# Timers
# True delay on release
# Types DBB02, PBB02

CARLO GAVAZZI


DBB02


PBB02

- **Time range 60 s to 10 h - battery powered**
- **3 time ranges selectable by DIP-switches**
- **Knob-adjustable time setting**
- **Automatic start after drop-out of power supply**
- **Repeatability: ≤ 0.2%**
- **Output: 8 A SPDT or 8 A DPDT relay**
- **For mounting on DIN-rail in accordance with DIN/EN/EC 60715 or Plug-in**
- **22.5 mm Euronorm or 36 mm Plug-in module housing**
- **Combined AC and DC power supply**
- **LED indication for power supply ON**

## Product Description

Multi voltage true delay on release timer with 3 time ranges from 60 s to 10 h selectable by DIP-switches. The built-in non-replaceable battery (Ni-MH) will be charged while the power supply is applied.
For mounting on DIN-rail (DBB02) or Plug-in (PBB02).

## Ordering key

**DBB 02 C M24**

- **Housing**
- **Function**
- **Type**
- **Item number**
- **Output**
- **Power Supply**

## Type Selection

| Mounting | Output | Housing | Supply: 24 to 240 VAC/DC |
|---|---|---|---|
| For DIN-rail | SPDT | D - Housing | **DBB 02 C M24** |
| | DPDT | D - Housing | **DBB 02 D M24** |
| Plug-in | SPDT | P - Housing | **PBB 02 C M24** |
| | DPDT | P - Housing | **PBB 02 D M24** |

## Time Specifications

| | | | |
|---|---|---|---|
| **Time ranges** | | | |
| Selectable by DIP-switches | 60 | to | 600 s |
| | 0.1 | to | 1 h |
| | 1 | to | 10 h |
| **Repeatability** | ≤ 0.2% | | |

| | |
|---|---|
| **Time variation** | |
| Within rated battery voltage | ≤ 1% |
| Within rated power supply | ≤ 0.05% |
| Within ambient temperature | ≤ 0.2% |
| **Reset** | Power supply applied for min. 200 ms |

## Output Specifications

| | | |
|---|---|---|
| **Output** | | SPDT or DPDT relay |
| **Rated insulation voltage** | | 250 VAC (RMS) |
| **Contact Ratings**(AgNi) | | μ |
| Resistive loads | AC 1 | 8 A @ 250 VAC |
| | DC 12 | 5 A @ 24 VDC |
| Small inductive loads | AC 15 | 2.5 A @ 250 VAC |
| | DC 13 | 2.5 A @ 24 VDC |
| **Mechanical life** | | ≥ 2 x $10^6$ operations |
| **Electrical life** | AC 1 | ≥ $10^5$ operations (at 8 A, 250 V, cos φ = 1) |
| **Dielectric strength** | | |
| Dielectric voltage | | 2 kVAC (RMS) |
| Rated impulse withstand voltage | | 4 kV (1.2/50μs) |

## Supply Specifications

| | | |
|---|---|---|
| **Power supply** | | Overvoltage cat. III (IEC 60664, IEC 60038) |
| Rated operational voltage through terminals: | | |
| (DBB02) | A1, A2 | 24 to 240 VAC/DC |
| (PBB02) | 2, 10 | +10% -15%, 45 to 65 Hz |
| **Voltage interruption** | | ≤ 40 ms |
| **Rated operational power** | | |
| AC supply: | | 3.7 VA |
| DC supply: | | 1.3 W |
| **Built-in non-replaceable battery for time function** | | |
| Nominal capacity | | 70 mAh |
| Charge | | Via power supply |
| Working life | | ≥ 500 charge/discharge cycles |

**Note**: for the shipment, you must comply with the relevant packaging and labeling regulation.

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## General Specifications

| | | |
|---|---|---|
| **Power ON delay** | | ≤ 200 ms |
| **Power OFF delay** | | ≤ 100 ms |
| **Indication for** | | |
| Power supply ON | | LED, green |
| **Environment** | | (EN 60529) |
| Degree of protection | | IP 20 |
| Pollution degree | | 3 (DBB02), 2 (PBB02) (IEC 60664) |
| Operating temperature | | |
| up to 265 VAC, 135 VDC | | 0 to 60 °C, R.H. < 95% |
| from 135 VDC @5A | | 0 to 45 °C, R.H. < 95% |
| Storage temperature | | -30 to 80 °C, R.H. < 95% |
| **Housing** | | |
| Dimensions | DBB02 | 22.5 x 80 x 99.5 mm |
| | PBB02 | 36 x 80 x 94 mm |
| **Weight** | | Approx 130 g |
| **Screw terminals** | | (DBB02) |
| Tightening torque | | Max 0.5 Nm according to IEC EN 60947 |
| **Approval** | | UL, CSA |
| **CE Mark** | | Yes |
| **EMC** | | Electromagnetic Compatibility |
| Immunity | | According to EN 61000-6-2 |
| Emission | | According to EN 61000-6-3 |
| **Timer Specifications** | | According to EN 61812-1 |

## Mode of Operation

The relay(s) operates as soon as the power supply is applied.

When the power supply is interrupted the time period starts and, at the expiration of the set time period, the relay releases.

If the power supply is reapplied before the relay released the time is reset and the relay remains ON.

The built-in non-replaceable battery (Ni-MH) will be charged while the power supply is applied.

**Note:**
DBB02 and PBB02 should not be operated by pulses shorter than 200 ms.
For these purposes the relays DMB01 or PMB01, operated by external contact function, should be used.

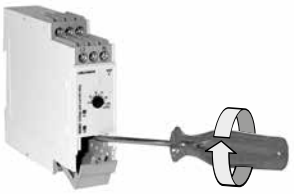
The battery test is performed on terminals + and A2 or 7 and 10.

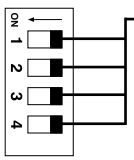
It is recommended to connect DBB02 and PBB02 to the power supply for 42 h before it is put into regular service in order to compensate for energy losses due to, for example, a long storage period.

## Range/Time Setting

Adjust the time range setting the DIP-switches 1 and 2 as shown below.
To access the DIP-switches open the plastic cover using a screwdriver as shown below.

**Centre knob:**
Time setting on relative scale: 1 to 10 with respect to the chosen range.

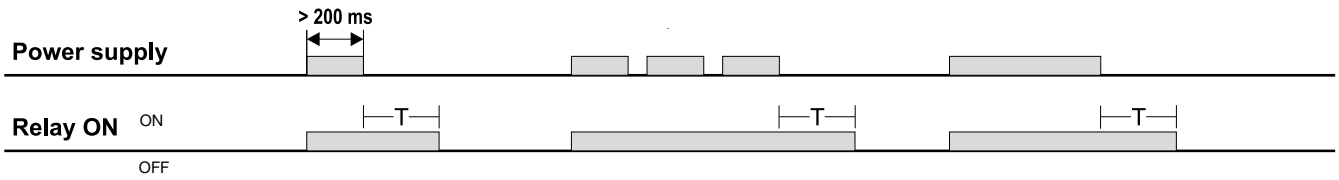




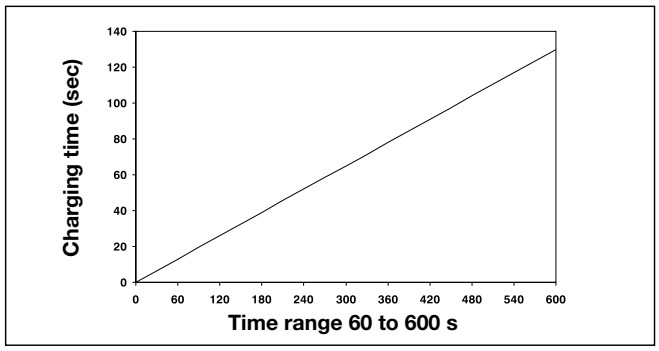

**Time range**

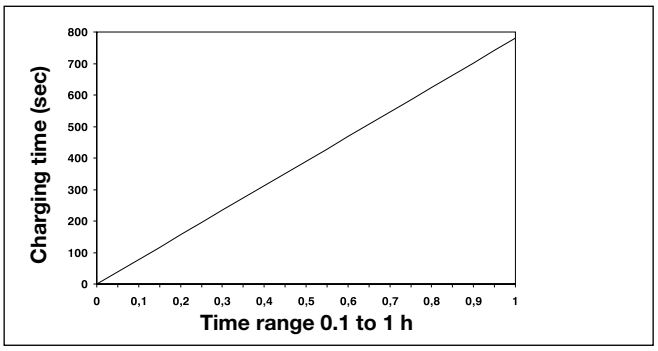
| | | | | |
|---|---|---|---|---|
| ON | OFF | ON | ON: | 60 to 600 s |
| ON | ON | OFF | OFF: | 0.1 to 1 h |
| OFF | OFF | OFF | ON: | 1 to 10 h |

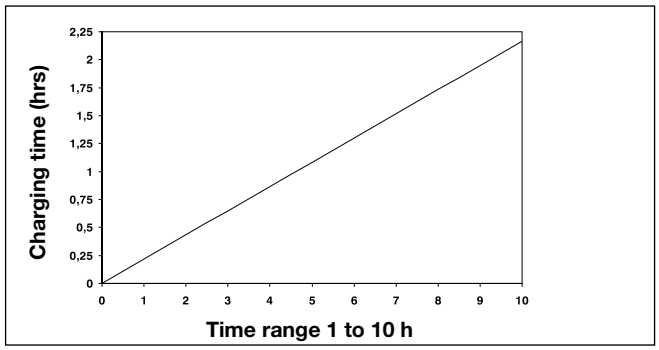
## Operation Diagram



## Curves




The tables indicate the charging time needed to keep the built-in battery fully charged for a certain adjusted time period.

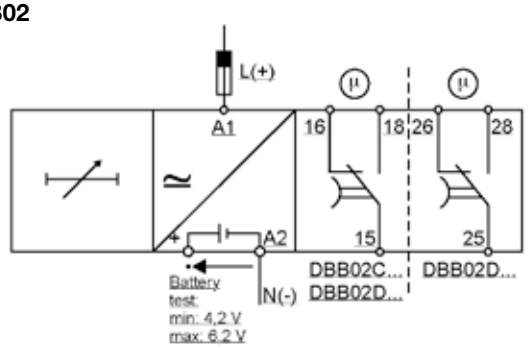
**Example**
Adjusted time period 10h, battery charging time will be about 2.2 h.

At 5 operations: 5 x 10 h, battery charging will be 5 x 2,2 h. If the calculated charging time cannot be obtained, then the battery voltage has to be checked, as it must not drop below 4.2 VDC (min. battery voltage).

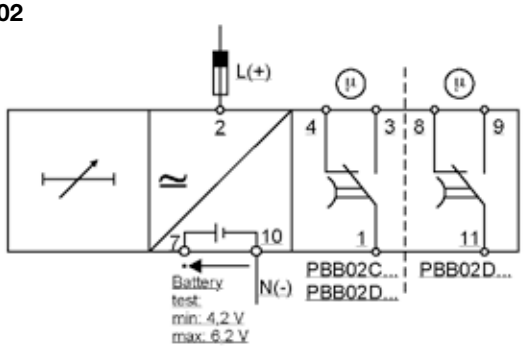
Test can be perfomed on terminals + and A2 or 7 and 10.

## Wiring Diagrams

**DBB02**

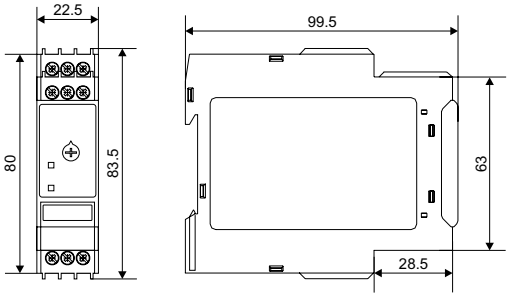



**PBB02**




## Dimensions

**DIN-rail**




**Plug-in**