Introduction

The IRU131 DIN-rail fanless embedded system utilizes a low power RISC based (i.MX 6UltraLite) processor and is designed to withstand temperatures ranging from -40°C to +70°C for applications in extreme operating environment and industrial automation.

The IRU131 supports one RS-232/422/485 serial ports, one LAN port, two digital input channels, two digital output channels and two wireless sockets. Its vertical DIN-rail form factor makes it easy to install the system in a small cabinet. The ready-to-run IRU131 is specially designed for remote control/monitoring management applications ideal in a unmanned control room, an industrial machine, an automatic parking lot, a traffic cabinet, just to name a few.

Specifications

- Construction: Extruded aluminum and heavy-duty steel, IP40
- CPU: NXP i.MX 6UL processor, ARM® Cortex®-A7 @ 528 MHz
- System Memory: 1 x DDR3-1600 onboard, 512 MB
- System I/O Outlet
  - Serial Port: 1 x RS-232/422/485
  - Magnetic isolation protection 2 KV
  - LAN: 1 x 10/100 Mbps Ethernet
  - Magnetic isolation protection 1.5 KV
  - USB: 1 x USB 2.0
  - DIO: 1 x DIO (2-in/2-out) with isolation 2 KV
  - D0: wet/dry
  - D1: input: channels: 2 source type
  - Input voltage: 0 to 24 VDC digital input levels for dry contacts:
    - Logic level 0: close to GND
    - Logic level 1: open
  - Digital input levels for wet contacts:
    - Logic level 0: +10V to +24V (D0 to COM-)
    - Logic level 1: +3V max.
    - DO: Output channels: 2 source type
    - Output current: max. 800 mA per channel
    - On-state voltage: 24 VDC nominal, open collector to 30V
  - Optical isolation protection 2 KV
- System I/O Outlet
  - Console Port: Yes
  - For user setting with debug
  - EEPROM: 1 x EEPROM (2 Kb)
  - Device ID: ID setting 0 to 255
  - Wireless: 2 x PCI Express Mini Card slot (USB signal only)
    - 1 x SIM card socket
  - Watchdog Timer: 0.5 to 128 sec. with a time resolution of 0.5 sec.
  - RTC: Yes (RTC battery on board)
  - LEDs: 2 x LED for dual wireless status
  - 2 x LED for DI status
  - 2 x LED for DO status
- Storage: 1 x eMMC 8GB flash onboard
- Power Supply: 9 to 48 VDC
- Operating Temperature: -40°C to +70°C (-40°F to +158°F)
- Storage Temperature: -45°C to +85°C (-49°F to +185°F)
- Humidity: 10% to 95%
- Vibration Endurance: 2 Gms @ (10 to 150Hz sine wave; operation)
- Dimensions: 55 mm (2.16") (W) x 82 (3.23") mm (D) x 108 (4.25") (H)
- Weight (net/gross): 0.3 kg (0.66 lb)/0.50 kg (1.10 lb)
- Installation: DIN-rail
- Certifications: FCC part 15, Heavy Industrial CE

Features

- RISC-based (i.MX 6UltraLite) processor 528 MHz
- 512MB DDR3 SDRAM onboard
- 8GB eMMC flash onboard
- 2 PCI Express Mini Card slots (Wi-Fi, 3G/4G or LoRa)
- 1 isolated COM port
- 1 isolated DIO 2-in, source type/2-out, source type
- Power input range of 9V to 48V DC with terminal block
- Embedded Linux operating system (Yocto)
- Wide operating temperature range from -40°C to +70°C
- Supports OPC UA

**Wireless Specifications**

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Module Details</th>
<th>Standards</th>
<th>Interface</th>
<th>Operating Frequency/ Frequencies (MHz):</th>
<th>Region</th>
</tr>
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<tbody>
<tr>
<td>4G module</td>
<td>4G Mini card LTE SIERA AIRPRIME MC7304 (Option)</td>
<td>Standards: LTE Cat.3</td>
<td>USB</td>
<td>802.11 ac/a/b/g/n ISM Band</td>
<td>Global</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radio Band/ Frequencies (MHz):</td>
<td></td>
<td>2.412 GHz to 2.472 GHz, 5.180 MHz to 5.825 MHz</td>
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</tr>
<tr>
<td>Wi-Fi module</td>
<td>Wi-Fi Mini card Sparklan WPEG-160ACN (Option)</td>
<td>Qualcomm Atheros QCA9377-7 Antenna: 2xUFL connectors, 1T1R</td>
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</tr>
<tr>
<td>3G module</td>
<td>3G Mini card Quectel UC20G (Option)</td>
<td>UMTS 800/850/900/1900/2100MHz</td>
<td>USB</td>
<td></td>
<td>Global</td>
</tr>
<tr>
<td>4G module</td>
<td>4G Mini card LTE RYR2800 (uBlox R290) (Option)</td>
<td>Standards: LTE Cat.1</td>
<td>USB</td>
<td>LTE bands 1, 3, 5, 7, 8, 28</td>
<td>TW, AU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interface: USB</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>4G Mini card LTE RYR2110 (uBlox R211) (Option)</td>
<td>Standards: LTE Cat.1</td>
<td>USB</td>
<td>LTE bands 1, 3, 7, 20</td>
<td>EU</td>
</tr>
</tbody>
</table>

**Ordering Information**

**Standard**

IRU131-S0-F-0C (P/N: E271131101)

Robust DIN-rail fanless embedded system with i.MX 6UL processor, COM, LAN, DIO 2-in, source type/2-out, source type and 2 PCIe Mini Card slots

**Optional**

Wireless (3G/GPS or Wi-Fi) module

**Packing list**

1 x CD
8 x Screws
1 x Din-rail kit
1 x 4-pin terminal block for power port
1 x 6-pin terminal block for DIO port

**Wireless Specifications**

- **Dimensions**

  - Figure showing the dimensions of the device.

*All specifications and photos are subject to change without notice.*

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