



USB-ENO-ASCII-U v.1.0.1

USB-ENO-ASCII-U-C v.1.0.1

USB ASCII to EnOcean gateway

User's Manual

r3 eng

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Gateway for integration of any EnOcean device into USB enabled controllers or PC software using simple text messages.

2 models are available for this gateway, with the following **Order Codes**:

USB-ENO-ASCII-U

EnOcean communication frequency: 868 MHz

USB-ENO-ASCII-U-C

EnOcean communication frequency: 315 MHz

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1. Presentation



Supervision and control of any EnOcean device from USB enabled controllers or PC software using simple text messages.

IntesisBox® USB-ENO-ASCII-U / C gateways allow supervision and bidirectional control of any EnOcean device from PC systems such as SCADA's or others using simple text messages.

1.1 Main Features:

- Bidirectional: Supervision and Control.
- Up to 128 transmission channels.
- Up to 99 reception channels
- Control of EnOcean devices using simple text messages.
- Spontaneous messages avoid continuous polling
- Fast and easy commissioning.
- USB Powered. No external power supply needed.
- Plug and Play (virtual COM port).
- Suitable look for home applications.
- Small dimensions.

1.2 Typical application

In Figure 1.1 it is shown a typical integration example of EnOcean devices in an ASCII system using the USB-ENO-ASCII-U / C



Figure 1.1 Integration example

1.3 Capacity of IntesisBox

| Element | Value | Notes |
|-----------------------|-------|--|
| Transmission channels | 128 | Number of EnOcean transmitters that the IntesisBox can emulate. |
| Reception channels | 99 | Number of EnOcean sensors that can be linked to the IntesisBox for supervision |

2. Connection and placement

2.1 Connection

1. Plug the gateway to the USB port of the computer or control system.
2. The red USB LED (internal LED) will turn on.
3. Once the device has been recognized a virtual COM port is going to be generated and the LED will turn off. If that doesn't happen the FTDI driver needs to be installed. They can be downloaded from <http://www.ftdichip.com/FTDrivers.htm>
4. To communicate with the gateway use the generated port either using direct ASCII commands (section 3) or the supplied dll and software (section 5).

2.1.1 Serial Port communication settings:

| | |
|---------------------|-----------|
| Baud rate | 9600 bps |
| Stop bit | 1 |
| Data bits | 8 |
| Flow control | None |
| Parity | No Parity |

Table 2.1 Serial port communication settings

2.2 Placement

The coverage distance (see Table 2.2) of the signal emitted by the USB-ENO-ASCII-U / C, or by any other EnOcean device, is determined by the room geometry and where they are placed. As an example, long narrow corridors with wide walls are an adverse situation. People or other obstacles can reduce the coverage distance too. Is therefore advice to always think in the worst possible scenario to decide the placement of the device to ensure a good stability in the radio system.

| Conditions | Coverage distance |
|--|---|
| Line-of-sight connections | typically 30 m range in corridors up to 100 m in halls |
| Plasterboard walls / dry wood | typically 30 m range, through 5 walls |
| Brick walls / aerated concrete | typically 20 m range, through 3 walls |
| Ferrocconcrete walls / ceilings | typically 10 m range, through 1 ceiling |

Table 2.2 Device coverage distance

2.2.1 Screening zones

It is important not to place the device in a place where the airwaves must go through a metallic object as they create a screening zone where the receivers are not going to be able to receive the EnOcean telegrams. This situation is shown in Figure 2.1a.

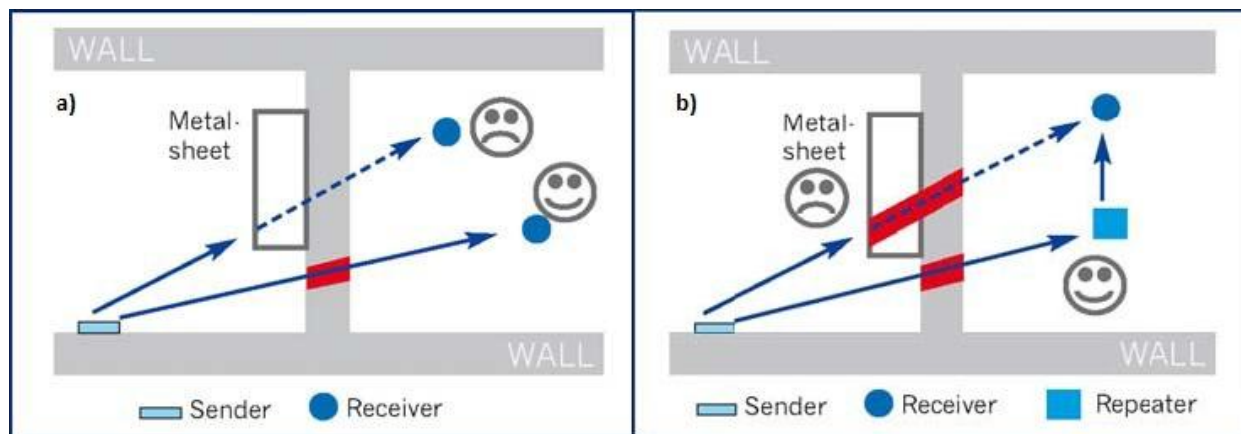


Figure 2.1 a) Screening zone b) solution with a repeater

The situation of one of the receivers doesn't allow it to receive the transceiver telegrams. To solve this situation the use of a repeater outside the screening zone (Figure 2.1b) is recommended. The telegrams will be retransmitted from there to the receiver.

2.2.2 Penetration Angle

This is the angle in which the airwaves reach a certain object they need to go through. The transmission to the other side of the object would be better as this angle gets closer to 90°, being this the best transmission situation.

In Figure 2.2a it is shown a receiver in a situation where the penetration angle is too close to 0°. The solution to that problem can be seen in Figure 2.2b using a repeater in a different position.

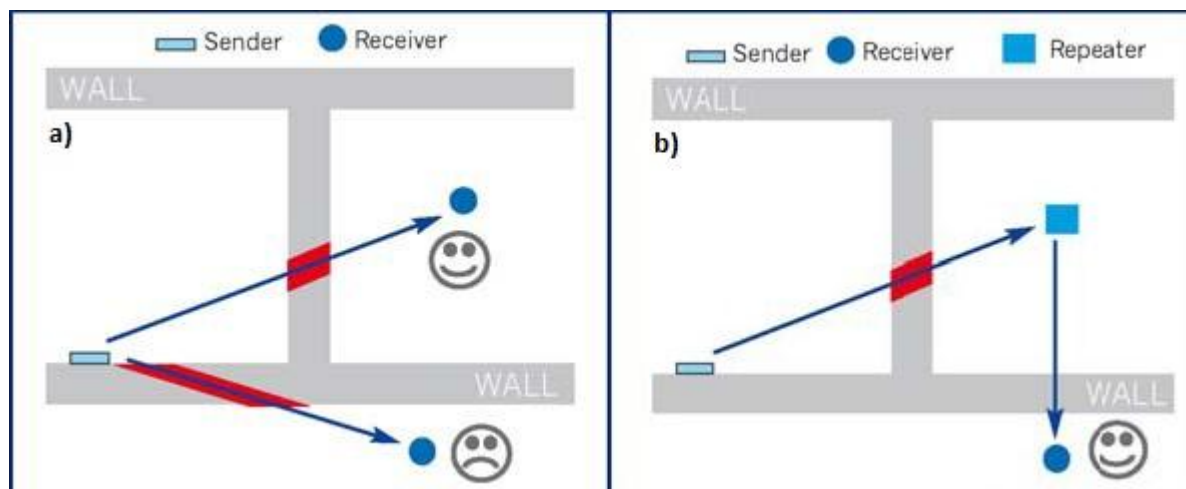


Figure 2.2 Penetration angle

2.2.3 Use of repeaters

In case of a poor radio reception, it may be helpful to use a repeater. EnOcean repeaters do not require any configuration, only a line-power supply is needed. A poor radio signal is received, refreshed and transmitted again, so nearly a double radio range can be achieved. Special EnOcean repeaters which can be switched to 2-level function allow two repeaters to be cascaded.

3. Configuration

The USB-ENO-ASCII-U configuration (parameters, teach-in, and learning procedures) is performed using ASCII commands (explained in section 4) or using the USB-ENO-ASCII-U Tool supplied with the Gateway (section 5). In the following lines a brief explanation of the involved parameters for each procedure is explained. If not done before follow the instructions on section 2.1 to connect and configure the COM port communication.

3.1 Teach-in (transmission)

The teach-in procedure is performed when an EnOcean device wants to be controlled from the ASCII system. The USB-ENO-ASCII-U behaves as an EnOcean transmitter with a unique ID for each transmission channel.

To link the USB-ENO-ASCII-U with an EnOcean receiver the following steps need to be followed.

1. Configure transmission channel (section 4.4 using commands or section 5 using the USB-ENO-ASCII-U Tool)
2. Set the receiver to learning mode (see receiver documentation)
3. Teach-in to the receiver (section 4.6 or section 5 using the USB-ENO-ASCII-U Tool)

3.2 Learning (reception)

The Learning procedure is performed when an EnOcean device wants to be supervised from the ASCII system. The USB-ENO-ASCII-U behaves as an EnOcean receiver getting the information of a single EnOcean device in that reception channel.

To link the USB-ENO-ASCII-U with an EnOcean transmitter the following steps need to be followed.

1. Set the desired channel to Learning (section 4.8 using commands or section 5 using the USB-ENO-ASCII-U Tool)
2. Send a teach-in telegram from the EnOcean transmitter (see device documentation)
3. The device is learned when this telegram is received and the information will be transmitted to the ASCII system

4. Commands

In this section, the ASCII commands to communicate with the IntesisBox are explained. The gateway it is supplied with a dll and software to ease the communication. More information can be found in section 5.

All queries and responses have the same structure, which consists of one keyword followed by a comma and a list of parameters separated by commas. The following generic representation may help to understand this structure:

<keyword>,<parameter_1>,...,<parameter_n>

When a command is sent to USB-ENO-ASCII-U, it is executed by sending a carriage return (\r). Combinations with line feed are accepted, such as \r\n and \n\r.

If user is typing commands manually, or a buffer flush is needed by some reason, sending the character with ASCII value 26 (CTRL+Z) will produce a flush into the command reception buffer of USB-ENO-ASCII-U, and the device will answer with a carriage return (\r)

Sections 4.7 to 4.13 follow the same structure: A request and a response section (and their subsections if apply). In them the commands specific implementation of the abovementioned structure is explained.

A subset of replies has been defined:

- Command confirmation: It only specifies if the command has been accepted and transmitted, or not
- Procedure confirmation: It specifies if the procedure has been executed successfully or not
- Answer for an specific channel: Value/s of the command in the enquired channel
- Answer for all channels: Value of the command for all channels

4.1 Commands quick reference

In Table 4.1 a list of the possible commands can be found. They are grouped in four different sections: Responses, Transmission, Reception and Configuration. Transmission and Reception commands can have dependencies (that can be found in their sections)

| Group | Command | Meaning | Section |
|---------------|----------------|--|----------------|
| Responses | ER | Error | Section 4.2 |
| | OK | OK | Section 4.3 |
| Transmission | CT | Configure Transmission Channel | Section 4.4 |
| | GT | Get Transmission Channel Configuration | Section 4.5 |
| | TH | Teach Transmission Channel | Section 4.6 |
| | TX | Transmit EnOcean Data | Section 4.7 |
| Reception | LR | Learn Rx Channel | Section 4.8 |
| | GR | Get Rx Channel | Section 4.9 |
| | RX | Read received EnOcean Data | Section 4.10 |
| | SP | Spontaneous Data Received | Section 4.11 |
| | DE | Delete Rx Channel | Section 4.12 |
| Configuration | CF | IBOX Configuration | Section 4.13 |
| | ID | Identification | Section 4.14 |

Table 4.1 Commands quick reference

4.2 Error (ER) values

| Error Code | Enumeration Name | Description |
|-------------------|---------------------------|--|
| 1 | ERR_NOT_LINKED | Not linked channel |
| 2 | ERR_SYNTAX | Syntax error |
| 3 | ERR_INCORRECT_CHANNEL | Incorrect channel (channel out of range) |
| 4 | ERR_INCORRECT_VALUE | Incorrect value (value out of range) |
| 5 | ERR_INCORRECT_PARAM_INDEX | Incorrect parameter index (index out of range) |
| 6 | ERR_TOO_LONG_COMMAND | Entered string is too long (> 63 characters) |

4.3 OK values

| OK Code | Enumeration Name | Description |
|----------------|-------------------------|--------------------------------|
| 0 | OK_COMMAND | Command received and parsed OK |

4.4 Config Tx Channel (CT)

4.4.1 Config Tx Channel Request

| Description | | | |
|-------------------|------|---|----------------|
| Config Tx Channel | | | |
| Keyword | | | |
| CT | | | |
| Dependencies | | | |
| None | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Tx channel index | 001 to 128 |
| 2 | 2 | ORG (Hex) ¹ | 00 to FF |
| 3 | 2 | Function (Hex) ¹ | 00 to FF |
| 4 | 2 | Type (Hex) ¹ | 00 to FF |
| Examples | | Description | |
| CT,001,07,20,10\n | | Sets the tx channel 001 the EEP [07-20-10] ¹ | |

4.4.2 Config Tx Channel Response

| Description | | | |
|--------------------------------------|------|---|-------------------------------------|
| A command and procedure confirmation | | | |
| Keyword1 | | | |
| OK | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | OK index | OK_COMMAND |
| Examples | | Description | |
| OK,0\r | | Command received, parsed and executed OK | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_SYNTAX ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

¹ More information can be found in the EnOcean Equipment Profiles (EEP) V2.1 or in section 5

4.5 Get Tx Channels (GT)

4.5.1 Get Tx Channels Request

| Description | | | |
|---|------|--|---|
| Returns info about the given Tx Channel index | | | |
| Keyword | | | |
| GT | | | |
| Dependencies | | | |
| None | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Channel index | 001 to 128 – Channel *** - All the channels are listed |
| Examples | | Description | |
| GT,003\r | | List Channel 03 | |
| GT,***\r | | List all channels. It will list all 128 channels | |

4.5.2 Get Tx Response

4.5.2.1 Get Tx Response for an specific channel

| Description | | | |
|---|------|--|-----------------------|
| Status information of the requested channel | | | |
| Keyword1 | | | |
| GT | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Channel index | 001 to 128 |
| 2 | 2 | ORG (Hex) | 00 to FF |
| 3 | 2 | Function (Hex) | 00 to FF |
| 4 | 2 | Type (Hex) | 00 to FF |
| 5 | 8 | Transmit ID (Hex) | FF800000 to FFFFFFFF |
| Examples | | Description | |
| GT,003,FF,FF,FF,FFFFFFFF\r | | Tx Channel 003 is not defined (ORG, FUNC and Type are FF) | |
| GT,128,07,20,11,FFB841FF\r | | Tx Channel 128 is defined with EEP [07-20-11] and sender ID will be 0xFFB841FF | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

4.5.2.2 Get Tx Channel response for all channels

| Description | | | |
|---|-------------|--|-----------------------|
| Status information of all channels. The result is the same as iterate over the single Obtain Tx Channel | | | |
| Keyword1 | | | |
| GT | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Channel index | 001 to 128 |
| 2 | 2 | ORG (Hex) | 00 to FF |
| 3 | 2 | Function (Hex) | 00 to FF |
| 4 | 2 | Type (Hex) | 00 to FF |
| 5 | 8 | Txmit ID (Hex) | FF800000 to FFFFFFFF |
| Examples | | Description | |
| GT,001,07,10,01,000841AA\r | | Tx Channel 001 is defined with EEP [07-10-01] and sender ID will be 0xFFB841AA | |
| GT,002,FF,FF,FF,FFFFFFF\r | | Tx Channel 002 is not defined | |
| GT,003,FF,FF,FF,FFFFFFF\r | | Tx Channel 003 is not defined | |
| . | | . | |
| . | | . | |
| . | | . | |
| GT,128,07,20,11,FFB841FF\r | | Tx Channel 128 is defined with EEP [07-20-11] and sender ID will be 0xFFB841FF | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

4.6 Teach Tx Channel (TH)

4.6.1 Teach request

| Description | | | |
|--|------|--------------------------|----------------|
| Teach Tx Channel | | | |
| Keyword | | | |
| TH | | | |
| Dependencies | | | |
| The Tx channel needs to be configured before being able to teach in. Use the command CT to do so (section 4.4). | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Tx channel index | 001 to 128 |
| Example | | Description | |
| TH,001\n | | Teach the tx channel 001 | |
| TH,128\n | | Teach the tx channel 128 | |

4.6.2 Teach response

| Description | | | |
|--------------------------------------|------|--|---|
| A command and procedure confirmation | | | |
| Keyword1 | | | |
| OK | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | OK index | OK_COMMAND |
| Examples | | Description | |
| OK,0\r | | Command received, parsed and executed OK | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_NOT_LINKED ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| ER,1\r | | The channel has not been configured. Information on how to do so can be found in section 4.4 | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

4.7 Transmit EnOcean Data (TX)

4.7.1 Transmit Request

| Description | | | |
|---|------|--|----------------|
| Transmits the given data to EnOcean. Which data is needed can be found in the EnOcean Equipment Profiles (EEP) V2.1 or in section 5 | | | |
| Keyword | | | |
| TX | | | |
| Dependencies | | | |
| The Tx channel needs to be configured before being able to teach in. Use the command CT to do so (section 4.4). | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 3 | Tx Channel | 001 to 128 |
| 2 | 2 | Bytes to transmit (n) | 01 to 04 |
| 3 | 2 | Data Byte 0 (Hex) | 00 to FF |
| ... | 2 | ... | 00 to FF |
| n+2 | 2 | Data Byte n-1 (Hex) | 00 to FF |
| n+3 | 2 | Status byte (Hex) | 00 to FF |
| Example | | Description | |
| TX,003,04,80,FF,FF,A0,00\r | | Transmits the data 0x80, 0xFF, 0xFF, 0xA0 and status 0x00 to channel 3 | |

4.7.2 Transmit Response

| Description | | | |
|--------------------------------------|------|--|--|
| A command and procedure confirmation | | | |
| Keyword1 | | | |
| OK | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | OK index | OK_COMMAND |
| Examples | | Description | |
| OK,0\r | | Command received, parsed and executed OK | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_NOT_LINKED ERR_SYNTAX ERR_INCORRECT_CHANNEL ERR_INCORRECT_VALUE |
| Examples | | Description | |
| ER,1\r | | The channel has not been configured. Information on how to do so can be found in section 4.4 | |
| ER,2\r | | The written command is incorrect | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |
| ER,4\r | | Incorrect value (the written value is out of the valid range) | |

4.8 Learning Rx Channel (LR)

4.8.1 Learning request

| Description | | | |
|-----------------------------------|------|--|--|
| Set a Rx Channel to Learning Mode | | | |
| Keyword | | | |
| LR | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 00 – Exits Learning mode 01 to 99 – Channel |
| Important | | | |
| | | | |
| Examples | | Description | |
| LR,00\r | | Exits commissioning mode | |
| LR,03\r | | Sets channel 03 to Learning mode. If a teach-in telegram from an EnOcean device is received this device is going to be linked to rx channel 03 | |

4.8.2 Learning reply

4.8.2.1 Learning Command Confirmation

| Description | | | |
|-------------------------------|------|---|-------------------------------------|
| Learning Command Confirmation | | | |
| Keywords | | | |
| OK ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Error or OK index | OK_COMMAND ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| OK,0\r | | The Remote commissioning command was executed successfully | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

Learning Procedure Confirmation

| Description | | | |
|---|------|---|---|
| Learning Procedure Confirmation. Correct Teach-in received from a device. It stores the sent data to the IBOX | | | |
| Keywords | | | |
| LR | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 01 to 99 – Channel |
| 2 | 2 | ORG (Hex) | ORG of device linked to this Rx Channel |
| 3 | 2 | Function (Hex) | Function of device linked to this Rx Channel |
| 4 | 2 | Type (Hex) | Type of device linked to this Rx Channel |
| 5 | 4 | Manufacturer (Hex) | Manufacturer of device linked to this Channel |
| 6 | 8 | ID (Hex) | ID of device linked to this Rx Channel |
| Examples | | Description | |
| LR,01,07,10,02,0019,00038263\r | | The linked device in Channel 01 has the EEP [07-10-02], Manufacturer is 0x0019 (Intesis) and its ID is 0x00038263 | |

4.9 Get Rx Channel (GR)

4.9.1 Get Rx Channel Request

| Description | | | |
|---|------|--|---|
| Obtains info about the given Rx Channel Index | | | |
| Keyword | | | |
| GR | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 01 to 99 – Channel ** - All channels |
| Important | | | |
| | | | |
| Examples | | | |
| GR,**\r | | Request for info about all Rx channels | |
| GR,01\r | | Request for info about channel 01 | |

4.9.2 Get Rx Channel Reply

| Description | | | |
|--------------------------------------|------|---|--|
| The info about this Rx Channel Index | | | |
| Keywords | | | |
| GR | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 01 to 99 – Channel |
| 2 | 2 | ORG (Hex) | ORG of device linked to this Rx Channel |
| 3 | 2 | Function (Hex) | Function of device linked to this Rx Channel |
| 4 | 2 | Type (Hex) | Type of device linked to this Rx Channel |
| 5 | 4 | Manufacturer (Hex) | Manufacturer of device linked to this Rx Channel |
| 6 | 8 | ID (Hex) | ID of device linked to this Rx Channel |
| Examples | | Description | |
| GR,01,07,10,02,0019,00038263\r | | The linked device in Channel 01 has the EEP [07-10-02], Manufacturer is 0x0019 (Intesis) and its ID is 0x00038263 | |
| OR,94,FF,FF,FF,FFFF,FFFFFFFF\r | | There is no linked device in Rx Channel 94 | |

4.10 Read received Data (RX)

4.10.1 Receive request

| Description | | | |
|--|------|----------------------------------|--------------------|
| Request the last info received in the given Rx Channel. How to interpret this data can be found in the EnOcean Equipment Profiles (EEP) V2.1 or in section 5 | | | |
| Keyword | | | |
| RX | | | |
| Dependencies | | | |
| The Rx channel needs to be learnt before being able to read it. Use the command GR to do so (section 4.9). | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 01 to 99 – Channel |
| Examples | | Description | |
| RX,01\r | | Requests data from Rx Channel 01 | |

4.10.2 Receive response

| Description | | | |
|---------------------------|------|---|---|
| Receive command reply | | | |
| Keywords | | | |
| RX | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | RX Channel Index | 01 to 99 – Channel |
| 2 | 2 | Number of bytes (n) | 01 to 04 |
| 3 | 2 | Data Byte 0 (Hex) | 00 to FF |
| ... | 2 | ... | 00 to FF |
| n+2 | 2 | Data Byte n-1 (Hex) | 00 to FF |
| n+3 | 2 | Status Byte (Hex) | 00 to FF |
| Examples | | Description | |
| RX,01,04,0F,74,7B,E2,00\r | | The received data is a 4-byte length array with values {0x0F, 0x74, 0x7B, 0xE2} and status 0x00 | |
| Keyword2 | | | |
| ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error index | ERR_NOT_LINKED ERR_SYNTAX ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| ER,1\r | | The channel has not been configured. Information on how to do so can be found in section 4.8 | |
| ER,2\r | | The written command is incorrect | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

4.11 Spontaneous (SP)

| Description | | | |
|---|------|---|--------------------|
| Spontaneous received data. How to interpret this data can be found in the EnOcean Equipment Profiles (EEP) V2.1 or in section 5 | | | |
| Keywords | | | |
| SP | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | RX Channel Index | 01 to 99 – Channel |
| 2 | 2 | Number of bytes (n) | 01 to 04 |
| 3 | 2 | Data Byte 0 (Hex) | 00 to FF |
| ... | 2 | ... | 00 to FF |
| n+2 | 2 | Data Byte n-1 (Hex) | 00 to FF |
| n+3 | 2 | Status Byte (Hex) | 00 to FF |
| Examples | | Description | |
| SP,01,04,0F,74,7B,E2,00\r | | The received data is a 4-byte length array with values {0x0F, 0x74, 0x7B, 0xE2} and status 0x00 | |

4.12 Delete Rx Device (DE)

4.12.1 Delete Device Request

| Description | | | |
|---|------|---------------------------------------|--------------------|
| Deletes the device linked to the given Rx Channel Index | | | |
| Keyword | | | |
| DE | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Channel index | 01 to 99 - Channel |
| Important | | | |
| Periodic writing must be avoided due to limited write cycles to flash memory. | | | |
| Examples | | Description | |
| DE,01\r | | Delete device linked to Rx Channel 01 | |

4.12.2 Delete Response

| Description | | | |
|-------------------------|------|---|-------------------------------------|
| Device deleted response | | | |
| Keywords | | | |
| OK ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | OK index | OK_COMMAND ERR_INCORRECT_CHANNEL |
| Examples | | Description | |
| OK,0\r | | Device deleted successfully from the given Rx Channel | |
| ER,3\r | | Incorrect channel (the channel written is out of the valid range) | |

4.13 Configuration (CF)

4.13.1 Configuration request

| Description | | | |
|--|--|---|---|
| Sets or gets a configuration parameter in the USB-ENO-ASCII-U | | | |
| Keyword | | | |
| CF | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Configuration Parameter number | 01 to 06 |
| 2 | 2 | Value | ?? – requests parameter value Other values in following table |
| Configuration parameters allowed values | | | |
| Parameter number | Size | Description | Allowed Values |
| 01 | 2 | Spontaneous sending enabled | 0 - Disable 1 - Enable (default) |
| 02 | 2 | Echo enabled | 0 - Disable (default) 1 - Enable |
| 03 | 2 | Error Led enabled | 0 - Disable 1 - Enable (default) |
| 04 | 2 | Communication and learning Led enabled | 0 - Disable 1 - Enable (default) |
| 05 | 2 | Spontaneous to ASCII are sent on every known EnOcean telegram received. If disabled, spontaneous to ASCII are sent only when data in EnOcean telegram has changed | 0 - Disable 1 - Enable (default) |
| 06 | 2 | Repeater mode | 0 - Disable (default) 1 - 1-Level repeater 2 - 2-Level repeater |
| Important | | | |
| Configuration parameters are stored in internal flash. Periodic writing must be avoided due to limited write cycles to flash memory. | | | |
| Examples | Description | | |
| CF,01,01\r | Enables spontaneous messages | | |
| CF,01,??\r | Request if the spontaneous messages are enabled or not | | |

4.13.2 Configuration response

4.13.2.1 Configuration command and procedure confirmation

| Description | | | |
|---|------|--|---|
| It's a configuration command confirmation | | | |
| Keywords | | | |
| OK ER | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 1 | Error or OK index | OK_COMMAND ERR_SYNTAX ERR_INCORRECT_PARAMETER_INDEX |
| Examples | | Description | |
| OK,0\r | | The write command was correct | |
| ER,2\r | | Syntax error in the write command | |
| ER,5\r | | Incorrect parameter index (index out of range) | |

4.13.2.2 Configuration answer

| Description | | | |
|---|------|----------------------------------|-------------------------------|
| It only applies when there is an enquire in the channel | | | |
| Keyword | | | |
| CF | | | |
| Parameters | | | |
| Index | Size | Description | Allowed Values |
| 1 | 2 | Configuration Parameter | 01 to 06 |
| 2 | 2 | Value of the parameter | Values from the request table |
| Examples | | Description | |
| CF,01,01\r | | Spontaneous messages are enabled | |

4.14 Identification (ID)

4.14.1 Identification request

| Description | |
|------------------------------|------------------------------|
| Retrieves device information | |
| Keyword | |
| ID | |
| Parameters | |
| No parameters | |
| Example | Description |
| ID\r | Retrieves device information |

4.14.2 Identification response

| Description |
|--|
| Device information containing: <ul style="list-style-type: none"> • Device name • Firmware version • Manufacturer |
| Keyword |
| OK. It is used to terminate the information |
| Example |
| <pre> USB-ENO-ASCII-U\r FW ver: v1.0.0\r Intesis Software, SL (C) 2011\r \r OK,0\r </pre> |

5. USB-ENO-ASCII-U Tool (Software and dll)

The USB-ENO-ASCII-U is supplied with an interpretation Dll and a software tool to ease the interpretation of the telegrams and the integration of the gateway in the existing system. In the following lines their description can be found.

5.1 Setup

A setup to install the USB-ENO-ASCII-U Tool is supplied. Check the link in the installation sheet supplied with the device to access to ensure that you have latest version.

To install the software just follow its instructions. This setup will install the USB-ENO-ASCII-U Tool as well as all the associated documentation (including in it the interpretation dll and its documentation) in *C:\Program Files\Intesis\USB-ENO-ASCII-U Tool*

5.2 USB-ENO-ASCII-U Tool

The USB-ENO-ASCII-U Tool is a software supplied with the USB-ENO-ASCII-U to ease the use and interpretation of the ASCII telegrams and as an example of how to use the communication dll (section 5.3).

In the following lines a brief explanation can be found.

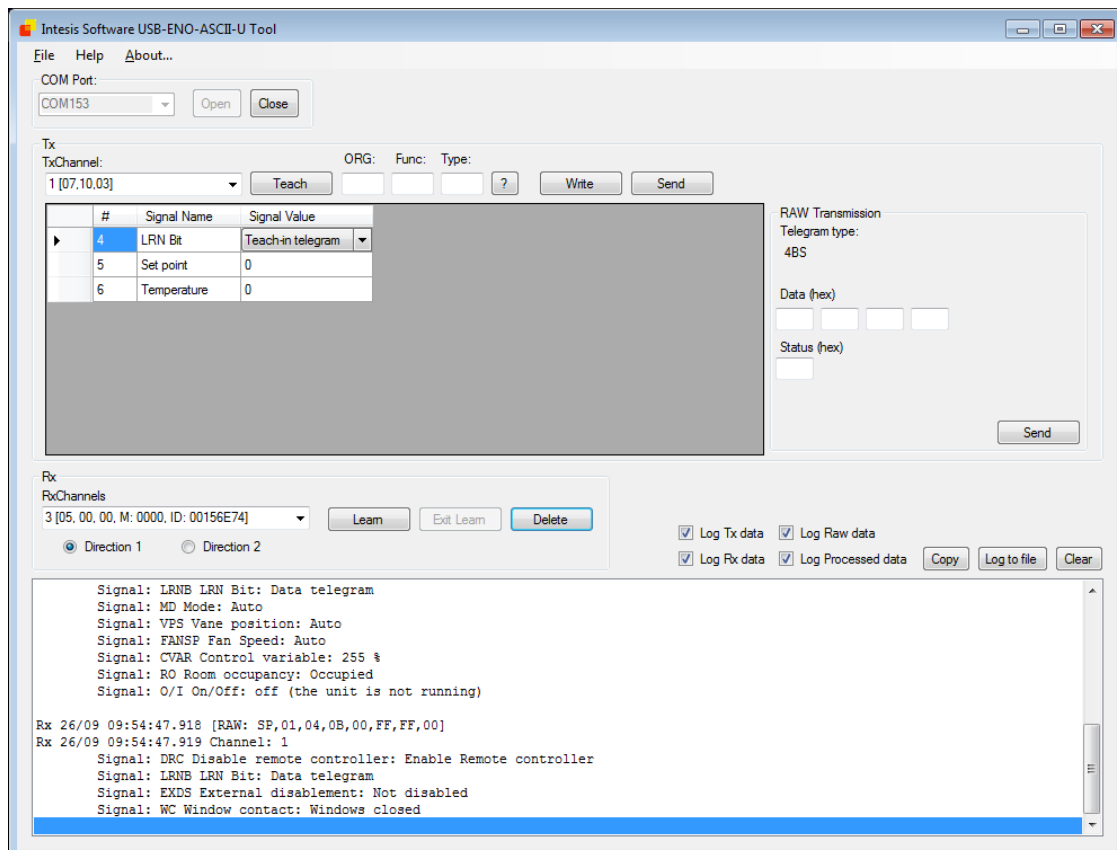


Figure 5.1 USB-ENO-ASCII-U Tool

The USB-ENO-ASCII-U Tool is composed by five differentiated sections:

5.2.1 Menu

The following menu items can be found in the software:

- File: To exit the software
- Help: Opens the user manual
- About: Info about the software

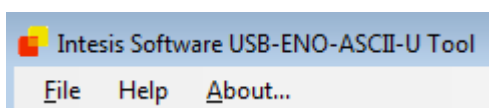


Figure 5.2 USB-ENO-ASCII-U Menu

5.2.2 COM configuration

The COM Port can be selected and open. Once that is done the USB-ENO-ASCII-U Tool retrieves all the data from the gateway. Once this process finishes, the transmit and reception sections are populated with the actual status of the gateway.

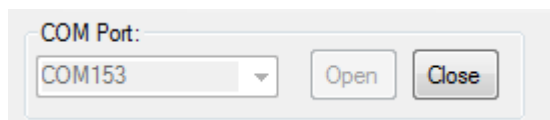


Figure 5.3 Port selection

5.2.3 Tx (Transmission)

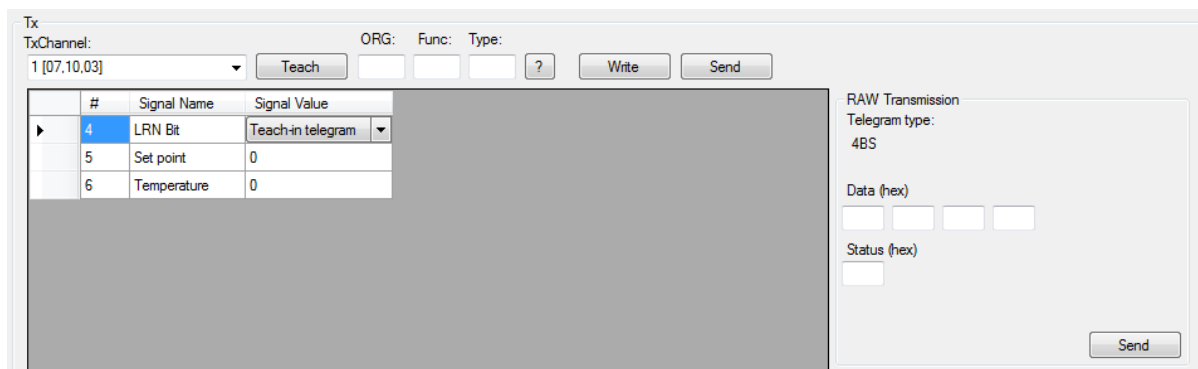
In this section is where data can be sent over EnOcean.

USB-ENO-ASCII-U transmit channel can be selected. Once that is done, the USB-ENO-ASCII-U allows performing a Teach (if the selected channel is configured previously) and permits to configure it by setting an EEP. More information about EEPs can be found when pressing the ? button

When a Tx Channel is selected and configured, data can be sent through this channel. There are two modes to send data:

1. Using an EEP (EEP Transmission)
2. Freely, not using an EEP (RAW Transmission)

By this reason, Tx section is composed by two subsections:



EEP Transmission

EEP Transmission subsection is composed by a grid, on which a set of signals can be set in order to build the corresponding EnOcean telegram automatically.

Three different cases can be found when using EEPs

- Rocker switch (RPS)

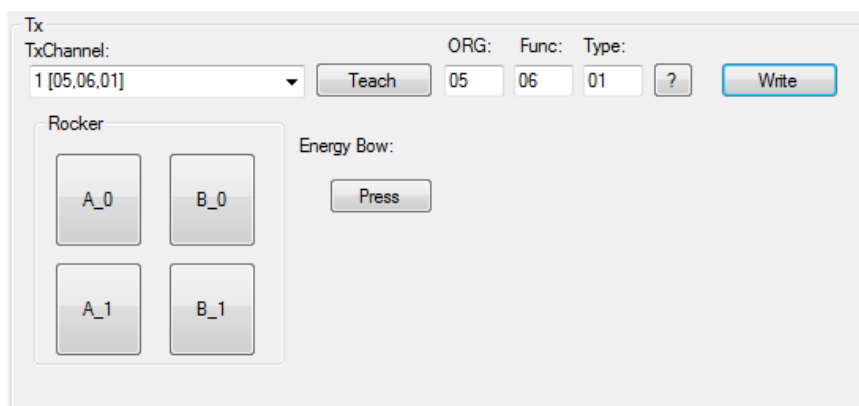


Figure 5.4 Rocker switch data transmission

When a rocker switch (RPS) device is selected a simulation of the actual device is shown. There are four buttons and the Press one. To send the desired data press the buttons to be sent out and once they are selected the "Energy bow" button needs to be pressed (see picture Figure 5.5). That will send the telegram to EnOcean

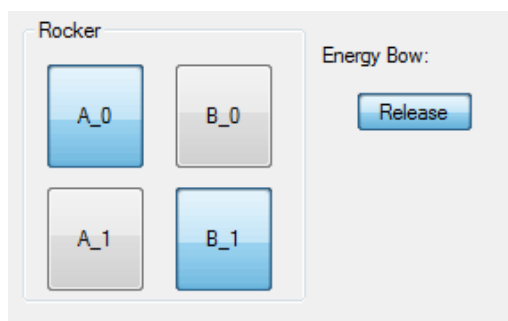


Figure 5.5 Rocker switch pressed

When the Energy bow is pressed again the release message is going to be sent out.

- Other unidirectional EEPs (only one direction defined in the standard)

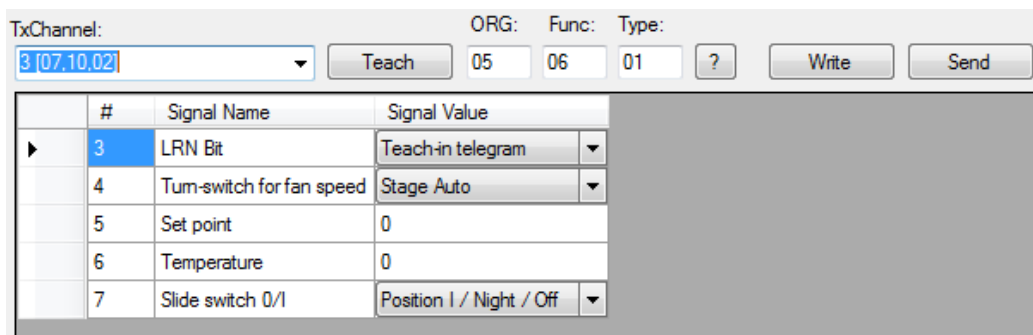


Figure 5.6 Transmission of unidirectional EEPs

The values of the EEP with their description can be found. When the signals are set with the desired value, the "Send" button will build the corresponding EnOcean telegram and send it.

- Bidirectional EEPs

When the configured EEP is bidirectional the first thing to do is to select the desired direction (

Figure 5.7).

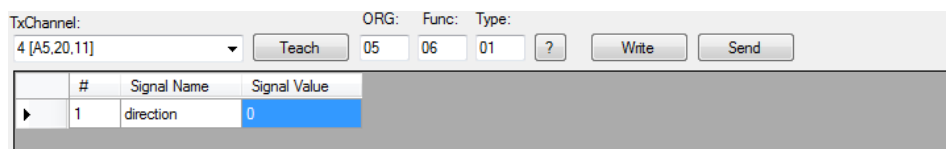


Figure 5.7 Direction selection

Once it is selected the procedure is the same as the unidirectional EEPs (

Figure 5.8)

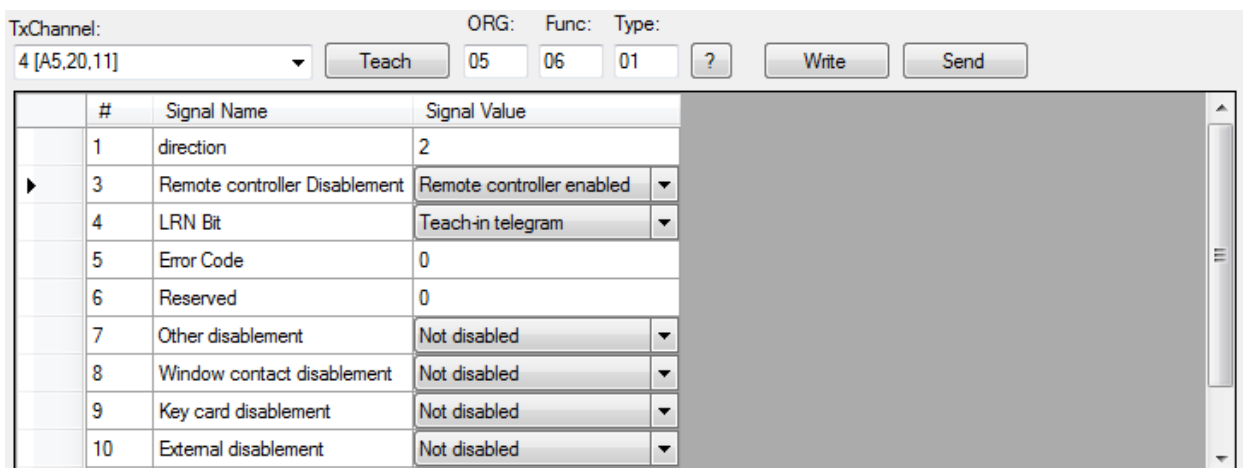


Figure 5.8 Bidirectional data

RAW Transmission

RAW Transmission

Telegram type:
4BS

Data (hex)

Status (hex)

Send

RAW Transmission subsection is composed by a set of text boxes and a Send button:

The amount of data that can be sent depends directly on the Telegram Type:

- RPS: 1 data byte and 1 status byte
- 1BS: 1 data byte and 1 status byte
- 4BS: 4 data byte and 1 status byte

When the text boxes are filled with the data to be sent (written in Hex notation), the telegram can be sent pressing "Send" button.

5.2.4 Rx (Reception)

In this section is where the learning procedure can be performed and where all the received data of learned devices is showed.

Rx

RxChannels

3 [05, 00, 00, M: 0000, ID: 00156E74]

Learn Exit Learn Delete

Direction 1 Direction 2

1. Rx channels: Information of the reception channels of the gateway. The information displayed can be interpret as follows:

CC [ORG, FUNC, TYPE, MANUFACTURER, ID] where:

- CC: gateway channel
- ORG, FUNC, TYPE: ORG, FUNC and TYPE of the EnOcean device (EEP)
- MANUFACTURER: Manufacturer of the device
- ID: Unique ID of the device

If no device is linked to the channel this information is not available and instead the string -Not linked- is showed.

2. Learn: Sets the gateway to learning mode. That means that new EnOcean devices can be linked and the gateway will transmit their information to the ASCII interface.
3. Exit Learn: It exits the learning mode.
4. Delete: Erases the linked device on the selected channel.
5. Direction. For EEPs that have two directions the desired interpretation can be chosen. That will affect the Rx log data if shown processed.

5.2.5 Log

Area where all the data send / received is showed either as it is send (row data) or interpreted by the Software.

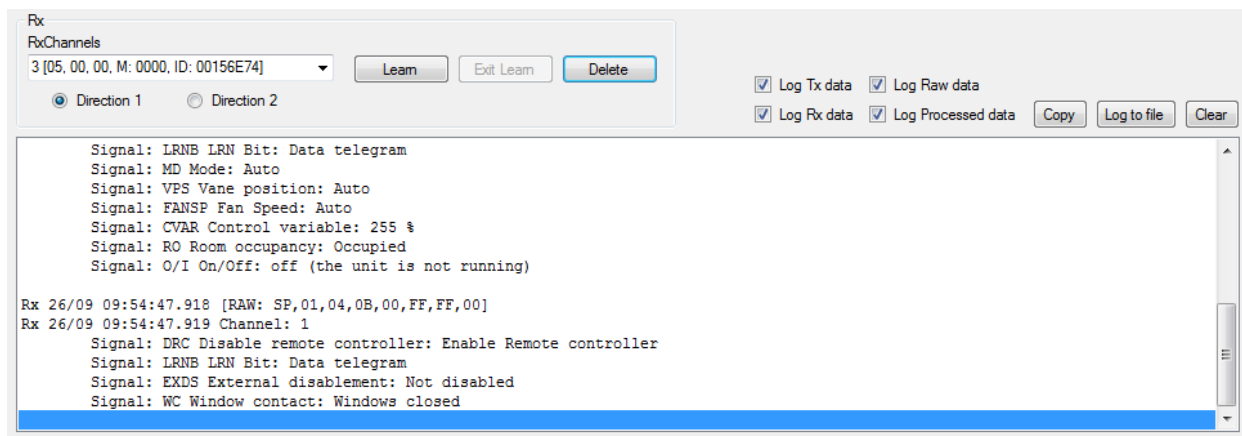


Figure 5.9 Log window

1. Log Tx data: Shows the transmitted data in the log section
2. Log Rx data: Shows the received data in the log section
3. Log Row data: When active the Tx or RX data bytes are shown as they are sent or received (Figure 5.10)

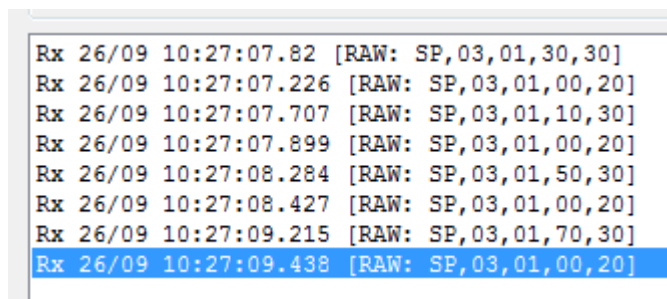


Figure 5.10 Row data log

4. Log processed data: When active the Tx or RX data is shown as described in the XML file (Figure 5.11).

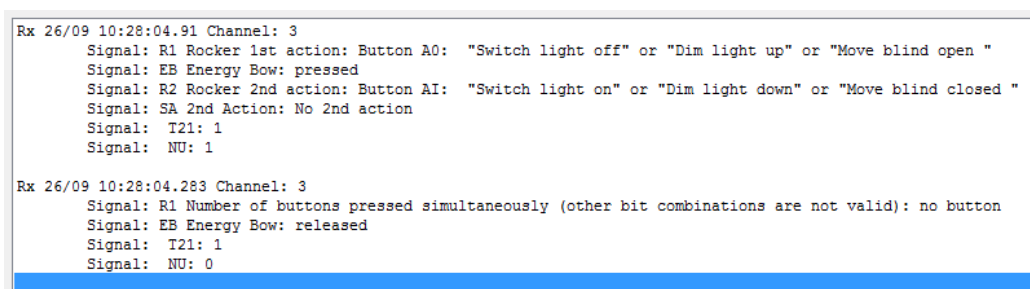


Figure 5.11 Processed log data

5. Copy: copies the data showed in the list area to the clipboard

6. Log to File: Save the data in the list area to a file stored in *C:\Program Files\Intesis\USB-ENO-ASCII-U Tool\Log*
7. Clear Log: Deletes all the data in the list area

5.3 Communication dll

The *idrvUsbEnoAsciiU.dll* is used by the *USB-ENO-ASCII-U Tool* to manage the communication with the gateway as well as to interpret the received/transmitted data. The dll can be used by its own to ease the work of software developers, only needing to integrate it in their system to have full access to the EnOcean world.

The dll and its documentation can be found in the installation folder (Typically in *C:\Program Files\Intesis\USB-ENO-ASCII-U Tool*).

The EEPROM XML it is needed so the communication dll can work properly.

6. Technical data and dimensions

The main features of the devices USB-ENO-ASCII-U / C are shown in Table 6.1. For further detail check the USB-ENO-ASCII-U / C datasheet

| | |
|-----------------------|--|
| Dimensions | 71 x 71 x 27 mm |
| Weight | 60 g |
| Operating Temperature | -25 . . . 85°C |
| Stock Temperature | -40 . . . 85°C |
| Operating Humidity | <93% HR, non-condensing |
| Stock Humidity | <93% HR, non-condensing |
| Power requirements | USB powered. 50 mA |
| EnOcean Frequencies | USB-ENO-ASCII-U: 868 MHz USB-ENO-ASCII-U-C: 315 MHz |

Table 6.1 Technical data

7. Regulations and standards

CE conformity:

R&TTE EU-directive on Radio and Telecommunications Terminal Equipment

The general registration for the radio operation is valid for all EU countries as well as for Switzerland.

Standards:

UNE-EN 50491-3:2010
UNE-EN 60950-1:2007
UNE-EN 61000-6-2:2006
UNE-EN 61000-6-3:2007

FCC ID: SZV-STM300C
IC: 5731A-STM300C

The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications made to this equipment not expressly approved by Intesis Software may void the FCC authorization to operate this equipment.