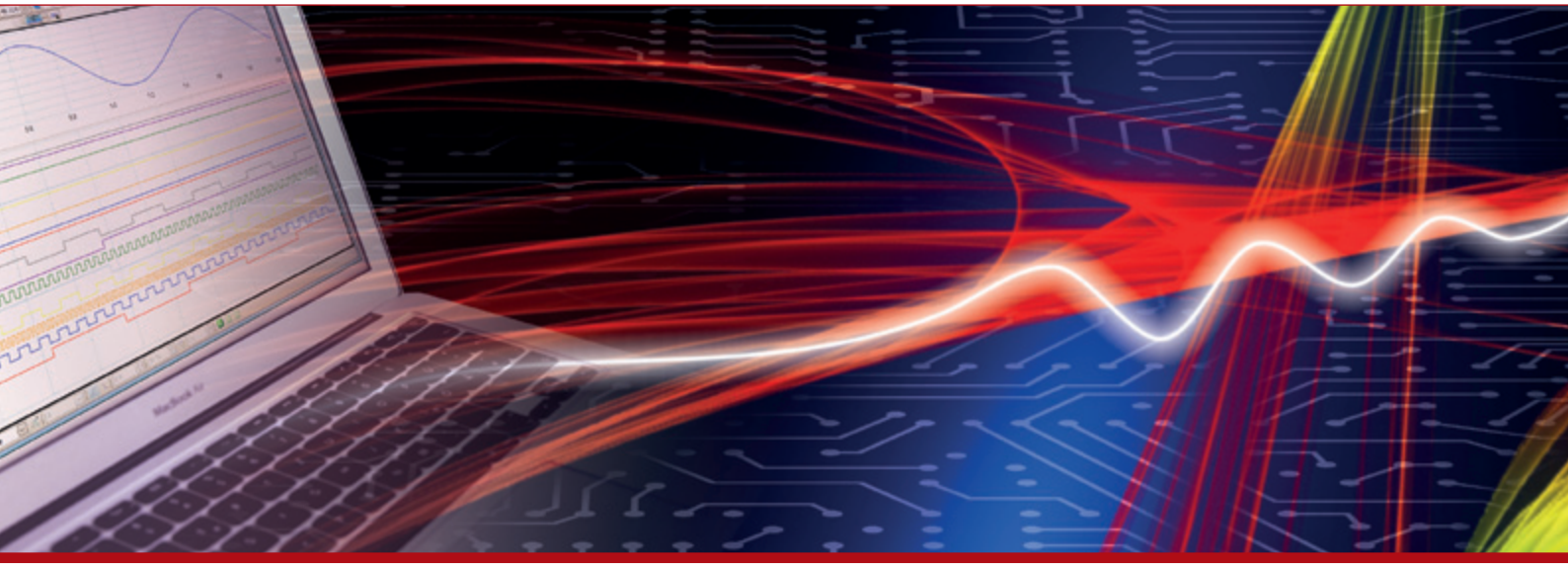
Product Datasheet - Technical Specifications



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Test&Measurement

YOKOGAWA

Source and Measure In-field with High Confidence

CA500 Series
Multi-function Process Calibrator

Precision Making

Bulletin CA500-01EN

The CA500 and CA550, are the new high-performance and multi-function calibrators from Yokogawa. These newer models offer useful functions for field work and provide improved source and measurement accuracy, sufficient for calibrating field instruments with higher accuracy and confidence.

New Genera

High Accuracy

Two models:

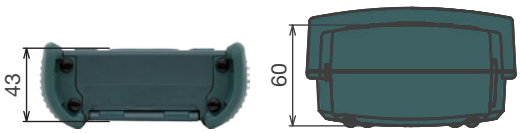
model	DCA	OHM	RTD
CA500	0.015%	0.020%	0.3°C
CA550	0.010%	0.015%	0.1°C

Thin design × Robustness

Thin body that is easy to hold with one hand, and improved robustness with protection

17 mm thinner than the existing model

Unit: mm



CA500 Series　　CA150

Useful functions supporting

The CA500/550 delivers

Versatility – Multi-function support allows accurate inspection of various field devices. Its robust and ruggedized body allows operation even in severe environmental conditions.

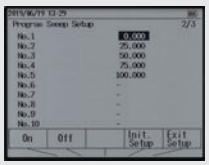
Usability – New features provide powerful measurement functions to support field inspection.

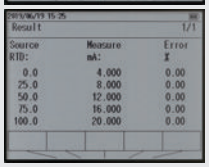
Durability – Energy efficient design allows for longer battery life, up to 16 hours, for long term field use.

CA550 Only

Automatic input/output testing (Program sweep)

Automatic input/output testing is possible by setting source values for each step for a calibration target. Calibration results such as generated value, measured value, error rate, date/time, and pass/fail are saved in CSV format in the CA550 main unit.
By connecting the CA550 to a PC using a standard USB cable, the instrument can be recognized as a mass-storage device for data to be transferred to the PC.





CA550 Only

HART® COMMUNICATION PROTOCOL

HART communication function*1 HART/BRAIN modem function*1 BRAIN TagNo acquisition function*2

*1 when CA550-F2 or -F3 is specified. *2 when CA550-F2 is specified.

The following items are supported by HART communication function:

• LOOP TEST	—
• TagNo. • PV value (including reading of PV %value, AO value, SV value, TV value, QV value)	Read
• LRV (Lower limit of range) • Damping • URV (Upper limit of range)	Read and Write
• Trim D/A at 4 mA • Trim D/A at 20 mA • PV Zero	Write

Please note that not all commands are supported by HART communication.

TagNo acquisition function is available in BRAIN communication. No other functions are available.

ation Calibrator

Multi-function

- Sources and measures DC voltage, DC current, RTD, TC, resistance, frequency and pulse signals
- Corresponds to 17 types of TC standard (JIS/IEC/DIN/ASTM/GOST R)
- Corresponds to 14 types of RTD standard (JIS/IEC/GOST R)

Multiple source patterns

Linear sweep function

Continuously Source from 0% to 100%

Step sweep function

Change output in a staircase (step) pattern by specifying the number of steps. (The number of steps can be set from 2 to 20)

Program sweep function

Users can set the desired output value (%) and number of steps.
(10 steps for CA500, 20 steps for CA550)

This instrument can operate with 2WAY Power supply: AA Alkaline batteries and USB Adapter.
USB port can be used communication and power supply.
You will need a separate USB adapter (not provided).

calibration work

Easy-to-view Display

CA500 features a Reflective LCD, providing improved outdoor visibility. Main display (generated/measured values) and Sub display (%, mV, Ω, etc.) allow required information at a work site to be confirmed at a glance.

Wiring information display function

A wiring diagram is displayed according to the function selected.
This function allows a user to perform wiring while referring to a wiring diagram and prevents mis-wiring.

Thermocouple generation using TC Mini Plug

Using a TC Mini Plug together with a compensating lead wire enables generation of thermal electromotive force without an external RJ sensor.*

*A compensating lead wire needs to be prepared by customer.

Easy-to-use key operation

0%/100% keys

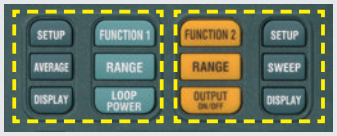
The source can be easily switched between 0% and 100% of range.
Users can also set a desired value.

UP/DOWN keys

The output is changed in preset steps by pressing UP or DOWN key.

Operation key layout

Keys related to generation and measurement are arranged collectively to allow easy and intuitive operation.



SQUARE ROOT output

For 4-20 mA, 1-5 V ranges, users can choose between LINEAR and SQUARE ROOT output.

	Current		Voltage	
	LINEAR	SQUARE ROOT	LINEAR	SQUARE ROOT
0%	4 mA	4 mA	1 V	1 V
25%	8 mA	5 mA	2 V	1.25 V
50%	12 mA	8 mA	3 V	2 V
75%	16 mA	13 mA	4 V	3.25 V
100%	20 mA	20 mA	5 V	5 V

Actual output values

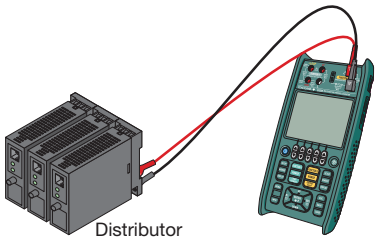
Design

1 **Input/Output terminals**
2 **Source value/change key**
3 **Source setting keys**
4 **Measure setting keys**
5 **Cursor keys and ENTER key**
6 **HART/BRAIN related keys**
*CA550 only
7 **Connector for external RJ sensor**
8 **USB port (type B)**

Applications

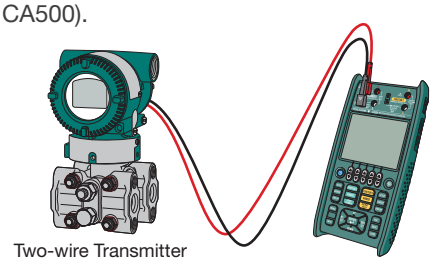
20 mA SIMULATE

The CA500 series can be used as a transmitter simulator to perform a loop test. It sinks the set current from an external voltage source of instrumentation equipment.



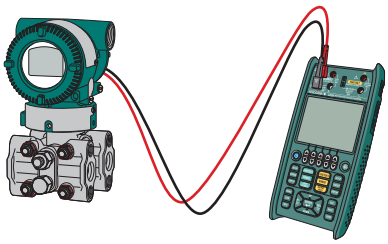
Two-wire Transmitter Loop Check

DC mA signals can be measured by supplying power to the transmitter from a 24 V DC power supply. DC mA signal measurement and zero-point check can be performed with an accuracy of 0.01% of reading (0.015% of reading for CA500).



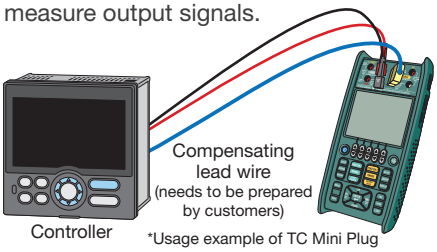
Zero point adjustment of HART transmitter

CA550 supports HART communication (Universal command/Common practice command).
Reading of HART device information, writing of LRV/URV, and trimming of analog output are possible.



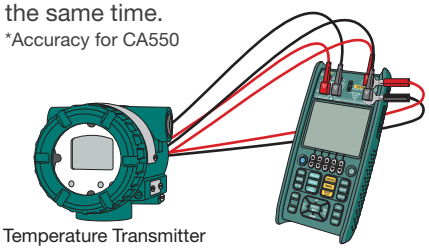
TC SIMULATE

The CA500 series corresponds to 17 types of TC for sourcing. It achieves the high basic accuracy of 0.5°C (typical of type K), two times better than the previous model.
Also, input/output testing is possible with a single CA500/CA550, as it can measure output signals.



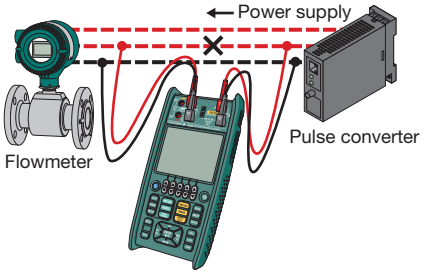
RTD SIMULATE

CA500/CA550 corresponds to 14 types of RTD for sourcing.It achieves the high basic accuracy of 0.1°C* (typical of type Pt100), which enables it to operate a highly reliable test.
Additionally, input and output testing of temperature transmitters is possible at the same time.
*Accuracy for CA550



Pulse SIMULATE

This calibrator performs measurement of pulse signal integration from a flowmeter and generates a pulse to a receiver, such as integrating counter or pulse converter. Integration time can be set from 1 min to 60 min.



Specifications

Voltage/Current/Resistance/Pulse Source Unit

Function	Range	Resolution	Source range	Accuracy (1 year) ±(% of Setting + offset)		Note
				CA500	CA550	
DC voltage	100 mV	1 µV	±110.000 mV	0.015% + 10 µV	0.015% + 5 µV	Maximum output current: 10 mA
	1–5 V	0.1 mV	0.0000 to 6.0000 V	0.015% + 0.5 mV		Maximum output current: 10 mA Value output function supporting square root computation is available
	5 V	0.1 mV	±6.0000 V	0.015% + 0.5 mV		Maximum output current: 10 mA
	30 V	1 mV	±33.000 V	0.015% + 5 mV		Maximum output current: 1 mA
DC current	20 mA	1 µA	±24.000 mA	0.015% + 3 µA	0.010% + 2 µA	Source voltage: 0 to +20 V
	4–20 mA	1 µA	0.000 to 24.000 mA	0.015% + 3 µA	0.010% + 2 µA	Source voltage: 0 to +20 V Value output function supporting square root computation is available
	20 mA SIMULATE	1 µA	0.000 to 24.000 mA	0.015% + 3 µA	0.010% + 2 µA	External power supply: +5 to +28 V
Resistance	400 Ω	10 mΩ	0.00 to 440.00 Ω	0.020% + 0.1 Ω[*1]	0.015% + 0.05 Ω[*1]	Allowable measurement current: 0.1 to 3 mA
	4000 Ω	100 mΩ	0.0 to 4400.0 Ω	0.020% + 0.5 Ω[*1]	0.015% + 0.2 Ω[*1]	Allowable measurement current: 0.05 to 0.6 mA
Frequency /pulse[*4]	500 Hz	0.01 Hz	1.00 to 550.00 Hz	0.005% + 0.01 Hz		Square wave, 50% Duty Cycle, +0.1 to +15 V Pulse number: Continuous 1 to 99999 cycles Maximum load current: 10 mA
	5000 Hz	0.1 Hz	1.0 to 5500.0 Hz	0.005% + 0.1 Hz		
	50 kHz	0.001 kHz	0.001 to 50.000 kHz	0.005% + 0.001 kHz		
	CPM	0.1/min	1.0 to 1100.0/min	0.5/min		

Voltage/Current/Resistance/Pulse Measurement Unit

Function	Range	Resolution	Measurement range	Accuracy (1 year) ±(% of reading + offset)		Note
				CA500	CA550	
DC voltage	100 mV	1 µV	±110.000 mV	0.015% + 10 µV	0.015% + 5 µV	Input resistance: 1 GΩ or more
	5 V	0.1 mV	±6.0000 V	0.015% + 0.5 mV		Input resistance: Approx. 1 MΩ
	50 V	1 mV	±55.000 V	0.015% + 5 mV		Input resistance: Approx. 1 MΩ
DC current	50 mA	1 µA	±60.000 mA	0.015% + 3 µA	0.010% + 2 µA	Input resistance: 10 Ω or less
Resistance	400 Ω	10 mΩ	0.00 to 440.00 Ω	0.020% + 0.1 Ω[*2, *3]	0.015% + 0.05 Ω[*2, *3]	Voltage applied current measurement method (typical 1 mA@0 Ω, 781 µA@400 Ω, 240 µA@4 kΩ)
	4000 Ω	100 mΩ	0.0 to 4400.0 Ω	0.020% + 0.5 Ω[*2, *3]	0.015% + 0.2 Ω[*2, *3]	
Pulse measurement[*4]	500 Hz	0.01 Hz	1.00 to 550.00 Hz	0.005% + 0.01 Hz		Measurement time: 1.0 s (Max. 10 s), 0.5 V to 30 Vpp
	5000 Hz	0.1 Hz	1.0 to 5500.0 Hz	0.005% + 0.1 Hz		
	50 kHz	0.001 kHz	0.001 to 50.000 kHz	0.005% + 0.001 kHz		
	PULSE COUNT	1	0 to 99999	2		Maximum integration time: 60 min, 0.5 V to 30 Vpp

Accuracy is guaranteed under the environmental conditions of +23°C±5°C, 20 to 80% RH. For use in the temperature range of –10 to +18°C or +28 to +50°C, add the temperature coefficient: 0.005% of Range/°C.

*1 When using the included binding post (99045)
*2 Above accuracy is defined for 4 wire measuring.
*3 Accuracy for 3 wire measuring: 0.05Ω to 400 Ω range; 0.2 Ω to 4000 Ω range is added, on condition the resistance of all cables are the same.
Accuracy for 2 wire measuring: Same with 3 wire measuring on condition the resistance of cables are excluded.
*4 Dry contact compatible

24 V Loop Power Supply

Supply voltage	Note
24 V±2 V	Communication resistance: OFF Maximum load current: 24 mA

Thermocouple (TC) Source/Measure (Terminal TC-A: TC plug terminal)

Accuracy of Source/Meas (Common to CA500/CA550)

t: Temperature of Source/Meas.

TC	Source/Meas Temperature Range	Source Accuracy [°C] (1 year) (±°C)	Meas. Accuracy [°C] (1 year) (±°C)	Standard or Regulation
K	–200.0 ≤ t < 0.0°C	0.5 + |t| × 0.30%	0.5 + |t| × 0.30%	EC60584-1*1, *2
	0.0 ≤ t < +500.0°C	0.5	0.5	
	+500.0 ≤ t ≤ +1372.0°C	0.5 + (t – 500.0) × 0.03%	0.5 + (t – 500.0) × 0.02%	
E	–250.0 ≤ t < –200.0°C	1.1 + (|t| – 200.0) × 2.00%	1.1 + (|t| – 200.0) × 2.00%	IEC60584-1*1, *2
	–200.0 ≤ t < 0.0°C	0.5 + |t| × 0.30%	0.5 + |t| × 0.30%	
	0.0 ≤ t < +500.0°C	0.5	0.5	
	+500.0 ≤ t ≤ +1000.0°C	0.5 + (t – 500.0) × 0.02%	0.5 + (t – 500.0) × 0.02%	
J	–210.0 ≤ t < 0.0°C	0.5 + |t| × 0.30%	0.5 + |t| × 0.30%	IEC60584-1*1, *2
	0.0 ≤ t ≤ +1200.0°C	0.5 + t × 0.02%	0.5 + t × 0.02%	
T	–250.0 ≤ t < –200.0°C	1.1 + (|t| – 200.0) × 2.50%	1.1 + (|t| – 200.0) × 2.50%	IEC60584-1*1
	–200.0 ≤ t < 0.0°C	0.5 + |t| × 0.30%	0.5 + |t| × 0.30%	
	0.0 ≤ t ≤ +400.0°C	0.5	0.5	
N	–200.0 ≤ t < 0.0°C	0.6 + |t| × 0.40%	0.6 + |t| × 0.30%	IEC60584-1*1
	0.0 ≤ t ≤ +1300.0°C	0.6	0.6	
L	–200.0 ≤ t < 0.0°C	0.5 + |t| × 0.15%	0.5 + |t| × 0.15%	DIN 43710 1985
	0.0 ≤ t ≤ +900.0°C	0.5	0.5	
U	–200.0 ≤ t < 0.0°C	0.5 + |t| × 0.20%	0.5 + |t| × 0.20%	DIN 43710 1985
	0.0 ≤ t ≤ +600.0°C	0.5	0.5	
R	–20.0 ≤ t < 0.0°C	2.0	2.0	IEC60584-1*1, *2
	0.0 ≤ t < +100.0°C	2.0	1.4	
	+100.0 ≤ t ≤ +1767.0°C	1.4	1.4	
S	–20.0 ≤ t < 0.0°C	2.0	2.0	IEC60584-1*1, *2
	0.0 ≤ t < +100.0°C	2.0	1.4	
	+100.0 ≤ t ≤ +1768.0°C	1.4	1.4	
B	+600.0 ≤ t < +800.0°C	1.2	1.5	IEC60584-1*1, *2
	+800.0 ≤ t < +1000.0°C	1.0	1.2	
	+1000.0 ≤ t ≤ +1820.0°C	1.0	1.1	
C	0.0 ≤ t < +1000.0°C	0.8	0.8	IEC60584-1*1
	+1000.0 ≤ t ≤ +2315.0°C	0.8 + (t – 1000.0) × 0.06%	0.8 + (t – 1000.0) × 0.06%	
XK	–200.0 ≤ t < 0.0°C	0.4 + |t| × 0.20%	0.4 + |t| × 0.20%	GOST R 8.585-2001
	0.0 ≤ t < +300.0°C	0.4	0.4	
	+300.0 ≤ t ≤ +800.0°C	0.5	0.5	
A	0.0 ≤ t < +1000.0°C	1.0	1.0	IEC60584-1
	+1000.0 ≤ t ≤ +2500.0°C	1.0 + (t – 1000.0) × 0.06%	1.0 + (t – 1000.0) × 0.06%	
D (W3Re/W25Re)	0.0 ≤ t < +300.0°C	1.4	1.8	ASTM E1751/E1751M
	+300.0 ≤ t < +1500.0°C	1.2	1.2	
	+1500.0 ≤ t ≤ +2315.0°C	1.8	2.2	
G (W/W26Re)	+100.0 ≤ t < +300.0°C	1.4	1.8	ASTM E1751/E1751M
	+300.0 ≤ t < +1500.0°C	1.2	1.2	
	+1500.0 ≤ t ≤ +2315.0°C	1.8	2.2	
PLATINELII	0.0 ≤ t < +100.0°C	0.6	1.8	ASTM E1751/E1751M
	+100.0 ≤ t < +1000.0°C	0.8	1.8	
	+1000.0 ≤ t ≤ +1395.0°C	1.0	2.2	
PR20-40	0.0 ≤ t < +500.0°C	10.0	11.0	ASTM E1751
	+500.0 ≤ t < +1000.0°C	3.0	4.0	
	+1000.0 ≤ t ≤ +1888.0°C	2.0	2.0	

Using internal reference junction compensation
Accuracy is guaranteed under the environmental conditions of 23°C±5°C, 20 to 80% RH. For use in the temperature range of –10 to +18°C or 28 to 50°C, add the temperature coefficient: 0.05°C/°C. Errors of TC are not included.
The display resolution for source/measure is 0.1°C
Terminal TC-B (reference junction compensation: off) Source/measurement accuracy 0.3°C (typical)

*1 Also compliant with JIS C 1602
*2 IPTS-68 (JIS C 1602 1981) may be selected.

About formula of accuracy
The accuracy of source or measuring is defined by constant value or formula of linear expression.
Example) Accuracy of type K at measuring point of 1000.0°C is ±(0.5 + (1000.0 – 500) × 0.02%)°C = ±0.6°C

RTD Source/Measure

t: Temperature of Source/Meas.

RTD	Coefficient	Temperature Range	Source/Meas. Accuracy (1 year) (±˚C)		Allowable excitation current	Standard or Regulation
			CA500	CA550		
PT100	3851	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.1 to 3 mA	IEC60751*1
		+100.0 ≤ t ≤ +800.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
	3850	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.1 to 3 mA	JIS C 1604 1989 (Pt100)
		+100.0 ≤ t ≤ +630.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
	3916	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.1 to 3 mA	JIS C 1604 1989 (JPt100)
		+100.0 ≤ t ≤ +510.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
	3926	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.1 to 3 mA	Minco Application Aid #18
		+100.0 ≤ t ≤ +630.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
PT200	3851	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.05 to 3 mA	IEC60751*1
		+100.0 ≤ t ≤ +630.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
PT500	3851	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.05 to 0.6 mA	IEC60751*1
		+100.0 ≤ t ≤ +630.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
PT1000	3851	–200.0 ≤ t < +100.0˚C	0.2	0.1	0.05 to 0.6 mA	IEC60751*1
		+100.0 ≤ t ≤ +630.0˚C	0.2 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
Cu10	427	–100.0 ≤ t ≤ +260.0˚C	1.5	1.2	0.1 to 3 mA	Minco Application Aid #18
Ni120	627	–80.0 ≤ t ≤ +260.0˚C	0.2	0.1	0.1 to 3 mA	Minco Application Aid #18
PT50	3851	–200.0 ≤ t < +100.0˚C	0.4	0.2	0.1 to 3 mA	IEC60751*1
		+100.0 ≤ t ≤ +630.0˚C	0.4 + (t–100) × 0.033%	0.2 + (t–100) × 0.033%		
PT50G	—	–200.0 ≤ t < +100.0˚C	0.4	0.2	0.1 to 3 mA	GOST R 8.625-2006
		+100.0 ≤ t ≤ +800.0˚C	0.4 + (t–100) × 0.033%	0.2 + (t–100) × 0.033%		
PT100G	—	–200.0 ≤ t < +100.0˚C	0.3	0.1	0.1 to 3 mA	GOST R 8.625-2006
		+100.0 ≤ t ≤ +630.0˚C	0.3 + (t–100) × 0.033%	0.1 + (t–100) × 0.033%		
Cu50M	—	–180.0 ≤ t ≤ +200.0˚C	0.4	0.2	0.1 to 3 mA	GOST R 8.625-2006
Cu100M	—	–180.0 ≤ t ≤ +200.0˚C	0.3	0.1	0.1 to 3 mA	GOST R 8.625-2006

Accuracy is guaranteed under the environmental conditions of +23˚C±5˚C, 20 to 80% RH. For use in the temperature range of –10 to +18˚C or +28 to +50˚C, add the temperature coefficient: 0.05˚C/˚C. Above accuracy is defined for 4 wire measuring. Accuracy for 3 wire measuring: 1.0˚C to Cu 10; 0.6˚C to Pt50/Pt50G/Cu50M; 0.3˚C to other RTD is each added, on condition the resistance of all cables are the same. Accuracy for 2 wire measuring: Same with 3 wire measuring on condition the resistance of cables are excluded. The accuracy of source is the one when using the included binding post (99045) *1 Also compliant with JIS C 1604.

Common Specifications

Source

Generation unit voltage limiter	Approx. –5 V to +36 V
Generation unit current limiter	Approx. ±30 mA
Sweep function	Step/Linear/Program
Interval time	5 to 600 s
Generation load condition	C ≤10 µF, L ≤10 mH
Output resistance	20 mΩ or less
Output response time	DC Voltage/Current/TC: Approx. 250 ms RTD/Resistance: Approx. 1 ms

Measurement

CMRR	120 dB (50/60 Hz)
NMRR	60 dB (50/60 Hz)
Rating between terminals	H/L terminals: 50 V LOOP/mA terminals: 30 V mA/L terminals: 50 mA
Current terminal protective input	PTC protection
Maximum voltage application between measurement terminals and earth	50 V peak

General Specifications

Function	CA500	CA550
Display	Monochrome Dot Matrix LCD	
Built-in light	Selection of “Constantly ON”, “Constantly OFF” or “Auto off by approx. 10 min” OFF, level dimming function	
Display refresh rate	Approx. 1 s	
Warm-up time	Approx. 5 min	
Language	English (default setting), Japanese, Chinese, Korean, Russian	
Power supply	DC 5 V±10%, max. 500 mA, Four alkaline AA batteries, Battery life: Approx. 16 hours (Measurement ON, 5 V output/10 kΩ or more)	
Auto power-off	Approx. 30 minutes (disabled by default)	
Ground voltage	Measurement terminal: 50 V, Source terminal: 30 V	
Insulation resistance	Between FUNCTION1-2 terminals: DC 500 V 50 MΩ or more	
Withstand voltage	Between FUNCTION1-2 terminals: 500 V AC for 10 seconds	
Dimensions	Approx. 130 (W) × 260 (H) × 53 (D) mm	
Weight	Approx. 900 g (including batteries)	
Safety standard	EN61010-1, Overvoltage Category I, Pollution Degree 2 EN61010-2-030, Measurement category O (other)	
Operation environment	Temperature: –10 to +50˚C, Humidity: 80%R.H. (40˚C or less), 50%R.H. (40 to 50˚C) *No condensation, Altitude: 2000 m or less	
Storage environment	Temperature: –20 to +60˚C, Humidity: 90%R.H. (No condensation)	
Interface	USB B communication device class	USB B communication device class, USB B mass storage class
Application	—	HART communication mode
Number of Data Records	Up to 100 results	Up to 250 CSV files
Accessories	Source lead cables, Measurement lead cables, Binding post (2 sets), USB cable (2 m, USB Type A - USB Type B), Soft case (for accessories), four AA alkaline batteries, Instruction manual (CD), Startup guide, Shoulder strap	

Model and Suffix code

Name	Model	Suffix code	Description
Multi-function Process Calibrator	CA500	-F1	No communication function
	CA550	-F2*	HART/BRAIN function
		-F3*	HART function
	Option	/TE	Add deg F setting procedure

*HART/BRAIN function will be available with the free firmware update in June 2020.

Accessories*1

Model	Name	Description	
98020	Lead cable for source	1 red, 2 black, 1.7 m 7 mm fork terminal to alligator clip	
98035	Source/ measurement lead cable	3 red, 1 black, 1.7 m L plug terminal to alligator clip	
99045	Binding Post (Red Black)	1 short plate attached*2	
99046	Binding Post (Red Red)	1 short plate attached*2	
A1421WL	USB Cable	USB Type A to Type B, 2 m	
B8080FQ	Soft Case	Soft case for accessories	

*1 Included with the CA500/CA550 main unit.
*2 The short plate is not used on CA500/CA550 (common parts with the CA300 series).

Accessories (sold separately)

Model	Name	Description	
98064	Lead cables	1 red, 1 black, 1.7 m L plug terminal to alligator clip	
90080	RJ Sensor*3	Pt100 JIS AA class or equivalent	
98026	Grabber Clip	1 red-black pair, 2 m, separate type	
SU2006A	Soft carrying case	For CA500/CA550 main unit	
90040	TC Mini Plug Set 1*4	K (yellow)/ E (violet)/ J (black)/ T (blue)/ R•S (green)/ B•U (white)/ G (red, green)/ D (red, white)/ C (red)/ N (orange)	
90045	TC Mini Plug Set 2*4	K (yellow)/ E (violet)/ J (black)/ T (blue)	

*3: RJ sensor is dedicated to CA500/550/320, unable to be used with CA71 and CA150.
*4: Other types of mini plugs and a compensating lead wire need to be prepared by customer.

Yokogawa's approach to preserving the global environment

- Yokogawa's electrical products are developed and produced in facilities that have received ISO14001 approval.
- In order to protect the global environment, Yokogawa's electrical products are designed in accordance with Yokogawa's Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

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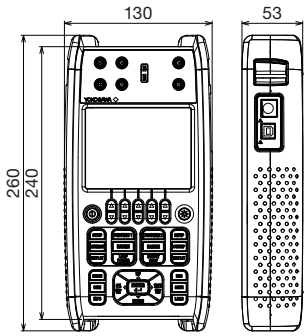
External dimensions



Unit: mm

Unless otherwise specified, the dimensional tolerance is ±3% (but less than 10 mm is ±0.3 mm).

Related Products

Pressure Calibrator CA700

New Standard for Field Calibration

- Achieves the highest accuracy in the portable class!
  Basic accuracy:
  Pressure (measurement) 0.02% rdg
  Current/voltage (source/meas.) 0.015% rdg
- Achieves the highest resolution and widest range in portable class
  0.001 kPa (200.000 kPa range)
- Calibration procedures of pressure transmitters and pressure switches are embedded.
- 2-WAY Power Supply model available

FieldMate

PC-based field device management tool

- Multi-vendor, multi-protocol support BRAIN, FOUNDATION™ Fieldbus H1, HART®, ISA100.11a
- Automatic device data acquisition upon connection to a device or a segment (Segment Viewer)
- Easy acquisition and diagnosis of device status (Device Viewer)
- Categorization, sorting and filtering (History)
- Multi-parameter set-up (Parameter Manager)

Process Calibrator CA300 series

Single-function calibrator excellent in portability

- Volt/mA Calibrator CA310 specialized for loop inspection
- TC Calibrator CA320 specialized for TC simulate
- RTD Calibrator CA330 specialized for RTD simulate

NOTICE

● Before operating the product, read the user's manual thoroughly for proper and safe operation.

This is a Class A instrument based on Emission standards EN61326-1 and EN55011, and is designed for an industrial environment.
Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.

Supplement

Bulletin CA500-01EN 2nd Edition

Please note the following points when using the HART communication function of the CA550 Multifunction Process Calibrator.

- In the loop test of the CA550's field communication mode, you can only perform standalone loop tests, which uses a one-to-one connection between the transmitter and this instrument.
- LRV and URV settings only support Common Practice command 35. LRV and URV settings apply to analog output. You cannot set the display range, unit, or other transmitter-specific parameters.
- D/A output adjustment (4 mA) and D/A output adjustment (20 mA) only support Common Practice commands 45 and 46. You cannot set a percentage or other transmitter-specific parameters.
- PV zero adjustment only supports Common Practice command 43. This sets the sensor's zero level, not LRV or URV.
- Universal commands 13 and 18 do not support long tags.
- The following table shows the Universal/Common Practice commands that the CA550 field communication mode supports.
  The target transmitter needs to support the following commands.

Universal Command

Command	Description		Note
0	Read Unique Identifier	Reads the identifier	Returns the field device ID information
2	Read Loop Current And Percent Of Range	Reads the loop current and percentage	
3	Read Dynamic Variables And Loop Current	Reads dynamic variables and loop current	Reads the PV current, PV value, SV value, TV value, and QV value
12	Read Message	Read a message	
13	Read Tag, Descriptor, Date	Reads a short tag, descriptor, and date	
14	Read Primary Variable Transducer Information	Reads the PV transducer Information	Transducer's upper limit, lower limit, and minimum span value
15	Read Device Information	Reads the device information	PV alarm information, PV transfer function, upper PV range limit, lower PV range limit, write protection state
17	Write Message	Writes a message	
18	Write Tag, Descriptor, Date	Writes a short tag, descriptor, and date	
48	Read Additional Device Status	Reads the device status	・The device is in simulation mode. ・Non-volatile memory check is disabled or broken. ・Battery backed up memory is corrupt. ・RAM memory check is disabled or broken. ・Watchdog reset was executed. ・The power supply or voltage is outside the tolerance range ・Internal or environmental state exceeded the tolerance. ・Error detected in hardware not related to the sensor. ・The device is write-protected or locked.

Common Practice Command

Command	Description		Note
34	Write Primary Variable Damping Value	Writes a PV damping value	
35	Write Primary Variable Range Value	Writes a PV range value	Upper PV range limit, lower PV range Limit
40	Enter/Exit Fixed Current Mode	Starts or exits fixed current mode	
43	Set Primary Variable Zero	PV zero adjustment	
44	Write Primary Variable Units	Writes the PV unit	
45	Trim Loop Current Zero	Current zero adjustment	
46	Trim Loop Current Gain	Current gain adjustment	
47	Write Primary Variable Transfer Function	Writes a PV transfer function	A transfer function used for the loop current and PV value