STKNX
Tiny, efficient

KNX bit transceiver for home and building control

STKNX, new miniature KNX certified bit transceiver with voltage regulators, enables higher efficiency for KNX nodes

More convenience, improved safety and lower energy consumption in home and building control can be achieved using the KNX network communications protocol. ST's KNX certified bit transceiver has the smallest footprint in the market. Its integrated voltage regulators supply the application with additional power savings. A turnkey development environment including the miniature KNX bit transceiver, a 32-bit STM32F1 microcontroller, and communication software stack help developers find the most compact and efficient solutions.

KEY FEATURES AND BENEFITS

- Compact 4 x 4 mm QFN package for miniaturized KNX node applications
- KNX certified (KNX TP1-256 communication mode) for worldwide adoption
- No crystal required and easy interface to MCU for reduced component and pin count as well as cost savings
- KNX bus extractor and two integrated voltage regulators to power external devices for improved energy efficiency and application compactness
- Adjustable KNX bus current slew rate dI/dt to adapt to application requirements
- Complete development ecosystem comprising KNX bit transceiver, STM32F1 MCU and communication software stack for reduced design complexity and time-to-market
- Operating temperature range -40 to +85 °C for use in outdoor applications

KEY APPLICATIONS

KNX bus nodes in home and building control applications:

- Lighting and shutter control
- Security systems, HVAC
- Monitoring and alarms
- Water control, Energy management
- Smart metering
- Household appliance control

BEST-IN-CLASS SOLUTION

Meeting worldwide standards

Ensuring that all components of home and building management control systems communicate via one common language, KNX is a worldwide open standard and approved as an International Standard (ISO/IEC 14543-3) as well as an European Standard (CENELEC EN 50090 and CEN EN 13321-1) and Chinese Standard (GB/T 20965).
The STKNX is certified to be compliant with the TP1-256 standard.

High level of integration

In addition to no longer needing a crystal oscillator, as no clock synchronization is required, its simple interface to the MCU reduces the need for discrete components in the physical layer. Moreover, its compact 4 x 4 mm QFN 24 pin package allows the design of compact KNX communication nodes. Its KNX bus power extractor provides up to 30 mA to the integrated voltage regulators to power external devices and the STKNX transceiver's own power needs, while limiting the bus current slew rate according to KNX specifications, further enhancing the system efficiency. The selectable 3.3 / 5 V - 20 mA linear regulator and the adjustable 1 to 12 V - 150 mA high-efficiency DC-DC step down switching converter can be used to supply the microcontroller and all the application components on the board.

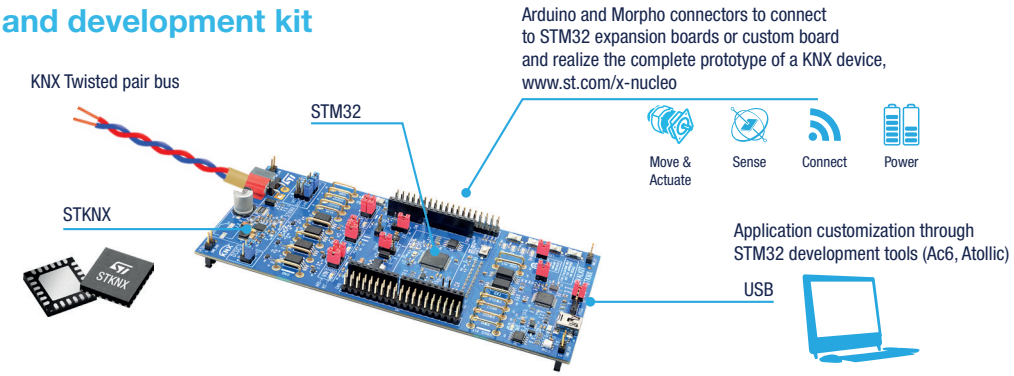
More reliable systems

The STKNX ensures safe coupling to the communication bus and provides a bus monitoring warning at the loss of bus power. A complete set of protections is present including overcurrent, over-temperature and short-circuit, thus making it a bullet-proof solution for demanding applications, especially the industrial ones, and helping to further reduce the number of external components, the cost and complexity.

Complete development ecosystem

For reduced design complexity and faster time-to-market, the STKNX evaluation and development ecosystem includes all the components required to evaluate the performance of the miniature STKNX transceiver and to develop a KNX node on twisted pair medium in compliance with the TP1-256 standard.
The system is controlled by an STM32F1 microcontroller hosting the KAIstack KNX protocol stack developed by TAPKO Technologies GmbH.
The availability of Arduino and Morpho connectors lets developers connect existing STM32 expansion boards or to develop a custom board to create a complete prototype of a KNX device.

Evaluation and development kit



Development ecosystem

Part number	Category	Description	Software
STKNX / STKNXTR	IC	Miniature KNX transceiver with voltage regulators	
EVALKITSTKNX	Evaluation board	Miniature transceiver STKNX evaluation and development kit	STSW-KITSTKNX
STEVAL-STKNX1CB	Evaluation board	New generation miniature transceiver STKNX evaluation and development kit	
STEVAL-4KNXDVCB	Evaluation board	Design board for 4 channels KNX actuator device applications	
STDES-HARMONYKNX	Reference Design	Reference design board for KNX touch panel	STSW-HARMONYKNX
STDES-KNXKNOB	Reference Design	Reference design board for KNX knob	STSW-KNXKNOB
STDES-KNXRIFD	Reference Design	STKNX RFID reader evaluation and development kit	STSW-KNXRIFD
STDES-KNXPSENSOR	Reference Design	KNX presence sensor with PIR and TMOS integration function	STSW-KNXPSENSOR
STDES-KNXRGBDRV	Reference Design	Reference design board to drive RGB leds based on STKNX transceiver	STSW-KNXRGBDRV