

ARES Hub

Raspberry Pi IoT Gateway
Directional Acoustic Noise Monitoring

ARES Hub combines the Raspberry Pi Compute Module 4 (CM4) with OnLogic carrier board, fanless enclosure, and CAN-FD serial bus connection to ARES Nodes.

ARES App software, preinstalled on every ARES Hub, orchestrates ARES Node measurements, provides external interfaces to AWS IoT cloud storage, and presents an open HTTP REST API for system integration with other software.



RASPBERRY PI IoT

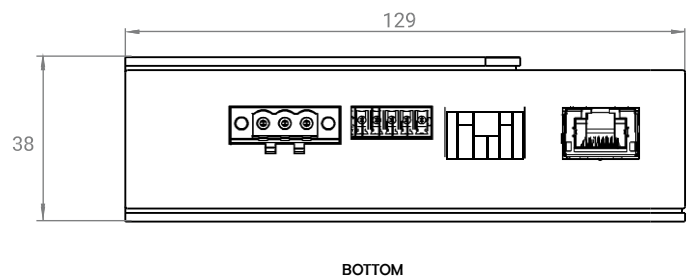
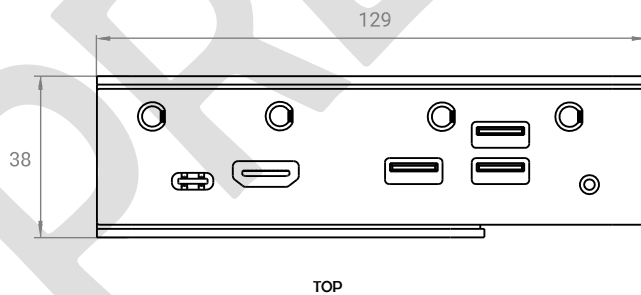
At the heart of ARES Hub is a Quad- Core ARM Cortex-A72 64-bit SoC. The system has 4 GB of RAM, 32 GB of onboard eMMC storage and a 256 GB SSD SATA drive to create a palm-sized interface to one or two ARES Nodes. Fast network interfaces (including optional 4G/LTE) enable efficient back-end logging to secure AWS IoT databases.

ENGINEERED FOR RELIABILITY

Fanless, solid state construction, an operating temperature range of -20° to 60°C , and industrial components with long lifecycles make ARES Hub an ideal IoT deployment platform.

INDUSTRY I/O

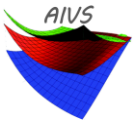
The custom carrier board inside ARES Hub gives you dual 1 GbE LAN ports, (PoE) 1x RS-232/422/485 terminal block connector, 1x USB 3.2 port, 2x USB 2.0 ports, 1x HDMI port, and 1 USB-C configuration port. Integrated DIN rail and wall mounting options let you install ARES Hub anywhere you need it.



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ARES Hub Specifications v. 1.0

System	
Processor	Raspberry Pi Compute Module 4 (CM4) with Broadcom BCM2711 Cortex-A72 (ARM v8)
Processor Cores	4
Processor Speed	1.5 GHz
Memory	4 GB LPDDR4 on CM4

Top I/O	
USB	2 USB 2.0 Ports 1 USB 3.2 Gen 1 Port USB-C Port (CM4 management)
CAN-FD	4-Pin CAN bus push-pull connector for interface to ARES Nodes
Video	1 HDMI Port
Other	1 Reset Button

Bottom I/O	
Ethernet	2 x 1 GbE LAN
Power	3-Pin Terminal Block Power Input (12 VDC, 22W max)
Serial	5-pin Terminal Block for configurable RS-232/422/485
Accessory	Serial interface can be configured as a weather station interface

Power	
Voltage Range	5V to 15V (terminal block)
Power over Ethernet	Single cable for network connectivity and power Supports 802.11bt PoE++ PD up to 51W

Hardware Features	
Storage	32GB eMMC on Raspberry Pi CM4 Internal 256 GB SATA SSD USB 3.0, USB 2.0 for peripherals and external storage
Wi-Fi	802.11ac 1x1 Wi-Fi with BT 5.1 on CM4
4G/LTE	Optional internal WWAN modem

Software Features	
Operating System	Ubuntu Desktop 22.04, Python 10
Measurement Modes	Intensity, Velocity, Bearing, Beamformer. See ARES Application Interface Specification for details.
AWS-IoT	All results can be stored locally on SSD drive, or streamed to AWS DynamoDb.
ARES Dashboard	Web panel for control and monitoring of all ARES measurements.

Mechanical	
Dimensions (WxHxD)	102.5 x 129 x 38 mm 4.04 x 5.08 x 1.50 in
Mounting Options	DIN Rail (Edge or Back) Wall-mount

Environmental & Regulatory	
Operating Temperature	-20 – 60°C
IP65 Enclosure (optional)	Weatherproof box, wall brackets, 3 NPT cable glands (Fig. 1).
Certifications	FCC 47 CFR Part 15 CE UL/ETL Listed configurations available CB scheme WEEE Directive (2002/96/EC) ErP Directive (2009/125/EC) Low Voltage Directive (2014/35/EU) Electromagnetic Compatibility Directive (2014/30/EU) Radio Equipment Directive (2014/53/EU) - RoHS 2 (2011/65/EU) RoHS 3 (2015/863/EU) REACH RCM VCCI-CISPR-32 EN 301 489-1 EN 301 489-17 EN 55032 EN 55035 EN 62368-1 IEC 62368-1 UL 62368-1

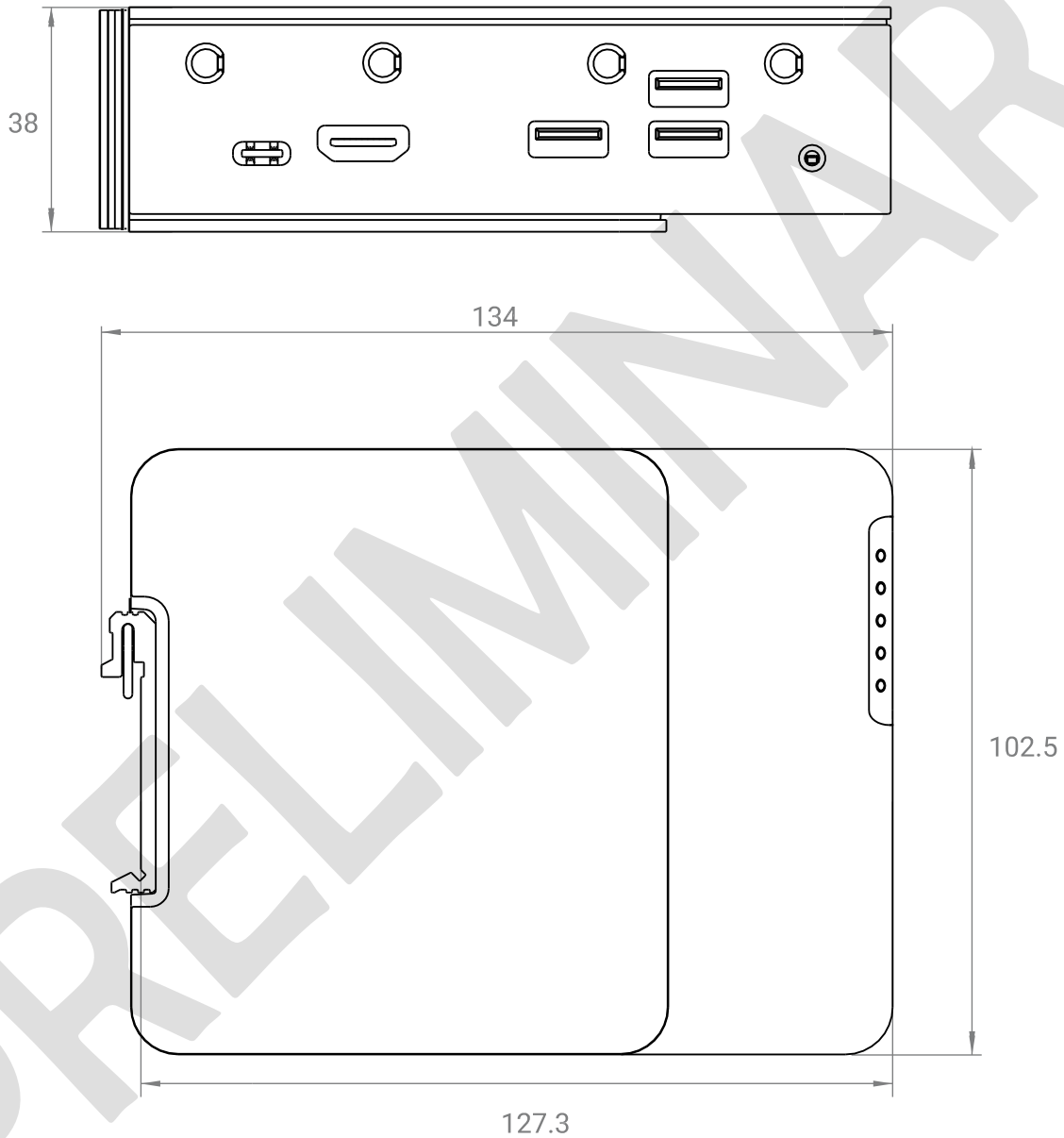


Figure 1. Optional IP-65 enclosure with three cable glands for outdoor emplacement of ARES Hub.

ARES Hub DIN Mount Dimensional Drawings

Raspberry Pi Industrial IoT Gateway

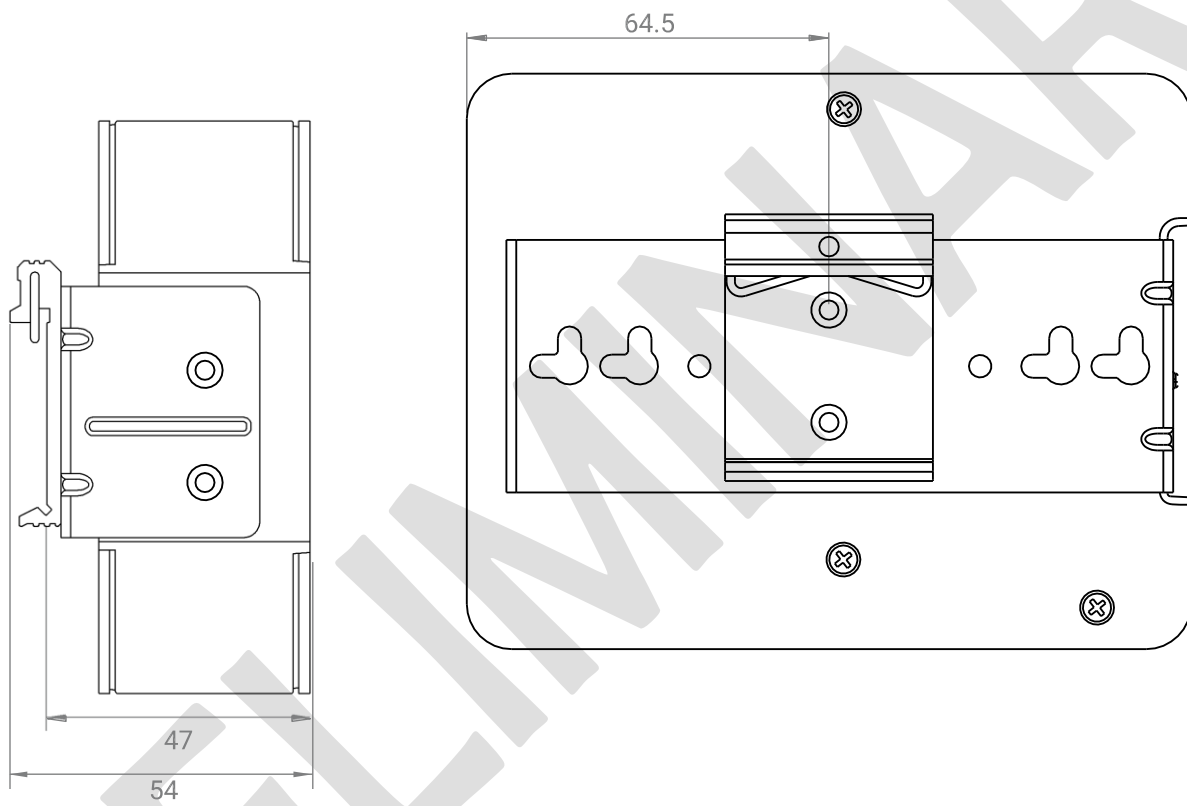
All measurements in mm



ARES Hub Dimensional Drawings

Back DIN Mount

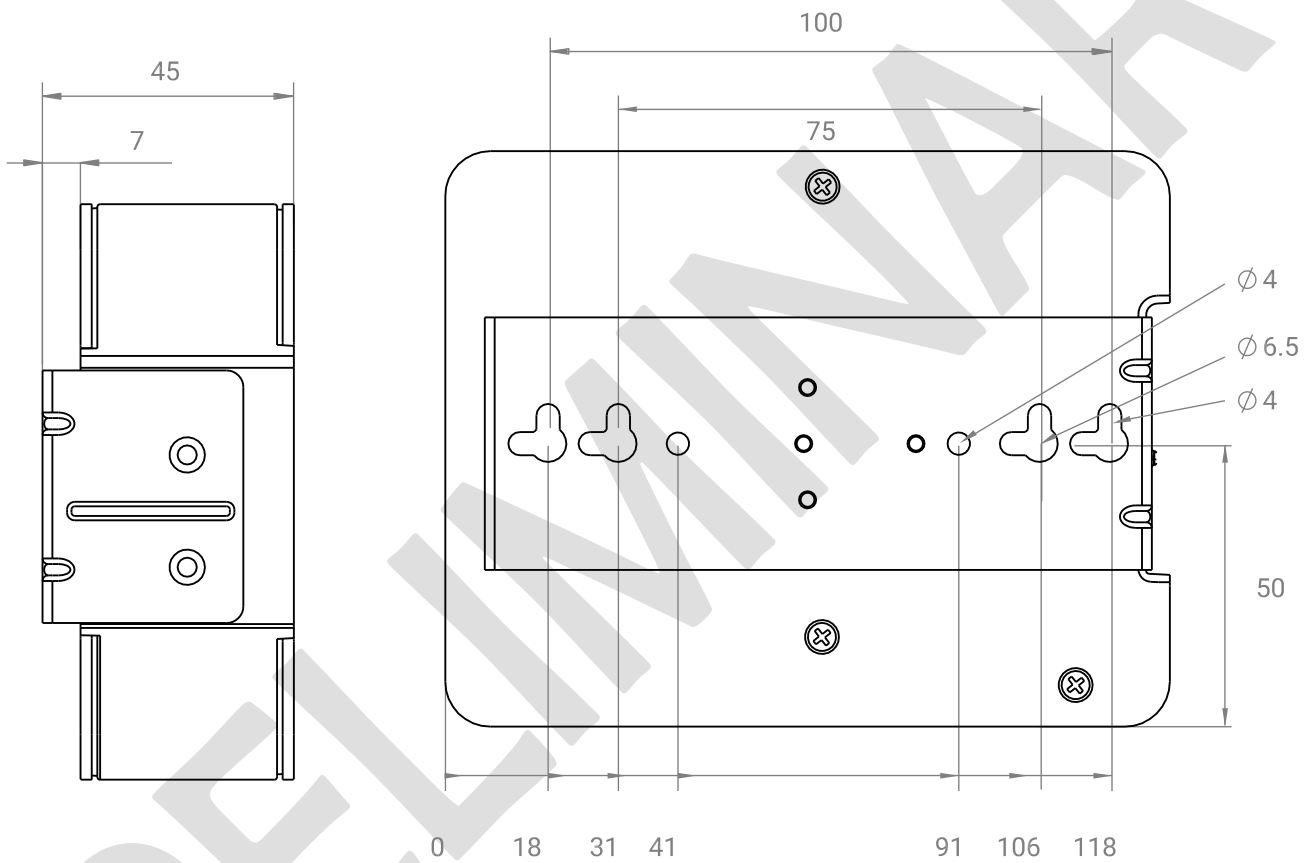
All measurements in mm



ARES Hub Dimensional Drawings

Back Wall Mount

All measurements in mm



ARES Hub Dimensional Drawings

Edge Wall Mount

All measurements in mm

