

APRICUM

USB RF INTERFACE

UIM_{rf}



TECHNICAL AND APPLICATION DESCRIPTION

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2 UIMrf PRODUCT DESCRIPTION

The Apricum USB interface **UIMrf** connects a PC to KNX RF via RF data connection. With the ETS or another KNX compatible commissioning tool the **UIMrf** works as programming interface. Due to HID profile support no specific USB driver is required.

As a KNX RF Ready S-mode device the **UIMrf** establishes access to all KNX RF bus devices for S-mode configuring (to feature commissioning, addressing, setting parameters, visualization, protocolling, and diagnostic operation) and E-mode installation. 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. The **UIMrf** supports long messages (up to 208 byte APDU length) and ensures easy software handling also under operating systems not supported by the FALCON driver (e.g.: Linux). For specific diagnostic applications like EITT the **UIMrf** supports the "Raw Frame" operating mode.

The **UIMrf** is conforming to KNX-AN168 in all options. In MS Windows it is possible to execute software updates via a WEB frontend. For future KNX RF Multi and KNX Secure applications the **UIMrf** will be supported by appropriate firmware updates.

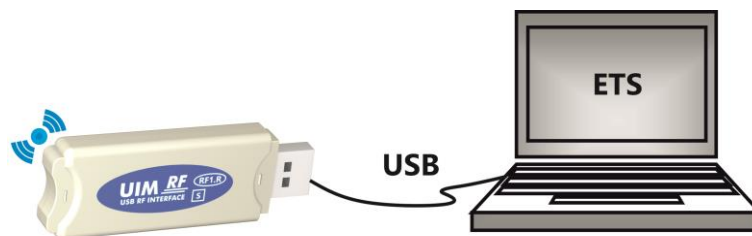
With the latest firmware update the option “route last flag” is supported in cEMI and in RF frames.

3 OPERATIONAL DESCRIPTION

In Microsoft Windows the **UIMrf** is recognized as HID (Human Interface Device). So, no extra drivers have to be installed or downloaded. The **UIMrf**'s ETS database entries are available for ETS3.0d and upward. The device (dummy application without parameters and without communication objects) can be added to an ETS project as usual.

In bus monitor mode the CRC-16 bytes are also contained in the data. For this reason the maximum telegram length that is usable in bus monitor mode is 178 bytes.

The **UIMrf** can be connected to a PC also by a USB cable. To guarantee full functionality only use a USB cable with a maximum length of 3m.

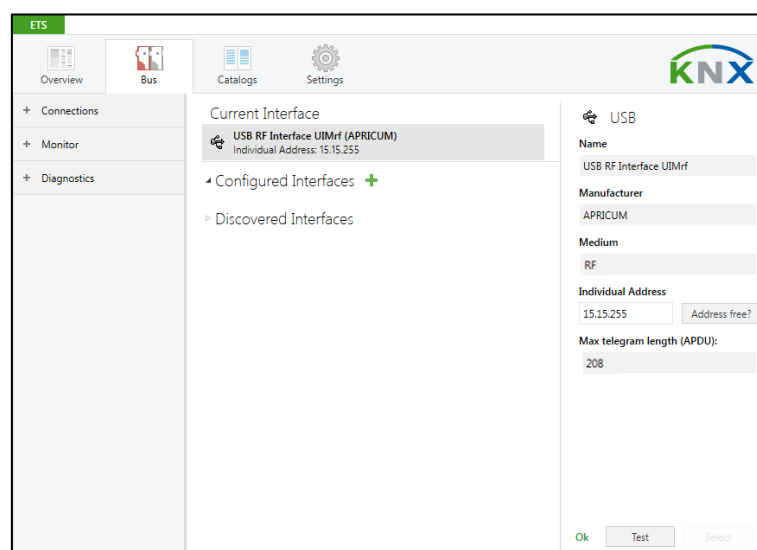


Picture 1: Connection diagram

In combination with an Apricum RF Media Coupler **MECrf** the **UIMrf** is able to access devices of the KNX TP bus system.

3.1 CURRENT INTERFACE OF ETS BUS CONNECTION

To use the **UIMrf** as the KNX programming interface in the ETS the **UIMrf** has to be chosen as the Current Interface. This can be done in the ETS Bus Connections tab and when editing a project, at the bottom line (“Name and state of current connection”) of the ETS window.



Picture 2: ETS Bus Connections window

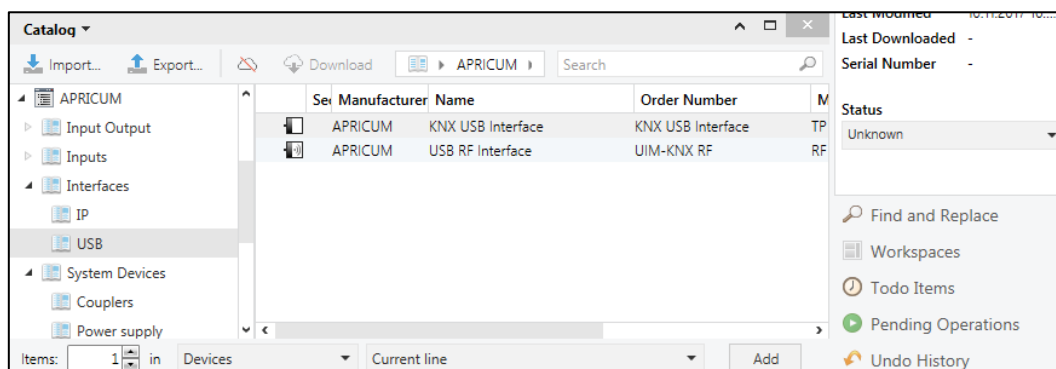
3.2 PHYSICAL ADDRESS ASSIGNMENT

The device is supplied with the individual physical address 15.15.255. With the ETS the physical address can be assigned to the device by setting the desired address in the Bus Connections window of the ETS. To download the desired physical address the **UIMrf** has to be chosen as the Current Interface. Then type in the Individual Address and press the Test button.

Note: In this document only the term “physical address” is used. The term “physical address” means the physical address as well as the individual address. Both terms are used interchangeably by the KNX organisation.

3.3 ETS PRODUCT DATABASE

The KNX product database entry (only as ETS dummy application) can be downloaded from our website and the KNX Online Catalog.



Picture 3: Apricum USB Interfaces in the ETS Catalog

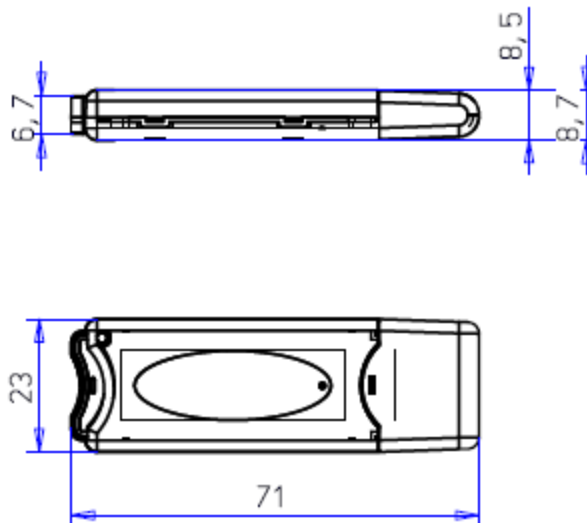
4 STATE OF DELIVERY

The **UIM_{tp}** is delivered with the following default factory settings:

<i>General</i>	
Product	USB RF Interface
Application(s)	-
ETS Name	USB RF Interface UIM _{rf}
Physical address	12.12.255

5 TECHNICAL DRAWINGS

All dimensions shown here are specified in mm.



Picture 4: Dimension drawings

6 TECHNICAL DATA

Marking/Design	UIM _{rf}
Current consumption	Tx: < 5 mA; Rx: <25 mA
Connections	USB2.0 connector (Type B)
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	Compliance according to low voltage and EMC guidelines: EN50491-5, EN60669, EN61000-3/-4/-6, EN62368-1
Power supply	USB: 5V DC (SELV)
Housing colour	Plastic housing, white
Dimensions	H = 8.7 mm, W = 71 mm, D = 23 mm
Weight	10 g
Ambient temperature	Working: -10...55 °C Storage: -20...60 °C
Ambient humidity	5...93 %, non-condensing

7 COMMUNICATION DATA

KNX RF	Serial number	Used also as USB serial number
	KNX Ready (RF1)	Yes (Listen Before Talk medium access)
	KNX Multi	Hardware is ready for KNX Multi (firmware update soon available)
	Configuration mode	S-mode
	Bibat	Not supported
	max. APDU length	208 bytes (CRC-16 bytes included) 178 bytes (bus monitor mode)
RF Performance	RF Antenna	Circuit-integrated
	RF Range	up to 100m
	Norms/Directives	EN300220-2, EN301489-1/-3, EN55022, EN62479, EMV204/108/EC, LV2006/95/EC, RoHS2011/65/EU, RED2014/53/EU, 2011/65/EG
	Frequency range	868.3 MHz ^{+/-} 300KHz
	Modulation	FSK
	Rx radiated sensitivity	-95 dBm
	Tx radiated power	+0.9 dBm
USB	Type/Voltage	USB2.0 / 5V
	USB cable	Maximum length is 3m
	Driver	HID Device, standard driver included in Windows/Linux
	Sleep Mode	Supported
Protocol	Over HID	KNX cEMI
KNX cEMI	Mask version	2311h
	Optional filtering mode	Individual address, repetition, domain address, extended Group address
	Supported communication modes	Raw Mode, Bus Monitor Mode, Link Layer Mode