Computer Controlled
High Precision Resistance Decade

Model 1427

Code:	1427 EN
Delivery:	4 weeks
Warranty:	24 months

- **Resistance range from 1.00000 Ω to 1.200000 MΩ**
- **Accuracy 0.005 %**
- **Temperature coefficient < 1 ppm/K**
- **Simulation of RTD (Pt, Ni) temperature sensors**
- **Simulation accuracy 0.02 °C**
- **2, 3, 4 wire connection**
- **USB/RS232 (IEEE488/Ethernet optionally)**

Application

In its function as temperature simulator the decade offers the choice of sensors like Pt100, Pt200, Pt500, Pt1000, Ni100 and Ni1000 in the range from -200 °C up to +850 °C. The temperature is entered via keyboard or data interface. The corresponding resistance appears at the output socket in two, three or four wire method.

Description

The resistance decade allows a direct choice of resistances between 1 Ω and 1.2 MΩ. Depending on the ohm value the resolution can be chosen up to 0.00001 Ω. The selected resistance can be picked up via two or four wire method.

The LCD display informs about chosen resistance or temperature, sensor type and control status.

burster praezisionsmesstechnik gmbh & co kg · Tel. +49-7224-6450 · Fax 64588
Talstr. 1-5 · DE-76593 Gernsbach · **www.burster.com** · **info@burster.com**

Technical Data

Resistance range:	1.00000 Ω ... 1.200000 MΩ
Resolution:	10 µΩ at 1 Ω
Temperature coefficient:	
< 1 ppm/°C (1 Ω ÷ 2000 Ω)	four wire port
< 1 ppm/°C (100 Ω ÷ 1.2 MΩ)	two wire port
< 5 ppm/°C (2 kΩ ÷ 10 kΩ)	four wire port
Operating voltage:	120 VDC / 50 V_{eff} AC
Total power dissipation:	0.3 W
Max. load:	0.3 W
Max. voltage:	50 V
Range Pt sensor temperature simulation:	- 200 °C ... + 850 °C
Range Ni sensor temperature simulation:	- 60 °C ... + 300 °C
Sensor models:	Pt100 ... Pt1000, Ni10 ... Ni10000
Temperature scales:	IPTS68, ITS90
Pt sensor standard:	DIN (1,385), US (1,392)
Ni sensor standard:	DIN 43760 (6180)
Connection:	2, 3, 4 wire
Remote control:	RS232, optionally IEEE488
Response time inremote:	6 ms
Temperature range:	
reference temperature	18 °C ... 28 °C
operating temperature	5 °C ... 40 °C
storage temperature	- 10 °C ... 50 °C
Supply:	100 - 240 V / 50 - 60 Hz
Dimensions [W x H x D]:	247 mm x 106 mm x 390 mm
Weight:	4.8 kg
Insulation resistance versus housing:	> 2 GΩ (for 500 VDC)

Error tolerance for 4 wire connection

Resistance Range	Error Tolerance
1 Ω ... 400 Ω	0.003 % + 3 mΩ
400 Ω ... 2000 Ω	0.005 %
2000 Ω ... 10000 Ω	0.015 %

Maximal thermoelectric voltage on output terminals is less then < 1 µV

Error tolerance for 2 wire connection

Resistance Range	Error Tolerance
1 Ω ... 2000 Ω	0.005 % + 10 mΩ
2 kΩ ... 200 kΩ	0.005 %
200 kΩ ... 1.2 MΩ	0.01 %

Maximal thermoelectric voltage on output terminals is less then 5 µV for resistances below 2 kΩ and less then 15 µV for resistances to 1.2 MΩ.

Error tolerance Pt sensor simulation

Temperature	Pt100	Pt200	Pt500	Pt1000	Pt10000
- 200 °C ... 200 °C	0.02 °C	0.02 °C	0.02 °C	0.04 °C	0.04 °C
200 °C ... 500 °C	0.03 °C	0.04 °C	0.06 °C	0.1 °C	0.06 °C
500 °C ... 850 °C	0.04 °C	0.06 °C	0.15 °C	0.2 °C	0.1 °C

Order Information

High precision resistance decade with RS232	**Model 1427-V100**
High precision resistance decade with IEEE488	**Model 1427-V200**
Mounting set for 19"- 3HE rack mounting	**Model 2316-Z001**
USB/RS232 converter	**Model 9900-K361**
Converter RS232 to Ethernet	**Model 9900-K453**

Option

Short/Open function	**Model 1427-Vxxx-001**

DAkkS Calibration Certificate

DAkkS Calibration Certificate for model 1427
Order Code 14DKD-1427