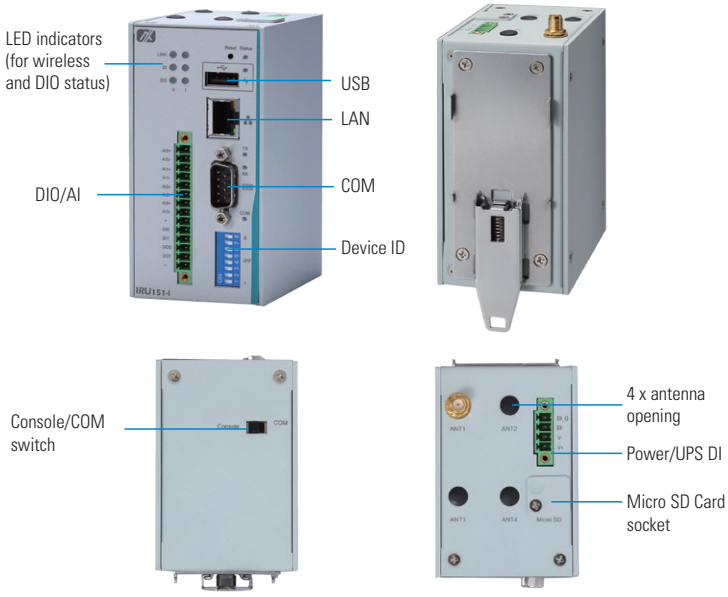
IRU151-I

Robust RISC-based DIN-rail Fanless Embedded System with i.MX 6UL Processor, DIO (2-in/2-out), 4 AI Channels (16-bit, 100 S/s, ±20mA), and 2 PCIe Mini Card Slots

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)
- 4 isolated analog input channels (16-bit, 100 S/s, ±20mA)
- 1 isolated COM port
- 1 isolated DIO (2-in/2-out)
- Embedded Linux operating system (Yocto)
- Wide operating temperature range from -40°C to +70°C
- Supports LabVIEW versions later than 2016
- Supports OPC UA



i.MX6 UL | Ext. Temp | IP40 | Fanless | Low Power

Introduction

The IRU151-I DIN-rail fanless embedded system utilizes a low power RISC-based (i.MX6 UL) processor, one RS-232/422/485 serial port, one LAN, two digital input channels, two digital output channels, four analog input channels for measuring current, designed to withstand temperatures ranging from -40°C to +70°C for applications in extreme operating environment and industrial automation.

The IRU151-I is an Ethernet-based gateway supporting two wireless sockets (Wi-Fi, 3G/4G or LoRa), acting as a simple transparent interface between Ethernet-based network and Modbus devices such as meters, monitors, protective relays, trip units, motor controls and other devices that communicate using Modbus protocol.

Also, the IRU151-I can record digital/analog of devices and control digital devices. It can offer a simple, scalable web-based monitoring solution providing real-time data views, on-board data logging/trending, and simple control over Modbus devices. Embedded math function such as RMS and FFT are used to make advanced diagrams. The readyto-run IRU151-I 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 2KV
	LAN	1 x 10/100 Mbps Ethernet Magnetic isolation protection 1.5KV
	Analog Input	4 x AI (isolation) channels: 4 (differential) Input impedance: 249Ω Input range: ±20mA Resolution:16-bit Sampling rate : 100 S/s Overvoltage protection : ±55V Trigger source : analog or digital (software selectable)
	USB	1 x USB 2.0 (type A)
	DIO	1 x DIO (2-in/2-out) with isolation 2KV DI: wet/dry DO: wet
System I/O Outlet	DIO	DI: Input channels: 2 source type Input voltage: 0 to 30 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 (DI to COM-) -Logic level 1: +3V max. DO: Output channels: 2, sink type Output current: max. 200 mA per channel On-state voltage: 24VDC nominal, open collector to 30V Optical isolation protection 2 KV
	Console Port	Yes For user setting with debug
	EEPROM	1 x EEPPROM (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)	0.32 kg (0.71 lb)/0.53 kg (1.17 lb)	
Installation	DIN-rail	
Certifications	FCC part 15, Heavy Industrial CE	

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Wireless Specifications

4G module	4G Mini card LTE SIERRA AIRPRIME MC7304 (optional)	Standards: LTE Cat.3 Interface: USB Radio Band/ Frequencies (MHz): 850(5) / 900(8) / 1800(3) / 1900(2) @GSM 850(5) / 900(8) / 1900(2) / 2100(1) @UMTS 800(20) / 900(8) / 1800(3) / 2100(1) / 2600(7) @FDD LTE Region: Global
Wi-Fi module	Wi-Fi Mini card Sparklan WPEQ-160ACN (optional)	Qualcomm Atheros QCA9377-7 Antenna: 2 x UFL connectors, 1T1R Operating Frequency: 802.11 ac/a/b/g/n ISM Band 2.412 GHz to 2.472 GHz 5.180 MHz to 5.825 MHz Interface: USB Region: Global
3G module	3G Mini card Quectel UC20G (optional)	UMTS:800/ 850/ 900/ 1900/ 2100MHz GSM/EDGE 850/ 900/1800/ 1900MHz Region: Global
4G module	4G Mini card LTE RYR2800 (uBlox R280) (optional)	Standards: LTE Cat.1 Interface: USB Radio Band/ Frequencies (MHz): LTE bands1, 3,5,7,8,28) Region: TW, AU
	4G Mini card LTE RYR2110 (uBlox R211) (optional)	Standards: LTE Cat.1 Interface: USB Radio Band/ Frequencies (MHz): LTE bands1, 3,7,20) Region: EU

Software Specifications

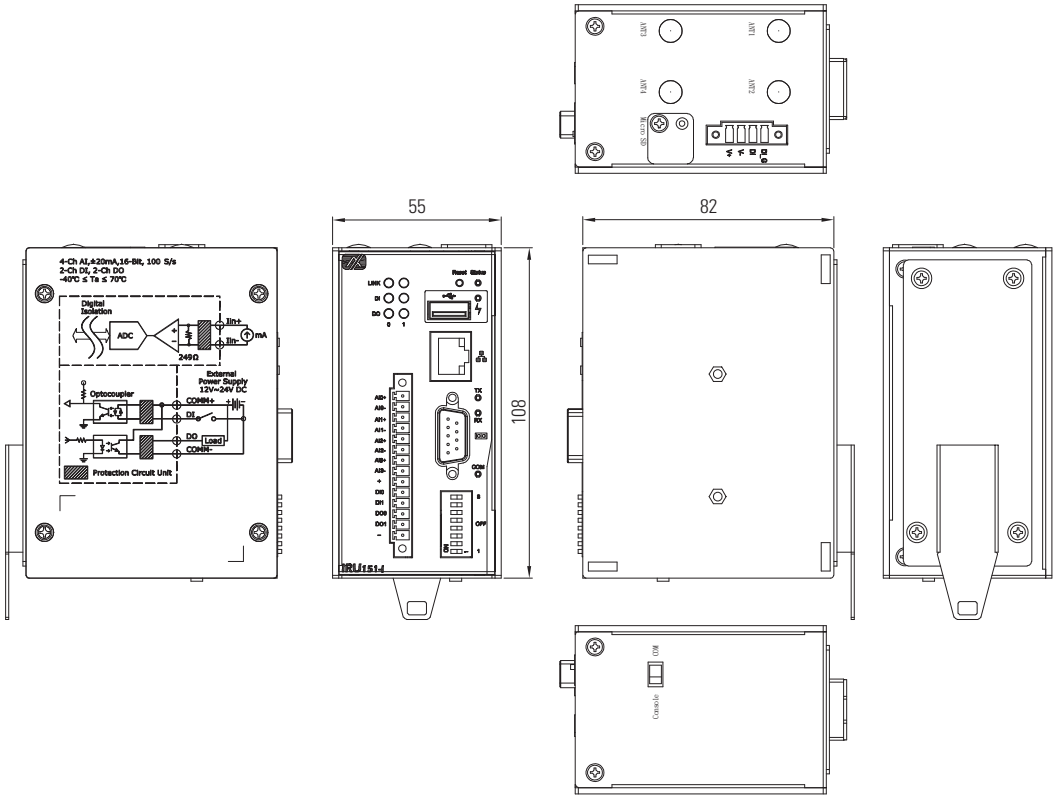
OS	Linux Kernel 3.14.52 Yocto FIDO 1.8	
Protocol Types	ICMP. TCP/IP, UDP, ARP, Telnet, SNMP, HTTP, HTTPS, SSL, SMTP, FTP, TFTP NTP, DNS, PPP, PPPOE, DHCP, NFS	
Software Types	Serial Server	Supports TCP Server/TCP Client/ UDP/Pair/VC Supports IP filter Supports 32 TCP connections
	Modbus	Supports Modbus TCP/Modbus RTU/Modbus ASCII Supports TCP for multiple COM port
Setting Configuration	SNMP	Supports V1/V2C/V3 Supports SNMP Private MIB Supports read/write
	http /https	Supports SSL Supports import/export Supports FW update
	Remote Manager	Remote Log Email SNMP Supports Trap
Alert Function	Yes	

Ordering Information

Standard	
IRU151-I-FL-DC (P/N: E271151101)	Robust DIN-rail fanless embedded system with i.MX 6UL processor, COM, LAN, DIO (2-in/2-out), 4 AI (16-bit,100 S/s, ±20mA), and 2 PCI Express Mini Card slot (-40°C to +70°C)

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

Dimensions



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