

# Acal BFi and Lantronix helps companies to Connect Smart and Do More.

The Internet of Things (IoT) is rapidly expanding, and consumers now expect devices to communicate with each other and the wider world via internet, instantaneously. Connecting devices to the cloud can open up many exciting new revenue opportunities. IoT enablement can also act as a product differentiator that can reduce device support costs and help you stay ahead of competitors.

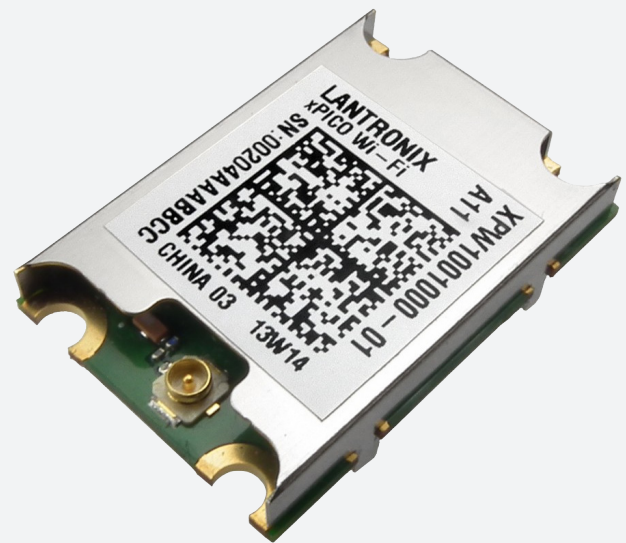
Along with device hardware, building a typical IoT solution requires:

- application software for connectivity
- security
- web server and user interface
- data handling and tunnelling
- API and services
- standards and certifications.

Projects often need to be deployed quickly, time to market expectations are shrinking, often with fewer design engineers available and smaller design teams. Keeping current with the latest standards and trends is increasingly difficult.

The Lantronix Embedded IoT Gateway solution such as the xPico Wi-Fi is the ideal solution to provide a faster start-to-finish product without the pain, taking away the need to think the whole design component by component.

Lantronix's xPico Wi-Fi, one of the world's smallest and most flexible Wi-Fi device servers, is a pin and form factor compatible state-of-the-art member of the xPico family. Providing low power, Soft AP and simultaneous client mode, full IP and WLAN stacks, the xPico Wi-Fi is a complete device server suitable for mobile M2M/IoT applications and includes industry best 5-year warranty.



The most flexible network connectivity solutions: xPico Wi-Fi  
Key Features

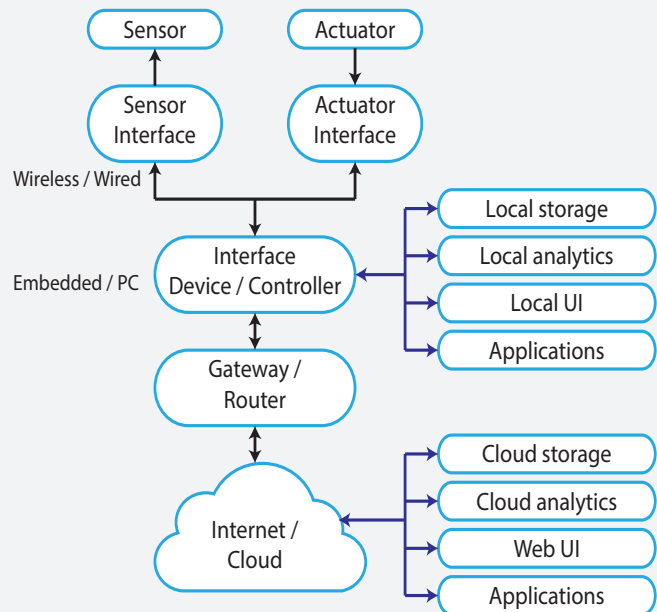
- Chip-sized footprint: 24mm x 16.5mm
- Low power (6µA Standby)
- Can be operated off batteries
- IEEE 802.11 b/g/n (2.4 GHz)
- Simultaneous Soft AP and client mode
- Complete device server application with full IP Stack and web server
- Dual serial port with data rate of up to 921 kbps
- SPI with clock rate of 30MHz
- USB 2.0 full rate device mode
- 256-bit AES Encryption
- Industrial temperature range : -40° to +85° C
- 5-Year limited warranty

## What can the Lantronix embedded solution do for me?

### What is an embedded IoT gateway?

IoT gateways perform several critical functions such as device connectivity, protocol translation, data filtering and processing, security, updating, management and more. Newer IoT gateways also operate as platforms for application code that processes data and becomes an intelligent part of a device-enabled system. Smart IoT gateways, also referred to as 'intelligent gateways', are full-fledged computing platforms running modern operating systems.

Adding smart IoT gateways with full onboard processing allow the gateways to filter out routine information and pass through the alerts that are worthy of attention. Going even further, these gateways can perform their own analytics and operations on the data - such as determining whether the temperature is too high in part of a building, in a building automation application. This insight can then be used to take independent action, such as turning on the air conditioning or opening vents.



### What are the advantages of using an Embedded IoT Gateway rather than a DIY approach?

There are several advantages over the DIY approach:

#### Tablet and smartphone

Enable devices access to data and devices from anywhere – wired or wireless. Lantronix® industry-proven device server application and protocol stacks enables seamless remote access to device data, simplifying design integration, all while providing robust connectivity – including the ability to access data from any mobile device, including smartphones and tablets.

#### Robust networking solution

The xPico Wi-Fi is an extremely compact, low power networking solution that enables wireless LAN connectivity on virtually any solution with a SPI, USB (device) or serial interface.

#### Simultaneous access point and client mode

The xPico Wi-Fi is a state-of-the-art solution that offers all the functions expected, including a unique simultaneous Soft AP and client mode. This allows for easy points of access while maintaining a secure network connection.

#### Flexibility

All members of the xPico product family use the same pin compatible interface, providing unmatched flexibility whether it is Wi-Fi or Ethernet when it comes to choosing the right network device for your application.

#### Cost savings and faster time-to-market

As one of the smallest embedded device servers in the world, xPico Wi-Fi can be utilised in designs typically intended for chip solutions, befitting in advantages to cost and time-to-market. Its 'zero host load' eliminates any need for drivers on the connected microcontroller making implementation easy and fast with virtually no need to write a single line of code. This translates to considerably lower development costs and faster time-to-market. As xPico Wi-Fi meets FCC Class B, UL and EN EMC and safety compliance, your development time is shortened. xPico Wi-Fi can reduce the overall cost of ownership compared to the competition.

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## Evaluating embedded IoT gateways

Is there a simple checklist for evaluating embedded IoT gateways to assess value for money?

### QUALIFY

- Supplier reputation, roadmap and support
- Regulatory certification, homologations (modular RF) and industry certifications (Wi-Fi Alliance)
- Choice of machine integration interface (UART, USB, Ethernet, SPI) + Baseline Specifications

### INTEGRATE

- Complete Wi-Fi and network services (not just TCP/IP) offload
- Automatic network connectivity management, no coding turnkey applications
- Connected device lifecycle management (firmware, configuration)
- Integrated security (authentication, authorization, and encryption)
- Enterprise Wi-Fi security, end-to-end application security, data-at-rest and data-in-motion security

### DEPLOY

- Simplified machine onboarding - manufacturing and deployment
- Hardened and production ready software stack (not application samples)

## Demonstration of serial to WiFi connectivity using the Lantronix XPico WiFi

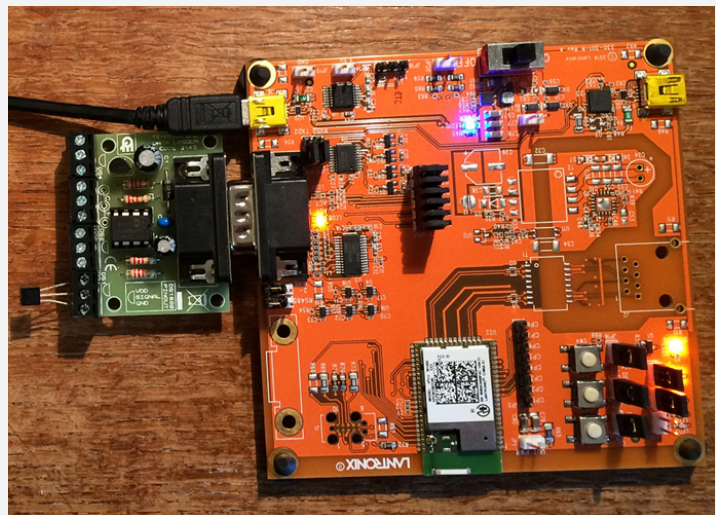
Acal BFi have produced a demonstration system which uses one of Acal BFi's temperature sensors. The temperature output is received by the Lantronix X-Pico WiFi development kit and sent over WiFi to a webpage where the result can be viewed.

It is possible to create alarms or trigger actions using this system

The Acal BFi Demonstration platform showing temperature sensor to serial WiFi

The demonstration solves the issues of connectivity, security, web server and user interfaces, data handling and tunnelling, API and API services, standards and certifications. Post launch support costs are kept to a minimum using a solution of this type.

Email us today to see a demonstration of the technology, connecting your serial based devices to WiFi.  
sales-uk@acalbfi.co.uk - "Request a demonstration"



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## Why Acal BFi?

### Technical support

Throughout your design and development stages, our field-based engineers are available as an extension to your internal design teams, working hand-in-hand to support you when necessary.

Support can start from the design phase, with initial advice on the best wireless technology to meet your specific requirements, and lasts as long as you need it, through to pre-production, final testing and post-production support. At every stage, you can benefit from our specific IoT expertise.

### Design phase support

- Advice on the best wireless technology for your needs
- Full technical support from initial start to refined tuning
- Detailed responses to technical queries
- Direct access to manufacturer's technical support team
- PCB and schematic review to advise on optimum layout
- Evaluation boards

### Pre-production phase support

- Access to our European Technical Competence Centre to solve complex design issues
- Advice on regulatory compliance issues
- Access to our UK-based EMC chamber for pre-compliance testing
- Design support on impedance matching for optimum antenna performance

### Production phase support

- Continued technical support for unforeseen production issues

### Products and solutions

We offer a complete portfolio of class-leading wireless products to add internet and M2M connectivity to your products. From wireless sensors to system-in-package solutions, WiFi modules to airtime services, we can provide multiple component options for every aspect of an IoT device.

Our partnerships with leading suppliers and manufacturers provide you with access to the latest technology with unbiased advice and direct access to technical support, either from our technical team or direct with the manufacturer.

To discuss your individual requirements, contact us

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[www.acalbfi.com](http://www.acalbfi.com)

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