



RK TECHNOLOGIES

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RK-703S

Process Calibrator

✦ MEASURE + SOURCE | $\pm 0.2\%$ Accuracy | 4×AAA Battery / 5V Adapter
V / mA / TC / RTD / Resistance | 4–20 mA Loop | Programmable Output | HD LCD



PRODUCT OVERVIEW

The RK-703S is a compact, high-precision handheld process calibrator capable of simultaneously measuring and sourcing a wide range of process signals. It measures and outputs DC voltage, DC current (active & passive), thermocouple (K/E/J/T/R/B/S/N), resistance, and PT100 thermal resistance — all in a single portable instrument with an HD LCD display and silicone keypad.

Designed for commissioning, loop testing and field calibration of PLCs, process instruments and control valves, the RK-703S features a built-in 24 V loop power supply, passive current output for 2-wire transmitter simulation, cold-junction compensation (auto or manual) for TC measurement, and a powerful programmable output engine with linear sweep, automatic stepping and split (n/m) output modes.

Powered by 4 × AAA batteries or an external 5 V / 1 A adapter, it delivers 4 hours of full-load operation and up to 17 hours on standby. Accuracy is $\pm 0.2\%$ across all signal types.

KEY FEATURES

Signal Output (SOURCE)

- **DC Voltage:** 0–15 V / 0–30 V (max 30 mA)
- **DC Current:** 0–24 mA active | 4–20 mA steps
- **Passive Current:** 0–24 mA (2-wire transmitter sim.)
- **Loop Supply:** 24 V / 16 V internal (24 mA drive)
- **Thermocouple:** K / E / J / T / R / B / S / N
- **Resistance:** 15–400 Ω
- **Thermal Resistance:** PT100: –199 to 650°C

Signal Measurement

- **DC Voltage:** 0–24 mV | 0–100 mV | 0–30 V
- **DC Current:** 0–24 mA active & passive
- **Thermocouple:** K / E / J / T / R / B / S / N
- **Resistance:** 0–400 Ω
- **Thermal Resistance:** PT100: –199 to 650°C
- **Cold-Jn. Comp.:** Auto (RJA) or Manual (M)
- **Update Cycle:** 1 second

Programmable & Special

- **Split Output:** n/m ratio: output = set \times n/m
- **Linear Sweep:** Configurable ramp / sawtooth / square
- **Auto Stepping:** Step time 0–999 s, count 0–999
- **Range Scaling:** RL/RH/SL/SH — no manual conversion
- **Regulating Valve:** Simultaneous source + measure
- **Auto Power-Off:** 10-min idle (switchable)
- **Display:** HD LCD — dual measure + source



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MEASUREMENT & OUTPUT SPECIFICATIONS

Accuracy $\pm 0.2\%$ of reading | All ranges measure AND source unless noted

Signal Type	Range	Measuring / Output Range	Resolution	Remarks
DC VOLTAGE				
DC Voltage (mV)	20 mV	0.00 – 24.00 mV	0.01 mV	$\pm 0.2\%$
DC Voltage (mV)	100 mV	0.0 – 100.0 mV	0.1 mV	$\pm 0.2\%$
DC Voltage (V)	Output 0–15 V	0.00 – 15.00 V	0.01 V	Max output 30 mA
DC Voltage (V)	Output 0–30 V	0.00 – 30.00 V	0.01 V	Meas. input Z: 1.2 M Ω
DC CURRENT (ACTIVE)				
DC Current	0–24 mA	0.00 – 24.00 mA	0.01 mA	Max load 750 Ω Meas. Z: 100 Ω
DC Current	4–20 mA	4 / 8 / 12 / 16 / 20 mA	0.01 mA	Steps of 4 mA
PASSIVE CURRENT				
Passive Current	0–24 mA	0.00 – 24.00 mA	0.01 mA	Ext. supply 16–30 V required
24 V Loop Power	24 V	24 V / 16 V $\pm 10\%$	—	Drive 24 mA; 16 V in low-load mode
THERMOCOUPLE (TC)				
TC K	K	0 – 1372°C	1°C	$\pm 1\%$ Min. excitation 0.5 mA
TC E	E	0 – 1000°C	1°C	$\pm 1\%$
TC J	J	0 – 1200°C	1°C	$\pm 1\%$
TC T	T	0 – 400°C	1°C	$\pm 1\%$
TC R	R	0 – 1768°C	1°C	$\pm 1\%$
TC B	B	250 – 1820°C	1°C	$\pm 1\%$
TC S	S	0 – 1768°C	1°C	$\pm 1\%$
TC N	N	0 – 1300°C	1°C	$\pm 1\%$
RESISTANCE / THERMAL RESISTANCE				
Resistance (Output)	Ω	15.0 – 400.0 Ω	0.1 Ω	$\pm 0.2\%$ Min output 15 Ω
Resistance (Measure)	Ω	0.0 – 400.0 Ω	0.1 Ω	$\pm 0.2\%$
Thermal Resistance	PT100	-199.0 – 650.0°C	0.1°C	$\pm 0.2\%$



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GENERAL SPECIFICATIONS

Parameter	Specification
Operating Temp. / Humidity	-10°C to +55°C 20%–80% RH (non-condensing)
Storage Temperature	-20°C to +70°C
Power Supply	4 × AAA batteries OR external 5 V / 1 A DC adapter
Battery Life	Approx. 4 hours full-load Approx. 17 hours standby (4 × AAA, 1100 mAh each)
Power Consumption	Approx. 200 mA
Display	HD LCD — dual zone: Measurement value (top) + Source value (bottom), with units, mode & battery
Programmable Output	Split n/m Linear sweep (ramp / sawtooth / square) Auto stepping; TIME 0–999 s, COUNT 0–999
Auto Power-Off	10 minutes idle (switchable via dial)
Over-voltage / Reverse Protection	30 V
Dimensions	115 × 71 × 30 mm
Weight	143 g (without batteries)
Terminals	Black (Common) Yellow (Source output) Red (Measurement input)

TYPICAL APPLICATIONS

Loop Calibration	Sensor Simulation	Field Maintenance	Control & Automation
<ul style="list-style-type: none">4–20 mA loop testingTransmitter calibration2-wire & 3-wire transmitter checkHART device commissioning	<ul style="list-style-type: none">TC & RTD simulationTemperature controller testPLC / DCS input verificationAlarm setpoint checking	<ul style="list-style-type: none">Pressure transmitter cal.Flow / level transmitterControl valve positionerOn-site panel verification	<ul style="list-style-type: none">Regulating valve source + measureProgrammable ramp / step outputSplit ratio (n/m) outputContinuous loop monitoring

STANDARD PACKING LIST



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Item	Qty	Remarks
RK-703S Process Calibrator (main unit)	1 pc	
Test leads — Red, Black, Yellow (crocodile clip)	3 pcs	One each colour
AAA Batteries	4 pcs	Installed
User Manual	1 pc	English
Calibration Certificate	1 pc	

Contact RK Technologies for Pricing, Demo & Calibration Services

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