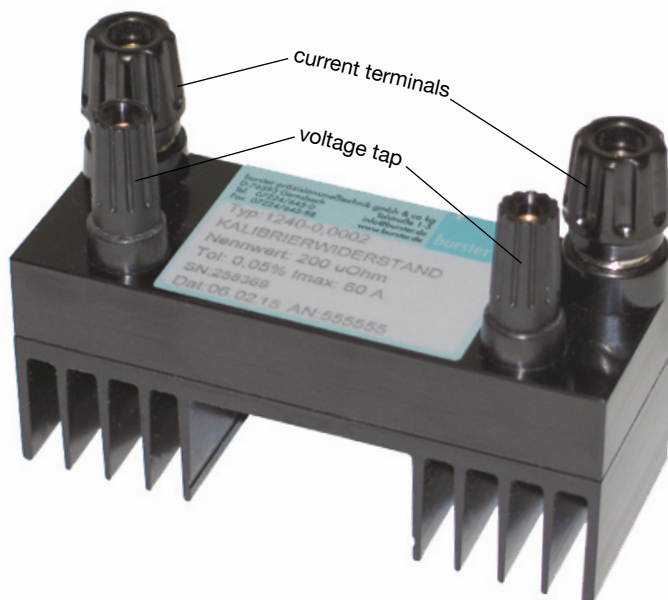


Calibration Resistor

Model 1240

Code:	1240 EN
Delivery:	ex stock
Warranty:	24 months

With Certificate
according to ISO 9000



1240 EN

- Range 10 $\mu\Omega$... 100 k Ω
- Low capacitance and low inductance design
- Suitable for direct current and technical frequencies
- High stability < ± 0.01 % over years

Application

The 0.02 class calibration resistors excel in their modern design and small mechanical dimensions. Their ruggedness also ensures a long life.

Calibration resistors of the 1240 series are used wherever very constant operating standards are required. Typical main areas of application therefore include:

- ▶ When normal resistors prove to be too large scale
- ▶ For test and calibration of resistance measurement devices
- ▶ For tests on electrical temperature measuring equipment
- ▶ For laboratory setup of a Wheatstone bridge
- ▶ As shunt resistor for accurate current measurement
- ▶ As part of standard equipment in research laboratories
- ▶ For a large part of measurements in calibration laboratory

A test certificate according to ISO 9000 with detailed technical data is included in the scope of delivery of these high-quality calibration resistors.

DAkKS Calibration Certificate

The calibration laboratory D-K-15141-01-00 at burster praezi-sionsmesstechnik is supervised by DAkKS (Deutsche Akkred-ierungsstelle GmbH) according to ISO 17025.

It can prove its status by a certificate and is authorized to issue calibration certificates with the DAkKS logo and with the DKD logo (Deutscher Kalibrierdienst).

These calibration certificates are internationally approved by multilateral contracts.

Manufacturer Calibration Certificate

Please refer to DAkKS Calibration Certificate but with reduced accuracy. The calibration resistors can also be delivered with a manufacturer calibration certificate. It confirms the trace-ability of the used secondary voltage and resistance stan-dards to the national standards according to DIN ISO 9000ff and is guaranteed by our certified calibration laboratory (D-K-15141-01-00).

Technical Data

Resistance material: 10 $\mu\Omega$... 100 m Ω MANGANIN® sheet
200 m Ω ... 100 k Ω MANGANIN® wire

Temperature coefficient: approx. ± 10 ppm/K

Temperature dependence: $R_t = R_{20} (1 + a_{20} (t - 20) + b (t - 20)^2)$
 $a_{20} = 0 \dots 20 \cdot 10^{-6}$
 $b = -0.59 \cdot 10^{-6}$

Calibration temperature: 23 °C ± 3 K (< 0.5 W load)

Surface temperature (T_{max}): max. 85 °C

Thermal resistance (R_{th}): 11 K/W

Operation temperature (T_u): 0 ... 23 ... 40 °C

Increase of temperature: $T_p = R_{\text{th}} \cdot I^2 \cdot (R + R_L)$

Surface temperature: $T_o = T_u + T_p$ ($T_{\text{max}} = 85$ °C)

Test voltage: 2900 VDC (resistance element housing)

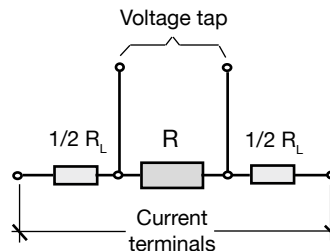
Nominal insulation voltage: 650 VDC (insulated mounting required)

Insulation resistance: > 100 M Ω

Specifications: according DIN EN 60477

Dimensions 100 $\mu\Omega$... 100 K Ω : (H x W x D) 97 x 38 x 61 [mm]
10 $\mu\Omega$, 25 $\mu\Omega$, 50 $\mu\Omega$: (H x W x D) 97 x 38 x 81 [mm]

Weight 100 $\mu\Omega$... 100 K Ω : 250 g
10 $\mu\Omega$, 25 $\mu\Omega$, 50 $\mu\Omega$: 400 g



Model	Resistance value* (R)	Tolerance \pm %	Feed line resistance R_L	Resistivity material	Max. current in air*	Nominal voltage at voltage taps	Storage stability typ./year	Meas. current for test certificate
1240-0.000010	10 $\mu\Omega$	1	≤ 0.6 m Ω	MANGANIN® sheet	60 A	0.6 mV	$< 4 \times 10^{-4}$	19 A
1240-0.000025	25 $\mu\Omega$	1	≤ 0.6 m Ω		60 A	1.5 mV	$< 4 \times 10^{-4}$	19 A
1240-0.000050	50 $\mu\Omega$	1	≤ 0.8 m Ω		60 A	3 mV	$< 4 \times 10^{-4}$	19 A
1240-0.0001	100 $\mu\Omega$	0.1	≤ 1.5 m Ω		60 A	6 mV	$< 4 \times 10^{-4}$	19 A
1240-0.0002	200 $\mu\Omega$	0.05	≤ 1.5 m Ω		60 A	12 mV	$< 4 \times 10^{-4}$	19 A
1240-0.0005	500 $\mu\Omega$	0.05	≤ 1.5 m Ω		60 A	30 mV	$< 4 \times 10^{-4}$	19 A
1240-0.001	1 m Ω	0.05	≤ 4 m Ω		30 A	30 mV	$< 5 \times 10^{-5}$	9 A
1240-0.002	2 m Ω	0.05	≤ 4 m Ω		30 A	60 mV	$< 5 \times 10^{-5}$	9 A
1240-0.005	5 m Ω	0.05	≤ 4 m Ω		20 A	100 mV	$< 5 \times 10^{-5}$	6 A
1240-0.01	10 m Ω	0.03	≤ 5 m Ω		14 A	140 mV	$< 5 \times 10^{-5}$	6 A
1240-0.02	20 m Ω	0.03	≤ 5 m Ω		10 A	200 mV	$< 5 \times 10^{-5}$	4 A
1240-0.05	50 m Ω	0.03	≤ 7 m Ω		6 A	300 mV	$< 5 \times 10^{-5}$	1.7 A
1240-0.1	100 m Ω	0.02	≤ 8 m Ω		5 A	500 mV	$< 3 \times 10^{-5}$	1 A
1240-0.2	200 m Ω	0.02	≤ 5 m Ω	MANGANIN® wire	3 A	600 mV	$< 2 \times 10^{-5}$	0.8 A
1240-0.5	500 m Ω	0.02	≤ 5 m Ω		2 A	1 V	$< 2 \times 10^{-5}$	119 mA
1240-1	1 Ω	0.02	≤ 5 m Ω		1.5 A	1.5 V	$< 1 \times 10^{-5}$	100 mA
1240-2	2 Ω	0.02			1 A	2 V	$< 2 \times 10^{-5}$	90 mA
1240-5	5 Ω	0.02			0.7 A	3.5 V	$< 2 \times 10^{-5}$	39 mA
1240-10	10 Ω	0.02			0.5 A	5 V	$< 1 \times 10^{-5}$	19 mA
1240-20	20 Ω	0.02			0.35 A	7 V	$< 2 \times 10^{-5}$	1.9 mA
1240-50	50 Ω	0.02			0.2 A	10 V	$< 2 \times 10^{-5}$	1.9 mA
1240-100	100 Ω	0.02			0.15 A	15 V	$< 1 \times 10^{-5}$	1.9 mA
1240-200	200 Ω	0.02			0.1 A	20 V	$< 2 \times 10^{-5}$	0.9 mA
1240-500	500 Ω	0.02			70 mA	35 V	$< 2 \times 10^{-5}$	1.9 mA
1240-1 k	1 k Ω	0.02			45 mA	45 V	$< 1 \times 10^{-5}$	1.9 mA
1240-2 k	2 k Ω	0.02			20 mA	40 V	$< 2 \times 10^{-5}$	0.9 mA
1240-5 k	5 k Ω	0.02			14 mA	70 V	$< 2 \times 10^{-5}$	0.1 mA
1240-10 k	10 k Ω	0.02			10 mA	100 V	$< 1 \times 10^{-5}$	0.1 mA
1240-20 k	20 k Ω	0.02			7 mA	140 V	$< 2 \times 10^{-5}$	0.09 mA
1240-50 k	50 k Ω	0.02			4 mA	200 V	$< 3 \times 10^{-5}$	0.03 mA
1240-100 k	100 k Ω	0.02			3 mA	300 V	$< 3 \times 10^{-5}$	0.01 mA

* All resistors are including test certificate.
Intermediate values are possible at extra charge.

** Under load the resistance due to heating can be outside the specified tolerance.

Adapter model 2394

for the check-up and calibration of our resistance measurement devices model 2304 and model 2316-V000X

Order Information

Calibration Resistor 100 m Ω Order code 1240-0.1
DAkS Calibration Certificate Order code 12DKD-1240
Manufacturer Calibration Certificate Order code 12WKS-1240

