

# RQX-59 Series

Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Orin™ Module



## Features

- 6 SKU models available: RQX-590, RQX-59G/59F, RQX-590/G/F-E (with expansion box)
- Powered by NVIDIA Jetson AGX Orin module with robust AI computing for intelligent robotics development
- GMSL 1/2 and FPD-Link III cameras can achieve Frame Sync using RQX-59
- Turnkey solution with customized BSP and drivers for top 4 camera brands
- Locking USB ports for security and fanless design

## Software Support

- Ubuntu 20.04 L4T
- Neuron SDK
- NVIDIA Jetson SDK, Jetpack 5.0.2 or above

## Ordering Information

RQX-59G / RQX-59G-E	Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Orin™ with FAKRA GMSL1/2/ w/ expansion box
RQX-59F / RQX-59F-E	Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Orin™ with FAKRA FPD-Link III/ w/ expansion box
RQX-590 / RQX-590-E	Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Orin™ / w/ expansion box

## Optional Accessories

Wireless Module	Wi-Fi 6 (11a/b/g/n/ac/ax 2Tx2R) + BT (V5.2), LITEON_ENL-R8852BE (RTL8852BE) (P/N: 29-E8852-A000)
5G/LTE Module	THALES(GEMALTO), MV31-W_L30960-N6910-B100 (P/N: 29-D3096-K030)
AC/DC Power Adapter	160W AC/DC Power Adapter (P/N: 31-62120-0010)

## Specifications

Model Name	RQX-59G RQX-59G-E	RQX-59F RQX-59F-E	RQX-590 RQX-590-E
<b>System Core</b>			
Processor	NVIDIA® Jetson AGX Orin™		
CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU		
GPU	with 1792 NVIDIA CUDA® cores and 56 tensor cores		
Memory	32GB 256-bit LPDDR5		
eMMC	64 GB on module		
Display	1x HDMI 2.1		
<b>Front Panel I/O Interface</b>			
Ethernet	2x GbE		
USB 3.0	4x USB Type A, 2x USB Type A with lockable connector		
Serial Port	COM1: RS-232/485; COM2: RS-232		
OTG	1x OTG port for changing environment image		
<b>Side Panel I/O Interface</b>			
DB-50 connector	UART, I <sup>2</sup> C, PWM, SPI, CAN FD non-isolation x1, CAN FD isolation 1.5KVac x1, GPIO, I/O for PPS / GPS Signals, and LIDAR synchronization		
Audio IN/OUT	1x audio input/output		
<b>Internal I/O connectors</b>			
M.2 Extension	1x Socket 2, Key M 2280/3042 for Storage (Need NVMe SSD) 1x Socket 1, Key E 1630/2230 for Wifi 1x Key B 3042/3052 socket for 5G LTE module		
USIM	1x USIM socket		
RTC	3V 550mAh		
<b>Sensor</b>			
GMSL or FPD-Link camera	Time sync with GMSL1/2 camera	Time sync with FPD-Link III camera	N/A
<b>External Storage</b>			
SD Card	1x MicroSD card slot		
<b>LED indicator</b>			
User Defined	6x User-defined LEDs: Green: U1, U2, U3, U6; Yellow: U4; Amber: U5		
<b>Camera Interfaces</b>			
Camera supported	Tier IV: Automotive HDR camera C1/C2 Leopard: LI-AR0233-GMSL2 LI-AR0820-GMSL2 oToBrite: oToCAM264ISP oToCAM260ISP Sensing: SG8-OX08BC-5300-GMSL2	oToBrite: oToCAM264ISP oToCAM222	N/A
<b>Expansion Box</b>			
	1x PCIe Gen4 x16 Slot, support up to 75W 1x PCIe Gen3 x4 Slot, support up to 25W		
<b>Power Requirements</b>			
DC Power Input	9-36V (±5% tolerance, reverse polarity protection)		
AC/DC Power Adapter	160W AC/DC power adapter with Molex lockable connector to Phoenix terminal block connector (see optional accessory)		
Power Switch	1x Power button		
Recovery and Reset	1x Recovery, 1x Hardware Reset button		
<b>Mechanical</b>			
Dimensions	190 x 210 x 80 mm, 7.48 x 8.27 x 3.149 in (W x D x H) With expansion: 322 x 210 x 80 mm, 12.68 x 8.27 x 3.149 in (W x D x H)		
Mounting	Wall mount kit		
<b>Environmental</b>			
Operating Temperature	0 to 50°C at full CPU frequency with 0.6m/s airflow -20 to 70°C (-4°F to 158°F with 1.4GHz CPU) with 0.6m/s airflow		
Operating Humidity	Approx. 95% @40°C (non-condensing)		
Storage Temperature	-40 to 85°C		
Vibration	IEC 60068-2-64: Random wave, Operating 1Grms, 5-500 Hz, 3 axes, 60 min/axis duration		
Shock	IEC 60068-2-27. Operating: 20G, 11 ms duration, 3 axes, 3 times per axis		
EMI	CE & FCC class A (EN61000-6-4/-6-2)		
EMS	IEC 61000-4-2 (ESD, contact: ±4kV, air: ±8kV w/ expansion) IEC 61000-4-3 (RS, 10V/m from 80-1000MHz, 3V/m from 1400-2000MHz, 1V/m from 2000-2700MHz, 1kHz sine wave, 80% AM) IEC 61000-4-4 (EFT, ±2kV at 5KHz on power port, ±1kV at 5KHz on signal port) IEC 61000-4-5 (Surge, ±2kV line to earth CM on power port, ±1kV line to earth CM on signal port) IEC 61000-4-6 (CS, 10Vrms with 1kHz sine wave, 80% AM from 0.15MHz-80MHz) IEC 61000-4-8 (power-frequency magnetic fields) IEC 61000-4-11 (voltage DIPs & voltage interruptions)		
Safety	LVD		
<b>Software</b>			
SDK	ADLINK Neuron SDK, NVIDIA Jetson SDK, Jetpack 5.0.2 or above		
Environment	Ubuntu 20.04 L4T		

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RQX-590 series will be available in Q1, 2023. Please contact ADLINK Sales for further product information.

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