

Electrical safety: Norm IEC/EN 61010-1, 150 V Cat. II - Pol. 2

Protection index: IP40 following EN 60529

Environmental specification:

- Climatic category: normal (N)
- Operating temperature: -10°C to +55°C
- Storage temperature: -40°C to +70°C
- Relative humidity: 20 to 96 % RH, non-condensing

Resistance boxes

Individual resistance boxes

Box	Model
$\Omega \times 0,1$	P03.1975.21A
$\Omega \times 1$	P03.1975.22A
$\Omega \times 10$	P03.1975.23A
$\Omega \times 100$	P03.1975.24A
$\Omega \times 1000$	P03.1975.25A
$k\Omega \times 10$	P03.1975.26A
$k\Omega \times 100$	P03.1975.27A
$M\Omega \times 1$	P03.1975.28A

4, 5, 6, and 7-decade resistance boxes

Box	Model
BR04	P01.1974.01
BR05	P01.1974.02
BR06	P01.1974.03
BR07	P01.1974.04

Switch with 7 ratios

Model	Model
	P03.1975.31A

Capacitance boxes

Individual capacitance boxes

Box	Model
1 $\mu\text{F} \times 10$	P03.1996.11A
0.1 $\mu\text{F} \times 10$	P03.1996.12A
0.01 $\mu\text{F} \times 10$	P03.1996.13A

5-decade capacitance box

Box	Model
BC05	P01.1974.21

Inductance boxes

7-decade inductance box

Box	Model
BL07	P01.1974.51

Zero galvanometer

Model	Model
	P03.1976.11A

Dual switch box

Model	Model
	P03.1975.29A

Simple inverter box

Model	Model
	P03.1975.30A

Safety lead IEC/EN 61010-2-031

Model	Model
	P01.2950.56

Length 25 cm with 2 safety plugs
Ø 4 mm with rear connection.

NB: each box is supplied with a lead IEC/EN 61010-2-031

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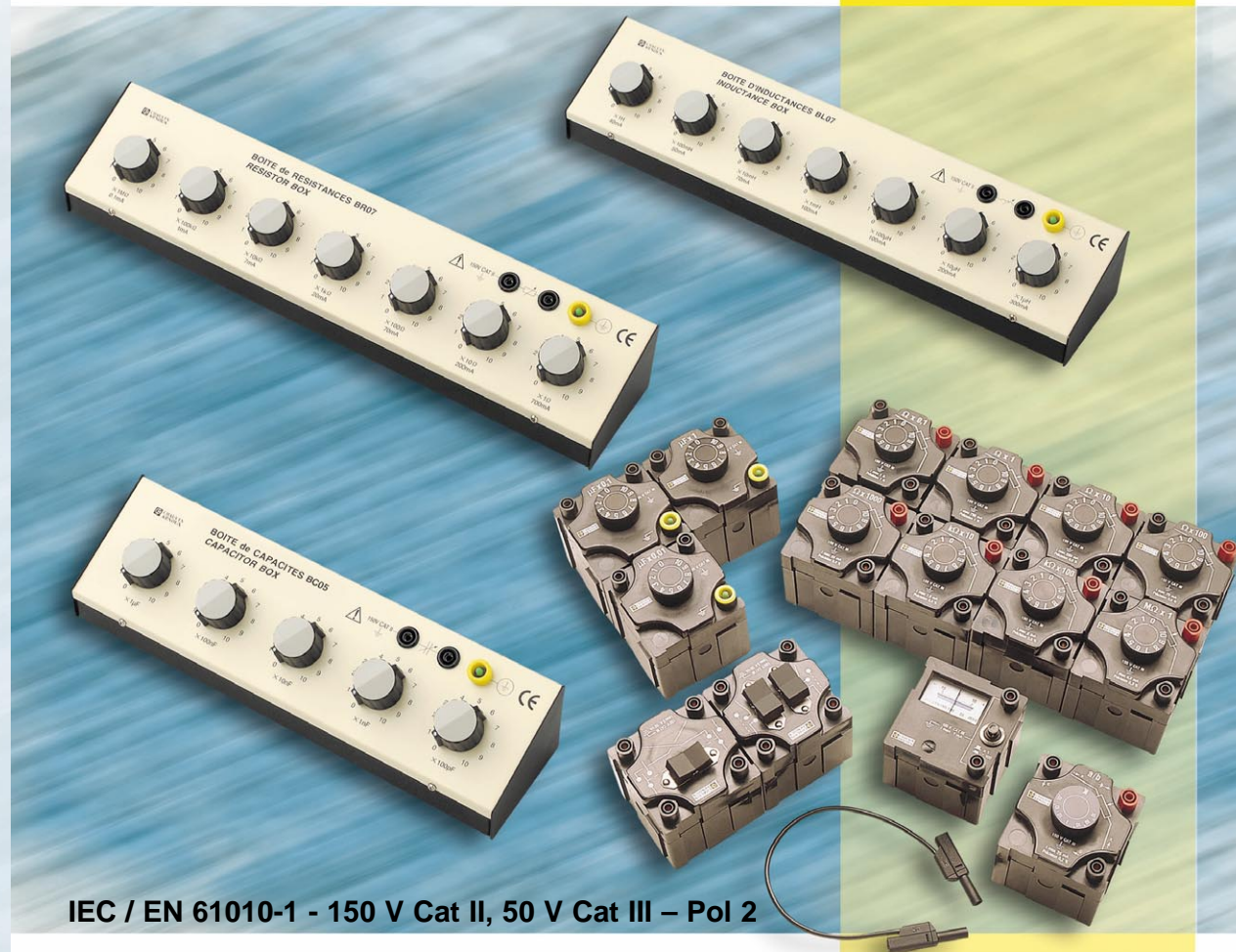
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Resistance, capacitance and inductance,...

for educational and general purpose use

Decade boxes



IEC / EN 61010-1 - 150 V Cat II, 50 V Cat III – Pol 2

**Modular boxes for simulation or substitution
in general industrial laboratory, R&D, maintenance,
and educational use**

- Selection by rotary switch with guilt contacts (stators giving a clear indication of the dial setting)
- Stop position to prevent accidental switching from 10 to 1
- Male earth terminal with safety blank
- Outputs on Ø 4 mm safety terminals
- Link leads IEC/EN 61010-2-031

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Resistance boxes

Individual resistance boxes

8 individual boxes with 11-position switch (0 = short circuit)
3 safety terminals Ø 4 mm per box

Box	Range	I max.	Accuracy	Model
$\Omega \times 0,1$	0.1 to 1 Ω	1 A	1 % \pm 5 m Ω	P03.1975.21A
$\Omega \times 1$	1 to 10 Ω	750 mA	1 % \pm 5 m Ω	P03.1975.22A
$\Omega \times 10$	10 to 100 Ω	250 mA	0.5 %	P03.1975.23A
$\Omega \times 100$	100 to 1000 Ω	75 mA	0.5 %	P03.1975.24A
$\Omega \times 1000$	1 to 10 k Ω	25 mA	0.5 %	P03.1975.25A
k $\Omega \times 10$	10 to 100 k Ω	7.5 mA	0.5 %	P03.1975.26A
k $\Omega \times 100$	100 to 1000 k Ω	2 mA	0.5 %	P03.1975.27A
M $\Omega \times 1$	1 to 10 M Ω	0.2 mA	0.5 %	P03.1975.28A

- Temperature coefficient:
 \pm 50 ppm for the ranges > 1 Ω , \pm 100 ppm for the 1 Ω range and \pm 25 ppm for the 0.1 Ω range

- Residual resistor:
15 m $\Omega \pm$ 5 m Ω suppressed from the first value
- Dimensions: 72 x 72 x 90 mm - Weight: 220 g

4, 5, 6 and 7-decade resistance boxes

Resistance in desk-type box
Connection: safety terminals Ø 4 mm

Front panel and metallic box connected to a safety earth socket with failsafe system

BR04

Model: P01.1974.01

Decade	Range	I max.
1	1 Ω to 10 Ω	700 mA
2	10 Ω to 100 Ω	200 mA
3	100 Ω to 1 k Ω	70 mA
4	1 k Ω to 10 k Ω	20 mA

- Resistance range: 11.11 k Ω
- Accuracy: 1 %
- Dimensions: 310 x 90 x 80 mm - Weight: 1 kg

BR05

Model: P01.1974.02

Decade	Range	I max.
1	1 Ω to 10 Ω	700 mA
2	10 Ω to 100 Ω	200 mA
3	100 Ω to 1 k Ω	70 mA
4	1 k Ω to 10 k Ω	20 mA
5	10 k Ω to 100 k Ω	7 mA

- Resistance range: 111.11 k Ω
- Accuracy: 1 %
- Dimensions: 310 x 90 x 80 mm - Weight: 1 kg

BR06

Model: P01.1974.03

Decade	Range	I max.
1	1 Ω to 10 Ω	700 mA
2	10 Ω to 100 Ω	200 mA
3	100 Ω to 1 k Ω	70 mA
4	1 k Ω to 10 k Ω	20 mA
5	10 k Ω to 100 k Ω	7 mA
6	100 k Ω to 1 M Ω	1 mA

- Resistance range: 1.11111 k Ω
- Accuracy: 1 %
- Dimensions: 410 x 90 x 80 mm - Weight: 1.4 kg

BR07

Model: P01.1974.04

Decade	Range	I max.
1	1 Ω to 10 Ω	700 mA
2	10 Ω to 100 Ω	200 mA
3	100 Ω to 1 k Ω	70 mA
4	1 k Ω to 10 k Ω	20 mA
5	10 k Ω to 100 k Ω	7 mA
6	100 k Ω to 1 M Ω	1 mA
7	1 M Ω to 10 M Ω	0,1 mA

- Resistance range: 11.11111 k Ω
- Accuracy: 1 %
- Dimensions: 410 x 90 x 80 mm - Weight: 1.4 kg

Inductance Box

7-decade inductance box

Inductance custom wound ferrite core, ensure a high 'Q' factor, typical 55 to 100.
The voltage applied depends largely on the frequency of use. The voltage must be limited

Decade	Max. range	I DC Q	Meas. factor	Max. frequency	Resistance	Accuracy
1	1 μ H to 10 μ H	300 mA	120	1.2 MHz	2 Ω	5%
2	10 μ H to 100 μ H	200 mA	140	500 kHz	5 Ω	5%
3	100 μ H to 1 mH	100 mA	80	150 kHz	13 Ω	5%
4	1 mH to 10 mH	100 mA	150	50 kHz	34 Ω	5%
5	10 mH to 100 mH	70 mA	65	10 kHz	55 Ω	5%
6	100 mH to 1 H	50 mA	100	10 kHz	220 Ω	5%
7	1 H to 10 H	40 mA	50	10 kHz	1500 Ω	10%

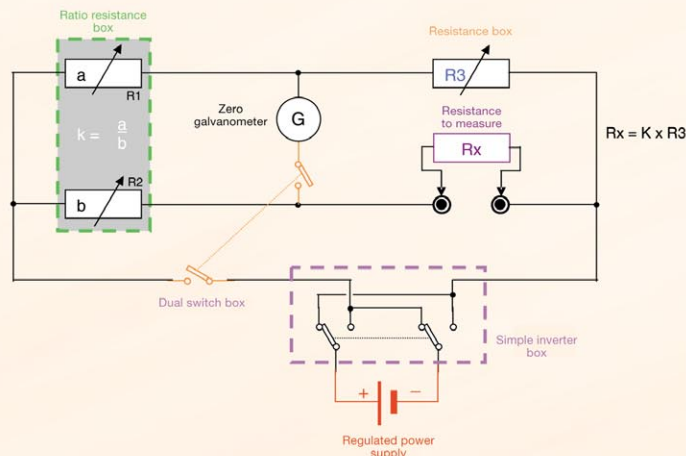
- Dimensions: 410 x 90 x 80 mm - Weight: 1.4 kg

BL07

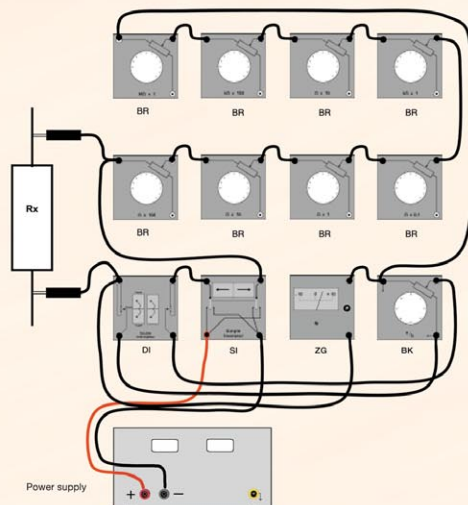
Model: P01.1974.51

to prevent saturation of the core and overheating.
Connection: safety terminals Ø 4 mm
Front panel and metallic box connected to a safety earth socket with failsafe system.

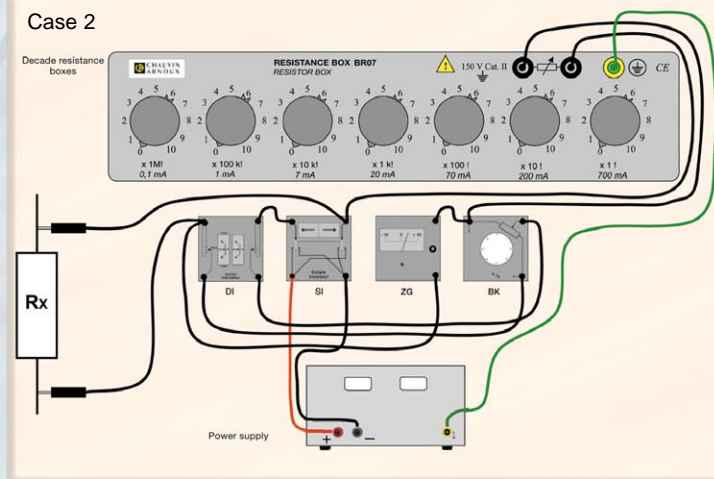
Wheatstone Bridge: theoretical diagram



Case 1



Case 2



BR Resistance box
DI Dual switch box
SI Simple inverter box

ZG Zero galvanometer
BK Ratio resistance box

K ratio resistance box

Switch with 7 ratios

- K = 1/1000 - 1/100 - 1/10 - 1 - 10 - 100 - 1000
- Accuracy: \pm 0.2 %
- Temperature coefficient: \pm 10 ppm

Model: P03.1975.31A

- 3 safety terminals Ø 4 mm
- Dimensions: 72 x 72 x 90 mm - Weight: 220 g

I max.	25 mA	75 mA	250 mA	750 mA
K	1	10	100	1000

Capacitance boxes

Individual capacitance boxes

3 individual boxes with 11-position switch (including 0)
2 safety terminals Ø 4 mm and 1 earth terminal

Box	Range	Loss angle	Accuracy
1 μ F x 10	1 to 10 μ F	< 10 ⁻²	P03.1996.11A
0,1 μ F x 10	0,1 to 1 μ F	< 10 ⁻²	P03.1996.12A
0,01 μ F x 10	0,01 to 1 μ F	< 10 ⁻²	P03.1996.13A

- Dimensions: 72 x 72 x 90 mm
- Weight: 220 g

- Accuracy: 2 %

5-decade capacitance box

Capacitor polystyrene and polypropylene, high accuracy temperature coefficient 125 ppm/ $^{\circ}$ C and high insulated

Connection: safety terminals Ø 4 mm

Front panel and metallic box connected to a safety earth socket with failsafe system.

BC05

Model: P01.1974.21

Decade	Range
1	0,1 nF to 1 nF
2	1 nF to 10 nF
3	10 nF to 100 nF
4	100 nF to 1 μ F
5	1 μ F to 10 μ F

- Capacitance range: 11.111 μ F
- Residual capacitance: typical 20 pF
- Accuracy: \pm 1 % (low residual capacitance)
- Max. operating voltage: 300 V DC, 230 V AC (50 Hz)
- Dimensions: 310 x 90 x 80 mm - Weight: 1 kg

Zero galvanometer

- Equipment with taut ribbon suspension
- Dial with anti-parallax mirror
• Scale length: 20 mm
• 10 divisions both sides of zero
- 2 ranges with press button:
• Rest (x1): \pm 1 mA i.e 100 μ A/div
• Work (x100): \pm 10 μ A i.e 1 μ A/div

Model: P03.1976.11A

- 2 safety terminals Ø 4 mm
• I max.: 1 mA
• Internal resistance: 180 Ω (dual range)
• Accuracy: \pm 2.5% of the scale range
• Dimensions: 72 x 72 x 63 mm - Weight: 220 g

Dual switch box

- 2 switches with 3 positions: open - closed - fugitive (button)

Model: P03.1975.29A

- 4 safety terminals Ø 4 mm
• P max.: 50 VA - I max.: 5 A - U max.: 250 V
• Dimensions: 72 x 72 x 63 mm - Weight: 220 g

Simple inverter box

- 1 bipolar inverter with 3 positions: open - closed - inverted

Model: P03.1975.30A

- 4 safety terminals Ø 4 mm
• P max.: 50 V A - I max.: 5 A - U max.: 250 V
• Dimensions: 72 x 72 x 63 mm - Weight: 220 g