Apricum

UIMtp

KNX USB Interface

Technical & Application Description

Content

1 Product Description

The KNX USB Interface UIMtp provides a bi-directional data connection between USB and KNX TP. PCs can be connected via USB and the bus system is galvanically isolated. UIMtp establishes access to all bus devices for commissioning, addressing, setting parameters, visualization, protocolling, and diagnostic operation. Operational states are shown by LEDs. UIMtp is supplied by both KNX TP and USB. No external power supply is necessary.

With the ETS (or compatible commissioning tool) UIMtp works as the KNX programming interface having no KNX communication objects for itself. Due to HID profile support no specific USB driver is required. USB suspend mode is supported. The protocol used for communication between interface and host is the flexible "cEMI" protocol.

The connection between KNX and a PC with standard software (like ETS, EITT, also in Raw Frame operating mode) or other software is handled by the Falcon driver. UIMtp supports extended frames and long messages with up to 220 byte APDU length. Easy software handling is ensured. For specific diagnostic applications like EITT, UIMtp supports the "Raw Frame" operating mode.

1.1   Front Panel

Figure 1: Front View
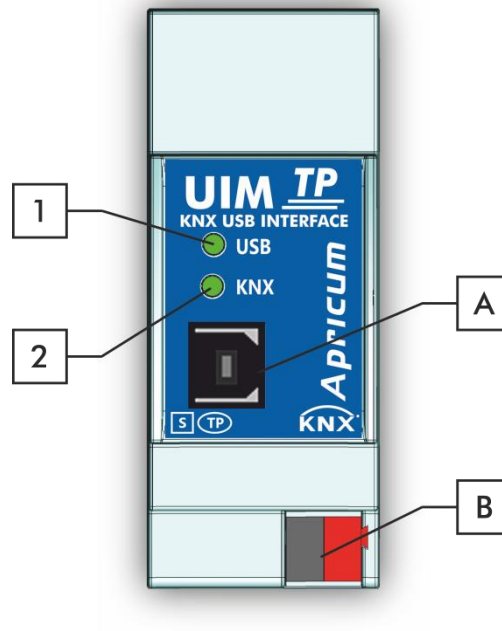
Table 1: Front Panel Elements

LEDs		Buttons / Connectors	
1	State USB	A	USB Connector
	(+Telegram Traffic USB)	B	KNX TP Connector
2	Bus State KNX TP		
	(+Telegram Traffic KNX TP)		

1.2   LED Indication

Table 2: LEDs Colours

Number	LED	Colour	Explanation / Range
1	**State USB (+ Telegram Traffic)**	green	USB connection OK / No telegram traffic
		blinking green	Telegram traffic extent indicated by blinking
		red	USB Suspend Mode
		< off >	No USB connection
2	**Bus State KNX TP (+ Telegram Traffic)**	green	KNX TP connection OK / No telegram traffic
		blinking green	Telegram traffic extent indicated by blinking
		< off >	KNX TP line not connected (or no USB connection)

Without connection to USB UIMtp is not powered.

1.3 Commissioning

Please note for commissioning with default settings:
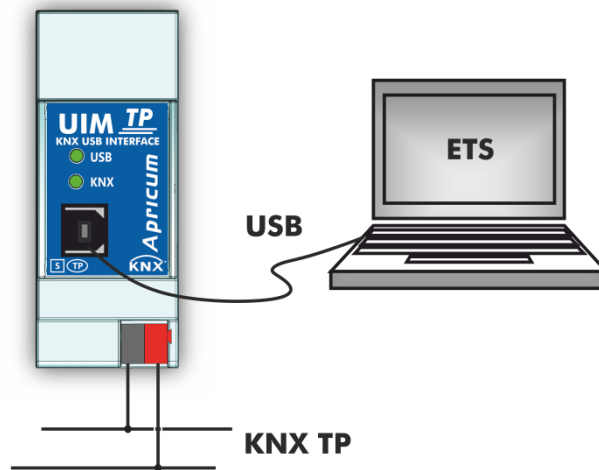
- Physical address is 0.2.255

Figure 2: Connection Scheme

Please read carefully before first use:

- After connection to USB, the device works with its default settings
- Warning: Do not connect to 230 V. The device is supplied by USB and does not require any additional external power supply
- The device may only be installed and put into operation by a qualified electrician or authorized personnel
- For planning and construction of electric installations the appropriate specifications, guidelines and regulations in force of the respective country have to be complied
- For mounting use an appropriate equipment according to IEC60715
- Installation on a 35 mm DIN rail (TH35)
- Connect the KNX bus line as for common KNX bus connections with a KNX bus cable, to be stripped and plugged into a KNX TP connector
- Do not damage electrical insulations during connecting
- Installation only in dry locations
- Accessibility of the device for operation and visual inspection must be provided
- For changing the configuration use the ETS
- The housing must not be opened
- Protect the device from moisture, dirt and damage
- The device needs no maintenance
- If necessary, the device can be cleaned with a dry cloth
- In the case of damage (at storage, transport) no repairs may be carried out by unauthorized personnel

1.4 Feature Summary

- Data connection between PC and KNX bus line.

- Suitable for usage with ETS. No extra application program necessary.

- UIMtp supports extended frames and long telegrams up to 220 bytes APDU length. (With all MEC couplers and UIM interfaces long messages e.g. for energy metering applications and visualization purposes can be processed.)

- Access to every bus device in the KNX bus system for commissioning, addressing, setting parameters, visualization, protocolling and diagnostics.

- Use of cEMI ("Common EMI") protocol.

- No specific USB driver needed due to USB HID Profile.

- Galvanic isolated bi-directional access to KNX TP.

- Usage also without Falcon driver software.

- Support of Raw Mode, a special diagnostic mode.

- Can be used with EITT.

- Low current consumption.

- Installation module for 35mm top-hat rails (DIN, TH35).

- UIMtp works without external power supply.

- UIMtp's ETS database entries are available for ETS4 and later.

2 Operational Description

In KNX network installations the UIMtp can be used as KNX USB interface. After establishing the USB connection, UIMtp operates with its default settings. Setting the correct physical address is necessary to include UIMtp in the KNX bus system.

Both LEDs lighting green show proper working of KNX bus connection and USB connection. Lightning green means the connection is established. Blinking green indicates the telegram traffic extent. In Microsoft Windows the UIMtp is recognized as HID (Human Interface Device). So, no extra drivers have to be installed or downloaded.

The UIMtp's ETS (dummy) database entry, e.g. for connecting a visualization device, is available for ETS4 and upward. The database without parameters and without communication objects can be added to an ETS project as usual.

It is recommended to use USB cables that do not exceed 5 m.

All screen shots are related to the UIMtp database file R1-4 in ETS5.

2.1 KNX Programming Interface

To use UIMtp for ETS programming it has to be chosen as the Current Interface in the ETS Bus Connections window or alternatively during editing a project, at the bottom line ("Name and state of current connection") of the ETS window.
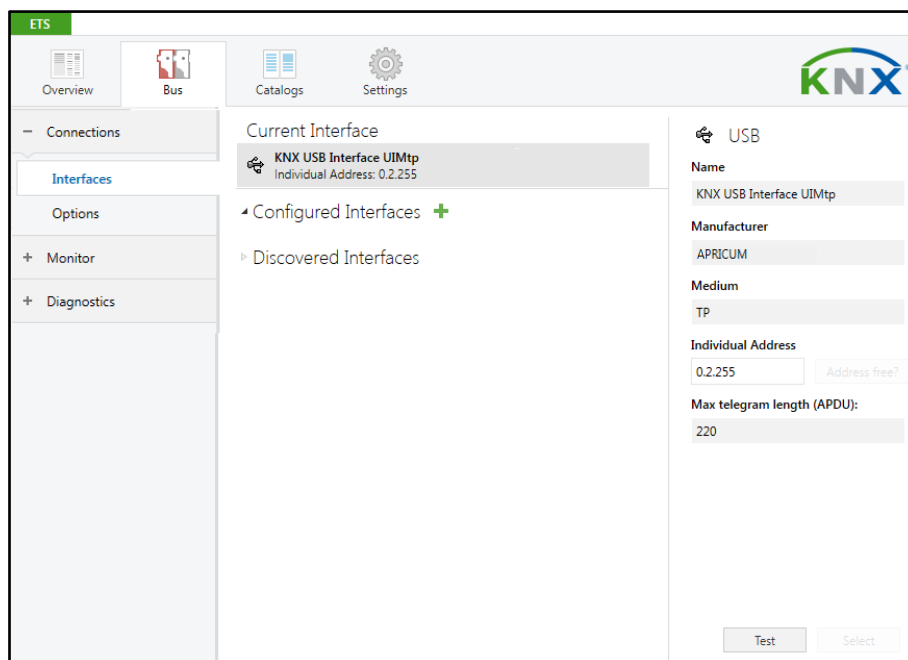

Figure 3: ETS Bus Connection Interface Window

2.2 Physical Address Assignment

The device is supplied with the individual physical address 0.2.255. With the ETS the physical address can be assigned to the device by setting the desired address in the Individual Address field of the Bus Connections window of the ETS. To download the desired physical address the UIMtp has to be chosen as the Current Interface. Then type in the Individual Address and press the Test button.

In this document only the term "physical address" is used. The term "physical address" means the KNX physical address as well as the ETS individual address. Both terms are used by the KNX organisation interchangeably.
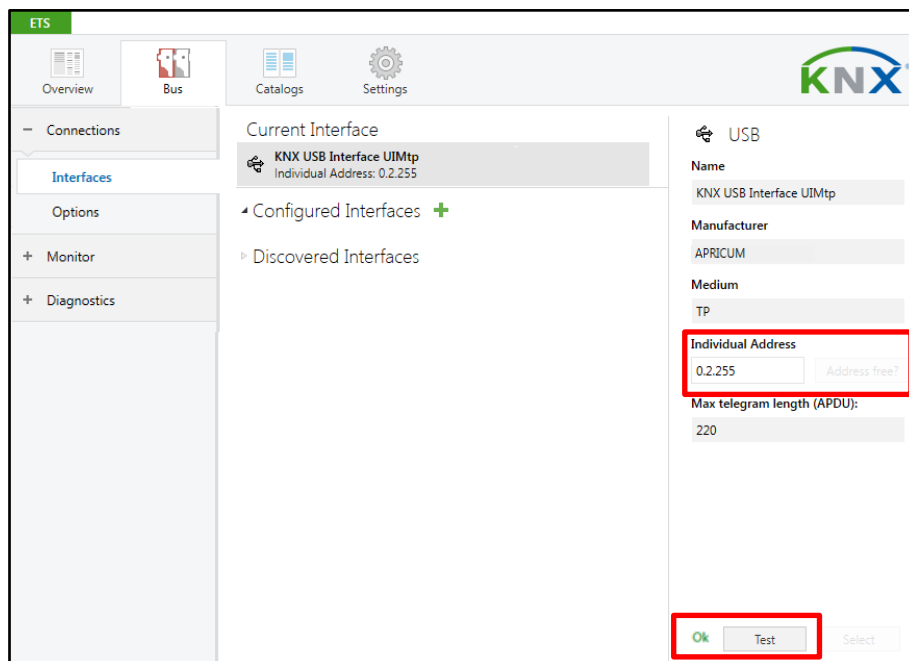

Figure 4: Physical Address Assignment

2.3 Project Physical Address

For i.e. connecting a visualization device to KNX, the UIMtp must be contained in the ETS project. The necessary product database entry can be downloaded from the Apricum website and from the KNX Online Catalog.
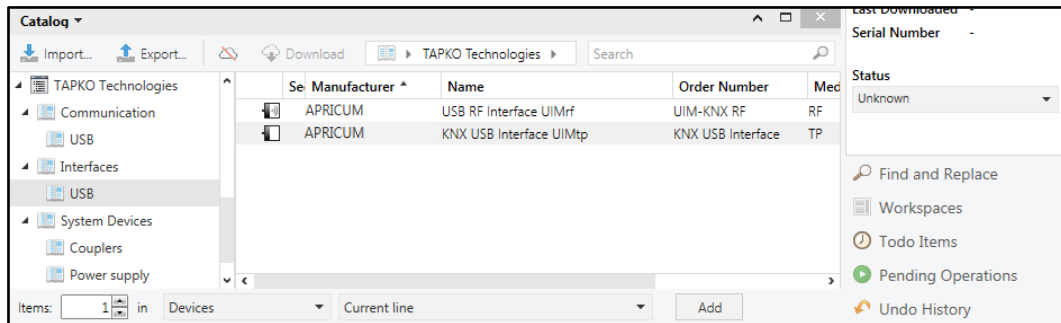

Figure 5: Apricum USB Interfaces in the ETS Catalog

With the ETS, the project physical address can be assigned by setting the desired address in the properties window of the ETS.
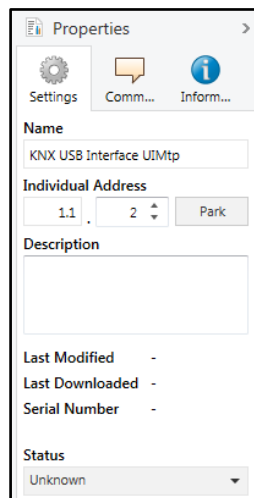

Figure 6: ETS Properties Window

2.4   Group Associations

To establish a connection between a device of interest and its visualization application the UIMtp can be used as the connecting interface. To enable group communication the group objects have to be entered to the Group Associations of UIMtp per drag & drop (see following figure).

Figure 7: USB Interface Group Address Associations

Interfaces used in KNX Secure installations must know the type of access to the corresponding Group Associations. To allow communication for the regarded interface, the combination of PA/IA + GA is stored as position information in relevant devices. GAs are added to coupler filter tables by ETS automatically.

Visualization of KNX Secure devices can only be done with using secured Group Associations.

3   State of Delivery

3.1   Default Factory Setting

Table 3: Default Factory Setting

General	
Product	KNX USB Interface
Order Number	UIMtp
Application	-
ETS Name	KNX USB Interface UIMtp
Physical Address	0.2.255

3.2   Technical Datasheet

Marking/Design	UIMtp
Current consumption	KNX TP: < 5mA and USB: < 20 mA
Connections	USB: USB2.0 connector (Type B, female) KNX TP line: KNX TP connector (red/black), screwless, for single-core cable Ø 0.6…0.8 mm
LED Display elements	State (USB and KNX)
Mounting	35 mm top-hat rail (TH35) according to IEC60715
Protection type	IP20 according to IEC60529
Pollution degree	2 according to IEC60664-1
Protection class	III according to IEC61140
Overvoltage category	III according to IEC60664-1
Approbation	KNX-certified according to ISO/IEC14543-3
CE Marking	In compliance with directives 2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS)
Standards	EN50491-5-1, EN50491-5-2, EN50491-5-3, EN50581, EN61000-6-2, EN61000-6-3
Voltage supply	KNX: 21…30V DC (SELV) USB: 5 V DC (SELV)
Housing colour	Plastic PA66 housing, grey
Housing dimensions	H = 90 mm, W = 36 mm (2 modules), D = 71 mm
Mounting depth	64 mm
Weight	62 g
Operating temperature	-5…45 °C
Storage temperature	-20…60 °C
Ambient humidity	5…93 %, non-condensing
USB cable length	Max. 5 m
USB driver	HID Device, standard driver included in Windows/Linux

3.3 Technical Drawings

All dimensions shown here are specified in mm.

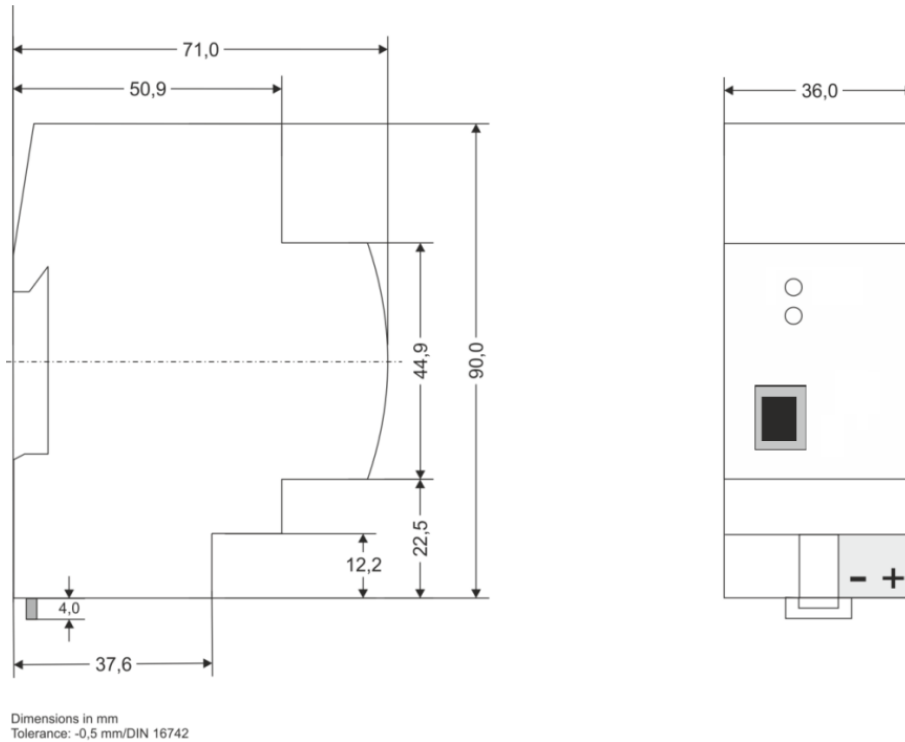The total device width is 2 modules at 18 mm.

Figure 8: Dimension drawings

UIMtp

Product:

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Doctype:

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Release Number / Release Date:

R1.4 / March 2019

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