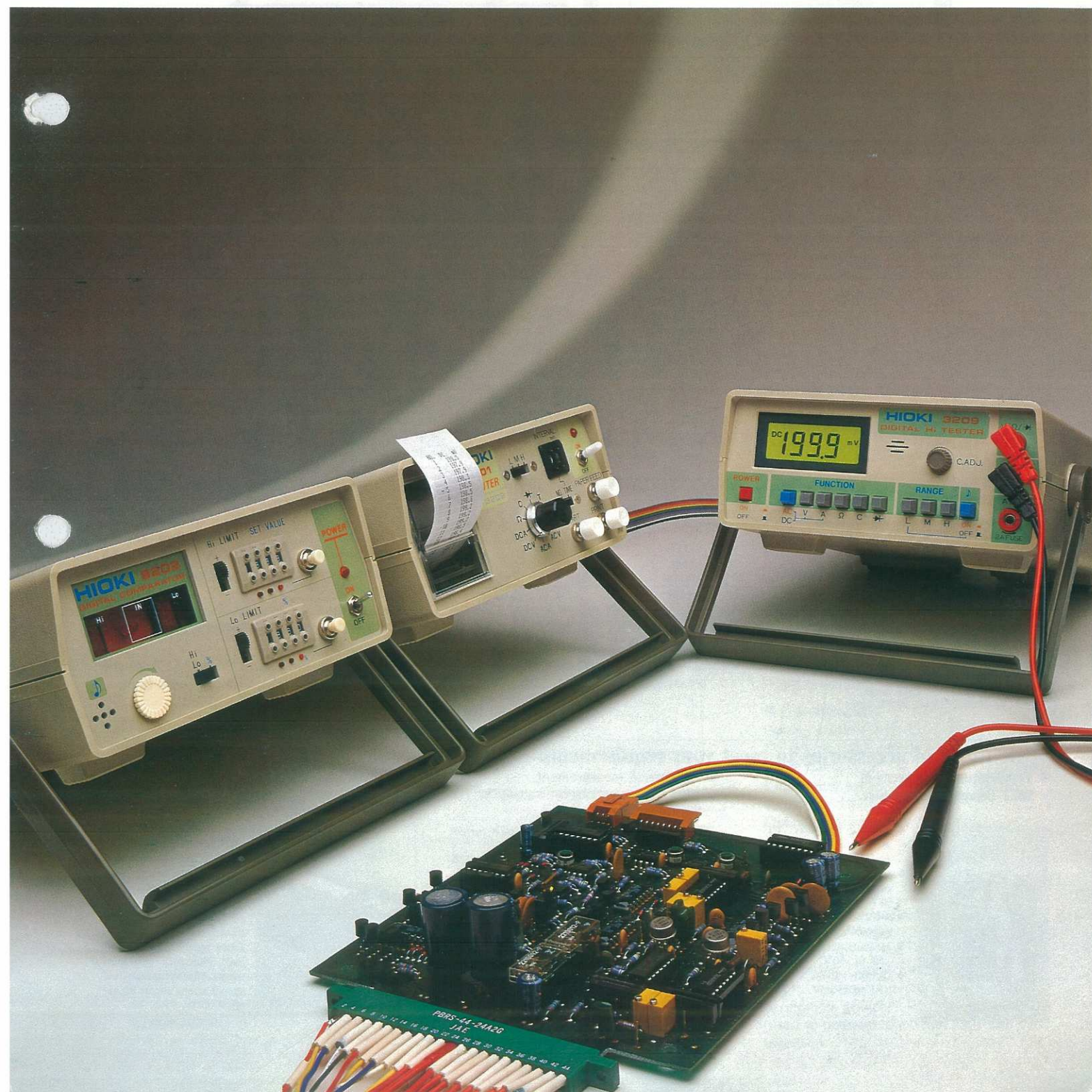


3209 DIGITAL Hi TESTER  
9201 DIGITAL PRINTER  
9202 DIGITAL COMPARATOR



DIGITAL HI TESTER  
**3209**  
DIGITAL PRINTER  
**9201**  
DIGITAL COMPARATOR  
**9202**

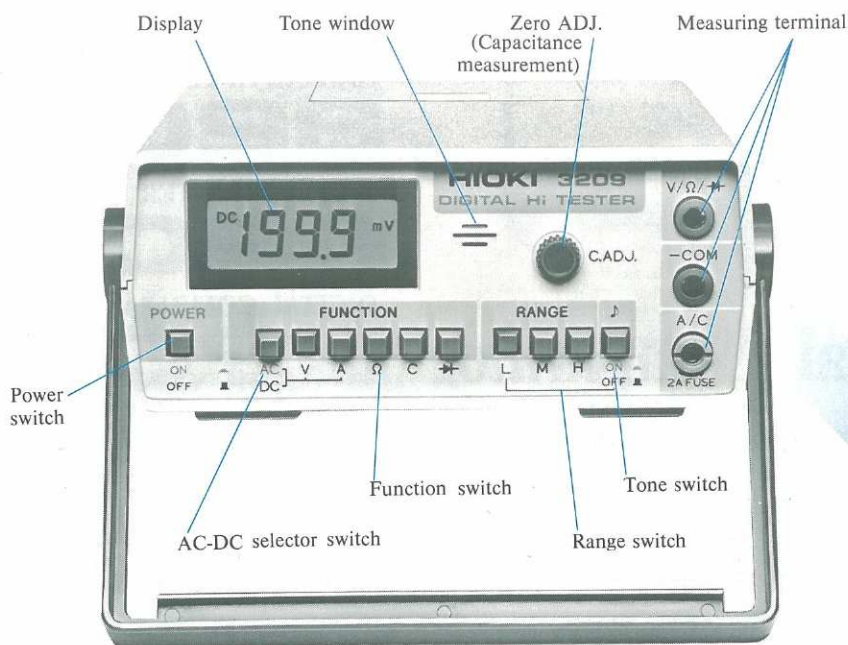
# Data Print-out Go/No-Go Digital Comparator





# Standard Grade Digital Multimeter with BCD output Terminal

## 3209 DIGITAL HI TESTER



- BCD output terminal permits the use of a digital printer and comparator to form a comprehensive measurement system.
- Capacitance meter (with minimum resolution of 1pF) for measurement of capacitors up to 20μF.
- Continuity check function using an audible tone to signal resistance of less than 100Ω.
- Battery powered for use anywhere.

BCD output  
To Printer  
To Comparator

### ■ Specification

Function	Range	Resolution	Accuracy	Remarks
DC V	L 200/2000mV	100μ/1mV	±0.2%rdg. ±0.1%f.s. ±1dgt.	Input Impedance > 1000MΩ
	M 20/200V	10m/0.1V	±0.3%rdg. ±0.1%f.s. ±1dgt.	" 10MΩ
	H 200/1000V	0.1/1V	±0.5%rdg. ±0.1%f.s. ±1dgt.	" "
AC V	L 200mV	100μV	±0.3%rdg. ±0.5%f.s. ±1dgt. ±1%rdg.	Input Impedance 2MΩ 40~1000Hz 1kHz~20kHz
	M 2000mV	1mV	±0.3%rdg. ±0.2%f.s. ±1dgt. ±1%rdg.	" 40~1000Hz 1kHz~20kHz
	M 20/200V	10m/0.1V	±0.5%rdg. ±0.2%f.s. ±1dgt. ±1.5%rdg. ±0.5%f.s. ±1dgt.	" 40~1000Hz 1kHz~10kHz
	H 200/1000V	0.1/1V	±0.8%rdg. ±0.2%f.s. ±1dgt.	" 40~1000Hz
Ω	L 200/2000Ω	0.1/1Ω	±0.4%rdg. ±0.1%f.s. ±1dgt.	Open Circuit Voltage < 1V
	M 20/200kΩ	10/100Ω	±0.7%rdg. ±0.2%f.s. ±1dgt.	Full Scale Voltage (*down R): < 0.15V (*up R): < 0.6V
	H 2/20MΩ	1/10kΩ	±0.7%rdg. ±0.2%f.s. ±1dgt.	"
DC A	L 200/2000μA	0.1/1μA	±0.7%rdg. ±0.1%f.s. ±1dgt.	Input Impedance 1kΩ
	M 20/200mA	10/100μA	±1%rdg. ±0.3%f.s. ±1dgt.	" 10Ω
	H 2A	1mA	±1%rdg. ±0.3%f.s. ±1dgt.	" 0.1Ω
AC A	L 200μA	0.1μA	±1%rdg. ±0.5%f.s. ±1dgt.	" 1kΩ 40~1000Hz
	M 2000μA	1μA	±1%rdg. ±0.2%f.s. ±1dgt.	" 10Ω "
	H 20/200mA	10/100μA	±1%rdg. ±0.2%f.s. ±1dgt. ±1.5%rdg. ±0.5%f.s. ±1dgt.	" 0.1Ω "
Capacitance	L 2/20nF	1/10pF	±1.5%rdg. ±0.5%f.s. ±1dgt.	Voltage: Approx. 5V
	M 200/2000nF	100p/1nF	±2%rdg. ±1%f.s. ±1dgt.	(Condenser charge and discharge system)
	H 2/20μF	1/10nF	±2%rdg. ±1%f.s. ±1dgt.	"
Diode	→ ←		±5%rdg. ±0.5%f.s. ±1dgt.	Current: Approx. 1mA
Continuity check	LoΩ	0~100Ω	Measurement (External trimmer Adjustment: Less than 100Ω)	

\*down R: 200Ω, 20kΩ, 2MΩ range  
up R: 2000Ω, 200kΩ, 20MΩ range

### ■ General

**Display:** 3½ digits LCD (1999)  
**Ranging:** Semi-Automatic  
**Overrange indication:** The "1" in the maximum figure blinks  
**Battery indication:** When below operating voltage, decimal point not in use blinks.  
**Response time:** About 1 sec. for DC and Ω (L,M ranges) and about 3 sec. for AC and Ω (H range)  
**Sampling range:** 2 samples per second  
**Operating temperature/humidity:** 0°C~40°C less than 80% RH  
**Storage temperature:** -10°C~50°C  
**Power source:** Four AA cells (battery life: 20 hours)  
**Power consumption:** Approx. 300mW for measurement of voltage, current and resistance and 350mW for capacitor testing.  
**Maximum input:** DC V → 1200V AC·DC AC V → 1200V AC 500V DC Ω·DC·AC A → 200V AC·DC Capacitance → 200V AC·DC Other: 2A fuse  
**Dielectric strength:** 1500V AC max. for one minute between case and each input terminal  
**BCD output:** Digit-serial and Bit-parallel  
**Dimensions:** 82H×177W×211D mm  
**Weight:** Approx. 1kg  
**Accessories:** Test leads, Fuse (2A), lead clip  
**Accessories available:** 9014 DC 30kV high voltage probe 9081 10A shunt

### Wide range of accessories to meet your requirements

#### ● Temperature measurement 9022 Temperature adaptor



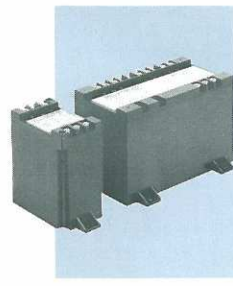
- Adaptor converts 1°C temperature changes to 1mV output.
- Battery life of 50 hours continuous use (006P; 9V)
- Includes 9023 Temperature Probe
- Measurement range: -50 to 150°C
- Output voltage: -50 to 150mV

#### ● AC current measurement 9005 Clamp-on current transducer 9008 Clamp-on probe



- 9005 Clamp-on current transducer
- Range: 3/12/30/120/300A
  - Output voltage: DC 300mV F.S.
  - Range for use: 3/30/300A
  - 9008 Clamp-on probe
  - Range: 10/20/50/100/200/500A
  - Output voltage: AC 200mV F.S.
  - Range for use: 20/200A

#### ● AC current, voltage, and power measurements AC transducer (Example)

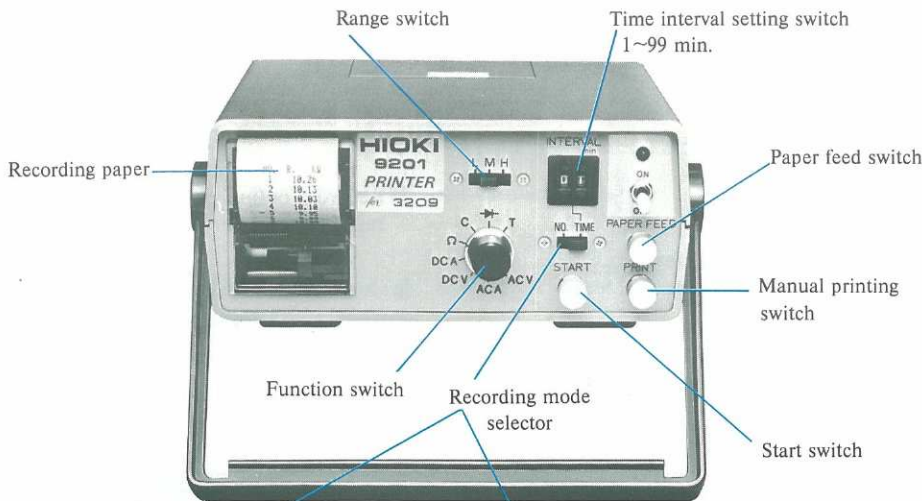


Power consumption measurement (single phase)  
 TD-W-1 Power Transducer  
 Rating: 110V, 5A, 500W  
 Output voltage: 500mV DC  
 One watt changes converted to 1mV output. Other transducers available for reactive power, power-factor, and frequency measurements. (Refer to individual specifications sheets for application.)



# Print-out of Measurement Data

# 9201 DIGITAL PRINTER



- Print-out includes elapsed-time and event number with data on the second line. Switch selectable.
- Elapsed-time is shown using the 24-hour clock. Print-out interval is selectable; 1 to 99 minutes.
- Event number counts to 100, then starts over from 1.
- Zero suppression eliminates the unnecessary 0s from the data print-out.
- At printer start-up, the recording mode, function, and data unit is printed.

### Specifications

**Printing system:** Electrical discharge recording

**Printing specifications:** 7×5 dot matrix

Size of letters: 2.7×1.3mm

Space Between Line: 3.55mm

**Recording paper:** 36mm wide and 10m long winding diameter 26.5φ capable of recording about 2800 lines

**Printing speed:** Approx. 1.2 line per second

**Life:** Approx 500,000 lines

**Operating temperature/humidity:**

0~40°C, less than 80% RH

**Storage temperature:** -10~50°C

**Power supply:** 120/220/240V AC (50/60Hz), available

**Power consumption:** Approx. 6W

**Dimensions/Weight:** 82H×177W×220D (mm); approx. 1.5kg

**Accessories:** Connector cable, 1 ea.

Cable w/plug connector, 1 ea.

9204 recording paper 5 rolls

**Accessory available:** 9204 recording paper 1 pack (5 pcs)

### TIME MODE

Recording Mode	Function	Unit
TIME	AC	V
00:00	92.5	
00:01	92.8	
00:02	92.8	
00:03	93.0	
00:04	92.7	
00:05	92.8	
00:06	93.4	

Elapsed time

Repeated cycle 00:00 to 23:59

### NO. MODE

Recording Mode	Function	Unit
NO.	R.	KΩ
1	11.8	21
2	11.9	62
3	12.3	65
4	12.9	97
5	13.5	98
6	14.0	63
7	14.3	32

Event number (advanced to one each time print switch depressed) Repeated cycle 1 to 100

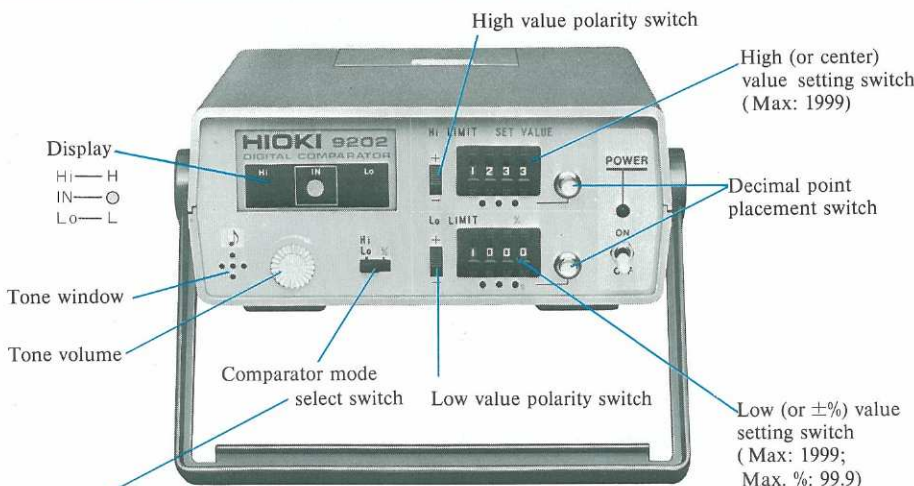
Printed at START

Mark at every 5

\*Only "-" printed for negative date. "Over" print-out indicates 3209 overrange.

# Go/No-Go Measurements

# 9202 DIGITAL COMPARATOR



- Two methods may be used to set comparator range; high-low and center value, with a ±% accuracy setting when center value used.
- Decimal points may also be used in the setting, making it compatible for use with autoranging systems with decimal displays such as the 3209. (Measurement unit not distinguished.)
- In addition to the Hi, IN, and Lo LED display, comparator results are also output by audible tone and relay operation signaling the 9201 Printer (when used) for print-out of out-of-range data.
- Manual switch terminal provided for manual operation at any point in the testing procedure.

### Specifications

**Setting range:** (1) Hi-Lo (-1999~ +1999)

(2) ±% of value setting (0~99.9)

**Relay rating:** 120V AC, 3A; 30V DC, 3A

**Comparator accuracy:** ±1 dgt. effective value of setting

**Operating temperature/humidity:**

0~40°C, less than 80% RH

**Storage temperature:** -10~50°C

**Power supply:** 120/220/240V AC (50/60Hz), available

**Power consumption:** Approx. 6W

**Dimensions/Weight:** 82H×177W×220D (mm); approx. 1.5kg

**Accessories:** Connector cable, 1 ea.;

Cable w/plug connector, 1 ea.

**Accessories available:** 9205 connector cable (used to connect the 3209, 9201 and 9202 together)

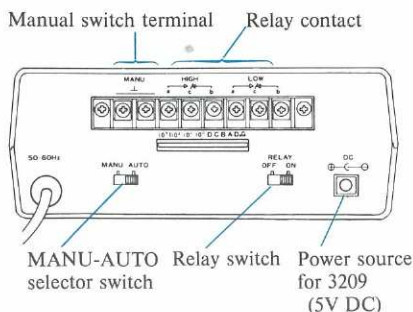
Hi Mode

Setting by upper and lower value

% Mode

Setting by center value and tolerance in %

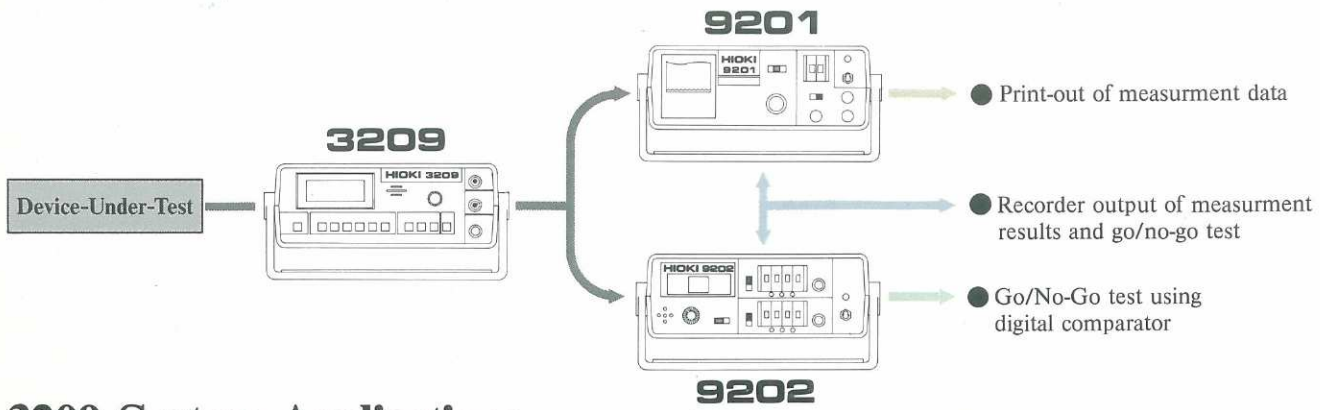
### Comparator results output



	-Over	Lower limit	Upper limit	+Over
LED display	Lo	IN	Hi	
Relay	Lo	ON	OFF	ON
Tone	Lo	ON	OFF	ON

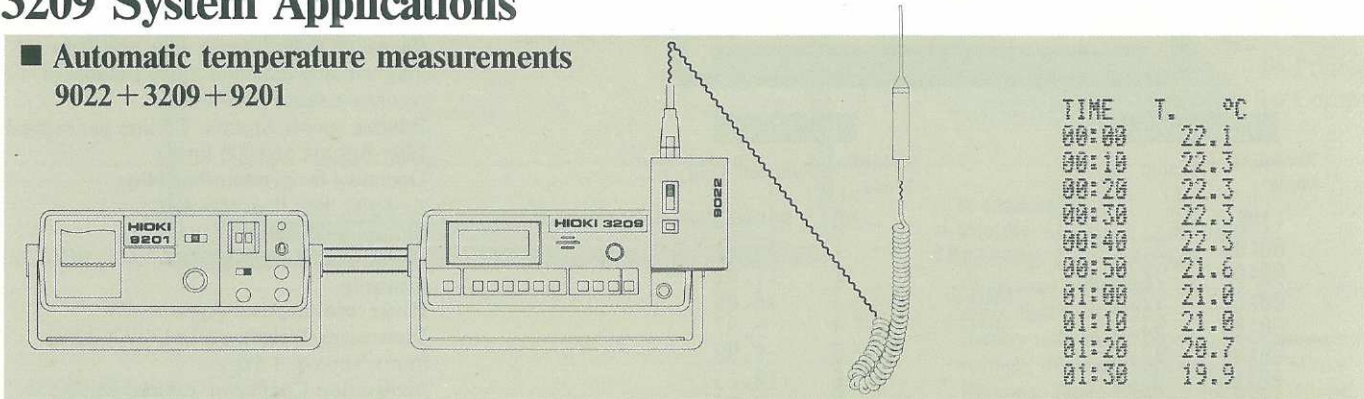


# The 3209 System (Three possible configurations)

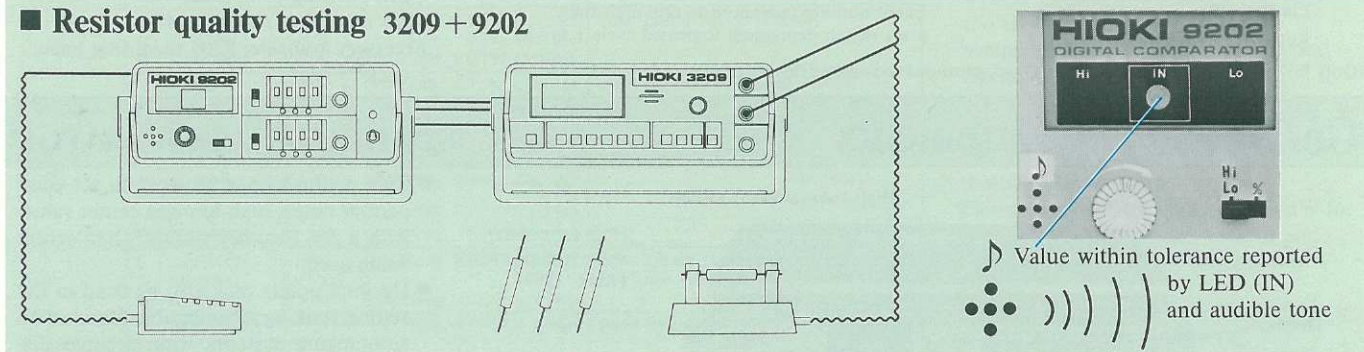


## 3209 System Applications

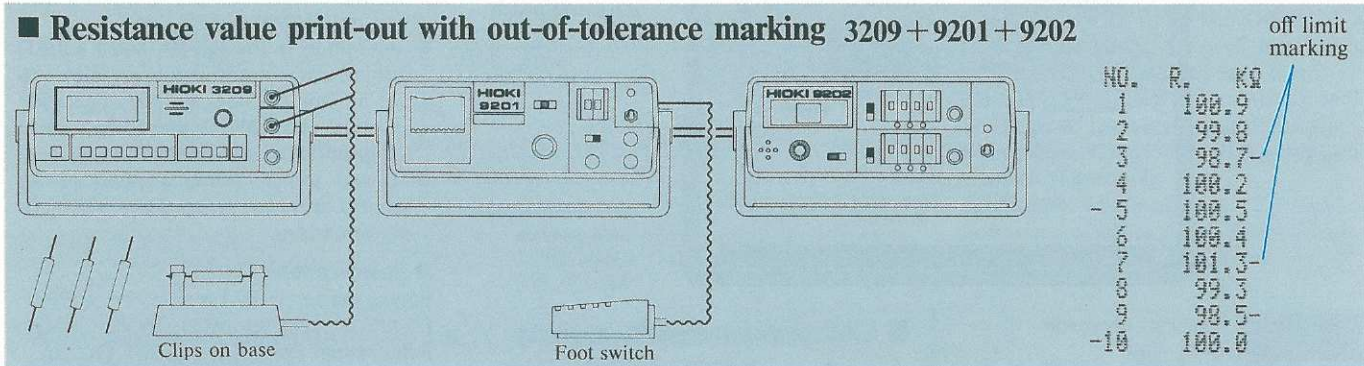
### ■ Automatic temperature measurements 9022 + 3209 + 9201



### ■ Resistor quality testing 3209 + 9202



### ■ Resistance value print-out with out-of-tolerance marking 3209 + 9201 + 9202



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