

## PROPOSED BUS SHELTER ADVERTISING UNIT

### Specification

- Bus Shelter Advertising unit with integrated LCD digital display(s)
- Integrates with Bus Shelters within the CCUK portfolio
- Two configurations:
  - Double-sided Digital;
  - Single Digital with non-advertising, non-illuminated Council or Community panel on reverse side
- Robust fully weatherproof design, including heat strengthened laminated glass
- Comprehensive remote management and monitoring system
- Secure remote Content Management System
- In-built sensor control system adapts display(s) luminance to ambient light levels
- 50% less power consumption compared with previous comparable displays
- 4G connectivity with roaming across multiple mobile networks. 5G will be added when available
- Unit dimensions: H 2213mm, W 1370mm, D 222mm
- Display active area dimensions: H 1635mm, W 924mm
- UK manufactured



## Digital display operation

As per the established norm, the Digital display(s) would portray static advertising images that change sequentially, every 10 seconds. Between midnight and 5am, the displays are turned off.

### Daytime

The latest authority document on illuminated advertisements is 'PLG 05/23 The Brightness of Illuminated Advertisements including Digital Displays', published in 2023 by the Institute of Lighting Professionals. PLG 05/23 recognizes that in daytime, appropriate advertisement luminance is dependent on ambient light conditions and, as such, is variable. Therefore, PLG 05/23 recommends that digital displays have a control system or similar technology that ensures the display luminance relates to ambient light levels.

In accordance with PLG 05/23, the display(s) have an in-built sensor control system. In daytime, this control system reads ambient light levels and adjusts display luminance to the ambient light level prevailing; this means lower display luminance when ambient light levels are lower, and higher display luminance when ambient light levels are higher.

For information, on average brightness days, average luminance of bright colours within advertisements is around 2,500 cdsq.m. This Specification states that the maximum Daytime luminance for displaying full white (which is the brightest content) is 3,500 cdsq.m. This value, which is the maximum potential luminance during daytime, is applicable only to full white content in very bright ambient light conditions as and when detected by the in-built sensor control system. For noting, on bright sunny days, ambient light levels can reach 47,000+ lux.

### Darkness

In darkness, the display(s) operate at set very low levels not exceeding 300 cdsq.m.

Therefore, in both daytime and darkness, the displays operate in full accordance with recommendations within the latest authority document on illuminated advertisements, 'PLG 05/23 The Brightness of Illuminated Advertisements including Digital Displays' (2023), specifically Table 10.4 (Recommended maximum night-time permitted values of display luminance) and Table 10.5 (Recommended maximum daytime permitted values of sign luminance) therein. These Tables are reproduced below.

Extracts from PLG 05/23 The Brightness of Illuminated Advertisements including Digital Displays

*Table 10.1: Lighting environmental zones*

| Zone      | Surrounding | Lighting environment       | Examples                                                                                                       |
|-----------|-------------|----------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>E0</b> | Protected   | Dark                       | Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places                             |
| <b>E1</b> | Natural     | Dark                       | Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc. |
| <b>E2</b> | Rural       | Low district brightness    | Sparsely inhabited rural areas, village or relatively dark outer suburban locations                            |
| <b>E3</b> | Suburban    | Medium district brightness | Well inhabited rural and urban settlements, small town centres or suburban locations                           |
| <b>E4</b> | Urban       | High district brightness   | Town and city centres and other commercial areas with high levels of night-time activity                       |

*Table 10.4: Recommended maximum night-time permitted values of display luminance*

| Light Technical Parameter | Maximum sign luminance ( $L_s$ ) $\text{cd/m}^2$ |    |     |     |     |
|---------------------------|--------------------------------------------------|----|-----|-----|-----|
|                           | Environmental zones                              |    |     |     |     |
| Sign surface area         | E0                                               | E1 | E2  | E3  | E4  |
| 0 to < 5 $\text{m}^2$     | 0                                                | 25 | 200 | 300 | 300 |
| 5 to < 20 $\text{m}^2$    | 0                                                | 0  | 200 | 300 | 300 |
| $\geq 20 \text{ m}^2$     | 0                                                | 0  | 100 | 200 | 300 |

*Table 10.5 – Recommended maximum daytime permitted values of sign luminance.*

| Daylight ambient Illuminance ( $E_h$ ) [lux]  | Sign Luminance [ $\text{cd/m}^2$ ] |
|-----------------------------------------------|------------------------------------|
| Up to 3,500                                   | $\leq 400$                         |
| 3,501 to 8,500 (overcast day)                 | $\leq 1,000$                       |
| 8,501 to 15,000 (bright day with cloud cover) | $\leq 2,500$                       |
| 15,001 to 25,000 (bright sunny day)           | $\leq 3,500$                       |
| 25,001 to 42,000 (direct sunlight)            | $\leq 5,000$                       |
| 42,001 and above                              | $> 5,000$                          |

|                              |                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Digital Display(s)</b>    |                                                                                                                    |
| Technology                   | LCD                                                                                                                |
| Orientation                  | Portrait                                                                                                           |
| Viewability                  | Direct sunlight readable                                                                                           |
| Luminance (full white) Day   | 3500 cd/m2 (maximum). Only applicable in very bright ambient light conditions as detected by sensor control system |
| Luminance (full white) Night | 300 cd/m2 (maximum)                                                                                                |
| Display Active Area          | H 1635mm x W 924mm                                                                                                 |
| <b>Power</b>                 |                                                                                                                    |
| Power Supply                 | 220-240VAC, 50Hz single phase mains                                                                                |
| Internal Protection          | Mains voltage surge protection and EMC filter                                                                      |
| External Protection          | Digital - 10A Type C                                                                                               |
| <b>Unit Enclosure</b>        |                                                                                                                    |
| Digital panel glass          | 9mm thick heat strengthened laminated construction                                                                 |
| Ventilation                  | Top and bottom for simple integration                                                                              |
| Materials                    | Stainless steel and aluminium                                                                                      |
| IP Rating                    | IP55                                                                                                               |