

## Transceiver Modules TCM 300 / 300C and TCM 320 / 320C

**The transceiver modules TCM 300 /300C and TCM 320 / 320C enable the realization of highly efficient RF repeaters and transceivers for the EnOcean 868 MHz and 315 MHz radio systems.**

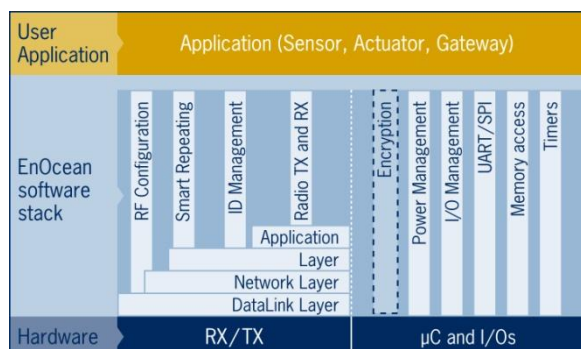
The module provides several built-in operating modes. In addition a repeater functionality (1 or 2 level) can be activated. Using the Dolphin API library it is possible to write custom software for the module. The modules are in-system programmable.

### 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  $\mu$ A 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: SMD mountable module for use with external antenna (868/315 MHz)
- TCM 320/320C: Variant for vertical mounting with pin connector. Whip antenna (868/315 MHz). TCM 320C is backward compatible to TCM 220C

### Type

TCM 300  
TCM 320  
TCM 300C  
TCM 320C

### Ordering Code

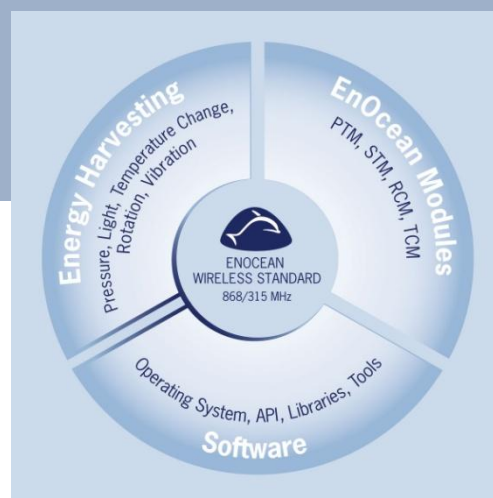
S3003-K300  
S3003-K320  
S3033-K300  
S3033-K320

## 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 TCM 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

### Features overview

|                                       |                                                                                                                               |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Antenna</b>                        | Pre-installed 9 cm/15 cm whip antenna (TCM 320/TCM 320C)<br>External whip or 50 $\Omega$ antenna mountable (TCM 300/TCM 300C) |
| <b>Frequency</b>                      | 315.0 MHz (TCM 300C / TCM 320C)<br>868.3 MHz (TCM 300 / TCM 320)                                                              |
| <b>Radio Standard</b>                 | EnOcean 868 MHz/315 MHz                                                                                                       |
| <b>Data rate/Modulation type</b>      | 125 kbps/ASK                                                                                                                  |
| <b>Receiver Sensitivity (at 25°C)</b> | typ. -96 dBm (868MHz), -98 dBm (315MHz)                                                                                       |
| <b>Power Supply</b>                   | 2.6 V–3.3 V (TCM 320/320C), 2.6 V–4.5 V (TCM 300/300C)                                                                        |
| <b>Current Consumption</b>            | Receive mode: 33 mA<br>Transmit mode: 24 mA                                                                                   |
| <b>Dimensions of PCB</b>              | TCM 320/320C: 36.5 x 18 x 5.5 mm (without pin connector)<br>TCM 300/TCM 300C: 22x19x3 mm                                      |
| <b>Operating temperature</b>          | -25 up to +85°C                                                                                                               |
| <b>Radio Regulations</b>              | R&TTE EN 300 220 (TCM 300/TCM 320)<br>FCC CFR-47 Part 15 (TCM 300C/TCM 320C)                                                  |