

ESK 300

EnOcean Starter Kit (868.3 MHz)



Observe precautions! Electrostatic sensitive devices!

Patent protected:

WO98/36395, DE 100 25 561, DE 101 50 128,
WO 2004/051591, DE 103 01 678 A1, DE 10309334,
WO 04/109236, WO 05/096482, WO 02/095707,
US 6,747,573, US 7,019,241

REVISION HISTORY

The following major modifications and improvements have been made to the first version of this document:

No	Major Changes
1.0	Converted to new Dolphin layout, change DolphinView Basic to DolphinView

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Important!

This information describes the type of component and shall not be considered as assured characteristics. No responsibility is assumed for possible omissions or inaccuracies. Circuitry and specifications are subject to change without notice. For the latest product specifications, refer to the EnOcean website: <http://www.enocean.com>.

As far as patents or other rights of third parties are concerned, liability is only assumed for modules, not for the described applications, processes and circuits.

EnOcean does not assume responsibility for use of modules described and limits its liability to the replacement of modules determined to be defective due to workmanship. Devices or systems containing RF components must meet the essential requirements of the local legal authorities.

The modules must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

Components of the modules are considered and should be disposed of as hazardous waste. Local government regulations are to be observed.

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1 GENERAL DESCRIPTION

1.1 Basic functionality

The EnOcean Starter Kit has been designed to demonstrate EnOcean's energy harvesting and ultra low power radio technology. The ESK 300 comes with two electro-mechanical push button generators for switches and a solar powered temperature sensor. Radio telegrams sent by the self-powered sensors are received via USB dongle and visualized in DolphinView PC software.



ESK 300 example image

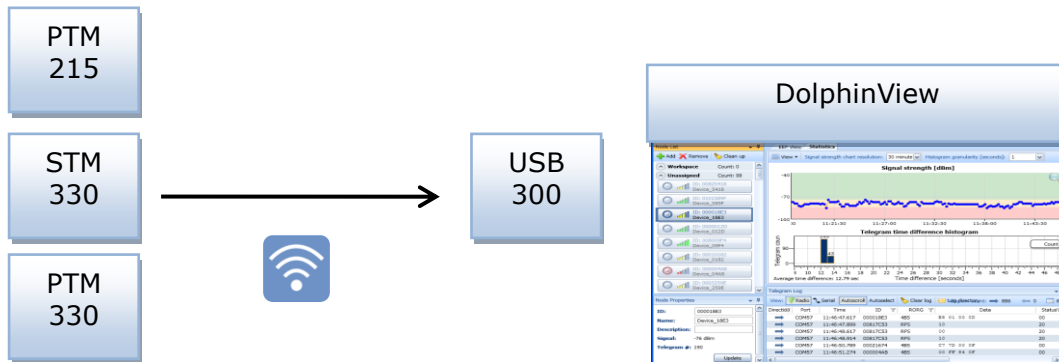
1.2 Content

- User Manual
- USB 300: USB Stick Gateway
- PTM 215: Self powered push button switch
- Rocker: Rocker for push button switch
- STM 33x: Self-powered temperature sensor
- ECO 200: Push button energy generator
- PTM 330: Push button radio module

2 FIRST STEPS

2.1 DolphinView

- DolphinView receives and interprets EnOcean radio telegrams.

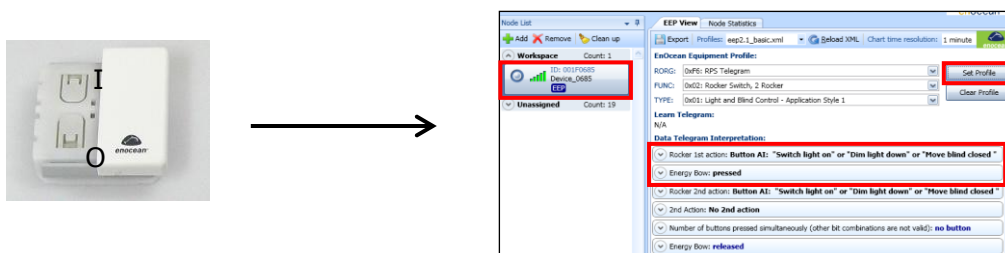


- Download & install DolphinView from EnOcean’s website: <http://www.enocean.com/en/download/>
- Execute the DolphinView setup program and follow instructions
- Connect the USB 300 to your PC or notebook
- Execute DolphinView and press the connect button

2.2 Demonstration of PTM 215 (EnOcean standard mode)

The push button radio transmitter module enables the implementation of wireless remote controls without batteries. Key applications are wall-mounted flat rocker switches, as well as handheld remote controls with up to 4 single push-buttons.

- Radio telegrams will be received via USB 300 and shown by DolphinView
- Press rocker to send switch telegram → PTM switch will be shown in node list
- Double click on PTM within the node list → PTM will be added to the node list
- Select node and press “Set Profile” button to interpret Equipment Profile
- Press rocker on I-side (marking on PTM switch) to send “switch on telegram”
- Press rocker on O-side (marking on PTM switch) to send “switch off telegram”

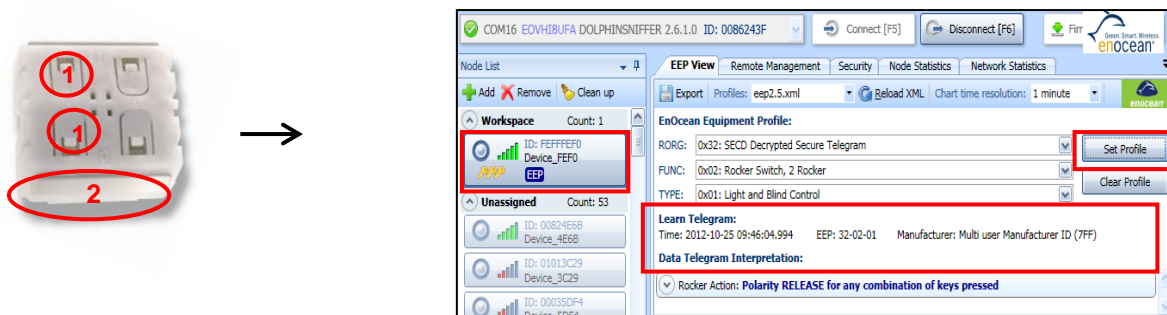


2.3 Demonstration of PTM 215 (Security Mode)

The self-powered PTM 215 switch comes with implemented security feature. PTM telegram contains a rolling code to prevent copying. PTM 215 supports normal mode and secure mode. In order to use the secure mode you need a transceiver firmware with encryption firmware or latest PC SW DolphinView with USB 300 stepcode DB or higher.

- Use USB 300 to receive secure telegrams
- Start DolphinView and connect to USB 300
- (PTM 215 DA: Hold down two contacts (1) and press the energy bow (2) one time)
- PTM 215 DB or higher: Hold down two contacts (1) and press the energy bow (2) two times (for details see PTM 215 user manual)
PTM will send a learn and synchronization telegram to the receiver
- Received (telegram log) and interpreted telegram (EEP view) will be shown
- Additional documentation is available at:

www.enocean.com/en/security-specification/ and
http://www.enocean.com/en/enOcean_modules/ptm-215/

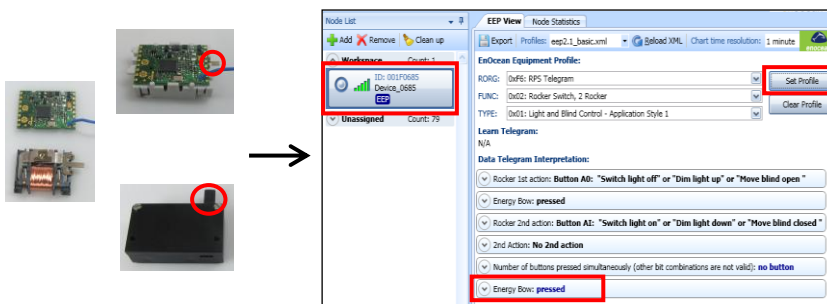


Remark: PTM 215 can be switched from secure mode to normal mode by simultaneously hold down four contact nipples and actuating the energy bow. Before changing the operating mode, make sure to clear the device from all learned receivers/gateways, otherwise receivers will ignore the telegrams and the application will not work.

2.4 ECO 200 & PTM 330 – Push Button Generator & Radio Module

The ECO 200 is an energy converter for linear motion. It can be used to power the PTM 330 radio module. The energy output at every actuation is sufficient to transmit 3 sub-telegrams with a free field range of 300m. Possible applications are miniaturized switches and sensors in building technology and industrial automation.

- Radio telegrams will be received via USB 300 and shown by DolphinView
- Press spring to send telegram -> PTM 330 will be shown in the node list
- Select node and press "Set Profile" button to interpret Equipment Profile
- Press spring to send telegram "Energy Bow: pressed"
- Pull spring to send telegram "Energy Bow: release"

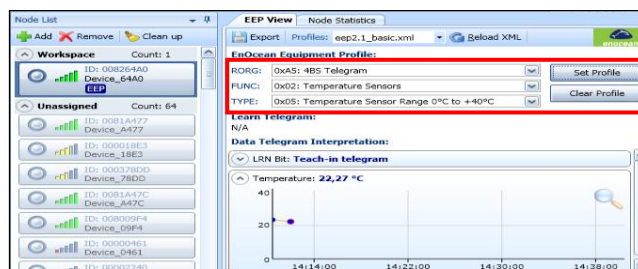
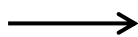
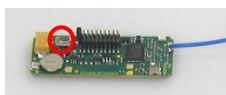


Remark: In order to send EnOcean standard radio telegrams according to the EEP specification, you need to set the right contact pins on PTM 330. Without doing this PTM 330 can't control a standard receiver/actuator. For details see PTM 330 user manual.

2.5 STM 33x – Self-powered Temperature Sensor

The STM33x is a solar powered module for wireless, maintenance-free temperature sensors and room operating panels. It can be extended with a humidity sensor.

- Radio telegrams will be received via USB 300 and shown by DolphinView
- Turn the STM 33x with solar cell faced up to harvest energy, indoor light will be sufficient
- Automatic EEP configuration:
If manufacturer ID is set (default) STM 33x will send a learn telegram with EEP type information after a short press of the learn button
- Manual EEP configuration:
Set following values at DolphinView EEP:
RORG: 0x0A5 4BS Telegram
FUNC: 0x02 Temperature Sensor
TYPE: 0x05 Temperature Sensor Range 0°C to +40°C
- STM 33x with default configuration sends periodical temperature values:
- Cyclic wake-up cycle: 100s (wake up and check temperature value)
Redundant retransmission min: 7 (min send interval every 7. wake up)
- Redundant retransmission max: 14 (max send interval every 14. wake up)

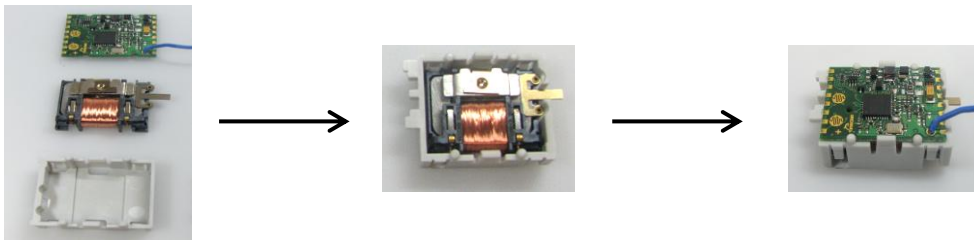


2.6 Push button switch example with ECO 200 and PTM 330

ESK 300 will be delivered with a housing example for PTM 330 and the ECO 200. This demonstrates how EnOcean's energy harvesting and ultra low power radio technology can be implemented within various environments.

Switch frame from the company SEMD (www.semd.de)

- Clip ECO 200 into SEMD plastic frame
- Clip PTM 330 on top of ECO 200
- Push tongue to send telegrams



3 References

- Data sheets and user manuals: www.enocean.com/en/enocean_modules/
- Software: www.enocean.com/download
- Additional information: www.enocean.com/knowledge-base/
- Technical support: support@enocean.com
- EnOcean Equipment Profiles: www.enocean-alliance.org/eep/

For developing hardware and software with EnOcean technology we recommend using our 868 MHz developer kit:

https://www.enocean.com/de/enocean_module/edk-350/