Green.Smart.Wireless.
enocean®

Transceiver Modules
TCM 300 / TCM 300C / TCM 300U
TCM 320 / TCM 320C / TCM 320U

The transceiver modules TCM 300 and TCM 320 enable the realization of highly efficient radio actors, repeaters and gateways for the EnOcean systems with 868MHz, 315MHz and 902MHz.

The module provides several built-in operating modes. In addition a repeater functionality (1 or 2 level) can be activated. Using the Dolphin API library it is possible to write custom software for the module. The modules are in-system programmable.

Built-in operating modes
- Unidirectional serial communication
- Bidirectional serial communication
- 1-channel relay mode
- 4-channel relay mode
- 1-channel dimming mode

Features accessible via API:
- Integrated 16MHz 8051 CPU with 32KB FLASH and 2kB SRAM
- Various power down and sleep modes down to 0.2 µA current consumption
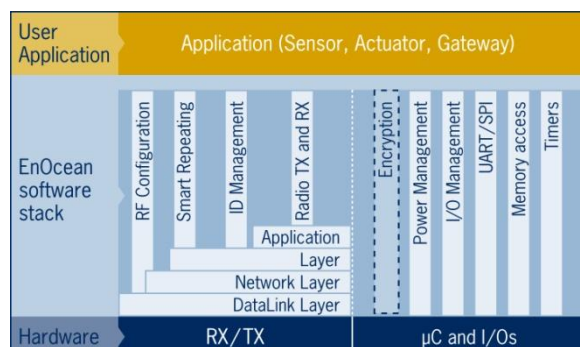- Up to 14 configurable I/Os
- 10bit ADC, 8bit DAC
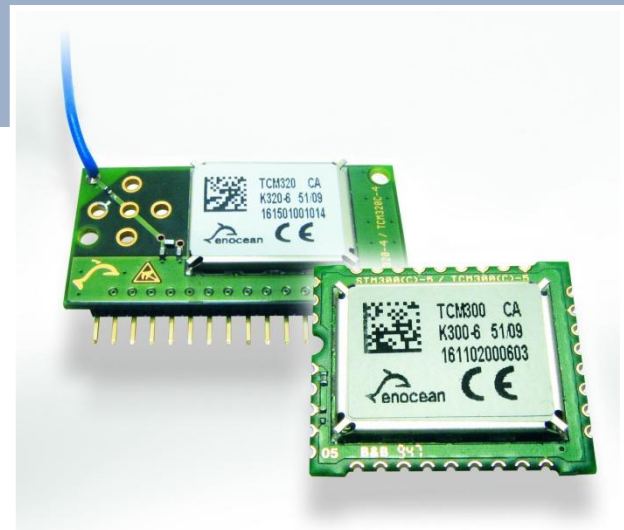
Energy Harvesting made easy with EnOcean wireless standard
TCM 300 is a bidirectional system module for maintenance-free sensor solutions based on the EnOcean wireless standard.

Product variants
- TCM 300/300C/300U: SMD mountable module for use with external antenna
- TCM 320/320C/320U: Variant for vertical mounting with pin connector and whip antenna.
- TCM 320C is backward compatible to TCM 220C

Type	Ordering Code
TCM 300	S3003-K300
TCM 320	S3003-K320
TCM 300C	S3033-K300
TCM 320C	S3033-K320
TCM 300U	S3053-K300
TCM 320U	S3053-K320

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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.
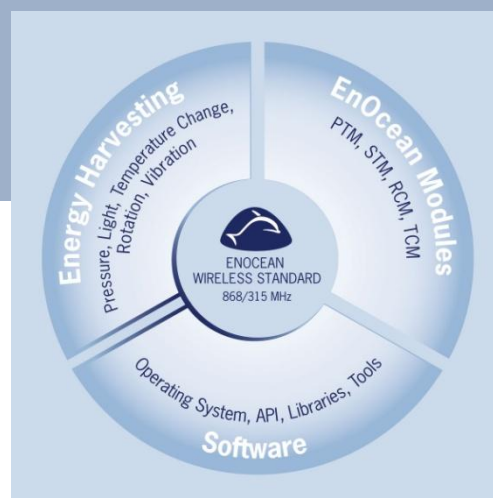
Benefits for OEM partner
- Maintenance-free sensor solution with energy harvesting
- Ready available and wide-ranging, interoperable system product portfolio
- Fast implementation and time to market
- Low investment in R&D, T&M, etc
- Various evaluation tools obtainable to support development
- Technical 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

Features overview

Antenna	Pre-installed whip antenna (TCM 320/320C/300U)
	External whip or 50 Ω antenna mountable (TCM 300/300C/300U)
Frequency	868.300MHz (TCM 300/320)[1]
	315.000MHz (TCM 300C/320C)[1]
	902.875MHz (TCM 300U/320U)
Data rate	125 kbps
Receiver Sensitivity (at 25°C)	typ. −96dBm (868MHz)
	typ. -98dBm (315MHz)
	typ. -98dBm (902MHz)
Power Supply	2.6 V–3.3 V (TCM 320/320C/320U)
	2.6 V–4.5 V (TCM 300/300C)
Current Consumption	Receive mode: typ. 33mA
	Transmit mode: typ. 24mA
Dimensions of PCB	36.5 x 18 x 5.5 mm (TCM 320/320C/320U)
	22x19x3 mm (TCM 300/300C/300U)
Operating temperature	−25 up to +85°C
Radio Regulations	R&TTE EN 300 220 (TCM 300/320)
	IC/FCC CFR-47 Part 15 (TCM 300C/320C/300U/320U)

1) According to ISO/IEC 14543-3-10   2) @ 0.1% telegram error rate (based on sub-telegrams)