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PROCESS CALIBRATOR

ET1625

High Precision Multifunction

✶ **Accuracy: 0.01% | Built-in HART | Dual Channel**
V • mA • Ω • TC • RTD • Hz • Pulse • Switch • HART

0.01% Accuracy
High precision measurement & output

Dual Channel
Simultaneous measure & output, isolated

Built-in HART
Replaces HART hand communicator

5000mAh
Li-battery with DC24V loop supply

PRODUCT OVERVIEW

The ET1625 is a high-precision, hand-held multifunction process calibrator capable of simultaneously measuring and outputting voltage, current, resistance, thermocouple, thermal resistance, frequency, pulse, and switch values. With a built-in HART function, it completely replaces the HART Communicator. The ET1625 can substitute for current signal sources, voltage signal sources, resistance boxes, electronic potentiometers, frequency meters, and HART hand communicators. It is the ideal standard-grade industrial process detection instrument for field and laboratory use — suitable for chemical industry, military industry, and research institutes.

KEY FEATURES

- Measurement & output: Voltage, Current, Resistance, Frequency, Pulse, Switch Value
- Current output supports both active and passive modes
- Simulate thermal resistance (RTD) and thermocouple in temperature form
- Can simulate two-wire transmitter
- Resistance measurement: 2-wire, 3-wire, and 4-wire selectable
- Accuracy: 0.01%
- Two mutually isolated channels — synchronous measurement and output
- Manual step, automatic step, and ramp functions
- 3.5-inch TFT LCD — 480×320 resolution, color display

ADDITIONAL FEATURES

- 5000mAh lithium battery — long field operation
- Auto power-off with adjustable timer
- DC 24V loop power supply for field debugging
- TC cold junction compensation: built-in, external (A-grade Pt100), or manual
- Thermocouple types: R, S, K, E, J, T, N, B, L, U, XK, WRE325, WRE526
- RTD types: PT100-385/392/JIS, PT200, PT500, PT1000, Cu10/50/100, Ni20, BA1, BA2, PT10
- HART function: set/calibrate smart transmitter range, force output current, linear/square root, HART reset

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- Simultaneous display of measurement and output data

TECHNICAL SPECIFICATIONS — ET1625

OUTPUT SPECIFICATIONS

Parameter	Specification	Notes
Voltage Output — 100mV	Resolution: 0.1µV | Precision: 0.008%RD + 0.003%FS	Max load current ≤ 2.5mA
Voltage Output — 1V	Resolution: 1µV | Precision: 0.008%RD + 0.001%FS	
Voltage Output — 10V	Resolution: 10µV | Precision: 0.008%RD + 0.001%FS	
Current Output — 30mA (Active & Passive)	Resolution: 0.1µA | Precision: 0.008%RD + 0.003%FS	Active max load voltage: 20V
Frequency Output — 100Hz	Resolution: 0.001Hz | Precision: 0.01%FS	Max load current ≤ 2.5mA
Frequency Output — 1kHz	Resolution: 0.01Hz | Precision: 0.01%FS	
Frequency Output — 10kHz	Resolution: 10Hz | Precision: 0.01%FS	
Resistance Output — 50Ω	Resolution: 0.1mΩ | Precision: 0.008%RD + 30mΩ	Excitation current: 0.4–4mA
Resistance Output — 500Ω	Resolution: 1mΩ | Precision: 0.008%RD + 30mΩ	Excitation current: 0.1–2mA
Resistance Output — 5000Ω	Resolution: 10mΩ | Precision: 0.008%RD + 100mΩ	Excitation current: 0.04–0.4mA
Pulse Output	10Hz, 1kHz, 100kHz (1~100000 counts) | Accuracy: ±2dig	Max load current ≤ 2.5mA
Switch Output	100Hz / 1kHz / 10kHz / 100kHz | Accuracy: ±2dig	
24V Loop Output	24V ±10%FS	Loop power supply

MEASUREMENT SPECIFICATIONS

Parameter	Specification	Notes
Voltage — 200mV	Resolution: 0.1µV | Precision: 0.008%RD + 0.003%FS	
Voltage — 2V	Resolution: 1µV | Precision: 0.008%RD + 0.002%FS	
Voltage — 20V	Resolution: 10µV | Precision: 0.008%RD + 0.002%FS	
Voltage — 200V	Resolution: 0.1mV | Precision: 0.008%RD + 0.002%FS	
Current — 20mA	Resolution: 0.1µA | Precision: 0.008%RD + 0.003%FS	
Current — 200mA	Resolution: 1µA | Precision: 0.008%RD + 0.003%FS	

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Frequency — 100Hz	Resolution: 0.001Hz | Precision: 0.01%FS	
Frequency — 1kHz	Resolution: 0.01Hz | Precision: 0.01%FS	
Frequency — 10kHz	Resolution: 10Hz | Precision: 0.01%FS	
Resistance 4-Wire — 50Ω	Resolution: 0.1mΩ | Precision: 0.008%RD + 30mΩ	Excitation: 1mA
Resistance 4-Wire — 500Ω	Resolution: 1mΩ | Precision: 0.008%RD + 30mΩ	
Resistance 4-Wire — 5000Ω	Resolution: 10mΩ | Precision: 0.008%RD + 100mΩ	Excitation: 0.1mA
Resistance 3-Wire — 50Ω	Resolution: 0.1mΩ | Precision: 0.008%RD + 30mΩ	
Resistance 2-Wire — 50Ω	Resolution: 0.1mΩ | Precision: 0.008%RD + 80mΩ	
Switch Measurement	CLOSE / OPEN	Excitation: 1mA

THERMAL RESISTANCE (RTD) TABLE

Type	Temp Range	Resolution	Accuracy
PT10	−200 ~ 850°C	0.01°C	0.2°C
PT100-385	−200 ~ 850°C	0.01°C	0.1°C
PT100-392	−200 ~ 850°C	0.01°C	0.1°C
PT100-JIS	−200 ~ 850°C	0.01°C	0.1°C
PT200-385	−200 ~ 630°C	0.01°C	0.1°C
PT500-385	−200 ~ 630°C	0.01°C	0.2°C
PT1000-385	−200 ~ 650°C	0.01°C	0.1°C
Cu10	−100 ~ 260°C	0.01°C	0.5°C
Cu50	−50 ~ 150°C	0.01°C	0.2°C
Cu100	−50 ~ 150°C	0.01°C	0.2°C
Ni20	−80 ~ 260°C	0.01°C	0.3°C
BA1	−200 ~ 650°C	0.01°C	0.4°C
BA2	−200 ~ 650°C	0.01°C	0.25°C

Note: Four-wire measurement for all RTD types listed above.

THERMOCOUPLE (TC) TABLE

Type	Temperature Range	Resolution	Accuracy
K	−200~0°C / 0~1372°C	0.1°C	0.4°C / 0.3°C
R	−50~0°C / 0~1768°C	0.1°C	0.9°C / 0.7°C
S	−50~0°C / 0~1768°C	0.1°C	0.9°C / 0.6°C
E	−50~0°C / 0~1000°C	0.1°C	0.5°C / 0.4°C
J	−200~0°C / 0~1200°C	0.1°C	0.3°C / 0.2°C
T	−100~0°C / 0~400°C	0.1°C	0.6°C / 0.3°C

L	−200 ~ 900°C	0.1°C	0.2°C
N	−200~0°C / 0~1300°C	0.1°C	0.7°C / 0.5°C
B	600 ~ 1820°C	0.1°C	0.7°C
U	−200~0°C / 0~400°C	0.1°C	0.6°C / 0.4°C
XK	−200 ~ 800°C	0.1°C	0.5°C
WRE325	0 ~ 1500°C	0.1°C	0.6°C
WRE526	0 ~ 1500°C	0.1°C	0.6°C

Note: Accuracy does not include cold junction compensation accuracy. Built-in CJC accuracy: ±0.5°C. Internal temp probe error: ±0.2°C (ITS-90).

GENERAL SPECIFICATIONS

Parameter	Specification
Overall Accuracy	0.01%
Display	3.5-inch TFT LCD, 480×320 resolution, color
Channels	2 mutually isolated channels (simultaneous meas. & output)
Step Functions	Manual step / Automatic step / Ramp
HART Function	Built-in (ET1625H) — replaces HART hand communicator
Loop Power Supply	DC 24V ±10% FS
Battery	5000mAh Lithium battery
Auto Power Off	Yes — adjustable timer
TC Cold Junction Comp.	Built-in / External (A-grade Pt100) / Manual
Operating Environment	Temperature: 20°C ±2°C | Humidity: ≤80%RH
Power Supply	AC 220V ±10%, 50Hz ±2Hz (for calibration table)
Power Consumption	< 500W

Contact RK Technologies for Pricing, Demo & Calibration Services

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