



# HIOKI

## DC SIGNAL SOURCE SS7012

Signal Source & Calibrator



- 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.



ISO 9001  
JMI-0216



ISO 14001  
JQA-E-90091

# 日图简介

深圳市日图科技有限公司（简称“日图科技”）创始于2004年，核心业务是为国内企业提供测试设备及相关器材的供应服务，公司客户涵盖制造、科研、教育、电力、能源、通信等众多领域。创业至今，日图科技已经成为国内仪器仪表行业中最大的综合服务供应商之一，日图科技作为行内的领先者，有着高效的供应服务体系，并拥有一支专业的、高素质的服务团队。

目前，日图科技已在深圳、上海、广州、苏州、重庆、杭州、西安、香港等国内电子工业发达地区设立了办事与服务机构，并通过日图科技在全国各地的经销网络，为广大客户提供优质的本地化服务。

日图科技一贯秉承“专业、规范、诚信立业，日日图新”的宗旨，并在实践中不断提升公司的服务能力，为客户提供专业、高效、全面、经济的优质供应服务，顾客满意是日图科技永远追求的目标。

## 合作伙伴



## 优势服务

- (1) 产品选型
- (2) 测试解决方案
- (3) 免费测试服务
- (4) 代办计量校准
- (5) 维修维护
- (6) 技术培训
- (7) 物流配送
- (8) 常备应急库存



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

## SS7012 Features

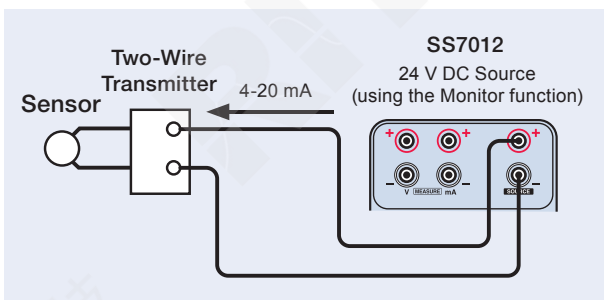
- Simultaneously sources up to  $\pm 25$  V and  $\pm 25$  mA while measuring up to  $\pm 28$  V and  $\pm 28$  mA (DC)
- Eight thermoelectromotive force sourcing (TC) modes (K, E, J, T, R, S, B, and N)
- TEMP measurement from  $-25$  to  $80^\circ\text{C}$
- Improved stability and lower calibration 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)

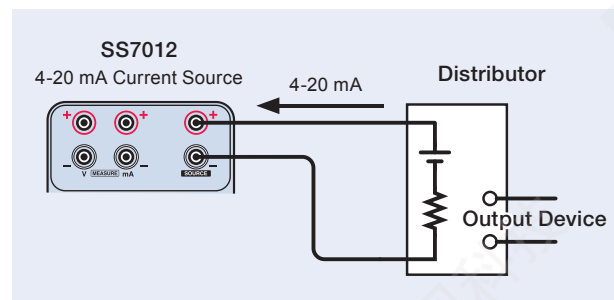
### Loop test (two-wire transmitter sensor)

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.



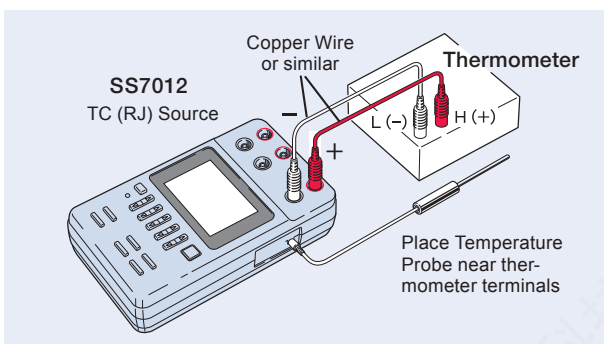
### Loop test (distributor)

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).



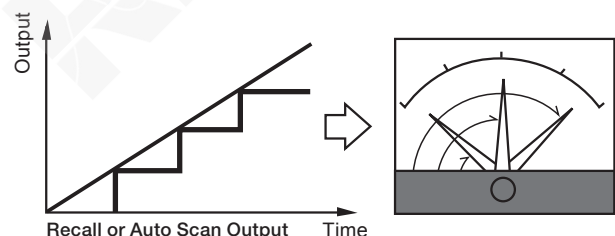
### Thermometer calibration (TC, CV, and CC source)

Substitute the output of sensors such as TC (thermocouple) voltage, current and resistance with TC, CV, CC and  $R_s$  ( $100\ \Omega$ ) 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  $80^\circ\text{C}$ . 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  $\pm 0.03\%$  for CV and CC sourcing, and  $\pm 0.05\% \pm 0.5^\circ\text{C}^*$  for TC ( $0^\circ\text{C}$ ) sourcing, have one-year guaranteed accuracy. The compact hand-held design is convenient for travel, field calibration, and servicing applications.

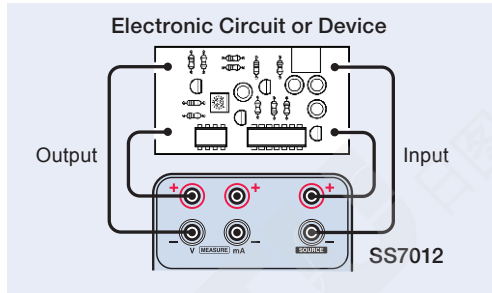
\* For TC ( $0^\circ\text{C}$ ) sourcing of K, E, J, and T thermoelectromotive force.



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

## ● Simultaneous voltage and current sourcing and display

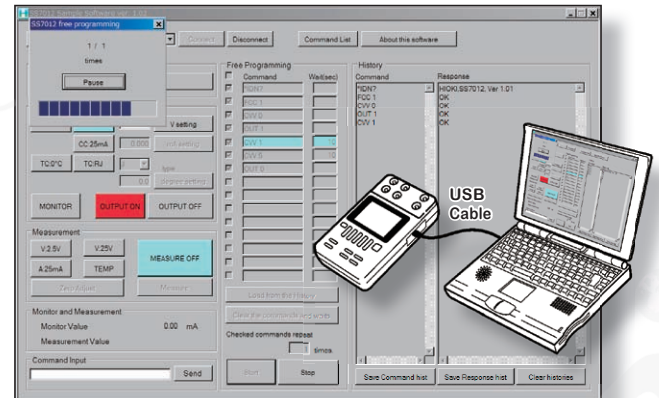
Source up to  $\pm 25.000$  V and  $\pm 25.000$  mA while measuring up to  $\pm 28.000$  V and  $\pm 28.000$  mA. Isolated source and measurement circuits can increase operating efficiency for applications such as simultaneous input and output testing of transducers using a single instrument.



## ● 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

(At 23 ±5°C, accuracy guaranteed for one year)

	Sourcing & Measurement Range	Resolution	Accuracy	Remarks
Sourcing	<b>Constant Voltage (CV)</b> 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
	<b>Constant Current (CC)</b> 25mA: 0 to ±25.000 mA	1 μA	±0.03% of setting ±3 μA	(Sink/Source) Approx. ±25 V
	<b>Thermoelectromotive Force TC (0°C)</b> 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 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
	<b>Thermoelectromotive Force TC (RJ)</b> 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
	<b>Memory Sourcing (RECALL, SCAN)</b> 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
	<b>Standard Resistance (Rs) 100Ω</b>		±0.2 Ω	±5 mΩ/°C
	<b>Voltage</b> 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
<b>Current</b> 25mA: 0 to ±28.000 mA	1 μA	(after zero adjustment) ±0.03% of rdg. ±3 μA	Input Resistance Approx. 30 Ω* or less	
<b>Temperature</b> -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	<b>Load current monitor</b>	10 μA	±0.1% of rdg. ±20 μA	0 to ±28.00 mA
	<b>Terminal voltage monitor</b>	10 mV	±0.1% of rdg. ±20 mV	0 to ±28.00 V
	<b>Reference contact temperature monitor</b>	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")

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)

Size and weight: 104W × 180H × 58D mm, 570 g

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

## Ordering information

### DC SIGNAL SOURCE SS7012

#### Recommended combination examples

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

#### Options

##### AC ADAPTER 9445-02

(For Japan, US, and Canada. 100V to 240V AC, 9V DC / 1A output)

##### AC ADAPTER 9445-03

(For EU. 100V to 240V AC, 9V DC / 1A output)

##### TEMPERATURE PROBE 9184

(reference junction compensation)

##### CARRYING CASE 9380 (Holds main unit only, soft case)

##### CARRYING CASE 9782 (Holds options, hard case)

##### COMMUNICATION PACKAGE SS9000

(Includes USB cable and driver software)

Commercially available rechargeable batteries (AA Ni-MH batteries x 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.

AC ADAPTER  
9445-02



CARRYING CASE  
9782



CARRYING CASE  
9380



COMMUNICATION  
PACKAGE SS9000



INPUT CORD  
9168 (Provided)

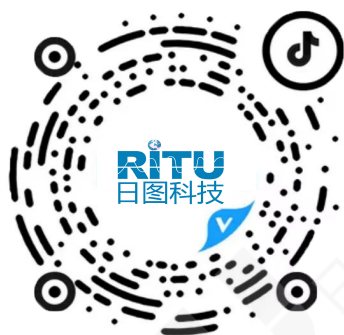


TEST LEAD  
9170-10 (Provided)



TEMPERATURE  
PROBE 9184





日图抖音号



日图公众号

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