



**N.B.** This document covers Monsoon models for voltages ranging up to 18v. A datasheet for the higher-voltage (up to 32v) version is available on request.

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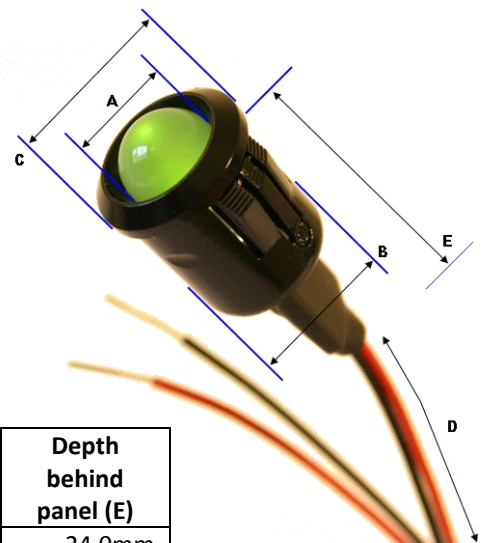
1. Features – general features of the Monsoon
2. Electrical specifications
3. Key dimensions
4. Standard voltage thresholds & outputs
5. Frequently asked questions (FAQs)

## 1. FEATURES

- fully waterproof & shockproof
- available in three LED sizes: 10mm, 8mm or 5mm
- excellent accuracy
- reverse polarity and overload protected
- simple two wire connection to positive & negative
- very low power consumption

## 2. ELECTRICAL SPECIFICATIONS (NOMINAL 12V VERSION, ALL LED SIZES)








Absolute max. input voltage	21.0v
Max continuous input voltage	18.0v
Current (typical)	4.65ma (green) 7.45ma (amber) <2.9ma (reds)
Power consumption (typical)	0.062 W
Accuracy	+/- 0.03v
Operating temperature	-40°C to +85°C
Reverse polarity protection	Yes
Resolution	10-bit



## 3. KEY DIMENSIONS

Model	LED diameter (A)	Required hole size for bezel (B)	Diameter of bezel's face (C)	Standard lead length (D)	Depth behind panel (E)
Monsoon10	10.0mm	14.0mm	16.1mm	600mm	24.0mm
Monsoon8	8.0mm	12.0mm	14.1mm	600mm	22.0mm
Monsoon5	4.9mm	8.0mm	9.4mm	600mm	12.0mm

#### 4. 12V MONSOON – STANDARD VOLTAGE THRESHOLDS, OUTPUTS & INTERPRETATION

Voltage	Output	Engine running	Engine stopped (electrics off)
>15.20v	 green/red alternating	over-charging – regulator problem	not applicable
>13.20v	 green steady	normal charging	exceptional battery charge (uncommon)
>12.45v	 amber steady	under-charging – alternator problem	normal battery, charged and in good health
>12.25v	 red slow flashing	not charging – battery low	fair battery charge
>12.05v	 red 2 flashes, repeating	not charging – battery low	low battery charge
>11.80v	 red 3 flashes, repeating	not charging – battery very low	very low battery charge
<11.80v	 red 4 flashes, repeating	not charging – battery very low	consider renewing battery

#### 5. FREQUENTLY ASKED QUESTIONS (FAQ)

1. *How are the Monsoon and Eclipse different?* The Eclipse dims automatically in response to the ambient light levels, the Monsoon has a fixed brightness level regardless of ambient light levels. There are no visible physical differences.
2. *Is the Monsoon suitable for either negative or positive earth vehicles?* Yes, it has no earth connections through its structure so the polarity of the vehicle is irrelevant.
3. *Do I have to have the standard voltage thresholds and output patterns?* No, we can customise the voltages to any values you like and you can have more/fewer/different output patterns if you wish.
4. *Is the Monsoon only suitable for motorcycles and cars?* No, although the *standard* settings are designed for systems with a lead-acid battery and alternator/dynamo, it is simply a voltmeter and can be configured (during build) for any application where you want a visual indication of voltage level. Please see the 'Manufacturing>Design & Development' tab on our website for some example applications.
5. *How do I connect this up?* Simply black to negative, and red to positive. Please see the separate installation guide for details.
6. *Can I connect the Monsoon directly to the battery?* Yes – the monitor will not mind. However, if the vehicle was not being used for more than a few weeks it would be good practice to isolate the battery to prevent any drain. If the monitor moved into the red zone then you should charge the battery for a suitable period of time depending on the type of charger (e.g. a couple of hours on a fast charger or overnight on a trickle charger).