PELEKIS
Electronic Products

User Manual FRWD0805

PRO LED Lighting Controller

with Dimmer And Timer Function

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

FRWD0805 PRO LED Lighting Controller

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REV 1.1 March, 2023

TÜV AUSTRIA HELLAS PELEKIS ELECTRONICS ISO9001/2015 member

General Description:

The device is specifically designed for elevator cabin LED lighting applications, providing reliable and high-quality constant illumination for both primary and backup lighting needs.

Key Features:

1) Robust LED Driver:
Employs a powerful LED driver utilizing offline switch mode power supply (SMPS) technology for efficient performance.

2) Comprehensive Protection:
Incorporates various protection circuits to enhance the overall durability and safety of the device.

3) Fast Backup Switch-over:
Features a rapid main/battery switch-over mechanism ensuring uninterrupted lighting in critical situations.

4) Microcontroller-Based Charger:
Utilizes a sophisticated microcontroller-based charger for optimized charging cycles and battery management.

5) 12V SLA Type Battery:
Compatible with a 12V Sealed Lead-Acid (SLA) type battery, ensuring a reliable power source for prolonged use.

6) LED ECO Dimmer with Programmable Delay:
Includes an LED ECO dimmer with customizable delay settings, offering energy-efficient illumination tailored to specific requirements. (Parking Condition)

7) Remote Input and Battery Monitoring:
Equipped with a separate remote input for convenient control and continuous monitoring of the battery status.

Applications:

Ideal for elevator cabin LED lighting applications where high-quality, constant illumination and reliable backup lighting are crucial.

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 following key features were measured at the MAIN connector, with SIX PELEKIS LED lights connected, and at the EMERGENCY connector, with TWO PELEKIS LED lights connected. The battery status during these measurements ranged from 50% to 25%. The current measurement was conducted in continuous DC mode. Charging, during the Constant Current (CC) stage, was maintained at approximately 0.1 times the battery capacity (C), at a rate of approximately 130mA.

Note: The provided measurements are based on the specified connector configurations and operating conditions. Refer to the user manual for detailed information on connector configurations, performance measurements, and charging procedures.

(2) The standby duration was evaluated using ONE PELEKIS LED Light connected to the EMERGENCY connector. During this measurement, the brightness of the connected light dropped to 30% after three hours of continuous battery supply.

Note: Standby duration may vary based on operating conditions, battery status, and other factors. For accurate assessments, it is recommended to refer to the user manual and conduct tests under representative usage scenarios.

Connections:

The FRWD0805 device is engineered for versatile operation, accommodating various connection set-ups and load combinations utilizing PELEKIS LED Lights. A typical configuration includes:

1. Main Light Sources:
4x INTELCO LED Lights configured as "MAIN" light sources.

2. Main/Emergency Light Sources:
2x PELEKIS LED Lights configured as "MAIN/EMERGENCY" light sources.

3. Emergency Light Sources:
2x PELEKIS LED Lights configured as "EMERGENCY" light sources.

4. Additional Components:

- A battery to ensure a reliable power supply.
- A dedicated remote switch for controlling the ECO DIMMER function.
- Integration of a DC siren for enhanced alert capabilities.

Figure 1

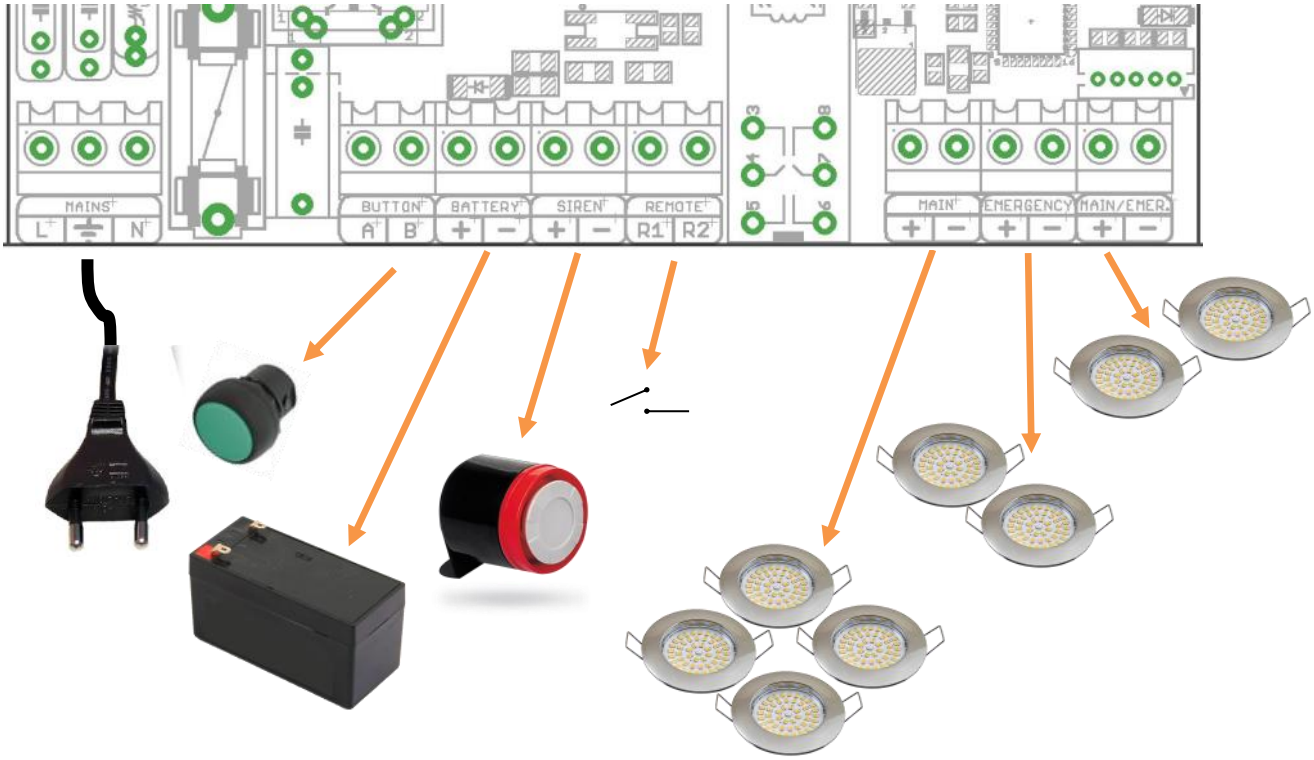

Table1. FRWD0805 Operating modes truth table

FRWD0805 Operating modes			
MODE	PELEKIS LED Light connected to **"MAIN"**	PELEKIS LED Lights connected to **"EMERGENCY"**	PELEKIS LED Lights connected to **"MAIN/EMERG."**
NORMAL		OFF	
EMERGENCY	OFF		

Operation:

Normal Mode:

During regular AC 230V mains operation, the FRWD0803 device efficiently powers the connected PELEKIS LED Lights in the following manner:

1) Main and Main/Emergency Groups:

The 2 groups of PELEKIS LED Lights connected to "MAIN" and/or "MAIN/EMERGENCY" connectors remain illuminated and operational.

2) Emergency Group:

The 3rd group of PELEKIS LED Lights connected to the "EMERGENCY" connector remains in an off state during normal operation.

3) Battery Charging:

Simultaneously, the device actively charges the battery, ensuring a consistent power supply and preparedness for any potential AC mains interruptions.

This mode of operation optimizes energy efficiency, maintaining the necessary illumination for primary and supplementary lighting sources while sustaining the battery for backup purposes.

- **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 Activation:

In the event of a failure in the AC 230V mains power supply, the FRWD0805 device seamlessly transitions into Emergency Mode. During this mode:

- The "MAIN" group of PELEKIS LED lights is turned off.
- The "MAIN/EMERGENCY" and "EMERGENCY" groups of lights are activated and operate at 100% brightness with no dimming.

Operational Details:

- The "REMOTE" connector input is disregarded in Emergency Mode, ensuring that the lights function independently without remote control intervention.

Automatic Return to Normal Mode:

Once the AC 230V mains voltage is restored, the FRWD0805 device automatically reverts to Normal Mode. In Normal Mode, the device resumes its standard operating configuration, allowing for regular control and dimming functionalities.

This automated transition ensures a seamless and reliable response to power fluctuations, providing uninterrupted illumination during emergency situations and restoring normal operation when mains power is stabilized.

Note: For detailed information on the FRWD0805 device's modes, behaviour, and control mechanisms, please refer to the user manual.

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

Battery Charging Curves: