

USB 400J – USB Gateway

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USB 400J is equipped with the TCM 410J transceiver module and the gateway controller software. It provides bidirectional EnOcean radio protocol to devices with USB interface. Radio messages are sent and received through a virtual serial interface (FTDI Virtual COM Port). USB 400J provides additional information like signal strength (RSSI).

Control commands can be sent, e.g. to configure repeater functionality. Further information about supported commands and the software features can be found within the TCM 410J user manual - http://www.enocean.com/en/enocean_modules_928mhz/tcm-410j/

Features:

- Receive messages from self-powered switches and sensors
- Send messages and control actuators
- Visualization of radio telegrams with DolphinView Basic^{*)}
- Virtual COM Port driver (FTDI) for Microsoft Windows, Linux and Apple Mac
- Supports all message formats of EnOcean Equipment Profile
- EnOcean Serial Protocol 3
- Supports signal strength value
- Programmable repeater
- Enhanced security communication
- Remote management^{*)}
- Smart acknowledge ^{*)}

^{*)} For advanced analysis and protocol debugging we recommend EnOcean Developer Kit EDK 350.



Technical Data:

Housing size:	70 x 23 x 9mm (incl. transport cap)
OEM label size:	39 x 12mm
USB/power supply:	Type A
Weight:	12g
Operation temp.:	-20°C - +50°C
Operation humidity:	0% - 90%r.h. (no condensation)
Antenna:	PCB antenna
Radio regulation:	ARIB STD-T108

Security features:

- Decodes secured telegrams
- Encodes telegrams into secured telegrams
- Handling and storing Rolling Codes and Security Keys

Optional Status LEDs:

- Power LED:
Indicates USB power from the host
- USB activity LED:
Indicates USB bus activity, e.g. during Rx / Tx

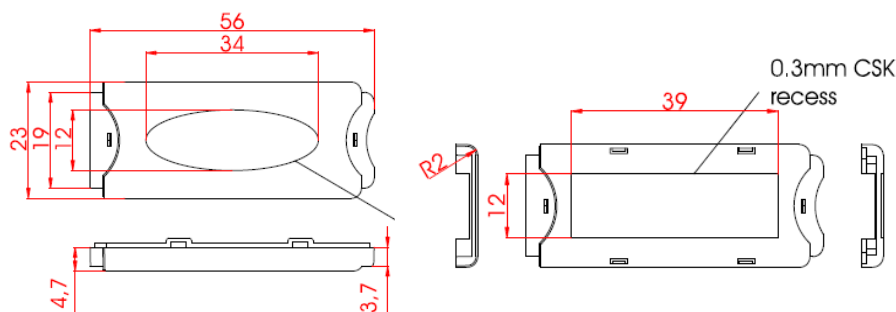
USB 400J is designed and produced as white labelled OEM product. Labels and housing can be changed to specific requirements of OEM manufacturers (original distributors).

Type
USB 400J

Ordering Code
S3064-K400

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Housing



Documentation of Protocols and EnOcean Profiles

USB 400J is based on a TCM 410J radio module, specific features and commands are described in TCM 410J User Manual. Please refer to the TCM 410J User Manual for radio certification information.

- **Plug'n play device drivers** are available from USB chip manufacturer FTDI Limited for the operating systems Microsoft Windows, Linux and Apple Mac OS: <http://www.ftdichip.com/FTDrivers.htm>
- If you want to develop for **other host platforms**, you can use or adapt available C-source code for Linux OS from FTDI Website: <http://www.ftdichip.com/Drivers/VCP.htm>
- USB 400J uses EnOcean Serial Protocol 3 for **control commands and data communication**. A description of ESP 3 is available at: <http://www.enocean.com/en/knowledge-base/>
- The content of EnOcean radio telegrams is standardized by the EnOcean Alliance. You will find the latest definition of **EnOcean Equipment Profiles** (EEP) at: <http://www.enocean-alliance.org/>

Additional Features of USB 400J

- USB 400J can be used as **repeater** of EnOcean telegrams; this will expand the range of radio devices. Repeater command has to be sent after every power up. For details see ESP3 command description of CO_WR_REPEATER within the ESP3 description:
- USB 400J can **filter** EnOcean telegrams; this can avoid heavy data load for the host system. For details see ESP3 command description of CO_WR_FILTER_ADD within the ESP3 description.
- USB 400J supports **remote management** of self-powered radio nodes. For details see TCM 310 and ESP3 command description of REMOTE_MAN_COMMAND within the ESP3 description.
- USB 400J supports **smart acknowledge** of self-powered radio nodes. This feature enables bidirectional communication for self-powered radio nodes. For details see TCM 410J and ESP3 command description of SMART_ACK_COMMAND within the ESP3 description.
- USB 400 commands are defined within TCM 410J User Manual and ESP3 documentation is available at: <http://www.enocean.com/en/knowledge-base/>

Hint:

For advanced analysis and protocol debugging we recommend EnOcean Developer Kit EDK 350 with DolphinView Advanced and Sniffer Software on TCM 4x0J.

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First Steps with USB 400J and DolphinView Basic

1. Register download and install DolphinView Basic:
<http://www.enocean.com/en/download/>
2. Plug USB 400J into free USB port the PC.
3. Start DolphinView Basic and connect to COM port
4. Press self-powered switch or learn button of sensor, DolphinView Basic will display telegram



Restrictions and Hints

- USB 400 should not be exposed to rapid temperature changes shortly before or during operation. Condensation of moisture might damage the device.
- USB 400 is not intended to be used in rough environment with heavy vibrations or mechanical shocks.
- The USB front cap is used as handling protection during delivery.
- Some PCs, notebooks or set top boxes might emit electromagnetic noise in the frequency band of 315MHz. EnOcean recommends the usage of USB extension cord (>=30cm) to reduce noise level of PCs.
- Installation location of radio nodes should be carefully planned. Application note AN001 at <http://www.enocean.com/en/application-notes/> will explain basic rules.
- Any USB 400J configurations done by ESP3 commands (e.g. repeater on, filter, maturity time) will be lost in case of power off. If you need these configurations permanent, make sure USB 400J has continues power or re-send commands after power down.
- USB 400J has been designed for usage with DolphinView Basic. For advanced protocol analysis and debugging we recommend the usage of EnOcean Developer Kit EDK 350 with DolphinView Advanced and Sniffer Software on TCM 410.
- USB 400J has been optimized for cyclic sending/receiving status values and not for continuous data communication; therefore the radio interface is limited to receive approx. 90 telegrams per second. Higher traffic can lead to telegram loss.
- Microsoft Windows increases the COM port number for every installed USB 400J (FTDI virtual COM port device). If the number reaches 255, you have to reset the device driver and follow the instructions from the company FTDI.

AGENCY CERTIFICATIONS

The modules have been tested to fulfil the approval requirements based on the built-in firmware. The USB 400J consists of the TCM 410J with PCB Antenna. For detailed description on antenna information please refer to the TCM 410J User Manual.

Japanese Type Approval

TCM 410J used on USB 410J complies with the Japanese radio law and is certified according to ARIB STD-T108.

When the product is placed on the Japanese market, it must carry the Specified Radio Equipment marking as shown below:



If the certification label cannot be recognized from outside (e.g. installation in a host) appropriate information must be referenced in the user manual.

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Notified Body Directive 99/5/EC
Notified Body EMC Directive 2014/30/EU
RF CAB under the Japan-EC MRA
FCB under the Canada-EC MRA
TCB under the USA-EC MRA

RF CAB ID No. 206

Designated by the German Regulator Bundesnetzagentur to act as a
Recognised Foreign Conformity Assessment Body in accordance with the Japan-EC MRA

CONSTRUCTION TYPE CONFORMITY CERTIFICATE for Specified Radio Equipment

Registration No.	JU000372D Rev.3
Certificate Holder	EnOcean GmbH Kolpingring 18a 82041 Oberhaching Germany
Product Category	Article 2, Paragraph 1, Item 8 (Y)
Product Designation	STM 400J, TCM 410J, USB 400J
Product Description	Scavenger Transceiver Module, Transceiver Module, USB Gateway
Software Release No.	–
Manufacturer	Katek GmbH Bahnhofstraße 108 83224 Grassau Germany

When the product is placed on the Japanese market, it must carry the Specified Radio Equipment marking as shown on the right



R 206-000372

The scope of evaluation relates to the submitted documents only.

This Certificate confirms that the listed product has demonstrated conformity with the relevant technical regulations defined in the attached Annex. It is only valid in conjunction with the Annex.