



# DIGI STARTER KIT FOR LORAWAN

A complete, end-to-end device, gateway and cloud kit to accelerate development of your IoT solution

Digi's end-to-end starter kit for LoRaWAN provides a complete device, gateway and cloud IoT platform for developing end-to-end LoRaWAN solutions. The Digi LoRaWAN kit includes a multi-sensor device, a multi-channel gateway and X-ON™ cloud IoT free trial. The X-ON cloud demonstrates automated provisioning for devices and gateways.

The Digi LoRaWAN starter kit provides a cloud application using the X-ON industrial IoT platform, a highly-scalable microservices platform for large-scale LoRaWAN solutions. Each gateway supports 1.5 million messages per day delivered to the X-ON cloud. The included HXG3000 gateway offers high receive sensitivity and up to 27 dBm transmit power to deliver long-range, non-line-of-sight, two-way communications over LoRaWAN. The starter kit provides LoRaWAN Class A and Class C for both low-power battery and always-on real-time cloud-to-device control applications, respectively.

The Digi LoRaWAN Client Shield (expansion board) supports rapid prototyping and development of LoRaWAN sensors on ST® Nucleo and Arduino® platforms. The client shield features the LoRaWAN module, addressing long-range, low-power, wide-area networks (LPWAN), with stackable Arduino connectors, digital input switch, RGB LED, u.FL connector, antenna and temperature sensor. An embedded AT command language and simplified Mbed C++ Embedded API support rapid integration.

## Your kit includes:

- ✓ Digi 8-channel HX20 Ethernet Gateway for LoRaWAN
- ✓ Client shield with LoRaWAN connectivity, LED, digital input and temperature sensors
- ✓ Digi X-ON cloud platform 30-day free trial account with scan-and-go mobile provisioning

PART NUMBER	DESCRIPTION
XON-9-L1-KIT-001	Digi LoRaWAN starter kit with LoRaWAN gateway and client shield

The module is certified with support for Class A, Class C and secure multicast. The client shield is compatible with select ST Nucleo and Arduino boards providing LoRaWAN client-side connectivity. The starter kit provides a complete framework for a fully functional LoRaWAN client device.

With the full suite of Digi services and solutions, OEMs can streamline development and time-to-market with integrated performance and security features.

## SPECIFICATIONS

## DIGI LORAWAN GATEWAY

## FEATURES

GATEWAY	Modular gateway available for different LoRaWAN™ channel plans, supporting multiple frequency bands
CAPACITY	Up to 1.5 million messages per day
EDGE COMPUTING	Enable local data and applications to be deployed on the gateway supported with X-ON.Edge
SENSE AND CONTROL	Complex sense and control functions can be operated independently of cloud connectivity for high reliability and low latency
ANTENNA	1.7 dBi omnidirectional antenna
POWER	AC or PoE power supply for alternative installation options
CONNECTIVITY	Ethernet and LTE backhaul models available, installed with single cable and auto-connect to the X-ON™ cloud platform
PROVISIONING	Simple provisioning with mobile scanning app
ENCLOSURE	Indoor enclosure for wall or table mount
CERTIFICATION	FCC and IC certified

## LORAWAN RADIO

REGIONAL BANDS	US900
TX POWER / RX SENSITIVITY	+27 dBm; -138 dBm
CHANNELS	8 Rx; 1 Tx
ANTENNA	+1.7 dBm (SMA type)

## INTERFACES

ETHERNET BACKHAUL	10/100 RJ-45
CELLULAR BACKHAUL	Cat M1 (LTE version only)
POWER	5 VDC; 5.5 mm
LTE SIM	Micro SIM
CONSOLE PORT	Micro USB; 115200 baud

## SOFTWARE AND MANAGEMENT

SYSTEM	CLI and API management; auto-discovery over IP
TOOLS	Access control lists, system monitor, logging, radio configuration, remote software upgrade
NETWORKING	IPv4, SSH, AES 256-bit, DHCP, TFTP, firewall and ACL

## PHYSICAL

DIMENSIONS (L x W x H)	14.61 cm x 14.61 cm x 3.17 cm (5.75 in x 5.75 in x 1.25 in); antenna length: 12.06 cm (4.75 in)
------------------------	---

## SPECIFICATIONS

## DIGI LORAWAN CLIENT SHIELD

## FEATURES

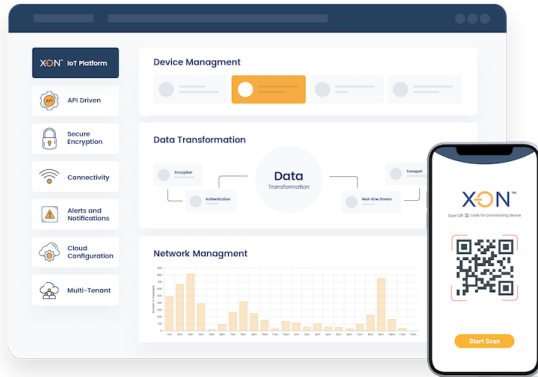
SENSOR	Low-power thermistor temperature sensor
SWITCH	Digital input slide switch
LEDS	Digitally controlled RGB LED
REGULATOR / CONVERTER	On-board 3.3 V; on-board logic converter to support both 5 V and 3.3 V I/O
JUMPERS	Use any MCU pins to communicate with the client
ANTENNA	U.FL connector (antenna included in the kit)
API	Arm® Mbed™ Embedded API ( <a href="https://os.mbed.com">https://os.mbed.com</a> )
ARDUINO / NUCLEO	Arduino® stackable connectors and ST® Nucleo compatible

## HARDWARE AND INTERFACES

POWER	Ultra-low power consumption with auto-hibernate
LORA / LORAWAN	Semtech® LoRa® and LoRaWAN™
FREQUENCY RANGE	902 MHz to 928 MHz (900)
SUPPORT	LoRaWAN Class A, Class C and secure multicast
OUTPUT POWER	14 dBm to 20 dBm
VOLTAGE RANGE	2.0 V to 3.6 V
TEMPERATURE RANGE	-40° C to 85° C (-40° F to 185° F)
COMMUNICATION	USART communication interface

## SYSTEM REQUIREMENTS AND DEVELOPMENT TOOLCHAINS

OPERATING SYSTEM	Windows® OS (10), Linux® 64-bit or macOS®
USB	Type-A to Mini-B cable
DEVELOPMENT	Arm Mbed online



Digi X-ON™ is a complete device-to-cloud platform for connected IoT devices. The platform provides a data-ready device solution from development through to operation. X-ON contains an integrated LoRaWAN™ network server and join server to support devices and gateways that use the LoRaWAN wireless connectivity standard. X-ON with LoRaWAN provides cloud-enabled secure, long-range and low-power wireless connectivity for self-built or commercial off-the-shelf LoRaWAN devices.

The X-ON platform is designed to collect and analyze data directly from devices and manage the wireless network base stations that provide campus, city or nationwide coverage. X-ON and LoRaWAN support many different applications and use cases such as connected cities, smart utility, industrial IoT and smart agriculture.

Learn more at [www.digi.com/lorawan](http://www.digi.com/lorawan)

## CAPABILITIES

- Enables you to configure, monitor and diagnose your mission-critical devices or gateways from the X-ON web and mobile interface
- Automates deployment of devices and gateways with provisioning app
- The Stream feature provides inter-cloud API for real-time two-way device data between multiple cloud platforms
- Data templates include Transform functions for simplified integration of device data to multiple cloud platforms
- Provides a multi-tenant hierarchy of accounts for OEMs, resellers and end users for managing complex business structures with role-based access controls
- Users can create comprehensive IoT applications by utilizing the X-ON platform AppEngine
- Provides advanced scheduling for events or timers for proactive maintenance, automated business operations and process control
- Enables real-time alerts and notifications with email, SMS or API
- Provides on-demand or scheduled reporting with business insights, network health or custom reports
- Enables logging and tracing of real-time data messages for interactive operations and troubleshooting with devices and gateways
- Lets you integrate data through open APIs to develop more complex applications with third-party utilities

## INFRASTRUCTURE

- Hosted in a commercial-grade cloud server environment that meets SOC 1®, SOC 2® and SOC 3® standards
- Superior availability, operating to 99.9% or greater with N+1 high-availability microservices
- Open APIs available to support application development
- Auto-scale elastic capacity 2M devices/min, 20k gateways/min, 6k users/min

## SECURITY

- TLS PKI security across all applications
- Member of the Center for Internet Security® (CIS®)
- AES encryption for LoRaWAN

FOR MORE INFORMATION  
PLEASE VISIT [DIGI.COM](http://DIGI.COM)



DIGI SERVICE AND SUPPORT / You can purchase with confidence knowing that Digi is always available to serve you with expert technical support and our industry leading warranty. For detailed information visit [www.digi.com/support](http://www.digi.com/support).

© 1996-2021 Digi International Inc. All rights reserved.  
All trademarks are the property of their respective owners.

91004474  
A6/422

DIGI INTERNATIONAL WORLDWIDE HQ  
877-912-3444 / 952-912-3444 / [www.digi.com](http://www.digi.com)

DIGI INTERNATIONAL JAPAN  
+81-3-5428-0261 / [www.digi-intl.co.jp](http://www.digi-intl.co.jp)

DIGI INTERNATIONAL GERMANY  
+49-89-540-428-0

DIGI INTERNATIONAL SINGAPORE  
+65-6213-5380

DIGI INTERNATIONAL CHINA  
+86-21-50492199 / [www.digi.com.cn](http://www.digi.com.cn)

