CBOX
Lite

CBOX Lite is a high-performance feeder pillar controller that is equipped with the latest LTE-M communication technologies, which allows for centralized remote control of streetlights.

CE

RoHS

LTE-M

WARRANTY 5 YEAR

Touchscreen

FEATURES

CELLURAL COMMUNICATION

VOLTAGE MEASUREMENTS

RELAY CONTROL

CURRENT MEASUREMENTS

COMPACT DESIGN

DUAL SIM

HOW IT WORKS

AES128

Cloud server

citylight

citylight

SPECIFICATION

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/LTE/Cat-M1
SIM card type: Standard SIM
Secondary SIM type: Embedded MFF2
Network protocol: TCP/IP
Antenna connector type: SMA (female)

Data speed:
Cat M1: 1119 (Kbps)
EDGE: 236.8 (Kbps)
GSM: 85.6 (Kbps)

Frequency Bands:
LTE-FDD (Cat-M1):
B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/
B20/B25/B26/B27/B28/B66/B85
GSM/EDGE: 850/900/1800/1900 MHz

Receiver (Antenna):
VSWR:
700/850/900 (MHz): ~1.9:1
1700/1800/1900/2100 (MHz): ~2.2:1
2600 (MHz): ~1.3:1
Average gain (dB):
700/850/900 (MHz): ~-2.8
1700/1800/1900/2100 (MHz): ~-3.3
2600 (MHz): ~-3.3
Polarisation: Linear
Antenna connector type: SMA (male)

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: 1.5 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

RELAY OUTPUT

Number of sockets: 4
Type: Switch over
State: Normally open
Load: 1A (max 5A)

CURRENT MEASUREMENT

Inputs: 4 - 1% accuracy
Range: depends on current transformator
Current transformer type: 0.333V

FUSE

Socket type: replaceable
Load: 1A (changeable)

OTHER

ENCRYPTION AND FIRMWARE

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

MANUFACTURED

Manufactured: EU
Designed: EU

SAFETY

Directive 2014/35/EU Low Voltage Directive
(LVD)
EN 62311:2008
EN 62368-1:2014/AC:2015
EN 60529

Directive 2014/30/EU Electromagnetic
compatibility(EMC)
EN 301-489-1 V2.1.1
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2008+A2:2010
EN 61000-4-4:2013
EN 61000-4-5:2014
EN 61000-4-6:2014
EN 61000-4-8:2010
EN 61000-4-11:2004
EN 301 489-3 V2.1.1
EN 55015:2013+A1:2015
EN 61547:2009
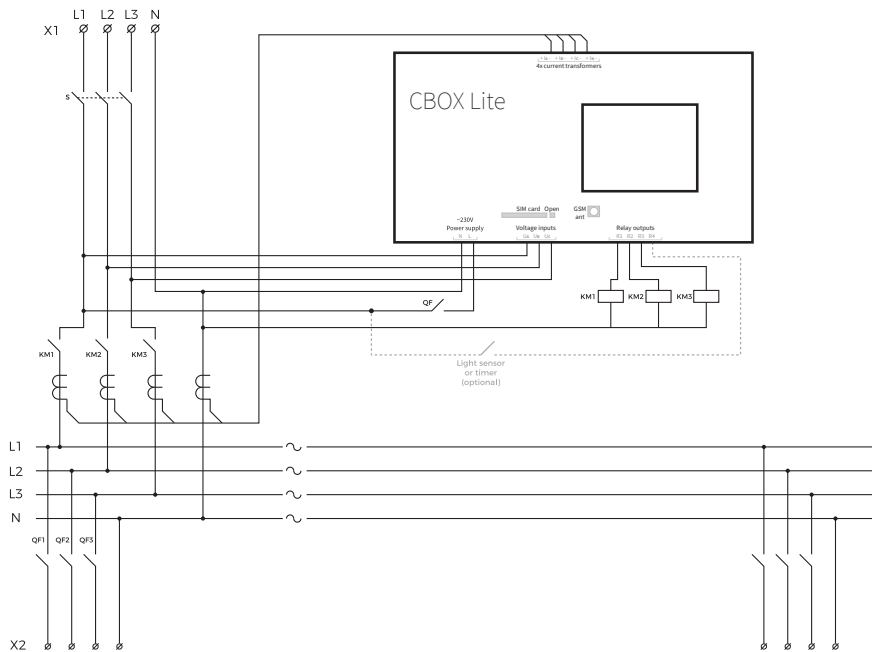
Directive 2014/53/EU Radio Equipment (RED)
EN 300 440 V2.1.1
EN 301 511 V12.5.1
EN 300 220-2 V3.1.1

Directive 2011/65/EU RoHS directive
Directive 2012/19/EU WEEE directive

DIMENTIONS
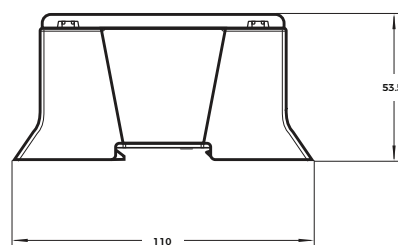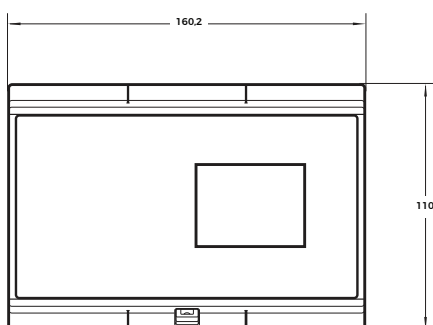
WIRING DIAGRAM

S - Main isolator switch 3 phase

QF - Circuit breaker

KM - Contactor 3 phase 230V/AC

X1 - Power supply terminals Phase L1, Phase L2, Phase L3 cable

X2 - Light terminals Phase L1, Phase L2, Phase L3 cable

INSTALATION INSTRUCTIONS

⚠ CAUTION:
Only qualified persons are allowed to install and start up Citylight products.
Inappropriate opening of the products is prohibited.

⚠ WARNINGS:
Ensure that the AC power mains are turned OFF before handling the wiring, or any other work is carried out on CBOX Lite.

⚠ DO NOT apply power to the device until you have checked all wiring connections and you are instructed to apply power.

1

⚠

Observe all the applicable safety and accident prevention regulations.

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2 Wire requirements and before preparation.

5 mm
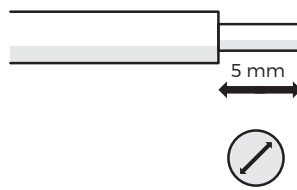
Power cables
0.35 - 2.5mm

3
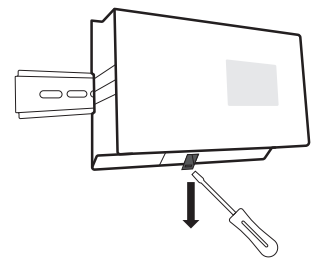
Open the fixing brackets of the CBOX using flat-headed screwdriver.

4
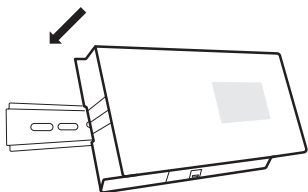
Place the CBOX on the DIN rail.

5
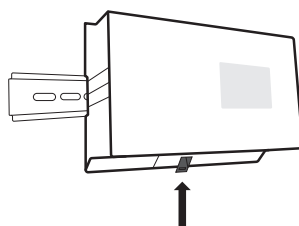
Fasten CBOX by closing the fixing brackets.

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6 SIM card installation
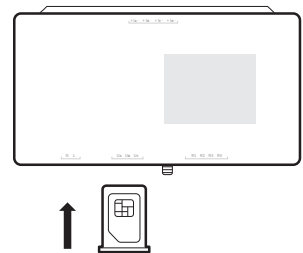
Check if SIM card is active and have access to internet. Recommended to remove SIM cards PIN code before use.

Insert the SIM card in the SIM card holder and insert the holder in the CBOX.

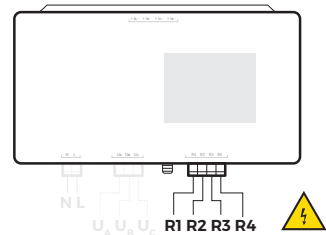
7 Connecting MAIN power supply (230V)
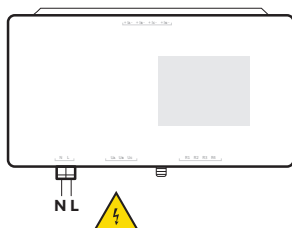
N L ⚡

Using a flat-headed screwdriver, press down the upper jaws of the plug and insert the sensor cable wire into the lower jaws. Fasten the wires by releasing the upper jaws.

Insert the plug into the CBOX (see wiring diagram, page 3).

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8 Connecting Voltage input for each the phases
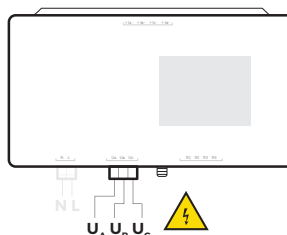
N L U_A U_B U_C ⚡

Using a flat-headed screwdriver, press down the upper jaws of the plug and insert the sensor cable wire into the lower jaws. Fasten the wires by releasing the upper jaws.

Insert the plug into the CBOX (see wiring diagram, page 3).

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9 Relay outputs connected to Contactor control

N L U_A U_B U_C **R1 R2 R3 R4** ⚡

Using a flat-headed screwdriver, press down the upper jaws of the plug and insert the sensor cable wire into the lower jaws. Fasten the wires by releasing the upper jaws.

Insert the plug into the CBOX (see wiring diagram, page 3).

10.1
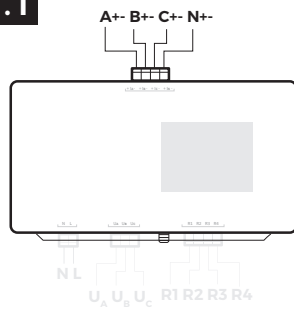
A+ B+ C+ N+

N L

U$_A$ U$_B$ U$_C$ R1 R2 R3 R4

Using a flat-headed screwdriver, press down the upper jaws of the plug and insert the sensor cable wire into the lower jaws. Fasten the wires by releasing the upper jaws. Current transformer for the N is used to detect leakage.

⚠️

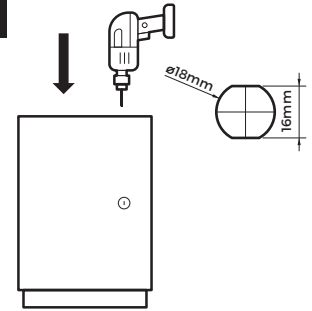Sequentially connect the current transformers according to the sequence of the phases.

10.2

CLICK!
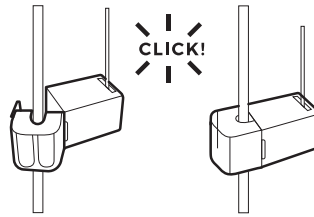
Open the current transformer and place it on the cable. Close it and check if the current transformer has been entirely closed and fully fixed.

⚠️

Choose the right size and power current circuit and make sure that you have the proper length cable.

11.1

ø18mm

16mm

Using a drill create a hole in the casing of the streetlight cabinet.

11.2

Hex. 27
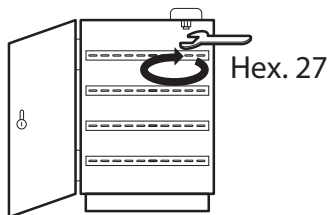
Insert the antenna and fasten it by tightening the nut with the wrench.

11.3
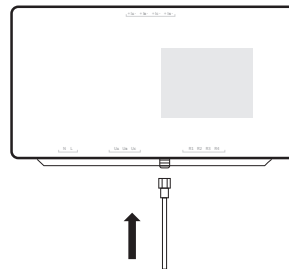
Connect the antenna plug to the CBOX and fasten it.

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citylight.net

Upload device ID numbers from file

Upload device ID numbers from the file.

DISPLAY

OVERVIEW

SERVER SETTINGS

GSM SETTINGS

LOG

SYSTEM OVERVIEW

BUILT-IN SIM CARD

REMOVABLE SIM CARD

SIM OK (ACTIVE)

SIM ERROR

SIM CARD OK (IN RESERVE)

2G GSM COVERAGE

GSM COVERAGE - EXCELLENT

GSM COVERAGE - GOOD

GSM COVERAGE - NORMAL

GSM COVERAGE - POOR

NO GSM COVERAGE

INTERNET OK

INTERNET ERROR

CONNECTER TO SERVER

CONNVECTION TO SERVER ERROR

CONNECTION WITH DATA BASE OK

DATABASE DOESN'T RESPOND OR CBOX ID
DOESN'T EXIST IN DATABASE

24.01.2019
16:19

Primary

■ SIM 1 (Built-in) ●

☐ SIM 2 (Removable) ○

APN

PIN

ID: 8944592

Firmw: 10.55

Hardw: 10.10

Displ: 8.01m

Update Firmware

Erase memory

Reset

28.12.22 09:16:44 Restart
28.12.22 09:16:49 Start GSM 1
28.12.22 09:17:25 Connected

SERVER

IP: citylight.teliko.com

Port: 5683
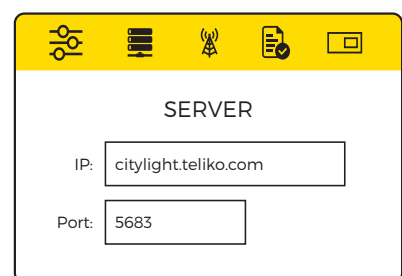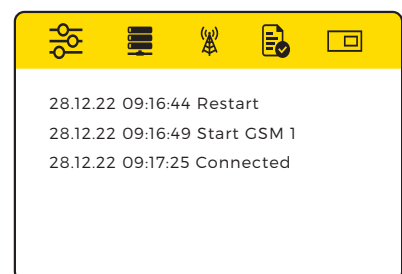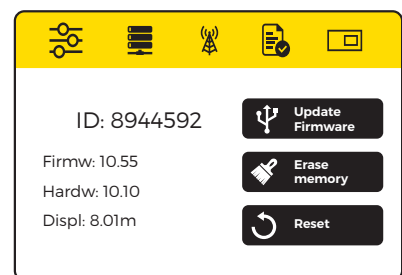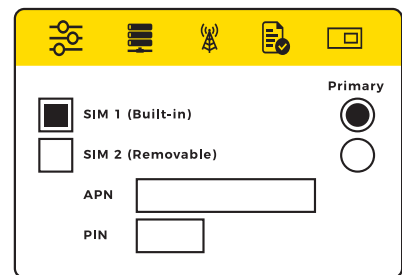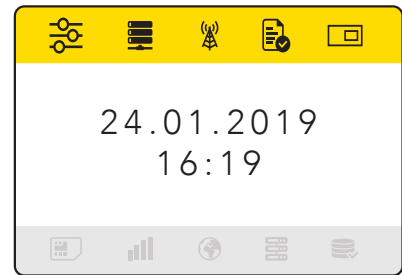
TROUBLESHOOT

UNABLE TO CONNECT TO THE SERVER
Make sure the CBOX is connected to the power source. Check if the antenna is connected and working properly. Make sure CBOX-ID is entered precisely.

CAN'T COLLECT POWER COMPSUMPTION MEASUREMENTS
Make sure all current transformers (R1, R2, R3 and N) are connected properly. Check if all of the current transformers have been entirely closed and fully fixed.

WHY CBOX ISN'T WORKING PROPERLY WITH MY REMOVABLE SIM CARD
Check if the APN configuration has been made properly or contact our support team.

IF CBOX HAS "FROZEN"
Try reseting the CBOX manually by pressing the restart button on the device once for a short period of time.

ERROR CODES

11 GSM -	PIN error	**26 GSM -**	GPRS registration error
12 GSM -	module error	**27 GSM -**	GPRS registration error
13 GSM -	module error	**28 GSM -**	GPRS registration error
14 GSM-	module error	**29 GSM -**	GPRS registration error
20 GSM -	IMSI error	**30 GSM -**	APN error
21 GSM -	no APN	**31 GSM -**	connect to internet error
22 GSM -	IMEI error	**32 GSM -**	connect to server error
23 GSM -	GSM network registration error	**33 GSM -**	connect to server error
24 GSM -	GSM network registration error	**34 GSM -**	connect to server error
25 GSM -	GPRS registration error	**50 GSM -**	Internal meter error