in up to 10 characters)
Operating te	emperature & humidity range :
operating to	-10 to 50°C, 20 to 85%RH (no condensation)
Power supp	ly : AA battery × 2 Consecutive operation time:
	Approx 1() hours (with alkaline batteries, NTR not connected
	Approx. 10 hours (with alkaline batteries, NTB not connecte vdride batteries can also be used
*Nickel h	ydride batteries can also be used.
*Nickel h *An AC a	ydride batteries can also be used. Idapter (optional, DR-523E) is provided for SME-101A
*Nickel h *An AC a	ydride batteries can also be used. dapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is
*Nickel h *An AC a	ydride batteries can also be used. Idapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode
*Nickel h *An AC a	ydride batteries can also be used. dapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode with an interval of 3 minutes or longer, power is
*Nickel h *An AC a	ydride batteries can also be used. dapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode with an interval of 3 minutes or longer, power is automatically turned off during standby period and
*Nickel h *An AC a	ydride batteries can also be used. dapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode with an interval of 3 minutes or longer, power is automatically turned off during standby period and turned on again 1 minute before the next measurement
*Nickel h *An AC a Auto Power	ydride batteries can also be used. dapter (optional, DR-523E) is provided for SME-101A Off : Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode with an interval of 3 minutes or longer, power is automatically turned off during standby period and

Operation Manual (CD-R), input cable, communication cable, AA alkali battery \times 2, shoulder belt, hand strap

SME-30A/31A Handy Data Logger



Connect the SME-100A/101A to the NTB-100A series for digital measurement of 33 channels.

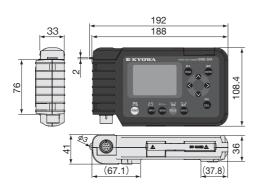
- •Fits in Hand and Easy to Use.
- Compact and light weight
- Built in bridge circuit for direct connection of a strain gage
 Wide measuring range: ±300,000 µm/m
- Data saved in SD card can be read and controlled by a PC
- Driven by AA batteries (sold separately)
- •TEDs compatible

Simplified operation is a unique feature of this handy data logger. You can start measurement just after turning on the power.

The strap is useful for field inspection and confirmation of sensor installation.

The SD card (option) simplifies data transmission to a PC. Using the input cable attached to this instrument, a strain gage can easily be connected.

Dimensions



Specifications

		ng channels : 1	0.4- 1.00000
Sampling pe	riod :		: 0 to ± 30000 µm/m
			± 30000 µm/m or more
			g transducer with
		temperature me	-
Measuring fu	Inction		rement (relative value measurement):
			ined by deducting the ZERO value.
			quivalent to the initial unbalance value
A			ning the ZERO value at arbitrary timing
		1: Calculation usi	
Applicable s	ensor :		ain gage transducers,
			transducers with temperature
		measuring funct	
		Strain Gage	Resistance strain gauge application
		1-gage method 2, 4gage method	120, 240, 350Ω 120 to 1000Ω
Duisian anaite			
Bridge excita	ation :		e bridge excitation: Approx. 2 VDC
			t bridge excitation: Approx. 5.6 m/
Magguring		(bridge resistand	
weasuring ra		Strain measuremer	
			onstant-voltage bridge excitation)
			nstant-current bridge excitation)
			ent with civil engineering transduce ring function -30.0°Cto 70.0°C
Resolution :			
Resolution :		measurement	
		$30000 \ \mu m/m : 1$	
		$20 \text{ to } \pm 300000 \ \mu$	ent with civil engineering transduce
			ring function 0.1°C
Accuracy :		measurement	
Accuracy .			ne-touch NDIS connector in 4-gag
			$(0.05\% \text{ rdg.} + 2) \ \mu \text{m/m}$
			$m/m : \pm (0.1\% rdg. + 20) \mu m/m$
			ent with civil engineering transduce ring function ± 0.5°C
Chock funct			e measurement : 2 to 100 Mohm
Check lunct			
Intonval moa			ement : 0 to 20 Kohm hours 59 minutes in 1-minute step
Interval meas	surenner		time: year/month/day/hour/minute
Storage :	SD co	rd (option)	time. yeanmontin/day/nour/minute
			B, 2GB (FAT16) (SDHC-incompatible
Display :		chrome LCD, 128	
TEDS :			ne TEDS sensor CH name writing
TEDO .		-	cture ID : KYOWA only, within 10
			icture ID . KTOWA Only, within To
Operating to	charac	ure& humidity ran	
Operating te			RH (no condensation)
Power suppl		AA alkaline dry ce	1 /
	-		10 hours (with alkaline batteries)
		dride batteries car	
			E) is provided for SME-31A.
			ally turned off if no key operation is
Auto Powel			tes. In interval measurement mode
			minutes or longer, power is
		,	l off during standby period and
		°	ninute before the next measuremer
	iss	started (ON/OFF o	f Auto Power Off can be specified
<u> </u>			
Dimensions Weight :	: 108.4		xcluding protrusions)

Standard Accessories

Instruction Manual (CD-R), Input cable, Size AA alkaline dry cell (2), Shoulder strap, Wrist strap