Halo LED illumination



MD OH-1707

### DISTINCTIVE FEATURES

Single, dual and RGB colors available

Designed to integrate with Ø16, Ø19 and Ø22 mm panel cutout switches and other APEM indicators

Ø22 mm oversized version for integration with APEM's range of Emergency Stop switches

Panel sealed up to IP67

200 mm 26 AWG UL1061 wire terminations



#### ENVIRONMENTAL SPECIFICATIONS

- Panel Seal : IP67 to EN60529 : 1992
- EMC Immunity : EN61000-4-3, 100V/m, extended to radiated fields in frequency range of 80MHz-2.7GHz, 1kHz 80% sine wave modulation
- EMC Emissions : EN61000-6-4 : 2011, Class B 30Mhz-11Ghz
- Electrostatic Discharge : EN61000-4-2 up to +/- 15 KV
- Operating Temperature Range : -30 °C to +70 °C (-22 °F to +158 °F)



#### GENERAL SPECIFICATIONS

- Max Reverse Voltage : 5 VDC
- Life Expectancy : 50,000 Hours
- Single color PCB : 12 LED's
- Dual color PCB : 12 LED's, 6 of each (alternately placed)
- RGB color PCB : 12 LED's



- Body : PC
- Lens : PC

The company reserves the right to change specifications without notice.

LED characteristics are dependent upon environmental conditions. Therefore published data should be considered nominal and subject to variations.





ED INDICATORS

| Voltage          | Operating Voltage | Operating Current   |
|------------------|-------------------|---------------------|
|                  | (Min to Max)      | (Typical All Types) |
| 12 VDC to 24 VDC | 12.0 to 26.4      | 4.2 mA to 20 mA     |

\* Customer to supply resistor for desired operating current.

#### STANDARD LED INTENSITY

| LED COMPONENT SPECIFICATIONS |           |                           |  |  |
|------------------------------|-----------|---------------------------|--|--|
|                              | Intensity | Forward Voltage (typical) |  |  |
| HE Red                       | 120 mcd   | 2.0 V                     |  |  |
| Green                        | 350 mcd   | 3.1 V                     |  |  |
| Yellow                       | 90 mcd    | 2.0 V                     |  |  |
| Blue                         | 90 mcd    | 3.1 V                     |  |  |
| White                        | 350 mcd   | 3.1 V                     |  |  |

#### RGB LED INTENSITY

| LED COMPONENT SPECIFICATIONS |           |                           |  |
|------------------------------|-----------|---------------------------|--|
|                              | Intensity | Forward Voltage (typical) |  |
| Red                          | 100 mcd   | 2.0 V                     |  |
| Green                        | 300 mcd   | 3.0 V                     |  |
| Blue                         | 90 mcd    | 3.0 V                     |  |

- The operating voltage must not be exceeded by more that 10% as this will result in reduced life expectancy
- Luminous intensity is measured at 20 mA on a discrete led unless otherwise stated.
- Luminous intensities and color shades of white LEDs may vary within a batch.
- Luminous intensity will be reduced with lower operating current.



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QH16, QH19, QH22



QH22L



APEN

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### CIRCUIT DIAGRAM (CONTINUED)

QH16, QH19, QH22 RGB

|          |   | Blue +12 to 24 VDC   | Red +12 to 24 VD |
|----------|---|--|------------------|
|          |   | 0 V Common   |                  |
|          |   |  |                  |
| 242      |   | ┐┝──────   |                  |
| 22       | RZO   | ₹<br>₹<br><sup>2</sup><br><sup>2</sup><br><sup>2</sup><br><sup>2</sup><br><sup>2</sup>   |                  |
|          | ⊐ ▶   | 5.5  |                  |
|          | ₹ <del>}}</del>                                       |  |                  |
| 2        | R22   | 58   |                  |
| •        |   |  |                  |
|          | <u>7</u> 7 5  |  | <b>_</b>         |
| 22       | R24   | <sup>−</sup> <sup></sup> |                  |
|          |   |  |                  |
| 2%2      | <u>7</u> 7 §  |  |                  |
| N        | Rg  | 55 F   |                  |
| • C      |   |  |                  |
| 33<br>33 | § <del>} }</del>                                      |  |                  |
| 2        | 5 <i>11</i> 5   | 55 <i>11</i>   |                  |
| •        |   | Rto 2X2  |                  |
| 2K2      | R29   |  |                  |
| 4        | R   |  |                  |
|          |   |  | <b>_</b>         |
| 2K2      | <u>a</u> <del>} }</del>                               |  |                  |
|          | Z 22 5  | tt R13   |                  |
|          |   |  |                  |
| 2K2      |   |  |                  |
|          |   |  |                  |
|          | R <sup>2</sup> <sup>2</sup> <sup>2</sup> <sup>1</sup> | Rtfe<br>Rt2  |                  |
| 2K2      |   |  |                  |
|          |   | 2R17   |                  |
|          |   |  | <b>+</b>         |
|          |   |  |                  |

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QH22L57YC

Shown fitted to an Emergency Stop switch



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#### ABOUT THIS SERIES

- Standard wire length is 200 mm, 26 AWG UL1061, for other wire lengths please contact APEM
- Colored wire denotes Anode (+), black wire denotes Cathode (-)
- Supply voltage is 12 to 24 VDC, for alternative voltages please contact APEM
- Dual color LEDs are alternately placed on the internal PCB, by connecting one colored wire (+) a color is produced, by connecting the other colored wire (+) the second color is produced
- When implementing full-spectrum RGB the customer should supply an external Microcontroller driver

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#### QH16 - 16 MM (.634")



QH19 - 19 MM (.752")



<u>Ø 19,10[0,752]</u> Ø 38,50[1,516] 5,50 [ 0,217 ŦŢ

Ø 35,50 [ 1,398 Ø 16,10 [ 0,634 ]

Ţ

5,50 [ 0,217



.00 [ 0,079 ]

2,00 [ 0,079 ]

200,00+/-10 [7,874+/-0,393]

Ø 5,00 [ 0,197 ]

13,50 [ 0,531 ]









QH22L - 22 MM (.872") - OVERSIZED

