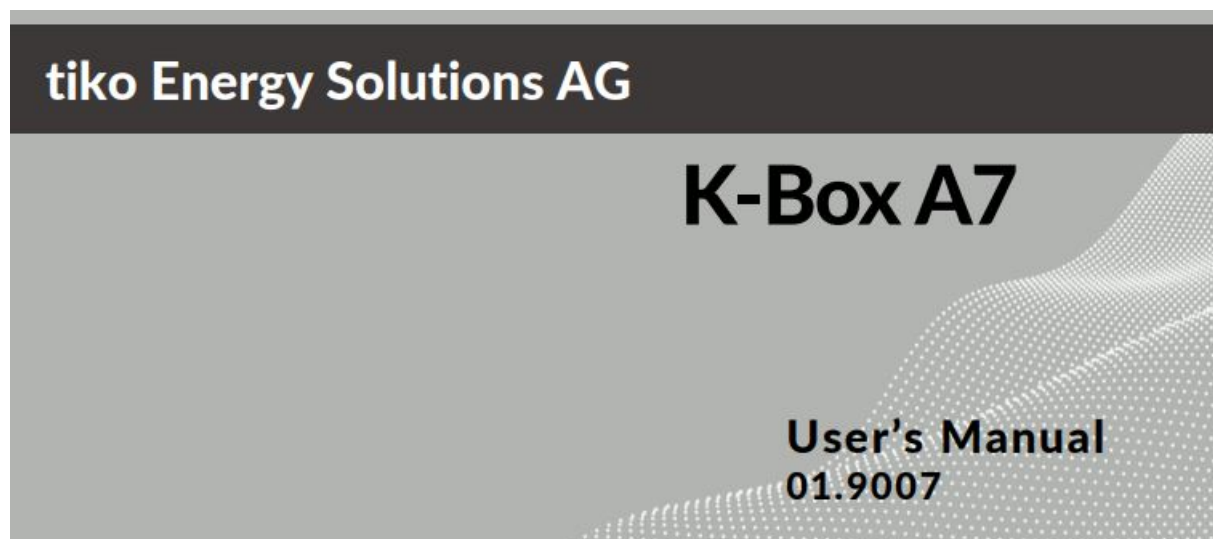




tiko K-Box A7 Class B Three-Phase Meter with Switch User Manual

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*tiko K-Box A7 Class B Three-Phase Meter
with Switch User Manual*



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Hazard Risk



Read the user manual before installing and operating this product!



Installation by person with electronical expertise and trained on this product only!



Disconnect all power sources before carrying out any manipulation!



Always use appropriate protection equipment!



Danger! High voltage!



Never touch disconnected wires! Life hazard!



Only use for current/voltage as indicated on the device label! Doing otherwise can cause device damage and may pose an electrical shock or fire hazard!



Not properly tightened screws can cause a high contact resistance, lead to overheating, and cause a fire hazard!



Not properly connecting the Neutral will damage the device and pose safety risk!

Warnings

- Read the installation instructions before you connect the system to its power source.
- To prevent the system from overheating, do not operate it in an area that exceeds the maximum admitted ambient temperature of 55 °C.
- This product relies on the building's installation for short-circuit (over current) protection. Ensure that a fuse or circuit breaker no larger than 230 VAC, 65 A is used on all current-carrying conductors.
- The circuit breaker shall be in front, close to the device, easily reachable by the operator, and it shall be marked as the disconnecting breaker for the device.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- Device is intended for indoor use only.
- Ultimate disposal of this product should be handled according to all national laws and regulations.
- Any usage of this device in a manner that does not conform to this manual specification can impair the provided safety protection.

Safety Instructions

Read these safety instructions carefully.

- Follow common household electrical safety practices.

- Read all cautions and warnings on the equipment.
- Do not put power to the electrical panel before putting back the cover of the home distribution box. No live contact shall be accessible.
- Disconnect this equipment from the distribution box before cleaning it. Do not use liquid or sprayed detergent for cleaning. Use moisture sheet or cloth for cleaning.
- The openings on the enclosure are for air convection and protect the equipment from overheating. Do not cover the openings.
- Do not pour any liquid into opening. This could cause fire or electrical shock.
- Do not open the enclosure of this product and/or alter this product in any way.
- Have the equipment checked by a service professional if one of the following situations arises:
 - The line is damaged.
 - Liquid has entered the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work properly, or you cannot get it to work according to user's manual.
 - The equipment has been dropped or damaged.
 - The equipment has obvious signs of breakage.
- Keep this equipment away from excessive or condensing humidity.
- Do not leave this equipment in an unconditioned environment. Temperatures above 55 °C will damage the equipment.
- Keep this guide for later reference.

Feedback

You can submit comments via email to info@tiko.energy You can also submit your comments via regular mail by writing to the following address:

tiko Energy Solutions AG Alte Tiefenastrasse 6 CH-4600 Bern

We appreciate your comments.

Overview

Intended Use

K-Box is a custom energy meter with remote controlled opto-coupler to be only used in tiko Energy Solutions AG authorized setups. The output of the opto-coupler shall be connected to a receiving unit able to decode the K-Box-A7 signalling.

Any installation or usage which does not conform to tiko Energy Solutions AG setup is strictly forbidden. tiko Energy Solutions AG is not responsible for any improper installation/usage of this device.

Features

K-Box features:

- meters instantaneous energy consumption on 3 phases in both directions (consuming and generating)
- remotely controlled opto-coupler to send signals to a connected device
- LEDs showing connection and opto-coupler status.

Package Content

Open the package and check that you have all the following items:

- Instruction manual

- K-Box

If any of the parts are incorrect, missing, or damaged, please contact the retailer where you made your purchase. Keep the carton box, including the original packing materials, in case you need to return the unit for repair.

Device

IMAGE 1 shows the device from the front. **IMAGE 2** shows the device from the bottom and indicates the phases and neutral terminals.

On the bottom side is a label indicating

- The manufacturer
- The device model number (REF) and the current rating
- The hardware (HW) and firmware (FW) version
- The unique serial/MAC address as text and as barcode code (SN/MAC)

Installation




Installation by person with electrical expertise and trained on this product only!



Do not install the device unless you have removed the main power supply (main breaker or fuses)!

Installing the K-Box

Step 1	Remove power from the electrical panel.
Step 2	Remove the cover panel so you can access the wires.
Step 3	Verify that there is no tension on the wires you intend to manipulate.
Step 4	Ensure that there is a short-circuit protection for 3 phases (breaker or fuse) before the K-Box not larger than 420 V 65 A .
Step 5	Put the K-Box on the DIN rail of the home distribution box and ensure the hook is locked properly (IMAGE 3). Remove the protection covers from the terminals (IMAGE 4).
Step 6	Prepare the cables. Refer to <i>Specifications</i> on page 8 for supported ratings and cable diameters.
Step 7	Connect the wires to the K-Box (IMAGE 6): <ul style="list-style-type: none"> • From left to right, connect Phase 1, Phase 2, Phase 3, Neutral. • Wires for top terminals are coming from source. • Wires for bottom terminals are going to load. <div style="display: flex; align-items: center; margin-top: 10px;">  <div> <p><i>Tighten all clamp screws with enough torque. Insufficient clamping force can result in high contact resistance that leads to device heating and can result in a fire hazard.</i></p> </div> </div>
Step 8	Connect the opto-coupler terminals so the K-Box can send encoded information to the target device. Lift the cover of the opto-coupler terminals (IMAGE 5). Connect the contacts as indicated in IMAGE 7 : <ul style="list-style-type: none"> • OUT – Emitter (to be connected to signal) • (middle) – not used • IN – Collector (to be connected to + 24 V)
Step 9	Close the opto-coupler cover. Put back the protection covers for the phase and neutral terminals (IMAGE 8). Ensure the orientation of the covers (IMAGE 9).
Step 10	Put back the cover panel of the home distribution box to cover the electrical contacts. Be sure that no electrical contact can be touched.
Step 11	Power on the system by enabling power in the electrical panel.
Step 12	To finalize the installation , all tiko devices must be configured using the installation app .

Operation

Device Operation

The operation of the K-Box is subject to the control of the full system and operated by the Data Center through the Gateway (M-Box). No user interaction is required. On the front, there are two buttons, offering the following functionalities:

- Service not used anymore (no function assigned)
- Heating Powered


- Long press (10 s) reset device.

LED Explanation

On the front, there are two green LEDs indicating:

- Link on if connected via Gateway (M-Box) to backend
- Second LED status of opto-coupler. Behaviour is custom and subject to project specifications.

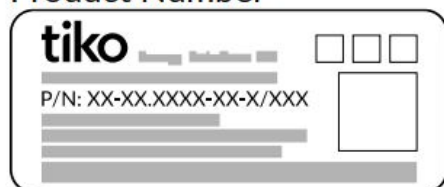
Uninstalling

Step 1	Remove power from the electrical panel.	
Step 2	Verify that there is no tension on the K-Box clamps.	
Step 3	Remove the cover panel. Unwire and remove the device.	
Step 4	Put the cover panel back. Ensure that no electrical contact can be touched.	
Step 5	Power on the system.	
Step 6	If the device remains property of <i>tiko Energy Solutions AG</i> or its authorized reseller, it must be returned. Otherwise, the ultimate disposal of a device shall be handled according to national laws and regulations.	

Specifications

Device Characteristics

Product Number



01.9007

Input / Output Voltage	3 x 230/400 VAC
Input / Output Current	max. 65 A
Input / Output Wire Specification*	2.5 mm ² – 25 mm ² (AWG 4 ~ 14)
Opto-coupler max. Current	30 mA
Opto-coupler max. Voltage	30 V
Opto-coupler Wire Specifications	0.14 mm ² – 1.5 mm ² (AWG 16 ~ 26)
Frequency	50 Hz
Voltage of breaker before K-Box	max. 420 V (3 phases)
Current of breaker before K-Box	max. 65 A
Min. Measurable Current	± 0.1 A
Max. Measurable Current	± 65 A
Measurement Tolerance	± 1% @ 1 A – 65 A
User Interface	2 push buttons, 2 LEDs (green)
Connectivity	PLC HomePlug GreenPHY
Dimensions	106 x 92 x 70 mm
Weight	430 g
Max. Power Consumption	less than 1.5 W

* A wire cross-section of 1.5 mm² / AWG 16 may be used as long as an appropriate boot-lace ferrule is properly crimped onto the wire.

	Operating Conditions	Storage Conditions
Temperature (min.)	-10 °C	-20 °C
Temperature (max.)	+55 °C	+70 °C
Relative Humidity	10% - 85% no condensation	5% - 95% no condensation
Maximum Altitude	2000 m	-

Obtaining the Declaration of Conformity

Intended Use

The K-Box is a custom three-phase energy meter with remotely controlled opto-coupler to be only used in tiko Energy Solutions AG authorized setups. The output of the optocoupler shall be connected to a receiving unit able to decode the K-Box-A7 signaling.

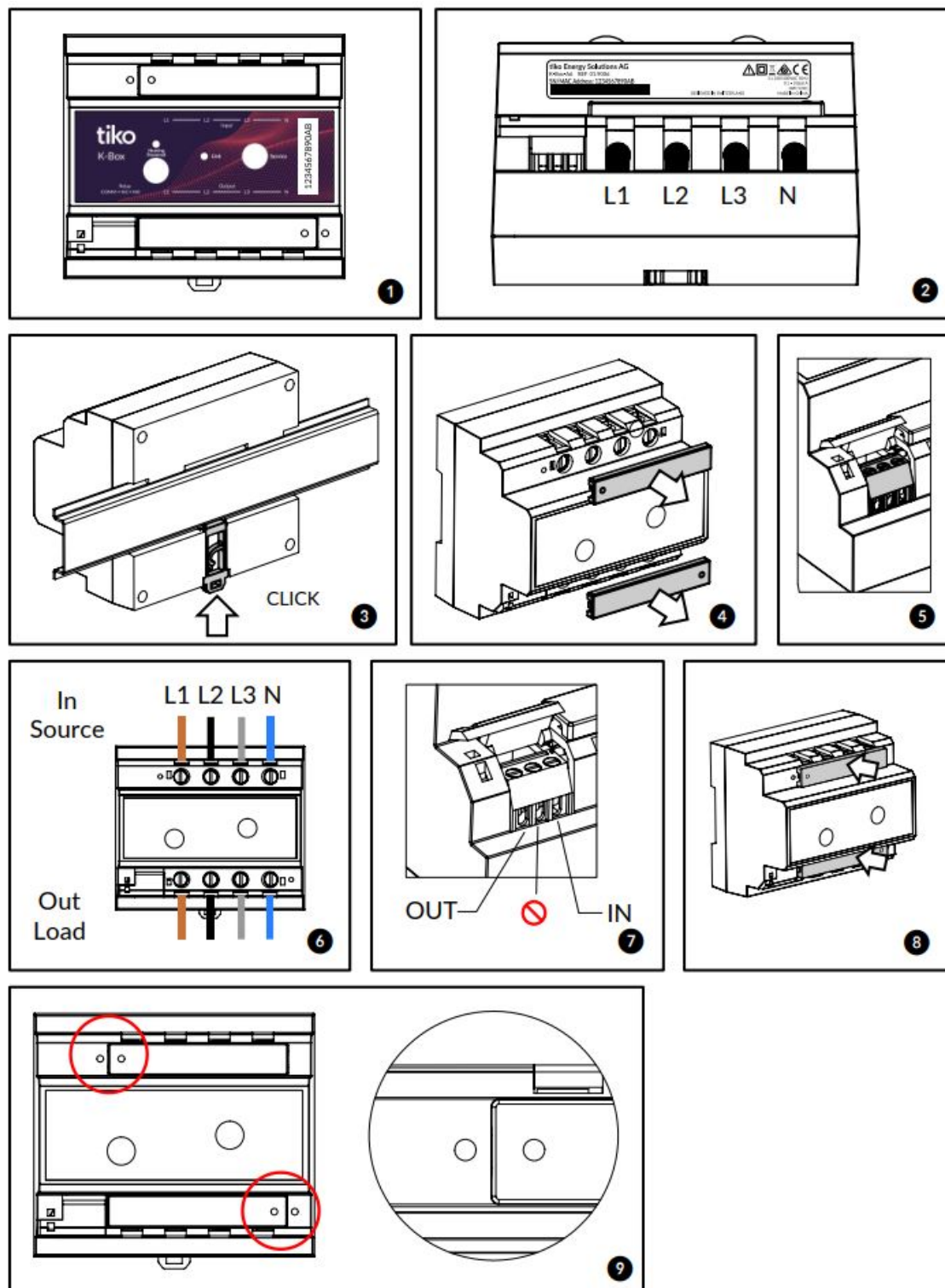
Safety Information

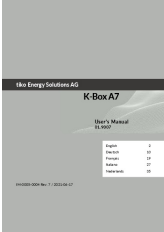
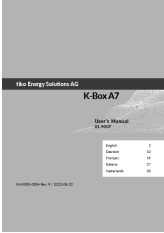
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Pflanzschulstrasse 7 CH-8004 Zürich
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The product 01.9007 in the form as delivered conforms to the provisions of the following European directives: 2011/65/EU on hazardous substances, 2014/35/EU on low voltage devices, 2014/30/EU on electromagnetic compatibility, partially 2004/22/EU on measuring instruments.

A copy of the declaration of conformity can be requested by writing to the postal address or is available on <http://um.tiko.energy/9007>



	<p>tiko K-Box A7 Class B Three-Phase Meter with Switch [pdf] User Manual</p> <p>01.9007, K-Box A7, Class B Three-Phase Meter with Switch, K-Box A7 Class B Three-Phase Meter with Switch</p>
	<p>tiko K-Box A7 Class B Three-Phase Meter with Switch [pdf] User Manual</p> <p>K-Box A7, Class B Three-Phase Meter with Switch, K-Box A7 Class B Three-Phase Meter with Switch, Three-Phase Meter with Switch, Three-Phase Meter</p>

References

-  um.tiko.energy/9007