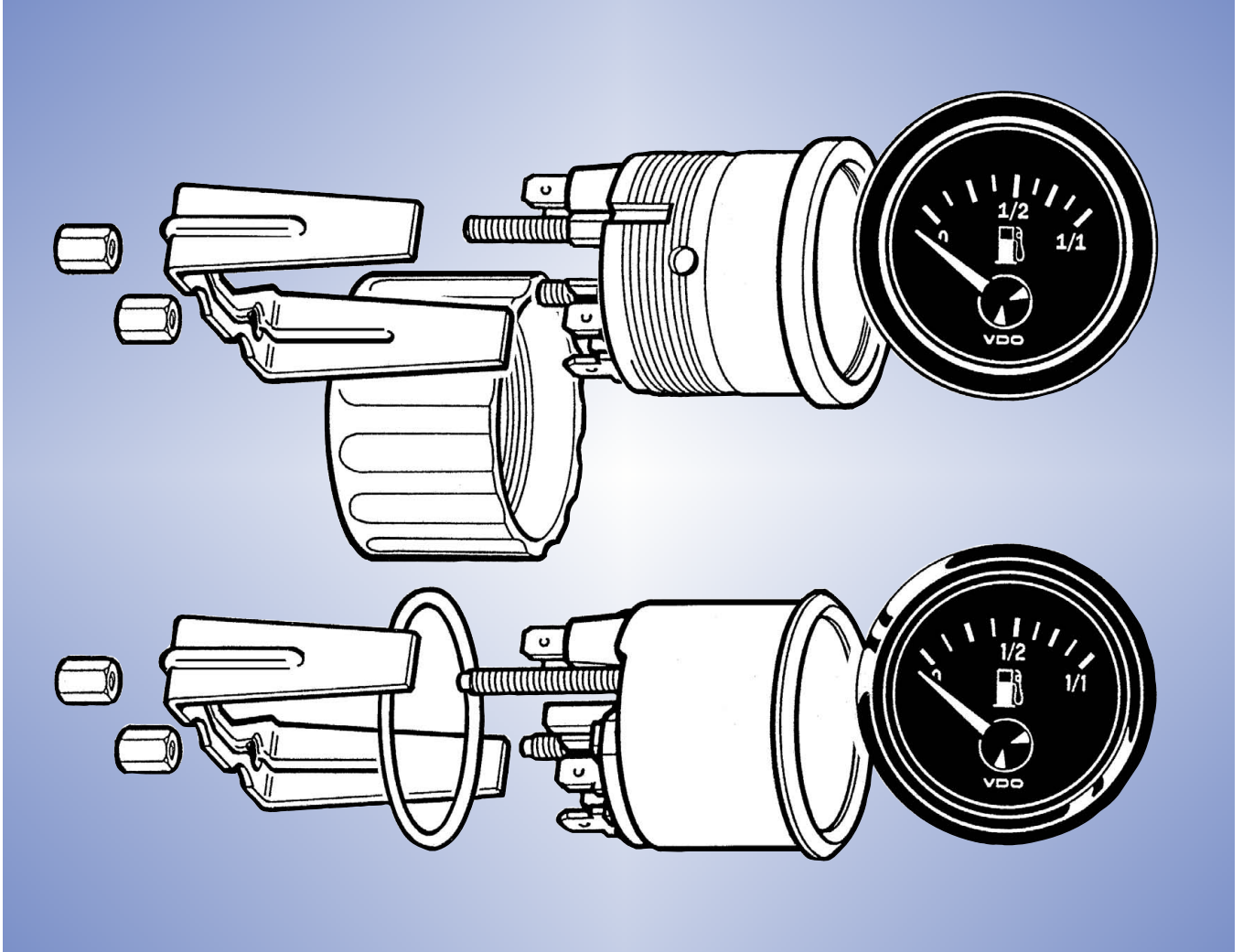


VDO cockpit vision / international

Instruments



www.siemensvdo.com

Technical Product Manual

Technical Product Manual

VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

Contents	Page
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11.2 Technical data	11 - 5
11.3 Wiring diagram	11 - 9
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Installation instructions

Type A:

999-161-015: VDO cockpit vision

999-161-007: VDO cockpit international

Type B (150 Ampere):

—

See file 'Installation Instructions (MA)'.

Technical Product Manual

VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.1 General Informations

The ammeter has been designed for land-bound vehicles only (with the exception of motorcycles).

The instrument has an analog display indicating the vehicle DC current in Ampere.

There are two versions:

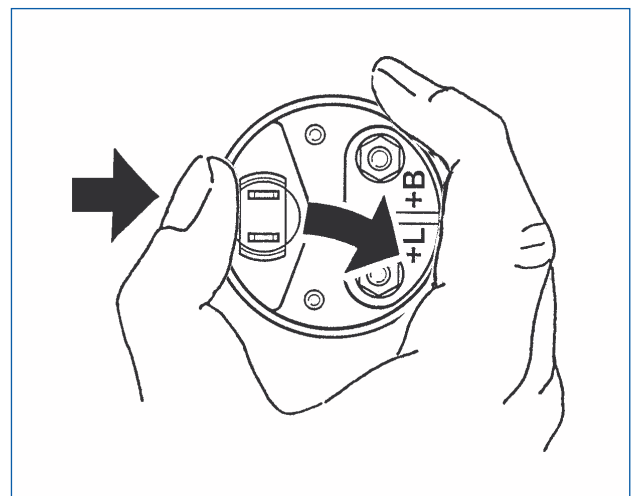
type A: indicating instrument for 30 Ampere, 60 Ampere or 100 Ampere.

type B: indicating instrument for 150 Ampere (accessories: shunt and wiring kit).

Illumination type A

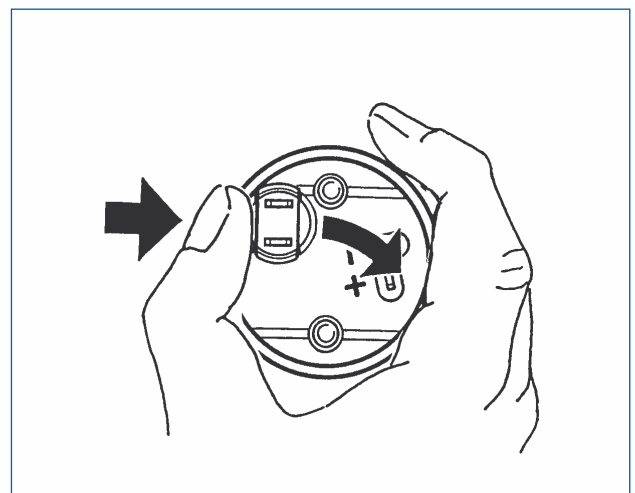


The lamp socket is clipped in.
To replace the light bulb, carefully, with the thumb, push the lamp holder out to the side.



Illumination type B

The lamp socket is pushed in.
To replace the light bulb simple pull the lamp holder out.



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VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.1 General Informations

Designation of function for type A

The ammeter monitors charging and discharging currents in the on-board network.

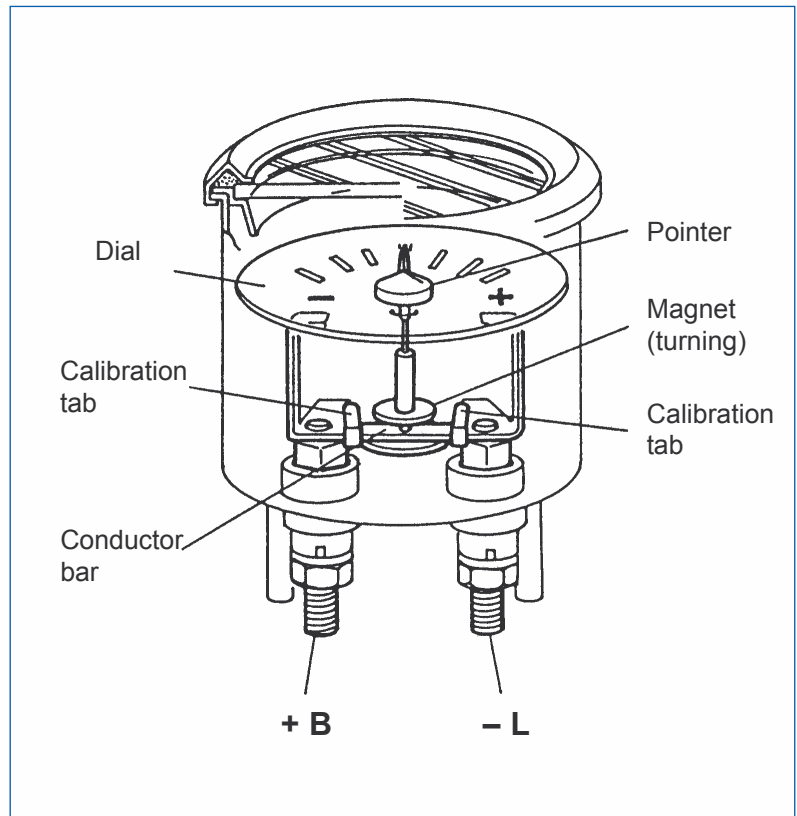
For this function the ammeter is connected to the circuit so that charging currents and the load of all consumers, except the starter motor, must pass through the ammeter.

A rotating magnet disk is placed on top of the current-carrying bar. This disk is connected to a pointer, and turns as a function of the magnitude and direction of the current and the resulting magnetic field.

In static condition the pointer points to zero in the center of the graduation, the poles of the magnetic disk being directed to two neighboring calibration tags.

When the charging current increases, it produces a corresponding magnetic field around the conductor, which deflects the pointer from its zero position into the positive range. A discharge changes the direction of the current and of the resulting magnetic field. The inverse magnetic force deflects the magnetic disk with its pointer into the negative range.

The ammeter can be adjusted for different measuring ranges by adjustment of the calibration tags. A thicker current bar is used for measuring ranges of ± 50 A and more.



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VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.1 General Informations

Designation of function for type B

Movement: System Ke (to 320°)

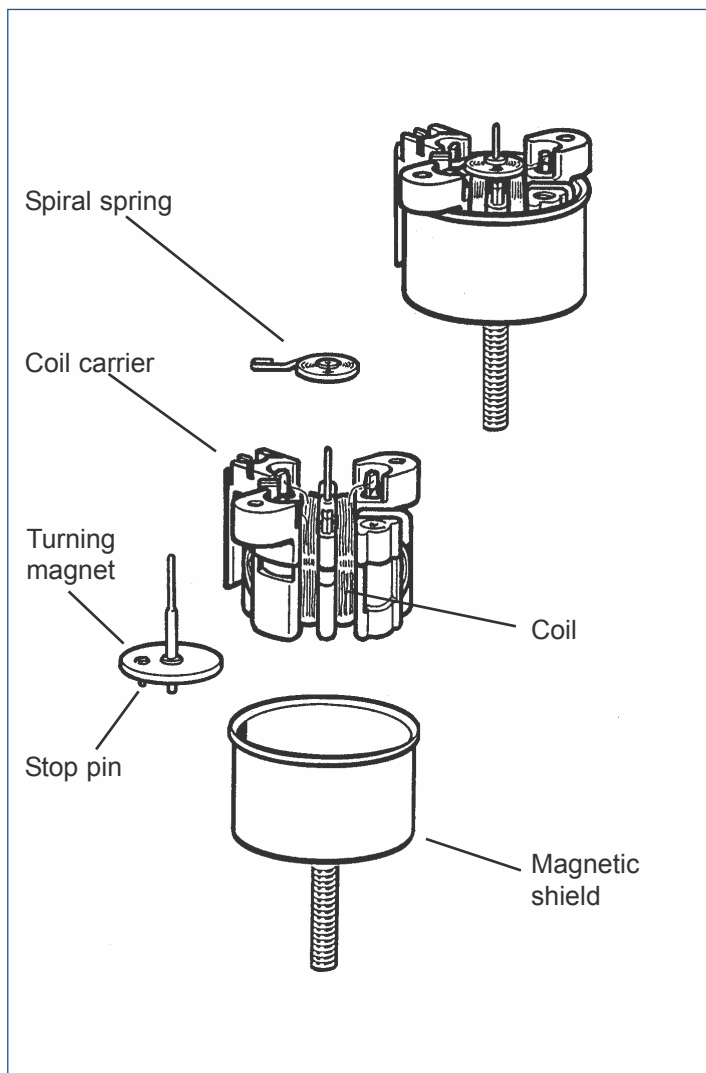
(Turning magnet ratio measuring movement, pointer deflection up to 320°)

The ammeter monitors charging and discharging currents in the on-board network.

A turning magnet ratio measuring movement is the main component of the ammeter. It converts the current pulses from the shunt to an analog display on a dial. An electronic circuit converts varying current pulses to unified pulses, which are fed to the turning magnet movement. The turning magnet ratio measuring movement applies the principle of the current ratio of two separate coils. Two stationary coils generate a magnetic field as a function of the current flowing through them. The magnetic field resulting from these two fields moves a two-pole magnet disk carrying a pointer. The pointer deflection is a function of the ratio of the two currents flowing through the coils.

A shielding casing prevents the effect of external magnetic fields.

The special electronic system controlling the movement permits a pointer deflection of 320°. The rotation is limited by a pin on the turning magnet moving in a groove of the coil carrier; the opposing force is generated by a spiral spring.



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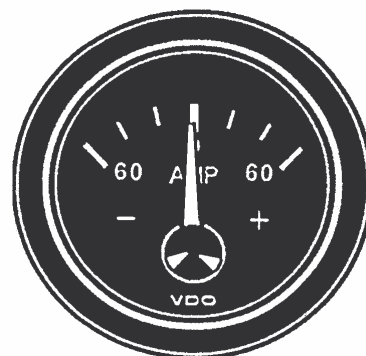
11. Ammeter (dia. 52 mm)

11.2 Technical Data

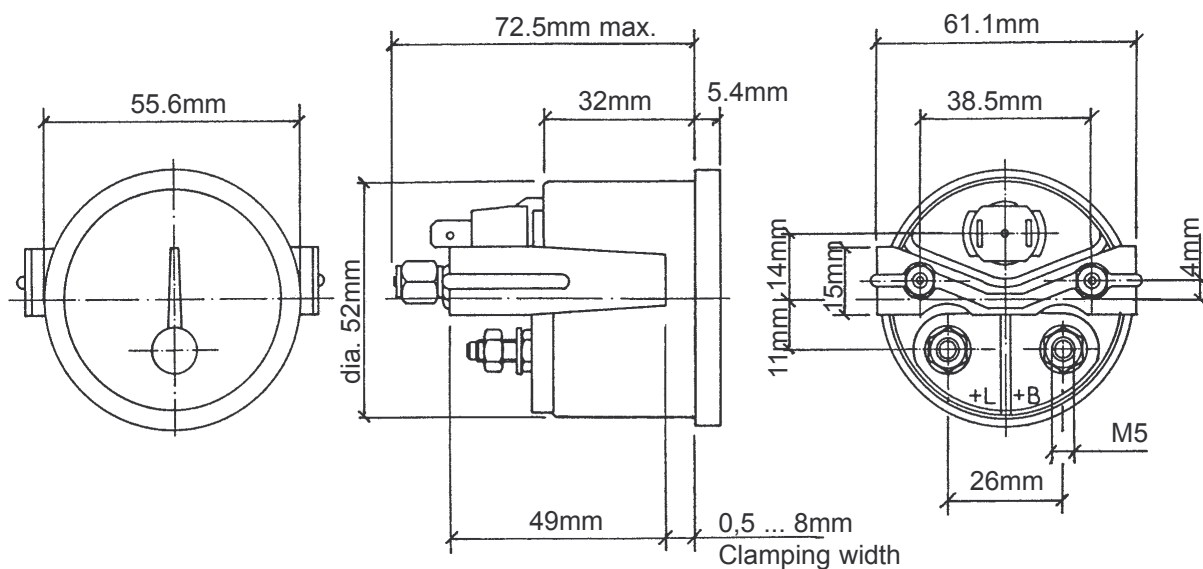
Type A

Operating temperature:	– 30°C ... + 85°C
Storage temperature:	– 40°C ... + 90°C
Illumination:	1 light bulb 12 V, 2 W (option) or 24 V, 2 W, 2 colour caps, green and red
Protection:	IP64 DIN 40050 from the front
Vibration resistance:	max. 1g eff., 25 ... 2000 Hz, duration 8 h, f: 1 octave/min.
Nominal position:	NL 0 to NL 90, DIN 16257

VDO cockpit vision
dia. 52 mm Backlight



Mounting hole: dia. 53mm



Pin assignment:

- + L: Alternator (terminal B+) and ignition switch (terminal 30)
- + B: + Battery (starter, terminal 30)

Technical Product Manual

VDO cockpit vision VDO cockpit international

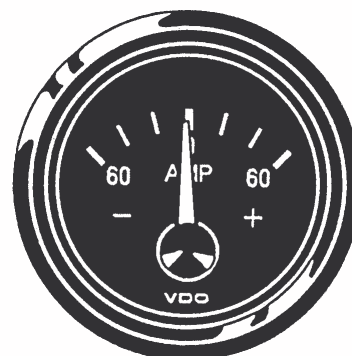
11. Ammeter (dia. 52 mm)

11.2 Technical Data

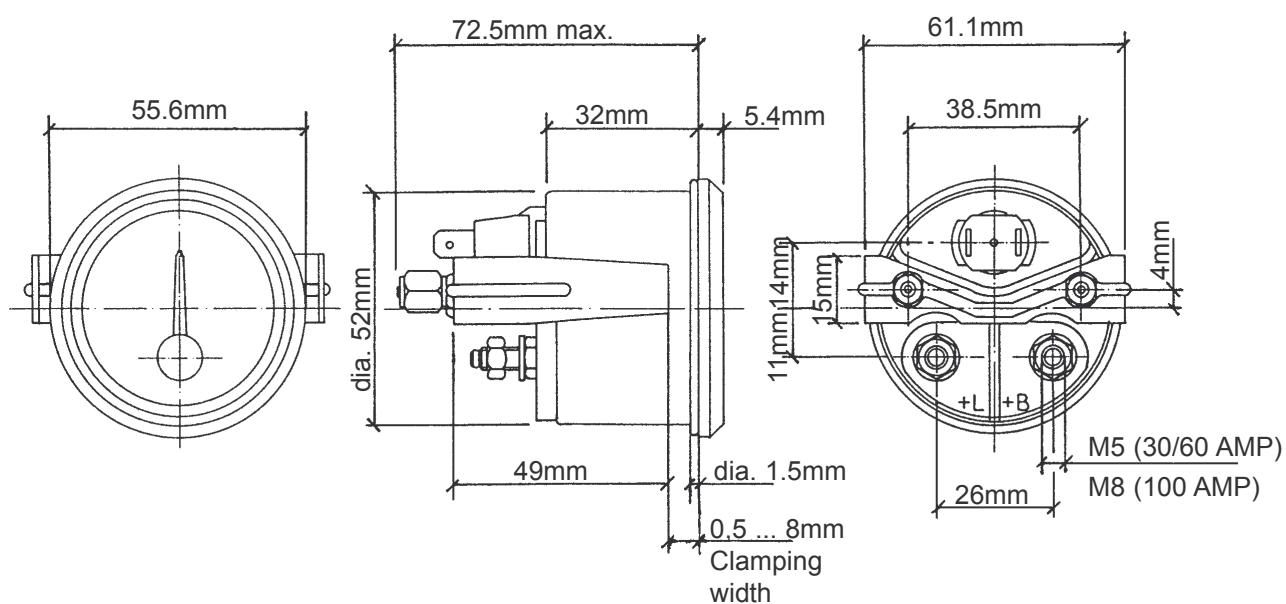
Type A

Operating temperature:	– 30°C ... + 85°C
Storage temperature:	– 40°C ... + 90°C
Illumination:	1 Light bulb 12 V, 2 W or (option) 24 V, 2 W
Protection:	IP64 DIN 40050 from the front
Vibration resistance:	max. 1g eff., 25 ... 2000 Hz, duration 8 h, f. 1 octave/min.
Nominal position:	NL 0 to NL 90, DIN 16257

VDO cockpit international
dia. 52 mm Floodlight



Mounting hole: dia. 53mm



Pin assignment:

- + L: Alternator (terminal B+) and ignition switch (terminal 30)
- + B: + Battery (starter, terminal 30)

Technical Product Manual

VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.2 Technical Data

Type B (150 Ampere): Indicating Instrument

Operating voltage:	10.8 V ... 16 V
Movement:	System Ke ($\rightarrow 320^\circ$)
Pickup:	Shunt (not included) 50 mV at max. deflection
Current consumption:	100 mA (without illumination)
Operating temperature:	$-20^\circ\text{C} \dots +70^\circ\text{C}$
Storage temperature:	$-30^\circ\text{C} \dots +85^\circ\text{C}$
Illumination:	1 light bulb 12 V, 2 W
Protection:	IP64 DIN 40050 from the front, CE approved, reverse-polarity protection
Vibration resistance:	max. 1g eff., 25 ... 2000 Hz, duration 8 h, f. 1 octave/min.

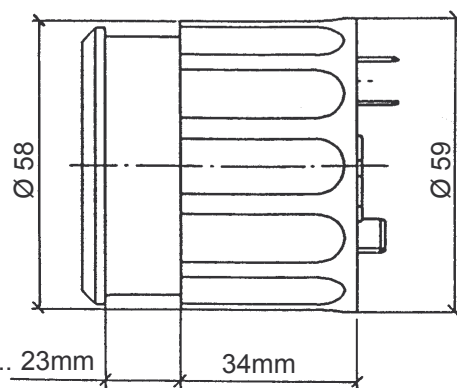
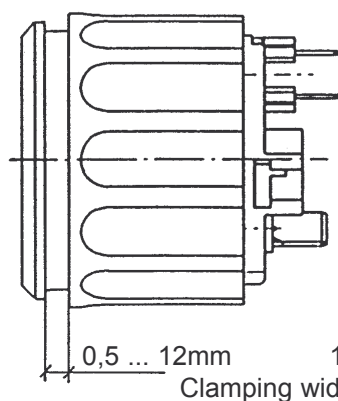
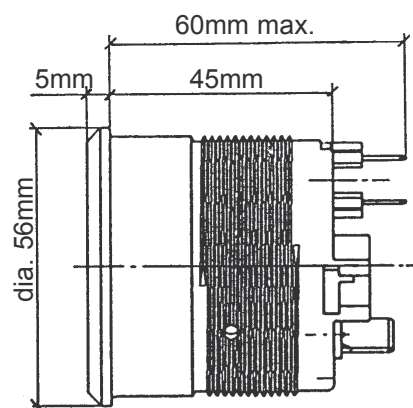
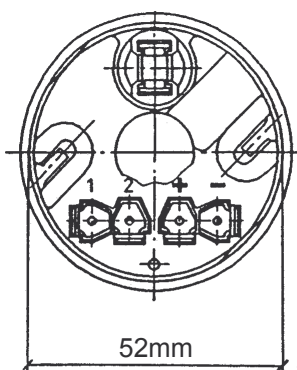
VDO cockpit international
dia. 52 mm Floodlight



Mounting hole: dia. 53mm

Pin assignment:

- 1: Signal +
- 2: Signal -
- +: Battery + (12 V)
- : Battery -



Technical Product Manual

VDO cockpit vision VDO cockpit international

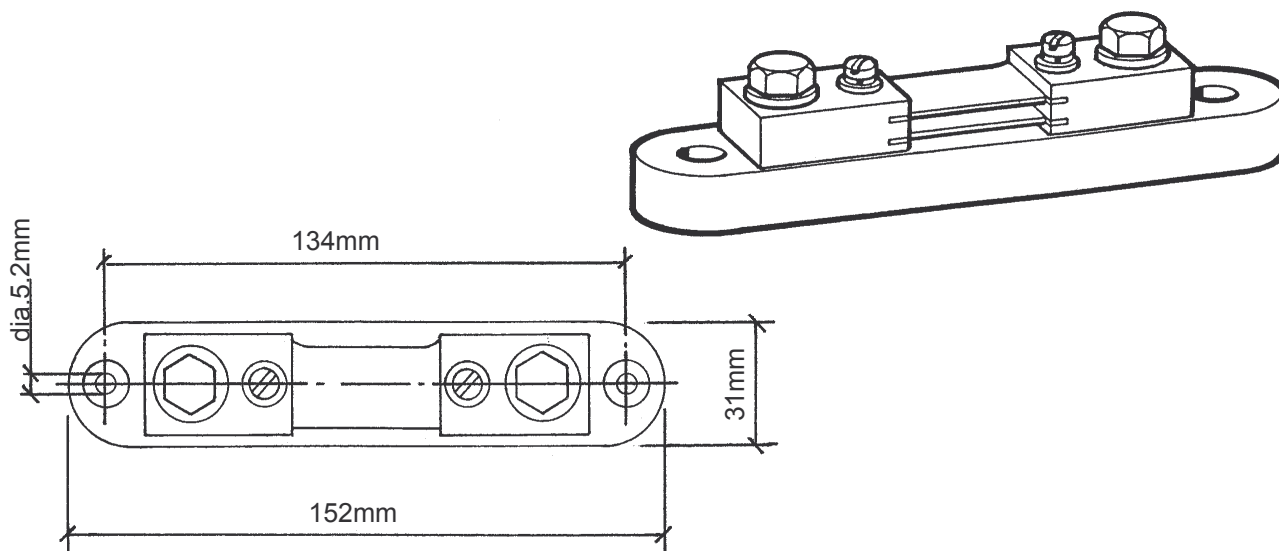
11. Ammeter (dia. 52 mm)

11.2 Technical Data

Type B (150 Ampere): Accessories

VDO cockpit international

Shunt

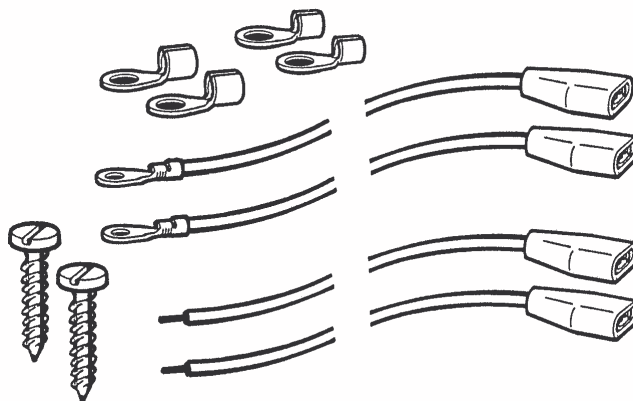


Part No.: X10-191-000-001

Wiring Kit (this is not part of the supply)

must consist of:

- 1x cable, black, 1 mm², 10 m long
- 1x cable, blue, 1 mm², 10 m long
- 1x cable, brown, 0.75 mm², 1 m long
- 1x cable, grey-red, 0.75 mm², 1 m long
- 2x eyelet terminal for 16 mm²
- 2x eyelet terminal for 10 mm²
- 2x self-tapping screw, ISO 1481-ST 4.2 x 22-C-A4 (DIN 7971)



Do not shorten the black and the blue cable (10 m measuring leads).

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VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.3 Wiring Diagram

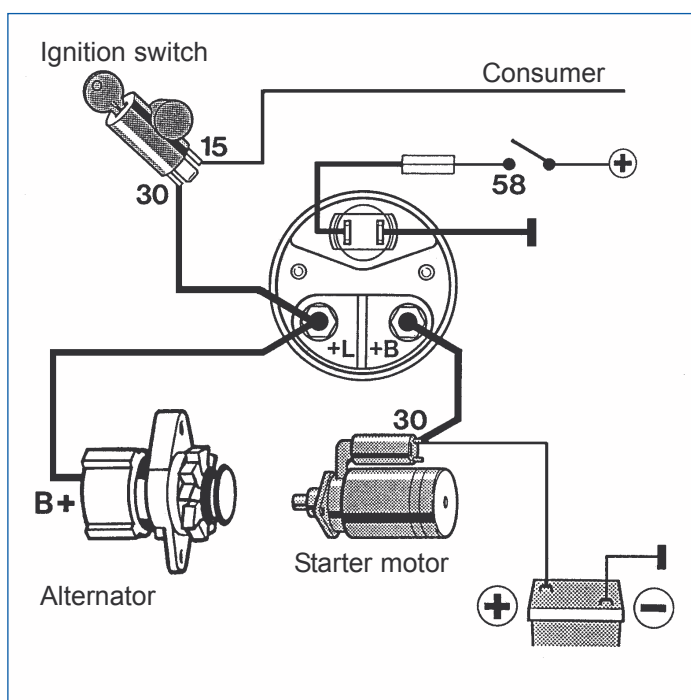
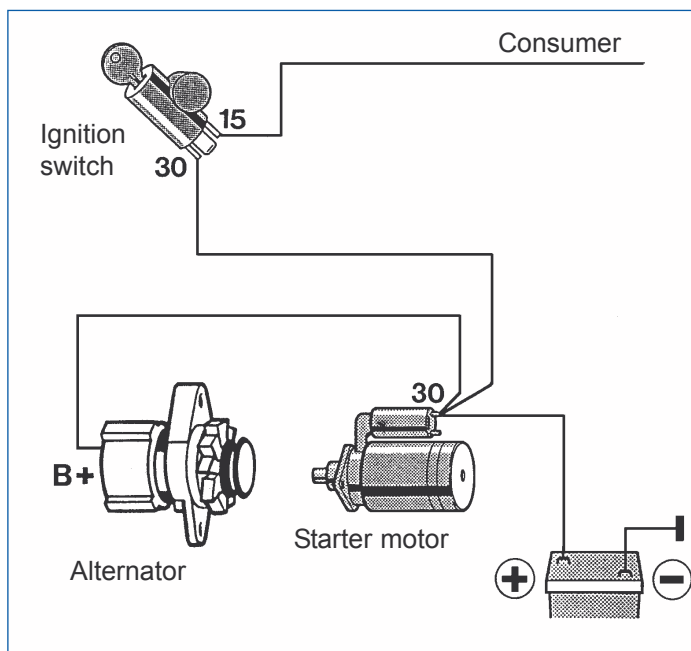
Type A: basic wiring diagram

The instrument is connected to the circuit to have the charging current and the load of all consumers, except the starter motor, flowing through the ammeter.

The newly installed cable should have the same section as the available one, but at least:

6 mm² for measuring range ± 30 Ampere
16 mm² for measuring range ± 60 Ampere
35 mm² for measuring range ± 100 Ampere.

Connect the cable to the eyelet terminal.



Technical Product Manual

VDO cockpit vision VDO cockpit international

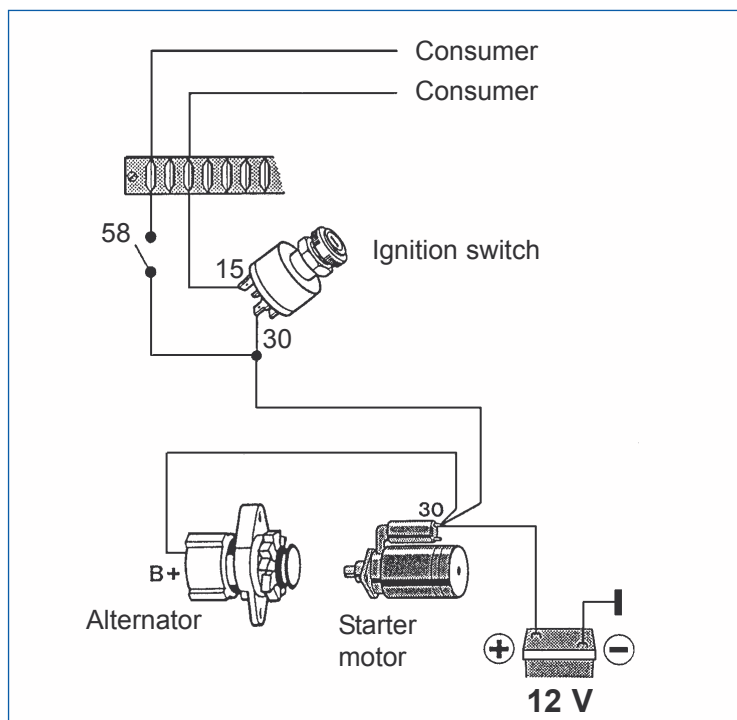
11. Ammeter (dia. 52 mm)

11.3 Wiring Diagram

Type B (150 Ampere): Basic Wiring Diagram



Do not reduce the existing cable cross section.

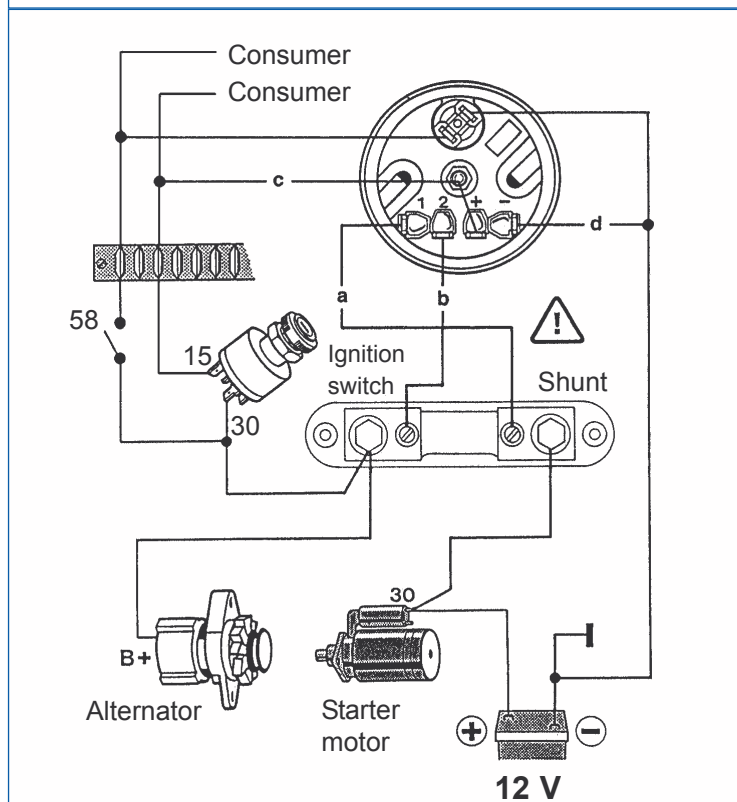


Wiring kit cables:

- a = blue, 1 mm², 10 m
- b = black, 1 mm², 10 m
- c = grey-red, 0.75 mm², 1 m
- d = brown, 0.75 mm², 1 m



Do not shorten the blue and the black cable (10 m measuring leads).



Technical Product Manual

VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.4 Dropping Resistor for 24 V

Only for type B (150 Ampere)

The ammeter type B (nominal voltage 12 V) can also be used with a nominal voltage of 24 V if an external dropping resistor (option) is installed in the ground line (terminal – 31).

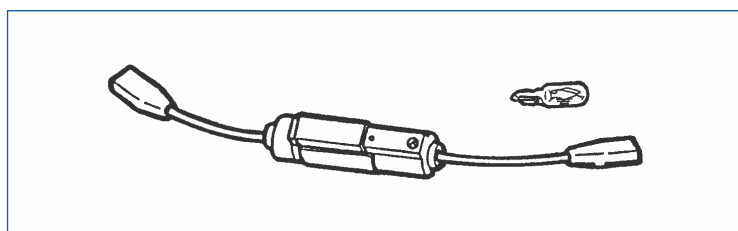
Connect this dropping resistor directly to pin – of the instrument, then connected it to the ground cable (d). In this case the operating voltage range is 21 V to 32 V.



Replace 12 V light bulb by 24 V light bulb.

Dropping resistor
Part No.: 800-005-027G

The dropping resistor is supplied with
24 V 2 W light bulb.



Basic wiring diagram



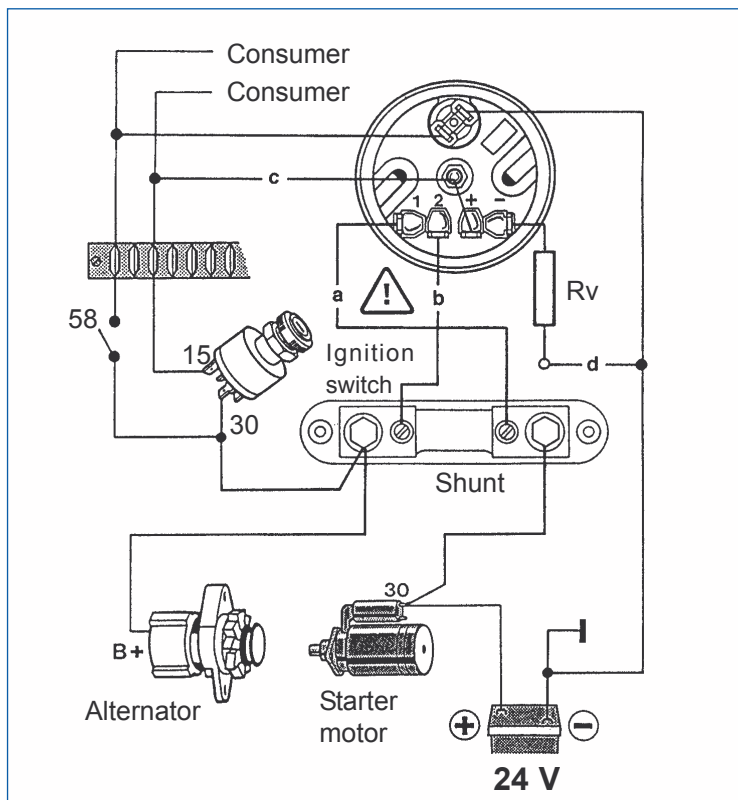
Do not reduce the existing cable cross section.

Wiring kit cables:

- a = blue, 1 mm², 10 m
- b = black, 1 mm², 10 m
- c = grey-red, 0.75 mm², 1 m
- d = brown, 0.75 mm², 1 m



Do not shorten the blue and the black cable (10 m measuring leads).



Rv = dropping resistor

Technical Product Manual

VDO cockpit vision VDO cockpit international

11. Ammeter (dia. 52 mm)

11.5 Instruments Survey

VDO cockpit vision (Backlight) dia. 52 mm

Type A

Part No. 190-077-. . .

Dial		Special feature	Part No.
Range	Imprint		
– 30 ... + 30 Amp.	– AMP +	Metal housing 12 V	001K
– 60 ... + 60 Amp.	– AMP +	Metal housing 12 V	002K

VDO cockpit international (Floodlight) dia. 52 mm

Type A

Part No. 190-037-. . .

Dial		Special feature	Part No.
Range	Imprint		
– 30 ... + 30 Amp.	– AMP +	Metal housing 12 V	001C 001G
– 60 ... + 60 Amp.	– AMP +	Metal housing 12 V	002C 002G
– 100 ... + 100 Amp.	– AMP +	Metal housing 12 V	003C 003G

VDO cockpit international (Floodlight) dia. 52 mm

Type B

Part No. 190-035-. . .

Dial		Special feature	Part No.
Range	Imprint		
– 150 ... + 150 Amp.	AMP – 15 ... + 15 x10	Plastic housing, clamp ring 12 V	005C