

# Bosch C30 charger

## Operating instructions



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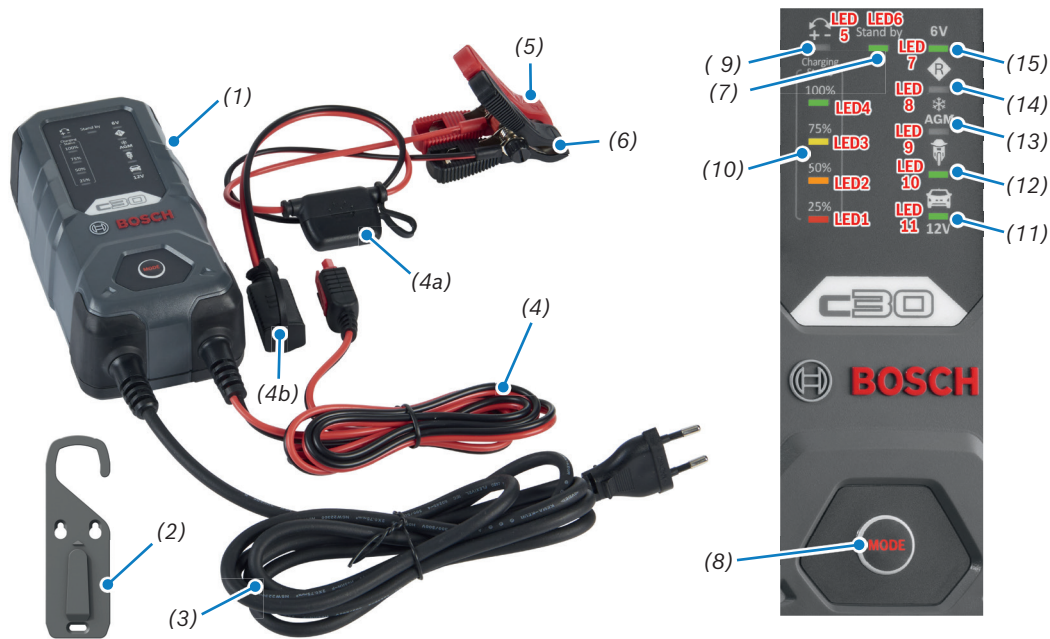
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|           |                                  |            |
|-----------|----------------------------------|------------|
| <b>DE</b> | Bedienungsanleitung .....        | <b>3</b>   |
| <b>EN</b> | Operating instructions.....      | <b>12</b>  |
| <b>FR</b> | Mode d'emploi .....              | <b>19</b>  |
| <b>IT</b> | Istruzioni d'uso.....            | <b>28</b>  |
| <b>ES</b> | Instrucciones de uso .....       | <b>35</b>  |
| <b>TR</b> | Kullanım Kılavuzu .....          | <b>42</b>  |
| <b>AR</b> | دليل الاستعمال.....              | <b>49</b>  |
| <b>PL</b> | Instrukcja obsługi .....         | <b>57</b>  |
| <b>HU</b> | Használati utasítás .....        | <b>65</b>  |
| <b>EL</b> | Οδηγίες χρήσης .....             | <b>72</b>  |
| <b>DA</b> | Betjeningsvejledning.....        | <b>80</b>  |
| <b>NB</b> | Bruksanvisning .....             | <b>87</b>  |
| <b>SV</b> | Bruksanvisning .....             | <b>94</b>  |
| <b>NL</b> | Bedieningshandleiding .....      | <b>101</b> |
| <b>RU</b> | Инструкция по эксплуатации ..... | <b>108</b> |
| <b>CS</b> | Návod k obsluze.....             | <b>116</b> |
| <b>RO</b> | Instrucțiuni de utilizare .....  | <b>123</b> |
| <b>HR</b> | Upute za upotrebu .....          | <b>130</b> |
| <b>SR</b> | Uputstvo za upotrebu.....        | <b>137</b> |
|           | Упутство за употребу .....       | <b>144</b> |
| <b>BG</b> | Ръководство за потребителя ..... | <b>151</b> |
| <b>UK</b> | Інструкція з експлуатації .....  | <b>159</b> |
| <b>SK</b> | Návod na obsluhu .....           | <b>166</b> |
| <b>ET</b> | Kasutusjuhend.....               | <b>173</b> |
| <b>LV</b> | Lietošanas pamācība .....        | <b>180</b> |
| <b>FI</b> | Käyttöohje .....                 | <b>187</b> |
| <b>MK</b> | Упатство за работа .....         | <b>194</b> |
| <b>SL</b> | Navodila za uporabo .....        | <b>201</b> |
| <b>SQ</b> | Manuali i përdorimit.....        | <b>209</b> |

Device description



|   |                                                            |
|---|------------------------------------------------------------|
| 1 | Charger                                                    |
| 2 | Mounting hook                                              |
| 3 | Mains cable with mains connection                          |
| 4 | Charging cable with cable lug (red and black, 18AWG cable) |
|   | a Fuse holder with fuse                                    |
|   | b Plug                                                     |
| 5 | (+) Terminal clamp (red)                                   |
| 6 | (-) Terminal clamp (black)                                 |
| 7 | Standby                                                    |
| 8 | Mode selection button                                      |
| 9 | Reverse polarity protection + -                            |

|    |                                                    |      |
|----|----------------------------------------------------|------|
| 10 | Battery capacity indicator                         |      |
|    | Battery capacity: 100%                             | 100% |
|    | Battery capacity: 75%                              | 75%  |
|    | Battery capacity: 50%                              | 50%  |
|    | Battery capacity: 25%                              | 25%  |
| 11 | Mode 1   12 V (car)                                | 12V  |
| 12 | Mode 2   12 V (motorcycle)                         |      |
| 13 | Mode 3   12 V (charging at 0-4°C in winter or AGM) | AGM  |
| 14 | Mode 4   12 V (regeneration)                       |      |
| 15 | Mode 5   6 V (motorcycle)                          | 6V   |

# 1 Technical data

| Technical data               |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| Input voltage                | 230VAC / 50Hz                                                                                   |
| Starting current             | <50 A                                                                                           |
| Rated input current          | Max. 0.6 A (RMS value)                                                                          |
| Input power                  | 60 watts                                                                                        |
| Rated output voltage         | DC 6 V/12 V                                                                                     |
| Charging voltage             | 14.7 V ( $\pm 0.25$ V), 14.4 V ( $\pm 0.25$ V),<br>7.2 V ( $\pm 0.25$ V), 16.5 V ( $\pm 0.5$ V) |
| Charging current             | 3.8A ( $\pm 10\%$ ), 0.8A ( $\pm 10\%$ ), 1.5 A ( $\pm 0.3$ A)                                  |
| Rated output current         | 0.8 A, 3.8 A                                                                                    |
| Reverse current <sup>1</sup> | < 5 mA (no AC input)                                                                            |
| Protection rating            | IP65 (dustproof, waterproof)                                                                    |
| Battery type                 | 6 V & 12 V lead-acid battery (WET, EFB, GEL, AGM and open VRLA)                                 |
| Battery capacity             | 6 V: 1.2 Ah – 14 Ah, 12 V: 1.2 Ah – 120 Ah                                                      |
| Fuse (internal)              | 3.15 A                                                                                          |
| Fuse (fuse holder)           | 10 A                                                                                            |
| Noise level                  | < 50 dB(A)                                                                                      |
| Temperature                  | 0°C to + 40°C                                                                                   |
| Dimensions                   | 169 x 81 x 54 mm (L x W x H)                                                                    |

<sup>1)</sup> The reverse current is the current that the charger consumes from the battery when no mains power is connected.

## 2 Safety



Please read these instructions carefully before using the charger.

### CAUTION

- If the power supply cable is damaged, it must be replaced by the manufacturer or service representative in order to avoid any danger.
- Disconnect the power supply before making or breaking the connections to the battery.
- The battery connection, which is not connected to the vehicle body, must be connected first (+) red. The other connection must be made to the vehicle body (–) black, away from the battery and fuel lines. Only then connect the battery charger to the mains supply.
- After charging, disconnect the battery charger from the mains supply first. Then disconnect the connection to the vehicle body (–) black and battery connection (+) red in this order.

### WARNING

The mains plug must not come into contact with water. Water must be prevented from flowing toward the mains supply to protect users from electrocution.

### WARNING

#### **Danger of explosion and fire!**

##### **Explosive gases.**

- Prevent any flames or sparks.
- Provide adequate ventilation during the charging process.
- Ensure that the area around the battery is well ventilated during the charging process.



#### **Battery**

Use the battery charger only for 12 V 1.2 Ah – 120 Ah or 6 V 1.2 Ah – 14 Ah lead acid type (WET, EFB, GEL, AGM open and VRLA) batteries.

### WARNING

Do not attempt to charge a non-rechargeable battery!



Keep children away from the charger.

- This device can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the safe use of the device and understand the hazards involved.
- Children must not be allowed to play with the device.
- Cleaning and maintenance must not be performed by children without supervision.
- For indoor use only.

### Environmentally friendly disposal

Help protect the environment! Please observe the local regulations. Electrical tools that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

The packaging is made of ecological materials that can be disposed of in local recycling plants.

## 3 Operation

### 3.1 Before initial start-up

1. Read the battery operating instructions before connecting the charger.
2. Follow the vehicle manufacturer's recommendation if the battery is still connected to the vehicle.
3. Clean the battery terminals. Do not allow the dirt to come into contact with your eyes, skin or mouth. Wash your hands thoroughly after contact with the battery connections.
4. Provide adequate ventilation. Hydrogen gas (electrolyte gas) can escape from the battery during charging and trickle charging.

### 3.2 Connection

1. Connect the (+) terminal (red) of the charger to the (+) terminal of the battery.
2. Connect the (–) terminal (black) of the charger to the (–) terminal of the battery.
3. The (–) terminal clamp (black) can also be connected to the vehicle body, but far away from fuel lines.

**Note:** Make sure that the (+) and (–) terminals are firmly connected.  
Only then connect the mains cable.

### 3.3 Terminating the connection

1. Put the charger into standby mode by pressing the mode button.
2. Always disconnect the mains plug from the mains first.
3. Disconnect the (–) terminal (black) of the charger from the (–) terminal of the battery.
4. Disconnect the (+) terminal (red) of the charger from the (+) terminal of the battery.

### 3.4 Overheating protection

If the device becomes too hot during the charging process, the output power and output current are automatically reduced to prevent damage to the device.

### 3.5 Standby and reverse polarity protection

| Mode                        | Indicator                                                                         | Explanation                                          |
|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------|
| Standby                     |  | Lights up during power on and in the event of faults |
| Reverse polarity protection |  | Lights up when the terminal clamps are reversed      |

## 4 Mode selection

1. Select the desired mode by pressing the mode selection button.
2. The LED for the desired mode will light up.
3. If no further action is subsequently taken, the charging process will start after 5 seconds.

| Mode                                  | Output            | Indicator                                                                           | Operation                                                                       | Battery types supported                                                                                                                    |
|---------------------------------------|-------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Mode 1<br>Car mode                    | 14.4 V /<br>3.8 A |    | Press the button once to select mode 1<br>■ LED 11 lights up                    | 12 V lead acid, EFB, AGM and most GEL batteries. Capacity of > 14 Ah in normal condition                                                   |
| Mode 2<br>12 V motorcycle mode        | 14.4 V /<br>0.8 A |    | Press the button twice to select mode 2<br>■ LED 10 lights up                   | 12 V lead acid, EFB, AGM and most GEL batteries. Capacity of ≤14 Ah in normal condition                                                    |
| Mode 3<br>Cold/AGM mode               | 14.7 V /<br>3.8 A |   | Press the button three times to select mode 3<br>■ LED 9 lights up              | Cold state (0-4°C) of 12 V lead acid, EFB and most GEL batteries. And for many 12 V AGM batteries in normal condition. Capacity of > 14 Ah |
| Mode 4 regeneration mode <sup>1</sup> | 16.5 V /<br>1.5 A |  | Press the button four times to select mode 4,<br>■ LED 8 & LED 11 will light up | Suitable for the regeneration of 12 V batteries after short-term extreme discharge. Capacity of > 14 Ah                                    |
| Mode 5<br>6 V motorcycle mode         | 7.2 V /<br>0.8 A  |  | Press the mode button to switch to mode 5<br>■ LED 7 will light up              | 6 V lead acid, AGM, EFB, and most GEL batteries. Capacity of ≤14 Ah in normal condition                                                    |

**Note:**

For regeneration mode, make sure that all connections between the battery and the vehicle electrical system are disconnected.

#### 4.1 Pulse charging

This is an automatic charging function that cannot be selected manually.

If the battery voltage in modes 1 & 3 is between 7.5 V ( $\pm 0.5$  V) and 10.5 V ( $\pm 0.5$  V) at the start of the charging process, the charger will automatically switch to pulse charging to avoid damaging the battery and to ensure intelligent charging.

#### 4.2 Trickle charging phase

The charger has an automatic trickle charging phase with max. 200 mA at full charge.

#### 4.3 Maintenance phase

When the battery is fully charged, "100%" LED lights up. The charger will start the maintenance phase to keep the battery capacity in full condition.

#### 4.4 Memory function

If the charger is disconnected from the mains during the charging process, the device saves the previously selected mode. When reconnected to the mains and with the same battery type (6 V or 12 V), the device will automatically start in the last mode.

**Caution:** If the connected battery type is different from the last one used (e.g. if you were in cold/AGM mode last time and you need to connect a normal lead-acid battery this time), please reselect the mode manually to avoid overcharging or damage.

**There is no memory function for mode 4 (regeneration mode).**

#### 4.5 Battery detection

Once the charger is connected to a 7.3 V - 10.5 V battery, the 6 V & 12 V LEDs will flash. The charger will attempt to automatically detect the battery voltage (6 V or 12 V) using an elaborate measurement process.

After 1-3 minutes, the charger will detect whether the battery is 6 V or 12 V and switch to the appropriate mode.

#### 4.6 Override mode

If the charger detects a connected battery as a 6 V battery and switches to 6 V mode, but the user is very sure that the battery type is 12 V, the user can press and hold the mode button for 5 seconds to switch the charger to any 12 V charging mode.



### CAUTION

The 12 V mode can charge the battery from a voltage as low as 3.75 V. As a result, a 6 V battery could be overcharged and cause further hazards (increased gassing, explosion, fire...) to humans and animals.

#### 4.7 Device protection function

In the event of a short circuit on the charging cable, the fuse (4a) on the charging cable prevents damage to the device and the electrical system.

### 5 Maintenance and care

**Always remove the mains plug from the socket before cleaning the charger. The charger is maintenance-free.**

1. Switch off the device.
2. Use a dry cloth to clean the plastic surfaces of the device.
3. Never use solvents or other aggressive cleaning agents.
4. To maintain operational safety, the devices must only be repaired by the manufacturer or its service representative using original spare parts.
5. For Li-Ion ( $\text{LiFePO}_4$ ) batteries, please use the Bosch C40-Li or C80-Li.
6. For 24 V batteries, please use the C70.

For the EU version:

Robert Bosch GmbH

Auf der Breit 4

76227 Karlsruhe, Germany

Phone: +49 (0)391 832 29671

Email: [kundenberatung.kfztechnik@de.bosch.com](mailto:kundenberatung.kfztechnik@de.bosch.com)

For the UK version:

Robert Bosch GmbH

Broadwater Park,

Uxbridge UB9 5HJ

Phone: 0344 892 0115

Email: [contact@uk.bosch.com](mailto:contact@uk.bosch.com)