https://www.yuctech.com.tw/

- ■ Improved stability and lower calibration costs
- ■ Conduct loop testing of instrumentation systems (4-20 mA)
- ■ Validate thermostatic devices and distributors
- ■ Use as a calibrator and low-power generator for production facilities maintenance and electronic device evaluation

DC Signal Source Supplies and Measures Signals Simultaneously

The HIOKI DC SIGNAL SOURCE SS7012 can be used not only for instrumentation system (4-20 mA) maintenance, but also for maintaining and servicing thermostatic devices, distributors, and industrial meters, as well as for evaluating electronic circuits and devices, and for production facility maintenance.

The signal source also supplies thermoelectromotive force corresponding to eight types of thermocouples. Furthermore, this compact DC signal source simultaneously sources and measures signals.

Use as A Hand-Held Field Calibrator for Loop Testing of Instrumentation Systems, and for Production Facility Maintenance

■SS7012 Features

- Simultaneously sources up to ±25 V and ±25 mA while measuring up to ±28 V and ±28 mA (DC)
- Eight thermoelectromotive force sourcing (TC) modes (K, E, J, T, R, S, B, and N)
- TEMP measurement from -25 to 80°C
- Improved stability and lower calibration costs
- Control from a PC via USB connection

●Example applications
- Instrumentation system loop testing (4-20 mA)
- Validate thermostatic devices and distributors
- Use as a calibrator and low-power generator for production facilities maintenance and electronic device evaluation
- Use as an electronic load (max. 25 mA DC)

● Loop test (two-wire transmitter sensor)

Verifies proper sensor output (two-wire transmitter sensors). The SS7012 applies distributor power to the sensor as a constant-voltage (CV) output, and monitors current output from the sensor.
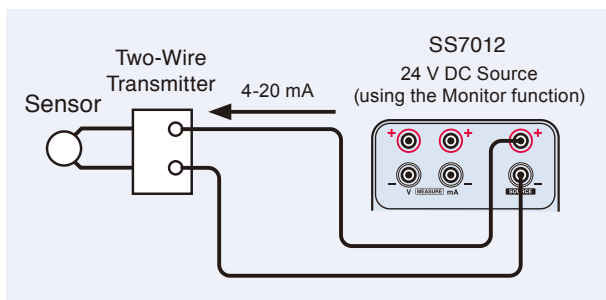

● Loop test (distributor)

Test distributor operation. Apply the default current from the SS7012 as a substitute for sensor current output. Set SS7012 polarity to negative (to operate as a sink).
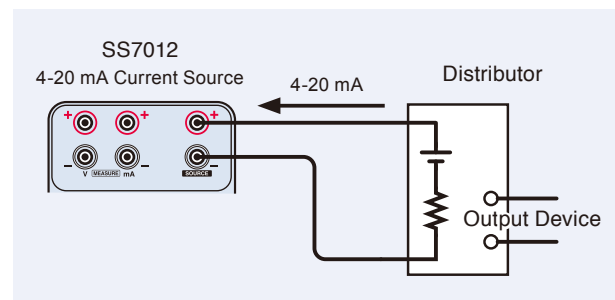

● Thermometer calibration (TC, CV, and CC source)

Substitute the output of sensors such as TC (thermocouple) voltage, current and resistance with TC, CV, CC and Rs (100 Ω) test signals from the SS7012.
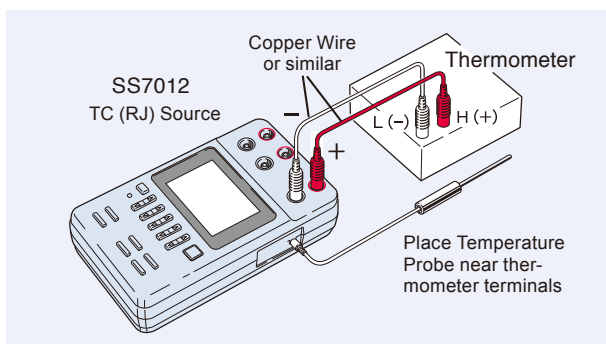
● Store up to 20 steps in memory

Up to 20 levels can be stored for each source function, which can be recalled manually or in sequence automatically (auto scan). Use this function for meter checking, repetitive adjustments, and linearity testing.
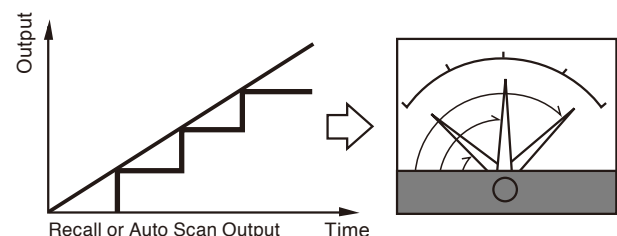
● Temperature measurement

Use the optional 9184 Temperature Probe to measure temperatures from -25 to 80°C. As well as measuring ambient temperature, you can calibrate thermoelectric thermometers with reference junction compensation TC (RJ).

● Portable, precise and stable

Despite the small size and light weight, the high precision and stability of ±0.03% for CV and CC sourcing, and ±0.05% ±0.5°C[*] for TC (0°C) sourcing, have one-year guaranteed accuracy. The compact hand-held design is convenient for travel, field calibration, and servicing applications.

[*] For TC (0°C) sourcing of K, E, J, and T thermoelectromotive force .

Use as A Signal Source for Production Facility Maintenance, plus Electronic Device Testing and Evaluation.

## ● Simultaneous voltage and current sourcing and display

Source up to ±25.000 V and ±25.000 mA while measuring up to ±28.000 V and ±28.000 mA. Isolated source and measurement circuits can increase operating efficiency for applications such as simultaneous input and output testing of transducers using a single instrument.

Electronic Circuit or Device

Output   Input
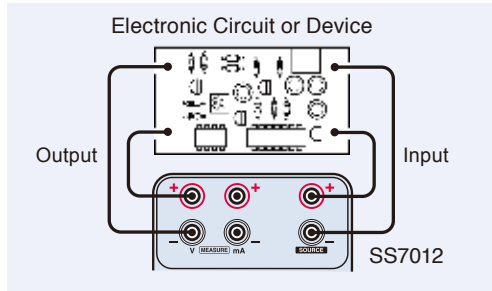
SS7012

● Small source applications

Use as a portable signal source for electronic device testing and evaluation. Full external control is available via the USB interface.[*]

[*] Only for communicating with a PC. Accessing USB memory is not supported.
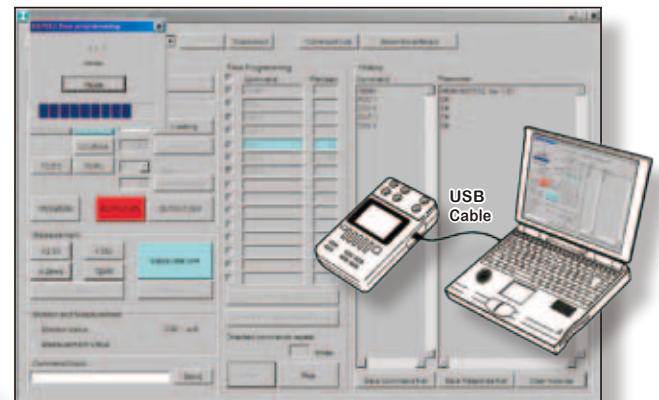
SS7012 Sample PC Application Screen

The SS7012 PC application is available at no cost from the HIOKI website.

● Easy key operations

Intuitive operation is ensured by an up/down key for each setting digit, allowing quick output setup.

Source display
- Bar indicates selected function
- Display of thermocouple setting for TC function
- Set level and on/off output state

Measurement display
- Bar indicates selected function
- Measured value or output value monitor
- Display of address and interval for memory setting and output

Operation keys

[SOURCE FUNCTION]
    Source function selection key
[TC TYPE] Emulated thermocouple type
    selection key
[MEMORY] Memory source setting key
[SET] Source level setting keys (for each digit)
[+/−] Source polarity selection key
[OUTPUT] Source output on/off key
[MEASURE FUNCTION]
    Measurement function selection key
[0 ADJ] Measurement zero adjustment key
[MONITOR] Measurement/Monitor value
    selection key

■SS7012 Specifications

(Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	Sourcing & Measurement Range	Resolution	Accuracy	Remarks
Sourcing	**Constant Voltage (CV)** 2.5V: 0 to ±2.5000 V 25V: 0 to ±25.000 V	100 µV 1 mV	±0.03% of setting ±300 µV ±0.03% of setting ±3 mV	(Sink/Source) ±25 mA ±25 mA
	Constant Current (CC) 25mA: 0 to ±25.000 mA	1 µA	±0.03% of setting ±3 µA	(Sink/Source) Approx. ±25 V
	Thermoelectromotive Force TC (0°C) K: -174.0 to 1372.0 °C E: -220.0 to 839.0 °C J: -208.0 to 1108.0 °C T: -169.0 to 400.0 °C R: -50 to 100 °C 　101 to 1768 °C S: -50 to 100 °C 　101 to 1768 °C B: 300 to 600 °C 　601 to 1820 °C N: -113.0 to 1300.0°C	0.1 °C 0.1 °C 0.1 °C 0.1 °C 1 °C 1 °C 1 °C 0.1 °C	±0.05% of setting ±0.5 °C ±0.05% of setting ±0.5 °C ±0.05% of setting ±0.5 °C ±0.05% of setting ±0.5 °C ±0.05% of setting ±1.5 °C ±0.05% of setting ±1.0 °C ±0.05% of setting ±1.5 °C ±0.05% of setting ±1.0 °C ±0.05% of setting ±2.5 °C ±0.05% of setting ±1.5 °C ±0.05% of setting ±0.5 °C	Output Resistance 5Ω or less IEC 584
	Thermoelectromotive Force TC (RJ) Thermocouple types, source range and resolution are the same as for TC (0°C)	Add the following to TC (0°C) accuracy ±0.5 °C (@23 ±5 °C) ±1.0 °C (from 0 to 50 °C) ±2.0 °C (from -25 to 80 °C)		Using TEMPERATURE PROBE 9184
	Memory Sourcing (RECALL, SCAN) One type for each function: CV2.5, CV25, CC, TC (0°C and RJ)	Max. steps: 20 Interval: 1 to 99 s		Timing accuracy is not specified
	Standard Resistance (Rs) 100Ω		±0.2 Ω	±5 mΩ/°C
Measurement	**Voltage** 2.5V: 0 to ±2.8000 V 25V: 0 to ±28.000 V	100 µV 1 mV	(after zero adjustment) ±0.03% of rdg. ±300 µV ±0.03% of rdg. ±3 mV	Input Resistance Approx. 1 MΩ
	Current 25mA: 0 to ±28.000 mA	1 µA	(after zero adjustment) ±0.03% of rdg. ±3 µA	Input Resistance Approx. 30 Ω* or less
	Temperature -25 to 80 °C	0.1 °C	±0.5 °C (@23 ±5 °C) ±1.0 °C (from 0 to 50 °C) ±2.0 °C (from -25 to 80 °C)	Using TEMPERATURE PROBE 9184
Monitor	Load current monitor	10 µA	±0.1% of rdg. ±20 µA	0 to ±28.00 mA
	Terminal voltage monitor	10 mV	±0.1% of rdg. ±20 mV	0 to ±28.00 V
	Reference contact temperature monitor	0.1 °C	±0.5 °C (@23 ±5 °C) ±1.0 °C (from 0 to 50 °C) ±2.0 °C (from -25 to 80 °C)	-25 to 80 °C

* Including approximately 15 Ω fuse resistance

■SS7012 General Specifications

Source output method: Bipolar sink/source
A/D conversion method: Delta-Sigma
Temperature coefficients (sourcing):
　±(0.005% of setting + 30 µV) / °C (CV: 2.5V)
　±(0.005% of setting + 0.2 mV) / °C (CV: 25V)
　±(0.005% of setting + 0.2 µA) / °C (CC: 25mA)
　±(0.005% of setting + 0.05 °C) / °C (TC(°C): K, E, J, T, and N)
　±(0.005% of setting + 0.1 °C) / °C (TC(°C): R, S, and B)
　±(0.01% of setting + 0.1 °C) / °C (TC(RJ): K, E, J, T, R, S, B, and N)
　±0.005 Ω / °C (Rs)
Temperature coefficients (measuring):
　±(0.005% rdg. + 10 µV) / °C (V: 2.5V)
　±(0.005% rdg. + 0.1 mV) / °C (V: 25V)
　±(0.005% rdg. + 0.1 µA) / °C (A: 25mA)
　±0.05 °C / °C (TEMP)
　±(0.01% rdg. + 1 µA) / °C (MONITOR CV: 2.5V and 25V)
　±(0.01% rdg. + 1 mV) / °C (MONITOR CC: 25mA)
　±0.05 °C / °C (MONITOR TC (RJ))
Zero adjustment function: within ±100 counts (V, A, and measuring)
Display: Five-digit LCD ("28000")
Additional functions: Overflow display, USB communication, Monitor
Operating temperature and humidity:
　0 to 40 °C, 80% RH or less (non-condensing)
I/O protection: 50 mA, fused (sourcing and measuring)
Withstand voltage: 370 Vrms AC @1 mA for 15 seconds (source-to-measurement terminals)
Power supply: Four LR6 alkaline batteries or HR6 Ni-MH batteries, or 9445-02 / -03 AC ADAPTER
Continuous operating time: (w/fully charged 2500-mAh Ni-MH batteries)
　Approx. 200 min (CC: 25mA range, sourcing 20 mA into 250 Ω load)
　Approx. 170 min (CV: 25V range, sourcing 25 V into 1 kΩ load)
　Approx. 280 min (V: 2.5V range, input terminals shorted)
Dimensions and mass: 104 mm (4.09 in)W × 180 mm (7.09 in)H × 58 mm (2.28 in)D, 660 g (23.3 oz) (including LR6 × 4 batteries)
Accessories: One INPUT CORD 9168 set, one TEST LEAD 9170-10 set, one spare fused (F50 mA, 250 V "mizet" fuse), four LR6 alkaline batteries

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USB 1.1
Communication only
CE

## Model : DC SIGNAL SOURCE SS7012

Model No. (Order Code)
SS7012

Note: Use of the AC Adapter and /or rechargeable batteries and dedicated charger is recommended.

■Recommended combination examples
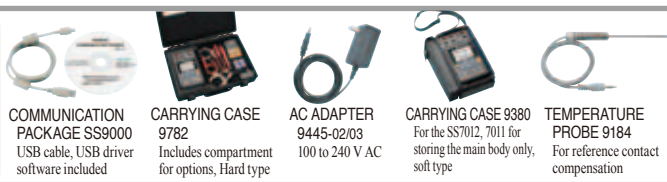
SS7012 (main unit) + AC ADAPTER 9445-02 / -03 +
TEMPERATURE PROBE 9184 + CARRYING CASE 9782

*Bundled accessories

Cables

INPUT CORD 9168
70 cm (2.30 ft) length

TEST LEAD L9170-10
70 cm (2.30 ft) length
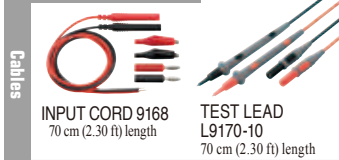
Options

Commercially available rechargeable batteries (AA Ni-MH batteries ×4) may also be used to power the SS7012. Using locally purchased rechargeable batteries and dedicated battery chargers is recommended; however, HIOKI will not be able to guarantee operating time as different rechargeable batteries exhibit different power specifications per charge. The SS7012 cannot be used to recharge batteries.

COMMUNICATION PACKAGE SS9000
USB cable, USB driver software included

CARRYING CASE 9782
Includes compartment for options, Hard type

AC ADAPTER 9445-02/03
100 to 240 V AC

CARRYING CASE 9380
For the SS7012, 7011 for storing the main body only, soft type

TEMPERATURE PROBE 9184
For reference contact compensation

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