

Scavenger Transceiver Module STM 300 and STM 300C

The extremely power saving RF transmitter module STM 300 of EnOcean enables the realization of wireless and maintenance free sensors and actuators such as room operating panels, motion sensors or valve actuators for heating control.

Power supply is provided by an external energy harvester, e.g. a small solar cell or a thermal harvester. An energy storage device can be connected externally to bridge periods with no supply from the energy harvester. A voltage limiter avoids damaging of the module when the supply from the energy harvester gets too high. The module provides a user configurable cyclic wake up (every 1, 10 or 100 sec.). After wake up a radio telegram (input data, unique 32 bit sensor ID, checksum) will be transmitted in case of a change of any digital input value compared to the last sending or in case of a significant change of measured analogue values (different input sensitivities can be selected). In case of no relevant input change a redundant retransmission signal is sent after a user configurable number of wake-ups to announce all current values. In addition a wake up can be triggered externally.

Features

- 3 A/D converter inputs
- 4 digital inputs
- Configurable wake-up and transmission cycle
- Wake-up via Wake pins
- Voltage limiter
- Threshold detector
- Application notes for calculation of energy budgets and management of external energy storages

Product variants

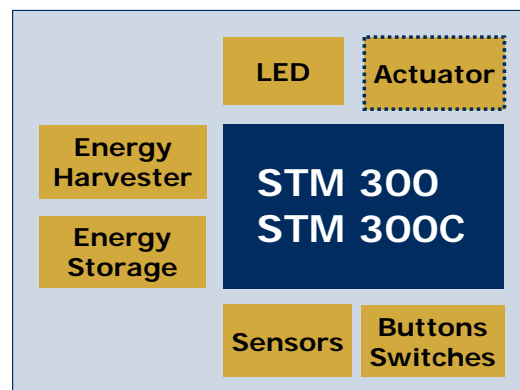
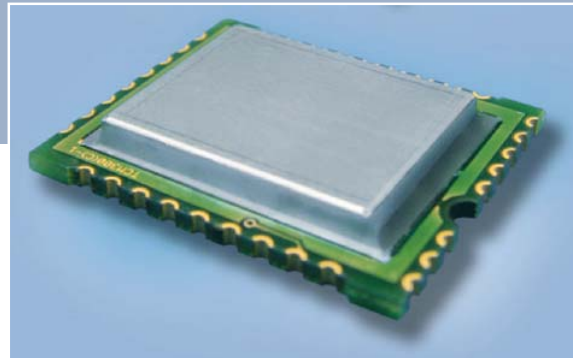
- STM 300/300C: SMD mountable module for use with external antenna (868/315 MHz)

Type

STM 300
STM 300C

Ordering Code

S3001-D300
S3031-D300



..... With custom firmware

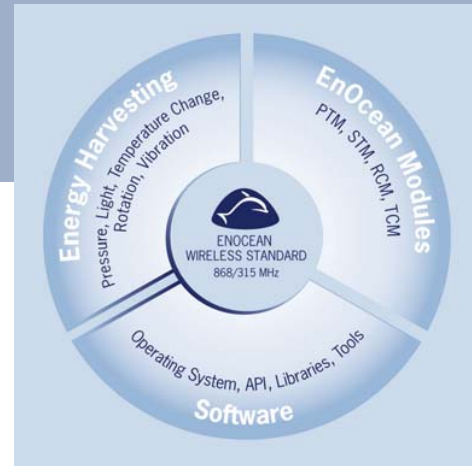
Energy Harvesting made easy with EnOcean wireless standard

STM 300 is a bidirectional system module for maintenance-free sensor solutions based on the EnOcean wireless standard.

Using the Dolphin API library it is possible to write custom firmware for the module. STM 300 / STM 300C is in-system programmable.

Features accessible via API:

- Integrated 16MHz 8051 CPU with 32KB FLASH and 2kB SRAM
- Receiver functionality
- Various power down and sleep modes down to 0.2µA current consumption
- Up to 16 configurable I/Os
- 10bit ADC, 8bit DAC



EnOcean Dolphin System Architecture. Open. Flexible. Expandable.

The distinguishing feature that sets Dolphin apart from other wireless system architectures is energy harvesting, which enables self-powered wireless sensors and actuators. The Dolphin system architecture joins the components necessary for an energy-autonomous wireless sensor system that operates on a standardized wireless network. These include energy conversion and storage components, EnOcean wireless modules for energy management, data acquisition, data processing and wireless data transmission, and finally the software blocks operating system, API and application programs.

As an open and expandable hardware and software architecture, Dolphin is future-oriented and fully backward compatible with EnOcean-enabled devices and system components already on the market.

The hardware kernel of Dolphin is the EO3000I chip, a basis for simply integrated modules. EnOcean modules already have extensive firmware functionality implemented – such as basic switching, dimming and measuring – and can go straight into an application without additional programming. Its built-in application functions enable straightforward start-up and system integration.

Benefits for OEM partner

- Maintenance-free sensor solution with energy harvesting
- Simple expansion of portfolio to wireless-based products using EnOcean wireless standard
- Ready available and wide-ranging, interoperable system product portfolio
- Fast implementation and time to market
- Low investment in R&D, T&M, etc
- Various evaluation tools obtainable to support development
- EnOcean Development Kit EDK 300 for STM 300
- Technical support
- Competitive advantage over battery-powered wireless solutions
- New differentiated marketing advantages
- Participation in EnOcean's eco-system
- EnOcean is the wireless standard for sustainable buildings

Technical Data

Antenna	External whip or 50Ω antenna mountable
Frequency	315.0 MHz (STM 300C) / 868.3 MHz (STM 300)
Radio Standard	EnOcean 868 MHz/315 MHz
Data rate/Modulation type	125 kbps/ASK
Receiver Sensitivity (at 25°C)	typ. -96 dBm (868MHz), -98dBm (315MHz) receiver available only via API
Conducted Output Power	typ. 5 dBm
Power Supply	2.1V–4.5V, 2.6V needed for startup
Current Consumption	Deep Sleep Mode: 0.2 μA Receive mode (via API only): 33 mA Transmit mode: 24 mA
Dimensions of PCB	22x19x3 mm
Input Channels	4x digital input, 2x WAKE input , 3x analog input Resolution: 3x 8bit or 1x 10bit, 1x 8bit, 1x 6bit
Operating temperature	-25 up to +85°C
Radio Regulations	R&TTE EN 300 220 (STM 300) FCC CFR-47 Part 15 (STM 300C)