

## **ANEXO III**

### FICHAS DE MATERIALES

## 2. MATERIALES EQUIPAMIENTO MUSEOGRÁFICO

# TUBO CUADRADO

Se define como tubo aquel perfil cerrado conformado en frío y soldado en continuo.

## APLICACIÓN

- Carpintería y cerrajería.
- Auxiliar del automóvil.
- Elementos estructurales.
- Fabricación de maquinaria y equipos.
- Construcción de invernaderos.



1035-CPD-ES044500  
13  
EN 10219

## CARÁCTERÍSTICAS FÍSICAS

Espesor acero: desde 1 mm. hasta 3 mm.

Longitud mínima: 500 mm.

Longitud máxima: 10.000 mm.

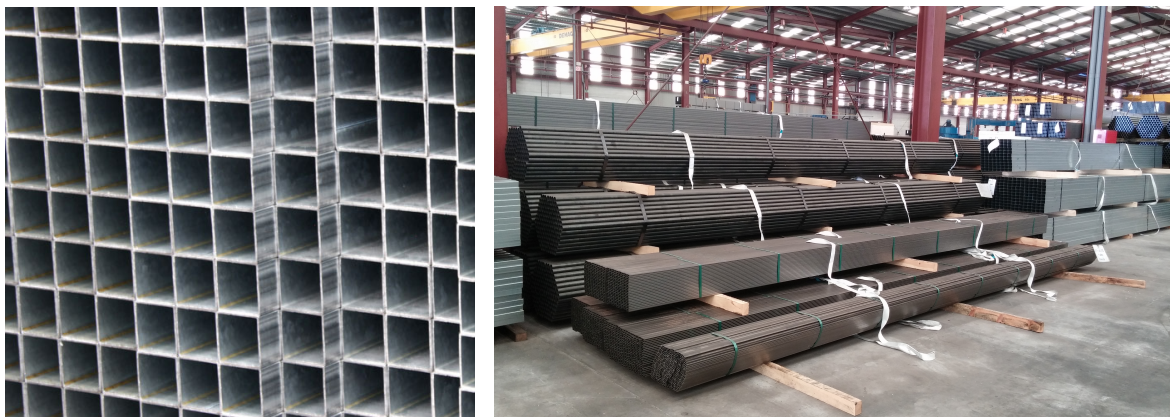
El suministro se realiza en medidas estándar de 6 metros o cortados a medida, previa solicitud del cliente.

## TIPOS DE CALIDADES DEL MATERIAL

En función de su posterior utilización se emplea la materia prima más apropiada para tal fin.

- **Laminado en caliente o decapado:** Calidad DD11 / S 235 JR / S 275 JR / S 355 JR
- **Laminado en frío:** Calidad DC01.
- **Galvanizado:** Calidad DX 51 D / S220 GD, S250 GD. Recubrimiento en proceso Sendzimir hasta 275 gr/m<sup>2</sup> de Zinc.
- **Otras calidades bajo consulta.**

## IMÁGENES:

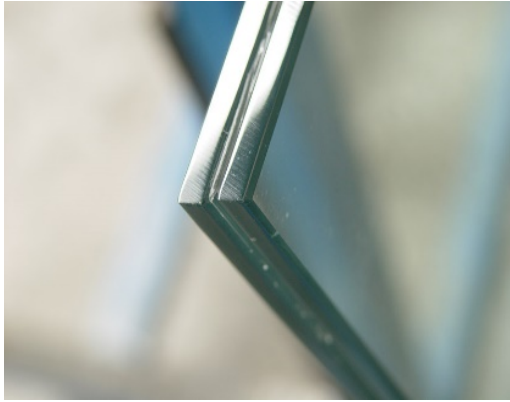


## DIMENSIONES Y CARACTERÍSTICAS MECÁNICAS

| DIMENSIONES    |           |                     | Sección<br>A<br>(cm <sup>2</sup> ) | Momento de<br>inercia<br>I <sub>x</sub><br>(cm <sup>2</sup> ) | Momento<br>Resistente<br>W <sub>x</sub><br>(cm <sup>2</sup> ) | Radio de<br>Giro<br>I <sub>x</sub><br>(cm) | Inercia a<br>Torsión<br>I <sub>t</sub><br>(cm <sup>2</sup> ) |
|----------------|-----------|---------------------|------------------------------------|---|---|--|--|
| HxR<br>(mm)    | e<br>(mm) | Masa<br>P<br>(Kg/m) |                                    |   |   |  |  |
| <b>18 x 18</b> | 1         | 0,50                | 0,64                               | 0,33  | 0,36  | 0,71                                       | 0,49   |
|                | 1,5       | 0,76                | 0,97                               | 0,45  | 0,50  | 0,68                                       | 0,67   |
| <b>20 x 20</b> | 1         | 0,57                | 0,72                               | 0,46  | 0,46  | 0,79                                       | 0,68   |
|                | 1,5       | 0,82                | 1,04                               | 0,64  | 0,64  | 0,78                                       | 0,95   |
| <b>25 x 25</b> | 1         | 0,71                | 0,91                               | 0,92  | 0,74  | 1,02                                       | 1,38   |
|                | 1,5       | 1,05                | 1,34                               | 1,30  | 1,04  | 0,99                                       | 1,95   |
| <b>30 x 30</b> | 1         | 0,89                | 1,13                               | 1,63  | 1,08  | 1,20                                       | 2,43   |
|                | 1,5       | 1,29                | 1,64                               | 2,32  | 1,55  | 1,19                                       | 3,47   |
|                | 2         | 1,66                | 2,11                               | 2,94  | 1,96  | 1,18                                       | 4,39   |
| <b>35 x 35</b> | 1         | 1,04                | 1,32                               | 2,62  | 1,50  | 1,41                                       | 3,93   |
|                | 1,5       | 1,52                | 1,94                               | 3,77  | 2,15  | 1,39                                       | 5,64   |
|                | 2         | 1,97                | 2,51                               | 4,81  | 2,75  | 1,38                                       | 7,18   |
| <b>40 x 40</b> | 1,5       | 1,76                | 2,23                               | 5,71  | 3,67  | 1,60                                       | 8,56   |
|                | 2         | 2,28                | 2,91                               | 7,34  | 2,86  | 1,58                                       | 10,97  |
|                | 3         | 3,30                | 4,21                               | 9,32  | 4,66  | 1,49                                       | 15,19  |
| <b>45 x 45</b> | 1,5       | 1,99                | 2,54                               | 8,24  | 3,66  | 1,80                                       | 12,34  |
|                | 2         | 2,60                | 3,31                               | 10,62   | 4,72  | 1,79                                       | 15,50  |
| <b>50 x 50</b> | 1,5       | 2,32                | 2,91                               | 11,42   | 4,57  | 1,98                                       | 15,64  |
|                | 3         | 3,07                | 3,84                               | 14,77   | 5,91  | 1,96                                       | 20,73  |
|                | 5         | 4,22                | 5,37                               | 20,80   | 8,34  | 1,97                                       | 31,10  |
| <b>60 x 60</b> | 1,5       | 2,70                | 3,43                               | 20,24   | 6,74  | 2,43                                       | 30,70  |
|                | 2         | 3,60                | 4,58                               | 26,00   | 8,68  | 2,38                                       | 39,00  |
|                | 3         | 5,32                | 6,78                               | 37,10   | 12,38   | 2,34                                       | 55,60  |
| <b>70 x 70</b> | 2         | 4,34                | 5,53                               | 42,00   | 11,99   | 2,76                                       | 62,90  |
|                | 3         | 6,43                | 8,20                               | 60,30   | 17,22   | 2,71                                       | 90,20  |
|                | 4         | 8,48                | 10,80                              | 76,90   | 21,98   | 2,67                                       | 115,00   |

## VIDRIO LAMINADO

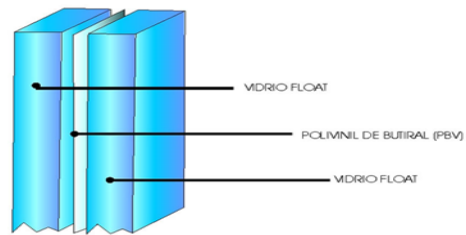
(se instalará este material o similar, de características iguales o superiores)



El diseño actual de los edificios, tanto de oficinas como residenciales, comerciales, industriales y de recreo, se basa fundamentalmente en criterios funcionales, estéticos y económicos. La utilización del vidrio como un material estructural es cada día más popular, ya que solo el vidrio puede combinar belleza, durabilidad y transparencia, cumpliendo con los requerimientos estéticos y económicos. El vidrio laminado satisface todos los requisitos técnicos y las necesidades funcionales de diseño de las obras modernas. Además satisface todos los requisitos técnicos y las necesidades funcionales, ya que por su versatilidad ofrece una flexibilidad excepcional entre el diseño, la seguridad, control de radiación y la protección acústica.

## CARACTERÍSTICAS DEL VIDRIO LAMINADO

### CRISTAL LAMINADO



El vidrio laminado comercializado por Templaglass, está compuesto por uno o varios vidrios unidos por capas de Polivinil Butiral, (PVB). Este material combina las propiedades específicas del vidrio, tales como la transparencia y durabilidad y cualidades como su adherencia al vidrio, elasticidad y resistencia a los impactos, protección acústica y contra los rayos UV, además de ofrecer múltiples posibilidades de color.

La gran elasticidad del PVB le confiere una alta resistencia frente a impactos. Es por ello que, ante un golpe sobre el vidrio laminado, la película de PVB absorbe la energía del impacto y por su flexibilidad, mantiene su adherencia al cristal. Estas son las características que convierten al **vidrio laminado templaglass**, en una excelente barrera de protección. Por otra parte, no altera la transparencia del vidrio.

**El vidrio laminado comercializado por Templaglass**, permite realizar **combinaciones especiales** y trabajos en la superficie.

*Haciendo de este un producto confiable con una variedad de combinaciones tanto para el uso habitacional de decoración o destinado a la arquitectura.*

*Laminado simple*

*Laminado templado plano*

La superficie puede ser pintada incorporando a ella un diseño para su decoración

*Laminado templado curvo*

*Laminado DVH hermético*

*Laminado resistentes a Balas.*

## **DISPONIBILIDAD**

Ancho máximo: 1600 mm

Largo máximo: 3000 mm

Límite de fabricación: Peso máximo de 100 kg por placa.

Espesor laminado: 3+3, 4+4, 5+5, 6+6, 8+8, 10+10, 10+10+10

Colores: Consultar

Procesos adicionales: Perforado – Serigrafiado -Templado.

Consultar otras dimensiones y espesores.

| <b>NORMAS APLICABLES</b> |                          |
|--------------------------|--------------------------|
| <b>INTERNACIONALES</b>   | <b>NACIONALES</b>        |
| <b>ANSI Z26.1</b>        | NCh 132                  |
| <b>ASTM C1036</b>        | NCh 133                  |
| <b>ASTM C1048</b>        | NCh 134                  |
|                          | NCh 135 partes 1 a las 7 |
|                          | NCh 2620                 |



# Ficha técnica

## Espejo sin azogue

(se instalará este material o similar, de características iguales o superiores)

- MIR 500
- MIR 501
- MIR 502
- MIR 503
- MIR 504
- MIR 505
- MIR 500 X

**Descripción** : la lámina espejo sin azogue juega con el fenómeno del balance de la luminosidad : en reacción a una luz más fuerte, la película se convierte en una pantalla reflectante. Por un lado, devuelve la imagen como un espejo sin dejar de conservar la intimidad, por otro, la transparencia del vidrio, lo que permite ver sin ser visto.

**Utilización MIR 500 a MIR 505** : sobre todos los cristales simples o cristales esmerilados.

**Utilización MIR 500 X** : en todo tipo de cristales.

**Método de aplicación MIR 500 a MIR 505** : cara interior, con agua jabonosa.

**Método de aplicación MIR 500 X** : cara exterior, con agua jabonosa.

**Mantenimiento del vidrio** : solución a base de agua jabonosa, 30 días después de la colocación. No utilizar productos de limpieza que rallen la lámina. No aplicar pegatinas o cualquier otro pegamento sobre la lámina.

**Duración MIR 500 a MIR 505** : 12 a 15 años para una aplicación vertical interior en Europa Central.

**Duración MIR 500 X** : 8 a 10 años para una aplicación vertical exterior en Europa Central.

**Almacenamiento** : 2 años a partir de la entrega. Resguardar esta lámina de la humedad excesiva y de los rayos solares, a una temperatura inferior a 38 °C.

**Observaciones importantes** : la superficie para colocar debe estar libre de polvo, grasa o cualquier otro contaminante. Ciertos materiales como el policarbonato pueden generar burbujeados. Se recomienda, por consiguiente, realizar una prueba de compatibilidad.

Para los vidrios expuestos al sol, tipo « doble cristal, cristal tintado, cristal laminado, o cristales gruesos » : consultarnos o referirse al D.T.U. 39.

Clasificación al fuego

M1

Con objeto de seguir mejorando nuestros productos, podremos vernos obligados a modificar, sin preaviso, los colores y métodos de fabricación de nuestros productos.

Recomendamos a nuestros usuarios cerciorarse, antes de aplicar nuestro producto, de que éste se adapte perfectamente al empleo deseado y de atenerse a las normas vigentes.

|   |  |
|---|--|
| <b>Soporte</b>                          | Poliéster cristal<br>36 micras                   |
| <b>Adhesivo</b>                         | Polímero Acrílico<br>19 gr/m <sup>2</sup>        |
| <b>Color MIR 500<br/>y MIR 500 X</b>    | Plata  |
| <b>Color MIR 501</b>                    | Oro  |
| <b>Color MIR 502</b>                    | Rojo   |
| <b>Color MIR 503</b>                    | Azul   |
| <b>Color MIR 504</b>                    | Verde  |
| <b>Color MIR 505</b>                    | Bronce   |
| <b>Protector</b>                        | Poliéster Siliconado<br>23 micras                |
| <b>Aplicación<br/>MIR 500 a MIR 505</b> | Interna  |
| <b>Aplicación<br/>MIR 500 X</b>         | Externa  |
| <b>Transmisión<br/>de los U.V.</b>      | 2 %  |
| <b>Resistencia<br/>térmica</b>          | de -20°C a 80°C                                  |
| <b>Temperatura<br/>de aplicación</b>    | Mínimo 5°C                                       |
| <b>Dimensiones</b>                      | 1.52 m x 2.5 m<br>1.52 m x 10 m<br>1.52 m x 30 m |

FIBRAPAN ® (se instalará este material o similar, de características iguales o superiores)

DATOS TECNICOS-VALORES MEDIOS

Rev:  
02/01/2012

| TEST DE REFERENCIA | PROPIEDADES                                 | UNIDADES          | ESPEORES mm |         |         |         |  |  |  |  |
|--------------------|---|-------------------|-------------|---------|---------|---------|--|--|--|--|
|                    |   |                   | 7/9         | >9/12   | >12/19  | >19/30  |  |  |  |  |
| EN 323             | DENSIDAD (*)                                | Kg/m <sup>3</sup> | 790/750     | 750/730 | 730/690 | 690/675 |  |  |  |  |
| EN 319             | TRACCION INTERNA                            | N/mm <sup>2</sup> | 0,65        | 0,65    | 0,60    | 0,60    |  |  |  |  |
| EN 310             | RESISTENCIA FLEXIÓN                         | N/mm <sup>2</sup> | 30          | 30      | 30      | 25      |  |  |  |  |
| EN 310             | MÓDULO DE ELASTICIDAD                       | N/mm <sup>2</sup> | 2700        | 2500    | 2500    | 2100    |  |  |  |  |
| EN 317             | HINCHAMIENTO EN AGUA 24 H                   | %                 | 17          | 15      | 12      | 10      |  |  |  |  |
| EN 318             | ESTABILIDAD DIMENSIONAL LARGO/ANCHO         | %                 | 0,4         | 0,4     | 0,4     | 0,3     |  |  |  |  |
| EN 318             | ESTABILIDAD DIMENSIONAL ESPESOR             | %                 | 6           | 6       | 6       | 5       |  |  |  |  |
| EN 311             | TRACCION SUPERFICIAL                        | N/mm <sup>2</sup> | 1,2         | 1,2     | 1,2     | 1,2     |  |  |  |  |
| EN 382-1           | ABSORCIÓN SUPERFICIAL (AMBAS CARAS)         | mm                | > 150       | > 150   | > 150   | > 150   |  |  |  |  |
| EN 322             | HUMEDAD                                     | %                 | 7+/-3       | 7+/-3   | 7+/-3   | 7+/-3   |  |  |  |  |
| ISO 3340           | CONTENIDO EN SILICE                         | % Peso            | ≤ 0,05      | ≤ 0,05  | ≤ 0,05  | ≤ 0,05  |  |  |  |  |
| EN-320             | RESISTENCIA AL ARRANQUE DE TORNILLO. CANTOS | N                 | -           | -       | 800     | 750     |  |  |  |  |
| EN-320             | RESISTENCIA AL ARRANQUE DE TORNILLO. CARAS  | N                 | -           | -       | 1000    | 1000    |  |  |  |  |

TOLERANCIA EN DIMENSIONES NOMINALES

| TEST DE REFERENCIA | PROPIEDADES       | UNIDADES | ESPEORES mm               |                           |                           |                           |  |  |  |  |
|--------------------|-------------------|----------|---------------------------|---------------------------|---------------------------|---------------------------|--|--|--|--|
|                    |                   |          | 7/9                       | >9/12                     | >12/19                    | >19/30                    |  |  |  |  |
| EN 324-1           | ESPESOR           | mm       | +/-0,2                    | +/-0,2                    | +/-0,2                    | +/-0,3                    |  |  |  |  |
| EN-324-1           | LONGITUD Y ANCHO  | mm       | +/- 2 mm/m, máx +/- 5 mm. | +/- 2 mm/m, máx +/- 5 mm. | +/- 2 mm/m, máx +/- 5 mm. | +/- 2 mm/m, máx +/- 5 mm. |  |  |  |  |
| EN 324-2           | ESCUADRADO        | mm/m     | +/- 2                     | +/- 2                     | +/- 2                     | +/- 2                     |  |  |  |  |
| EN-324-2           | RECTITUD DE BORDE | mm/m     | +/-1,5                    | +/-1,5                    | +/-1,5                    | +/-1,5                    |  |  |  |  |

(\*) ESTE DATO SE CONSIDERA ORIENTATIVO.

Estos valores físico-mecánicos cumplen/mejoran los valores establecidos en la norma europea EN 622-5:2006, Tabla 3. -Requisitos de los tableros para utilización general en ambiente seco (Tipo MDF).

FIBRAPAN cumple con los requisitos de Clase E1 (analizado según EN 120) definidos en la Norma Europea EN 622-1:2003.

FIBRAPAN está amparado por los Sellos de Calidad de Aitim 9-3-01, 9-3-02, 9-3-03, 9-3-05 y 9-3-06.

FIBRAPAN STRIP cumple con las características físico-mecánicas recogidas en esta ficha.

## FICHA TÉCNICA

### LACA PARA PUERTAS

(se instalará este material o similar, de características iguales o superiores)

|                                 |   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
|---------------------------------|---|----------------|----------------------|------------------------------------|------------|--|-----------------------|---|------------------------|----------|---------------------------|-------------------|--------|-------------|----------|---|---------------|---------|------------------|---------------------|--|---|---------------------|---------------------------|-----------|---|
| <b>Descripción</b>              | Laca satinada al agua especialmente formulada para renovar puertas y muebles de madera así como PVC o metal proporcionando un acabado lacado profesional.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| <b>Propiedades</b>              | <ul style="list-style-type: none"> <li>* Liso perfecto.</li> <li>* No amarillea.</li> <li>* Sin olor.</li> <li>* Fácil aplicación.</li> <li>* Secado rápido.</li> <li>* Alta resistencia.</li> <li>* Teñible en colores claros (sólo el blanco permanente)</li> </ul>   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| <b>Usos</b>                     | <p><b>Interior</b><br/>Acabado ideal para las superficies expuestas a manipulaciones, suciedad y desgaste, impacto y arañazos.<br/>Laca para Puertas de Bruguer resiste el paso del tiempo gracias a su dureza y excelente resistencia al frote (Clase 1 según EN 13300 e ISO 11998).<br/>Sus propiedades de alto poder de relleno y una buena tensión de la película, proporcionan una mejor protección de esquinas, bordes y molduras.</p>  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| <b>Colores y tamaños</b>        | Blanco y Blanco roto  | 0,750 L; 2,5 L |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| <b>Características técnicas</b> | <p><u>Composición</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Vehículo fijo</td> <td>Polímero acrílico autoreticulable.</td> </tr> <tr> <td>Pigmentos</td> <td>Dióxido de Titanio y pigmentos seleccionados exentos de plomo.</td> </tr> <tr> <td>Disolvente</td> <td>Agua.</td> </tr> <tr> <td>Aspecto</td> <td>Satinado</td> </tr> <tr> <td>Densidad</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Blanco</td> <td>1,27 ± 0.05</td> </tr> <tr> <td>Sólidos:</td> <td>48% ± 2 (en peso); 34% ± 3 (en volumen)</td> </tr> <tr> <td>Secado a 23°C</td> <td>2 horas</td> </tr> <tr> <td>Repintado a 23°C</td> <td>Después de 6 horas.</td> </tr> <tr> <td></td> <td>La temperatura ambiente y la humedad relativa del aire influyen en el tiempo de secado.</td> </tr> <tr> <td>Rendimiento teórico</td> <td>11-13 m / litro por capa.</td> </tr> <tr> <td>Valor COV</td> <td>Valor límite en UE para este producto (<b>cat. A/a</b>): <b>130 g/l</b> (2010). Este producto contiene un máximo de <b>90 g/l COV</b>.</td> </tr> </table> |                | Vehículo fijo        | Polímero acrílico autoreticulable. | Pigmentos  | Dióxido de Titanio y pigmentos seleccionados exentos de plomo. | Disolvente            | Agua.   | Aspecto                | Satinado | Densidad                  |                   | Blanco | 1,27 ± 0.05 | Sólidos: | 48% ± 2 (en peso); 34% ± 3 (en volumen) | Secado a 23°C | 2 horas | Repintado a 23°C | Después de 6 horas. |  | La temperatura ambiente y la humedad relativa del aire influyen en el tiempo de secado. | Rendimiento teórico | 11-13 m / litro por capa. | Valor COV | Valor límite en UE para este producto ( <b>cat. A/a</b> ): <b>130 g/l</b> (2010). Este producto contiene un máximo de <b>90 g/l COV</b> . |
| Vehículo fijo                   | Polímero acrílico autoreticulable.  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Pigmentos                       | Dióxido de Titanio y pigmentos seleccionados exentos de plomo.  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Disolvente                      | Agua.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Aspecto                         | Satinado  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Densidad                        |   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Blanco                          | 1,27 ± 0.05   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Sólidos:                        | 48% ± 2 (en peso); 34% ± 3 (en volumen)   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Secado a 23°C                   | 2 horas   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Repintado a 23°C                | Después de 6 horas.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
|                                 | La temperatura ambiente y la humedad relativa del aire influyen en el tiempo de secado.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Rendimiento teórico             | 11-13 m / litro por capa.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Valor COV                       | Valor límite en UE para este producto ( <b>cat. A/a</b> ): <b>130 g/l</b> (2010). Este producto contiene un máximo de <b>90 g/l COV</b> .   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| <b>Modo de empleo</b>           | <p><u>Condición de aplicación</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Útiles de aplicación</td> <td>Brocha, rodillo o pistola.</td> </tr> <tr> <td>Disolvente</td> <td>Agua</td> </tr> <tr> <td>Dilución del producto</td> <td>Listo al uso para brocha y rodillo. Para pistola diluir entre un 10% - 20%.</td> </tr> <tr> <td>Limpieza de utensilios</td> <td>Agua</td> </tr> <tr> <td>Temperatura de aplicación</td> <td>Entre 10 ° y 35°C</td> </tr> </table> <p><u>Sistema de aplicación</u><br/>Homogeneizar perfectamente el producto antes de su utilización.</p>   |                | Útiles de aplicación | Brocha, rodillo o pistola.         | Disolvente | Agua   | Dilución del producto | Listo al uso para brocha y rodillo. Para pistola diluir entre un 10% - 20%. | Limpieza de utensilios | Agua     | Temperatura de aplicación | Entre 10 ° y 35°C |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Útiles de aplicación            | Brocha, rodillo o pistola.  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Disolvente                      | Agua  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Dilución del producto           | Listo al uso para brocha y rodillo. Para pistola diluir entre un 10% - 20%.   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Limpieza de utensilios          | Agua  |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |
| Temperatura de aplicación       | Entre 10 ° y 35°C   |                |                      |                                    |            |  |                       |   |                        |          |                           |                   |        |             |          |   |               |         |                  |                     |  |   |                     |                           |           |   |

## Laca para Puertas Satinado

|                                     |   |  |
|-------------------------------------|---|--|
|                                     | <p>Preparación previa</p> <p>Superficies nuevas (sin pintar)</p> <p>Acabado</p> <p>Superficies pintadas</p> | <p>Las superficies a pintar han de estar secas y limpias de polvo, eflorescencias, óxido, grasas, ceras, etc. e imprimadas adecuadamente.</p> <p><b>Madera.</b><br/>Imprimir con Preparación Universal Acrylic (para cerrar el poro).</p> <p><b>Hierro</b><br/>Imprimir con Preparación Antioxidante Brumin.</p> <p><b>Metales no férricos (Aluminio, Galvanizados,..)</b><br/>Matizar e imprimir con Preparación Universal Acrylic o Preparación Multiuso Bruguer (para mejor adherencia).</p> <p>Aplicar una o dos capas de Laca para Puertas Bruguer.</p> <p>Si la pintura antigua está en buen estado, lijar para matizar, desengrasar, eliminar el polvo y aplicar una o dos capas de Laca para Puertas Bruguer.</p> <p>Si la pintura antigua está en mal estado deberá eliminarse y proceder como en superficies nuevas.</p> <p>Para el pintado de otros materiales o situaciones específicas no contempladas en esta Ficha Técnica, consultar con nuestro Servicio Técnico Comercial.</p> |
| <p><b>Información adicional</b></p> | <p>Instrucción de seguridad</p> <p>Tiempo de almacenaje</p>   | <p>Consultar etiquetado del envase.<br/>Para más información solicitar la Hoja de Datos de Seguridad</p> <p>24 meses, desde su fabricación, en su envase original, sin abrir, bajo techado y a temperatura comprendida entre 5 y 35°C.</p>   |

Versión (mes/año): 02/18



La efectividad de nuestros sistemas está basada en las investigaciones llevadas a cabo en nuestros laboratorios y años de experiencia práctica.

Garantizamos que la calidad de la obra ejecutada con nuestros sistemas se encuentra dentro de los estándares de AKZO NOBEL, a condición de que nuestras indicaciones sean debidamente seguidas y que el trabajo esté bien ejecutado. Declinamos cualquier responsabilidad si el resultado final se ve afectado por factores ajenos a nuestro control. El usuario debe comprobar que el producto suministrado se ajusta a las necesidades para las que va destinado, debiendo realizar una prueba previa en los casos que sea necesario. La evolución técnica es permanente, recomendamos se compruebe que las características del producto no se han modificado por una edición posterior. La presente edición anula las anteriores.

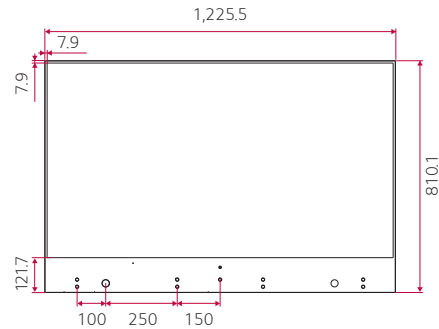


### 3. EQUIPAMIENTO AUDIOVISUAL

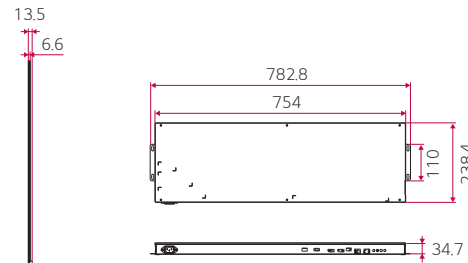
(se instalará este material o similar, de características iguales o superiores)

## Dimension (unit: mm)

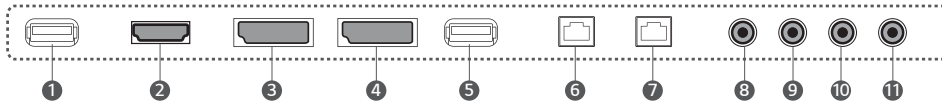
### Head



### Signage Box



## Connectivity



- 1 USB 2.0
- 2 HDMI IN
- 3 DP IN
- 4 DP OUT
- 5 USB 2.0
- 6 LAN IN
- 7 LAN OUT
- 8 IR IN
- 9 RS232C IN
- 10 RS232C OUT
- 11 AUDIO OUT



## Specifications

### 55EW5F-A

|                                   |  |   |   |
|-----------------------------------|--|---|---|
|                                   | Screen Size  | 55"   |   |
|                                   | Panel Technology   | OLED  |   |
|                                   | Aspect Ratio   | 16 : 9  |   |
|                                   | Native Resolution  | 1,920 x 1,080 (FHD)   |   |
|                                   | Brightness (Typ.) <sup>1)</sup>  | 400/150 cd/m <sup>2</sup> (Average Picture Level 25%/100%, without Glass)   |   |
|                                   | Transparency (Typ.)  | 38% (Panel)   |   |
| <b>PANEL</b>                      | Viewing Angle (H x V)  | 178 x 178   |   |
|                                   | Response Time  | 1 ms (G to G)   |   |
|                                   | Surface Treatment (Haze)   | Hard Coating (2H), Anti-reflection Treatment of the Front Polarizer (Reflectance Typ. 14%)  |   |
|                                   | Life Time (Typ.)   | 30,000 Hrs  |   |
|                                   | Operation Hours  | 18 Hrs / 7 days *Moving Video Only  |   |
|                                   | Orientation  | Landscape & Portrait  |   |
|                                   | <b>CONNECTIVITY</b>  | Input   | HDMI, DP, USB (2)                       |
|                                   |  | Output  | DP, Audio                               |
|                                   |  | External Control  | RS232C In/out, RJ45 (LAN) In/out, IR In |
|                                   | <b>MECHANICAL SPECIFICATION</b>  | Bezel Color   | Silver (Mirror)                         |
| Bezel Width                       |  | 7.9 / 7.9 / 7.9 / 12.17 mm (T/L/R/B)  |   |
| Monitor Dimension (W x H x D)     |  | (Head) 1,225.53 x 810.1 x 6.6 mm<br>(Signage Box) 782.8 x 238.4 x 34.7 mm   |   |
| Weight                            |  | (Head) 13.9 kg<br>(Signage Box) 3.4 kg  |   |
| Carton Dimensions (W x H x D)     |  | 1,329 x 898 x 191 mm  |   |
| Packed Weight                     |  | 22.4 kg   |   |
| <b>KEY FEATURE</b>                | Internal Memory (64GB), Temperature Sensor, Embedded CMS, Fail Over, Content Sync, OSD Rotation, Lock Mode, Content Rotation, Gapless Playback, Tile Mode Setting, Setting Data Cloning, Firmware Update by Network, SNMP, ISM Mode, Control Manager, Crestron Connected <sup>®2)</sup> , DPM, PM Mode, Wake on LAN, SI Server Setting, webRTC |   |   |
| <b>ENVIRONMENT CONDITIONS</b>     | Operation Temperature  | 0°C to 40°C   |   |
|                                   | Operation Humidity   | 10% to 80%  |   |
| <b>POWER</b>                      | Power Supply   | 100-240V~, 50/60Hz  |   |
|                                   | Power Type   | Built-In Power  |   |
|                                   | Power Consumption Typ.   | 309 W *8 color bar  |   |
|                                   | Power Consumption Max.   | 318 W *8 color bar  |   |
|                                   | Safety   | IEC 60950-1 / EN 60950-1 / UL 60950-1   |   |
| <b>CERTIFICATION</b>              | EMC  | FCC Class "A" / CE / KC   |   |
|                                   | ErP / Energy Star  | Yes / No  |   |
| <b>MEDIA PLAYER COMPATIBILITY</b> | OPS Type Compatible  | No  |   |
|                                   | External Media Player Attachable   | Yes   |   |
| <b>SOFTWARE COMPATIBILITY</b>     | Content Management Software  | SuperSign CMS   |   |
|                                   | Control and Monitoring Software  | SuperSign Control / Control+  |   |
|                                   | Signage365Care   | Yes   |   |
| <b>ACCESSORIES</b>                | Basic  | Remote Controller, Power Cord, OSG, IR Receiver, Regulation Book, Phone to RS232C Gender, RS232 Cable (4p-4p), FFC Cables (for Connection between Panel and Signage Box), DP Cable, LAN Cable, LC (VLC Cable), Tapes, Screws, Shield Cover Assy, Rubber Dampers |   |

1) Brightness may vary for final product (with glass).

2) Network Based Control



Download  
LG C-Display+  
Mobile App

Google Play Store

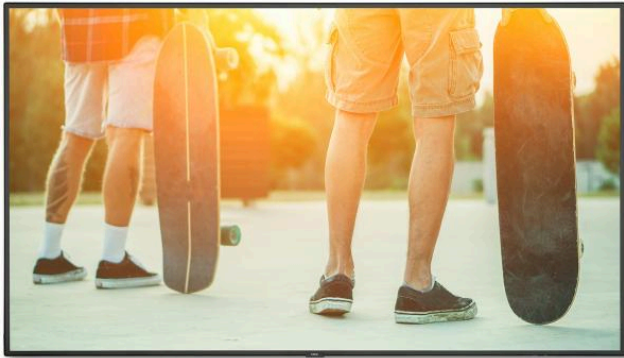
- [www.lg.com/b2b](http://www.lg.com/b2b)
- [www.youtube.com/c/LGCommercialDisplay](https://www.youtube.com/c/LGCommercialDisplay)
- [www.facebook.com/LGInformationDisplay](https://www.facebook.com/LGInformationDisplay)
- [www.linkedin.com/company/LGInformationDisplay](https://www.linkedin.com/company/LGInformationDisplay)

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## MultiSync® V864Q LCD 86" Ultra-High Definition Large Format Display

(se instalará este material o similar, de características iguales o superiores)

### Hoja de especificaciones



#### Reforzando la experiencia visual para la señalización digital y las presentaciones

Para obtener una visualización convincente, MultiSync® V864Q de NEC combina la mejor experiencia visual en UHD con una operación sin preocupaciones, pero con la más baja inversión operacional.

La fusión inteligente de una vista ergonómica increíble "sin píxeles", más la reproducción cromática fiable para obtener las imágenes más realistas y emocionantes, con una relación de contraste mayor. Garantiza una legibilidad agradable a la vista bajo las condiciones normales de luz ambiental gracias a la combinación de una salida de brillo de 500 cd/m<sup>2</sup>, y menos reflejo gracias a la superficie antirreflejo. Su diseño moderno y fino es ideal para complementar la arquitectura del entorno y también para lograr una integración imperceptible en cualquier aplicación o ambiente. Open Modular Intelligence (OMi) es la manera más inteligente de brindar soluciones de señalización hechas a medida, en las que el poder de cómputo ampliable, como los módulos de cómputo Raspberry Pi o la PC de ranura OPS, se pueden integrar perfectamente en cualquier monitor.

El MultiSync® V864Q de 86" es la opción perfecta para lograr impresiones grandes y duraderas en las tiendas de ventas, en lugares de ocio y museos, para las áreas en hotelería y para las soluciones de señalización en las corporaciones y también para las presentaciones convincentes en lugares de reuniones y conferencias.

### Beneficios

**Operación 24 hs 7 días a la semana en aplicaciones críticas** - la selección meticulosa de los componentes de grado industrial y el diseño cuidadoso centrado en las posibilidades exigentes de uso, van de la mano con la experiencia impresionante y continua para el espectador.

**Mejor rendimiento de imagen** - ajustes avanzados mediante SpectraView Engine para todos los parámetros visuales relevantes como el control total de brillo, color, gamma y uniformidad.

**Diseño moderno** - robusto pero elegante, se puede integrar discretamente a cualquier aplicación y ambiente.

**Uso y operación fáciles** - la instalación inteligente, y las funciones de operación y mantenimiento aseguran un rendimiento preciso durante toda la vida útil del monitor, ahorrando tiempo, esfuerzos y recursos.

**Conectividad y proceso de señal para el futuro** - numerosas entradas de resolución nativa UHD con una frecuencia de actualización de 60Hz, incluye DisplayPort, HDMI y una ranura opcional para PC de ranura OPS, y además una conversión automática de UHD a otras señales, brindan así una visión a gran escala "sin píxeles".

**Para el futuro con la expansión de Open Modular Intelligence** - Mejore la potencia de su monitor cuando quiera

integrando de manera imperceptible una PC de ranura de las opciones OPS de NEC, los módulos de cómputo de Raspberry Pi o interfaces de señal para alimentar el contenido y computar.

**Gestión de dispositivo para ahorro de costes** - ahorre esfuerzos y al mismo tiempo gestione desde un lugar central todos los dispositivos de NEC conectados utilizando la herramienta de software NaViSet Administrator 2.

## Información del producto

|                     |  |
|---------------------|--|
| Nombre del producto | MultiSync® V864Q                                   |
| Grupo de productos  | LCD 86" Ultra-High Definition Large Format Display |
| Número de orden     | 60004037   |

## Display

|  |   |
|--|---|
| Tecnología del panel                   | IPS con retroiluminación LED Edge           |
| Area de pantalla activa (an x al) [mm] | 1.895 x 1.065,9                             |
| Tamaño de pantalla [pulgadas/cm]       | 86 / 217                                    |
| Brillo [cd/m <sup>2</sup> ]            | 500, 350 (shipment setting)                 |
| Ratio de contraste (típ.)              | 1200:1                                      |
| Ángulo de visión [°]                   | 178 / 178 (en ratio de contraste > 10:1)    |
| Colour Depth [bn]                      | 1.073 (10bit)                               |
| Tiempo de respuesta (típ.) [msec]      | 8 (gris a gris)                             |
| Haze Level [%]                         | Pro (28)                                    |
| Orientación posible                    | Horizontal; Pantalla hacia arriba; Vertical |

## Frecuencia de sincronización

|                             |             |
|-----------------------------|-------------|
| Frecuencia horizontal [kHz] | 31,5 - 91,1 |
| Frecuencia vertical [Hz]    | 24 - 85     |

## Resolución

|   |  |
|---|--|
| Resolución nativa                               | 3840 x 2160  |
| Funciona con entradas digitales y análogas (PC) | 4096 x 2160; 3840 x 2160; 1920 x 2160; 1920 x 1080 |

## Conectividad

|                          |  |
|--------------------------|--|
| Entrada digital de vídeo | 2 x DisplayPort (HDCP); 3 x HDMI (HDCP)  |
| Entrada análoga de audio | 1 x 3,5 mm jack  |
| Entrada digital de audio | 2 x DisplayPort; 3 x HDMI  |
| Control de entrada       | 1 x LAN 100Mbit; 1 x Remote Control (3.5 mm jack); 1 x RS232   |
| Input Data               | 1 x microSD (MediaPlayer); 1 x USB 2.0 (Downstream); 1 x USB 2.0 (MediaPlayer); 1 x USB Type-B (Upstream); 2 x USB 2.0 (Compute Module, 1 x 5V/2A powered) |
| Salida digital de vídeo  | 1 x DisplayPort (loop through: DisplayPort, OPS slot-in PC)  |
| Salida análoga de audio  | 1 x 3,5 mm jack  |
| Control de salida        | 1 x LAN 100Mbit  |

## Open Modular Intelligence

|  |   |
|--|---|
| Tecnología de slot                           | Especificación abierta enchufable (estándar de NEC / Intel OPS) |
| Actual OPS máx. / Consumo de energía [A / W] | 4.7 / 75  |

Ranura de módulo de  
cómputo

Tecnología de ranura: módulo de cómputo (estándar propiedad de NEC)

## Sensores

|                         |   |
|-------------------------|---|
| Sensor de luz ambiental | acciones de activación programables   |
| Sensor de movimiento    | Opcional, externo, alcance de 4-5m, acciones de activación programables     |
| Sensor de temperatura   | Integrado, 3 sensores, acciones de activación programables                  |
| Sensor NFC              | Integrado, alcance de 2cm, requiere aplicación gratuita de NEC para android |

## Eléctrico

|                      |                                |
|----------------------|--------------------------------|
| Consumo Eco/max. [W] | 230 envío; 300 (max.)          |
| Modo stand-by [W]    | < 0,5; < 2 (Networked Standby) |
| Gestión de energía   | VESA DPMS                      |

## Condiciones ambientales

|   |          |
|---|----------|
| Temperatura ambiente de funcionamiento [°C] | +0 a +40 |
| Humedad ambiental de funcionamiento [%]     | 20 a 80  |

## Mecánico

|                               |   |
|-------------------------------|---|
| Medidas (an x al x prof) [mm] | Sin base: 1.928 x 1.099 x 74                      |
| Peso [kg]                     | 57.8  |
| Ancho del marco [mm]          | 15,3 (arriba y abajo); 15,3 izquierda/derecha     |
| Montaje VESA [mm]             | 4 muescas; 400 x 400 (FDMI); 600 x 400 (FDMI); M8 |
| Protección contra penetración | IP[value1] (frente); IP2x (dorso)                 |

## MediaPlayer

|                                      |  |
|--------------------------------------|--|
| Supported Image Formats              | JPG (baseline, progressive, RGB, CMYK); max. resolution 5000 x 5000; PNG (interlace, alpha channel); max. resolution 4000 x 4000   |
| Supported Video Formats              | MP4 / MOV / FLV (vídeo H.264, sonido MP3, AAC); resolución máx. 1080p a 30 Hz, 1080i a 60 Hz; MPG (vídeo mpeg1/2, sonido mpeg sonido layer2/3, AAC-LC); MP @ ML, MP @ HL; WMV (vídeo H.264, wmv avanzado L3, wmv simple / principal, sonido mp3 wmv std); resolución máx. 1080p a 30 Hz, 1080i a 60 Hz |
| Supported Audio Formats              | MP3 (MP3); max. bit-rate 320 kBit/s; WAV (LPCM); max. 48 kHz sampling  |
| Supported File Storage / File System | MicroSDHC / FAT16, FAT32; USB 2.0 / FAT16, FAT32   |

## Opciones disponibles

|                     |  |
|---------------------|--|
| Accesorios          | Altavoces (SP-864QSM, SP-TF1); Carrito (PD02MHA); Montaje de pared (PDW T XL-2); Pies (ST-801) |
| Compute Module Slot | Módulo de cómputo de NEC; Módulo de cómputo Raspberry Pi 1 y 3                                 |
| OPS Slot            | CPU con Intel® Atom, Celeron y Core; OPS-2C Quad 3G SDI; receptor de HDBaseT                   |

## Funciones ecológicas

|                       |  |
|-----------------------|--|
| Eficiencia Energética | Clase de eficiencia energética: A; Consumo anual de energía: 372 kWh (en base a 4 horas en funcionamiento por día); Medidor de huella de carbono; Modo ECO; Regulación local de luz; Sensor de luz ambiental |
|-----------------------|--|

## Funciones adicionales

|                            |  |
|----------------------------|--|
| Características Especiales | 12-bit Look Up table; AMX NetLinx Support; ASCII Control Commands; Asignación de ID automática; Automated Email Alert; CEC Support; Cisco Webex Kit compatible; Crestron Connected Support; Display Browser Control; Emergency Notification; Función de matriz de mosaico automático; Función de registro legible para el usuario; HDMI with UHD at 60 Hz; HDR Gamma Support (HLG, PQ); KeyGuide; MediaPlayer with Browser Control; NaViSet Administrator 2; OmniColor Control; OSD rotativa para modo retrato; PIN de protección antirobo; PLink Support; Planificador; Powered USB-Port; Removable Logo; Sensor de luz ambiental; simulación DICOM; Slim LED Indicator; SNMP Support; TileMatrix (10 x 10) |
| Versiones                  | sobremarco opcional de color   |
| Seguridad y Ergonomía      | CE; EAC; EMC Class B; FCC; SASO; TÜV GS; UL/C-UL o CSA; VCCI   |
| Tipo de error de píxel     | ISO 9241-307, tipo 1   |
| Audio                      | Altavoces integrados (10 W + 10 W); Optional Speakers (15 W + 15 W)  |
| Accesorios incluidos       | Cable DisplayPort; Cable USB; CD-ROM (Guías de usuario); Control remoto; Pantalla  |
| Garantía                   | 3 años de garantía incluyendo la retro-iluminación (backlight); 4. + 5. año de extensión opcional de garantía  |
| Horas de funcionamiento    | 24/7   |



CE



TÜV GS



VCCI

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**E)XTENSA**

**Large size screen in high resolution**  
with a perfectly flat surface



HD PROGRESSIVE



16:10

16:9

**HD Progressive 0.6**  
Viewing Angle: 170°  
Gain: 0.6

**HD Progressive 0.9**  
Viewing Angle: 170°  
Gain: 0.9

**HD Progressive 1.1**  
Viewing Angle: 170°  
Gain: 1.1

**HD Progressive 1.3**  
Viewing Angle: 150°  
Gain: 1.3

**Dual Vision**  
Viewing Angle: 130°  
Gain: 0.9

## Extensa

- Projection screen for medium to large venue applications with a tab-tensioned projection surface for a perfectly flat viewing area. Available in widths from 4 to 6 metres.
- The Extensa is available with HD Progressive surfaces, the latest technology in projection surfaces designed for 4K and Ultra HD to maximize the technology of your projector.
- Robust case with a powerful motor.
- The projection screen is mounted to the wall and/or ceiling using three brackets which can be positioned flexibly. The brackets can be positioned up to one meter from each side.
- The motor is equipped with electric locks to prevent inadvertent unrolling and features thermal overload cut-off.
- The case and the projection screen surface can be made to exactly the right size and the case is available in any colour for optimal integration into any interior.
- The underside of the case is open as standard. A closed version can be supplied at additional cost.

### Available dimensions

Minimum width: 400 cm |  
Maximum width: | 600 cm

### Accessories

- All-in-One Control Box
- More on page 62



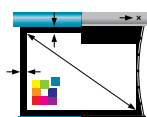
Black anodized aluminium case



Robust case



Slat bar retracts into the case



Customise this  
projection screen  
to perfectly fit  
your installation

(se instalará este material o similar, de características iguales o superiores)

Application:  Indoor;  Outdoor;  Semi outdoor

Installation Type:  Fixed;  Rental;  Sport Rental

Certificate:  CE;  Rohs;  ETL;  FCC;  UL48;  CCC



### E3 specification

Version: V20190716

|                                     | Parameter                     | Value                   | Unit             |
|-------------------------------------|-------------------------------|-------------------------|------------------|
| <b>Module</b>                       | Pixel Pitch                   | 3,9                     | mm               |
|                                     | LED Type                      | Black SMD 2121          | /                |
|                                     | Module Size(WxH)              | 250x250                 | mm               |
|                                     | Pixel Per Module              | 64x64                   | Dots             |
|                                     | Module Weight                 | 0,6                     | Kg               |
| <b>Panel</b>                        | Size                          | 500x500x62              | mm               |
|                                     | Pixels                        | 128x128                 | dots             |
|                                     | Material                      | Aluminum                | /                |
|                                     | Weight                        | 7,5                     | Kg               |
|                                     | Brightness                    | 1000                    | nit              |
|                                     | Processing depth              | 14 ~16                  | bit              |
|                                     | Display refresh rate          | 1920                    | Hz               |
|                                     | Color Temperature             | 3200~9300               | K                |
|                                     | Viewing angle(H)              | 140 (-70 / +70)         | deg.             |
|                                     | Viewing angle(V)              | 140 (-70 / +70)         | deg.             |
|                                     | Drive type                    | 1/16 Scan               | /                |
| <b>Application</b>                  | AC Operating Voltage          | 100~240                 | V                |
|                                     | AC Input Frequency            | 50/ 60                  | Hz               |
|                                     | Power Consumption (Max./Avg.) | 486/162                 | W/m <sup>2</sup> |
|                                     | Storage Temperature           | - 40~ + 60              | °C               |
|                                     | Operating Temperature         | - 10~ + 40              | °C               |
|                                     | Storage Humidity              | 10 % ~90 %              | RH               |
|                                     | Operating Humidity            | 10 % ~90 %              | RH               |
|                                     | IP Rating (Front/Rear)        | IP30/IP30               | /                |
|                                     | Module Maintenance            | Front/Rear              | /                |
|                                     | PSU & Others Maintenance      | Front/Rear              | /                |
|                                     | Panel Installation Type       | Front/Rear Installation | /                |
| Maximum number of panel for Lifting | /                             | PCS                     |                  |

Remark: Power consumption tolerance: ±15%, according to the actual situation.

Ledman Optoelectronic Co., Ltd. reserves the right to modify specifications and parameters without further notice.

# VPL-FHZ70

(se instalará este material o similar, de características iguales o superiores)

5,500 lumens WUXGA laser light source projector



## Overview

### **With advanced image technologies for high-contrast presentations and installation-friendly features**

The compact, elegantly styled VPL-FHZ70 laser projector showcases cutting-edge Sony picture innovations and installation-friendly features — making it ideal for high-brightness projection applications in midsize corporate, education, and public environments.

The projector's long-lasting laser light source and newly developed 0.76-in 3LCD panel with incorporated optical compensator are augmented by powerful Reality Creation and color processing technologies by Sony. This ensures exceptionally high-contrast images with WUXGA resolution, true-to-life color, and very high 5,500 lumens brightness — ideal for delivering lectures and presentations with extra audience engagement.

Leveraging its long-term experience in laser projector development and analysis, Sony's Intelligent Setting function simplifies installation, offering four pre-sets that adjust brightness, cooling system, color and other projector settings for optimal performance in meeting/classrooms, museums, entertainment venues, and multi-screen setups.

With its compact "blend-in" design and widest vertical lens shift range in its class, the VPL-FHZ70 is ideal for installation even in limited spaces, while extra flexibility's provided with accurately proportioned projection onto angled surfaces.

## Features

### **High contrast, very high-quality 5,500 lumen images**

The laser is complemented by a newly developed 0.76-in LCD panel with incorporated optical compensator. Combined with powerful signal processing technology, this ensures vivid images with crisp detail, ∞:1 contrast and natural, accurate color reproduction.

### **Advanced picture refinement technologies**

Picture quality is boosted by Sony's unique super-resolution Reality Creation technology, which uses a powerful pattern-matching database to optimize lower-resolution images, enhancing image clarity without increasing digital picture noise.

### **Intelligent Settings**

Leveraging its long-term experience in laser projector development and analysis, Sony's Intelligent Settings offer four presets, optimizing brightness, cooling system, and other projector settings to suit all usage environments — simplifying installation

for busy system integrators.

#### **Wide Lens Shift**

The industry's widest lens shift\* capability of Vertical +70% gives greater flexibility for positioning the projector, and ensures that presenters or visitors aren't distracted by the projector's light source.

\*In the range of 5000–6500 lm. As of February 5th, 2019, according to Sony research.

#### **Included powered standard zoom lens plus wide choice of lens options**

Installation flexibility is increased by a wide range of compatible lens options to suit virtually any size of room and throw requirements. New quick-release bayonet mount simplifies lens exchange.

#### **Constant Brightness**

Constant Bright maintains the same brightness throughout the 20,000 hours recommended lifespan.

#### **Slim, attractive blend-in design**

The slim, stylish body design features a flat top surface that blends in discreetly when the projector is ceiling-mounted. The clean appearance is accentuated by a new terminal cover that reduces cable clutter.

#### **Up to 20,000 hours\* operation with virtually no maintenance**

The advanced laser light source offers up to 20,000 hours\* operation without lamp exchange, reducing lifetime running costs compared with traditional projectors.

\*Actual hours may vary depending on usage environment.

#### **Hassle-free automatic filter cleaning**

Focus on great-looking images instead of arduous maintenance tasks: automated filter cleaning system removes dust every 100 hours.

#### **Create super-size displays with Edge Blending**

Seamlessly join accurately color-matched images from multiple projectors, simplifying creation of stunning super-size displays for corporate and education.

#### **Built-in Auto Calibration**

After extended periods, color can be automatically calibrated to the original factory condition. There's no need for extra calibration equipment or cameras; a built-in color sensor stores all the necessary information.

#### **Networked control and monitoring**

The projector is ideal for integration in AV environments with leading networked control, monitoring, and management systems, such as Crestron Connected™ and newly added Extron® XTP™ Systems.\*

\*Extron and XTP Systems are trademarks of RGB Systems Inc.

## Specifications

### Display system

|                |              |
|----------------|--------------|
| Display system | 3 LCD system |
|----------------|--------------|

### Display device

|                                |  |
|--------------------------------|--|
| Size of effective display area | New LCD panel 19 mm (0.76 in) x 3 BrightEra LCD Panel, Aspect ratio: 16:10 |
|--------------------------------|--|

|                  |                                    |
|------------------|------------------------------------|
| Number of pixels | 6,912,000 (1920 x 1200 x 3) pixels |
|------------------|------------------------------------|

## Projection lens \*1

|                               |                  |
|-------------------------------|------------------|
| Focus                         | Powered          |
| Zoom - Powered/Manual         | Powered          |
| Zoom - Ratio                  | Approx. x 1.6    |
| Throw ratio                   | 1.39:1 to 2.23:1 |
| Lens shift - Powered/Manual   | Powered          |
| Lens shift - Range Vertical   | -5%, +70%        |
| Lens shift - Range Horizontal | +/- 32%          |

## Light source

|      |             |
|------|-------------|
| Type | Laser diode |
|------|-------------|

## Light output

|                |         |
|----------------|---------|
| Mode: Standard | 5500 lm |
|----------------|---------|

## Color light output

|                |         |
|----------------|---------|
| Mode: Standard | 5500 lm |
|----------------|---------|

## Keystone correction (Max.)

|            |                |
|------------|----------------|
| Horizontal | +/- 30 degrees |
| Vertical   | +/- 30 degrees |

## INPUT OUTPUT (Computer/Video/Control)

|          |   |
|----------|---|
| INPUT A  | RGB / Y PB PR input connector: Mini D-sub 15 pin (female)<br>Audio input connector: Stereo mini jack        |
| INPUT B  | DVI input connector: DVI-D 24-pin (single link), HDCP support<br>Audio input connector: Shared with INPUT A |
| INPUT C  | HDMI input connector: HDMI 19-pin, HDCP support<br>Audio input connector: HDMI audio support                |
| INPUT D  | HDBaseT interface connector: RJ45, 4 play (Video, Audio, LAN, Control)                                      |
| VIDEO IN | Video input connector: BNC<br>Audio input connector: Shared with input A                                    |
| OUTPUT A | Monitor output for Input A Connector: Mini  |

|                |   |
|----------------|---|
| OUTPUT A       | D-sub 15-pin (female)<br>Audio output connector: Stereo mini jack   |
| OUTPUT B       | Monitor output for Input B Connector: DVI-D 24-pin (single link), HDCP not supported<br>Audio output, Monitor out connector: Stereo mini jack |
| REMOTE         | D-sub 9-pin (male) / RS232C   |
| LAN            | RJ45, 10BASE-T/100BASE-TX   |
| IR (Control S) | Stereo mini jack, Plug in power DC5V  |

### Dimensions (W x H x D)

|   |   |
|---|---|
| Dimensions (W x H x D)<br>(without protrusions) | 460 x 169 x 515 mm<br>18 1/8 x 6 21/32 x 20 9/32 inches |
|---|---|

### Optional accessories

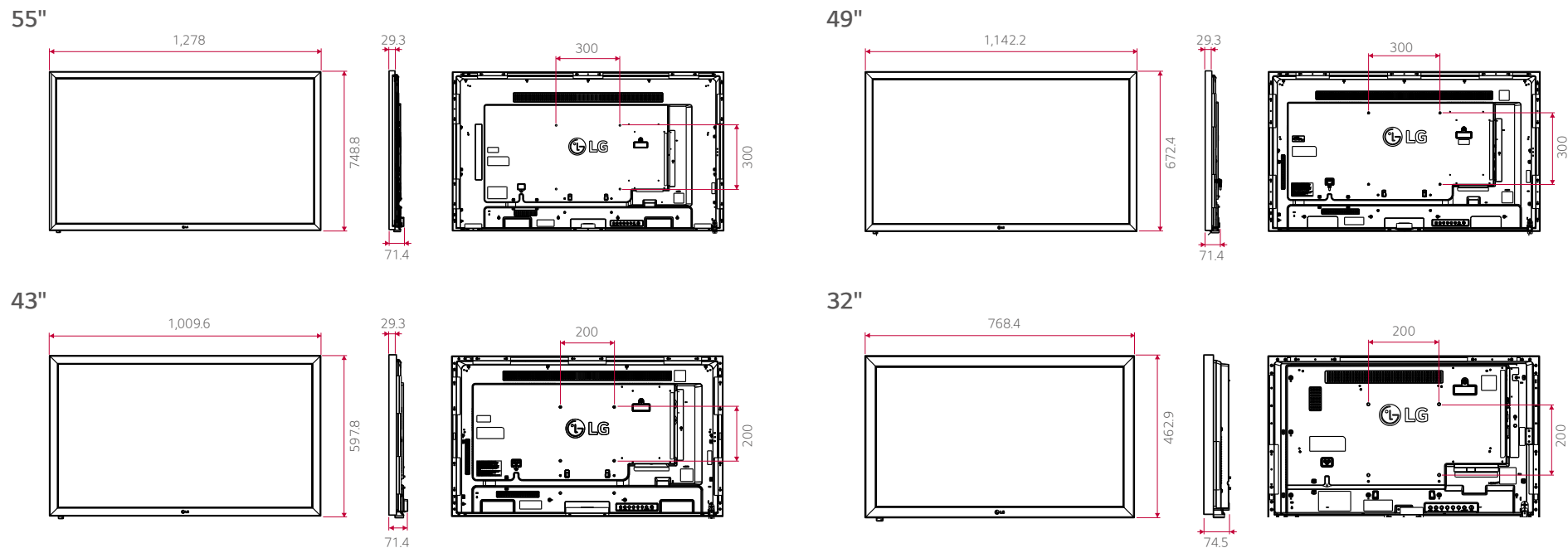
|                 |  |
|-----------------|--|
| Projection Lens | VPLL-3003 / 3007 / Z3009 / Z3010 / Z3024 / Z3032 |
|-----------------|--|

### Notes

|    |                             |
|----|-----------------------------|
| *1 | With supplied standard lens |
|----|-----------------------------|

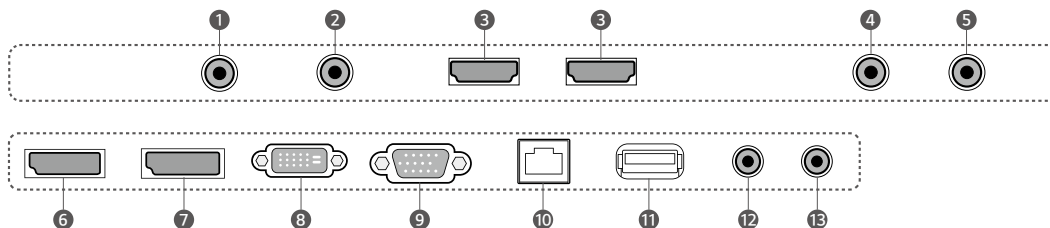
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## Dimension (unit: mm)



## Connectivity

55" / 49" / 43" / 32"



- |                     |            |              |
|---------------------|------------|--------------|
| ① AUDIO IN          | ⑥ DP IN    | ⑪ USB 3.0    |
| ② AUDIO OUT         | ⑦ DP OUT   | ⑫ RS232C IN  |
| ③ HDMI              | ⑧ DVI-D IN | ⑬ RS232C OUT |
| ④ PIXEL SENSOR      | ⑨ RGB IN   |              |
| ⑤ IR & LIGHT SENSOR | ⑩ LAN      |              |

# Specifications

|                                   | 55TA3E   | 49TA3E   | 43TA3E   | 32TA3E   |   |
|-----------------------------------|--|--|--|--|---|
| <b>PANEL</b>                      | Screen Size  | 55"  | 49"  | 43"  | 32"   |
|                                   | Panel Technology   | IPS  | IPS  | IPS  | IPS   |
|                                   | Aspect Ratio   | 16 : 9   | 16 : 9   | 16 : 9   | 16 : 9  |
|                                   | Native Resolution  | 1,920 x 1,080 (FHD)  | 1,920 x 1,080 (FHD)  | 1,920 x 1,080 (FHD)  | 1,920 x 1,080 (FHD)                                     |
|                                   | Brightness <sup>1)</sup> (Typ.)  | 450 cd/m <sup>2</sup>  | 450 cd/m <sup>2</sup>  | 450 cd/m <sup>2</sup>  | 400 cd/m <sup>2</sup>                                   |
|                                   | Viewing Angle (H x V)  | 178 x 178  | 178 x 178  | 178 x 178  | 178 x 178   |
|                                   | Response Time  | 12 ms (G to G BW), 9.0 ms (WOT)  | 12 ms (G to G BW), 10.1 ms (WOT)   | 12 ms (G to G BW), 9.4 ms (WOT)  | 10 ms (G to G BW), 7.1 ms (WOT)                         |
|                                   | Surface Treatment  | Hard Coating (3H), Anti-glare Treatment of the Front Polarizer (Haze Typ. 1%)  |  |  |   |
| <b>CONNECTIVITY</b>               | Life Time (Typ.)   | 50,000 Hrs   | 50,000 Hrs   | 50,000 Hrs   |   |
|                                   | Operation Hours  | 24 Hrs   | 24 Hrs   | 24 Hrs   |   |
|                                   | Orientation  | Landscape & Portrait   | Portrait & Landscape   | Portrait & Landscape   | Portrait & Landscape                                    |
|                                   | Input  | HDMI (2), DP, DVI-D, RGB, Audio In, USB 3.0  | HDMI (2), DP, DVI-D, RGB, Audio In, USB 3.0                                      | HDMI (2), DP, DVI-D, RGB, Audio In, USB 3.0                                      | HDMI (2), DP, DVI-D, RGB, Audio In, USB 3.0             |
| <b>PHYSICAL SPECIFICATION</b>     | Output   | DP, Audio Out  | DP, Audio Out  | DP, Audio Out  | DP, Audio Out   |
|                                   | External Control   | RS232C In/out, RJ45 In, IR Receiver In, Pixer Sensor In  | RS232C In/out, RJ45 In, IR Receiver In, Pixer Sensor In                          | RS232C In/out, RJ45 In, IR Receiver In, Pixer Sensor In                          | RS232C In/out, RJ45 In, IR Receiver In, Pixer Sensor In |
|                                   | Bezel Color  | Black  | Black  | Black  | Black   |
|                                   | Bezel Width  | 32.7 mm (Even)   | 32.7 mm (Even)   | 32.7 mm (Even)   | 32.7 mm (Even)  |
|                                   | Monitor Dimension (W x H x D)  | 1,278 x 748.8 x 71.4 mm  | 1,142.2 x 672.4 x 71.4 mm  | 1,009.6 x 597.8 x 71.4 mm  | 768.4 x 462.9 x 74.5 mm                                 |
|                                   | Weight (Head)  | 28.0 kg  | 22.3 kg  | 17.1 kg  | 10.3 kg   |
|                                   | Carton Dimensions (W x H x D)  | 1,410 x 880 x 207 mm   | 1,260 x 785 x 162 mm   | 1,122 x 720 x 162 mm   | 852 x 560 x 152 mm                                      |
|                                   | Packed Weight  | 33 kg  | 26.3 kg  | 20.1 kg  | 12.2 kg   |
| VESA™ Standard Mount Interface    | 300 x 300 mm   | 300 x 300 mm   | 200 x 200 mm   | 200 x 200 mm   |   |
| <b>SPECIAL FEATURES</b>           | Temperature Sensor, Auto Brightness Sensor, Tile Mode (Up to 15x15), Natural Mode @Tile Mode, ISM Method, DPM Select, Energy Saving, Smart Energy Saving, File Play with USB, PIP/PBP (2), Internal Memory 8GB (System 4GB + Available 4GB), Wi-Fi Built-in (802.11n combo), USB Cloning, Easy Brightness Control, IDB App. (Whiteboard App.), Fail Over, Mirroring, SoftAP, Beacon, Embedded Template, Built-in Speaker (10W+10W), Crestron Connected <sup>2)</sup> |  |  |  |   |
| <b>ENVIRONMENTAL CONDITIONS</b>   | Operation Temperature  | 0°C to 40°C  | 0°C to 40°C  | 0°C to 40°C  | 0°C to 40°C   |
|                                   | Operation Humidity   | 10% to 80%   | 10% to 80%   | 10% to 80%   | 10% to 80%  |
|                                   | Power Type   | Built-In Power   | Built-In Power   | Built-In Power   | Built-In Power  |
|                                   | Power Supply   | 100-240V~, 50/60Hz   | 100-240 V~, 50/60 Hz   | 100-240 V~, 50/60 Hz   | 100-240V~, 50/60Hz                                      |
| <b>POWER</b>                      | Power Typ. / Max.  | 100 W / 120 W  | 85 W / 105 W   | 75 W / 100 W   | 60 W / 85 W   |
|                                   | Consumption Smart Energy Saving  | 70 W   | 60 W   | 55 W   | 45 W  |
|                                   | Safety   | UL / cUL / CB / TUV / KC   | UL / cUL / CB / TUV / KC   | UL / cUL / CB / TUV / KC   | UL / cUL / CB / TUV / KC                                |
| <b>STANDARD (CERTIFICATION)</b>   | EMC  | FCC Class "A" / CE / KCC   | FCC Class "A" / CE / KCC   | FCC Class "A" / CE / KCC   | FCC Class "A" / CE / KCC                                |
|                                   | ErP / Energy Star  | N/A / N/A  | N/A / N/A  | N/A / N/A  | N/A / N/A   |
|                                   | ePEAT (US Only)  | N/A  | N/A  | N/A  | N/A   |
| <b>MEDIA PLAYER COMPATIBILITY</b> | OPS Type Compatible  | Yes  | Yes  | Yes  | Yes   |
| <b>SOFTWARE</b>                   | External Media Player Attachable   | Yes (MP500/MP700)  | Yes (MP500/MP700)  | Yes (MP500/MP700)  | No  |
| <b>COMPATIBILITY</b>              | Content Management Software  | SuperSign CMS  | SuperSign CMS  | SuperSign CMS  | SuperSign CMS   |
|                                   | Control and Monitoring Software <sup>3)</sup>  | SuperSign Control+   | SuperSign Control+   | SuperSign Control+   | SuperSign Control+                                      |
| <b>ACCESSORIES</b>                | Basic  | Remote Controller (2ea Batteries Included), Power Cord, QSG, RGB Cable, Regulation Book, Phone to RS232C Gender, Memory Cover                            |  |  |   |
|                                   | Optional   | Media Player, Wall Bracket (LSW350B), VESA Adapter (AM-B330S), OPS Kit (KT-OPSA)   | Media Player, Wall Bracket (LSW350B), VESA Adapter (AM-B330S), OPS Kit (KT-OPSA) | Media Player, Wall Bracket (LSW230B), VESA Adapter (AM-B220S), OPS Kit (KT-OPSA) | Wall Bracket (LSW230B), OPS Kit (KT-OPSA)               |
| <b>TOUCH</b>                      | Touch Type   | IR (Scattering)  |  |  |   |
|                                   | Scan Time  | 10 ms ↓  |  |  |   |
|                                   | Interface  | USB 2.0  |  |  |   |
|                                   | Protection Glass Thickness   | 2.8T (Anti-glare)  |  |  |   |
|                                   | Operating System Support   | Windows 7, Windows 8, Windows 8.1, Windows 10, Android (Kernel Version 3.5 Over), Linux(Kernel Version 3.5 Over), Mac OS X (10.9 Over), Chrome (39 Over) |  |  |   |
| Multi Touch Point                 | Max 10 Points  |  |  |  |   |

1) 325 (32": 289) cd/mi with Protection Glass

2) Network Based Control

3) Software compatibility may change over time. Please contact LG sales representative for details.



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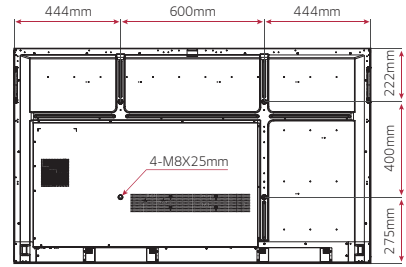
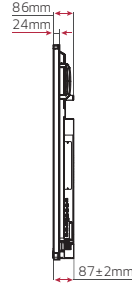
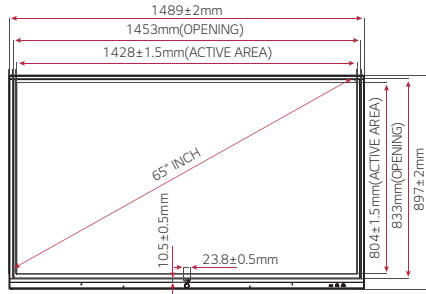
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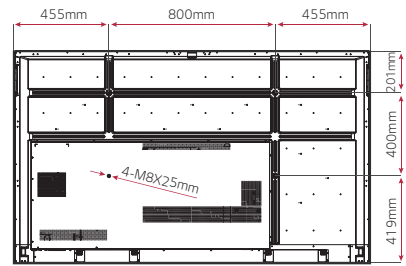
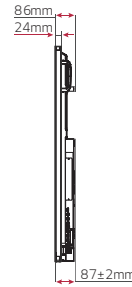
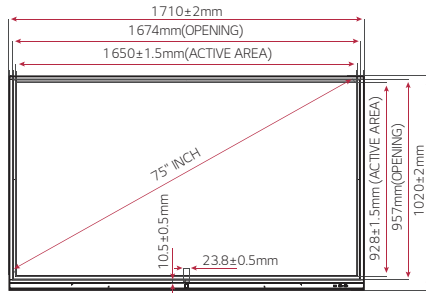
# Dimension

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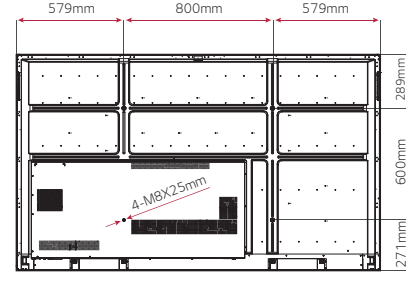
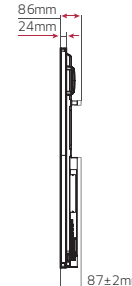
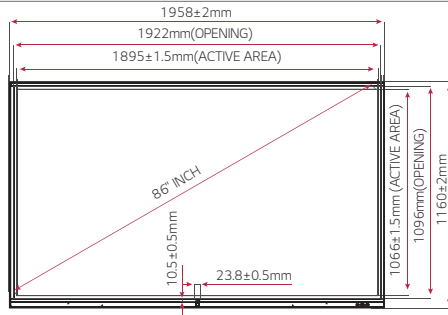
65TR3BF



75TR3BF



86TR3BF



# Specification

|                     |                           |  |  |        |      |
|---------------------|---------------------------|--|--|--------|------|
| <b>PANEL (IPS)</b>  | Size                      | 65   | 75                                       | 86     |      |
|                     | Resolution                | 3,840 x 2,160  |  |        |      |
|                     | Brightness                | 350nit   | 330nit                                   | 330nit |      |
|                     | Contrast Ration (Typical) | 1,200 : 1  |  |        |      |
|                     | Viewing Angle (H x V)     | 178 x 178  |  |        |      |
|                     | Response Time             | 8 ms   |  |        |      |
| <b>CONNECTIVITY</b> | <b>INPUT</b>              | Video / Audio  | HDMI (3), RGB (1), Composite (1) / Audio |        |      |
|                     |                           | External Control                                     | RS232C (1), RJ45 (1)                     |        |      |
|                     |                           | USB  | USB 2.0 (3), USB 3.0 (3), Touch Out(2)   |        |      |
|                     | <b>OUTPUT</b>             | Video / Audio  | HDMI (1) / Audio, SPDIF                  |        |      |
| <b>SPEAKER</b>      |                           | Built-in Speaker (12W+12W)                           |  |        |      |
| <b>PLATFORM</b>     |                           | Android 8.0  |  |        |      |
| <b>TOUCH</b>        | Detection Method          | IR   |  |        |      |
|                     | Pen Type / Pen location   | Passive / Front(2)                                   |  |        |      |
|                     | Operating System Support  | Windows 10, 8, 7, XP / Vista / Linux / Mac / Android |  |        |      |
|                     | Multi Touch Point         | 20 Points touch, 10 Points Writing                   |  |        |      |
| <b>DIMENSION</b>    |                           | Weight (Head)  | 40kg                                     | 53kg   | 67kg |



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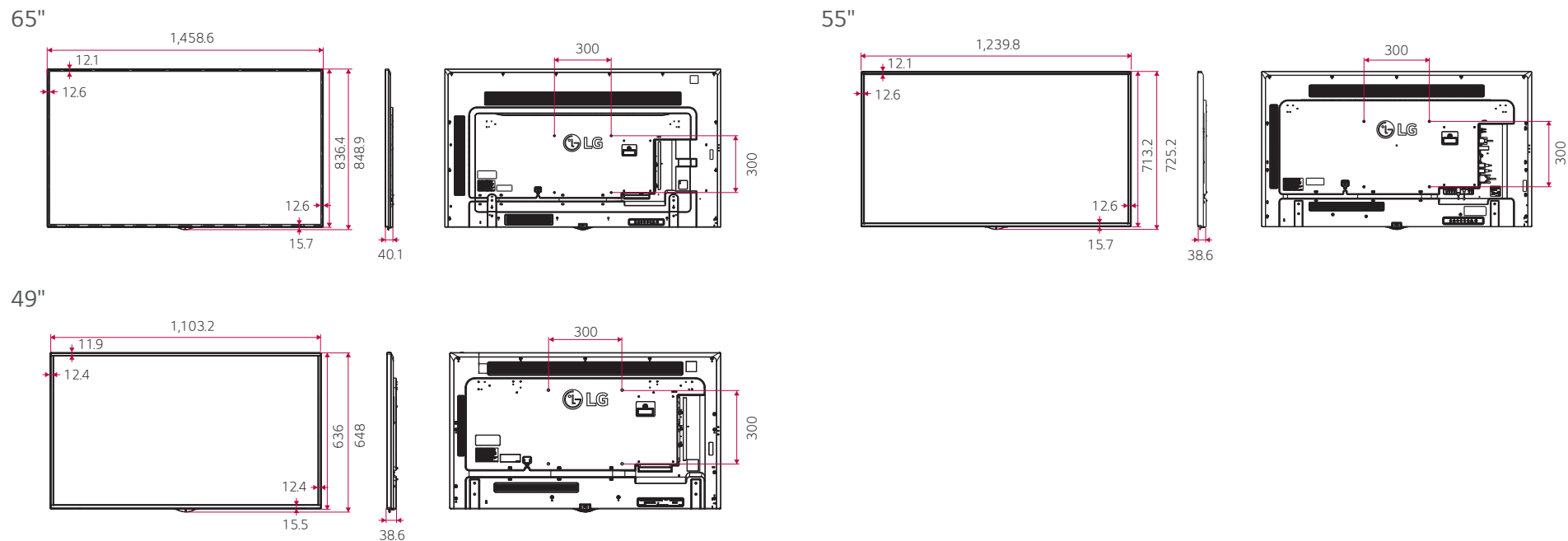
Google Play Store

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- [www.youtube.com/c/LGCommercialDisplay](https://www.youtube.com/c/LGCommercialDisplay)
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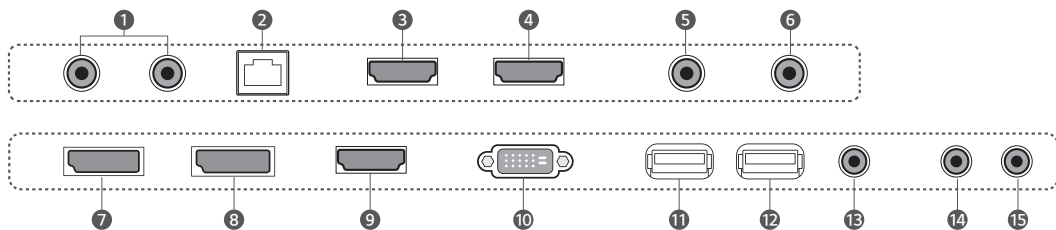
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## Dimension (Unit: mm)



## Connectivity

65" / 55" / 49"



- |               |                     |              |
|---------------|---------------------|--------------|
| ① SPEAKER OUT | ⑥ IR & LIGHT SENSOR | ⑪ USB 1      |
| ② LAN         | ⑦ DP IN             | ⑫ USB 2      |
| ③ HDMI 1      | ⑧ DP OUT            | ⑬ AUDIO OUT  |
| ④ HDMI 2      | ⑨ HDMI 3            | ⑭ RS232C IN  |
| ⑤ AUDIO IN    | ⑩ DVI-D IN          | ⑮ RS232C OUT |

# Specifications

|                                   | 65UH5E  | 55UH5E   | 49UH5E   |  |
|-----------------------------------|---|--|--|--|
| <b>PANEL</b>                      | Screen Size   | 65"  | 55"  | 49"  |
|                                   | Panel Technology  | IPS  | IPS  | IPS  |
|                                   | Aspect Ratio  | 16 : 9   | 16 : 9   | 16 : 9   |
|                                   | Native Resolution   | 3,840 x 2,160 (UHD, RGB)   | 3,840 x 2,160 (UHD, RGB)   | 3,840 x 2,160 (UHD, RGB)   |
|                                   | Brightness (Typ.)   | 500 cd/m <sup>2</sup>  | 500 cd/m <sup>2</sup>  | 500 cd/m <sup>2</sup>  |
|                                   | Contrast Ratio  | 1,100:1  | 1,100:1  | 1,100:1  |
|                                   | Viewing Angle (H x V)   | 178 x 178  | 178 x 178  | 178 x 178  |
|                                   | Response Time   | 8ms (G to G)   | 8ms (G to G)   | 8ms (G to G)   |
|                                   | Surface Treatment (Haze)  | Haze 28%   | Haze 28%   | Haze 28%   |
|                                   | Life Time (Typ.)  | 50,000 Hrs   | 50,000 Hrs   | 50,000 Hrs   |
| Operation Hours                   | 24 Hrs  | 24 Hrs   | 24 Hrs   |  |
| Orientation                       | Landscape & Portrait  | Landscape & Portrait   | Landscape & Portrait   |  |
| <b>CONNECTIVITY</b>               | Input   | HDMI (3), DP, DVI-D, Audio, USB 2.0 (2)  |  |  |
|                                   | Output  | DP, Audio (Off/Fixed/Variable), External Speaker   |  |  |
|                                   | External Control  | RS232C In/out, RJ45 (LAN) In, IR In  |  |  |
| <b>MECHANICAL SPECIFICATION</b>   | Bezel Color   | Black  | Black  | Black  |
|                                   | Bezel Width   | 12.1 mm (T), 12.6 mm (R/L), 15.7 mm (B)  | 12.1 mm (T), 12.6 mm (R/L), 15.7 mm (B)  | 11.9 mm (T), 12.4 mm (R/L), 15.5 mm (B)  |
|                                   | Monitor Dimension (W x H x D)   | 1,458.6 x 848.9 x 40.1 mm  | 1,239.8 x 725.2 x 38.6 mm  | 1,103.2 x 648 x 38.6 mm  |
|                                   | Weight (Head)   | 26 kg  | 16.6 kg  | 13.3 kg  |
|                                   | Carton Dimensions (W x H x D)   | 1,561 x 971 x 190 mm   | 1,330 x 807 x 170 mm   | 1,197 x 760 x 166 mm   |
|                                   | Packed Weight   | 32.5 kg  | 21.1 kg  | 17.7 kg  |
|                                   | Handle  | No   | No   | No   |
|                                   | VESA™ Standard Mount Interface  | 300 x 300 mm   | 300 x 300 mm   | 300 x 300 mm   |
| <b>KEY FEATURE</b>                | Internal Memory 8GB (System 4GB + Available 3.6GB), Built-in Wi-Fi, Temperature Sensor, Auto Brightness Sensor, Current Sensor, Embedded CMS (USB Auto Playback, Local Contents Scheduling, Group Manager), Image Customization, Failover, Content Sync (RS232C, Local Network), Screen Share, Video Tag (2), Play via URL, OSD Rotation, Content Rotation, PIP/PBP (4), Tile Mode Setting (Max 15 x 15), Setting Data Cloning, Firmware Update by Network, SNMP 1.4, ISM Mode, Crestron Connected <sup>®1)</sup> , Control Manager, DPM, Smart Energy Saving, Wake on LAN, Beacon, HDMI-CEC <sup>2)</sup> , SI Server Setting, Detachable Logo |  |  |  |
| <b>ENVIRONMENTAL CONDITIONS</b>   | Operation Temperature   | 0°C to 40°C  | 0°C to 40°C  | 0°C to 40°C  |
|                                   | Operation Humidity  | 10% to 80%   | 10% to 80%   | 10% to 80%   |
| <b>POWER</b>                      | Power Supply  | 100-240V~, 50/60Hz   | 100-240V~, 50/60Hz   | 100-240V~, 50/60Hz   |
|                                   | Power Type  | Built-In Power   | Built-In Power   | Built-In Power   |
|                                   | Power Typ. / Max.   | 140 W / 200 W  | 115 W / 165 W  | 105 W / 150 W  |
|                                   | Consumption Smart Energy Saving   | 85 W   | 70 W   | 60 W   |
| <b>CERTIFICATION</b>              | Safety  | IEC 60950-1 / EN 60950-1 / UL 60950-1  | IEC 60950-1 / EN 60950-1 / UL 60950-1  | IEC 60950-1 / EN 60950-1 / UL 60950-1  |
|                                   | EMC   | FCC Class "A" / CE / KC  | FCC Class "A" / CE / KC  | FCC Class "A" / CE / KC  |
|                                   | ErP / Energy Star   | N/A / Yes (Energy Star 7.0)  | N/A / Yes (Energy Star 7.0)  | N/A / Yes (Energy Star 7.0)  |
| <b>MEDIA PLAYER COMPATIBILITY</b> | OPS Type Compatible   | Yes  | Yes  | Yes  |
|                                   | External Media Player Attachable  | Yes  | Yes  | Yes  |
| <b>SOFTWARE COMPATIBILITY</b>     | Content Management Software   | SuperSign CMS  | SuperSign CMS  | SuperSign CMS  |
|                                   | Control and Monitoring Software   | SuperSign Control/Control+   | SuperSign Control/Control+   | SuperSign Control/Control+   |
| <b>ACCESSORIES</b>                | Basic   | Remote Controller, Power Cord, QSG, HDMI Cable, Regulation Book, Phone to RS232C Gender                              | Remote Controller, Power Cord, QSG, HDMI Cable, Regulation Book, Phone to RS232C Gender                              | Remote Controller, Power Cord, QSG, HDMI Cable, Regulation Book, Phone to RS232C Gender                              |
|                                   | Optional  | Speaker (SP-5200), Stand (ST-651T), Media Player, Wall Bracket (LSW350B), VESA Adapter (AM-B330S), OPS Kit (KT-OPSA) | Speaker (SP-5200), Stand (ST-201T), Media Player, Wall Bracket (LSW350B), VESA Adapter (AM-B330S), OPS Kit (KT-OPSA) | Speaker (SP-5200), Stand (ST-201T), Media Player, Wall Bracket (LSW350B), VESA Adapter (AM-B330S), OPS Kit (KT-OPSA) |

1) Network-based control 2) Compatibility may differ by equipment

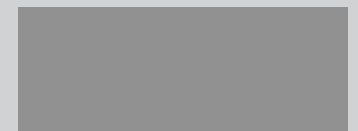


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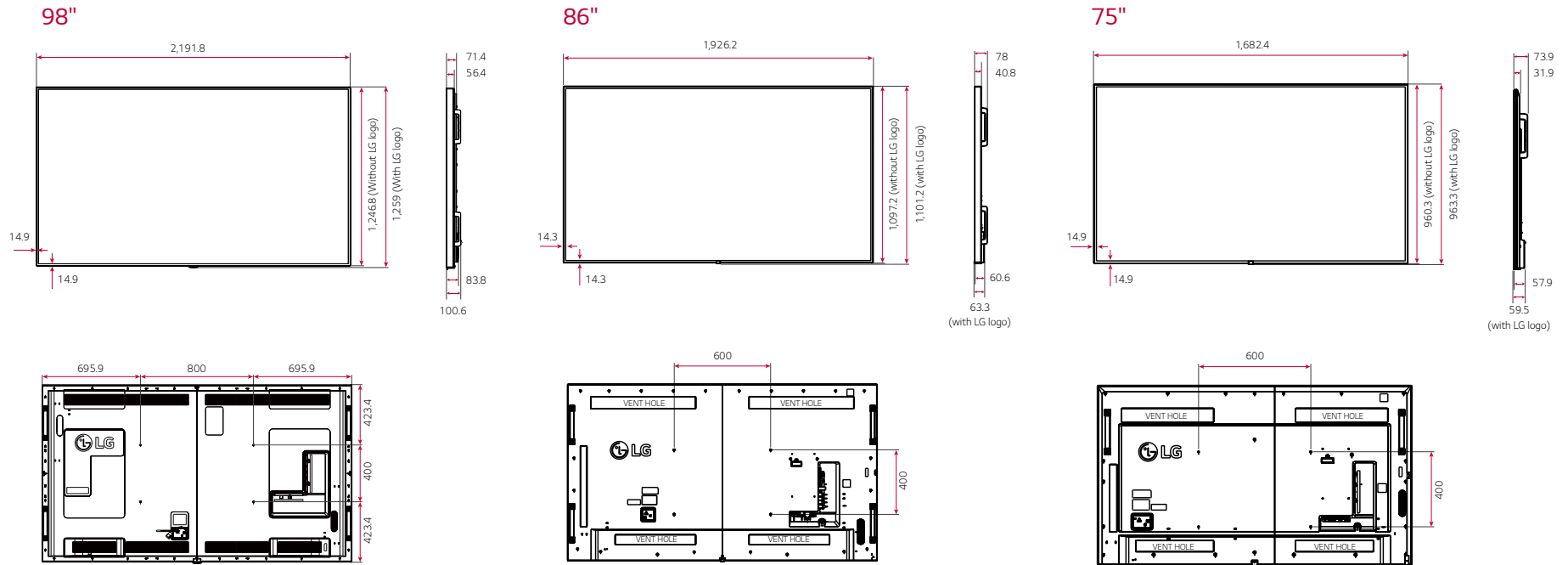
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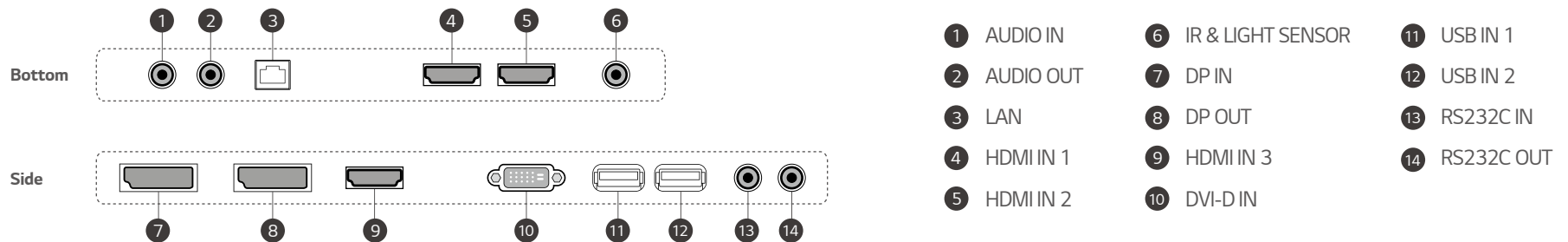
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## DIMENSION (unit: mm)

UHD Signage | UH5F/E Series



## CONNECTIVITY



\* Dimensions & Jack Panels (Read/Side) may differ from the above image, so please contact LG sales team to verify before ordering.

# SPECIFICATIONS

|                                |   | 98UH5F   | 86UH5E                | 75UH5E   |
|--------------------------------|---|--|-----------------------|--|
| Panel                          | Screen Size   | 98"  | 86"                   | 75"  |
|                                | Panel Technology  | IPS  | IPS                   | IPS  |
|                                | Aspect Ratio  | 16:9   | 16:9                  | 16:9   |
|                                | Native Resolution   | 3,840 x 2,160 (UHD)  | 3,840 x 2,160 (UHD)   | 3,840 x 2,160 (UHD)  |
|                                | Refresh Rate  | 120 Hz   | 120 Hz                | 120 Hz   |
|                                | Brightness (Typ.)   | 500 cd/m <sup>2</sup>  | 500 cd/m <sup>2</sup> | 500 cd/m <sup>2</sup>  |
|                                | Contrast Ratio  | 1,300:1  | 1,200:1               | 1,200:1  |
|                                | Viewing Angle (H x V)   | 178 x 178  | 178 x 178             | 178 x 178  |
|                                | Response Time   | 8ms (G to G)   | 8ms (G to G)          | 6ms (G to G)   |
|                                | Surface Treatment (Haze)  | Haze 1%  | Haze 3%               | Haze 3%  |
|                                | Life Time (Typ.)  | 50,000 Hrs   | 50,000 Hrs            | 50,000 Hrs   |
| Operation Hours                | 24Hrs   | 24Hrs  | 24Hrs                 |  |
| Orientation                    | Portrait & Landscape  |  | Portrait & Landscape  |  |
| Connectivity                   | Input   | HDMI (3), DP, DVI-D, Audio, USB 2.0 (2)  |                       | HDMI (3), DP, DVI-D, Audio, USB 2.0 (2)  |
|                                | Output  | DP, Audio (Off/Fixed/Variable)   |                       | DP, Audio (Off/Fixed/Variable)   |
|                                | External Control  | RS232C In/out (4 Pin Phone-Jack), RJ45 (LAN) In, IR In   |                       | RS232C In/out (4 Pin Phone-Jack), RJ45 (LAN) In, IR In                                       |
| Mechanical Specification       | Bezel Color   | Black  |                       | Black  |
|                                | Bezel Width   | 14.9 mm (Even) * Off-Bezel   |                       | 14.9 mm (Even) * Off-Bezel   |
|                                | Monitor Dimension (W x H x D)   | 2,191.8 x 1,246.8 x 83.8 mm (without Handle, with LG logo)   |                       | 1,682.4 x 960.3 x 57.9 mm (without Handle and Logo)  |
|                                | Weight (Head)   | 81.1 kg  |                       | 41.5 kg  |
|                                | Carton Dimensions (W x H x D)   | 2,362 x 1,386 x 420 mm   |                       | 1,816 x 1,123 x 228 mm   |
|                                | Packed Weight   | 119 kg   |                       | 49.5 kg  |
|                                | Handle  | Yes  |                       | Yes  |
| VESA™ Standard Mount Interface | 800 x 400 mm  |  | 600 x 400 mm          |  |
| Key Feature                    | Internal Memory 8GB (System 4GB + Available 3.6GB), Built-in Wi-Fi, Temperature Sensor, Auto Brightness Sensor, Current Sensor, Embedded CMS (USB Auto Playback, Local Contents Scheduling, Group Manager), Image Customization, Failover, Content Sync (RS232C, Local Network), Screen Share, Play via URL, OSD Rotation, Content Rotation, PIP/PBP (4), Tile Mode Setting (Max 1x15), Setting Data Cloning (RS232C, Network, USB), Firmware Update by Network, SNMP 1.4, Control Manager, DPM, Smart Energy Saving, Wake on LAN, Crestron Connected <sup>®</sup> 1), Cisco Compatibility <sup>2)</sup> , Beacon, HDMI-CEC <sup>3)</sup> , SI Server Setting, webRTC |  |                       |  |
| Environment Conditions         | Operation Temperature   | 0°C to 40°C  |                       | 0°C to 40°C  |
|                                | Operation Humidity  | 10% to 80%   |                       | 10% to 80%   |
| Power                          | Power Supply  | 100-240V~, 50/60Hz   |                       | 100-240V~, 50/60Hz   |
|                                | Power Type  | Built-In Power   |                       | Built-In Power   |
|                                | Power Consumption   | Typ. / Max.  | 420 W / 560 W         | 215 W / 280 W  |
|                                | Smart Energy Saving   | 294 W  |                       | 151 W  |
| Sound                          | Speaker   | Built-in (10Wx2)   |                       | Built-in (10Wx2)   |
| Certification                  | Safety  | IEC 60950-1 / EN 60950-1 / UL 60950-1  |                       | IEC 60950-1 / EN 60950-1 / UL 60950-1  |
|                                | EMC   | FCC Class "A" / CE / KC  |                       | FCC Class "A" / CE / KC  |
|                                | ErP / Energy Star   | Yes (EU Only) / N/A  |                       | Yes (EU Only) / Yes (Energy Star 7.0)  |
| Media Player Compatibility     | OPS Type Compatible   | No   |                       | Yes  |
|                                | External Media Player Attachable  | Yes  |                       | Yes  |
| Software Compatibility         | Content Management Software   | SuperSign CMS  |                       | SuperSign CMS  |
|                                | Control and Monitoring Software   | SuperSign Control/Control+   |                       | SuperSign Control/Control+   |
|                                | Signage365Care <sup>4)</sup>  | Yes  |                       | Yes  |
| Accessories                    | Basic   | Remote Controller, Power Cord, QSG, IR/Light Sensor Receiver, DP Cable (1.8M), Regulation Book, Phone to RS232C Gender, Eye-bolt |                       | Remote Controller, Power Cord, QSG, DP Cable (1.8M), Regulation Book, Phone to RS232C Gender |
|                                | Optional  | No   |                       | Media Player, OPS Kit (KT-OPSF), Wall Mount (LSW640A/B), Touch Overlay (KT-T75E)             |

1) Network based control 2) Using an HDMI cable connection 3) Compatibility may differ by equipment 4) The availability of "Signage365Care" service can differ by region.



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# ideapad D330

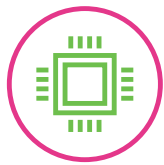
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## LAPTOP MEETS TABLET, THE REST IS YOUR STORY.

100% LAPTOP, 100% TABLET.

A powerful Intel® processor in your 2-in-1 computer means you get the best of both worlds – the full performance of a laptop plus the fun of a tablet in one device. Edit photos in one minute, watch movies the next. Go from spreadsheets to gaming in a flash.

### WHY YOU SHOULD BUY THE LENOVO IDEAPAD D330



#### Computer power, tablet fun

Thanks to Intel® Pentium® Silver and Celeron® processing, you have all the computing power you need—and all the fun and mobility of a lightweight tablet. From multitasking to connecting with friends online and streaming shows or movies, everything's a breeze wherever life takes you.



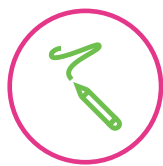
#### Enjoy life in the fast lane

In today's always-on digital world, it pays to choose a 2-in-1 with 4G LTE. This lightning-quick mobile communication technology delivers a steadier, more stable connection—resulting in faster on-the-go web browsing experience every time.



#### It's a laptop, a tablet, and more

Fully-fledged laptop or feature-rich tablet? Switch seamlessly between the two by detaching the keyboard. This truly versatile 2-in-1 boasts a convenient trackpad, a Lenovo Active Pen, Dolby Audio™ Premium, and a beautiful 10" screen with up to Full-HD display.



#### Goodbye notepad, hello Lenovo Active Pen

Now, you can sketch, take notes, write, sign, or doodle away—straight onto the screen. With its pin-point accuracy and pressure-sensitive nib, the Lenovo Active Pen delivers a real pen-on-paper experience. Anytime, anywhere.



# ideapad D330

## SPECIFICATIONS

Lenovo IdeaPad D330-10IGM\*

### PERFORMANCE

#### Processor

Intel® Pentium® N5000 Processor  
Intel® Celeron® N4000 Processor

#### Operating System

Windows 10 S  
Windows 10 Pro  
Windows 10 Home

#### Graphics

Intel® Integrated Graphics

#### Camera

Front : 2M  
Rear : 5M<sup>1</sup>

#### Memory

2 GB/4 GB/8 GB LPDDR4

#### Storage

32 GB/64 GB/128 GB eMMC

#### Audio

Dolby Audio™ Premium  
Single Microphone, Stereo Speaker

#### Battery<sup>2</sup>

Up to 13 Hours

### DESIGN

#### Display

10.1" HD (1280 x 800) Touchscreen  
10.1" FHD (1920 x 1200) Touchscreen

#### Dimensions (W x D x H)

**Tablet**  
(mm) : 249 x 178 x 9.5  
(inches) : 9.8" x 7.01" x 0.37"

#### Dock

(mm) : 249 x 186 x 8.5  
(inches) : 9.8" x 7.32" x 0.33"

#### Weight

**Tablet (WiFi SKU)**  
Starting at 1.32 lbs (600 g)

**Tablet (LTE SKU)**  
Starting at 1.34 lbs (610 g)

#### Dock

Starting at 1.18 lbs (535 g)

#### Unique Features

LTE<sup>1</sup>  
Lenovo Active Pen 2 Ready  
Tablet Inverted Plugged-in

#### Colors

Mineral Gray  
Bronze

### CONNECTIVITY

#### WLAN

1 x 1 WiFi 802.11 ac  
2 x 2 WiFi 802.11 ac

#### Bluetooth®

Bluetooth® 4.2

#### Connectors

1 x USB 3.1 Type-C™<sup>3</sup>  
2 x USB 2.0 Type-A (on dock)  
microSD™  
Nano SIM  
Combo Audio

### PRELOADED SOFTWARE

Lenovo PC Manager<sup>4</sup>  
Garantia Estendida<sup>5</sup>  
Lenovo App Explorer<sup>6</sup>  
McAfee LiveSafe™<sup>6</sup>  
Tangram<sup>6</sup>  
LinkedIn<sup>7</sup>  
Microsoft Office Centennial<sup>7</sup>  
Microsoft Office Centennial JP SKU<sup>8</sup>  
Microsoft Office Mobile<sup>7</sup>  
Lenovo Antivirus Plus<sup>4</sup>  
Windows 10 Mobile Broadband<sup>4</sup>

<sup>1</sup> Optional.

<sup>2</sup> All battery life claims are approximate and based on test results using the MobileMark® 2014 ver 1.5 battery life benchmark test. Actual results will vary, and depend on numerous factors including product configuration and usage, software, operating conditions, wireless functionality, power management settings, screen brightness and other factors. The maximum capacity of the battery will naturally decrease with time and usage. See <https://bapccom.com/products/mobilemark-2014/> for additional details.

<sup>3</sup> PD as optional.

<sup>4</sup> China only.

<sup>5</sup> For BR service.

<sup>6</sup> ROW.

<sup>7</sup> Worldwide (WW).

<sup>8</sup> Japan only.



## LENOVO SERVICES

### Warranty Upgrades - On-site / In-Home Service

Maximizes PC uptime and productivity by providing convenient, fast repair services in your own home.

### Accidental Damage Protection

Avoid the hassles of unexpected repair costs. Provides coverage for non-warranted damage incurred under normal operating conditions, such as minor spills, drops or damage to the integrated screen.

### Warranty Extensions (1-to-3 Years Total Duration)

This fixed-term, fixed-cost service helps accurately budget for PC expenses, protect your valuable investment and potentially lower the cost of ownership over time.

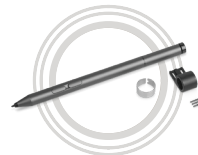
\* Example of Lenovo IdeaPad catalogue naming convention



### Intel® platform codes

Apollo Lake: IAP, Broadwell: IBD, Braswell: IBR, Broadwell: IBW, Baytrail: IBY, Cannonlake: ICN, Haswell: IHH, Kabylake: IKB, Skylake H: ISH, Skylake: ISK, Skylake U: ISU, Skylake Y: ISY, Skylake Z: ISZ, Gemini Lake: IGM

## OPTIONS & ACCESSORIES



Lenovo Active Pen 2



USB-C SSD  
256 GB/512 GB/1 TB



Lenovo Ultra Slim Sleeve



Product Brief

# INTEL® NUC KITS

## NUC7i5BNK AND NUC7i5BNH



The Shape that Fits the Future.

(se instalará este material o similar, de características iguales o superiores)

# POWER, CAPABILITIES, AND PERFORMANCE IN FOUR INCHES SQUARE

## Highlighted Features

- 1 7th generation Intel® Core™ i5-7260U processor
- 2 Intel® Iris™ Plus Graphics 640
- 3 Two DDR4 SO-DIMM sockets (up to 32 GB, 2133 MHz)
- 4 1x SATA3 port for connection to 2.5" HDD or SSD (NUC7i5BNH)
- 5 M.2 slot with flexible support for a 42 or 80 mm M.2 SSD
- 6 Intel® Optane™ Memory ready (NUC7i5BNH)
- 7 Intel® Dual Band Wireless-AC 8265 and Bluetooth® 4.2
- 8 Back panel DC power connector (12–19V)
- 9 One full-size HDMI\* 2.0 display port supporting 8 channel audio (7.1 surround sound)
- 10 Intel® Gigabit LAN
- 11 Two USB 3.0 ports on the back panel
- 12 Thunderbolt™ 3 port with support for USB\* 3.1 gen 2, DisplayPort\* 1.2 and 40 Gb/s Thunderbolt
- 13 Kensington lock support
- 14 Support for user-replaceable third-party lids
- 15 Micro SD card slot
- 16 Consumer infrared sensor
- 17 Two USB 3.0 ports (including one charging port) on the front panel
- 18 Front panel headphone/microphone jack
- 19 Front panel power button
- 20 Dual-array front microphones
- 21 Multi-color front panel LED ring



**NUC7i5BNH**



**NUC7i5BNK**

# INTEL® NUC KITS NUC7i5BNH AND NUC7i5BNK

## Technical Specifications

### Processor

- Intel® Core™ i5-7260U processor (2.2 GHz to 3.4 GHz Turbo<sup>1</sup>, Dual-Core 4 MB cache, 15W TDP)

### Graphics

- Intel® Iris™ Plus Graphics 640
- One HDMI\* 2.0 port with 4K at 60 Hz
- Thunderbolt™ 3 port with support for USB\* 3.1 Gen 2, DisplayPort\* 1.2 and 40 Gb/s Thunderbolt

### System Memory

- Two DDR4 SO-DIMM sockets (up to 32 GB, 2133 MHz), 1.2V

### Storage Capabilities

#### NUC7i5BNH

- Micro SDXC slot with UHS-I support on the side
- One M.2 connector supporting 22x42 or 22x80 M.2 SSD
- One SATA3 port for connection to 2.5" HDD or SSD (up to 9.5 mm thickness)

#### NUC7i5BNK

- Micro SDXC slot with UHS-I support on the side
- One M.2 connector supporting 22x42 or 22x80 M.2 SSD

### Peripheral Connectivity

- Intel® Gigabit LAN
- Thunderbolt 3 port with support for USB\* 3.1 Gen 2, DisplayPort\* 1.2 and 40 Gb/s Thunderbolt

- Four Super Hi-Speed USB 3.0 ports (two back panel ports and two front ports including one charging port)
- Two additional Hi-Speed USB 2.0 ports via internal header
- Intel® Dual Band Wireless-AC 8265 (802.11ac), 2x2, up to 867 Mbps
- Dual Mode Bluetooth\* 4.2

### System Bios

- 64 Mb Flash EEPROM with Intel® Platform Innovation Framework for EFI Plug and Play
- Advanced configuration and power interface V3.0b, SMBIOS2.5
- Intel® Visual BIOS
- Intel® Express BIOS update support

### Hardware Management Features

- Processor fan speed control
- Voltage and temperature sensing
- Fan sensor inputs used to monitor fan activity
- ACPI-compliant power management control

### Expansion Capabilities

- Two Internal USB 2.0 ports via two 1x4 headers (for replaceable lid support)
- One AUX\_PWR header
- One Consumer Electronics Control header

### Audio

- Up to 7.1 surround audio via HDMI
- Headphone/microphone jack on the front panel

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- Dual-array microphones on the front panel

### Front Panel Header

- Reset, HDD LED, Power LEDs, power on/off

### Mechanical Chassis Size

#### NUC7i5BNH

- 4.53" x 4.37" x 2.01"
- 115 mm x 111 mm x 51 mm

#### NUC7i5BNK

- 4.53" x 4.37" x 1.38"
- 115 mm x 111 mm x 35 mm

### Baseboard Power Requirements

- 19V, 65W wall-mount AC-DC power adapter

### Environment Operating Temperature

- 0° C to +40° C

### Storage Temperature

- 20° C to +60° C

### Product Safety Regulations and Standards

- IEC 60950-1
- UL 60950-1
- EN 60950-1
- CAN/CSA-C22.2 No. 60950-1

### EMC/RF Regulations and Standards (Class B)

- CISPR 32
- FCC CFR Title 47, Chapter I, Part 15, Subparts B, C, E
- ICES-003

WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT.

- EN 55032
- EN 55024
- ETSI EN 300 328
- ETSI EN 301 489-1
- ETSI EN 301 489-17
- ETSI EN 301 893
- EN 62311
- AS/NZS 2772.2
- AS/NZS 4268
- VCCI V-2, V-3, V-4
- KN-32
- KN-24
- CNS 13438

### Environmental Regulations

- RoHS Directive 2011/65/EU
- WEEE Directive 2012/19/EU
- China RoHS - Management Methods for Restricted Use of Hazardous Substances in Electrical and Electronic Products

Look for Intel® NUC with Intel Inside® at [www.intel.com/NUC](http://www.intel.com/NUC)

<sup>1</sup>Actual speeds are subject to change.

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Actual Intel® NUC kit may differ from the image shown.

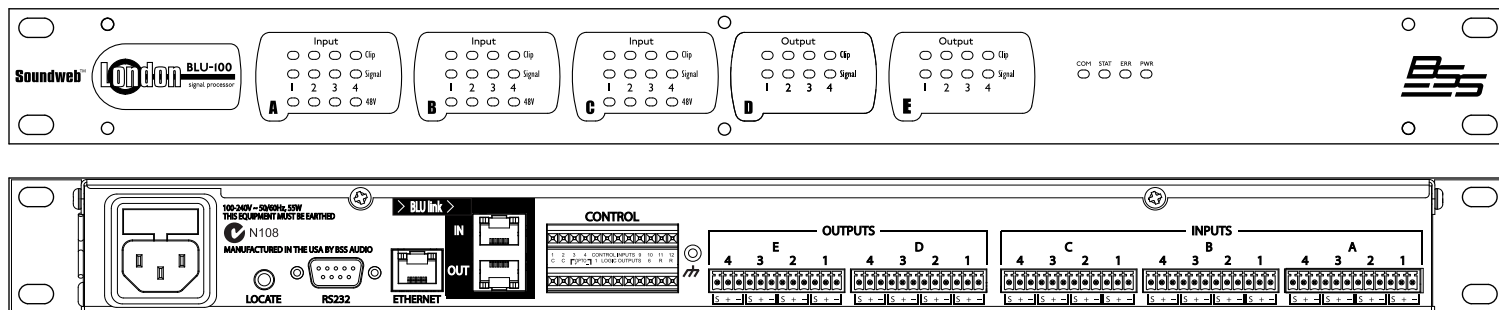
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# Soundweb™ London

## BLU-100

(se instalará este material o similar, de características iguales o superiores)



**OVERVIEW:**

The Soundweb London BLU-100 offers a fixed configuration of 12 inputs and 8 outputs, configurable signal processing and a high bandwidth, fault tolerant digital audio bus.

The BLU-100 has open architecture which is fully configurable through HiQnet™ London Architect. A rich palette of processing and logic objects and a “drag and drop” method of configuration provide a simple and familiar design environment.

This processor features a low latency, fault tolerant digital audio bus of 48 channels which uses standard Category 5e cabling giving a distance of 100m between compatible devices. Fiber media converters can be used to increase the distance between devices to over 40km.

The BLU-100 is compatible with the entire Soundweb London family and its 48 channel digital audio bus represents channels 1-48 of the larger 256 channel digital audio bus when integrated with the BLU-800, BLU-320, BLU-160, BLU-120 and BLU-BOB devices.

Analog Inputs provide software configurable gain in 6dB steps up to +48dB per channel and software selectable Phantom Power per channel.

Phantom Power, Signal Present and Clip information per channel is easily accessible, without the requirement for a PC, from clear front panel LED indication. A bi-directional locate function allows devices to be identified both from and within HiQnet London Architect.

12 Control Inputs and 6 Logic Outputs allow the BLU-100 to be integrated with GPIO compatible devices. The Soundweb London Interface Kit, comprehensive documentation which details how Soundweb London systems can be integrated with third party control systems, is included within the installation of HiQnet London Architect.

The BLU-100 and the other members of the Soundweb London family provide the building blocks of the perfectly tailored system solution.

**KEY FEATURES:**

- 12 Analog Inputs (with 48v Phantom Power per Channel)
- 8 Analog Outputs
- Configurable Signal Processing
- Rich Palette of Processing and Logic Objects
- 48 Channel, Low Latency, Fault Tolerant Digital Audio Bus
- Clear Front Panel LED Indication
- Bi-Directional Locate Functionality
- 12 Control Inputs and 6 Logic Outputs for GPIO Integration
- Soundweb London Interface Kit for Third Party Control System Integration (Documentation)
- HiQnet Device
- Configuration, Control and Monitoring from HiQnet London Architect

## Soundweb™ London BLU-100

**TECHNICAL SPECIFICATIONS:****Front Panel Led Indicators:**

Per Input: Signal Present, CLIP, 48V (Input only)

Other: COM, STAT, ERR, PWR

**Analog Inputs:** 12 electronically balanced on Phoenix Combicon removable screw connectors

Mic/Line Inputs: Nominal gain 0dB, electronically switchable up to +48dB, in +6dB steps

Input Impedance: 3.5k $\Omega$ 

Maximum Input Level: +20dBu with 0dB input gain, +8dBu with 12dB gain

CMRR: &gt;75dB at 1KHz

Input Noise (E.I.N.): <-128dBu typical with 150 $\Omega$  source

Phantom Power: 48V nominal, selectable per input

A/D Latency: 37/Fs [0.77ms@48k]

**Analog Outputs:** 8 electronically balanced on Phoenix/Combicon removable screw connectors

Maximum Output Level: +19dBu

Frequency Response: 20Hz-20KHz (+0.5dB/-1dB)

THD: &lt;0.01% 20Hz to 20KHz, +10dBu output

Dynamic Range: 108dB typical, 22Hz-22KHz unweighted

Crosstalk: &lt;-75dB

Output Impedance: 40 $\Omega$  balanced and 20 $\Omega$  unbalanced

D/A Latency: 29/Fs [0.60ms@48k]

**Control Ports:** 12 inputs and 6 outputs

Control Input Voltage: 0 to 4.5v

Control Input Impedance: 4.7k $\Omega$  to +5V (2-wire mode), >1M $\Omega$  (3-wire mode)

Logic Output Voltage: 0 or +5V unloaded

Logic Output Impedance: 440 $\Omega$ 

Logic Output Current: 10mA source, 60mA sink

**Watchdog Output:** Phoenix/Combicon connector for failsafe control

Opto Output Current: 14mA maximum

Withstanding Voltage: 80V maximum (Off)

Series Impedance: 220 $\Omega$  (isolated)**Control Network:**

Connectors: RJ45 Ethernet connector

Maximum Cable Length: 100m/300ft on Category 5 cable between device and Ethernet switch

**BLU link:**

Connectors: 2 x RJ45 Ethernet connectors

Maximum Cable Length: 100m/300ft on Category 5e cable between devices

Max. Number of Nodes: 60

Latency: 11/Fs [0.23ms@48k]

Pass Through Latency: 4/Fs [0.08ms@48k]

**Power and Dimensions:**

Mains Voltage: 100-240V AC, 50/60Hz

Power Consumption: &lt;55VA

BTU Rating: &lt;188 BTU/hr

Operating Temp. Range: 0 $^{\circ}$  to 45 $^{\circ}$  C (32 $^{\circ}$  to 113 $^{\circ}$  F)

Dims: (H(U) x W x D): 1.75" (1U) x 19" x 9.0" (45mm x 483mm x 229mm)

Weight: 6.4 lbs / 2.9 kg

BSS Audio incorporates high quality mechanical fans in some products. All mechanical fans have a limited life expectancy. We recommend annual inspection of fans for dust occlusion and excessive noise. Fan assemblies should be replaced after six to ten years of use. Environmental factors such as elevated temperature, dust, and smoke can adversely affect fan life. Systems exposed to these conditions should be inspected more frequently. Fan replacement can be performed either at the factory or by an experienced technician in the field. Please contact BSS Technical Support for more information on purchasing replacement parts or product service.

BSS Audio has a policy of continued product improvement and accordingly reserves the right to change features and specifications without prior notice.

(se instalará este material o similar, de características iguales o superiores)

# CONTROL<sup>®</sup> 2P

COMPACT POWERED REFERENCE MONITOR



## CONTROL 2P

### Includes

One (1) Control 2P Powered Master Speaker  
and One (1) Control 2P Extension Speaker

### Included Accessories

Extension Speaker Wire with  
right-angle 1/4" plug.

Power Supply

Two (2) Snap-On Pedestals  
Users Guide

## CONTROL 2PM

### Includes

One (1) Control 2P Powered Master Speaker

### Included Accessories

Power Supply

One (1) Snap-On Pedestal

### Optional Accessories

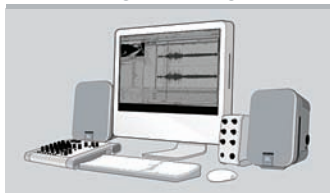
MTC-2P Wall Mount Kit

Includes two Wall Mount Brackets,  
and one Power Supply Holder.

Perfect for all  
APPLICATIONS



### Digital Editing



### Entertainment Installations



### AV Presentations



### Electronic Musical Instruments



## FEATURES

STUDIO QUALITY TRANSDUCERS FOR ACCURACY, AND RICH BASS RESPONSE: 80 HZ - 20 KHZ

35 WATT PER-CHANNEL POWER AMPLIFIER AND HIGH SENSITIVITY DRIVERS PRODUCE EXCEPTIONAL OUTPUT: 115 DB MAX SPL PER PAIR.

BALANCED XLR, AND UNBALANCED RCA INPUTS ALLOW CONNECTION TO A RANGE OF SIGNAL SOURCES.

STEREO HEADPHONE JACK ALLOWS MONITORING USING HEADPHONES.

ERGONOMIC, SIDE-MOUNTED VOLUME CONTROL - SIMULTANEOUSLY CONTROLS LEFT AND RIGHT SPEAKERS.

HIGH FREQUENCY ADJUST CONTROL - ALLOWS THE USER TO CONTOUR HF RESPONSE TO APPLICATION REQUIREMENTS.

MAGNETICALLY-SHIELDED TRANSDUCERS FOR USE NEAR CRT MONITORS AND MAGNETICALLY SENSITIVE EQUIPMENT.

INTERNAL PEAK LIMITER AND OVERLOAD PROTECTION CIRCUIT - PROTECTS THE SYSTEM FROM DAMAGE CAUSED BY CONTINUOUS OVER-DRIVING.

WALL-MOUNT CAPABLE USING OPTIONAL MTC-2P MOUNTING KIT.

INCLUDED SNAP-ON PEDESTALS OPTIMIZE LISTENING ANGLE FOR DESK TOP APPLICATIONS.

## SPECIFICATION

|                                      |  |
|--------------------------------------|--|
| <b>Frequency Range:</b>              | 80 Hz - 20 kHz   |
| <b>Maximum SPL Per Pair:</b>         | 115 dB   |
| <b>Maximum SPL Master Only:</b>      | 111 dB   |
| <b>LF Transducer:</b>                | 135 mm (5.25 in) low frequency loudspeaker                       |
| <b>HF Transducer:</b>                | 19 mm (.75 in) polycarbonate dome tweeter                        |
| <b>Crossover Frequency:</b>          | 4.2 kHz  |
| <b>Input Sensitivity:</b>            | +4 dBu XLR 1/4"; 0 dBu RCA                                       |
| <b>Signal Input Connectors (x2):</b> | Balanced Neutrik <sup>®</sup> Combo XLR 1/4" TRS; Unbalanced RCA |
| <b>Amplifier Power:</b>              | 35 Watts continuous per-channel                                  |
| <b>Power Requirements:</b>           | 19 V DC / 3.42 A - use only supplied power supply                |
| <b>Headphone Jack:</b>               | 3.5 mm (1/8")  |
| <b>Dimensions:</b>                   | 235 x 159 x 143 mm (9.3 x 6.3 x 5.6 in)                          |
| <b>Net Weight Master Speaker:</b>    | 2.6 kg (5.5 lb)  |
| <b>Net Weight Extension Speaker:</b> | 2.2 kg (4.5 lb)  |

\* Neutrik and the names of Neutrik products referenced herein are either trademarks and/or service marks of Neutrik.

# CDi DriveCore™ Series

(se instalará este material o similar, de características iguales o superiores)



## Features

**DriveCore™ Technology** – Crown's proprietary DriveCore technology eliminates hundreds of components within each amplifier, reducing the variability of component values, increasing reliability, resulting in incredible audio fidelity from an efficient design.

**Network Control and Monitoring** – Through HARMAN's HiQnet Audio Architect software, the CDi DriveCore can be controlled, configured, and monitored through standard TCP/IQ network.

**DSP** – On-board Digital Signal Processor in each amplifier allows for custom configuration and includes these integrated features:

- Input Router
- Input Delay – Up to 1000ms
- Input Parametric EQ – 8 band
- Crossover
- Output Parametric EQ – 8 band
- Output Delay – Up to 100ms
- LevelMAX™ Limiter

**BLU link** (BL models only) – Both receive and send channels over HARMAN's 256 channel, fault-tolerant audio BUS, BLU link.

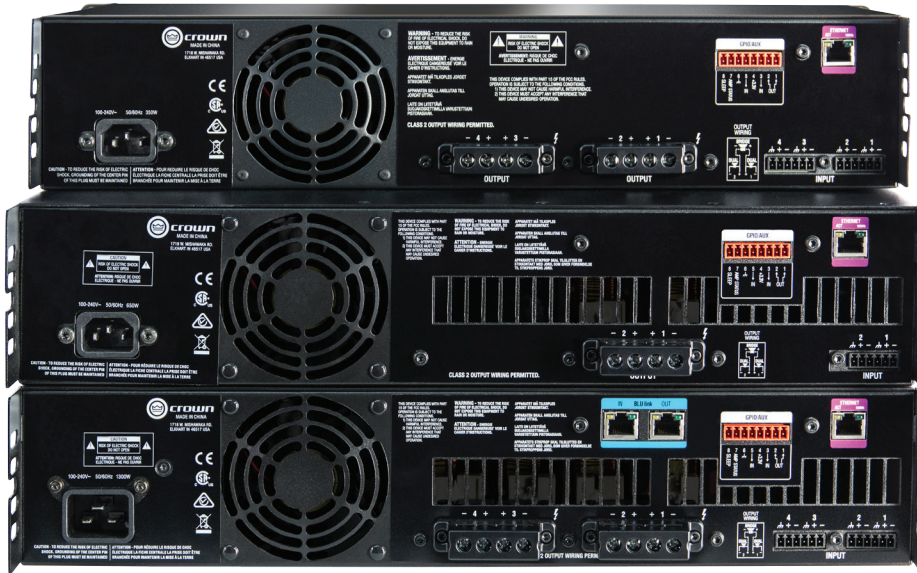
**Direct Drive 70/100Vrms Output** – Each output channel is capable of providing either 70V or 100V for high impedance applications.

**Front-Panel Interface** – Completely configure the amplifier using an intuitive front-panel interface.

**GPIO/AUX Port** – Recall presets, mute channels, monitor faults, power on/off the amplifier, and more through a combined GPIO/AUX Port.

**Pre-loaded Speaker Tunings** – For quicker and easier setup and installation.

# CDI DriveCore™ Series



CDi DriveCore 4|600, 2|1200 and 4|1200BL models shown

## Specifications

### Input Sensitivity

| Amp Model         | 8Ω                            |                             |                              | 70Vrms                      |                             |                               | 100Vrms                             |                             |                               |
|-------------------|-------------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|-------------------------------|-------------------------------------|-----------------------------|-------------------------------|
|                   | 37dB Gain Mode                | 34dB Gain Mode              | 26dB Gain Mode               | 37dB Gain Mode              | 34dB Gain Mode              | 26dB Gain Mode                | 37dB Gain Mode                      | 34dB Gain Mode              | 26dB Gain Mode                |
| 2 300 / 2 300BL   | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)         | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |
| 4 300 / 4 300BL   | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)         | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |
| 2 600 / 2 600BL   | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)         | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |
| 4 600 / 4 600BL   | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)         | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |
| 2 1200 / 2 1200BL | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)<br>150W | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |
| 4 1200 / 4 1200BL | 0.7Vrms<br>(-0.8dBu, -3.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 2.5Vrms<br>(10.2dBu, 8.0dBV) | 1.0Vrms<br>(2.2dBu, 0.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV) | 3.5Vrms<br>(13.2dBu, 11.0dBV) | 1.4Vrms<br>(5.2dBu, 3.0dBV)         | 2.0Vrms<br>(8.2dBu, 6.0dBV) | 5.0Vrms<br>(16.2dBu, 14.0dBV) |

# CDI DriveCore™ Series



## Output Power: Dual Mode – All Channels Driven

| Amp Model         | Channels | 2Ω   | 4Ω    | 8Ω    | 16Ω  | 70Vrms | 100Vrms |
|-------------------|----------|------|-------|-------|------|--------|---------|
| 2 300 / 2 300BL   | 2        | 150W | 300W  | 300W  | 150W | 300W   | 300W    |
| 4 300 / 4 300BL   | 4        | 150W | 300W  | 300W  | 150W | 300W   | 300W    |
| 2 600 / 2 600BL   | 2        | 300W | 600W  | 600W  | 300W | 600W   | 600W    |
| 4 600 / 4 600BL   | 4        | 300W | 600W  | 600W  | 300W | 600W   | 600W    |
| 2 1200 / 2 1200BL | 2        | 850W | 1200W | 1200W | 600W | 1200W  | 1200W   |
| 4 1200 / 4 1200BL | 4        | 850W | 1200W | 1200W | 600W | 1200W  | 1200W   |

Minimum Guaranteed Power (1kHz, all channels driven, max distortion 0.5%, duration 0.5 seconds, 120 – 240Vrms –50/60Hz)

## Output Power: Bridge Mono Mode – All Channels Driven

| Amp Model         | 4Ω    | 8Ω    | 16Ω   | 140Vrms | 200Vrms |
|-------------------|-------|-------|-------|---------|---------|
| 2 300 / 2 300BL   | 300W  | 600W  | 600W  | 600W    | 600W    |
| 4 300 / 4 300BL   | 300W  | 600W  | 600W  | 600W    | 600W    |
| 2 600 / 2 600BL   | 600W  | 1200W | 1200W | 1200W   | 1200W   |
| 4 600 / 4 600BL   | 600W  | 1200W | 1200W | 1200W   | 1200W   |
| 2 1200 / 2 1200BL | 1200W | 2400W | 2400W | 2400W   | 2400W   |
| 4 1200 / 4 1200BL | 1200W | 2400W | 2400W | 2400W   | 2400W   |

Minimum Guaranteed Power (1kHz, all channels driven, max distortion 0.5%, duration 0.5 seconds, 120 – 240Vrms –50/60Hz)

# CDI DriveCore™ Series

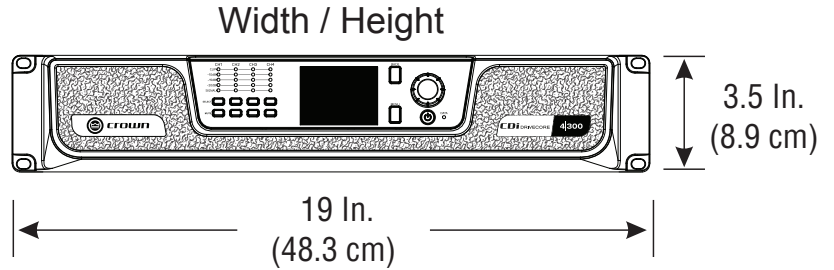
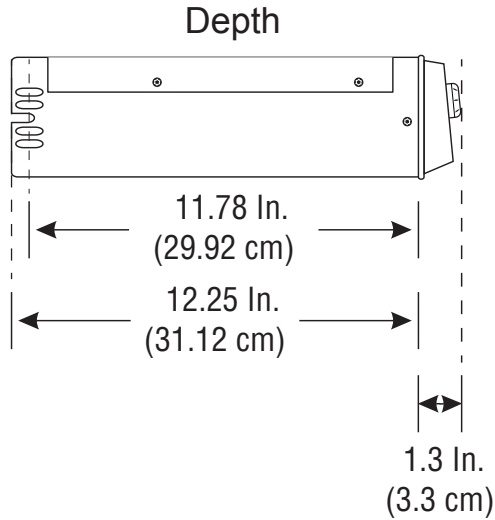
## Performance Specifications

| Specification Description   | 2 300 / 2 300BL  | 4 300 / 4 300BL  | 2 600 / 2 600BL  | 4 600 / 4 600BL   | 2 1200 / 2 1200BL   | 4 1200 / 4 1200BL   |
|---|--|--|--|---|---|---|
| Digital Signal Processing   | 96kHz, 32-bit floating point                                     | 96kHz, 32-bit floating point                                     | 96kHz, 32-bit floating point                                     | 96kHz, 32-bit floating point                                  | 96kHz, 32-bit floating point                                  | 96kHz, 32-bit floating point                                  |
| Voltage Gain (at maximum level setting) 4/8Ω, 70Vrms and 100Vrms Operation        | 34dB   | 34dB   | 34dB   | 34dB  | 34dB  | 34dB  |
| Frequency Response (8Ω, 20Hz - 20kHz)   | +/-0.5dB   | +/-0.5dB   | +/-0.5dB   | ±0.25dB   | ±0.25dB   | ±0.25dB   |
| BLU link Signal-to-Noise Ratio (ref. rated power, 100V, 20Hz - 20kHz)             | >108dB   | >108dB   | >108dB   | >108dB  | >108dB  | >108dB  |
| Total Harmonic Distortion (at full rated power, from 20Hz - 20kHz)                | 0.35%  | 0.35%  | 0.35%  | 0.35%   | 0.35%   | 0.35%   |
| Analog Input Signal to Noise Ratio (ref. rated power, 100V, 20Hz - 20kHz)         | >104dB   | >104dB   | >104dB   | >104dB  | >104dB  | >104dB  |
| Intermodulation Distortion (60Hz and 7kHz at 4:1, from -30dB to full rated power) | ≤0.35%   | ≤0.35%   | ≤0.35%   | ≤0.35%  | ≤0.35%  | ≤0.35%  |
| Damping Factor (20Hz to 100Hz)  | >1000  | >1000  | >1000  | >1000   | >1000   | >1000   |
| Crosstalk (below rated power, 20Hz to 1kHz)                                       | >80dB  | >80dB  | >80dB  | >80dB   | >80dB   | >80dB   |
| Common Mode Rejection (20Hz to 1kHz, typical)                                     | >70dB  | >70dB  | >70dB  | >70dB   | >70dB   | >70dB   |
| DC Output Offset (with inputs shorted)  | ±10mV  | ±10mV  | ±10mV  | ±10mV   | ±10mV   | ±10mV   |
| Input Impedance (Nominally balanced, nominally unbalanced)                        | 20 kΩ balanced, 10 kΩ unbalanced                                 | 20 kΩ balanced, 10 kΩ unbalanced                                 | 20 kΩ balanced, 10 kΩ unbalanced                                 | 10 kΩ balanced, 5 kΩ unbalanced                               | 10 kΩ balanced, 5 kΩ unbalanced                               | 10 kΩ balanced, 5 kΩ unbalanced                               |
| Maximum Input Level (Low Amp Gain Mode)   | +20dBu   | +20dBu   | +20dBu   | +20dBu  | +20dBu  | +20dBu  |
| Required AC Mains (±10%)  | 100V – 240V~ 50/60Hz   | 100V – 240V~ 50/60Hz   | 100V – 240V~ 50/60Hz   | 100V – 240V~ 50/60Hz  | 100V – 240V~ 50/60Hz  | 100V – 240V~ 50/60Hz  |
| Cooling   | Continuously variable speed forced air, front-to-back airflow    | Continuously variable speed forced air, front-to-back airflow    | Continuously variable speed forced air, front-to-back airflow    | Continuously variable speed forced air, front-to-back airflow | Continuously variable speed forced air, front-to-back airflow | Continuously variable speed forced air, front-to-back airflow |
| Power Supply Connector  | Standard IEC type 320 inlet for detachable connector 100 – 240V~ | Standard IEC type 320 inlet for detachable connector 100 – 240V~ | Standard IEC type 320 inlet for detachable connector 100 – 240V~ | 15A IEC connector, 100 – 240V                                 | 15A IEC connector, 100 – 240V                                 | 20A IEC connector, 100 – 240V                                 |
| Load Impedance Stereo/Dual Mode   | 2Ω - 16Ω; 70Vrms and 100Vrms                                     | 2Ω - 16Ω; 70Vrms and 100Vrms                                     | 2Ω - 16Ω; 70Vrms and 100Vrms                                     | 2Ω - 16Ω; 70Vrms and 100Vrms                                  | 2Ω - 16Ω; 70Vrms and 100Vrms                                  | 2Ω - 16Ω; 70Vrms and 100Vrms                                  |
| Load Impedance Bridge Mono  | 4Ω - 16Ω; 140Vrms and 200Vrms                                    | 4Ω - 16Ω; 140Vrms and 200Vrms                                    | 4Ω - 16Ω; 140Vrms and 200Vrms                                    | 4Ω - 16Ω; 140Vrms and 200Vrms                                 | 4Ω - 16Ω; 140Vrms and 200Vrms                                 | 4Ω - 16Ω; 140Vrms and 200Vrms                                 |
| Maximum Fan Noise (re dB SPL @ 1M)  | 51dBA  | 51dBA  | 51dBA  | 51dBA   | 54 dBA  | 54dBA   |
| Weight  | 14.56 lbs (6.6 kg)   | 16.13 lbs (7.31 kg)  | 14.56 lbs (6.6 kg)   | 16.3 lbs (7.39 kg)  | 17.2 lbs (7.8 kg)   | 20.1 lbs (9.12 kg)  |

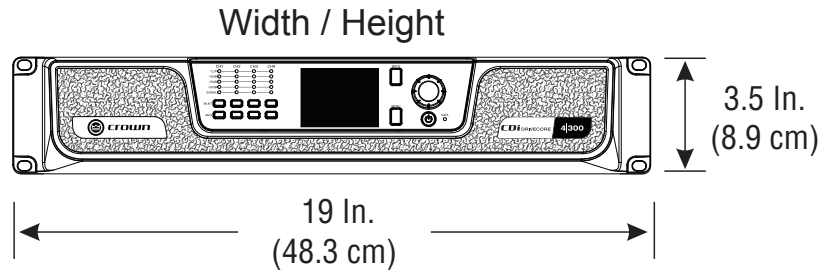
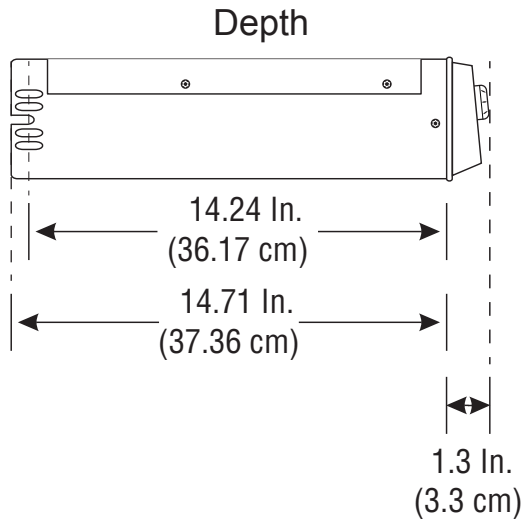
# CDI DriveCore™ Series

## Dimensions

2|300 / 2|300BL / 4|300 / 4|300BL / 2|600 / 2|600BL / 4|600 / 4|600BL



2|1200 / 2|1200BL / 4|1200 / 4|1200BL



(se instalará este material o similar, de características iguales o superiores)

# GLX-D® ADVANCED DIGITAL WIRELESS



## Rock-solid RF performance for multiple system installations

Groundbreaking GLX-D® Advanced Digital Wireless systems enable exceptional digital audio clarity, intelligent rechargeability and seamless operation—available in rack mount receiver system configurations for use with GLX-D Advanced Frequency Managers and accessories for small-to-medium installations.

### PRODUCT HIGHLIGHTS

**Automatic Frequency Management**

**2.4 GHz frequency band**

**Operate up to 9 compatible systems in typical setting, up to 11 maximum under ideal conditions**

**Legendary Shure audio quality and rugged construction**

# System Specifications

|                             |  |                       |
|-----------------------------|--|-----------------------|
| Compatibility               | Operate up to 9 compatible systems in typical setting, up to 11 maximum under ideal conditions   |                       |
| System Operating Range      | Indoors: Up to 100 feet (30 m) typical, with a maximum of 200 feet (60 m) under ideal conditions   |                       |
|                             | Outdoors: Up to 65 feet (20 m) typical, with a maximum of 165 feet (50 m) under ideal conditions   |                       |
| Transmit Mode               | Shure Proprietary Digital  |                       |
| Audio Frequency Response    | 20 Hz – 20 kHz Note: Dependent on microphone type  |                       |
| Dynamic Range               | 120 dB, A-weighted   |                       |
| Latency                     | Groups 1 and A:  | Groups 2, 3, 4 and B: |
|                             | 4.0 ms   | 7.3 ms                |
| RF Sensitivity              | -88 dBm, typical   |                       |
| Total Harmonic Distortion   | 0.2%, typical  |                       |
| RF Output Power             | 10 mW E.I.R.P. max   |                       |
| Operating Temperature Range | -18°C (0°F) to 57°C (135°F) Note: Battery characteristics may limit this range.  |                       |
| Storage Temperature Range   | -29°C (-20°F) to 74°C (165°F)  |                       |
| Polarity                    | Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low-impedance output) and the tip of the high impedance 1/4-inch output. |                       |
| Battery Life                | Up to 16 hours   |                       |
|                             | NOTE: All Specifications are subject to change. Performance may vary depending on country regulations and operating environment.   |                       |

## Optional Accessories and Replacement Parts

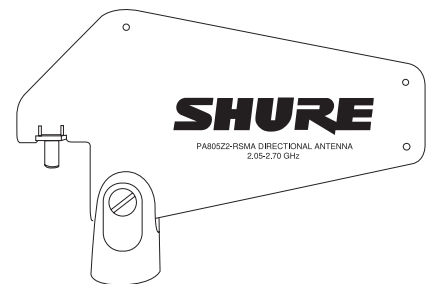
|                     |  |                  |                                   |                    |                                    |
|---------------------|--|------------------|-----------------------------------|--------------------|------------------------------------|
| <b>PA805Z2-RSMA</b> | Passive Directional Antenna 2.4 GHz      | <b>PS60</b>      | Power Supply (UA846Z2)            | <b>UA802-RSMA</b>  | 0.6 m (2 ft.) Reverse SMA Cable    |
| <b>UA8-2.4GHZ</b>   | 1/2 Wave Antenna, 45 deg. (2.4 GHz)      | <b>PS43</b>      | Power Supply (GLXD4R)             | <b>UA806-RSMA</b>  | 1.8 m (6 ft.) Reverse SMA Cable    |
| <b>UA505-RSMA</b>   | Wall Mount for PA805-RSMA or UA8-2.4 GHz | <b>SB902</b>     | Lithium Ion Rechargeable Battery  | <b>UA825-RSMA</b>  | 7.6 m (25 ft.) Reverse SMA Cable   |
| <b>UA221-RSMA</b>   | Reverse SMA Passive Antenna Splitter     | <b>SBC10-USB</b> | Micro-USB Battery Charger         | <b>UA850-RSMA</b>  | 15.2 m (50 ft.) Reverse SMA Cable  |
| <b>95A32436</b>     | Reverse SMA Bulkhead Adapters            | <b>SBC10-902</b> | Standalone Single Battery Charger | <b>UA8100-RSMA</b> | 30.4 m (100 ft.) Reverse SMA Cable |
|                     |  | <b>SBC-CAR</b>   | Car Battery Charger               |                    |                                    |

# Component Specifications

## GLX-D Advanced Passive Directional Antenna (PA805Z2-RSMA)

The GLX-D Advanced Passive Directional Antenna (PA805Z2-RSMA) is considered a key part of any GLX-D Advanced Digital Wireless installation. These antennas both improve reception of GLX-D transmitter signals and minimize interference from any 2.4GHz sources near receivers with appropriate installed placement.

|  |   |
|--|---|
| Frequency Range<br><small>&lt;2:1 Voltage Standing Wave Ratio (VSWR)</small> | 2050 to 2700 MHz                                    |
| Antenna Gain<br><small>@ 2.45 GHz, typical</small>                           | 8 dBi   |
| 3 dB Horizontal Beam Width   | 100 degrees   |
| Efficiency<br><small>@2.45 GHz, typical</small>                              | 89%   |
| Impedance  | 50 Ω  |
| Polarization   | Linear  |
| Front-to-back ratio<br><small>@2.45 GHz, typical</small>                     | 24 dB   |
| Connector Type   | Reverse SMA   |
| Dimensions   | 105 x 164 x 27.5 mm (4.1 x 6.5 x 1.1 in.) H x W x D |
| Net Weight   | 2.5 oz. (70 g)                                      |



GLX-D Advanced Passive Directional Antenna (PA805Z2-RSMA)

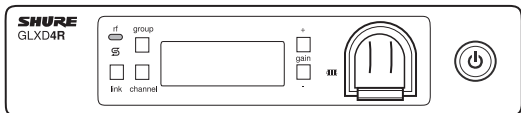
# Component Specifications *(continued)*



## GLX-D Advanced Frequency Manager (UA846Z2)

|   |   |
|---|---|
| Power Requirements                        | 15 VDC  |
| DC Output                                 | 15 VDC (×6)                                     |
| Output Current                            | 3.8 A, maximum                                  |
| <i>Combined total from all DC outputs</i> |   |
| Operating Temperature Range               | -18 °C to 63 °C (0 °F to 145 °F)                |
| Dimensions                                | 45 × 483 × 192 mm (1.8 × 19 × 7.6 in) H × W × D |
| Net Weight                                | 1.63 kg (3.6 lbs)                               |

| RF Input                          |                    | RF Output                         |                    |
|-----------------------------------|--------------------|-----------------------------------|--------------------|
| Connector Type                    | Reverse SMA        | Connector Type                    | Reverse SMA        |
| RF Frequency Range                | 2400 to 2483.5 MHz | RF Frequency Range                | 2400 to 2483.5 MHz |
| Receiver Port Isolation           | 35 dB, typical     | Output Intercept Point (OIP3)     | 48 dBm, typical    |
| Impedance                         | 50 Ω               | Impedance                         | 50 Ω               |
| Maximum Antenna Input Power       | -10 dBm            | Reverse Isolation Output to Input | 35 dB, typical     |
| Maximum Receiver Port Input Power | +15 dBm            | Gain Input to any output port     | -3 to 0 dB         |



## GLXD4R Rack Mount Receiver

|                          |  |
|--------------------------|--|
| Dimensions               | 42 × 197 × 163 mm (1.7 × 7.8 × 6.4 in.) H × W × D        |
| Weight                   | 907.2 g (32 oz.) without batteries                       |
| Housing                  | Steel  |
| Power Requirements       | 14 to 18 VDC (tip positive with respect to ring), 550 mA |
| Spurious Rejection       | >35 dB, typical  |
| Gain Adjustment Range    | -18 to 42 dB in 1 dB steps                               |
| Phantom Power Protection | Yes  |

| Audio Output      |                          |   |
|-------------------|--------------------------|---|
| Configuration     | XLR Output               | Balanced                                    |
|                   | 6.35 mm (1/4") output    | Impedance balanced                          |
| Impedance         | XLR Output               | 100 Ω                                       |
|                   | 6.35 mm (1/4") output    | 100 Ω (50 Ω, Unbalanced)                    |
| Full-Scale Output | XLR                      | LINE setting= +18 dBV, MIC setting= -12 dBV |
|                   | 6.35 mm (1/4")           | +12 dBV                                     |
| Pin Assignments   | XLR Output               | 1=ground, 2=hot, 3=cold                     |
|                   | 6.35 mm (1/4") connector | Tip=audio, Ring=no audio, Sleeve=ground     |
| Mic/Line Switch   | 30 dB Pad                |   |

| Receiver Antenna Input |                      |
|------------------------|----------------------|
| Impedance              | 50 Ω                 |
| Antenna Type           | ½ Wave Sleeve Dipole |
| Maximum Input Level    | -20 dBm              |

# Component Specifications *(continued)*

(se instalará este material o similar, de características iguales o superiores)

## GLXD1 Bodypack Transmitter

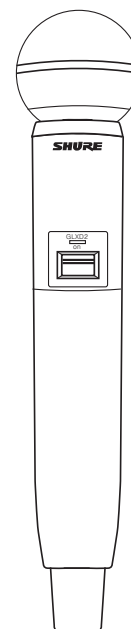
|  |  |
|--|--|
| Dimensions                               | 90.4 x 64.5 x 22.9 mm (3.56 x 2.54 x 0.90 in.), H x W x D (without antenna)  |
| Power Requirements                       | 3.7 V Rechargeable Li-Ion  |
| Housing                                  | Cast Metal, Black Powdercoat   |
| Input Impedance                          | 900 k $\Omega$   |
| RF Output Power                          | 10 mW E.I.R.P. max   |
| <b>Transmitter Input</b>                 |  |
| Connector                                | 4-Pin male mini connector (TA4M)   |
| Configuration                            | Unbalanced   |
| Maximum Input Level<br>(1 kHz at 1% THD) | -8.4 dBV (7.5 Vp-p)  |
| Antenna Type                             | Internal Monopole  |
| Pin Assignments<br>TA4M                  | 1: Ground (cable shield)<br>2: + 5 V Bias<br>3: Audio<br>4: Tied through active load to ground (On instrument adapter cable, pin 4 floats) |



GLXD1 Bodypack Transmitter

## GLXD2 Handheld Transmitter

|                     |                           |                                   |                 |                |
|---------------------|---------------------------|-----------------------------------|-----------------|----------------|
| Dimensions          |                           |                                   |                 |                |
|                     | <b>Model</b>              | <b>A</b>                          | <b>B</b>        | <b>C</b>       |
|                     | SM58                      | 51 mm, 2.0 in.                    | 252 mm, 9.9 in. | 37 mm, 1.5 in. |
|                     | BETA 58                   | 51 mm, 2.0 in.                    | 252 mm, 9.9 in. | 37 mm, 1.5 in. |
|                     | SM86                      | 49 mm, 1.9 in.                    | 252 mm, 9.9 in. | 37 mm, 1.5 in. |
|                     | BETA87A                   | 51 mm, 2.0 in.                    | 252 mm, 9.9 in. | 37 mm, 1.5 in. |
| Weight              | SM58                      | 267 g (9.4 oz.) without batteries |                 |                |
|                     | BETA 58                   | 221 g (7.8 oz.) without batteries |                 |                |
|                     | SM86                      | 275 g (9.1 oz.) without batteries |                 |                |
|                     | BETA87A                   | 264 g (9.3 oz.) without batteries |                 |                |
| Housing             | Molded Plastic            |                                   |                 |                |
| Power Requirements  | 3.7 V Rechargeable Li-Ion |                                   |                 |                |
| RF Output Power     | 10 mW E.I.R.P. max        |                                   |                 |                |
| Maximum Input Level | 145 dB SPL                |                                   |                 |                |



GLXD2 Handheld Transmitter

# AC16

## Ultra Compact 2-way Loudspeaker System with 1 - 6.5" LF

### Key Features:

- ▶ Ultra compact enclosure
- ▶ 165 mm (6.5 in) LF transducer
- ▶ 90° x 90° Progressive Transition™ waveguide with a 25 mm (1 in) exit compression driver
- ▶ Dual Neutrik NL4 connectors plus screw terminals
- ▶ Multiple Attachment Points for Ultimate Flexibility

### Applications:

- ▶ Performing Arts Facilities
- ▶ Houses of Worship
- ▶ Sports Facilities
- ▶ Multi Media Spaces
- ▶ Retail Spaces
- ▶ Presentation Suites
- ▶ Educational Facilities
- ▶ Portable Audio-Visual Systems

The AC16 is an ultra-compact full-range loudspeaker system designed to provide maximum bandwidth and SPL in a single system package and yet be visually unobtrusive. The enclosure design allows for installation very close to walls and ceilings making it an ideal choice for under balcony, column, or wall mounting. The high frequency device is a 1" exit compression driver integrated into a newly designed 90° x 90° PT™ (Progressive Transition) waveguide providing even coverage throughout the intended listening area. The combination exhibits smooth power response resulting in extremely natural voicing. The AC16 utilizes a 6.5" Symmetrical Field Geometry (SFG™) LF Transducer with a copper-clad aluminum edge wound 2" voice coil and a copper-clad pole piece that improves performance by reducing voice coil inductance and distortion.

The rugged multi-ply hardwood enclosure is designed to work in the vertical plane as well as in the horizontal plane. Mounting points are provided for an optional U-bracket and for an OmniMount® type bracket. The AC16 is also equipped with attachment points located on the bottom of the enclosure for a stand mount accessory.

The rugged plywood enclosure features JBL's textured DuraFlex™ finish and is equipped with a heavy duty powder coated steel, foam-backed grille.

(se instalará este material o similar, de características iguales o superiores)



### Specifications:

#### System:

|  |                             |
|--|-----------------------------|
| Frequency Range (-10 dB):                    | 55 Hz - 20 kHz              |
| Frequency Response (+/-3 dB):                | 65 Hz - 18 kHz              |
| Horizontal Coverage:                         | 90°                         |
| Vertical Coverage:                           | 90°                         |
| Directivity Factor (Q):                      | 7 (avg. 500 Hz - 16 kHz)    |
| Directivity Index (DI):                      | 8 dB (avg. 500 Hz - 16 kHz) |
| System Sensitivity <sup>1</sup> :            | 90 dB SPL/1W/1m             |
| Rated Maximum SPL (1m) <sup>2</sup> :        | 110 dB                      |
| System Nominal Impedance:                    | 16 Ohms                     |
| Long-Term System Power Rating <sup>3</sup> : |                             |
| (Continuous/Program/Peak):                   | 160 W / 320 W / 640 W       |
| AES Standard Power Rating <sup>4</sup> :     | 250 W                       |
| Crossover:                                   | 2.4 kHz                     |

#### Transducers:

|                           |   |
|---------------------------|---|
| Low Frequency Driver:     | 1 x JBL 226j, 165 mm (6.5 in) SFG™ driver with 50 mm (2 in) edge wound voice coil |
| High Frequency Driver:    | 1 x 2414H 25 mm (1 in) exit compression driver, 25 mm (1 in) voice coil           |
| High-Frequency Waveguide: | PT-B99HF-1  |

#### Physical:

|  |  |
|--|--|
| Enclosure:   | 12 mm and 15 mm exterior grade multi-ply hardwood plywood  |
| Suspension Attachment:                             | 5 x M8 points; 1 top, 3 bottom, 1 rear.<br>4 x M6 rear for OmniMount® 30.0 and MultiMount® MM-022-BT, MM-024-BT, MM-020-CM.  |
| Finish:  | Black DuraFlex™ finish. White (-WH) available upon request.  |
| Optional Weather Resistant Versions <sup>5</sup> : | WRC & WRX available upon request   |
| Grille:  | Powder coated 16 gauge perforated steel, acoustically transparent foam backing (grille cloth backing on white units)   |
| Input Connectors:                                  | Neutrik Speakon® NL4 (2 wired in parallel), plus CE-compliant covered barrier strip terminals. Barrier terminals accept up to 5.2 sq mm (10 AGW) wire or max width 9 mm (.375 in) spade lugs. NL4's +1/-1 in parallel with barrier strip (+2/-2 loop through). |
| Environmental Specifications:                      | Mil-Std 810; IPx3 per IEC529. For higher environmental ratings, use WRC or WRX.  |
| Dimensions (H x W x D):                            | 381.0 x 199.4 x 226.1 mm<br>(15.0 x 7.8 x 8.9 in)  |
| Weight:  | 7.2 kg (15.8 lb)   |
| Optional Accessories:                              | MTU-16 U-Bracket<br>365469-001, M8 x 38 Tee Knot Thumbscrew kit for use with BMB-200k or K & M 195/8 stand mount accessory   |

<sup>1</sup>On axis SPL measured in far field and referenced to 1 meter by inverse square law. Average from 300 Hz to 16 kHz.

<sup>2</sup>Calculated based on system sensitivity and continuous power handling.

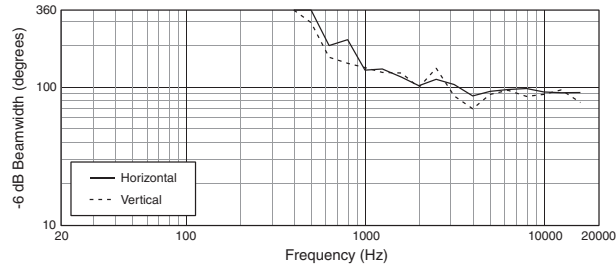
<sup>3</sup>IEC shaped pink noise, 6 dB crest factor, 100 hour duration.

<sup>4</sup>AES standard 2 hour duration, with IEC system noise spectrum.

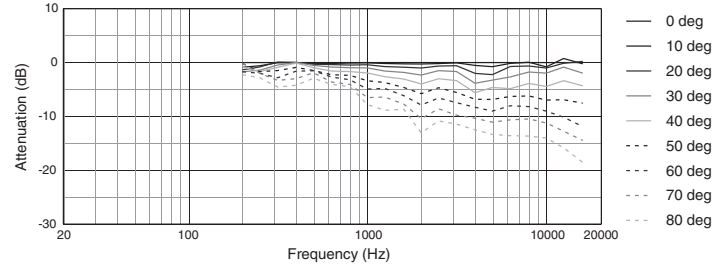
<sup>5</sup>WRC for outdoor placement where the loudspeaker will be sheltered from direct exposure to the elements. WRX for direct exposure or extreme environments, such as tropical or beach, or in areas with salt air, extreme high humidity or rapid changes in temperatures. See WRC/WRX configuration sheet for details.

# ▶ AC16 Ultra Compact 2-way Loudspeaker System with 1 - 6.5" LF

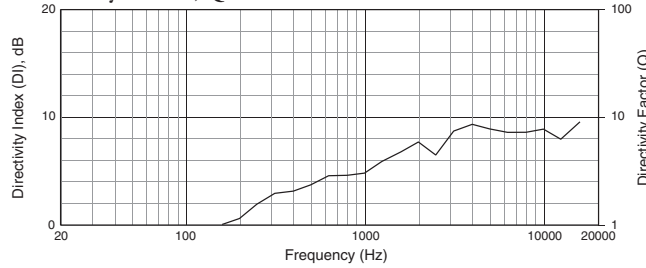
## Beamwidth



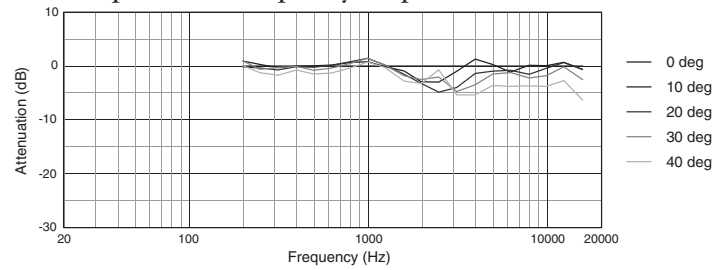
## Horizontal Off-Axis Frequency Response



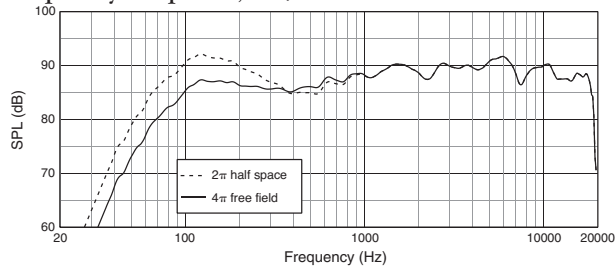
## Directivity Index, Q



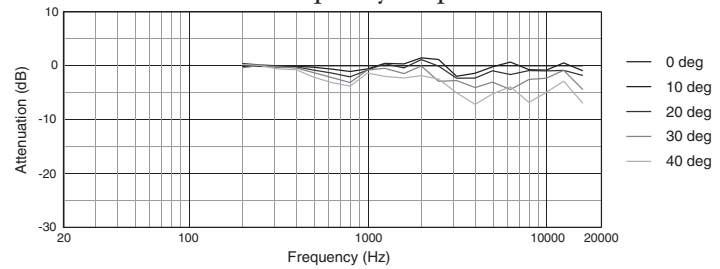
## Vertical Up Off-Axis Frequency Response



## Frequency Response, 1W/1m



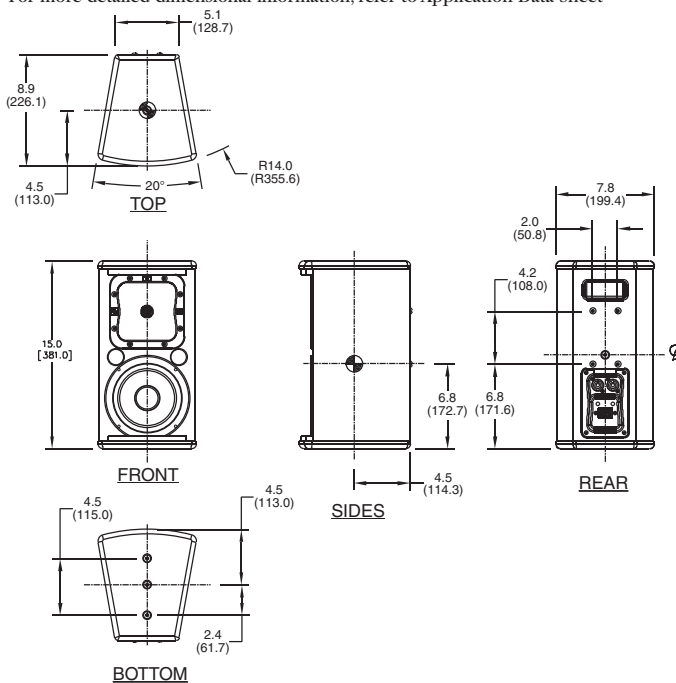
## Vertical Down Off-Axis Frequency Response



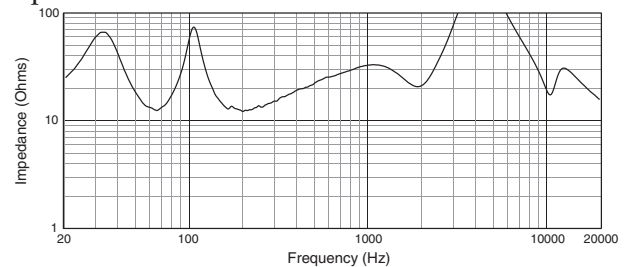
## Dimensions

Dimensions in "in" (mm)

For more detailed dimensional information, refer to Application Data Sheet



## Impedance



Measurements obtained in full passive crossover mode with no signal processing. Graphs are from unaltered measured data.

### Attachment Points For Third Party Accessories:

Bottom: Ultimate Support™ BMB-200K; Konig & Meyer 195/8

Rear: OmniMount® 30.0; Konig & Meyer 24470; MultiMount® MM-022-BT, MM-024-BT, MM-020-CM

## Section 8: Specifications

### Specifications

|  | <b>LSR305</b>   | <b>LSR308</b>   | <b>LSR310S</b>  |
|--|---|---|---|
| <b>Frequency Range:</b>                              | 43 Hz – 24 kHz  | 37 Hz - 24 kHz  | 27 Hz   |
| <b>Crossover:</b>                                    | 1725 Hz 4th order acoustic Linkwitz-Riley                   | 1800 Hz 4th order acoustic Linkwitz-Riley                 | ---   |
| <b>Maximum Peak SPL:</b>                             | 108 dB SPL *  | 112 dB SPL *  | 113 dB **   |
| <b>Maximum Peak Input Level:</b><br>-10 dBV / +4 dBu | +6 dBV / +20.3 dBu  | +6 dBV / +20.3 dBu  | +6 dBV / +20.3 dBu  |
| <b>Input Connectors:</b>                             | 1 x XLR, 1 x TRS Balanced                                   | 1 x XLR, 1 x TRS Balanced                                 | 2 x XLR, 2 x TRS Balanced                                   |
| <b>Input Sensitivity:</b><br>(-10 dBV input)         | 92 dB / 1m  | 92 dB / 1m  | 92 dB / 1m  |
| <b>HF Driver Size:</b>                               | 25 mm (1")  | 25 mm (1")  | ---   |
| <b>LF Driver Size:</b>                               | 127 mm (5")   | 203 mm (8")   | 250 mm (10")  |
| <b>HF Driver Power Amp:</b>                          | 41 W Class D  | 56W Class D   | ---   |
| <b>LF Driver Power Amp:</b>                          | 41 W Class D  | 56W Class D   | 200W Class D  |
| <b>HF Trim Control:</b>                              | +2 dB, 0, -2 dB @ 4.4 kHz                                   | +2 dB, 0, -2 dB @ 4.4 kHz                                 | ---   |
| <b>LF Trim Control:</b>                              | +2 dB, 0, -2 dB @ 115 Hz                                    | +2 dB, 0, -2 dB @ 115 Hz                                  | ---   |
| <b>AC Input Voltage:</b>                             | 100-240 VAC +/- 10% 50/60 Hz                                | 100-240 VAC +/- 10% 50/60 Hz                              | 100-240 VAC +/- 10% 50/60 Hz                                |
| <b>Enclosure Construction:</b>                       | 15 mm (5/8 in) MDF  | 15 mm (5/8 in) MDF  | 18 mm (3/4 in) MDF  |
| <b>Enclosure Finish:</b>                             | Matte Black PVC   | Matte Black PVC   | Matte Black PVC   |
| <b>Baffle Construction:</b>                          | Injection-molded structural ABS                             | Injection-molded structural ABS                           | ---   |
| <b>Baffle Finish:</b>                                | Metallic Black Acrylic Paint                                | Metallic Black Acrylic Paint                              | ---   |
| <b>Dimensions (H x W x D):</b>                       | 298 mm x 185 mm x 231 mm<br>(11.75 in x 7.28 in x 9.88 in)  | 419 mm x 254 mm x 308 mm<br>(16.5 in x 10.0 in x 12.1 in) | 448 mm x 381 mm x 398 mm<br>(17.65 in x 15.0 in x 15.65 in) |
| <b>Weight:</b>                                       | 4.6 kg (10.12 lbs)  | 8.6 kg (18.9 lbs)   | 15.6 kg (34.3 lbs)  |
| <b>Display Carton (H x W x D):</b>                   | 354 mm x 244 mm x 299 mm<br>(13.93 in x 9.6 in x 11.77 in)  | 473 mm x 312 mm x 358 mm<br>(18.6 in x 12.2 in x 14.0 in) | 505 mm x 466 mm x 476 mm<br>(19.9 in x 18.3 in x 18.7 in)   |
| <b>Shipping Carton (H x W x D):</b>                  | 373 mm x 260 mm x 315 mm<br>(14.69 in x 10.22 in x 12.4 in) | 491mm x 326 mm x 371 mm<br>(19.3 in x 12.8 in x 14.6 in)  | 520 mm x 478 mm x 488 mm<br>(20.5 in x 18.8 in x 19.2 in)   |
| <b>Shipping Weight:</b>                              | 6 kg (13.2 lbs)   | 10 kg (22 lbs)  | 19.1 kg (42 lbs)  |

\* Full Bandwidth Pink Noise Measured C-Weighted

\*\* Measured in Half Space

(se instalará este material o similar, de características iguales o superiores)

## IMPORTANT SAFETY INSTRUCTIONS









1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.

### Explanation of Symbols

-  Caution: risk of electric shock
-  Caution: risk of danger (See note.)
-  Direct current
-  Alternating current
-  On (Supply)
-  Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION
-  Stand-by
-  Equipment should not be disposed of in the normal waste stream

**WARNING:** Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.

## General Description

The GLX-D Frequency Manager distributes RF signal and DC power for Shure GLXD4R receivers. The rack-mountable system increases channel count and reduces the number of required antennas and power supplies. When connected to the GLX-D Frequency Manager, GLXD4R receivers operate in the most spectrally efficient manner.

### Features

- Improves the RF performance of connected GLXD4R receivers
- Increases channel count with more efficient frequency management
- Distributes RF signal and power to six receivers
- Cascade ports connect second frequency manager for up to 11 receivers

- Consolidates antennas and power supplies for simpler setup
- Mounts in standard 19 inch equipment racks
- Supports remote antenna placement
- All-metal construction

### Included Components

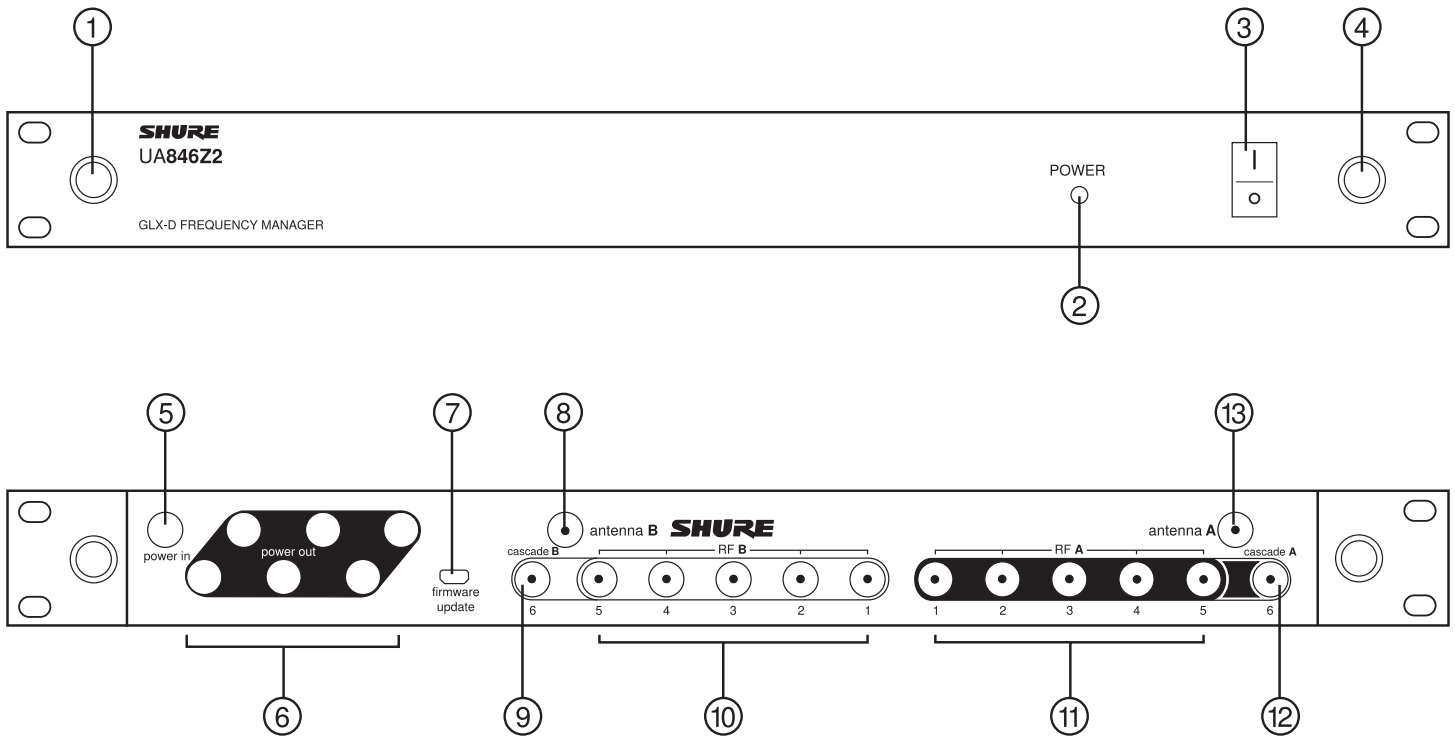
- Rack-mounting hardware
- External power supply
- (6) threaded DC power cables
- (2) Reverse SMA Cable

## Optional Accessories and Replacement Parts

|  |              |
|--|--------------|
| Passive Directional Antenna 2.4 GHz      | PA805Z2-RSMA |
| Wall Mount for PA805-RSMA and UA8-2.4GHZ | UA505-RSMA   |
| 1/2 Wave Antenna, 45 deg. (2.4 GHz)      | UA8-2.4GHZ   |
| 0.6 m (2 ft.) Reverse SMA Cable          | UA802-RSMA   |
| 1.8 m (6 ft.) Reverse SMA Cable          | UA806-RSMA   |
| 7.6 m (25 ft.) Reverse SMA Cable         | UA825-RSMA   |

|                                    |             |
|------------------------------------|-------------|
| 15.2 m (50 ft.) Reverse SMA Cable  | UA850-RSMA  |
| 30.4 m (100 ft.) Reverse SMA Cable | UA8100-RSMA |
| Power Supply                       | PS60        |
| Reverse SMA Bulkhead Adapters      | 95A32436    |
| Nut                                | 95W8631     |
| Washer                             | 95X8631     |

## Front and Rear Panels



- ① **Antenna A Connector**  
Mount antenna and connect to antenna A input on rear panel.
- ② **Power LED**  
Illuminates when unit is on.
- ③ **Power Switch**  
Powers the system on and off.
- ④ **Antenna B Connector**  
Mount antenna and connect to antenna B input on rear panel.
- ⑤ **Power Input**  
Connects to supplied external power supply.
- ⑥ **Power Outputs**  
Connect to receiver power inputs.
- ⑦ **Firmware Update (USB)**  
Connect to computer to download firmware updates.
- ⑧ **RF Input Antenna B**  
Use reverse SMA cables to connect antenna.

**⑨ Cascade RF B Connector**

Connect to second frequency manager's antenna inputs, or connect a sixth receiver.

**Note:** Do not use other RF outputs to connect to a second frequency manager.

**⑩ RF B Connectors**

Connect to receiver's antenna B input.

**⑪ RF A Connectors**

Connect to receiver's antenna A input.

**⑫ Cascade RF A Connector**

Connect to second frequency manager's antenna inputs, or connect a sixth receiver.

**Note:** Do not use other RF outputs to connect to a second frequency manager.

**⑬ RF Input Antenna A**

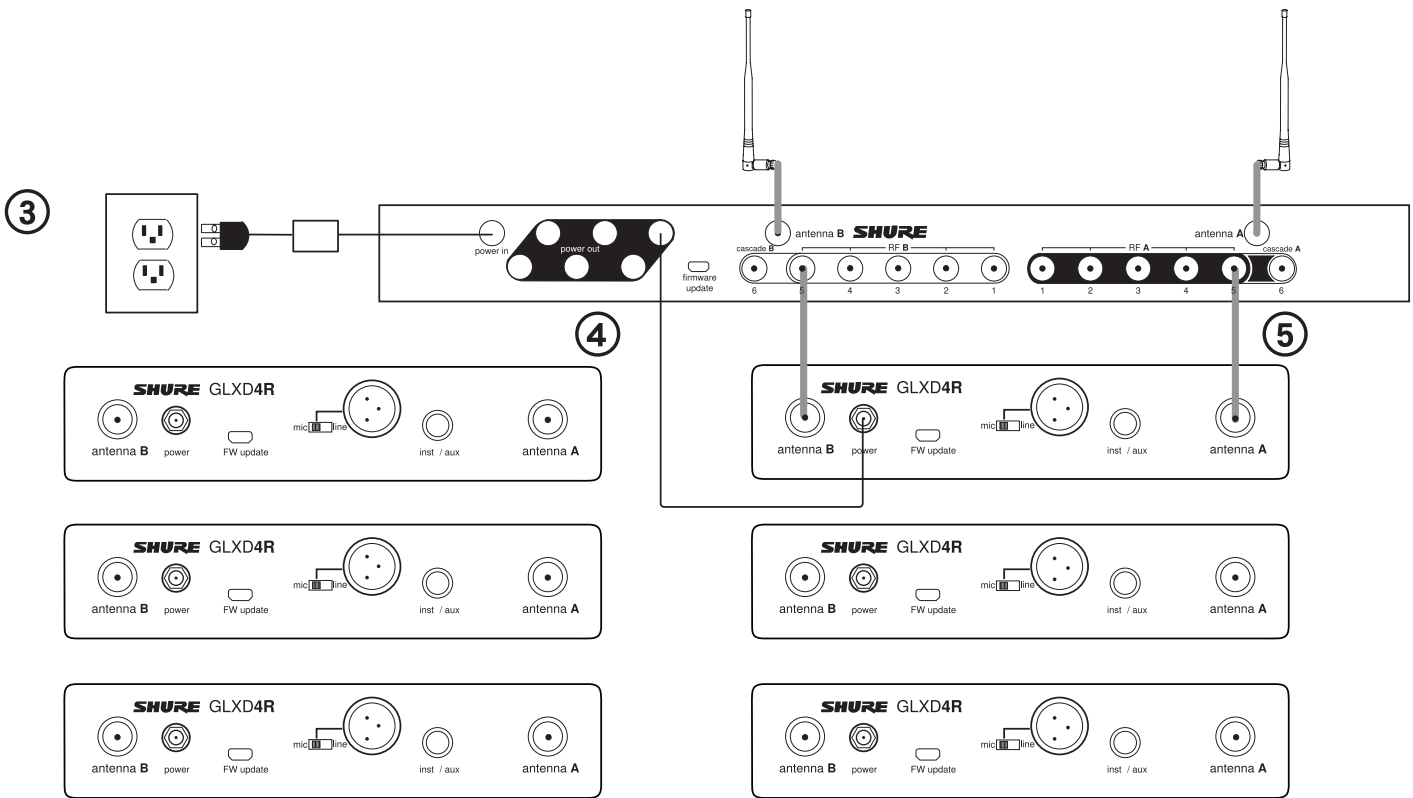
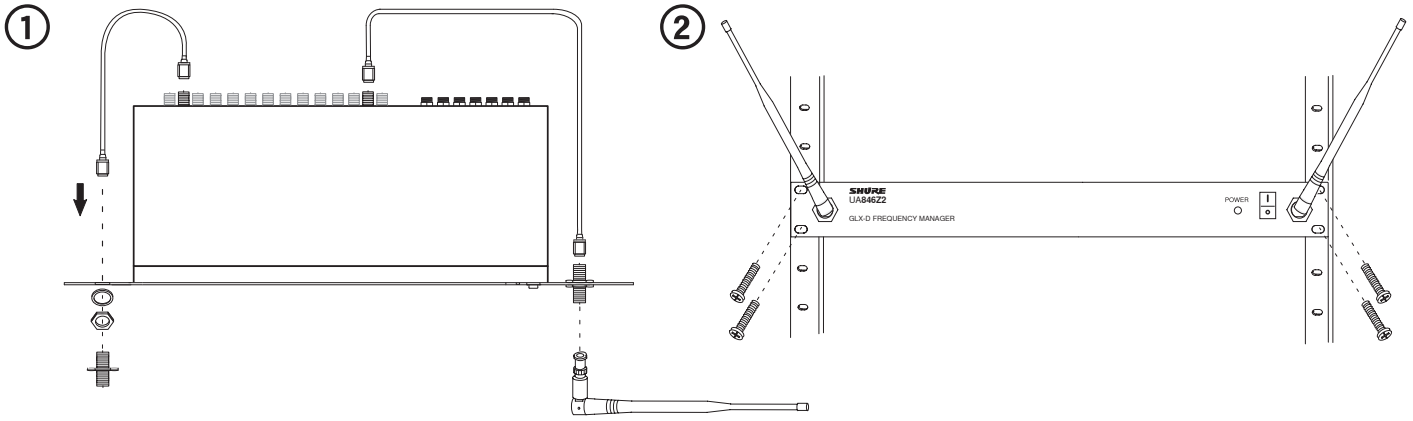
Use reverse SMA cables to connect antenna.

---

## Hardware Connections

1. Connect each antenna to the antenna A and antenna B outputs on the frequency manager's rear panel.
2. If mounting in equipment rack, use included rackmount hardware to mount as shown.
3. Connect power supply to power outlet and to the power in on the frequency manager.
4. Power each receiver by connecting a DC power cable between the frequency manager's power out and the receiver's power input.
5. Use reverse SMA cables to connect the frequency manager's RF A and RF B ports to each receiver's antenna A and antenna B inputs.

**Note:** If mounting antennas remotely, see Remote Antenna Placement.



—— 15 V DC Power Cable  
 — Reverse SMACable

### Selecting Frequency Groups

The GLX-D Frequency Manager creates a shared group of frequencies for all receivers to use and automatically assigns frequencies to each receiver. If interference occurs, the frequency manager assigns new frequencies without audible dropouts.

Using a shared group of frequencies for all receivers prevents one receiver from using all of the best frequencies, which can happen if you set up multiple GLXD4R receivers without the frequency manager. Sharing a larger group of frequencies also improves RF reliability for receivers.

1. Press the power button to turn on the frequency manager.
2. Press the power button on the first receiver. The white data sync LED flashes while searching for frequencies.
3. Select a group for all receivers by pressing and holding the group button for two seconds.

| Group | Channel Count (Number of Receivers) | Latency | Notes                                      |
|-------|-------------------------------------|---------|--|
| A     | 6 typical, 9 maximum                | 4 ms    |  |
| B     | 9 typical, 11 maximum               | 7.3 ms  | Best group if you experience interference. |

## Linking Transmitters and Receivers

**Tip:** Turn on and link one transmitter and receiver pair at a time to prevent transmitters from linking to the wrong receiver.

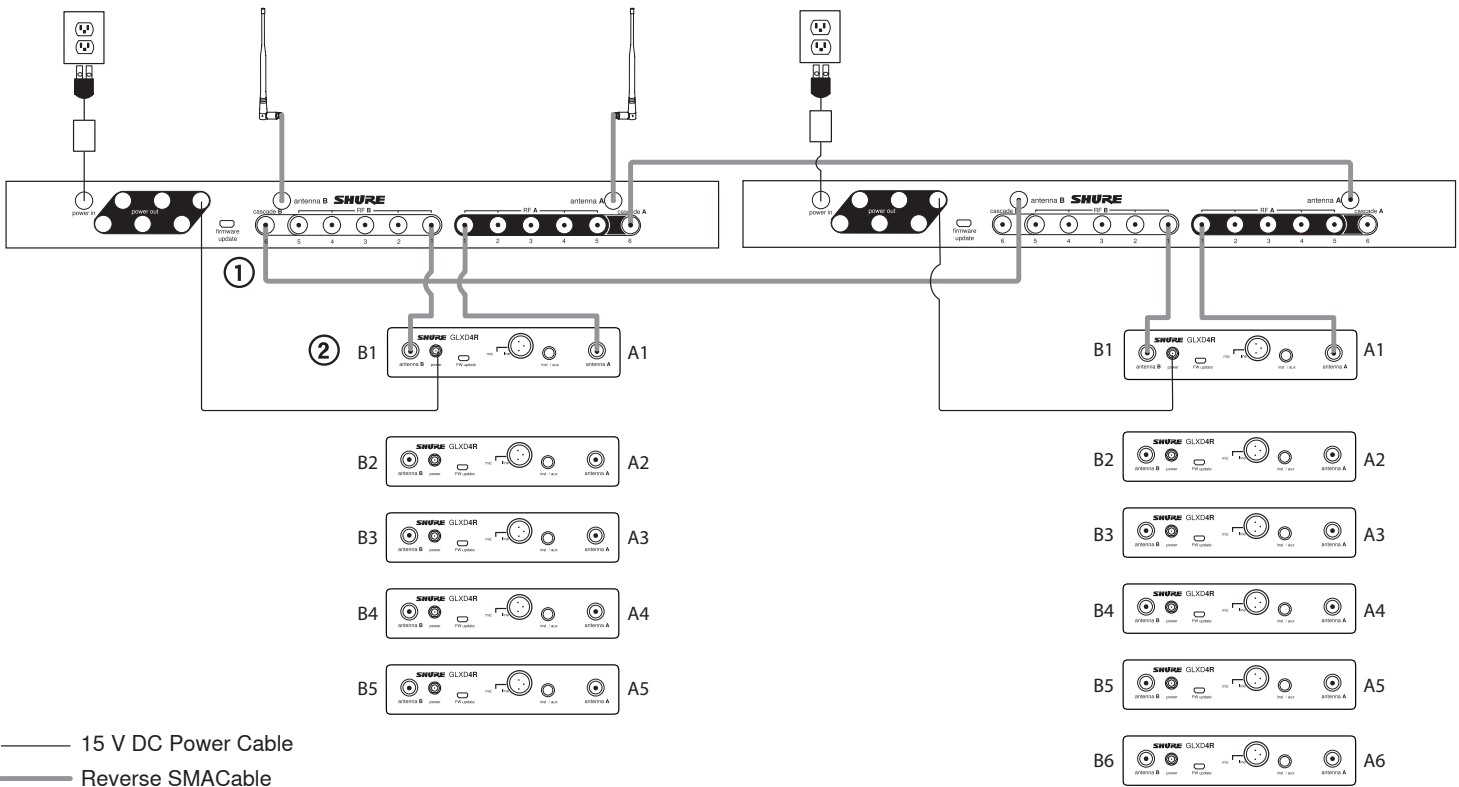
1. After selecting a group using the first receiver, turn on the first transmitter. The blue receiver rf LED flashes as the transmitter and receiver form a link. The rf LED turns solid blue when the link is complete.
2. Turn on the second transmitter and repeat for each additional receiver/transmitter pair to finish linking.

## Connecting Two GLX-D Frequency Managers

If using more than six receivers, use the cascade A and cascade B ports to connect two GLX-D Frequency Managers. Frequency managers can be cascaded once for a maximum of 11 receivers.

1. Use reverse SMA cables to connect the cascade A and cascade B ports on the first frequency manager to the antenna A and antenna B ports on the second frequency manager.
2. Connect receivers according to the diagram. For example, use the A2 and B2 ports to connect a second receiver, then use the A3 and B3 ports to connect a third receiver. The cascade A and cascade B ports on the second frequency manager connect to a sixth receiver.

**Note:** Do not use a passive antenna splitter with the frequency manager. Frequency manager features will not work.



## Remote Antenna Placement

Follow these guidelines when mounting antennas remotely:

- Reduce distance between transmitter and antenna.
- Mount antennas farther from each other to improve performance.
- Position antennas so there is nothing obstructing the line of sight to the transmitter, including the audience.
- Keep antennas away from metal objects and any other antennas.

- Use only low-loss reverse SMA cable to avoid poor RF signal.
  - Consult cable's specifications and calculate signal loss for desired cable run.
- Use one continuous length of cable from the antenna to the receiver to increase signal reliability.

- Always perform a walk-around test to verify coverage before using a wireless system during a speech or performance. Experiment with antenna placement to find the optimum location. If necessary, mark any trouble spots and ask presenters or performers to avoid those areas.

## Receiver Channel Display

When connected to a frequency manager, each receiver's channel field displays a unique identifier that won't change unless you plug in to a different set of ports on the frequency manager. Use this channel display to help label transmitters or to identify where each receiver is plugged in on the frequency manager.

| Frequency Manager    | Frequency Manager Port Number | Receiver Channel Display |
|----------------------|-------------------------------|--------------------------|
| Frequency manager #1 | 1                             | 1                        |
|                      | 2                             | 2                        |
|                      | 3                             | 3                        |
|                      | 4                             | 4                        |
|                      | 5                             | 5                        |
|                      | 6 (cascade)*                  | 6*                       |
| Frequency manager #2 | 1                             | 6                        |
|                      | 2                             | 7                        |
|                      | 3                             | 8                        |
|                      | 4                             | 9                        |
|                      | 5                             | A                        |
|                      | 6 (cascade)                   | B                        |

\*If using two frequency managers, this cascade port connects to the second frequency manager, so there is no receiver channel display.

## GLXD4 and GLXD6 Receivers

GLXD4 and GLXD6 receivers **cannot** connect to the GLX-D Frequency Manager.

If you plan to use a GLXD4 or GLXD6 receiver in addition to a frequency manager, set up the GLXD4/GLXD6 receiver first. Then turn on and set up the frequency manager.

**Note:** Using GLXD4/GLXD6 receivers alongside a frequency manager will affect the maximum number of channels you can operate with each group.

## Specifications

### UA846Z2

#### Power Requirements

15V DC

#### DC Output

15V DC (x6)

#### Output Current

Combined total from all DC outputs

3.8 A, maximum

#### Operating Temperature Range

-18°C to 63°C

#### Dimensions

45 x 483 x 192 mm (1.8 x 19 x 7.6 in.) H x W x D

#### Net Weight

1.63 kg (3.6 lbs)

#### RF Input

#### Connector Type

Reverse SMA

#### RF Frequency Range

2400 to 2483.5 MHz

#### Receiver Port Isolation

35 dB, typical

**Impedance**50  $\Omega$ **Maximum Antenna Input Power**

-10 dBm

**Maximum Receiver Port Input Power**

+15 dBm

**RF Output****RF Frequency Range**

2400 to 2483.5 MHz

**Output Intercept Point (OIP3)**

48 dBm, typical

**Connector Type**

Reverse SMA

**Impedance**50  $\Omega$ **Reverse Isolation**

Output to Input

35 dB, typical

**Gain**

Input to any output port

-3 to 0 dB

---

**Certifications**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Meets essential requirements of the following European Directives:

- R&TTE Directive 2014/53/EU
- WEEE Directive 2002/96/EC, as amended by 2008/34/EC
- RoHS Directive 2011/65/EU

**Note:** Please follow your regional recycling scheme for batteries and electronic waste

**Industry Canada ICES-003 Compliance Label:** CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The CE Declaration of Conformity can be obtained from Shure Incorporated or any of its European representatives. For contact information please visit [www.shure.com](http://www.shure.com)

The CE Declaration of Conformity can be obtained from:  
[www.shure.com/europe/compliance](http://www.shure.com/europe/compliance)

Authorized European representative:  
Shure Europe GmbH  
Headquarters Europe, Middle East & Africa  
Department: EMEA Approval  
Jakob-Dieffenbacher-Str. 12  
75031 Eppingen, Germany  
Phone: +49-7262-92 49 0  
Fax: +49-7262-92 49 11 4  
Email: [info@shure.de](mailto:info@shure.de)

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**Patent Notice**

U.S. patent number 9,019,885.

(se instalará este material o similar, de características iguales o superiores)

## Model MX400D Series Microphones Specification Sheet

### MODEL MX400D SERIES MICROPHONES



### OVERVIEW

Shure Microflex® MX400D Series microphones are miniature electret condenser gooseneck microphones with a desktop base and attached 3 m (approximate)/10 ft cable. The desktop base allows these microphones to be used in multi-purpose rooms where quick set-up is required, or where permanent installation is impractical.

### FEATURES

- Wide dynamic range and frequency response for accurate sound reproduction across the audio spectrum
- Interchangeable cartridges provide the right polar pattern for any application
- Balanced, transformerless output for increased immunity to noise over long cable runs
- Programmable on/off switch and LED on/off indicator
- New brighter LED improves visibility under strong ambient lighting
- Logic input and output terminals for remote control or use with automatic microphone mixers
- Snap-fit foam windscreen

### MODEL VARIATIONS

- **MX412D:** 304.8 mm (12 in.) desktop mini-condenser, gooseneck-mounted microphone.
- **MX418D:** 457.2 mm (18 in.) desktop mini-condenser, gooseneck-mounted microphone.

### SPECIFICATIONS

**Frequency Response** (Figure 1)  
50 to 17,000 Hz

**Polar Pattern** (Figure 2)

**Output Impedance (at 1,000 Hz)**  
Rated at 150  $\Omega$  (180  $\Omega$  actual)

**Open Circuit Sensitivity**  
At 1 kHz, ref. 1 V per Pascal\*

Cardioid: -33.5 dBV (21.1 mV)

Supercardioid: -32.5 dBV (23.7 mV)

Omnidirectional: -28.0 dBV (39.8 mV)

\* 1 Pascal=94 dB SPL

**Maximum SPL (1kHz at 1% THD, 1 k $\Omega$  load)**

Cardioid: 123.0 dB

Supercardioid: 122.0 dB

Omnidirectional: 117.5 dB

**Equivalent Output Noise (A-weighted)**

Cardioid: 29.0 dB SPL

Supercardioid: 28.0 dB SPL

Omnidirectional: 70.5 dB SPL

**Signal to Noise Ratio (referenced at 94 dB SPL)**

Cardioid: 65.0 dB

Supercardioid: 66.0 dB

Omnidirectional: 70.5 dB

**Dynamic Range with 1 k $\Omega$  load**

94.0 dB

**Common Mode Rejection**

45.0 dB minimum

**Mute Switch Attenuation**

50.0 dB minimum

**Preamplifier Output Clipping Level (1% THD)**

-6.0 dBV (0.5 V)

**Polarity**

Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of XLR output connector.

### Power Requirements

11 to 52 Vdc phantom, 2.0 mA

### Environmental Requirements

Operating Temperature Range: -18° to 57° C (0° to 135° F)

Relative Humidity: 0 to 95%

### Dimensions (Figure 3)

#### Weight

MX412D: 0.81 kg (1.80 lbs.) net, 1.63 kg (3.62 lbs.) packaged

MX418D: 0.82 kg (1.82 lbs.) net, 1.64 kg (3.64 lbs.) packaged

### Cable Type (figure 7)

The attached custom cable contains a shielded audio pair and three unshielded conductors for logic control.

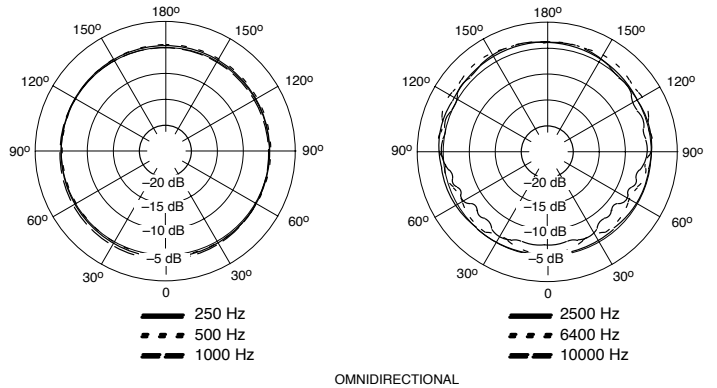
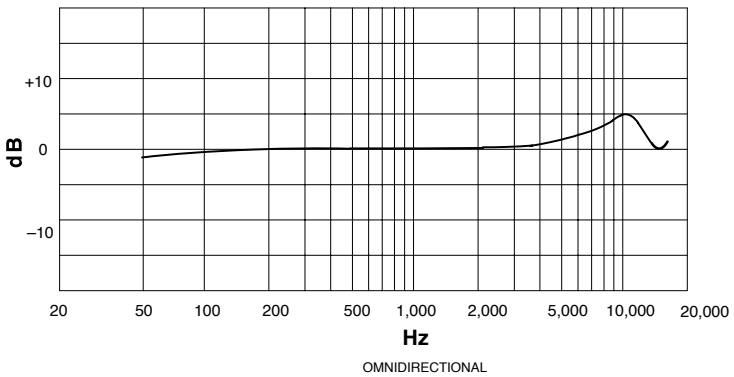
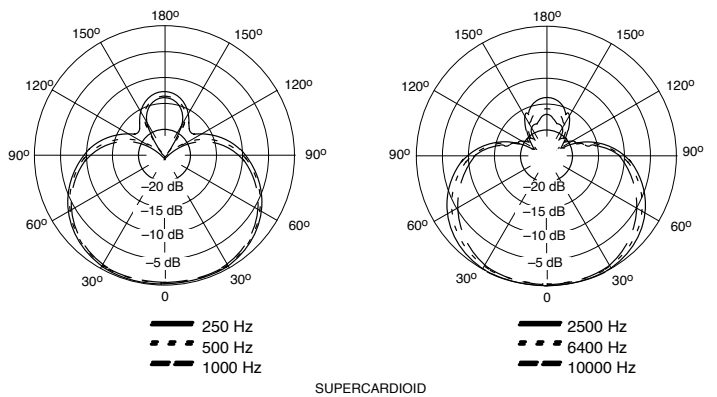
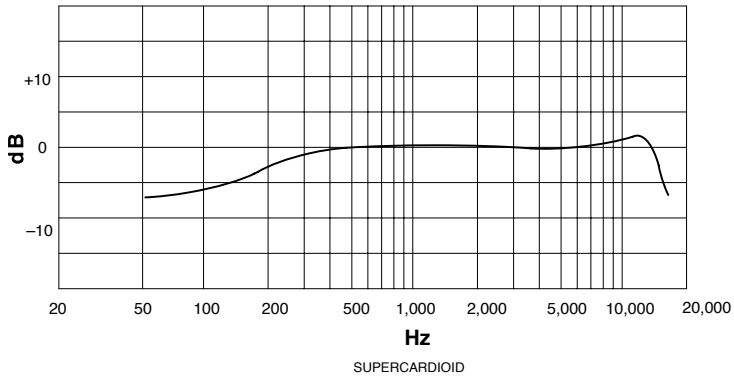
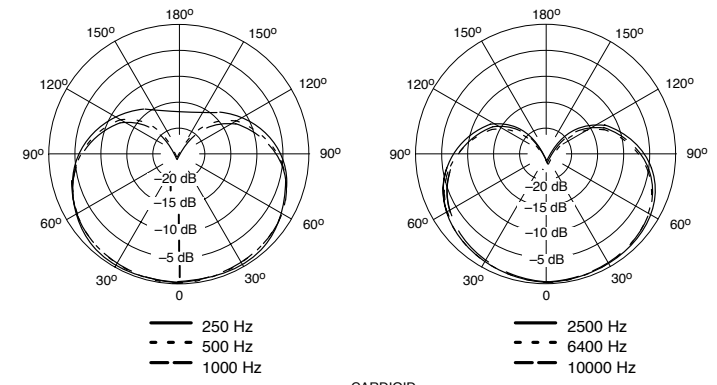
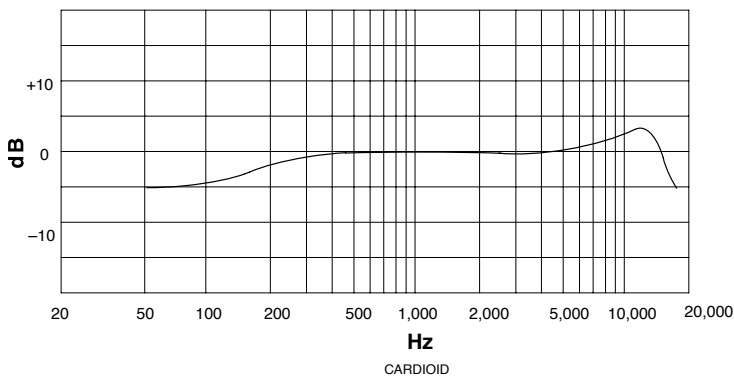
Overall diameter=0.6 mm (0.165 in.)

### Certification

Eligible to bear CE Marking. Conforms to European EMC Directive 89/336/EEC. Meets applicable tests and performance criteria in European Standard EN55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments.

### REPLACEMENT PARTS

|                                       |          |
|---------------------------------------|----------|
| Snap-Fit Foam Windscreen (4 per pkg.) | RK412WS  |
| Foam Ball Windscreen                  | A99WS    |
| Locking Metal Windscreen              | A412MWS  |
| Replacement 3 m (10 ft) XLR Cable     | C120     |
| Custom Logic Cable (specify length)   | 15A523/1 |
| Omnidirectional Cartridge             | R183B    |
| Supercardioid Cartridge               | R184B    |
| Cardioid Cartridge                    | R185B    |
| Base Plate Bumpers                    | 80A8053A |



TYPICAL FREQUENCY RESPONSE

TYPICAL POLAR PATTERNS

Figure 1

Figure 2

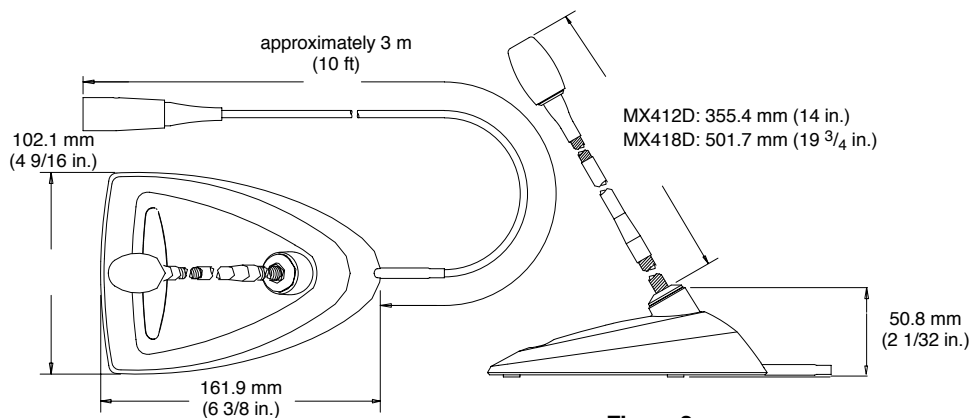


Figure 3

(se instalará este material o similar, de características iguales o superiores)

## Specifications

| Video              |  |
|--------------------|--|
| HD/SD              | 4096×2160@24/25/30/50*/60Hz*, 3840×2160@24/25/30/50*/60Hz*, 2048×1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i        |
| VESA               | 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800, 1280×768, 1152×768, 1024×768, 800×600, 640×480 |
| Color Space        | YUV, RGB   |
| Chroma Subsampling | 4:4:4, 4:2:2, 4:2:0*   |
| Color Depth        | 8-bit, 10-bit, 12-bit  |

| Audio                 |  |
|-----------------------|--|
| Analog In             | PCM 2Ch  |
| HDMI In / HDBaseT Out | PCM 2Ch  |
| Sample Rate           | 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz |
| Bit Rate              | 24-bit (max.)  |

| Resolution / Distance | 4K/UHD - Feet / Meters |    | 1080p - Feet / Meters |    |
|-----------------------|------------------------|----|-----------------------|----|
| HDMI                  | 15                     | 5  | 30                    | 10 |
| CAT-5e / CAT-6        | 115                    | 35 | 197                   | 60 |
| CAT-6a / CAT-7        | 130                    | 40 | 230                   | 70 |

| Signal    |           |
|-----------|-----------|
| Bandwidth | 10.2 Gbps |
| CEC       | Yes       |
| HDCP      | 1.4       |

| Temperature   | Fahrenheit                 | Celsius   |
|---------------|----------------------------|-----------|
| Operating     | 32 to 122                  | 0 to 50   |
| Storage       | -4 to 140                  | -20 to 60 |
| Humidity (RH) | 20% to 90%, non-condensing |           |

| Power       |                      |
|-------------|----------------------|
| Consumption | 18.7 W (when paired) |

| Dimensions   | Inches | Millimeters |
|--------------|--------|-------------|
| Wall, 2-gang | 1.5    | 40          |

| Weight | Pounds | Kilograms |
|--------|--------|-----------|
| Device | 0.82   | 0.37      |

| Certification |         |
|---------------|---------|
| Unit          | CE, FCC |

\*4096x2160 @ 50/60 Hz and 3840x2160 @ 50/60 Hz supports 8-bit 4:2:0 chroma subsampling, only.

## Specifications

| Connectors, Controls, and Indicators |   |
|--------------------------------------|---|
| INPUT                                | 4 - Type-A, 19-pin female                   |
| OUTPUT                               | 1 - Type A, 19-pin female                   |
| OPTICAL                              | 1 - TOSLINK™                                |
| RS-232 / IR                          | 1 - 5-pin captive screw                     |
| LAN                                  | 1 - RJ45                                    |
| DC 5V                                | 1 - Barrel connector, 5.5 mm, locking       |
| FW                                   | 1 - Type mini-B, 5-pin female               |
| INPUT button                         | 1 - momentary, tact-type                    |
| POWER button                         | 1 - momentary, tact-type, backlit power LED |
| Input Indicators                     | 4 - LED, blue                               |
| IR window                            | 1 - Round, front panel                      |

| Video              |   |
|--------------------|---|
| UHD/HD/SD          | 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048×1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i           |
| VESA               | 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480 |
| Color Space        | YUV, RGB  |
| Chroma Subsampling | 4:4:4, 4:2:2, 4:2:0*  |
| Color Depth        | 8-bit, 10-bit, 12-bit   |
| HDR                | HDR10 and Dolby® Vision™ @ 60 Hz  |

| Audio                |   |
|----------------------|---|
| HDMI IN / HDBaseT IN | PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby® Digital, DTS® 5.1, Dolby Digital Plus™, Dolby TrueHD, DTS-HD Master Audio™, Dolby Atmos®, DTS:X |
| Sample Rate          | 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz  |
| Bit Rate             | 24-bit (max.)   |

| Resolution / Distance | 4K - Feet | 4K - Meters | 1080p - Feet | 1080p - Meters |
|-----------------------|-----------|-------------|--------------|----------------|
| HDMI IN/OUT           | 15        | 5           | 30           | 10             |

| Signal             |         |
|--------------------|---------|
| Maximum TMDS Clock | 600 MHz |
| HDBaseT            | 18 Gbps |
| HDMI               | 2.0     |
| USB                | 2.0     |
| HDCP               | 2.2     |
| CEC                | 1.4     |

\*4096x2160@50/60Hz and 3840x2160@50/60Hz supports 8-bit 4:2:0 chroma subsampling, only.

| Temperature   | Fahrenheit                 | Celsius     |
|---------------|----------------------------|-------------|
| Operating     | 32° to 122°                | 0° to 50°   |
| Storage       | -4° to 140°                | -20° to 60° |
| Humidity (RH) | 20% to 90%, non-condensing |             |

| Power            |   |  |
|------------------|---|--|
| Consumption      | 6.6 W   |  |
| Idle Consumption | 5.9 W   |  |
| Supply           | Input: 100 - 240 V AC, 50/60 Hz, Output: 5 V DC |  |

| Dimensions | Inches          | Millimeters    |
|------------|-----------------|----------------|
| H x W x D  | 1.0 x 8.6 x 5.9 | 26 x 219 x 152 |

| Weight | Pounds | Kilograms |
|--------|--------|-----------|
| Device | 1.82   | 0.82      |

| Certification |  |
|---------------|--|
| Device        | CE, FCC                                  |
| Power Supply  | CE, FCC, Level VI, RoHS, cULus, RCM, CCC |

# 4K/UHD HDMI Over HDBaseT TX/RX with Control and PoE

AT-UHD-EX-70C-KIT

AT-UHD-EX-70C-RX

(se instalará este material o similar, de características iguales o superiores)



The Atлона AT-UHD-EX-70C-KIT is an HDBaseT™ transmitter/receiver kit for HDMI transmission up to 230 feet (70 meters) over category cable with RS-232 and IR control plus Power over Ethernet capability. The kit transmits video signals up to 4K/UHD @ 60Hz with embedded multi-channel audio and remote 48V power for the receiver. The kit provides bidirectional extension of both 12 volt IR and RS-232 commands. The kit is HDCP 2.2 compliant and supports EDID communication. Both transmitter and receiver feature quarter rack width metal enclosures for easy rack mounting with rear panel I/O ports for uncluttered wire management.

The AT-UHD-EX-70C-KIT provides integrator-friendly features including: IEEE standards-based PoE transmission for safety and compatibility; HDCP 2.2 compliant for meeting the latest copy protection requirements; rack-mountable form factor for accommodating four transmitters in a single 1U rack tray; power chaining for powering multiple devices from one power supply; and front mounted USB port for easy firmware updates.

The AT-UHD-EX-70C-KIT is ideal for use in residential or commercial point to point applications that require HDBaseT signal transmission over greater distances than HDMI can support. As a transmitter/receiver pair, the kit can be used with the H2H matrix switcher series and third party control systems for long distance AV signal and control extension with PoE capability. On its own, the AT-UHD-EX-70C-RX receiver is designed to take advantage of the powerful UHD-PRO3 series matrices to receive AV, remote power, and control signals.

#### 4K/UHD capability -

- Compatible with Ultra High Definition sources and displays
- Future proofs AV systems in preparation for technology improvements, 4K/UHD streaming services and playback devices

#### HDCP 2.2 compliant -

- Adheres to latest specification for High-bandwidth Content Protection
- Allows protected content stream to pass between devices

#### Remote-powered receiver -

- Industry standard IEEE 802.3af PoE for receiver is supplied by transmitter over HDBaseT
- Saves time and integration costs

#### Bidirectional extension of both RS-232 and IR control commands -

- Control signals travel over HDBaseT link for maximum control system flexibility
- Eliminates multiple cable runs between source, control system, and display

#### Long distance HDMI extension -

- Transmits HDMI signals up to 230 ft (70m) @ 1080P and 130 ft (40m) @ 4K/UHD using CAT6a/7 cable
- Uses easy-to-integrate category cable for low-cost, reliable system installation

# 4K/UHD HDMI Over HDBaseT TX/RX with Control and PoE

AT-UHD-EX-70C-KIT

AT-UHD-EX-70C-RX

## Specifications

### Video Resolutions

|                    |  |  |
|--------------------|--|--|
| Video              | 4096x2160@24/25/30/50*/60Hz*, 3840x2160@24/25/30/50*/60Hz* (UHD), 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i  |  |
| VESA               | 2560x2048, 2560x1600, 2048x1536, 1920x1200, 1680x1050, 1600x1200, 1600x900, 1440x900, 1400x1050, 1366x768, 1360x768, 1280x1024, 1280x800, 1280x768, 1152x768, 1024x768, 800x600, 640x480 |  |
| Colorspace         | YCbCr, RGB   |  |
| Chroma Subsampling | 4:4:4, 4:2:2, 4:2:0  |  |
| Color depth        | 8-bit, 10-bit, 12-bit  |  |

### Audio

|             |   |  |
|-------------|---|--|
| Formats     | PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital Plus, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos |  |
| Sample Rate | 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz   |  |
| Bit rate    | up to 24-bit  |  |

### Distance

|                     |                 |                |
|---------------------|-----------------|----------------|
| CAT5e/6 @ 4K        | up to 35 meters | up to 115 feet |
| CAT6a/7 @ 4K        | up to 40 meters | up to 130 feet |
| CAT5e/6 @ 1080p     | up to 60 meters | up to 197 feet |
| CAT6a/7 @ 1080p     | up to 70 meters | up to 230 feet |
| HDMI IN/OUT@ 4K     | up to 5 meters  | up to 15 feet  |
| HDMI IN/OUT @ 1080p | up to 10 meters | up to 30 feet  |

### Signal

|           |                    |
|-----------|--------------------|
| Bandwidth | 10.2 Gbps          |
| CEC       | Yes                |
| HDCP      | supports up to 2.2 |

### Temperature

|           |                          |               |
|-----------|--------------------------|---------------|
| Operating | 0°C to 50°C              | 32°F to 122°F |
| Storage   | -20°C to 60°C            | -4°F to 140°F |
| Humidity  | 20 to 90% non-condensing |               |

### Power

|             |  |
|-------------|--|
| Consumption | 10.89W   |
| Supply      | Input: AC 100~240V 50/60Hz<br>Output: DC 48V 0.83A |

### Dimension

|           |                    |                           |
|-----------|--------------------|---------------------------|
| H x W x D | 25 x 109 x 89 (mm) | 0.98 x 4.29 x 3.50 (inch) |
| w/ears    | 27 x 119 x 89 (mm) | 1.06 x 4.69 x 3.50 (inch) |

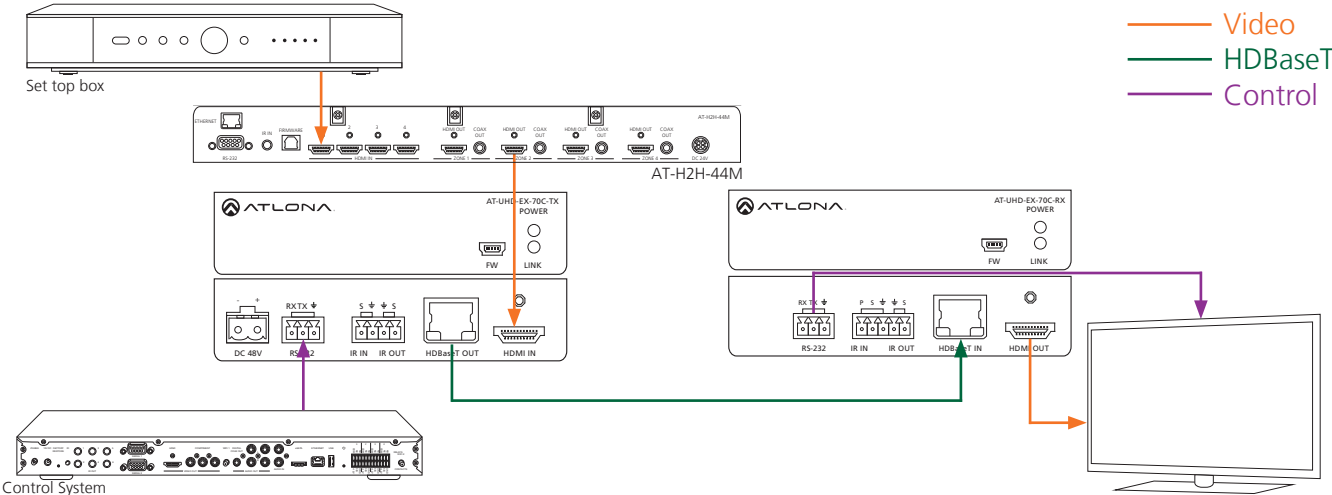
### Weight

|         |         |          |
|---------|---------|----------|
| TX Unit | 0.27 kg | 0.59 lbs |
| RX Unit | 0.33 kg | 0.73 lbs |

### Certification

|              |                                |
|--------------|--------------------------------|
| Power Supply | CE, FCC, cULus, RoHS, CCC, RCM |
| Product      | CE, FCC                        |

\*\*4096x2160@50/60Hz & 3840x2160@50/60Hz supported @ chroma subsampling 4:2:0 8-bit only



Specifications and availability subject to change without notice. Actual products, product images, and online product images may vary from images shown here. Not responsible for typographical errors.

(se instalará este material o similar, de características iguales o superiores)

# BRIGHTSIGN HD

## AN UPDATED CLASSIC NOW WITH TRUE 4K. MAINSTREAM PERFORMANCE.

BrightSign HD models are ideal for mainstream 4Kp60, Full HD and HTML5 applications that require high reliability and ease of use. All models offer H.265 decoding, HTML5 rendering and Gigabit Ethernet. Robust interactive controls, live content features, BrightWall™ and Mosaic Mode make this set of players a perfect fit for a wide range of applications.



### BrightSign HD224

#### Standard I/O Player

Enjoy flawless 4K and Full HD single video decoding, mainstream HTML5 performance and simultaneous playback from local, networked and streaming sources. Includes the standard I/O package of Gigabit Ethernet, GPIO, and analog/digital audio.

Price: \$350



### BrightSign HD1024

#### Expanded I/O Player

All the features of the HD224 plus additional interactive options via USB 2.0 (type A), and serial ports to fully engage your audience.

Price: \$450

## Features



4K60p single decode



1080p60 single decode



H.265



Mainstream HTML5



IP Streaming



BrightBeacon™



BrightWall™



AutoWall™



Zones



Interactive



Live Feeds



Geo-Fencing



Tagging



BrightSign App



Sign Preview



Remote Snapshot



B-Deploy



Digital Audio



Mosaic Mode

## SPECIFICATIONS

| MODEL  | HD224                      | HD1024     |
|--|----------------------------|------------|
| <b>VIDEO ENGINE DECODER</b>  |                            |            |
| True 4K@60p video decoding   | X                          | X          |
| Single 4K or 1080p60 video decoding  | X                          | X          |
| <b>MEDIA FORMATS</b>   |                            |            |
| Video Codecs for 4K content: H.265/H.264   | X                          | X          |
| Video Containers for 4K H.265/H.264 content: .ts, .mov, .mp4   | X                          | X          |
| Video Codecs for Full HD: H.265, H.264(MPEG-4, Part 10), MPEG-2, MPEG-1  | X                          | X          |
| Video Containers for Full HD: .ts, .mpg, .vob, .mov, .mp4, .m2ts   | X                          | X          |
| Images: BMP, JPEG, PNG   | X                          | X          |
| Audio: MP2, MP3, AAC, and WAV (AC3 is passed through)  | X                          | X          |
| HTML5  | X (Mainstream)             |            |
| <b>DISPLAY RESOLUTIONS</b>   |                            |            |
| 4K resolutions: 4096x2160, 3840x2160, 3840x600   | X                          | X          |
| Upscaling to: 3840x2160x24/25/29.97/30p  | X                          | X          |
| 1920x1200, 1920x1080x24/25/29.97/30/50/59.94/60p, 1920x1080x50/59.94/60i, 1600x1200x60p, 1440x1050x60/75p, 1440x900x60/75p, 1360x768x60p, 1280x1024x60/75p, 1280x960x60p, 1280x800x60p/75p, 1280x768x60p, 1280x720x50/59.94/60p, 1024x768x60p, 800x600x60/75p, 720x576x50p/50i, 720x480x59.94/60p/60i, 640x480x60p | X                          | X          |
| <b>HARDWARE INTERFACES</b>   |                            |            |
| External micro SD Slot (SDHC and SDXC); SDHC storage up to 32GB SDXC storage up to 2TB   | X                          | X          |
| USB High Speed Host Port (also supports content updates)   |                            | X (Type A) |
| 12-pin Phoenix GPIO port with 8 bi-directional GPIOs   | X                          | X          |
| 3.5mm RS-232 Serial Port   |                            | X          |
| 3.5mm IR In/Out  | X                          | X          |
| 3.5mm Audio Out (analog -or- SPDIF digital, non-simultaneous)  | X                          | X          |
| HDMI 2.0a Out  | X                          | X          |
| Ethernet   | X (Gigabit)                |            |
| M.2 (E) Keyed Wi-Fi/Bluetooth Connector  | X                          | X          |
| Wi-Fi External Antenna Connector (optional)  | X                          | X          |
| Status LEDs  | Power, Error, Busy, Update |            |
| Reset and Service Buttons  | X                          | X          |
| Real Time Clock  | X                          | X          |
| <b>FEATURES</b>  |                            |            |
| H.265 Decoding: smaller file sizes and lower bitrates than H.264   | X                          | X          |
| HTML5: hardware-accelerated engine that plays modular HTML assets flawlessly alongside high-bandwidth video  | X (Mainstream)             |            |
| BrightBeacon™: 2-way Bluetooth/Beacon communication between mobile devices & signage (requires: wireless/Bluetooth module)   | X                          | X          |

| MODEL   | HD224                                       | HD1024                     |
|---|---|----------------------------|
| BrightWall™: synchronized playback across multiple displays   | X   | X                          |
| AutoWall™: embraces the power of HTML5 to create unique multimedia video walls  | X   | X                          |
| Zones: playback multiple content types on a single screen   | X   | X                          |
| Mosaic Mode: simultaneously play a multitude of smaller resolution videos that add up to the maximum video resolution of the player | X   | X                          |
| IP Streaming: play streaming media  | X   | X                          |
| Interactivity: connect virtually any type of interactive device to a multitude of interactive ports                                 | X (GPIO, UDP)                               | X (GPIO, USB, serial, UDP) |
| Live Feeds: Live Data, Live Text, MRSS, Twitter, Flickr, etc.   | X   | X                          |
| Tagging: BrightSign Network users can assign media and player tags for highly targeted content distribution                         | X   | X                          |
| BrightSign App: update signs with an iOS device   | X   | X                          |
| Geo-Fencing: trigger playback based on location (requires USB dongle)   |   | X                          |
| Sign Preview: preview presentation playback in BrightAuthor   | X   | X                          |
| Remote Snapshot: remotely view a snapshot image of the display's playback   | X   | X                          |
| Networking: update, manage and schedule your signage  | X   | X                          |
| B-deploy: A setup feature to deploy many players at once  | X   | X                          |
| Extended Thermal: supports ambient temperatures between 0° & 70° C at 90% max relative humidity, non-condensing                     | X   | X                          |
| <b>SOFTWARE</b>   |   |                            |
| Free BrightAuthor Software  | X   | X                          |
| BrightSign Networking Options   | X   | X                          |
| <b>ACCESSORIES</b>  |   |                            |
| USB Button Pads   |   | X                          |
| Wireless/Bluetooth Module   | X   | X                          |
| MicroSD Class 10 Cards (various capacities)   | X   | X                          |
| <b>MISCELLANEOUS</b>  |   |                            |
| Dimensions (W x H x D)  | 159.9 x 22 x 144.2mm or 6.3 x 0.87 x 5.7 in |                            |
| Weight  | 12 oz                                       |                            |
| Power   | 12V / 1.5A (18 Watts)                       |                            |
| Multi-Country Power & Regulatory Approvals  | X   | X                          |
| Built-in Wall Mounting Brackets   | X   | X                          |
| 1 year warranty, parts and labor  | X   | X                          |

# CP3

(se instalará este material o similar, de características iguales o superiores)

## 3-Series Control System™

This is the control system you've been waiting for! The new CP3 delivers more power and speed over anything else in the industry — even the groundbreaking MC3 — and packs it all in a 1U rack-mountable form factor. Users of the popular CP2E will find the CP3 instantly familiar, providing a similar assortment of control ports with a whole new level of performance and programming flexibility afforded by the new Core 3 OS™.

- > *Core 3 OS™*
- > *Modular programming architecture*
- > *Vector floating point coprocessor*
- > *512MB RAM & 2GB Flash memory*
- > *Expandable storage up to 1TB*
- > *Rear panel MMC memory card slot*
- > *High-speed USB 2.0 host port*
- > *Ethernet LAN port and Cresnet® master port*
- > *Front panel USB computer console port*
- > *One RS-232/422/485 with hardware and software handshaking*
- > *Two RS-232 ports with software handshaking only*
- > *8 IR/serial, 8 relay, and 8 Versiport I/O ports*
- > *e-Control® Web server*
- > *Backwards compatible to run existing SIMPL programs*
- > *Full Unicode (multi-language) support*
- > *Increased network throughput and security*
- > *IIS v.6.0 Web Server*
- > *IPv6 ready*
- > *Powered via Cresnet or external power pack*
- > *1-space rack-mountable*

### **Available Models**

**CP3: 3-Series Control System™** [Release Date: TBA]

#### Notes:

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at [www.crestron.com/salesreps](http://www.crestron.com/salesreps) or by calling 800-237-2041.

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# DAP-2230 Wireless N PoE Access Point

(se instalará este material o similar, de características iguales o superiores)

## Technical Specifications

### General

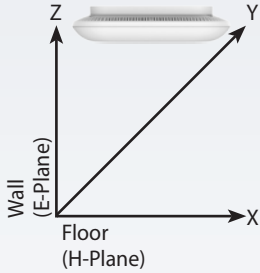
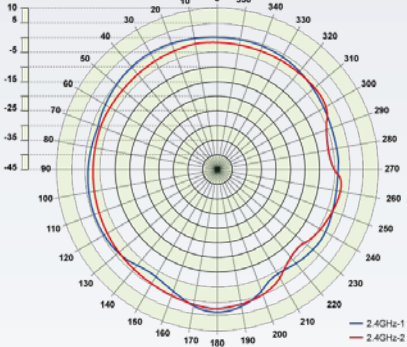
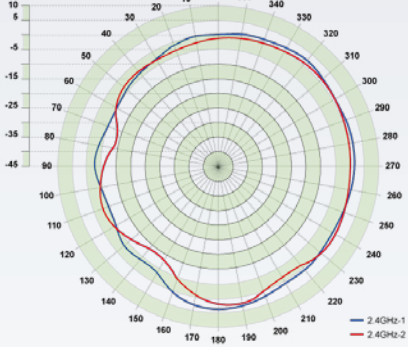
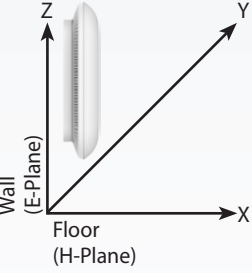
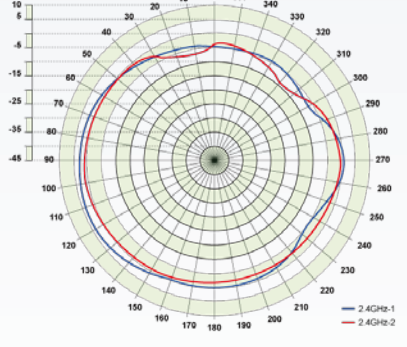
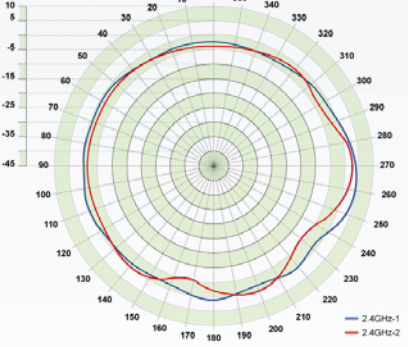
|                          |   |  |
|--------------------------|---|--|
| Device Interfaces        | <ul style="list-style-type: none"> <li>• 802.11 n/g/b wireless<sup>1</sup></li> </ul> | <ul style="list-style-type: none"> <li>• 10/100BaseT Fast Ethernet LAN PoE port</li> </ul> |
| LED                      | <ul style="list-style-type: none"> <li>• Power / Status</li> </ul>                    |  |
| Standards                | <ul style="list-style-type: none"> <li>• IEEE 802.11n/g/b<sup>1</sup></li> </ul>      | <ul style="list-style-type: none"> <li>• IEEE 802.3u/af</li> </ul>                         |
| Wireless Frequency Range | <ul style="list-style-type: none"> <li>• 2.4 to 2.4835 GHz</li> </ul>                 |  |
| Antennas                 | <ul style="list-style-type: none"> <li>• Two internal 3 dBi</li> </ul>                |  |
| Maximum Output Power     | <ul style="list-style-type: none"> <li>• 20 dBm</li> </ul>                            |  |

### Functionality

|                    |  |  |
|--------------------|--|--|
| Security           | <ul style="list-style-type: none"> <li>• WPA-Personal</li> <li>• WPA-Enterprise</li> <li>• WPA2-Personal</li> <li>• WPA2-Enterprise</li> </ul> | <ul style="list-style-type: none"> <li>• WEP 64/128-bit encryption</li> <li>• SSID broadcast disable</li> <li>• MAC address access control</li> <li>• Network Access Protection (NAP)</li> </ul> |
| Network Management | <ul style="list-style-type: none"> <li>• Telnet</li> <li>• Secure Telnet (SSH)</li> <li>• HTTP</li> <li>• Secure HTTP (HTTPS)</li> </ul>       | <ul style="list-style-type: none"> <li>• Traffic control</li> <li>• SNMP</li> <li>• D-Link Central WiFiManager</li> <li>• AP Array</li> </ul>  |

### Physical

|                           |   |  |
|---------------------------|---|--|
| Dimensions                | <ul style="list-style-type: none"> <li>• 129 x 129 x 29 mm (5.08 x 5.08 x 1.14 inches)</li> </ul> |  |
| Weight                    | <ul style="list-style-type: none"> <li>• 101.4 grams (3.56 ounces)</li> </ul>                     | <ul style="list-style-type: none"> <li>• 213.6 grams (7.5 ounces) with mounting kit</li> </ul> |
| Operating Voltage         | <ul style="list-style-type: none"> <li>• 12V DC, 1 A (power adapter not included)</li> </ul>      | <ul style="list-style-type: none"> <li>• 802.3af PoE</li> </ul>                                |
| Maximum Power Consumption | <ul style="list-style-type: none"> <li>• 5.76 watts</li> </ul>                                    |  |
| Temperature               | <ul style="list-style-type: none"> <li>• Operating: 0 to 40 °C (32 to 104 °F)</li> </ul>          | <ul style="list-style-type: none"> <li>• Storage: -20 to 65 °C (-4 to 149 °F)</li> </ul>       |
| Humidity                  | <ul style="list-style-type: none"> <li>• Operating: 0% to 90% non-condensing</li> </ul>           | <ul style="list-style-type: none"> <li>• Storage: 5% to 95% non-condensing</li> </ul>          |
| Certifications            | <ul style="list-style-type: none"> <li>• FCC</li> <li>• IC</li> <li>• CE</li> </ul>               | <ul style="list-style-type: none"> <li>• UL</li> <li>• Wi-Fi® Certified</li> </ul>             |

| Antenna Pattern  |  |  |
|--|--|--|
| Orientation  | H-Plane  | E-Plane  |
| <p>Ceiling Mounted</p>  |   |   |
| <p>Wall Mounted</p>    |  |  |

<sup>1</sup> Maximum wireless signal rate derived from IEEE standard 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, may lower actual data throughput rate. Environmental factors may adversely affect wireless signal range.

<sup>2</sup> This unit is designed for indoor environments, you might violate local regulatory requirements by deploying this unit in outdoor environments.

# DGS-1210 Series Gigabit Smart Managed Switches

(se instalará este material o similar, de características iguales o superiores)

| General                                 |  |   |
|---|--|---|
| Model                                   | • DGS-1210-52P   | • DGS-1210-52MP   |
| Interfaces                              | <ul style="list-style-type: none"> <li>• 24 x 10/100/1000 Mbps PoE ports</li> <li>• 24 x 10/100/1000 Mbps ports</li> <li>• 4 x SFP ports</li> </ul>  | <ul style="list-style-type: none"> <li>• 48 x 10/100/1000 Mbps PoE ports</li> <li>• 4 x SFP ports</li> </ul>                            |
| Port Standards & Functions              | <ul style="list-style-type: none"> <li>• Ports 1 to 8 compliant with 802.3at</li> <li>• Ports 9 to 24 compliant with 802.3af</li> </ul>  | <ul style="list-style-type: none"> <li>• Ports 1 to 8 compliant with 802.3at</li> <li>• Ports 9 to 48 compliant with 802.3af</li> </ul> |
| Other Port Standards & Functions        | <ul style="list-style-type: none"> <li>• IEEE 802.3 10BASE-T Ethernet (twisted-pair copper)</li> <li>• IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper)</li> <li>• IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted-pair copper) <ul style="list-style-type: none"> <li>• IEEE 802.3az compliance <ul style="list-style-type: none"> <li>• Auto-negotiation</li> </ul> </li> <li>• IEEE 802.3x Flow Control <ul style="list-style-type: none"> <li>• IEEE 802.3z</li> </ul> </li> </ul> </li> </ul> |   |
| Network Cables                          | • UTP Cat. 5, Cat. 5e (100 m max.)   |   |
| Duplex Mode                             | <ul style="list-style-type: none"> <li>• Full/Half-duplex for 10/100 Mbps</li> <li>• Full-duplex for 1000 Mbps</li> </ul>  |   |
| Media Interface Exchange                | • Auto MDI/MDIX adjustment for all twisted-pair ports  |   |
| Performance                             |  |   |
| Switching Capacity                      | • 104 Gbps   |   |
| Transmission Method                     | • Store-and-forward  |   |
| MAC Address Table                       | • 16,000 entries per device  |   |
| MAC Address Update                      | • Up to 256 static MAC entries   |   |
| Maximum 64 bytes packet forwarding rate | • 77.4 Mpps  |   |
| Packet Buffer Memory                    | • 3.0 MB   |   |
| CPU Memory                              | • 128 MB DDR3  |   |
| Flash Memory                            | • 16 MB  |   |
| Physical/Environmental                  |  |   |
| AC Input                                | • 100 to 240 VAC 50/60 Hz internal universal power supply  |   |
| Maximum Power Consumption               | <ul style="list-style-type: none"> <li>• 270.2 W (PoE on)</li> <li>• 46.5 W (PoE off)</li> </ul>   | <ul style="list-style-type: none"> <li>• 483.1 W (PoE on)</li> <li>• 48.9 W (PoE off)</li> </ul>  |
| Maximum PoE Budget                      | • 193 W  | • 370 W   |
| Standby Power Consumption               | <ul style="list-style-type: none"> <li>• 100 V: 29.6 W</li> <li>• 240 V: 28.2 W</li> </ul>   | <ul style="list-style-type: none"> <li>• 100 V: 29.5 W</li> <li>• 240 V: 27.5 W</li> </ul>  |
| Acoustics                               | <ul style="list-style-type: none"> <li>• Low speed: 37.8 dBA</li> <li>• High speed: 47.3 dBA</li> </ul>  | <ul style="list-style-type: none"> <li>• Low speed: 40.4 dBA</li> <li>• High speed: 50.1 dBA</li> </ul>                                 |
| Heat Dissipation                        | • 912.96 Btu/hr  | • 1,648.23 Btu/hr   |
| Operating Temperature                   | • -5 to 50 °C (23 to 122 °F)   |   |
| Storage Temperature                     | • -20 to 70 °C (-4 to 158 °F)  |   |
| Operating Humidity                      | • 0% to 95% non-condensing   |   |
| Storage Humidity                        | • 0% to 95% non-condensing   |   |
| Dimensions (L x W x H)                  | • 440 x 430 x 44 mm<br>(17.32 x 16.9 x 1.73 in)  |   |
| Weight                                  | • 5.66 kg (12.47 lbs)  | • 5.78 kg (12.74 lbs)   |
| Diagnostic LEDs                         | <ul style="list-style-type: none"> <li>• Link/Activity/Speed (per 10/100/1000 Mbps port)</li> <li>• Power Fail/Power Ok (per PoE port)</li> </ul>  |   |
| Certifications                          | • CE Class A, VCCI Class A, FCC Class A, BSMI, C-Tick, cUL, CE (LVD), CCC  |   |
| MTBF                                    | • 220,722 hours  | • 318,616 hours   |

# DGS-1210 Series Gigabit Smart Managed Switches

| Software                  |   |   |
|---------------------------|---|---|
| L2 Features               | <ul style="list-style-type: none"> <li>• MAC Address Table               <ul style="list-style-type: none"> <li>• 16K entries</li> </ul> </li> <li>• IGMP Snooping               <ul style="list-style-type: none"> <li>• IGMP v1/v2 Snooping</li> <li>• Supports 256 IGMP groups</li> <li>• Supports at least 64 static multicast addresses</li> <li>• IGMP per VLAN</li> <li>• Supports IGMP Snooping Querier</li> </ul> </li> <li>• Loopback Detection</li> <li>• 802.3ad Link Aggregation:               <ul style="list-style-type: none"> <li>• DGS-1210 28/28P: Maximum of 14 groups/8 ports per group</li> <li>• DGS-1210 52/52MP/52P: Maximum of 26 groups/8 ports per group</li> <li>• DGS-1210 -10/10P: Maximum of 5 groups/8 ports per group</li> </ul> </li> <li>• LLDP</li> <li>• LLDP-MED</li> <li>• Jumbo Frame               <ul style="list-style-type: none"> <li>• Up to 9,216 bytes</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Spanning Tree Protocol               <ul style="list-style-type: none"> <li>• 802.1D STP</li> <li>• 802.1W RSTP</li> <li>• 802.1s MSTP (for DGS-1210-28MP only)</li> </ul> </li> <li>• Flow Control               <ul style="list-style-type: none"> <li>• 802.3x Flow Control</li> <li>• HOL Blocking Prevention</li> </ul> </li> <li>• Port Mirroring               <ul style="list-style-type: none"> <li>• One-to-One</li> <li>• Many-to-One</li> <li>• Supports Mirroring for Tx/Rx/Both</li> </ul> </li> <li>• Multicast Filtering               <ul style="list-style-type: none"> <li>• Forwards all unregistered groups</li> <li>• Filters all unregistered groups</li> </ul> </li> <li>• Configurable MDI/MDIX               <ul style="list-style-type: none"> <li>• MLD snooping v1/v2 (256 groups)</li> </ul> </li> </ul> |
| VLAN                      | <ul style="list-style-type: none"> <li>• 802.1Q</li> <li>• VLAN Group               <ul style="list-style-type: none"> <li>• Max. 256 static VLAN groups</li> </ul> </li> <li>• Configurable VID from 1 - 4094</li> <li>• Asymmetric VLAN</li> </ul>  | <ul style="list-style-type: none"> <li>• Auto Voice VLAN               <ul style="list-style-type: none"> <li>• Max. 10 user-defined OUI</li> <li>• Max. 8 default OUI</li> </ul> </li> <li>• Auto Surveillance VLAN</li> </ul>   |
| Quality of Service (QoS)  | <ul style="list-style-type: none"> <li>• 802.1p Quality of Service</li> <li>• 8 queues per port</li> <li>• Queue Handling               <ul style="list-style-type: none"> <li>• Strict</li> <li>• Weighted Round Robin (WRR)</li> </ul> </li> <li>• Bandwidth Control               <ul style="list-style-type: none"> <li>• Port-based (Ingress/Egress, min granularity 10/100/1000 is 64 Kbps)</li> </ul> </li> </ul>  | <ul style="list-style-type: none"> <li>• QoS based on:               <ul style="list-style-type: none"> <li>• 802.1p Priority Queues</li> <li>• DSCP</li> <li>• ToS</li> <li>• IPv6 Traffic Class</li> <li>• TCP/UDP port</li> </ul> </li> </ul>  |
| L3 Features               | <ul style="list-style-type: none"> <li>• IP Interface               <ul style="list-style-type: none"> <li>• Supports 1 interface</li> </ul> </li> <li>• IPv6 Neighbor Discovery (ND)</li> </ul>  | <ul style="list-style-type: none"> <li>• Static Routing (for DGS-1210-28MP only)               <ul style="list-style-type: none"> <li>• 64 IPv4 Static Route Entries</li> <li>• 32 IPv4 Static Route Entries</li> </ul> </li> </ul>   |
| Access Control List (ACL) | <ul style="list-style-type: none"> <li>• Max. 50 access list</li> <li>• Max. 768 rules shared by IPv4, MAC and IPv6</li> <li>• Each rule can only be associated with a single port</li> <li>• ACL based on               <ul style="list-style-type: none"> <li>• 802.1p priority</li> <li>• VLAN</li> <li>• MAC address</li> </ul> </li> </ul>   | <ul style="list-style-type: none"> <li>• Ether type</li> <li>• IP address</li> <li>• DSCP</li> <li>• Protocol type</li> <li>• TCP/UDP port number</li> <li>• IPv6 Traffic Class</li> </ul>  |
| Security                  | <ul style="list-style-type: none"> <li>• Broadcast/Multicast/Unicast Storm Control</li> <li>• D-Link Safeguard Engine</li> <li>• DHCP Server Screening</li> <li>• IP-MAC-Port Binding (Smart Binding)               <ul style="list-style-type: none"> <li>• Supports 512 address binding entries</li> <li>• ARP Inspection</li> <li>• ARP + IP Inspection</li> <li>• Supports DHCP Snooping</li> </ul> </li> <li>• 802.1X Port-based Access Control</li> </ul>   | <ul style="list-style-type: none"> <li>• ARP Spoofing Prevention               <ul style="list-style-type: none"> <li>• Max. 64 entries</li> </ul> </li> <li>• Traffic Segmentation</li> <li>• SSH v2</li> <li>• SSL               <ul style="list-style-type: none"> <li>• Supports v1/v2/v3</li> </ul> </li> <li>• Port Security               <ul style="list-style-type: none"> <li>• Supports up to 64 MAC addresses per port</li> </ul> </li> <li>• Duplicate address detection</li> </ul>  |
| AAA                       | <ul style="list-style-type: none"> <li>• 802.1X Authentication               <ul style="list-style-type: none"> <li>• Supports local/RADIUS database</li> <li>• Supports port-based access control</li> <li>• Supports EAP, OTP, TLS, TTLS, PEAP</li> </ul> </li> </ul>   | <ul style="list-style-type: none"> <li>• IPv6 RADIUS Server</li> <li>• Support MD5 authentication</li> </ul>  |

# DGS-1210 Series Gigabit Smart Managed Switches

|                           |  |  |
|---------------------------|--|--|
| MIB/RFC Standards         | <ul style="list-style-type: none"> <li>• RFC 783 TFTP</li> <li>• RFC 951 BootP/DHCP Client</li> <li>• RFC 1157 SNMP v1, v2, v3</li> <li>• RFC 1213 MIB II</li> <li>• RFC 1215 MIB Traps Convention</li> <li>• RFC 1350 TFTP</li> <li>• RFC 1493 Bridge MIB</li> <li>• RFC 1769 SNTP</li> <li>• RFC 1542 BootP/DHCP Client</li> <li>• RFC 1901 SNMP v1, v2, v3</li> <li>• RFC 1907 SNMP v2 MIB</li> <li>• RFC 1908 SNMP v1, v2, v3</li> <li>• RFC 2131 BootP/DHCP Client</li> <li>• RFC 2138 RADIUS Authentication</li> <li>• RFC 2139 RADIUS Authentication</li> <li>• RFC 2233 Interface Group MIB</li> </ul> | <ul style="list-style-type: none"> <li>• RFC-2246 SSL</li> <li>• RFC 2475</li> <li>• RFC 2570 SNMP v1, v2, v3</li> <li>• RFC 2575 SNMP v1, v2, v3</li> <li>• RFC 2598 CoS</li> <li>• RFC 2618 RADIUS Authentication</li> <li>• RFC 2819 RMON v1</li> <li>• RFC 2865 RADIUS Authentication</li> <li>• RFC 3164 System Log</li> <li>• RFC 3195 System Log</li> <li>• RFC 3411-17 SNMP</li> <li>• D-Link Private MIB</li> <li>• LLDP MIB</li> <li>• Zone Defense MIB</li> <li>• 2233 Interface Group MIB</li> </ul> |
| OAM                       | <ul style="list-style-type: none"> <li>• Cable Diagnostics</li> </ul>  | <ul style="list-style-type: none"> <li>• Factory Reset</li> </ul>  |
| Management                | <ul style="list-style-type: none"> <li>• Web-based GUI</li> <li>• D-Link Network Assistant Utility</li> <li>• Compact CLI</li> <li>• Telnet Server</li> <li>• TFTP Client</li> <li>• Configurable MDI/MDIX</li> <li>• SNMP <ul style="list-style-type: none"> <li>• Supports v1/v2c/v3</li> </ul> </li> <li>• SNMP Trap</li> <li>• Backup/Upgrade firmware</li> <li>• Smart Wizard</li> <li>• Upload/Download Configuration file</li> </ul>  | <ul style="list-style-type: none"> <li>• System Log <ul style="list-style-type: none"> <li>• Max. 500 log entries</li> </ul> </li> <li>• BootP/DHCP Client</li> <li>• SNTP</li> <li>• ICMP v6</li> <li>• IPv4/v6 Dual Stack</li> <li>• DHCP Auto Configuration</li> <li>• Time Setting <ul style="list-style-type: none"> <li>• SNTP</li> </ul> </li> <li>• RMONv1</li> <li>• Trusted Host</li> <li>• Dual Image (for DGS-1210-28MP only)</li> </ul>   |
| Green V3.0 Technology     | <ul style="list-style-type: none"> <li>• Power Saving by: <ul style="list-style-type: none"> <li>• Link Status</li> <li>• Time-based PoE: PoE ports can be turned on/off by port or system through schedule</li> </ul> </li> </ul>   | <ul style="list-style-type: none"> <li>• LED Shutoff</li> <li>• System Hibernation</li> <li>• Port Shutoff</li> </ul>  |
| Optional SFP Transceivers |  |  |
| DEM-310GT                 | 1000BASE-LX, single-mode, 10 km  |  |
| DEM-311GT                 | 1000BASE-SX, multi-mode, 550 m   |  |
| DEM-312GT2                | 1000BASE-SX, multi-mode, 2 km  |  |