

Manufacturer: **Hatteland Technology AS**

Product: **Marine Computer ARM (MCA)**

Type: **HT D30ML xxx-xxx-xxxxxx**
Where x = configuration/factory options

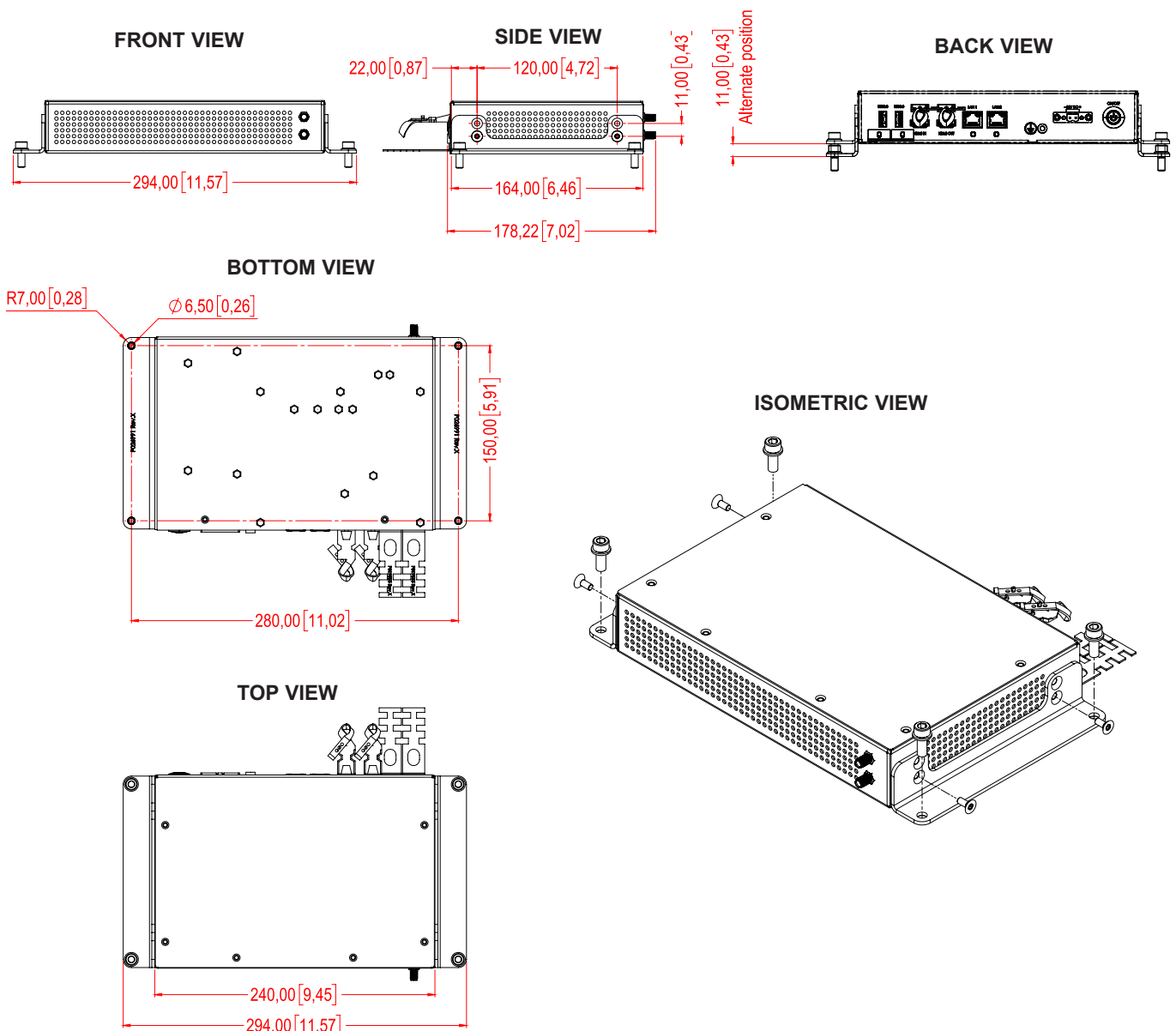
Last Revised: **07 Feb 2024**
Revision#: **10**

Marine Computer ARM (MCA)

Features:

The Marine Computer ARM (MCA) is based on ARM processor platform. Capable of delivering flexible power for maritime technology developers to design and build high-end vessel control and monitoring solutions that enable safer and more efficient maritime operations. The integrated nature of the MCA Computer enables tangible cost savings for maritime technology and equipment manufacturers as well as systems integrators. Especially suited to developing new bridge solutions for ECDIS, Radar and Automation applications. The ARM processor-based MCA have low power consumption capable to deliver a fast, reliable solution for diverse maritime applications. MCA Computers make it possible to continue improving safety and efficiency through safe navigation, while still retaining focus on quality and cost.

The MCA are allowing flexible installation options based on the small size factor. The MCA also meet the same extreme quality standards as the proven HATTELAND® Computer range. This is a Solid State Fan-less Construction - No Moving Parts and Aluminum Chassis. In addition there are options such as variations of storage, RAM and operating systems, WiFi and Bluetooth.



Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

TECHNICAL DESCRIPTION

Computer Specifications:

• Supported Operating System:	Android 8.1 (Linux 4.x)	
• Installed Processor	: Rockchip RK3399, Dual-core ARM Cortex-A72 + Quad-core ARM Cortex-A53	
• Installed Memory/RAM	: 4GB Dual channel LPDDR3 / LPDDR4	
• Storage Internal Options	: 32GB SSD eMMC	
	: SD/uSD	
	: m.2	
• Graphics Chipset	: Mali-T860MP4 GPU, support OpenGL ES 1.1/2.0/3.0/3.1, OpenCL, DirectX11.1	1 x HDMI Output (UHD 60Hz, Female) 1 x HDMI Input (FHD 30Hz, Female)
• System Chipset	: SoC	
• Ethernet LAN	: 2 x Gigabit LAN 10/100/1000Mbps	2 x RJ-45, Teaming
• USB Ports	: 1 x USB2.0 (<5m) + 1 x USB3.0 (<3m)	2 x USB Type A
• Speaker	: None	
• Watchdog Timer	: 3 x Watchdogs in SoC w/ 32 bits counter width	
• Other Features	: Support Trustzone technology, Temperature sensor, Light sensor, RTC, Battery alarm, WakeOnLan, 2 x SMA RP Male port (TBD)	

External Connector Type:

Power Specifications:

- 12-24VDC Nominal : 1 x 2-pin Terminal Block 5.08
- Power Consumption* - Operating: 15.2W (typ) - 50W (max) - at 25% load. Max Allowed External USB load = 10W.

**Power Consumption: Numbers are specified as the unit is delivered from factory. All additional installed equipment like USB, PCIe and similar loads have to be added to power consumption. Note that total extra load have to be multiplied by 1.5 to compensate for efficiency in internal power converters. Typical power consumption varies a lot with computer load. We measure with 25% of max computer load.

Available Computer Configurations:

Type	Description	Size/Specification
Software Support	Android - BSP 8.1 and later Linux - BSP Kernel 4.x and later	- Native Android - SCOM

Factory Mounted Options:

- OS (Android/Linux) - Android 8.1 / Debian 9
- M.2. SSD 240GB and up (TBD) - Pending
- Internal SD card (TBD) - Pending
- Wifi/Bluetooth Antenna (TBD) - Supported, Pending (Antenna/approval)
- Power Inputs: 12-24VDC or PoE: PCA200827-1 (TBD)

Available Accessories:

- HT MBK D30-A1: Mounting Bracket Kit (included with delivery)

Available Models:

HTD30MLMCA-N00-FP0100

Fanless Computer MCA Slim Rockchip RK3399 32GB eMMC 4GBRAM Android
12-24VDC HDGBLAN HDMI-IN

MECHANICAL DESCRIPTION

Physical Specifications:

- W:240.00 [9.45"] x H:45.00 [1.77"] x D:165.50 [6.52"] mm [inch]
- Weight Approx. 1.3kg / 2.86lbs
- Aluminium Cooling Chassis, Painted Black (RAL9011)
- 1U Rack Compatible (height)
- Includes: Mounting Bracket Kit, USB + DP/HDMI Retainers, Cable Relief Retainer
- Power On/Off button + Power LED + Activity LED in rear

Environmental Considerations:

- | | |
|-------------------------|-----------------------------------|
| • Operating | : Temperature -15°C to +55°C |
| • Storage | : Temperature -20°C to +60°C |
| • Humidity | : Up to 95% (Operating / Storage) |
| • IP-Rating Protection | : IP20 |
| • Compass Safe Distance | : Standard: 30cm - Steering: 95cm |

Lifetime Considerations:

Even though the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

APPROVALS & CERTIFICATES

These products have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002)

IACS E10

EU RO MR - Mutual Recognition

ABS - American Bureau of Shipping

BV - Bureau Veritas

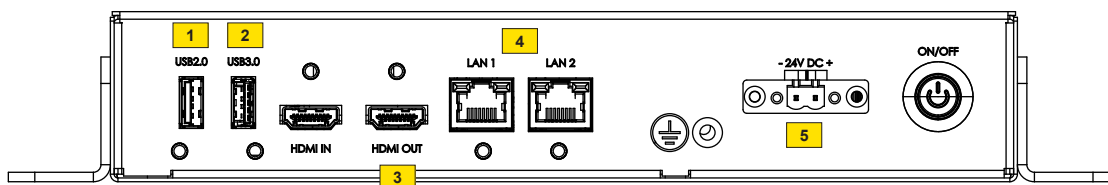
ClassNK - Nippon Kaiji Kyokai

CCS - China Classification Society

KR - Korean Register of Shipping

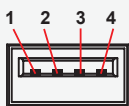
LRS - Lloyd's Register of Shipping

PINOUT ASSIGNMENTS COMMON CONNECTORS



1 4-pin USB2.0 TYPE A Female

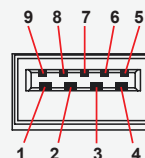
All pinout assignments are seen from users Point of View (POV) while looking straight at the connector.



PIN 01	VCC +5V	Power - 500 mA, 2,5 W
PIN 02	D-	Negative Data
PIN 03	D+	Positive Data
PIN 04	GND	Ground

2 9-pin USB3.0/3.1/3.2 TYPE A Female

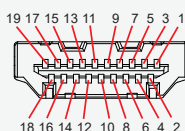
All pinout assignments are seen from users Point of View (POV) while looking straight at the connector.



PIN 01	VCC +5V	VBUS / Power - 900 mA, 4,5 W
PIN 02	D-	Negative Data
PIN 03	D+	Positive Data
PIN 04	GND	Ground
PIN 05	StdA_SSRX-	SuperSpeed Receive Negative Data
PIN 06	StdA_SSRX+	SuperSpeed Receive Positive Data
PIN 07	GND DRAIN	Ground for signal return
PIN 08	StdA_SSTX-	SuperSpeed Transmit Negative Data
PIN 09	StdA_SSTX+	SuperSpeed Transmit Positive Data

3 19-pin HDMI Female

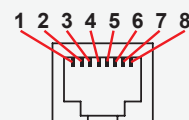
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PIN 01	TMDS Data2+
PIN 02	TMDS Data2 Shield
PIN 03	TMDS Data2-
PIN 04	TMDS Data1+
PIN 05	TMDS Data1 Shield
PIN 06	TMDS Data1-
PIN 07	TMDS Data0+
PIN 08	TMDS Data0 Shield
PIN 09	TMDS Data0-
PIN 10	TMDS Clock+
PIN 11	TMDS Clock Shield
PIN 12	TMDS Clock-
PIN 13	CEC
PIN 14	Reserved (HDMI 1.0-1.3a)
PIN 15	Utility/HEAC+ (HDMI 1.4+, optional, HDMI Ethernet Channel and Audio Return Channel)
PIN 16	SCL (I²C Serial Clock for DDC)
PIN 17	SDA (I²C Serial Data for DDC)
PIN 18	+5 V (min. 0.055 A)
PIN 19	Hot Plug Detect (all versions)
PIN 19	HEAC- (HDMI 1.4+, optional, HDMI Ethernet Channel and Audio Return Channel)

4 8-pin RJ45 10/100/1000Mbps LAN/Ethernet

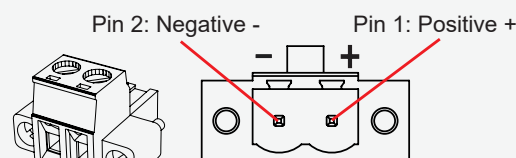
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
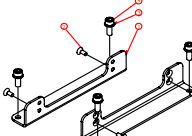
PIN 01	D0P+	Differential Pair 0 (Positive)
PIN 02	D0N-	Differential Pair 0 (Negative)
PIN 03	D1P+	Differential Pair 1 (Positive)
PIN 04	D2P+	Differential Pair 2 (Positive)
PIN 05	D2N-	Differential Pair 2 (Negative)
PIN 06	D1N-	Differential Pair 1 (Negative)
PIN 07	D3P+	Differential Pair 3 (Positive)
PIN 08	D3N-	Differential Pair 3 (Negative)

5 2-pin Terminal Block 5.08 - DC Power Input

All pinout assignments are seen from users Point of View (POV) while looking straight at the connector.



CONTENTS OF PACKAGE

Item	Description	Illustration
 Terminal Block Connector Kit	Terminal Block Connector Kit as follows (may in some cases be already factory mounted): 1 x 2-pin Terminal Block 5.08 (1961986) for DC Power In Refer to "Configuring Housing / Terminal Block Connector" section for usage.	
 HT MBK D30-A1	HT MBK D30-A1 - Mounting Bracket Kit HT D30ML MCA Includes: 2 x P026991#02 4 x FDA04004-QB 4 x 16M06012150 4 x 145 060x016 STB	