EAE KNX IP Interface
Product Manual IPI100

EAE

TECHNOLOGY

Order Code: 48088

Content

1. General

- IPI100 supports extended frames and long telegrams up to 240 bytes APDU length.

- IPI100 works without external power supply.

- For IP Tunneling, four different tunneling connections, with a separate address for each,can be realized in parallel. Quick assignment can be done by the web front-end.

- UPnP is available to discover the device within the IP network. This can only be realized by a proper network installation in terms of topology. With use of KNXnet/IP ETS is able to recognize the communication interface device.

- Updating the firmware can easily be accomplished by a web browser. The available web front-end provides informative settings and enables to remotely switch the deviceinto Programming Mode without use of the Programming Button.

- In networks with high busload the internal amount of communication buffers are capable of smoothing peeks in the communication load course.

- In the web front-end, a diagram of a 60 min busload history can be watched.

- IPI100's ETS database entries are available for ETS4 and later.

- IPI100 supports KNXnet/IP, ARP, ICMP, IGMP, HTTP, UPnP discovery, UDP/IP, TCP/IP,DHCP und AutoIP.

1.1. Technical Data

|		
Type of protection	IP 20	EN 60 529
Safety class	III	IEC 61140
Power supply	AUX (Extra Power)	Not used
	Bus	DC 21…30V SELV
	Current consumption	Typ. <20 mA
	Power Consumption	Max 600 mW
Connections	IP Line	RJ45 socket for 10/100BaseT, IEEE 802.3 networks
	KNX Line	Bus connection terminal
Display elements	LED LAN-OK	LED KNX-OK
	LED LAN-RX/TX	LED KNX-RX/TX
	LED RED for program. mode	
Operating elements	Function Button, Programming Button	
Installation	35mm DIN rail mount	EN 60 715 TH 35-75
Degree of Pollution	2	IEC 60664-1
Overvoltage class	III	IEC 60664-1
Temperature range	Operation	-5° C + 45° C non-condensing
	Storage	-20° C + 60° C
Humidity		%5 to 93 % no moisture condensation
Dimensions	H x W x D	90 mm x W x 70 mm
	Width W in mm	36 mm
	Width W in units (18 mm modules)	2 modules
Weight	68 g	
Box	Plastic PA66 housing gray	
CE	in accordance with EMC and low voltage guidelines	
	Device complies with, EN 50090-2-2, IEC 60664-1	

NOTE: Device default physical address is 15.15.255. In order to configure KNX Presence detector, ETS application file ".knxprod" is needed. It's possible to download the file on EAE website. ETS is required for programming the device. Parameter settings and related group addresses can be changed by ETS. Learn more by reading ETS help file.

1.2. Connection Example
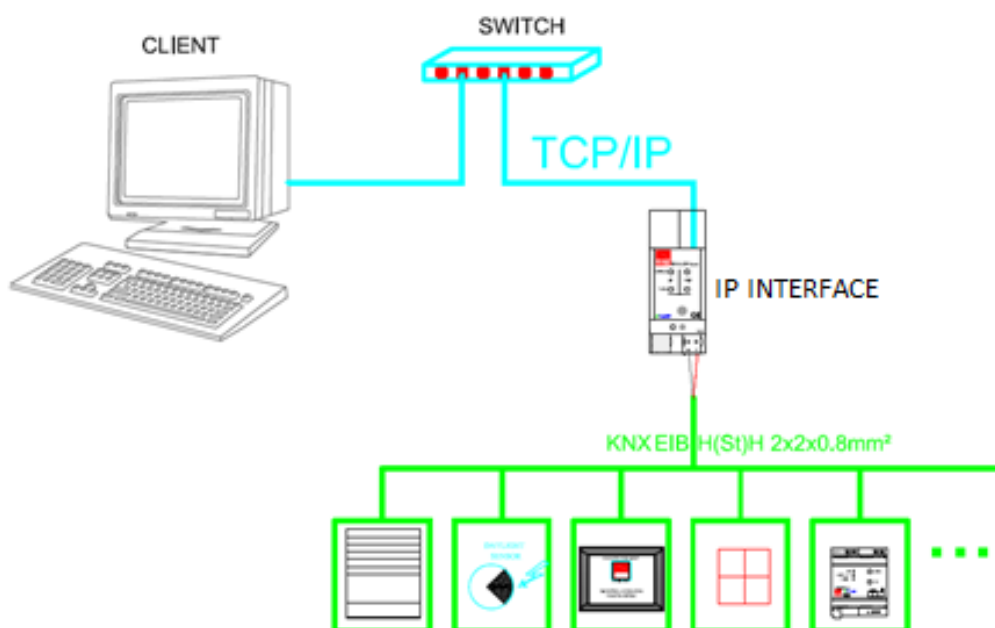
- After connection to the KNX bus system, the device works with its default settings
- Warning: Do not connect to 230 V. The device is supplied by the KNX bus and does not require any additional external power supply
- The device may only be installed and put into operation by a qualified electrician 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

1.3. Scale Drawings
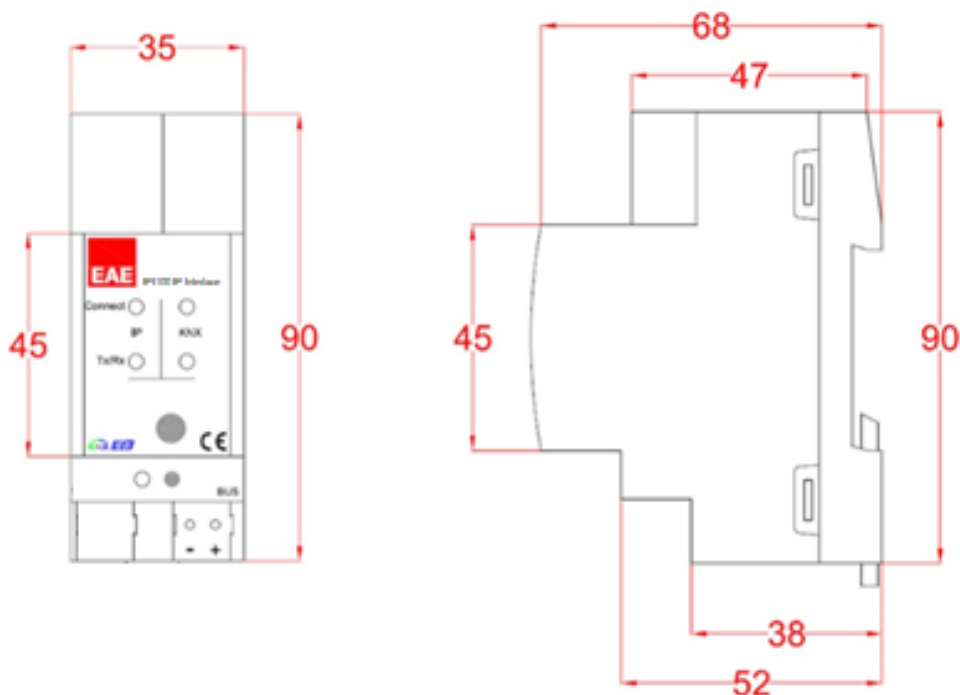
2. KNXnet/IP

IPI100 is a KNX IP interface. KNX IP interfaces are highly similar to USB interfaces. The only difference is that they use the IP communication medium and the KNXnet/IP communication protocol. However, KNX end devices can be integrated directly via IP. This makes the Ethernet a real KNX medium.

As documented in the KNXnet/IP protocol specifications, KNX telegrams can be transmitted encapsulated in IP packets. Ethernet networks as well as Internet can be used to route or tunnel KNX telegrams. In this way, IP interfaces and IP routers are an alternative to USB data interfaces and TP line/area/backbone couplers, respectively. In the latter case, a TP backbone can be completely replaced by a fast Ethernet based line then called IP backbone.

2.1. IP Tunneling

The presence of the Internet Protocol (IP) has led to the definition of the KNXnet/IP protocol. KNXnet/IP offers the possibility for point-to-point connections for the ETS (KNXnet/IP Tunneling) and/or between supervisory system and KNX installation. The KNXnet/IP device management enables KNXnet/IP device configuring via the KNX network in order to reduce the time required for complete network configuration.

2.2. IP Routing

IP Routing is the way of interconnecting KNX lines and areas by IP network(s) via KNXnet/IP. In IP networks, the KNXnet/IP Routing defines the way of KNXnet/IP router communication.

2.3. IP Bootloader / Boot Mode

The IP bootloader function is used to update the firmware and completely rewrite the flash memory content. This is not just a simple application download. Both communication stack and application software are downloaded.

The firmware update procedure via IP is executed by a web front-end, which is independent from ETS, and makes use of special messages to speed up the process. To be protected, their contents are encrypted.

NOTE: Entering Boot Mode is equivalent to activating the IP bootloader function.

3. Programming

3.1. Programming Button

To download the desired physical address or an ETS setting the Programming Mode must be activated. Successive pressing the Programming Button will turn on and off the Programming Mode. LED 7 lighting in red colour indicates Programming Mode is active. When Programming Mode is activated, the ETS is able to download the physical address.

NOTE: A blinking red Programming LED indicates the Ethernet cable is not properly connected or no IP network connection is available.

NOTE: Also when Boot Mode is active, successive pressing the Programming Button will turn on and off Programming Mode and Programming LED.

3.2. Physical Address Assignment

To configure the device an interface connection (IP, USB) to the KNX bus system is required. The device is supplied with the individual physical address 15.15.255. The KNX product database entry (available for ETS4 and higher) can be downloaded from the EAE website and from the KNX Online Catalog.

The physical address can be assigned to the device by setting the desired address in the properties window of the ETS. After starting the ETS download and then pressing the Programming Button the device restarts itself.

NOTE: 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.

4. Function Button

The Function Button activates IPI100´s special function. Factory Reset can be activated. Device settings of IPI100 can be reset to manufacturer default values with the Factory Reset function. During the firmware update procedure the Function Button has to be pressed for Boot Mode activation.

4.1. Factory Reset

A long press (≈ 15 sec) of the Function Button <u>soon</u> followed by a short press (≈ 3 sec) executes the Factory Reset. After the first press, the LED display lights like described in Table 3. After the second press, all parameters will be set to factory default (incl. physical address). Subsequently, LEDs indicate normal operation again.

4.2. Boot Mode Activation

For Boot Mode activation the firmware update process must be executed. During theprocess, the Function Button must be pressed to enter Boot Mode (see chapter 5.4).

5. Parameters

"Parameters" chapter describes ETS parameters of the device. **Default parameters** are written in bold letters.

All screen shots are related to the IPI100 database file in ETS5.

5.1. General

The host name is the name with that the device appears within the Windows network.

General Tab Parameters

ETS Parameter	Setting [Factory Default]	Comment
Host name	<30 Characters allowed> **[KNX IP Interface]**	Field to enter the device name providingan easy search of the device by ETS, by Windows Network and by KNXnet/IP visualisation systems.

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5.2. IP Configuration

Here, HTTP port and IP address assignment can be configured.

IP Configuration Tab Parameters – DHCP ON

ETS Parameter	Setting [Factory Default]	Comment
HTTP Port	80 8080 **[8080]**	Select one of the two official system ports.
DHCP	do not use use **[use]**	If DHCP is used, no further IP parameters have to be set.

IP Configuration Tab Parameters – DHCP OFF

ETS Parameter	Setting [Factory Default]	Comment
IP address	0-255.0-255.0-255.0-255 **[0.0.0.0]**	IP Byte 1 to 4: manual input.
Subnet mask	0-255.0-255.0-255.0-255 **[255.255.255.0]**	SM Byte 1 to 4: manual input.
Default gateway	0-255.0-255.0-255.0-255 **[0.0.0.0]**	DG Byte 1 to 4: manual input.
DNS server	0-255.0-255.0-255.0-255 **[0.0.0.0]**	DNS Byte 1 to 4: manual input