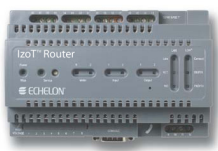# IzoT™ Router

Multi-channel Router and Local Server for the IzoT Platform

FT Features

- Enables IzoT and LONWORKS® devices on different communications media to be part of the same community

- Enables BACnet workstations and devices on Ethernet to communicate with BACnet/IP devices on an FT channel

- Provides a RESTful API for rapid Web page development and M2M communications

- Supports custom apps that you develop using IzoT Device Stack EX

- Up to two integrated Ethernet interfaces for connection to IzoT/EN devices, enterprise applications, and Web clients

- Up to two integrated FT or RS-485 interfaces—each can be attached to either an IzoT or LONWORKS channel

- Software enabled FT terminators for each FT interface for simplified termination of FT channels

- Up to four USB ports for expansion— each can be used for an external network interface, Wi-Fi adapter, or a USB hub for more expansion

- DIN 43880 8TE compliant package for easy DIN-rail mounting

- Powered by a 15 – 30V AC or DC input

- IP local and wide area networking protocols and Internet standards include TCP, UDP, IPv4, IPv6, DHCP, DNS, FTP, ICMP, SNMP, SNTP, HTTP, HTTPS, and SSL

- IP application protocols include IzoT/IP and HTML

Building Communities of Devices

Build a community of devices with a ready-to-run appliance for connecting IzoT devices on up to two Ethernet channels and up to two FT or RS-485 channels. The router automatically forwards packets between the attached Ethernet, FT, and RS-485 channels. Each FT interface can be configured to communicate with an IzoT/FT or LonTalk® FT channel.

The IzoT Router includes a BACnet router that allows BACnet/IP workstations and devices on Ethernet to communicate with BACnet/IP devices on the FT channels.

You can expand the IzoT Router to support additional channels with four USB expansion ports. You can use each USB expansion port to add an external IzoT FT or RS-485 DIN interface, or to add a Wi-Fi adapter to interface with IzoT/Wi-Fi devices. You can also add a USB hub to support more than four external network interfaces.

Two integrated FT terminators are included that you can enable and disable in the software. This reduces the cost of installing an FT twisted pair installation by eliminating the requirement to wire a separate terminator.

An integrated IzoT Server connects IzoT devices to Web clients, providing users with local Web access to monitor and control the operation of communities of devices. The IzoT Server provides an easy-to-use RESTful API with a low-overhead but powerful interface for discovering devices, monitoring their data, and controlling them via network inputs.

A set of example Web pages is included with the IzoT Router. You can use these Web pages to try out the IzoT Server, to interact with your devices, and to learn the IzoT RESTful API.

A charting page is also included that you can use to monitor and trend datapoints in your IzoT network.

You can use the IzoT Device Stack EX to build custom apps to run on the IzoT Router. This enables you to extend the capabilities of the IzoT Router to add value to your IzoT Router deployments. You can develop your custom apps using Python, C++, or C.

Specifications

Hardware Platform

Processor

• TI AM3359 1GHz superscalar ARM® Cortex-A8

Memory

• 4GB MicroSD flash card
• 2GB eMMC flash memory
• 512MB DDR3 RAM

Connectivity

• Up to 2 RJ-45 10/100 BaseT, auto-selecting, auto-polarity, Ethernet ports for device, LAN, and WAN interfaces
• Supports optional USB Wi-Fi adapter
• Up to 2 FT or RS-485 network interfaces supporting IzoT/IP, BACnet/IP, custom IP, and native LonTalk interfaces
• Up to 4 USB 2.0 Type A host ports for expansion with external network interfaces, a Wi-Fi adapter, and flash drives
• Mini-USB 2.0 client port

Controls

• Connect/Service button
• Reset button (recessed)

Indicators

• Power/Wink/Status LED
• Connect/Service LED
• Ethernet Link/Activity LEDs
• TP (FT or RS-485) Tx/Rx LEDs

Operating Input Voltage

• 15 – 30V AC or DC

Temperature

• -10°C to +70°C (operating and non-operating)

Humidity

• 10% to 95% RH @ 50°C

Enclosure

• DIN 43880 8TE compliant enclosure

Dimensions

• 3.51 in. (H) x 5.47 in. (W) x 2.60 in. (D)
• 8.9 cm (H) x 13.8 cm (W) x 6.6 cm (D)

Software Platform

Operating System

• Ubuntu Linux

Integrated Components

• Django Web application framework; Nginx Web server and reverse proxy server; Gunicorn Web server gateway interface; SQLite relational database management system; Supervisor process control system

Web Client Interface

• RESTful API supporting XML and JSON

Compatible Web Browsers

• HTML5 compatible Web browsers including Internet Explorer 9, 10, and 11, Chrome, and Firefox on Windows 7 and Windows 8, and Safari 5.1 on iPad Mini with iOS

Application Development Languages

• Python 3.2, C++, and C

Ordering Information

IzoT Router/FT Single-Channel (1 Ethernet, 1 FT, 2 USB)

IzoT Router/FT Dual-Channel (2 Ethernet, 2 FT, 4 USB)

IzoT Router/FT-RS-485 (2 Ethernet, 1 FT, 1 RS-485, 4 USB)

Preliminary