

DC SIGNAL SOURCE

HIOKI



Enhanced performance! Generates $\pm 12.1\text{V}$, $\pm 81\text{mA}$

**Constant voltage, constant
current generation and measurement**
DC signal source can also output thermocouple drive power

DC SIGNAL SOURCE

7010



Generates and measures maximum output voltage $\pm 12.1V$, current $\pm 81mA$

The new field-use 7010 DC signal source

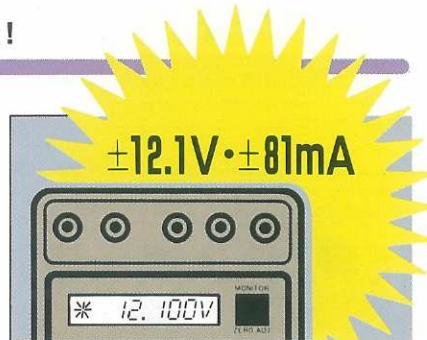
The battery-driven 7010 DC signal source is a highly portable generator for constant voltage (0 to $\pm 12.1V$) and constant current (0 to $\pm 81mA$) output. In addition to six thermocouple drive power output functions for check and adjustment of thermocouple thermometers, it can also operate as a voltmeter and an ammeter. And the memory output function can auto-scan up to 20 steps at a freely selected interval of 1 to 100 seconds. This versatile instrument can handle calibration of industrial equipment, check thermocouple temperature sensors, and generate a wide range of source signals required for electronic circuit and equipment testing.



Photo shows optional RJ sensor and carrying case

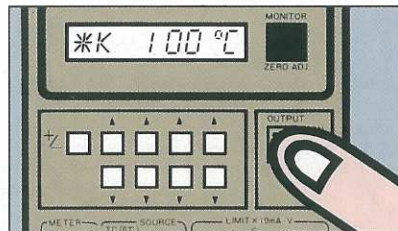
Signal source and measurement !

Outputs voltage (0 to $\pm 12.1V$) and current (0 to $\pm 81mA$). Perfect for adjustment and checks of industrial equipment and transmission lines. And it can also be used as a digital voltmeter/ammeter for the same ranges.



Outputs thermocouple drive power for temperature setting

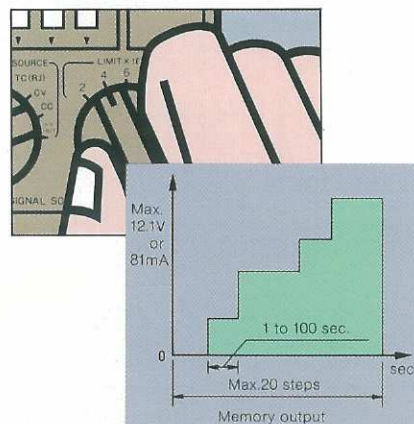
Outputs drive power (TC $0^{\circ}C$) for six types of thermocouples: K(CA), E(CRC), J(IC), T(CC), R and S. With the optional 9184 RJ sensor it is also possible to output TC(RJ) power to compensate a cool junction to room temperature.



Handy memory and protective limiter functions

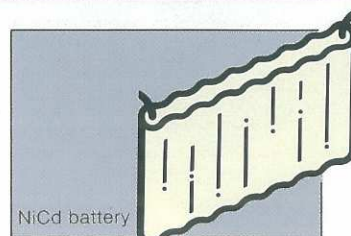
Memory output of constant voltage, constant current and thermocouple drive power possible. Time interval can be freely set from 1 to 100 seconds, for up to a maximum of 20 steps. Perfect for repeated testing and production line checks.

Limiter function provided for constant voltage (CV) and constant current (CC) ranges. Four ranges are supported for each: 20mA, 40mA, 60mA and off for CV, and 2V, 4V, 6V and off for CC.



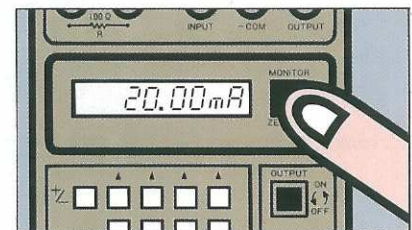
Battery driven for easy use anywhere.

Power supply consists of rechargeable NiCad cells for handy operation in the field...and AC line power can be used with the included AC adapter. NiCad cells will drive the unit at maximum load for about 1.5 hours with a full charge.



Offers monitor functions as well

Monitor displays of load current during constant voltage generation, and of output voltage during constant current generation... handy for checking internal resistance.



Ideal for $0^{\circ}C$ check for resistance thermometers.

Has an internal reference resistor (100 ohms), perfect for $0^{\circ}C$ checks of resistance thermometers.

For maintenance of industrial instrumentation, transmission lines and electronic components

Wide range of capabilities from inspection, adjustment and maintenance to test applications

Standard resistance terminals

INPUT **- COM** **OUTPUT**

MONITOR/ZERO ADJ. switch
Effective only while pressed. With CV range, displays load current; with CC range, displays output voltage; and with TC (RJ) range, displays reference junction temperature. When using the tester as a voltmeter or ammeter, this switch zero-adjusts the tester for all measurement ranges.

AC adapter jack

+/- polarity selector
Sets the output polarity, reversing it each time the switch is pressed.

Function switch
8 ranges: V, A, °C, TC (°C), T, TC (RJ), CV, CC, and MEMO OUT.

V.....	Voltmeter
A.....	Ammeter
°C.....	Thermometer
TC (0°C).....	Thermocouple power output (0°C reference junction)
TC (RJ).....	Thermocouple power output (reference junction temperature compensation)
CV.....	Constant voltage output
CC.....	Constant current output
MEMO OUT....	Output of data stored in memory

OUTPUT ON/OFF switch
Switches output ON or OFF, reversing the state each time the switch is pressed.

Output level selector switches
Set the output level digit-by-digit. Can be pressed and held to change digit continuously. Changes continuously while key depressed.

Limiter switch
Effective only with the CV and (CC) ranges, this switch selects one of four limiter ranges: 2 V (20 mA), 4 V (40 mA), 6 V (60 mA), or OFF.

TC (RJ)..... Thermocouple power output (reference junction temperature compensation)

Thermocouple selector switch
Selects any of six types of thermoelectric power generation: K, E, J, T, S, or R.

K.....	Rotary switch position 7
E.....	Rotary switch position 6
J.....	Rotary switch position 5
T.....	Rotary switch position 4
S.....	Rotary switch position 3
R.....	Rotary switch position 2

*Positions 0, 1, 8, and 9 are not used.

RJ sensor jack

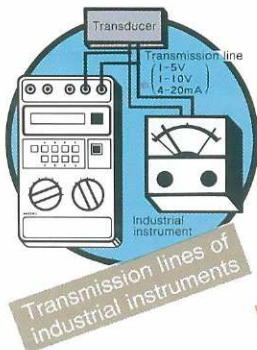
Memory write mode ON/OFF switch

Memory data write switch

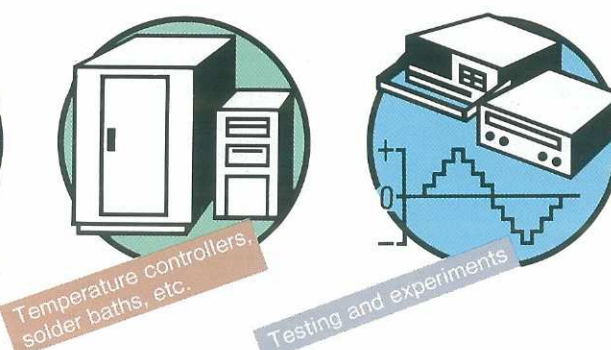
HIOKI 7010 DC SIGNAL SOURCE

Rich array of functions

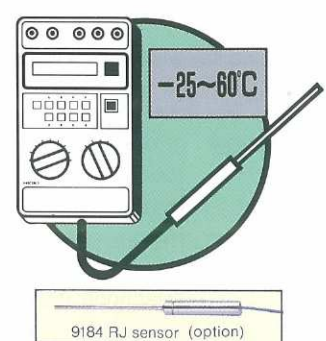
■ For checking and adjustment



■ As a DC signal source



■ As a thermometer



Specifications

Measurement and Output Ranges

(23°C, ±5°C, 80% RH>, no condensation)

	Range	Resolution	Accuracy	Remarks
Signal generator ranges	Constant voltage CV 0 to ±12.1V	1mV	±0.1% rdg. ±3dgt.	Maximum output 80mA <(8V>) 50mA <(8V<)
	Constant current CC 0 to ±81mA	10μA		Maximum output 12V <(50mA >) 10V <(50mA <)
	Thermoelectric power TC (0°C) K..... -100°C to 1200°C	1°C	±0.25% rdg. ±2°C	<ul style="list-style-type: none"> • Load resistance: 100K ohms or greater • Additional error when load resistance is less than 100k ohms: $(100 - \frac{100 \times R_{in}}{10 + R_{in}}) \%$ (R_{in}: Load resistance)
	E..... -100°C to 800°C			
	J..... -100°C to 750°C			
	T..... -100°C to 350°C			
	R..... -40°C to 1600°C			
	S..... -40°C to 1600°C			
	Thermoelectric power TC (RJ) • Six ranges (same as above)	1°C	±1°C additional (0 to 50°C) ±2°C additional (others)	<ul style="list-style-type: none"> • Requires 9184 RJ sensor. • Output compensation for RJ temperature takes place approx 6.5 seconds.
	Generation from memory MEMO. OUT • Can be used with one of the following ranges at a time: CV, CC, TC(0°C), or TC(RJ) • Number of steps: Up to 20 • Step time: 1 to 100 seconds		<ul style="list-style-type: none"> • Accuracy of signal generated depends on selected range. • Accuracy of step length is not rated. 	<ul style="list-style-type: none"> • Uses static memory. • Operates endlessly when output is set to ON. • Possible setting: Generation level, limiter, output ON/OFF, and step length.
Standard resistance: 100 ohms		±0.2%	50ppm/°C	
Test ranges	Voltage: V-METER 0 to ±12.1V	1mV	±0.2% rdg. ±3dgt.	Input Resistance: Approx. 200kΩ
	Current: A-METER 0 to ±81mA	10μA		Input Resistance: Approx. 10Ω
	Temperature: °C-METER -25°C to 60°C	1°C	±1°C (0°C to 50°C) ±2°C (others)	Requires 9184 RJ sensor.
Monitor	Load current monitor (with CV range) 0 to ±81mA	10μA	±0.2% rdg. ±10dgt.	Includes influence of output impedance.
	Output voltage monitor (with CC range): 0 to ±12.1V	1mV		
	Reference junction temperature monitor -25°C to 60°C	1°C	±1°C (0°C to 50°C) ±2°C	Requires 9184 RJ sensor
Limiter	Load current limiter (with CV range) 20mA, 40mA, 60mA and OFF		±15%	No usable with thermoelectric power generation and test ranges.
	Output voltage limiter: (with CC range): 2V, 4V, 6V and OFF			

General Specifications

Output generation method: Bipolar sink source

A/D operation: Successive comparison

Output impedance: Approx. 50mΩ

(approx. 1mV/20mA)

Thermal coefficient:

±(100ppm + 100μV)/°C: CV, V-METER

±(100ppm + 1μA)/°C: CC, A-METER

±(100ppm + 2μV)/°C: TC

Zero adjust function (with V-METER and A-METER modes): Zero-adjusts all test ranges.

Display: 5-digit LCD, displays up to 12100

Negative polarity indicator: “-”

Unit symbols displayed: V, mA, and °C

Thermocouple ranges displayed: K, E, J,

T, R, and S

Battery low indicator: BATT Low

Operating temperature: 0°C to 40°C, 80% RH> (no condensation)

I/O protection: 0.2A fuse

However, never connect the tester to a live line carrying in excess of ±15V or ±100 mA.

Dielectric strength: 500 Vac, 1 minute (I/O terminals to case and power supply to case)

Power supply: Built-in NiCd battery or AC adapter. (550mA, 8V)

NiCd battery; supplies power for about 1 hour under max. load when fully charged, Recharging takes about 15 hours. (The battery is charged in the power off range when the AC adapter is used.)

AC adapter specifications

Output voltage within ±10% of 8V with 550 mA load.

Output voltage not more than 13V with no load.

Plug diameter: 2 mm, center common (-)

Dimensions/weight: 185H×110W×54Dmm, approx.700g

Accessories:

9168 input cord: 1

0.2 A fuse: 1

Optional accessories:

9184 RJ Sensor (reference junction temperature)

9168 Input Cord (included with tester)

9356 Carrying Case

Standard Packing (Double carton box)

Sets	N.W.(kg)	G.W.(kg)	M ³
15	19	21	0.10

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