REAL SMART HOME

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APPMODULE

BAB Kostal Connect

Smart Home App Documentation

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1 INTRODUCTION

Thank you for your trust, and the purchase of the **BAB Kostal Connect** -Smart Home App for the BAB **APP**MODULE. With the « **BAB Kostal Connect** » Smart Home App, you can now connect the Kostal products of the PLENTICORE and PIKO series with the KNX world. Together with your building automation, you can switch loads depending on the energy yield or display the values of the inverter fully integrated in your existing building visualization.

This documentation will help you get started with the Smart Home App and aims to improve your setup experience.

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IMPORTANT INFORMATION ON THE OPERATING INSTRUCTIONS

We reserve the right continually improve the product. This entails the possibility that parts of this documentation might be out-of-date. You will find the latest information at:

www.bab-appmarket.de

This Smart Home App is an independent product, with no legal ties to KOSTAL Solar Electric GmbH. Neither **BAB** APPMARKET GmbH nor the developer of this Smart Home App take any claim in the trademarks owned by KOSTAL Solar Electric GmbH.

2 BAB KOSTAL CONNECT FUNCTIONAL OVERVIEW

Use solar energy smartly: With a KOSTAL solar inverter, you always rely on high quality and extensive features. With the «**BAB Kostal Connect**» Smart Home App, you can now connect the Kostal products of the PLENTICORE and PIKO series with the KNX world. Together with your building automation, you can switch loads depending on the energy yield or display the values of the inverter fully integrated in your existing building visualisation.

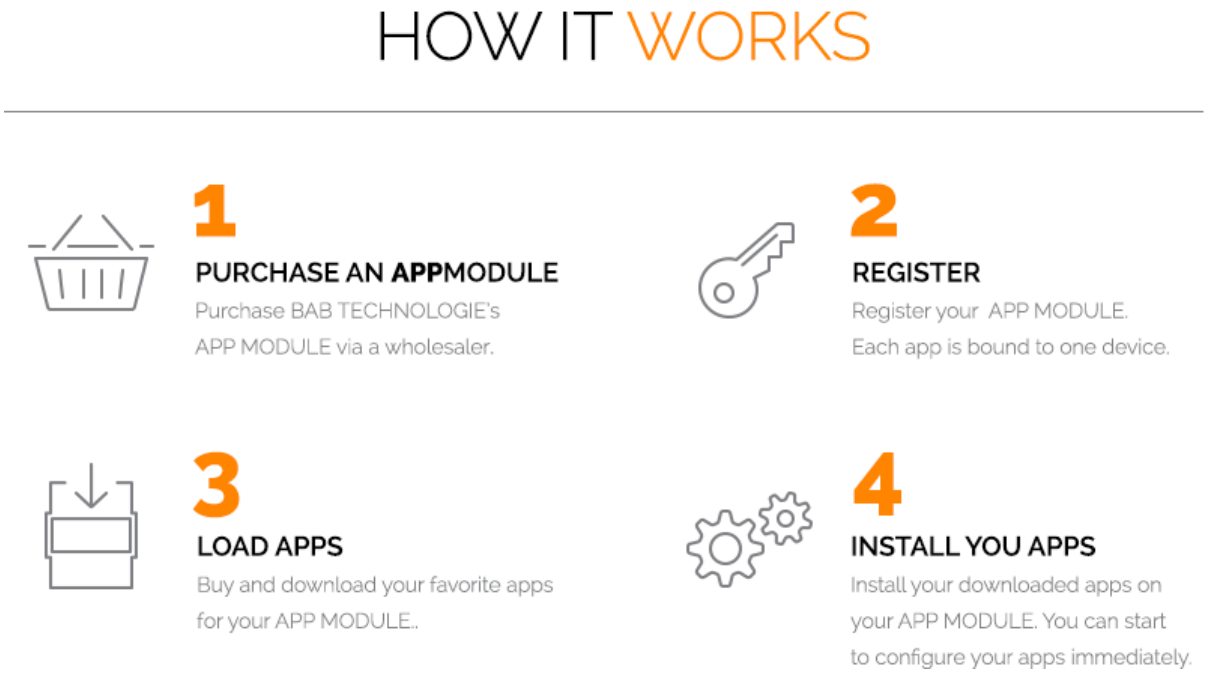
«**BAB Kostal Connect**» is compatible with all hybrid and string inverters and enables the transmission of all current and statistical measured values of the inverter and the battery. With these values, you can, for example, implement an energy traffic light in your visualisation or create intelligent functions to optimise the self-consumption of the self-generated energy by first consuming it, storing it in the connected battery if there is a surplus and using it to increase the output of the heat pump when the battery is fully charged.

Highlights:

- Compatible with all Kostal PLENTICORE and PIKO products
- Compatible with Kostal Smart Energy Meter (KSEM)
- Readout of all current values in KNX
- Support of connected battery storage units

3 THE INNOVATIVE, MODULAR SMART HOME APP CONCEPT FOR THE BUILDING AUTOMATION

The innovative, modular Smart Home App concept for building automation. The **APP**MODULE brings the innovative, modular Smart Home App concept into building automation. You can mix and match any of the diverse applications that are available to ingrate third-party solutions. With these Smart Home Apps from the dedicated **BAB** APPMARKET, the **APP**MODULE becomes a tailor-made integration unit for your building automation.



Manufacturer of the **APP**MODULE BAB TECHNOLOGIE GmbH

Distribution of all Smart Home Apps for the **APP**MODULE BAB APPMARKET GmbH

Smart Home App developer REAL SMART HOME GmbH

3.1 INFORMATION ABOUT THE APPMODULE

Please refer to the separate product documentation of the **APP**MODULE for a detailed product description and setup instructions.

http://www.bab-tec.de/index.php/download_de.html

Product variants:
The **APP**MODULE is available in three variants:

- **APP**MODULE KNX/TP – for stand-alone use on KNX/TP Bus
- **APP**MODULE EnOcean – for stand-alone use in the EnOcean wireless network
- **APP**MODULE IP – for use in an IP-based KNX installation (KNXnet/IP) or as extension for an EIB**PORT**

4 SMART HOME APP INSTALLATION / UPDATE

Please proceed as follows to install a Smart Home App.

1. Open the **APP**MODULE web page: Enter <IP Address of **APP**MODULE > into your browser's address bar and press Enter. The **APP**MODULE web interface will appear.

2. Log in with your user credentials. Please refer to the **APP**MODULE documentation for login details.

3. Click on the menu entry "App Manager"

4. You are now on the page where already installed Smart Home Apps are listed. The list will be empty if no Smart Home Apps have been installed. Click "Install App" in order to install a new Smart Home App.

5. Now click on "Select App"; a file selector window will appear. Choose the Smart Home App » **BAB Kostal Connect** « and click "OK".

The Smart Home App » **BAB Kostal Connect** « must first be downloaded from the **BAB** APPMARKET (www.bab-appmarket.de).

After the message "Installation successful" appears, click "OK". You are ready to configure the Smart Home App.

To update a Smart Home App manually you have to proceed as follows

1. To update an already installed Smart Home App, click on the App icon in the "App Manager".

2. The detail view of the Smart Home App appears. Click on "Update App" to select the Smart Home App package and start the update. The update version must be downloaded from the **BAB** APPMARKET.

After the message "Installation successful" appears, click "OK". The Smart Home App has been updated. Your instance configurations will remain unchanged.

The Smart Home App can also be updated directly in the web interface. Without having to download the Smart Home App from the **BAB**APPMARKET first.
In the “App Manager” available Smart Home App updates are reported

Information
To configurate the Smart Home App please use Google Chrome.

5 SMART HOME APP SETTINGS

Use solar energy smartly: With a KOSTAL solar inverter, you always rely on high quality and extensive features. With the «**BAB Kostal Connect**» Smart Home App, you can now connect the Kostal products of the PLENTICORE and PIKO series with the KNX world. Together with your building automation, you can switch loads depending on the energy yield or display the values of the inverter fully integrated in your existing building visualisation.

5.1 KOSTAL PIKO CONNECT

Note:
After inactivity of 60 minutes the browser session is automatically closed. Unsaved changes will be lost.

As soon as the Smart Home App is installed, you can create so called “Instance”. An Instance is one of several objects of the same class.

In order to create an instance, click on the symbol "Create Instance".

Instance Name

Choose a name for this new instance.

Comment

Insert a description what this instance does.

5.2 CONNECTION

IP address / Host

Enter the IP address of the inverter in the local network or domain name if connected via the Internet.

Port (0–65536)

Enter the Modbus TCP port of the inverter. The ports 1502 and 502 are default for a Modbus TCP connection, when connected over the Internet the corresponding port of forwarding.

Unit ID (0–255)

Enter the unit ID of the Modbus slave (server) in the inverter. The standard for Piko Solar inverters is the Unit ID71.

Note about the data type: If the values are not displayed correctly, it may be because the data format (big endian or little endian) is incorrect during transmission. The pre-configuration is always based on the default value described by the manufacturer. There is an additional switching option for KOSTAL devices. For this purpose, the Sunspec (Big Endian) can be switched on and off.

5.3 STATIC INFORMATION

Query static information

Here you can manually query the statically stored character strings for the inverter.

Inverter article number

Enter or accept by query the inverter article number.

Inverter serial number

Enter or accept by query the inverter serial number.

Software version Maincontroller

Enter or accept by query the software version of main controller.

Software version IO-Controller

Enter or accept by query the software version of IO controller.

Inverter network name

Enter or accept by querying the inverter network name.

IP-address

Enter or accept by query the inverter IP address.

IP-subnetmask

Enter or accept by query the inverter subnet mask.

IP-gateway

Enter or accept by query to the inverter gateway IP.

IP-DNS1

Enter or accept by query the first DNS server IP of the inverter.

IP-DNS2

If required enter or accept by query the second DNS server IP of the inverter.

Battery manufacturer

If desired, enter the battery manufacturer.

Inverter manufacturer

Enter or accept by query the inverter manufacturer.

Inverter model ID

Enter or accept by query the inverter model ID.

Product name

Enter or accept by querying the inverter product name.

Power class

Enter or accept by query the inverter power class.

5.4 OBSERVABLES

MODBUS Enable (EIS 1)

Enter group address here, which indicates whether the Modbus server of the inverter is activated.

MODBUS Unit-ID (EIS 10 0–65535)

Enter group address here to display the unit-ID of MODBUS Slave.

Number of bidirectional converter (EIS 10 0–65535)

Enter group address here to display number of bidirectional converter.

Hardware-Version (EIS 10 0–65535)

Enter group address here to display hardware version.

Power-ID (EIS 10 0–65535)

Enter group address here to display power-ID.

Inverter state (EIS 10 0–65535)

Enter group address here to display inverter state.

State of energy manager (EIS 9 4 Byte FP)

Enter group address here to display state of energy manager.

Home own consumption from battery [W] (EIS 9 4 Byte FP)

Enter group address here to display the contribution of the battery to the household power consumption in watts.

Home own consumption from grid [W] (EIS 9 4 Byte FP)

Enter group address here to display the contribution of the electricity grid to the output of the household in watts.

Home own consumption from PV [W] (EIS 9 4 Byte FP)

Enter group address here to display the contribution of photovoltaics to the output of a household in watts.

Total home consumption Battery [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total energy drawn by the household from the battery in watt-hours.

Total home consumption Grid [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total energy drawn by household from the electricity grid in watt-hours.

Total home consumption PV [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total energy obtained by the household from photovoltaic is expressed in watt-hours.

Isolation resistance [Ohm] (EIS 9 4 Byte FP)

Enter group address here to display the isolation resistance.

Total home consumption rate [%] (EIS 9 4 Byte FP)

Enter group address here to display the share of household energy in photovoltaic energy.

Worktime [s] (EIS 9 4 Byte FP)

Enter group address here to display the operating time in seconds.

Current Phase 2 [A] (EIS 9 4 Byte FP)

Enter group address here to display the current phase 2.

Active power Phase 2 [W] (EIS 9 4 Byte FP)

Enter group address here to display the active power phase 2.

Voltage Phase 2 [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage phase 2.

Current Phase 3 [A] (EIS 9 4 Byte FP)

Enter group address here to display the current phase 3.

Active power Phase 3 [W] (EIS 9 4 Byte FP)

Enter group address here to display the active power phase 3.

Voltage Phase 3 [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage phase 3.

Total AC active power [W] (EIS 9 4 Byte FP)

Enter group address here to display the total AC active power.

Total AC reactive power [Var] (EIS 9 4 Byte FP)

Enter group address here to display the total AC reactive power.

Total AC apparent power [VA] (EIS 9 4 Byte FP)

Enter group address here to display the total AC apparent power.

Battery charge current [A] (EIS 9 4 Byte FP)

Enter group address here to display the battery charge current.

Number of battery cycles (EIS 9 4 Byte FP)

Enter group address here to display the number of battery cycles.

Actual battery charge (-) / discharge (+) current [A] (EIS 9 4 Byte FP)

Enter group address here to display the actual battery charge (-)/ discharge (+) current.

FSSB fuse state (EIS 9 4 Byte FP)

Enter group address here to display the FSSB fuse state.

Battery ready flag (EIS 9 4 Byte FP)

Enter group address here to indicate if the battery is ready.

Act. state of charge [%] (EIS 9 4 Byte FP)

Enter group address here to display the actual state of charge.

Battery state (EIS 9 4 Byte FP)

Enter group address here to display the battery state.

Battery temperature [°C] (EIS 9 4 Byte FP)

Enter group address here to display the battery temperature.

Battery voltage [V] (EIS 9 4 Byte FP)

Enter group address here to display the battery voltage.

Cos Phi (powermeter) (EIS 9 4 Byte FP)

Enter group address here to display the phase shift at the electricity meter.

Frequency (powermeter) [Hz] (EIS 9 4 Byte FP)

Enter group address here to display the frequency at electricity meter.

Current phase 1 (powermeter) [A] (EIS 9 4 Byte FP)

Enter group address here to display the current strength on phase 1 of the electricity meter.

Active power phase 1 (powermeter) [W] (EIS 9 4 Byte FP)

Enter group address here to display the active power on phase 1 of the electricity meter.

Reactive power phase 1 (powermeter) [Var] (EIS 9 4 Byte FP)

Enter group address here to display the reactive power on phase 1 of the electricity meter.

Apparent power phase 1 (powermeter) [VA] (EIS 9 4 Byte FP)

Enter group address here to display the apparent power on phase 1 of the electricity meter.

Voltage phase 1 (powermeter) [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage on phase 1 of the electricity meter.

Current phase 2 (powermeter) [A] (EIS 9 4 Byte FP)

Enter group address here to display the current intensity on phase 2 of the electricity meter.

Active power phase 2 (powermeter) [W] (EIS 9 4 Byte FP)

Enter group address here to display the active power on phase 2 of the electricity meter.

Reactive power phase 2 (powermeter) [Var] (EIS 9 4 Byte FP)

Enter group address here to display the reactive power on phase 2 of the electricity meter.

Apparent power phase 2 (powermeter) [VA] (EIS 9 4 Byte FP)

Enter group address here to display the apparent power on phase 2 of the electricity meter.

Voltage phase 2 (powermeter) [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage on phase 2 of the electricity meter.

Current phase 3 (powermeter) [A] (EIS 9 4 Byte FP)

Enter group address here to display the current strength on phase 3 of the electricity meter.

Active power phase 3 (powermeter) [W] (EIS 9 4 Byte FP)

Enter group address here to display the active power on phase 3 of the electricity meter.

Reactive power phase 3 (powermeter) [Var] (EIS 9 4 Byte FP)

Enter group address here to display the reactive power on phase 3 of the electricity meter.

Apparent power phase 3 (powermeter) [VA] (EIS 9 4 Byte FP)

Enter group address here to display the apparent power on phase 3 of the electricity meter.

Voltage Phase 3 (powermeter) [V]

Enter group address here to display the voltage on phase 3 of the electricity meter.

Total active power (powermeter) [W] (EIS 9 4 Byte FP)

Enter group address here to display the total active power at the electricity meter.

Total reactive power (powermeter) [Var] (EIS 9 4 Byte FP)

Enter group address here to display the total reactive power at the electricity meter.

Total apparent power (powermeter) [VA] (EIS 9 4 Byte FP)

Enter group address here to display the total apparent power at the electricity meter.

Current DC1 [A] (EIS 9 4 Byte FP)

Enter group address here to display the current strength (direct current) on phase 1.

Power DC1 [W] (EIS 9 4 Byte FP)

Enter group address here to display the power (direct current) on phase 1.

Voltage DC1 [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage (direct current) on phase 1.

Current DC2 [A] (EIS 9 4 Byte FP)

Enter group address here to display the current intensity (direct current) on phase 2.

Power DC2 [W] (EIS 9 4 Byte FP)

Enter group address here to display the power (direct current) on phase 2.

Voltage DC2 [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage (direct current) on phase 2.

Current DC3 [A] (EIS 9 4 Byte FP)

Enter group address here to display the current strength (direct current) on phase 3.

Power DC3 [W] (EIS 9 4 Byte FP)

Enter group address here to display the power (direct current) on phase 3.

Voltage DC3 [V] (EIS 9 4 Byte FP)

Enter group address here to display the voltage (direct current) on phase 3.

Total yield [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total production.

Daily yield [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total production of one day.

Yearly yield [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total production of one year.

Monthly yield [Wh] (EIS 9 4 Byte FP)

Enter group address here to display the total production of one month.

IP enable (EIS 10 0–65535)

Enter group address here to display if network is activated.

Manual IP / Auto-IP (EIS 10 0–65535)

Enter group address here to display if manual or automatic IP-address.

IP-auto-DNS (EIS 10 0–65535)

Enter group address here to display if manual or automatic DNS configuration.

Battery gross capacity [Ah] (EIS 11 0–4294967295)

Enter group address here to display the battery gross capacity.

Battery actual SOC [%] (EIS 10 0–65535)

Enter group address here to display the actual state of battery charge.

Firmware Maincontroller (EIS 11 0–4294967295)

Enter group address here to display the firmware of maincontroller.

Battery Model ID (EIS 11 0–4294967295)

Enter group address here to display the model number of the battery.

Battery Serial Number (EIS 11 0–4294967295)

Enter group address here to display the serial number of the battery.

Battery Operation Mode (EIS 11 0–4294967295)

Enter group address here to display the mode of the battery.

Inverter Max Power [W] (EIS 10 0–65535)

Enter group address here to display the maximum power of the inverter.

Inverter Generation Power (actual) [W] (EIS 10 -32768–32767)

Enter group address here to display the actual power generated by the inverter.

Generation Energy [Wh] (EIS 11 0–4294967295)

Enter group address here to display the energy production.

Battery Net capacity [Ah] (EIS 11 0–4294967295)

Enter group address here to display the battery net capacity.

Actual battery charge/discharge power [W] (EIS 10 -32768–32767)

Enter group address here to display the actual battery charging or discharging capacity.

Save

Press the button to save and activate the settings.

Save and close

Press the button to save, activate and exit the settings in one step.

6 ATTACHMENT

6.1 DATAPOINT TYPES

Function	EIS type	Data point type	Typical value	Data	Identifier
Switching	EIS 1	DPT 1.yyy	[0] = Off | FALSE; [1] = On | TRUE	1 Bit	1-bit
Relative Dimming	EIS 2	DPT 3.yyy	**„Dimming steps“**: [[0],[2…7]] Darker [2, 4, 8, 16, 32, 64] -Steps and [[1],[2…7]] Brighter [2, 4, 8, 16, 32, 64]-Steps **„Start/Stop Diming“**: [0,8] Stop; [1] Darker und [9] Brighter	4 Bit	4-bit
Time	EIS 3	DPT 10.yyy	hh:mm:ss	3 Byte	Time
Date	EIS 4	DPT 11.yyy	dd:mm:yyyy	3 Byte	Date
Floating point number (short)	EIS 5	DPT 9.yyy	-671 088,64 … 670 433,28	2 Byte	2-byte float value
Percent, Position, Brightness, …	EIS 6	DPT 5.yyy	0 … 100%	1 Byte	8-bit unsigned value
Blinds Drive/adjust	EIS 7	DPT 1.yyy	[0] = up; [1] = down When driving [0,1] = stop	1 Bit	1-bit
Priority	EIS 8	DPT 2.yyy	[0], [1] Switch on, off; [3] = Forced off; [4] = Forced on	2 Bit	1-bit controlled
IEEE Floating point number (long)	EIS 9	DPT 14.yyy	4-Octet float value; IEEE 754	32 Bit	4-byte float value
Counter 16 Bit Unsigned	EIS 10u	DPT 7.yyy	0 … 65.535	16 Bit	2-byte unsigned value
Counter 16 Bit Signed	EIS 10	DPT 8.yyy	-32.768 … 32.767	16 Bit	2-byte signed value
Counter 32 Bit Unsigned	EIS 11u	DPT 12.yyy	0 … 4.294.967.295	32 Bit	4-byte unsigned value
Counter 32 Bit Signed	EIS 11	DPT 13.yyy	-2.147.483.648 … 2.147.483.647	32 Bit	4-byte signed value
Access control	EIS 12	DPT 15.yyy	Access data	4 Byte	Entrance access
ASCII Character	EIS 13	DPT 4.yyy	Char	1 Byte	Character
Counter 8 Bit Unsigned	EIS 14u	DPT 5.yyy	0 … 255	8 Bit	8-bit unsigned value
Counter 8 Bit Signed	EIS 14	DPT 6.yyy	-128 … 127	8 Bit	8-bit signed value
String	EIS 15	DPT 16.yyy	14 Characters	14 Byte	Character string

EIB/KNX devices exchange fixed prescribed data formats with each other. These are defined in types.
The old designations of the types are EIS (EIB Interworking Standard). The new designations are DPT (Data Point Type)