Modulare Resistance Decade System

Series 1440

Code:	1440 EN
Delivery:	ex stock
Warranty:	24 months

1440 EN

- **Ranges from 10 x 0.1 Ω up to 10 x 10 MΩ**
- **Moderate Price**
- **For various applications**
- **Single decade, divider or multi-step decade**
- **Built-in precision resistors**

Application

This new modular resistance decade system meets a variety of requirements, either in the laboratory, in the test field or in the calibration room. Whether a precision voltage divider or a series resistance adjustable in accurately known values is required - the system offered is the solution of the problem. The maximum adjustable resistance is higher than 100 megohm; the minimum resistance step is 100 milliohm.

Description

Many years of experience, proven technology and the use of proven materials, these factors form the basis of the modular resistance decade system of the 1440 series. The system consists of 9 single decades in the range of 10 x 0.1 Ω to 10 x 10 MΩ, 1 appropriate housing designed to accommodate a connection module and 9 decade modules respectively. Dummy modules serve to fill the empty space if not all decade modules are placed in the housing. An encapsulated switch and the decade resistors are cast in a plastic housing. Start and end of each decade as well as the root of the switch lead to plugs and terminal sockets respectively. Each individual decade module can thus be used either as an variable resistor or a voltage divider. The high-quality stepping switch, carefully fabricated precision resistors and proven technology warrant the desired high degree of reliability and stability.

Technical Data

Resistance range: 9 single decades from 10 x 0.1 Ω to 10 x MΩ

Accuracy: 0.05 % to 1 %, dependent on resistance value

Calibration: in Ohm absolute at 23 °C (73.4 °F)

Resistance material: MANGANIN® resp. ISAOHM, metal film at the 1 kΩ to the 10 MΩ decades

Temperature coefficient: ≤ 10 ppm/K, ≤ 15 ppm for 1 kΩ ...1 MΩ decades ≤ 50 ppm for 10 MΩ decades

Resistor structure: Chaperon winding, (0.1 Ω ... 100 Ω decade) therefore especially low inductivity

Long-term stability: < ± 0.02 % over years, < 0.3 %/year for 1 kΩ ...10 MΩ decades

Temperature operating range: 5 ... 23 °C ... 40 °C

Time constant: 1 ... 20 · 10^{-8}

Operating voltage: 650 V_{DC} maximum to case

Test voltage: 2 kV

Construction: according to EN 60477

Switching arrangement: short-circuiting between two neighboring contacts in the switching procress

Switch positions: 12, limited to 11 steps

Contact material: gold contacts of the self-cleaning type

Dimensions and weights: see table below

Order Information

Model	Steps	Accuracy [%]	Max. Load Current [mA]	R_o [mΩ]	W x H x D [mm]	Weight (approx) [g]
1441	10 x 10 MΩ	± 1	0.035	< 10	35 x 67 x 70	90
1442	10 x 1 MΩ	± 0.2	0.35	< 10	35 x 67 x 70	90
1443	10 x 100 kΩ	± 0.05	1.2	< 10	35 x 67 x 70	90
1444	10 x 10 kΩ	± 0.05	3.5	< 10	35 x 67 x 70	90
1445	10 x 1 kΩ	± 0.05	12	< 10	35 x 67 x 70	90
1446	10 x 100 Ω	± 0.05	35	< 10	35 x 67 x 70	90
1447	10 x 10 Ω	± 0.08	120	< 10	35 x 67 x 70	90
1448	10 x 1 Ω	± 0.5	350	< 10	35 x 67 x 70	90
1449	10 x 0.1 Ω	± 1	1200	< 10	35 x 67 x 70	90
1433	Housing for 9 Decades (price including of connection module)			< 80	361 x 70 x 90	1230
1435	Connection module (as a spare)				35 x 67 x 70	60
1437	Dummy module (to cover missing module)				35 x 67 x 70	50

14DKD-1441	DKD-Calibration Certificate	for model	1441
14DKD-1442	DKD-Calibration Certificate	for model	1442
14DKD-1440	DKD-Calibration Certificate	for models	1443 to 1449
14WKS-1440	Proprietary Calibration Certification	for models	1441 to 1449

Order Examples

Requirement	burster supplies
10 precision resistors of 0.05 class; values 100, 200, 300, 400, 500, 600, 700, 800 und 1000 Ω	1 resistance decade model 1446 with 10 x 100 Ω ± 0.05 %
Series resistance adjustable in accurately known values, 10 000 Ω; adjustable in 1000 Ω steps; accuracy ± 0.05 %	1 resistance decade model 1445 with 10 x 1000 Ω ± 0.05 %
Precision voltage divider with 100 kΩ series resistance; for settings at 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 kΩ	1 resistance decade model 1444 with 10 x 10 kΩ ± 0.05 %
3-step precision resistance decade with 10 x (1 + 10 + 100) Ω	1 resistance decade each of models 1448, 1447, 1446 1 housing 1433; 6 dummy module 1437
6-step precision resistance decade with 10 x (0.1 + 1 + 10 + 100 + 1000 + 10 000) Ω	1 resistance decade each of models 1444 to 1449 1 housing 1433 and 3 dummy modules 1437
9-step precision resistance decade with 10 x (0.1 + 1 + 10 + 100 + 1000 + 10 000 + 100 000 + 1 000 000 + 10 000 000) Ω	1 resistance decade each of models 1441 to 1449 1 housing 1433