

User manual

LED car light controller set



- Page 2 General Description - Specifications
- Page 3 Connections
- Page 4 Operation
- Page 5 Dip Switch Settings
- Page 6 Battery charging
- Page 7 Battery charging curves

Please read carefully the instructions in order to
get all the benefits of this device.

General Description:

This device is intended for use in car LED lighting, when high quality constant main and backup lighting is needed.

It is equipped with a strong LED driver using offline switch mode power supply (SMPS) technology.

Also Include various protection circuits, main/battery fast backup switch-over, microcontroller based charger, 12V SLA type battery, LED ECO dimmer with programmable delay and separate remote input and continuous battery monitoring.

Specifications:

	Counts	Unit	Tolerance
Mains AC Input Voltage	230	V AC	85-265
Mains AC Input Frequency	50	Hz	50 to 60
Led Light Output Voltage ¹	12	V DC	+/- 1%
Led Light Output Current ¹	1,60	A	-
DC Output Ripple ¹	33	mV	Typical
Battery charging voltage ¹	13.7	V DC	+/-1%
Efficiency	85	%	At full load
Fuse rating	1	A	Fast blow
Standby duration ²	1.5	Hours	-
DC Output Overvoltage protection threshold	15	V	Typical
DC Output short circuit protection threshold	3	A	Typical
Mains AC Input over voltage protection	267	V AC	Typical
Mains AC Input under voltage protection	83	V AC	Typical
Enclosure	ABS	IP65	-
Dimensions (mm)	W135	L170	H87
Weight	1100	gr	-

(1) The above figures were determined at the MAIN connection. 6 spots were connected to the MAIN port and 2 spots to the EMERGENCY port. The battery status was between 25% and 50% during the measurements.

¹The current measurement was made with continuous DC current.

(2) The above standby duration was measured using one LED spot light connected at EMERGENCY connector and the lights brightness dropped to 30% after three hours of continuous battery supply.

Connections:

The control unit can operate various groups of LED spot lights. One group is connected to MAIN (normally 4 pieces) and lights up when mains power is available. The 2nd group (normally 2 pcs) of LED spot lights is connected to EMERGENCY or to MAIN/Emergency. Only the MAIN/EMERGENCY connection allows this group to light up both when power is present and when power is absent (operation via battery backup). If the 2nd group is connected to EMERGENCY, it will only light up with help of battery backup when the mains voltage is absent.

The controller includes a battery for backup, loading control unit, Dimmer control unit and a DC siren. Connections will be shown in Figure 1.

Figure 1

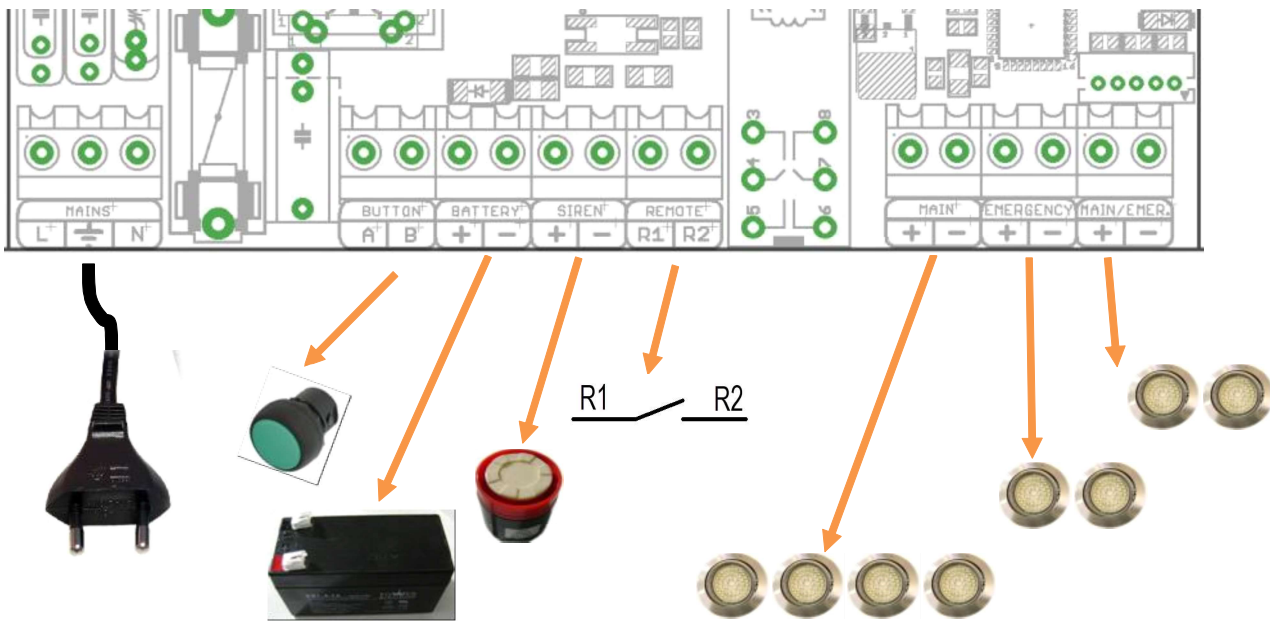






Table1. FRWD0805 Operating modes truth table

FRWD0805 Operating modes			
MODE	LED Spot lights connected to "MAIN"	LED Spot lights connected to "EMERGENCY"	LED Spot lights connected to "MAIN/EMERG."
NORMAL		OFF	
EMERGENCY	OFF		

Operation:

Normal Mode:

The control unit operates 2 groups of LED spot lights. One group is connected to MAIN (normally 4 pieces) and lights up when mains power is available. If another group is connected to EMERGENCY/MAIN also this group will be lights up when 230VAC mains is available.

The remote input R1 / R2 (see figure 1) allows with help of a potential free contact to choose different Dimmer operation modes. These modes are as follows:

- **Operation Mode 1 (Dip Switch 4=OFF) ¹:**

-When "R1-R2" terminals are shorted, the lights will work at 100% with no dimming at all.

-When "R1-R2" terminals are not shorted, the lights will go to diming after a delay period selected by dip switches 1-2-3 (see Figure 2). The dimming intensity can be changed by "DIM" trimmer.

- **Operation Mode 2 (Dip Switch 4=ON) ¹:**

-When "R1-R2" terminals are shorted, the lights will work with diming selected by the "DIM" trimmer (see Figure 2).

-When "R1-R2" terminals are not shorted, the lights will turn off completely after a delay period selected by dip switches 1-2-3 (see Table 2).

Note: The "DIM" trimmer adjustment has no effect during time countdown (Operation Mode 1 & 2).

Any dip switch action during time countdown (Operation Mode 1 & 2) will stop counting and according to the operation mode will go to either Dimming (Operation Mode 1) or Off (Operation Mode 2) Led lights state.

(1) Operation mode dip switch (see Table 3).

Emergency Mode:

The 2nd group connected to EMERGENCY or MAIN/EMERGENCY, will light up with help of battery backup when the mains voltage is absent/fails. This happens automatically. The MAIN connected LED Spot lights will turn off.

It is not recommended to have more than 2 LED Spot lights connected to the EMERGENCY and/or MAIN/EMERGENCY connector. This will shorten the possible battery backup time.

If the mains is absent the Remote signal on R1 / R2 will be ignored and the operation in emergency mode is without any Dimmer function and the lights work at 100% brightness.

If the 230VAC mains will return the controller will automatically return in its normal operation mode and the battery will be charged.

Dip Switch Settings:

Table 2

Dip Switch Number	T1	T2	T3	Delay time (min)
DIP SWITCH Position	0	0	0	0
	1	0	0	5
	0	1	0	10
	1	1	0	15
	0	0	1	20
	1	0	1	25
	0	1	1	30
	1	1	1	35

Table 3

Dip Switch 4	Mode
Off	Operation 1
On	Operation 2

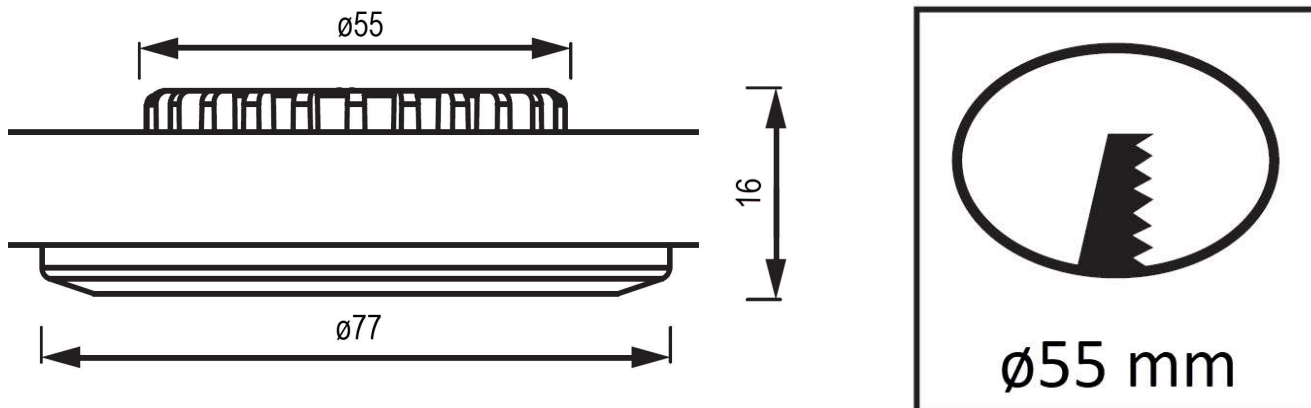
Battery Charging:

- Use only 12V - 1,3Ah SLA Battery type.
- **Never** connect the battery terminals in reverse order.
- This device uses an LED to indicate Battery status (see Table 4).

Table 4

LED Activity	Battery status
ON	Battery charging progress >90%
BLINKING Rate: 0.5s on 0.5s off	Battery charging progress 75%>BAT>50%
OFF	Battery failure Or Battery disconnected

Installation dimensions



Battery Charging Curves:

