Manuals+ — User Manuals Simplified.

tiko CMC-01.1015-01-P1 C-Box Link User Manual

tiko CMC-01.1015-01-P1 C-Box Link User Manual
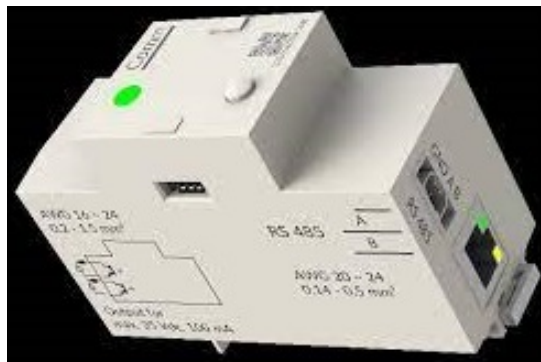
Contents

Safety Warnings and Working Instructions

Hazard Risk

- Read the user manual before installing and operating this product!

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

- Always use appropriate protection equipment!

- Never touch disconnected wires! Life hazard!

- Not to be handled by children under 3 years!

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.
- 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.
- SBUS cables shall not be close to power cables. Minimum clearance is 10 mm.
- 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:
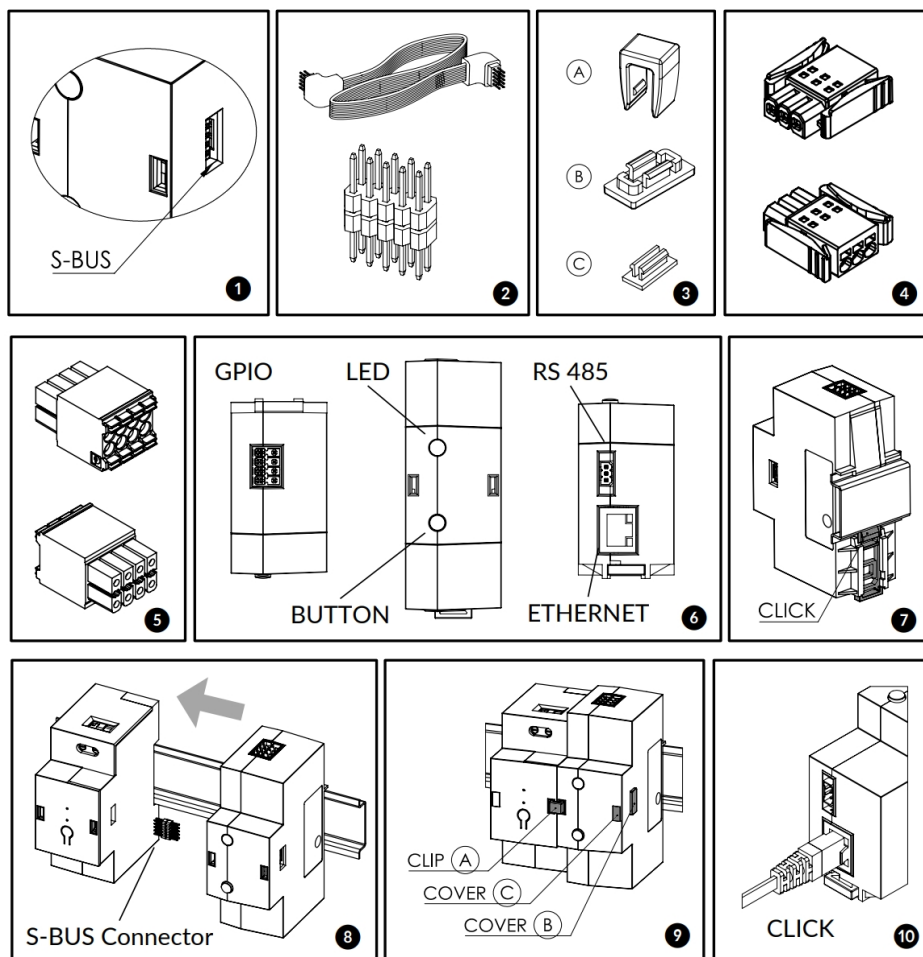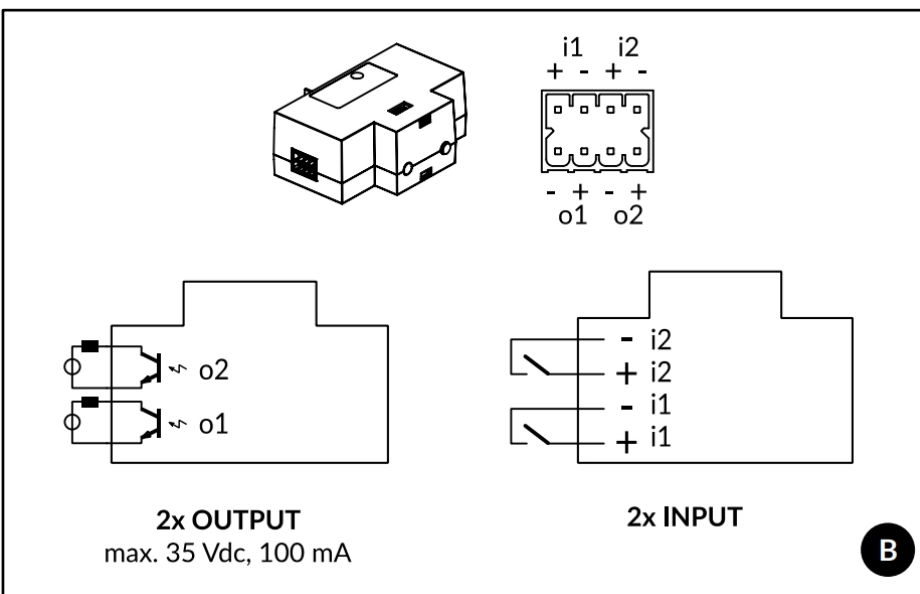tiko Energy Solutions AG
Pflanzschulstrasse 7
CH-8004 Zürich
We appreciate your comments.

Product Description

GND A B

RS 485

A

i1   i2
+ - + -

- + - +
o1   o2

o2

o1

2x OUTPUT
max. 35 Vdc, 100 mA

- i2
+ i2
- i1
+ i1

2x INPUT

B
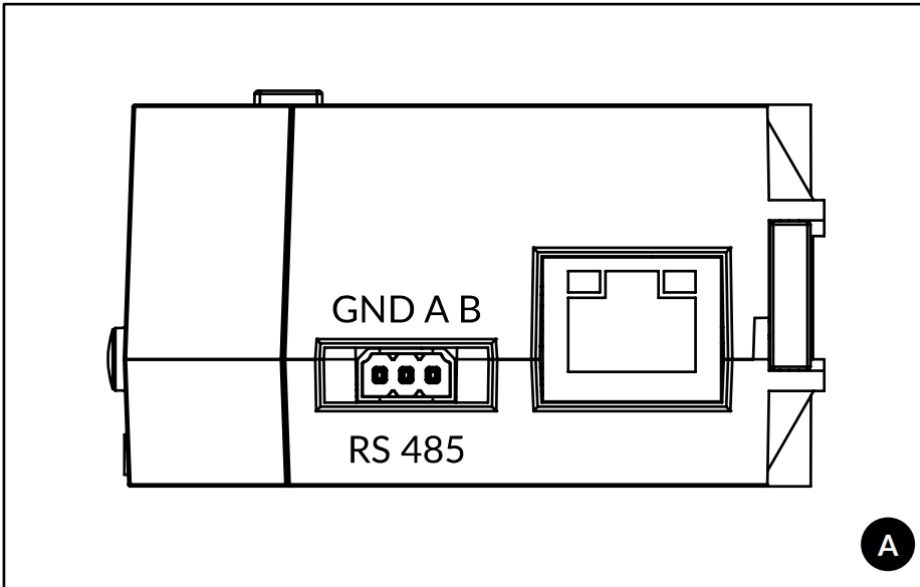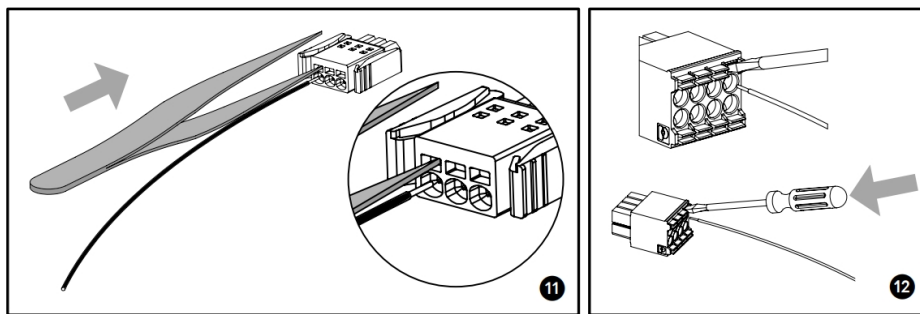
Overview

Intended Use

The C-Box is a remote terminal unit (RTU). It offers a smart communication interface for devices and appliances that support the Modbus protocol. In addition, it features generalpurpose inputs and outputs. It is part of a family of devices that require a Bridge-Box (REF CMB-01.1011) to be powered and to operate. It cannot be used standalone.

The C-Box presents on both sides an SBUS connector **(IMAGE 1)** to be daisy chained with other devices of the same family.

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

C-Box features:

- Ethernet interface
- RS485 interface
- 2 x GPI (General Purpose Input), potential free
- 2 x GPO (General Purpose Output), potential free
- Status LEDs showing data link and device errors
- Button

Package Content

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

- Instruction manual
- C-Box
- 50 cm SBUS interconnection cable or SBUS inter-connector **(IMAGE 2)**
- Clip A and Covers B and C **(IMAGE 3)**
- Depending on the installation, your package might contain:
  - a plug for the RS485 socket **(IMAGE 4),** REF 1709459 from PHOENIX CONTACT
  - a plug for the GPIO socket **(IMAGE 5),** REF 1790124 from PHOENIX CONTACT
  - an ethernet cable

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 6 shows the device from various sides. It indicates the LED, the button, and the interfaces for the ethernet, RS485 and GPIO. On the right 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 Aztec 2D code (SN/MAC)

Installation

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

Installing the C-Box

- **Step 1:** Remove power from the electrical panel.
- **Step 2:** Remove the cover panel so you can access the wires.
- **Step 3:** Put the C-Box on the DIN rail of the home distribution box and ensure the hook is locked properly **(IMAGE 7).**

  Connect the SBUS to any other device that is part of the installation.

  The left SBUS of the C-Box must be connected to the Bridge-Box (REF CMB-01.1011) or other devices connected to the Bridge-Box. The right SBUS can be connected to other devices of the family. An SBUS is connected in one of the 2 ways:

  - **Using the SBUS interconnector:** Plug the SBUS connector in one of the devices and slide the C-Box along the DIN rail towards it **(IMAGE 8).** Use the Clip A to prevent the SBUS from being disconnected **(IMAGE 9).**
  - Using the SBUS cable: Connect the C-Box to the other device using the provided SBUS cable. Warning: SBUS cables shall not be close to power cables. Minimum clearance is 10 mm.

    If this C-Box is at the end of the chain of tiko devices, close the remaining openings using Cover B and Cover C **(IMAGE 9).**
- **Step 4** Connect the device you want to control (home battery, inverter, etc.) to the C-Box using one of the following possibilities:

  If the device supports the Modbus protocol:
  - If the device features an ethernet port, connect it using the ethernet cable **(IMAGE 10).**
  - If the device features the RS485 interface, use the enclosed RS485 connector: for each wire, push with a small tool (e.g., a pair of tweezers) into the slot above the terminal to open the spring clamp, insert the wire (insulation removed) and pull out the tool **(IMAGE 11).** The schematic is imprinted on the C-Box enclosure and shown in **IMAGE A.**
- If the device does not support the Modbus protocol, but can be controlled via direct input and output:
  - use the enclosed GPIO connector: use a small flat screwdriver to push in the orange lever for each terminal. Then insert the wire (insulation removed) and let go the orange lever (IMAGE 12). The schematic is imprinted on the C-Box enclosure and shown in IMAGE B. Refer to chapter Specifications for detailed ratings and proper cable diameters.
- **Step 5:** 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 6: Power on the system by enabling power in the electrical panel.
- **Step 7:** To finalize the installation, all tiko devices must be configured using the installation app. Also ensure the proper configuration of the device connected to the C-Box.

Operation

Device Operation

The C-Box features one hardware push button. Currently, no default function is assigned to this button. It may be that for special setups there is defined a custom function.

Any further operation of the C-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.

Firmware Upgrade

The latest firmware available is forced into the device when applying power to the C-Box with the push button pressed. Warning: Perform this operation only upon an authorized technician request!

LED Explanation

The C-Box features one LED:

- In normal operation:

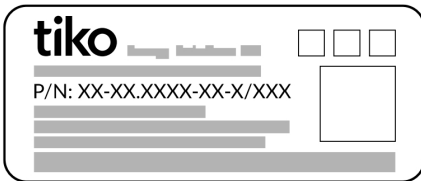| Color	Status	Notes
Steady Green	Device operational	*Device running. Communication with con- nected device(s) is normal.*
Yellow blinking @ 1 Hz	Communication errors	*Device running. Communication error(s) with one or more connected devices.*
Steady Red	Device POST failure	*Device Power-On Self-Test has failed. Device requires service.*

- In firmware upgrade mode:

Color	Status	Notes
Blinks yellow and green @ 2 Hz	Device running firmware upgrade	

Uninstalling

Step 1	Remove power from the electrical panel.
Step 2	Remove the cover panel. Disconnect the device controlled by the C- Box and remove the C-Box from the electrical panel.
Step 3	If the C-Box was connected to another device of the family that remains in the electrical panel, ensure that the remaining openings are closed with covers B and C (**IMAGE 9**).
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 *tiko Energy Solutions AG* 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 P/N: XX-XX.XXXX-XX-X/XXX	CMC-01.1015-01-P1
User Interface	1 push button (programmable function) 1 LED (green, yellow, red)
Dimensions	94 x 61 x 36 mm
Weight	93 g
Max. Power Consumption	2 W

Modbus Characteristics	
Master / Client	yes
Slave / Server	optional
Macros	up to 20
Modbus Interfaces	1x Modbus RTU, 1x Modbus TCP
Wire Specification for RS485	0.14 mm² – 0.5 mm² (AWG 20 ~ 24)
Serial Port Speed	configurable up to 1 Mbps
RS485-Terminator	Software-controllable
Ethernet Plug	RJ45
Ethernet Speed	10 Mbit/s, 100 Mbit/s, automatic
IP assignment	DHCP client (dynamic) / static

GPIO Characteristics	
General Purpose OUTPUT Voltage	max. 35 Vdc
General Purpose OUTPUT Current	max. 100 mA
Wire Specification for GPIO	0.2 mm² – 1.5 mm² (AWG 16 ~ 24)
Digital Inputs	2 for potential free
Digital Outputs	2 Opto-Couplers

	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 C-Box is a remote terminal unit to be only used in tiko Energy Solutions AG authorized setups.

Safety Information
tiko Energy Solutions AG
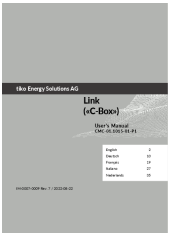Pflanzschulstrasse 7
CH-8004 Zürich

CE **RoHS** ⚠️

The product CMC-01.1015-01-P1 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.

Furthermore, the product CMC-01.1015-01-P1 in the form as delivered conforms to the relevant notices of the following Australian/New Zealand acts as required by ACMA: Radio communications Act 1992, Telecommunications Act 1997.

A copy of the declaration of conformity can be requested by writing to the postal address or is available on http://um.tiko.energy/1015

Documents / Resources

tiko Energy Solutions AG **Link** («C-Box») User's Manual CMC-01.1015-01-P1 English 2 Deutsch 10 Français 19 Italiano 27 Nederlandс 35 HH-0001-0009 Rev. 7 / 2022-08-22	**[tiko CMC-01.1015-01-P1 C-Box Link](http://um.tiko.energy/1015)** [pdf] User Manual CMC-01.1015-01-P1, C-Box Link, CMC-01.1015-01-P1 C-Box Link

References

- tiko **um.tiko.energy/1015**