Test&Measurement

YOKOGAWA


# Source and Measure In-field with High Confidence

## CA500 Series
Multi-function Process Calibrator

**Precision Making**

Bulletin CA500-01EN

nbn Austria GmbH

**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:**

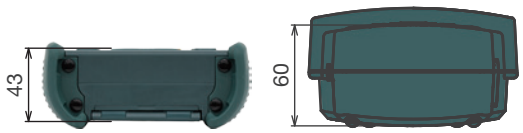
| model | DCA | OHM | RTD |
|---|---|---|---|
| CA500 | 0.015% | 0.020% | 0.3°C |
| CA550 | 0.010% | 0.015% | 0.1°C |

## 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**

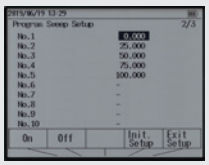
**Versatility** – Multi-function support allows accurate inspection of various field devices. Its robust and ruggedized body allows operation even in severe environmental conditions.

**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

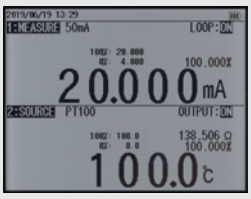
Users can set the desired output value (%) and number of steps.
(10 steps for CA500, 20 steps for CA550)


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

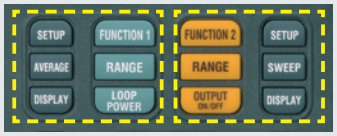
The source can be easily switched between 0% and 100% of range.
Users can also set a desired value.


#### 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

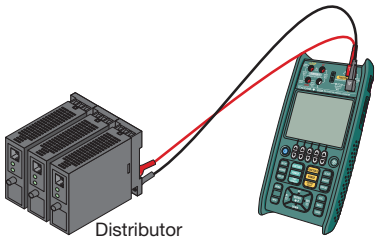
# Design


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

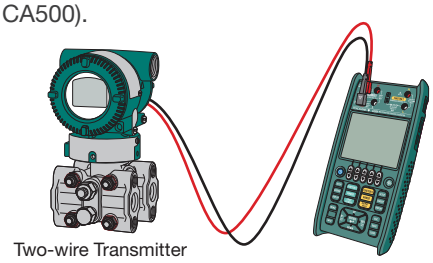
## 20 mA SIMULATE

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.



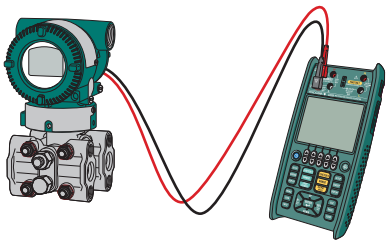

## Two-wire Transmitter Loop Check

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).



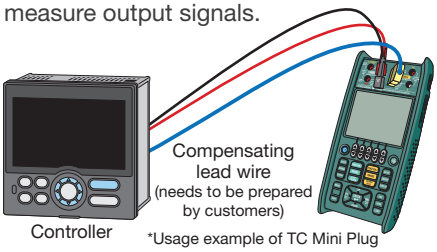

## Zero point adjustment of HART transmitter

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.



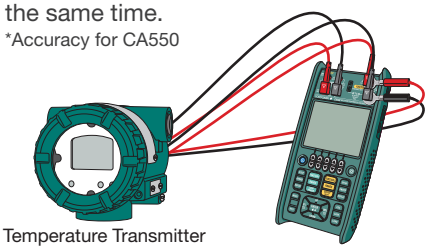
## TC SIMULATE

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.



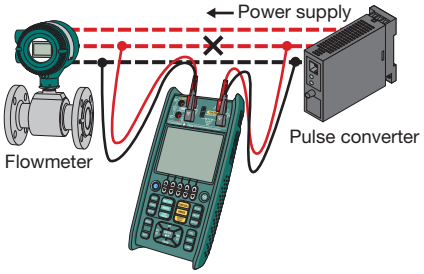

## RTD SIMULATE

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<br>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<br>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<br>Pulse number: Continuous 1 to 99999 cycles<br>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<br>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<br>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<br>LOOP/mA terminals: 30 V<br>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 |

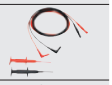
*HART/BRAIN function will be available with the free firmware update in June 2020.

## Accessories*1

| Model | Name | Description | |
|---|---|---|---|
| 98020 | Lead cable for source | 1 red, 2 black, 1.7 m<br>7 mm fork terminal to alligator clip |  |
| 98035 | Source/ measurement lead cable | 3 red, 1 black, 1.7 m<br>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 |  |

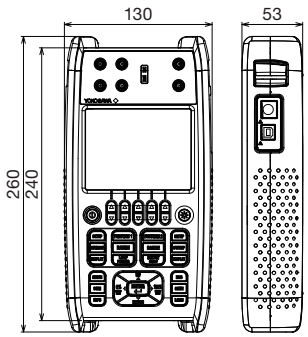
*1 Included with the CA500/CA550 main unit.
*2 The short plate is not used on CA500/CA550 (common parts with the CA300 series).

## Accessories (sold separately)

| Model | Name | Description | |
|---|---|---|---|
| 98064 | Lead cables | 1 red, 1 black, 1.7 m<br>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 |  |
| 90045 | TC Mini Plug Set 2*4 | K (yellow)/ E (violet)/ J (black)/ T (blue) |  |
| 90046 | TC Mini Plug Set 3*4 | K (yellow)/ E (violet)/ J (black)/ T (blue)/ R•S (green)/ B•U (white)/ G (red, green)/ N (orange) |  |
| 93026 | Carrying case | CA500/CA550 main unit,<br>Source/measurement lead cable,<br>Binding post, For USB cable storage |  |

*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.

## 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)



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.

### 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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