LED Display Module
PCU-6D
Product Summary
PCU-6D is a small, lightweight display module designed to present drivers with the information they require in a clearly-legible and simple format via alphanumeric LED displays and LED lamps.

Diagnostic monitoring of the unit is via a 1Mbps CAN interface, and control may be via CAN or a synchronous serial interface (clock, data, strobe and PWM brightness signals).

Application
- Data display

Display
- Central Numeric Display area:
  - A single digit, fitted centrally, indicating gear number.
  - Size: 14.22mm high by 8mm wide.
  - This is a seven-segment red display with a right-hand decimal point.
- Left and Right Alphanumeric Display areas
  - Two smaller four-character displays flanking the central digit.
  - Each digit is 10.16mm high by 6mm wide.
  - These are alphanumeric ‘starburst’ red LED displays with right-hand decimal points.
- Warning/Marshalling LEDs
  - Two high-intensity red, two high-intensity yellow and two high-intensity blue LED indicators positioned at the extreme left and right of the unit.
- Shift LEDs
  - A horizontal bar of 15 high-intensity LEDs at the top edge of the assembly. The five left-hand LEDs are high-intensity green, the five middle LEDs are high-intensity red, and the five right-hand LEDs are high-intensity blue.
  - If the unit’s synchronous serial interface is used, the intensity of the warning and shift LEDs is controlled by a PWM brightness input signal, which can be pulse-width modulated at approximately 200Hz to adjust the intensity. Alternatively, if the CAN interface is used for control of the unit, the intensities of these LEDs and the alphanumeric displays may be independently set using CAN messaging.
  - When the synchronous serial interface is used, the PWM brightness input signal can be left unconnected, resulting in maximum brightness.
  - A grey acrylic circularly-polarised anti-glare front screen covers the alphanumeric and seven-segment LED displays. This enhances the contrast between light from the display and incident light due to polarised filters absorbing back-reflected light.
  - The LEDs on the front face of the unit are covered by a grey velvet polycarbonate label with clear windows.

Unit Inputs
- One reset input (active low with internal pull-up; can be left unconnected if not required)
- One CAN address selection analogue input (connect an external resistor to unit supply ground)

Communications
- 1Mbps CAN interface (no internal termination)
- A range of extended (29 bit) and standard (11 bit) CAN IDs are supported
- Synchronous serial interface

Diagnostics
- Internal board temperature
- Supply voltage
- Six warning LED drive voltages
Electrical
- Supply voltage: 7.5V to 16V DC
- Unit is protected against transients
- Supply current:
  - Quiescent (all LEDs off): 70mA typ @ 13.8V
  - Operating (all LEDs on): 0.6A typ @ 13.8V
- Synchronous serial interface input characteristics:
  - Operating input voltage range: 0V to 5V
  - Maximum protected input voltage range: ±16V
  - Input filter time constant: 1µs
  - Input termination: 4.7kΩ internal pull-up to 5V
  - Input low threshold: 1.0V min
  - Input high threshold: 3.5V max

Electro Magnetic Compatibility
- Complies with the essential protection requirements of 2004/108/EEC

Connection Definition
- Unterminated flying lead only (no connector fitted)
- Wires are 26 AWG (CAN signals are twisted pair)
- Wire colours

<table>
<thead>
<tr>
<th>Colour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Unit supply positive</td>
</tr>
<tr>
<td>Black</td>
<td>Unit supply ground</td>
</tr>
<tr>
<td>Green</td>
<td>Reset input</td>
</tr>
<tr>
<td>White</td>
<td>CAN port +</td>
</tr>
<tr>
<td>Blue</td>
<td>CAN port -</td>
</tr>
<tr>
<td>Grey</td>
<td>CAN address selection input</td>
</tr>
<tr>
<td>Brown</td>
<td>Serial clock input</td>
</tr>
<tr>
<td>Orange</td>
<td>Serial data input</td>
</tr>
<tr>
<td>Yellow</td>
<td>Serial strobe input</td>
</tr>
<tr>
<td>Violet</td>
<td>PWM brightness input (for warning and shift LEDs only)</td>
</tr>
</tbody>
</table>

Mechanical
- Hard black anodised aluminium case
- Weight: 130g approx

Environmental
- Splash resistant to standard motorsport fluids
- Lid has a rubber seal, case fixings are sealed with silicone sealant
- Maximum humidity: 100%
- Operating temperature: -10°C to +50°C
- Storage temperature: -25°C to +85°C
- Vibration: 100Hz to 1000Hz, all axes, 24 hours
- Vibration isolation is recommended
### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Ordercode</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCU-6D (unterminated flying lead)</td>
<td>O 030 020 010 004</td>
</tr>
</tbody>
</table>

500mm FROM REAR COVER TO CABLE END.