

The maximum guaranteed holding current is 5 A at 20 °C and 4.15 A at +40 °C. Continuous measurements > 5 A are therefore not possible. At 20 °C and 10 A the unit interrupts the measurement within about 30 seconds, at 20 A within about 4 - 12 seconds. The maximum voltage is 30Vrms. The short-term maximum current is 100 A.

#### Technical data:

Mechanism:	Servomotor measuring device
Internal resistance:	R = 100 kOhm/V (also see detailed description)
Accuracy:	Class 2 and 3 (also see detailed description)
Orientation during use:	any (vertical or horizontal)
Working temperature:	Room temperature
Display:	26-mm digits 4 dual-scale inserts
Measurement inputs:	4-mm safety jacks
Fuses:	internal, electronic overload protection
Voltage supply:	4 pcs 1.5 V AA cells or external with 6 V AC adapter (see accessories) 5.5 / 2.5 mm DC socket: for external power supply
Housing:	Plastic, ABS
Dimensions:	approx. 268 x 92 x 226 mm
Mass (with scales):	approx. 1857 g

Take care that the device does not fall.

In the event that this does occur, have the device examined or repaired by authorized service personnel.

Do not subject the device to dripping or sprayed water.

This device may only be operated by qualified personnel or by persons they instruct in its use.



Fruhmann GmbH,  
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DE712-02

Universal multimeter "inno"



#### Short guide / brief description

This demo multimeter 02 'inno' (magnetic) is an analogue measuring device with a servomotor for current and voltage measurement. The novel, servo-powered measuring element is rugged, offers exceptional accuracy and means the device can be used vertically at the table, fixed magnetically to metal panels or mounted horizontally on an overhead projector.

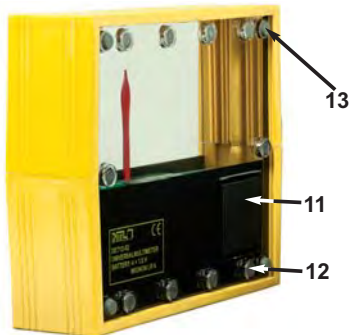
The device is supplied with 4 separate slot-in scales and a digital measurement range display. The large scale with an arch length of approx. 200 mm, the wide, brightly coloured pointer and the 26 mm digits make it easy to read off the measured values even from some distance away.

The inconvenient and time-consuming replacement of thermal fuses is avoided by an internal electronic overload protection.

The built-in amplifier means that the instrument can also be used as a sensitive galvanometer (measurement range 1 mV-) with the pointer zeroed at the centre position.



- 1 4 dual-scale inserts:  
1/3, 10/30, 100/300  
and 5/15 (pointer centred)
- 2 Control knob for  
pointer fine adjustment
- 3 LEDs for displaying overload
- 4 Socket for 6 V AC  
power adapter
- 5 Step switch: OFF, AC, DC,  
pointer centred, battery check
- 6 Input: V/A (positive)
- 7 Input: 10-A-operation
- 8 Input: COM (all ranges)
- 9 Step switch:  
measurement range selection
- 10 LED-display for current /  
voltage type



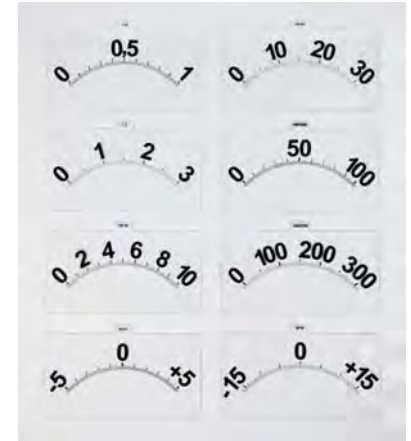
- Reverse side:
- 11 Battery compartment  
for 4 x 1.5 V AA cells
  - 12 10 mounting magnets for fixing  
to metal panels
  - 13 4 pcs rubber bumpers to  
improve mounting and avoid  
damage to metal panel surfaces

### Recommended accessory:

P3120-6N 6 V / 500 mA power adapter  
as an external power supply



DE712-1P Interchangeable scales, transparent,  
set of 8 pcs of slot-in scales, transparent,  
acrylic glass, for universal multimeter 'inno'  
DE712-02, ranges:  
0 ... 1, 0 ... 3, 0 ... 10, 0 ... 30, 0 ... 100,  
0 ... 300, -5 ... +5, -15 ... +15



### Operation:

The multimeter is switched on with the step switch (5) and the measurement type is then selected.

The measurement range to use is selected using the step switch (9). The power component selected and the measurement range are shown in the display window (10).

The scale corresponding to the measurement range is inserted into the front slot. Measurements may be taken within the following ranges:

- DC (direct voltages) from 1 mV to 30 V
- AC (alternating voltages) from 1 V to 30 V
- Direct and alternating currents from 100  $\mu$ A to 10 A

If necessary, the control knob for fine adjustment of the pointer (2) is used to set the zero point precisely.

The multimeter is connected to the circuit with 4 mm cables. Typically, the 'V/A' (6) and 'COM' (8) inputs are used. Inputs '10 A' (7) and 'COM' (8) are used only when measuring currents of 3 to 10 A.

The instrument is battery-powered (4 x 1.5 V AA cells) and switches off automatically after about 60 minutes.