

Type Approval Certificate



This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No.	59 499 - 08 HH
Company	Hatteland Display AS Amsosen 5573 Nedre Vats, NORWAY
Product Description	TFT Displays Maritime Multi Displays MMD; Industrial Display (STD); Military Display (MIL)
Type	JH 15T15 MMD; JH 15T17 MMD; JH 19T12 MMD; JH 19T14 MMD; JH 19T14 STD; JH 20T17 MMD; HM 20T07 MIL; JH 23T12 MMD; JH 27T11 MMD
Environmental Category	C; EMC1
Technical Data / Range of Application	JH 15T15 MMD and JH 15T17 MMD: 15.0 Inch Viewable Image Size; a-Si Thin Film Transistor (TFT); Color Active Matrix LCD Module Characteristics: Pixel Number : 1024 x 768 Pixel pitch (RGB): 0.297 (H) x 0.297 (V) mm Response Time : 25 ms (typical) Contrast Ratio : 400:1 (typical) Light Intensity : 250 cd/m ² (typical) Viewable Angle : +/-85 deg.(typical)(Up/Down/Left/Right) Synchronisation Range: Horizontal: 15,0 kHz to 91,1 kHz; Vertical: 60 Hz to 85 Hz Resolutions : 640 x 480 VGA/ 800 x 600 SVGA/ 1024 x 768 XGA*/ 1280 x 1024 SXGA/ 1600 x 1200 UXGA Power Supply: 115/230V AC / 24V DC: JH 15T17 MMD, JH 15T15 MMD, JH 19T12 MMD, JH 19T14 MMD, JH 20T17 MMD; JH 23T12 MMD and JH 19T14 STD 115/230V AC: JH 27T11 MMD and HM 20T07 MIL
Test Standard	Guidelines for the Performance of Type Approvals Part 2, Edition 2003 IEC 60945 4th Edition 2002-08
Documents	Test report : No. 2008-3076 Rev 01 dated 2008-02-07, 2008-3142 Rev 01, 2008-3143 Rev 01 and 2008-3146 Rev 01 dated 2008-03-11; 2008-3190 Rev 02 and 2008-3207 Rev 01 dated 2008-04-16; Data Sheet: JH 15T15MMD, JH 19T12 MMD and 23T12 MMD dated 01-04-2008; User Manual dated 06-02-2008
Remarks	None
Valid until	2013-09-19
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Hamburg,	2009-04-08

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Jürgen Wittburg

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JH 19T12 MMD, JH 19T14 STD and JH 19T14 MMD:

19.0 Inch Viewable Image Size

a-Si Thin Film Transistor (TFT); Colour Active Matrix LCD Module

Characteristics: Pixel Number : 1280 x 1024

Pixel pitch (RGB): 0.294 (H) x 0.294 (V) mm

Viewable Angle :+/-85 deg.(typical)(Up/Down/Left/Right)

Synchronisation Range: Horizontal :15,0 kHz to 91,1 kHz; Vertical :60 Hz to 85 Hz

Resolutions : 640 x 480 VGA/ 800 x 600 SVGA/ 1024 x 768 XGA/ 1280 x 1024* SXGA

JH 19T12 MMD: Response Time : 15 ms (typical)

Contrast Ratio : 700:1 (typical)

Light Intensity : 300 cd/m² (typical)

JH 19T14 STD and JH 19T14 MMD :

Response Time : 12 ms (typical)

Contrast Ratio : 900:1 (typical)

Light Intensity : 300 cd/m² (typical)

HM 20T07MIL and JH 20T17 MMD:

20.1 Inch Viewable Image Size

a-Si Thin Film Transistor (TFT); Colour Active Matrix LCD Module

Characteristics: Pixel Number : 1600 x 1200

Pixel pitch (RGB): 0.255 (H) x 0.255 (V) mm

Response Time : 20 ms (typical)

Contrast Ratio : 500:1 (typical)

Light Intensity : 250 cd/m² (typical)

Viewable Angle :+/-85 deg.(typical)(Up/Down/Left/Right)

Resolutions : 640 x 480 VGA/ 800 x 600 SVGA/ 1024 x 768 XGA/ 1280 x 1024 SXGA/ 1600 x 1200* UXGA

HM 20T07MIL: Response Time : 20 ms (typical)

Contrast Ratio : 500:1 (typical)

Synchronisation Range: Horizontal :15,0 kHz to 75 kHz; Vertical :56 Hz to 75 Hz

JH 20T17 MMD: Contrast Ratio : 700:1 (typical)

Light Intensity : 300 cd/m² (typical)

Synchronisation Range: Horizontal :15,0 kHz to 91,1 kHz; Vertical :60 Hz to 85 Hz

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This certificate is issued on the basis of "Guidelines for the Performance of Type Approvals Part 1, Procedure".

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JH 23T12 MMD

23.1 Inch Viewable Image Size

liquid crystal panel Thin Film Transistor (TFT)

Characteristics: Pixel number : 1600 x 1200

Pixel pitch (RGB): 0.294 (H) x 0.294 (V) mm

Response Time : 20 ms (typical)

Contrast Ratio : 500:1 (typical)

Light Intensity : 250 cd/m² (typical)

Viewable Angle : +/-85 deg.(typical)(Up/Down/Left/Right)

Synchronisation Range: Horizontal :15,0 kHz to 91,1 kHz; Vertical :60 Hz to 85 Hz

Resolutions : 640 x 480 VGA/ 800 x 600 SVGA/ 1024 x 768 XGA/ 1280 x 1024 SXGA/ 1600 x 1200* UXGA

JH 27T11 MMD

27.0 Inch Viewable Image Size - Widescreen

a-Si Thin Film Transistor (TFT); Color Active Matrix

Characteristics: Pixel number : 1920 x 1200

Pixel pitch (RGB): 0.303 (H) x 0.303 (V) mm

Response Time : 6 ms (typical)

Contrast Ratio : 1000:1 (typical)

Light Intensity : 500 cd/m² (typical)

Viewable Angle : +/-89 deg.(typical)(Up/Down/Left/Right)

Synchronisation Range: Horizontal :15,0 kHz to 91,1 kHz; Vertical :60 Hz to 85 Hz

Resolutions : 640 x 480 VGA/ 800 x 600 SVGA/ 1024 x 768 XGA/ 1280 x 1024 SXGA/ 1600 x 1200 UXGA / 1920 x 1200* WUXGA

*Recommended for optimum picture quality

Additional Documents:

Test report : No. 2008-3464 Rev 02 dated 2008-09-18, 2008-3511 Rev 02 dated 2008-10-16; 2008-3528 Rev 01 dated 2008-10-31 and 2007-3008 Rev 01 dated 2007-03-13; 2007-3008 Rev 02 dated 2007-03-13; 2008-3324 Rev 01 dated 2008-10-13

Data Sheet: JH 27T11MMD dated 2008-10-16, JH 20T17 MMD dated 2008-09-11 and 20T07 MIL dated 301-06-2008; User Manuals dated 03-11-2008 and 01-06-2008

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