NRU-230V-AWP / NRU-240S-AWP

IP66 waterproof Edge AI platform for use in industrial vehicles

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Features

- NVIDIA® Jetson AGX Orin™ SoM
- 4x PoE+ GbE, 1x 10GBASE-T via M12 connectors
- 8x GMSL2 automotive cameras via FAKRA Z connectors
- IP66 protection class and MIL-810H certification
- System monitoring connection via vehicle MCU

NRU-230V-AWP

NRU-240S-AWP

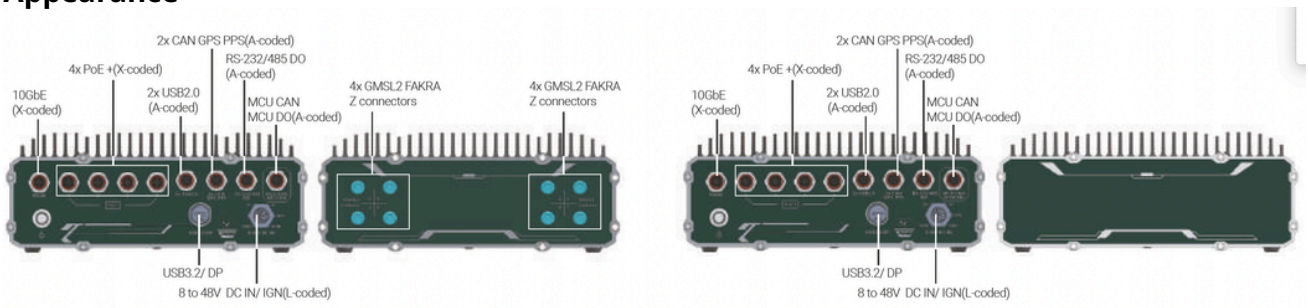
NRU-230V-AWP/NRU-240S-AWP – Rugged IP66 NVIDIA® Jetson AGX Orin computers

The NRU-230V-AWP/NRU-240S-AWP series are rugged and IP66 waterproof NVIDIA® Jetson AGX Orin computers designed for edge AI applications in harsh environments such as roadside, food and chemical plants, mining, construction, agriculture or harbor. It aims to redefine rugged edge AI with waterproof features at an affordable price through its optimized mechanical design, standardized cable kit and carefully selected waterproof connectors.

Powerful AI inference and video transcoding

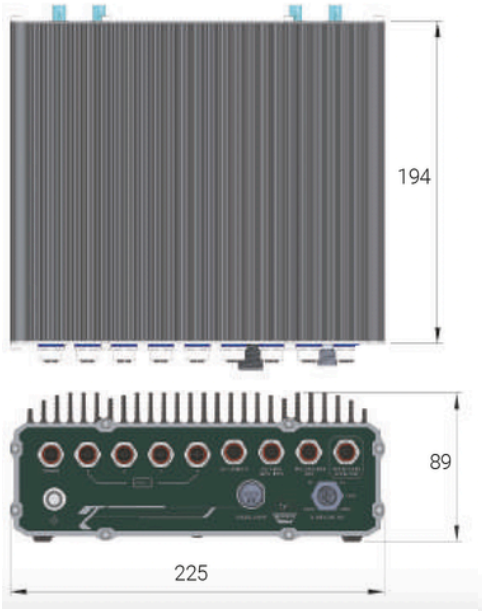
Powered by NVIDIA® Jetson AGX Orin, the series offers up to 275 Sparse TOPS (INT8) AI inference performance and can transcode up to 22 1080P video streams simultaneously. To meet versatile camera requirements for visual AI applications, the NRU-230V-AWP/NRU-240S-AWP not only provides 4 waterproof M12 PoE+ GbE ports for industrial GigE cameras or IP cameras, but also 8 waterproof GMSL2 FAKRA ports for automotive cameras or industrial stereo cameras. In addition, the waterproof Type-C port offers 4K DisplayPort output for ADAS applications with real-time surround view. A waterproof 10GbE port is also available for high-speed data communication.

Appearance

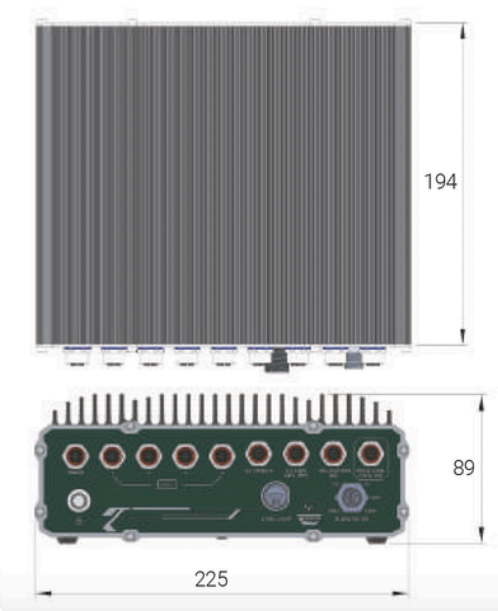


Dimension (in mm)

NRU-230V-AWP



NRU-240S-AWP



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	Product: NRU-230V-AWP / NRU-240S-AWP
SYSTEM	
CPU	NVIDIA® Jetson AGX Orin™ System-on-Module (SOM), consisting of NVIDIA® Ampere GPU and Arm Cortex-A78AE CPU
RAM	32GB/ 64GB LPDDR5 (JAO 32GB/ JAO 64GB) @ 3200 MHz on SOM 64GB eMMC 5.1 on SOM
Storage	2x internal SATA ports for the installation of 2.5" SSDs 1x M.2 2280 M key NVMe socket (PCIe Gen4x2) for NVMe SSD
Expansion	1x full-size mini PCI Express socket (PCIe + USB 2.0) for WiFi 6 or CAN 1x full-size mini PCI Express socket (USB 2.0) for GNSS or 4G LTE 1x M.2 3042/ 3052 B key (USB 3.1 Gen 1 + USB 2.0) for LTE/ 5G module with dual micro-SIM support
INTERFACE	
Ethernet	Port 1 to port 4: 4x Gigabit Ethernet ports from Intel® I350 via M12 X-coded 8-pin connector Port 5: 1x 10 Gigabit Ethernet port via M12 X-coded 8-pin plug IEEE 802.3at PoE+ PSE for port 1 to port 4, 100 W total power budget
USB	2x USB 2.0 connections via M12 A-coded 8-pin connector 1x waterproof USB type C (USB 3.2 Gen1)
COM	1x isolated RS-485, 1x RS-232 1x isolated DO via M12 A-coded 8-pin connector
CANBus	2x isolated CAN 2.0 1x isolated DI (GPS PPS input) via M12 A-coded 8-pin plug connector
Video	1x DisplayPort, supports 3840×2160 at 60Hz
GMSL Camera	**NRU-230V-AWP series only:** 8x GMSL2 FAKRA Z connectors Configuration A. 8x AC-IMX390 (2MP@30FPS) Configuration B. 8x AC-ISX031 (3MP@30FPS) Configuration C. 8x AC-IMX490 (5MP@30FPS)
ENVIRONMENTAL	
Cooling	Fanless
Power Supply	8V to 48V DC input, with reverse polarity protection (M12 L-coded) Built-in ignition current control (IGN/ GND signal via M12 L-coded plug)
Operating Temperature	25°C to 70°C (30W TDP mode, without 10GbE transmission and PoE load) [2] -25°C to 60°C (30W TDP mode, with full function) With full CPU+GPU load: 1. NRU-230V-AWP not throttled at 65°C with 30W TDP mode 2. NRU-230V-AWP not throttled at 55°C with 60W TDP mode (JAO64 MAXN)
Storage Temperature	-40° ~ 85°C
Vibration / Shock Resistance	Vibration: MIL-STD-810H, 514.8. Category 4 Shock: MIL-STD-810H, 516.8 Procedure I
Humidity	10 ~ 90% , non-condensing
Dimensions	225 (W) x 195 (D) x 89 (H) mm
Weight	4.4 kg (without brackets)
Mounting	Wall mounting (standard)
IP Protection	IP66
Certifications	CE/ FCC Class A, according to EN 55032 & EN 55035EN 50121-3 (EN 50155:2017, clause 13.4.8)

[1] The maximum current of each pin is 16 A.
[2] For operating temperatures below zero and above 60 °C, a HDD or solid state disk (SSD) with a high temperature is required.

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Ordering Information	NRU-230V-AWP / NRU-240S-AWP
MODEL NO.	
NRU-230V-AWP-JAO32	IP66 Waterproof Jetson AGX Orin™ (32GB) Computer with 8x GMSL2, 4x PoE+ GbE ports
NRU-230V-AWP-JAO64	IP66 Waterproof Jetson AGX Orin™ (64GB) Computer with 8x GMSL2, 4x PoE+ GbE ports
NRU-230V-AWP-JAO64	IP66 Waterproof Jetson AGX Orin™ (32GB) Computer with 4x PoE+ GbE ports
NRU-240S-AWP-JAO64	IP66 Waterproof Jetson AGX Orin™ (64GB) Computer with 4x PoE+ GbE ports
OPTIONAL ACCESSORIES	
PA-160W-OW	160W AC-DC power adapter 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C.
PA-280W-ET2	280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature : -30°C to 60°C.
AC-IMX390-H60	Sony IMX390 CMOS sensor camera; 1920x1080 @30fps; LFM; HFOV 63.9°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-IMX390-H120	Sony IMX390 CMOS sensor camera; 1920x1080 @30fps; LFM; HFOV 120.6°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-IMX390-H190	Sony IMX390 CMOS sensor camera; 1920x1080 @30fps; LFM; HFOV 186°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-ISX031-H60	Sony ISX031 CMOS sensor w/ built-in ISP; 1920x1536 @30fps, HFOV H63.9°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-ISX031-H120	Sony ISX031 CMOS sensor w/ built-in ISP; 1920x1536 @30fps, HFOV H120.6°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-ISX031-H190	Sony ISX031 CMOS sensor w/ built-in ISP; 1920x1536 @30fps, HFOV H195.9°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-IMX490-H30	Sony IMX490 CMOS sensor camera; 2880x1860 @30fps; LFM; HFOV 30.0°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-IMX490-H60	Sony IMX490 CMOS sensor camera; 2880x1860 @30fps; LFM; HFOV 62.5°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
AC-IMX490-H120	Sony IMX490 CMOS sensor camera; 2880x1860 @30fps; LFM; HFOV 120°; IP67+IP69K; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
CABLE KIT	
NRU-230V-AWP or NRU-240S-AWP front panel cable kit: Cblkit-FP-NRU-230V-AWP_NRU-240S-AWP	1x Cbl-TpCPlug-UTpCF-50CM 3x Cbl-M12A8M-2DB9M_OW2-180CM1 1x Cbl-M12A8M-2U2TA-180CM1 5x Cbl-M12X8M-RJ45F-100CM
NRU-230V-AWP back panel cable kit: Cblkit-BP-NRU-230V-AWP	8x Cbl-FAKRA-ZFM-ZFM-12M

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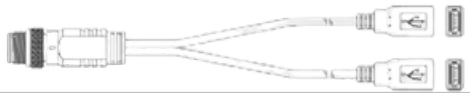
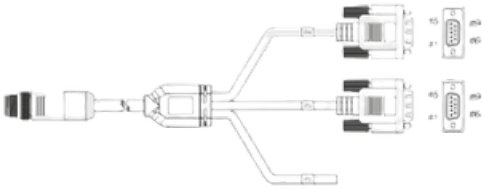
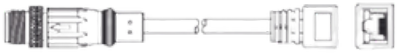
Cable Kit Guide	NRU-230S-AWP / NRU-240V-AWP	
TYPE	**MODEL NAME**	**DESCRIPTION**
	Cbl-TpCPlug-UTpCF-50CM	Waterproof TypeC Male Plug to USB Type-C FML Cable, Length: 50cm
	Cbl-M12A8M-2U2TA-180CM1	Waterproof M12 (8-pole-A-coded) to 2x USB 2.0 type A (female), Length: 180CM
	Cbl-M12A8M-2DB9M_OW2-180CM1	Cable 180cm, Waterproof M12 A-Code Male 8P to x2 DB9 Male+2P
	Cbl-M12X8M-RJ45F-100CM	Waterproof M12 (8-pole-X-coded) to RJ45 Female, CAT6A, Length: 100CM
	Cbl-FAKRA-ZFM-ZFM-12M	Waterproof FAKRA Z-code Female to Waterproof FAKRA Z-code Female, Length: 12M
	FK-FF-CABLE-7M	FAKRA SMB ST. Female Z code to FAKRA SMB ST. Female A code, Length: 700CM