

RQX-59 Series

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

Preliminary



Features

- Powerful AI computing for intelligent robotics development
- Excellent performance per watt with power consumption as low as 40 W
- Ruggedized, secure connectivity with locking USB ports
- Comprehensive I/O for connecting a wide range of devices
- Time synchronization for both GMSL1/2 and FPD-Link III camera

Software Support

- Ubuntu 20.04 L4T
- Neuron SDK,
- NVIDIA Jetson SDK, Jetpack 5.0

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
System Core			
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		
Front Panel I/O Interface			
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		
Side Panel I/O Interface			
DB-50 connector	UART, I2C, PWM, SPI, CAN FD non-isolation x 1, CAN FD isolation 1.5KVac x1, GPIO, I/O for PPS / GPS Signals, and LIDAR synchronization		
Audio IN/OUT	1x audio input/output		
Internal I/O connectors			
M.2 Extension	1x Socket 2, Key M 2280/3042 for Storage (Need NVMe SSD) 1x Socket 1, Key E 1630/2230 for Wifi 1 x Key B 3042/3052 socket for 5G LTE module		
USIM	1x USIM socket		
RTC	3V 550mAh		
Sensor			
GMSL or FPD-Link camera	Time sync with GMSL1/2 camera	Time sync with FPD-Link III camera	N/A
External Storage			
SD Card	1x MicroSD card slot		
LED indicator			
User Defined	6x user defined LEDs, Green: U1,U2,U3, U6, Yellow: U4, Amber: U5		
Camera Interfaces			
Camera supported	2x mini FAKRA connectors, Quad port. For GMSL1/2 camera, driver support the following cameras: Tier4 GMSL2 HDR camera (ISP) Leopard GMSL2 AR0233 Leopard GMSL2 AR0820 Sensing GMSL1 AR0144 OtoBrite GMSL2 IMX390 ISP OtoBrite GMSL2 IMX490 ISP	2x mini FAKRA connectors, Quad port. For FPD Link III camera, driver support the following cameras: oToBrite FPD-Link III IMX 390 oToBrite FPD-Link III ISX 021	N/A
Expansion Box			
	1x PCIe Gen4 x 16 Slot, support up to 75W 1x PCIe Gen3 x 4 Slot, support up to 25W		
Power Requirements			
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		
Mechanical			
Dimensions	190(W) x 210(D) x 80(H) mm (7.48 x 8.27 x 3.149 inch) With Expansion: 322(W) x 210(D) x 80(H) mm (12.68 x 8.27 x 3.149 inch)		
Mounting	Wall mount kit		
Environmental			
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 ~ 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		
Software			
SDK	ADLINK Neuron SDK, NVIDIA Jetson SDK, Jetpack 5.0		
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.