ROAL living energy

LED DRIVER
55 Watt
Model RHPS240

## Special Features

55 W LED Driver with microprocessor based controls
Built-in firmware
Active LED Board Over Temperature protection
Crepuscular sensor input
Proximity sensor input
Designed for IP65 Rated enclosures
Active Power Factor Correction
RoHS-6 Compliant (Directive 2002/95/EC)

## Applications

| | |
|---|---|
| Solid State Lighting | Street Lighting<br>Urban Lighting<br>Industrial Lighting<br>Wide Area Outdoor Lighting |

## Input Specification

| | |
|---|---|
| Input Voltage | 110 Vac, 230 Vac (90 to 264 Vac), Single Phase |
| Input Frequency | 50 Hz, 6 0Hz (47 to 63Hz) |
| Input Current | < 1 A at 90 Vac |
| Active Power Factor Corrector | > 0.9 at full load |
| Inrush current | <37A at 230 Vac (<18.5 A at 110 Vac)<br>at 22°C ambient temperature and at cold start |
| Leakage current | < 3.5 mA at 264 Vac, 60 Hz |
| Hold up time | > 20 ms at 230 Vac, 50 Hz, full load |

## Output Specification

| | |
|---|---|
| Max Output Power | 55 W |
| Max Differential Output Voltage | 150 Vdc |
| Maximum Output Current ($I_{MAX}$) | 350mA |
| $I_{MAX}$ adjustment | through in factory fine calibration;<br>In-field adjustment possible (ask to the factory for details) |
| Output current response | 0% or 50% or 100% of $I_{MAX}$ depending on the state of the external sensors (see table 1) |
| Ripple current | < 35% |
| Efficiency | > 80% at 90 Vac |
| Efficiency | > 85% at 230 Vac |
| Isolation | Output is NOT isolated from mains input |

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## External Sensor Inputs

| Crepuscular Input Signal | | | Proximity Input Signal | | | LED Driver Response |
|---|---|---|---|---|---|---|
| Function Description | Logic Level | Threshold | Function Description | Logic Level | Threshold | |
| Day | 0 | <1.5Vdc (*) | Presence NOT detected | 0 | <1.5Vdc (*) | Always OFF (PWM with duty cycle 0%: the LED Board is OFF) |
| | | | Presence detected | 1 | >3.5Vdc (*) or FLOATING | |
| Night | 1 | >3.5Vdc (*) or FLOATING | Presence NOT detected | 0 | <1.5Vdc (*) | PWM with duty cycle 50% (The output current and the light intensity are 50% of the maximum value) |
| | | | Presence detected | 1 | >3.5Vdc (*) or FLOATING | PWM with duty cycle 100% (The output current and the light intensity are 100% of the maximum value) |

(*) Thresholds according to TTL levels

Table 1: LED Driver response to crepuscular and proximity input signals

## Protection

| | |
|---|---|
| Input Protection | Internal Fuse, 4A |
| LEDs board temp reading and control capability | Temperature sensor input from LEDs board and current PWM regulation through microprocessor; in case of the NTC is NOT connected, the Output current is regulated at the maximum value ($I_{MAX}$) |
| Output Protection | Internal Fuse, 4A |

## Environmental

| | |
|---|---|
| Ambient Operating Temperature | -20°C to 60°C |
| Storage Temperature | -40°C to +85°C |
| Relative Humidity | 10% to 95% not condensing (Operating), 5% to 95% not condensing (Storage) |
| Altitude | 3000 m (Operating), 7500 m (Storage) |
| Cooling | Natural Convection. Board compatible with IP65 rated enclosure |

## EMC Compliance

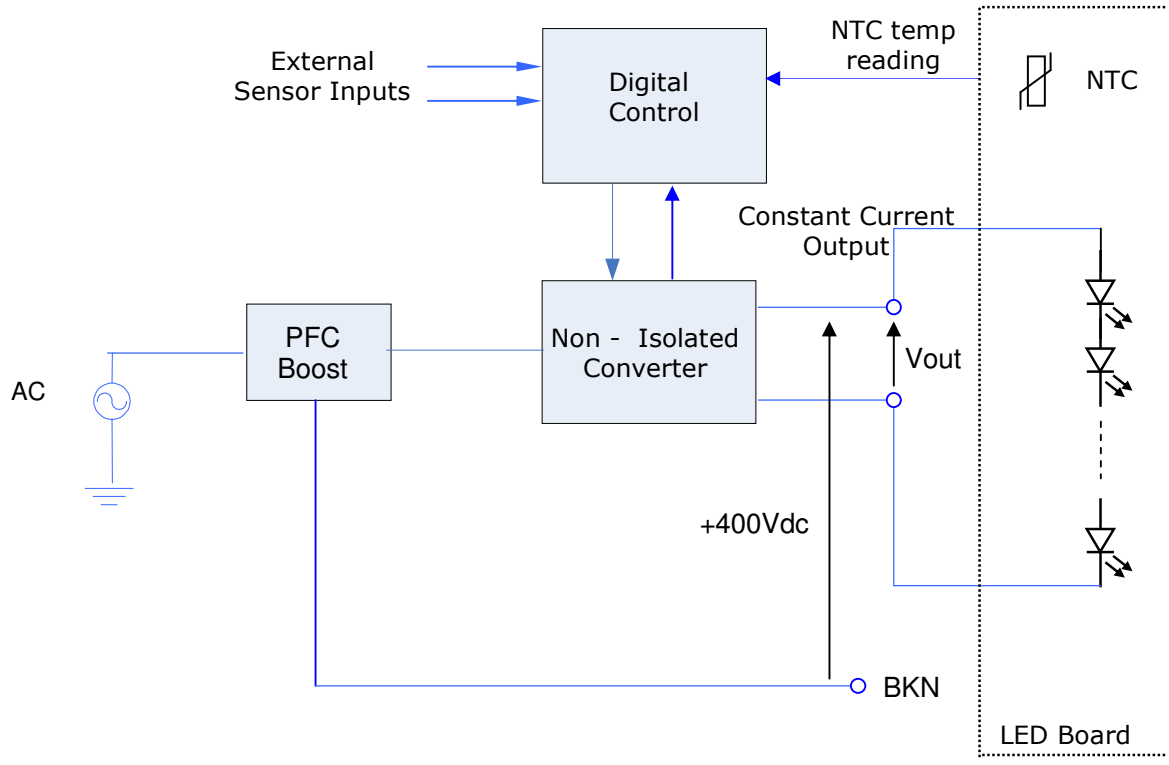
Designed to meet:

| | |
|---|---|
| Emission | |
| Conducted Emission | EN55015 |
| Conducted Emission Harmonic | EN61000-3-2 |
| Fluctuation and Flickers | EN61000-3-3 |
| Susceptibility | |
| ESD | EN61000-4-2 |
| Burst | EN61000-4-4 |
| Surges | EN61000-4-5 |
| Voltage Dips and PLD | EN61000-4-11 |

## Safety

Designed to meet: EN60950

## Block Diagram




Warning — If NO load is connected to the output connector, $V_{OUT}$ reaches 400Vdc.

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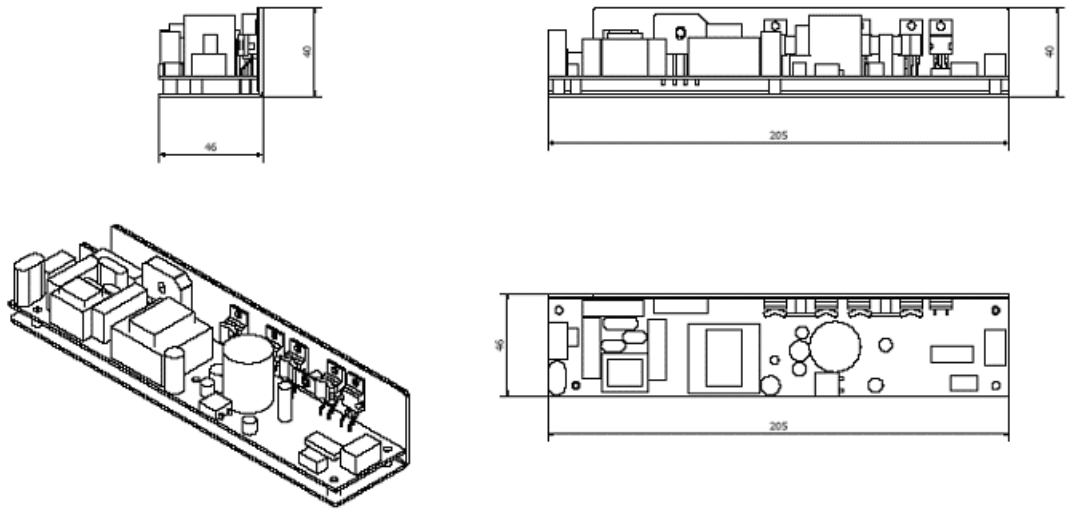
## Physical Specification

| | |
|---|---|
| Case | Open frame PCB on aluminium L bracket |
| Dimensions (HxWxD) | 40 mm x 46 mm x 205 mm = 1.57 in x 1.81 in x 8.07 in |
| Weight | 0.29 kg = 0.64 lb |

Outline Drawing

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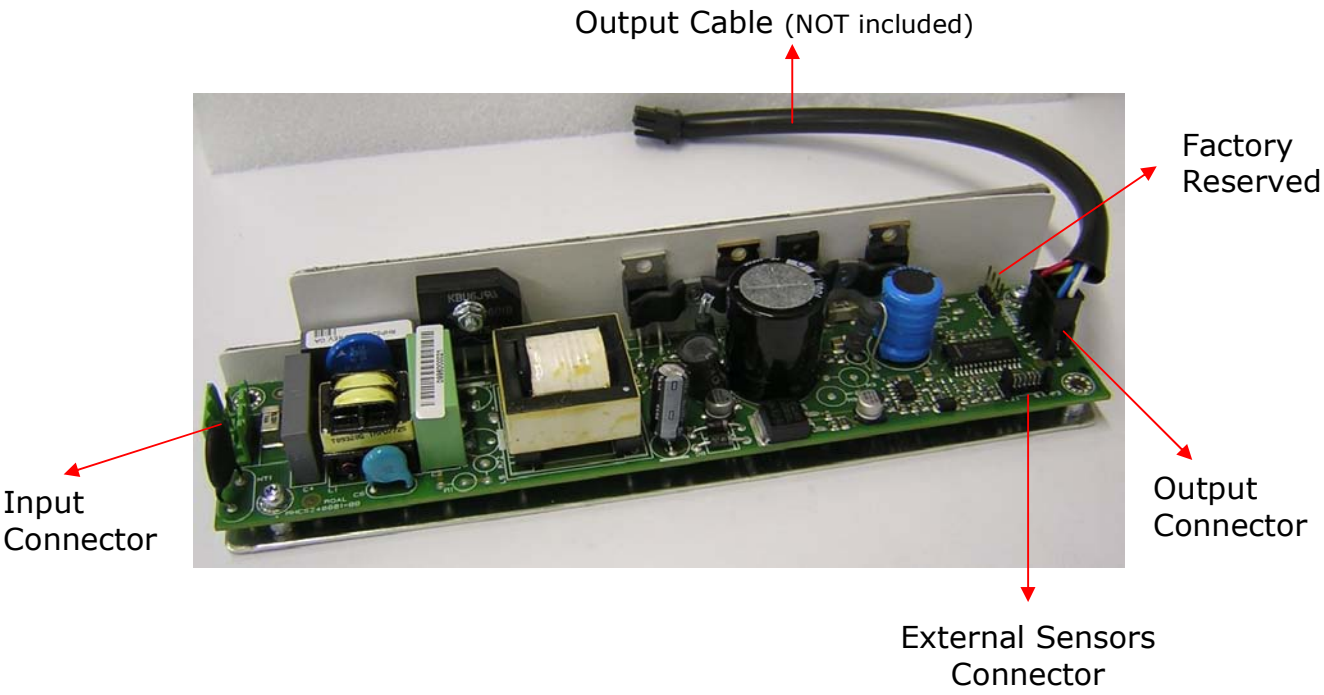
## Input - Output connectors




**Warning**

- The device is NOT isolated: be careful !
- Disconnect AC Main BEFORE connecting the LOAD to the output connector
- Disconnect AC Main BEFORE connecting External Sensors
- Do NOT touch the board while it is functioning

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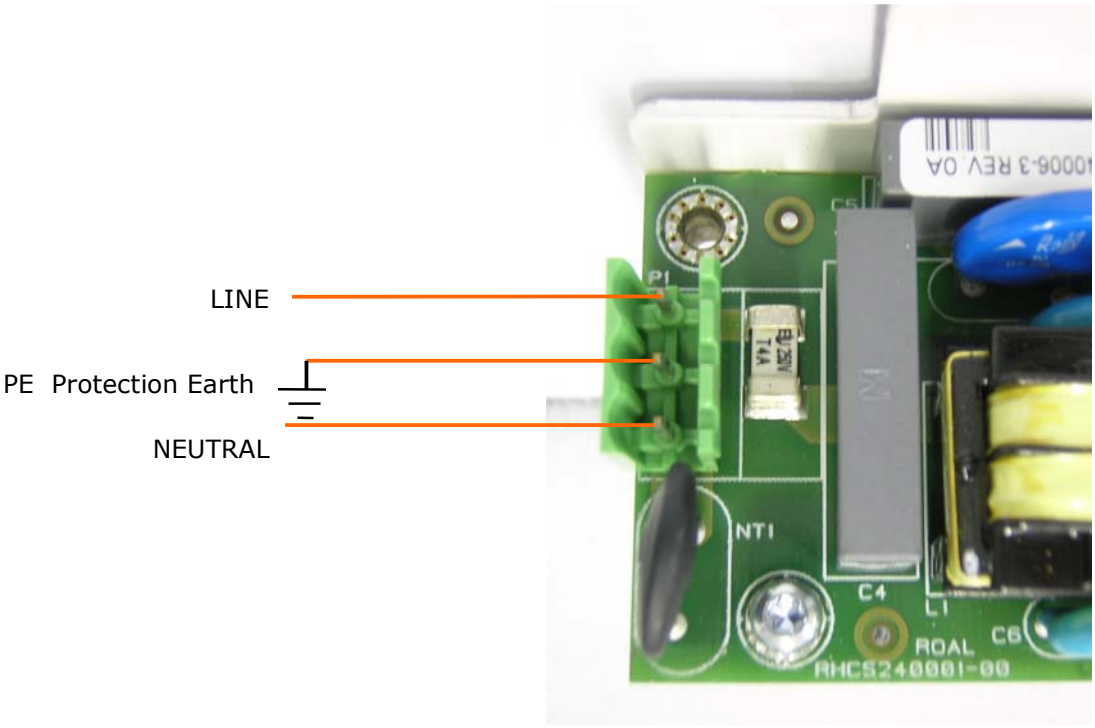
## Input Connector




**Note**

- The Input Mating connector is NOT included in the product (ask to the factory if needed)

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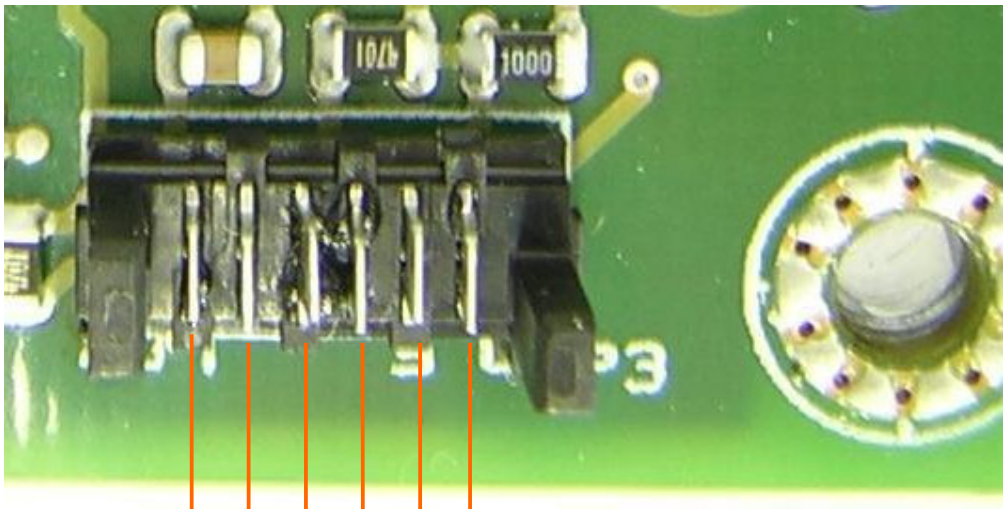
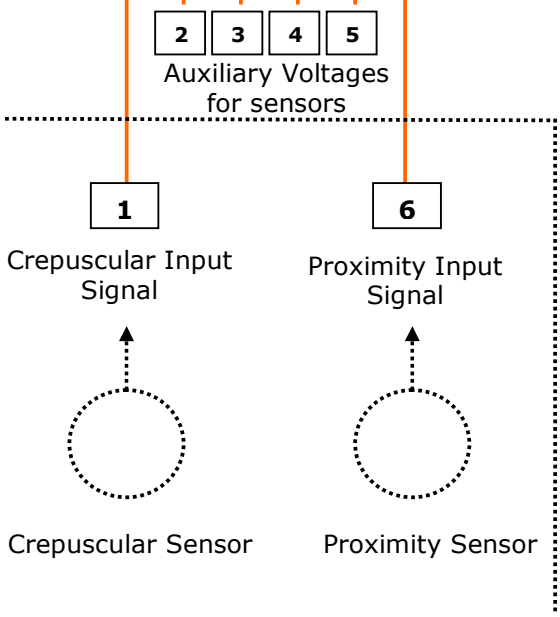
## External Sensors Connector






External Sensors

| PIN OUT | | |
|---|---|---|
| Pin number | Inpu/Output | Description |
| 1 | Input | Crepuscular Signal |
| 2 | Aux Output | 0Vdc |
| 3 | Aux Output | +5Vdc |
| 4 | Aux Output | +5Vdc |
| 5 | Aux Output | 0Vdc |
| 6 | Input | Proximity Signal |

NOTE1: Consult table 1 for the functionality

NOTE2: Connect Crepuscular and Proximity Inputs as indicated below if you want to simulate the external sensors

| TO SIMULATE | ACTION |
|---|---|
| Crepuscular Input =Logic Level 1 | PIN 1 FLOATING or CONNECTED to PIN3 |
| Crepuscular Input =Logic Level 0 | PIN 1 CONNECTED to PIN2 |
| Proximity Input =Logic Level 1 | PIN 6 FLOATING or CONNECTED to PIN4 |
| Proximity Input =Logic Level 0 | PIN 6 CONNECTED to PIN5 |

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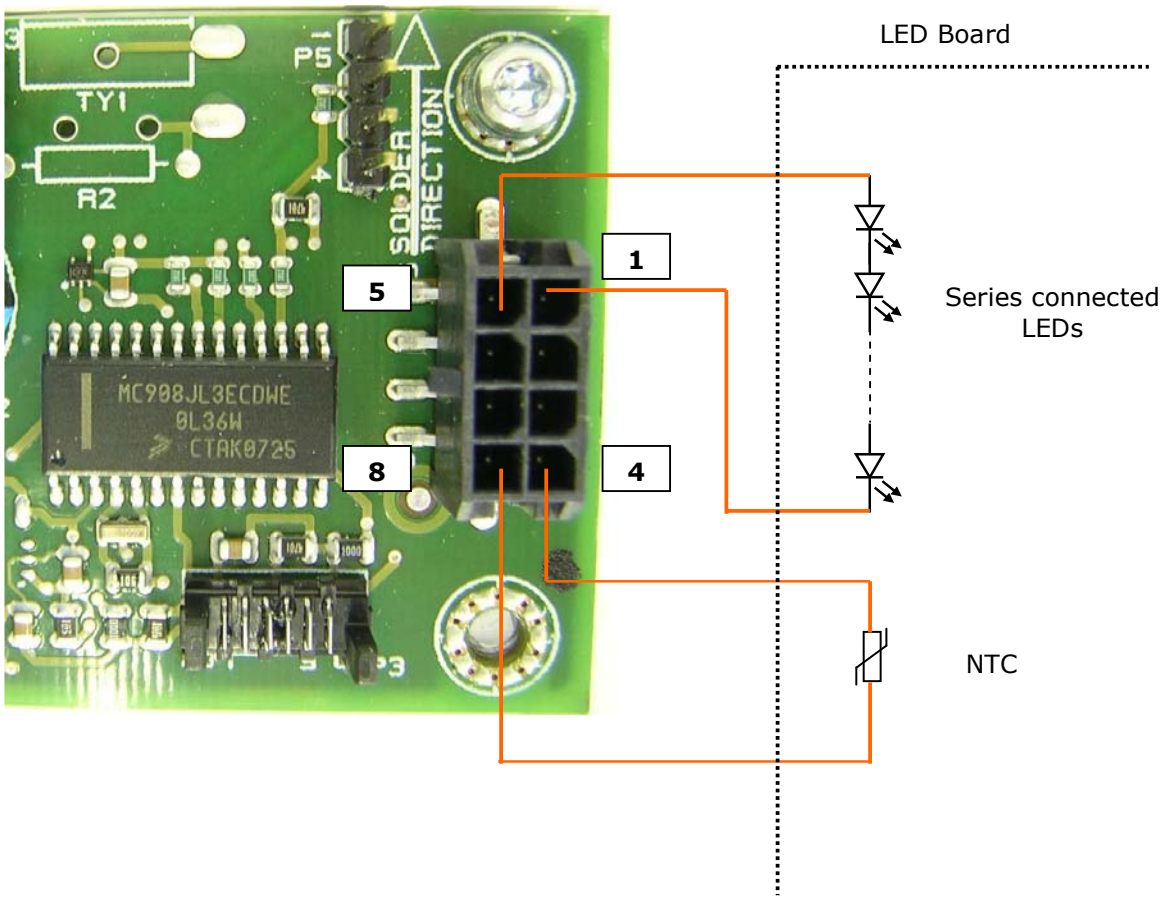
## Output Connector




**Note**

- The output cable is NOT included in the product (ask to the factory if needed)
- in case of the NTC is NOT connected between contacts 4 and 8, the Output current is regulated at the maximum value ($I_{MAX}$).



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