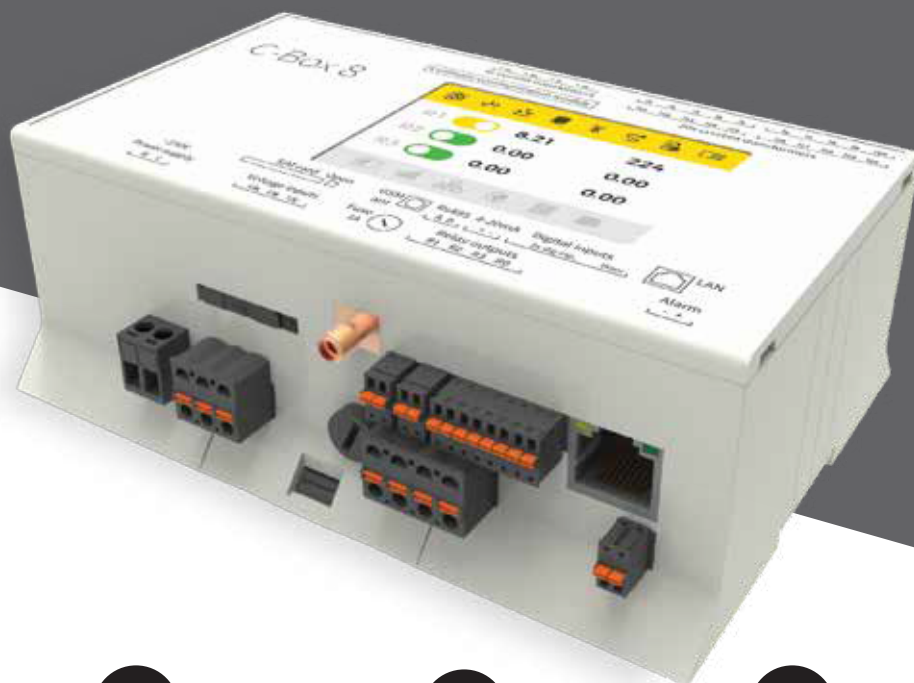




C-BOX 8

teamtronic

THE SMARTEST STREET LIGHTING CONTROL DEVICE IN TOWN



Built-in smart
features



Stay connected
everywhere



Easy to set up
and use



Precise
measurements



Perfect fit
and security

DESIGN



RETROFIT

The C-Box is designed to fit any existing street light cabinet installation.



MODULAR DESIGN (RF, PLC, DALI, DMX)

The modular design allows modules to be replaced in the C-Box, enabling a variety of communication technologies, including RF, PLC, DALI.



SIMPLE SETUP

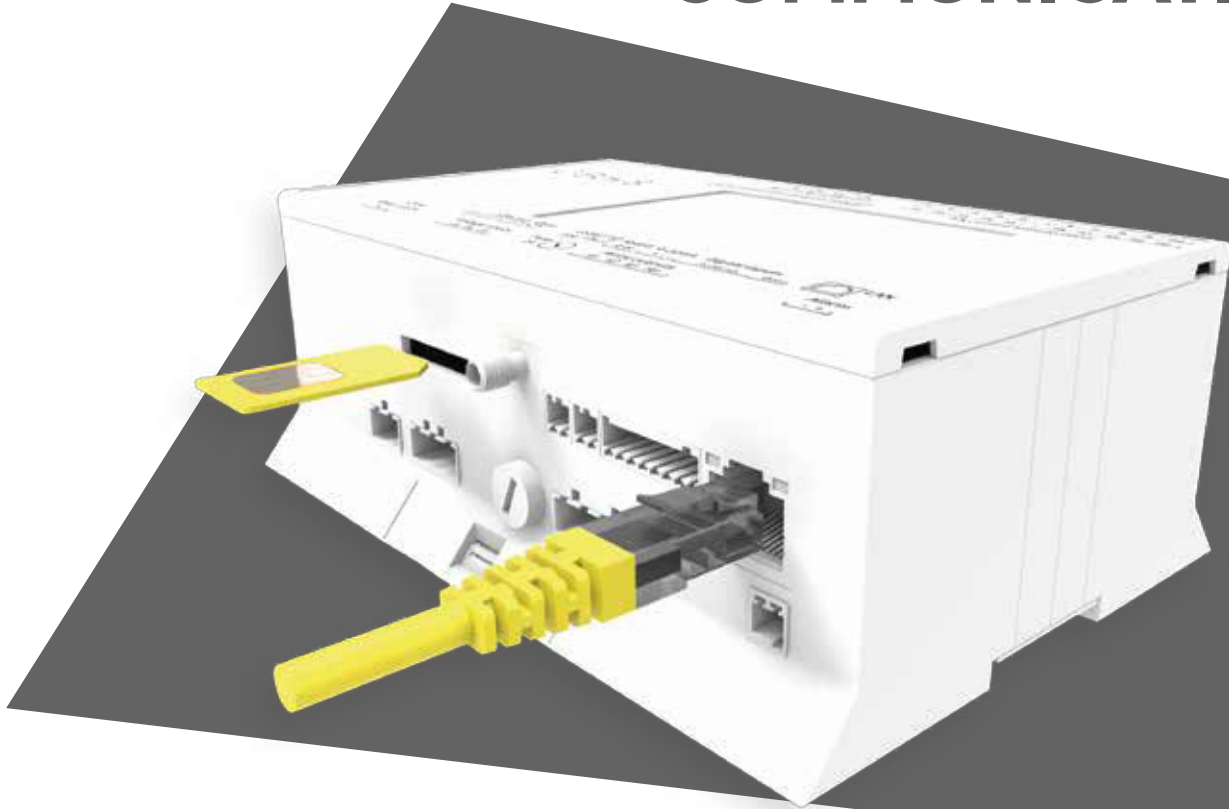
Thanks to the fast and easy installation, implementation costs are low.



COMPACT

The compact size allows for easy installation of the C-Box into small cabinets.

COMMUNICATION



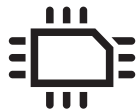
ETHERNET

A wired ethernet connection with the server ensures constant communication.



MOBILE DATA COMMUNICATION

High data speed is ensured thanks to 3G or 4G (LTE) communication with server. Two independent SIM cards enable maximum communication uptime.



BUILT-IN SIM

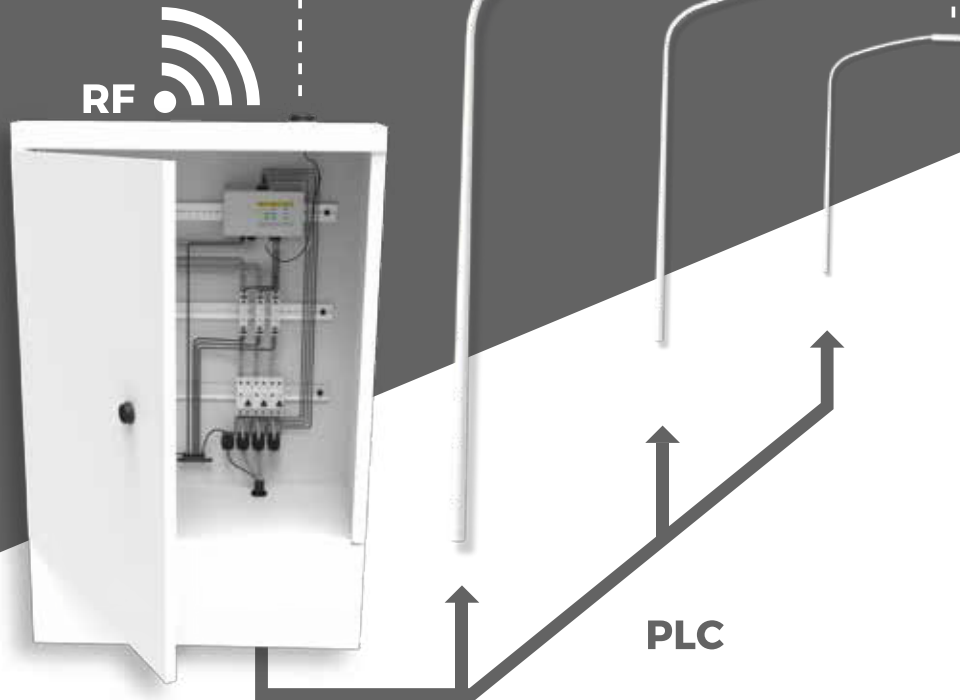
A built-in SIM card is provided by Citylight as an option.



REMOVABLE SIM

Can be used with any operator SIM card.

MODULAR COMMUNICATION MODULES



LONG RANGE LORA RADIO COMMUNICATION

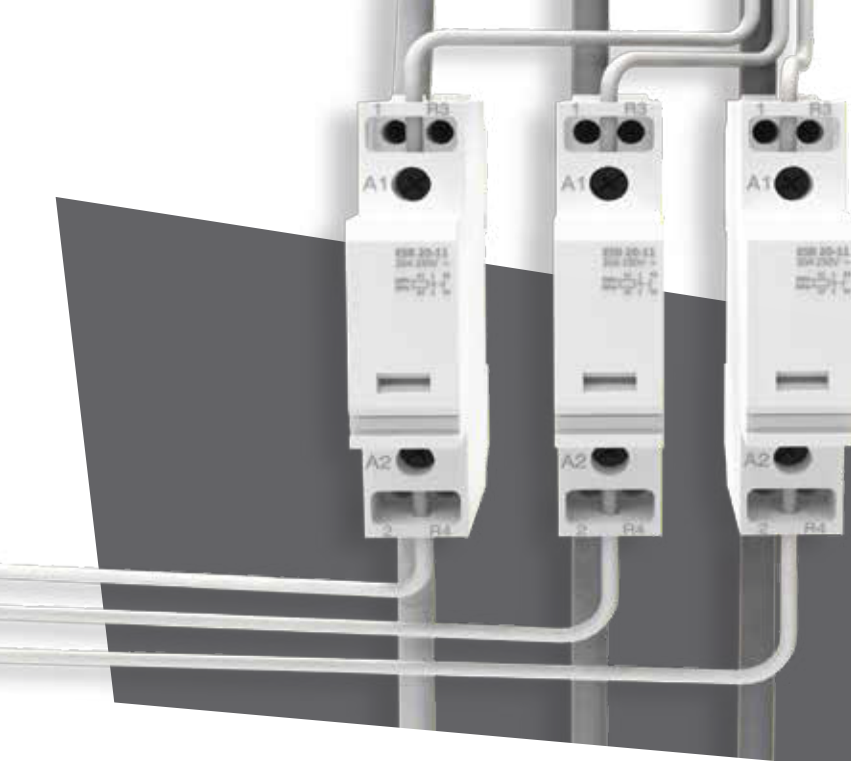
Long range radio frequency enables signal quality and stability even in dense urban areas, with a distance of up to 12 km. It is also used where luminaires on one street are powered by different sources.



POWER LINE COMMUNICATION

No wires for data communication are required in the PLC (power line communication) solution as data is transmitted directly over electricity lines.

CONTROL



4 I/O INPUTS

Inputs detect external device states and send changes to the server, ensuring continuous monitoring of external devices.



3 PHASE RELAY SWITCHING ON/OFF

Main power switch and energy saving are controlled by individual phase switching.



ASTRONOMICAL CLOCK

The built-in astronomical clock calculates twilight and sunrise times at the installation location and switches relays according to a preset schedule.



AMBIENT LIGHT MEASUREMENT

A brightness level sensor continuously monitors ambient light during early morning and late afternoon, and adjusts the preset schedule in cloudy weather conditions.



MANUALLY

Manually switch the relays remotely at any time.

ENERGY MEASUREMENT



LINE CURRENT MEASUREMENT

In cases where phases are split to additional outgoing lines, each line current (up to 23 lines) can be measured even more precisely with greater detection of localized faults.



VOLTAGE MEASUREMENT

Each phase voltage measurement indicates the quality of electricity supplied and any overvoltage or voltage drops.



POWER FACTOR MEASUREMENT

The power factor shows the ratio between active and reactive power, providing data for electricity quality analysis.



CONSUMPTION MEASUREMENT

The measurement of consumption shows how much energy is being used and evaluates the efficiency of the streetlight infrastructure.



LEAKAGE DETECTION

Current leakage monitoring allows detecting damage in cables.

SECURITY



DOOR SWITCH

The door opening switch detects authorized and unauthorized access to the cabinet.



ALARM OUTPUT

To protect the streetlight cabinet against theft or damage, an alert siren is triggered in the case of unauthorized access.



SECURITY

The touchscreen display allows for easy and secure access to log maintenance access or activate the alarm in case of unauthorized access.



OVERVOLTAGE ELECTRICITY PROTECTION

Overvoltage peaks can cause damage to the device. Therefore we use overvoltage up to 4kW to protect the device even in unstable voltage environments.

TOUCHSCREEN



DEVICE CONFIGURATION

Service technicians can configure the device during initial setup or change settings locally without help desk support.



TESTING AND MAINTENANCE

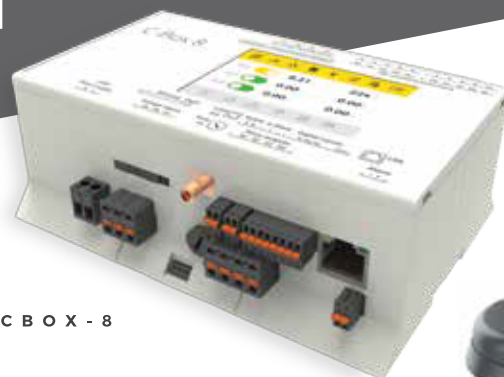
Device, communication or input states can all be tested through our remote support, no phone calls or connections to the server are needed.



PARAMETER READOUT

A technician can read or verify energy measurements or display input states locally.

WHAT'S IN THE BOX



CBOX - 8

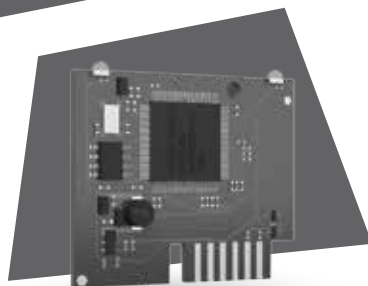


CURRENT TRANSFORMERS



GSM ANTENNA

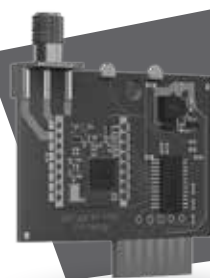
ADDITIONAL COMPONENTS



PLC

CBOX-8-PLC

or



RF

CBOX-8-RF



TWILIGHT SENSOR

BLS-420 - 4-20 mA



DOOR SENSORS

DS-2



EXTRA CURRENT TRANSFORMERS

CT-24-200A - 200A Ø24mm
CT-16-100A - 100A Ø16mm
CT-10-50A - 50A Ø10mm

SPECIFICATION

C-BOX8

DIMENSIONS AND WEIGHT

Width: 160.2 mm
Height: 110 mm
Depth: 53.5 mm
Weight: 600g

ENCLOSURE

IP class: IP20
Material: ABS plastic
Electrical protection: Class II

MOUNTING

Cabinet: DIN rail 35mm

SERVER COMMUNICATION

MOBILE NETWORK

2G/3G (LTE optional)
SIM card type: Micro SIM
Secondary SIM card type: Chip SIM
Network protocol: TCP/IP
Antenna connector type: SMA

Receiver sensitivity:
UMTS 900/2100: -110dBm
UMTS 850/1900: -110.5dBm
DCS 1800: -110.5dBm
EGSM 900: -109.5dBm

Data speed:
HSPA: Max.5.76Mbps
HSDPA: Max.7.2Mbps
UMTS: Max.384Kbps
EDGE: Max.236.8Kbps
GPRS: Max.85.6Kbps
GSM: 14.4 Kbps
WCDMA: 64 Kbps

ETHERNET

Communication speed: 10-100 Mbps (1 Gbps optional)
Network type: Ethernet
Network protocol: TCP/IP (supports DHCP)
Connector RJ45

LUMINAIRE COMMUNICATION

RADIO FREQUENCY (OPTIONAL)

Radio frequency: 868 MHz
Sensitivity: -148 dBm
Efficiency PA: +14 dBm
Modulation: LoRa
Point-to-Point range: 1500m
Number of hops: 15
Number of end devices: 350
Antenna connector type: SMA

POWER LINE COMMUNICATION (OPTIONAL)

Frequency: CELENEC B (95-125 kHz),
CELENEC A and C bands optional
Network type: Dynamic mesh topology
Modulation: DCSK
Point-to-Point range: up to 300m
Number of hops: 12
Number of end devices: 350
FCC, Cenelec EN50065-1, ARIB

ELECTRICAL PARAMETERS

POWER SUPPLY

Input voltage: 230 VAC -15% ...+15%
Frequency: 50/60 Hz
Power consumption: 5W
Electrical safety: Galvanic isolation
Surge protection: 6kV

BACKUP POWER SUPPLY

Super capacitor
Capacity: 5.0F

DISPLAY

Type: LCD TFT
Size: 3.5 inch
Touchscreen: Resistive

MEMORY

Flash Memory: 8 Mb
EEPROM: 521 kbit

ENVIRONMENTAL REQUIREMENTS

Ambient temperature: from -40° to +85° C
Relative humidity: < 95% non-condensing

INTERFACES

VOLTAGE MEASUREMENT

Number of sockets: 3
Connector type: terminal plug
Range: 0-350V (1% accuracy)
Surge protection: 3 kV

CURRENT MEASUREMENT

Inputs: 4+20, 4 - 1% accuracy, 20-3%
Range: depends on current transformer
Current transformer type: 0.333V

LUMINAIRE COMMUNICATION MODULE

Number of sockets: 1

FUSE

Socket type: replaceable
Load: 1 A (changeable)

ALARM OUTPUT

Voltage: 12 V

DIGITAL INPUTS

Number of sockets: 4
Type: Dry contact
Voltage: 5V

RELAY OUTPUT

Number of sockets: 3
Type: Switch over
State: Normally open
Load: 1A (max 5A)

ANALOG INPUT

Type: 4-20 mA

SERIAL INTERFACE

Type: RS485

OTHER

ENCRYPTION AND FIRMWARE

Encryption: AES 128
Firmware update: Over-the-Air (OTA)

MANUFACTURED

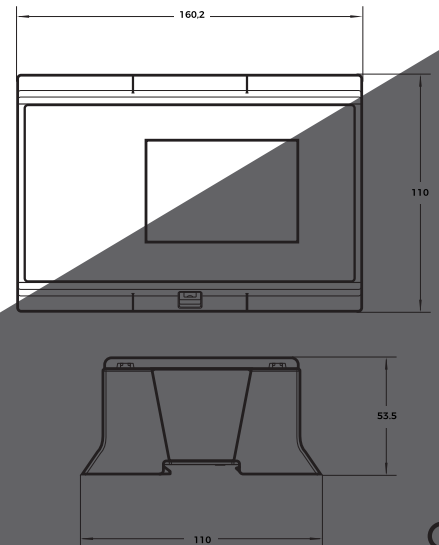
Manufactured: EU
Designed: EU

CERTIFICATION

EMC
EN 301 489-1 V1.8.1:2008-04
EN 301 489-3 V1.6.1:2013-08 F

SAFETY

LV directive 2006/95/EC
Radio:





teamtronic

Agerhatten 16C
DK-5220 Odense
Denmark
www.teamtronic.dk