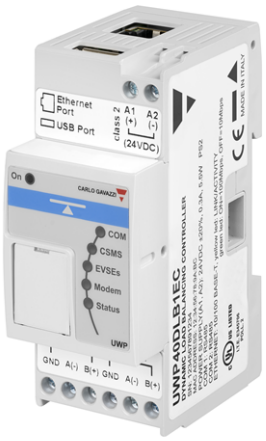
UWP-DLB

Local controller for dynamic load management of EV chargers



Description

EV charging sites can have more demand for power than that which is available.

Coupled with other draws on power – such as buildings and street lighting – there is a need to manage charging maximums so as not to blow site limits.

UWP-DLB is a small hardware module that is fitted onsite and connects to both AC and DC chargers.

It can work standalone handling authentication or online passing messages from the chargers to any OCPP-compatible back office management system (CSMS) to authorise transactions and for billing.

It includes a web server with a powerful and intuitive user interface to interact with local devices and remote systems.

Benefits

- **Optimal load distribution**. Better use of your grid connection for charging e-vehicles. Thanks to dynamic load management, all vehicles are charged entirely without expensive load peaks.
- **Fast response**. Short latency thanks to local hardware.
- **Reliability**. High reliability of load management and authorization in case of internet failures.
- **Self-contained operation**. Charging processes are controlled at any time.
- **Offline EV authorization**. EV authorization via RFID cards is also possible in case of an internet connection failure.
- **Accessible everywhere**. Remote access real-time data and configuration via MAIA Cloud.
- **Interoperability**. Compatible with any OCPP charger or back-end CSMS software (OCPP 1.6).

Applications

UWP-DLB is designed to be used in two scenarios:

- Online - As a local load balancer, authorizing transactions through a cloud-based charge station management system (CSMS). Provides backup of transactions in the event of an internet outage.
- Offline- As a local load balancer with local authorization. In this mode RFID tags are used and/or the payment terminal.

References

How to order

Enter the code option instead of ☐

Code	Options	Description
UWP40DLB	-	-
☐	20P	20 plugs
	50P	50 plugs
	100P	100 plugs
	200P	200 plugs
	250P	250 plugs

Licence code

Enter the code option instead of ☐

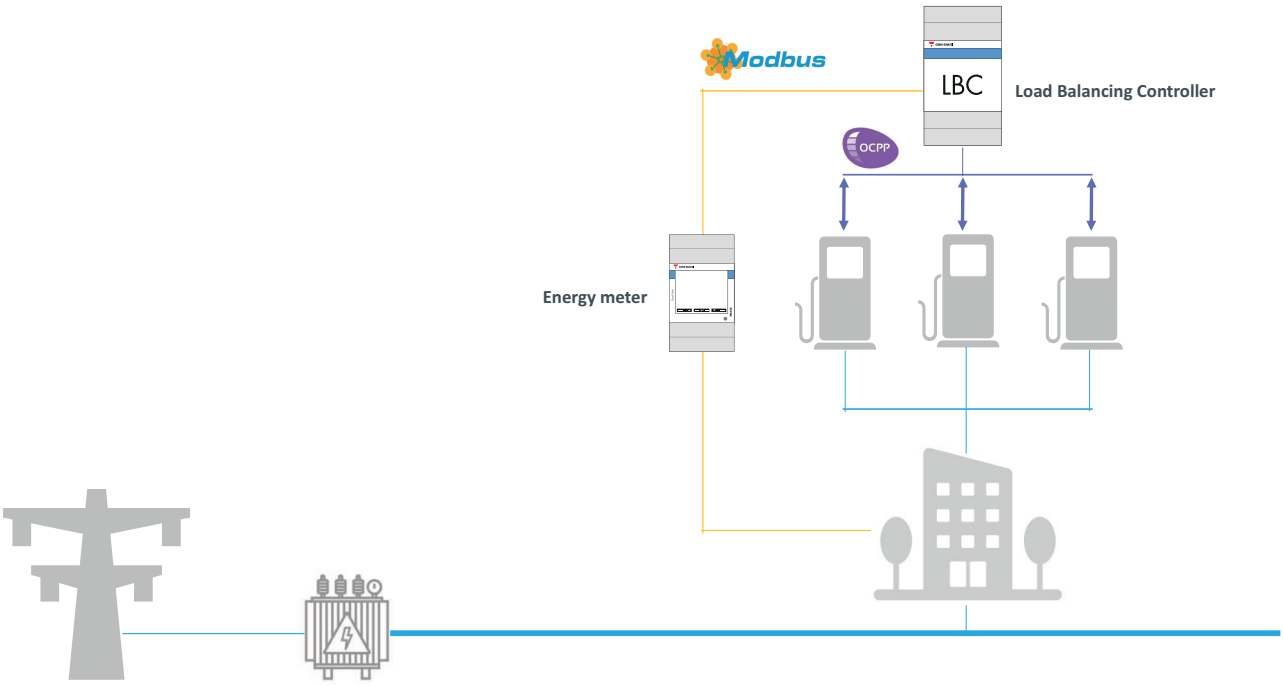
Code	Options	Description
UWP-LICENCE-	-	-
☐	100P	To manage up to 100 plugs
	200P	To manage up to 200 plugs
	250P	To manage up to 250 plugs

Main functions

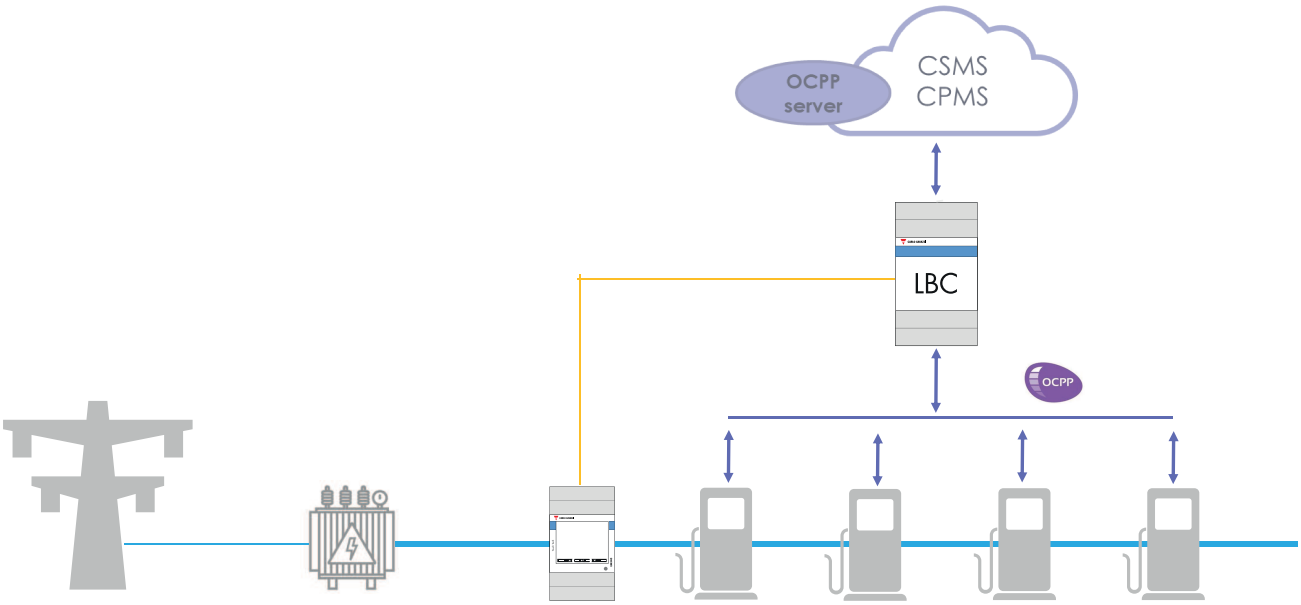
- Monitors OCPP messages relating to charging limits
- Monitors energy use on-site reading a meter using TCP/RS485 (optional)
- Automatically adjusts the EV charger limits so that the load is balanced to the site.
- Works with single and three phase systems
- Works with AC and/or DC chargers
- Can be configured locally or remotely using MAIA Cloud
- Supports for whitelists of RFIDs (when used without a CSMS)
- Stores transactions and allows download in CSV and NEM12 format
- Supports grouping of chargers for separate cable run limits, and priority channels

Architecture

Stand alone

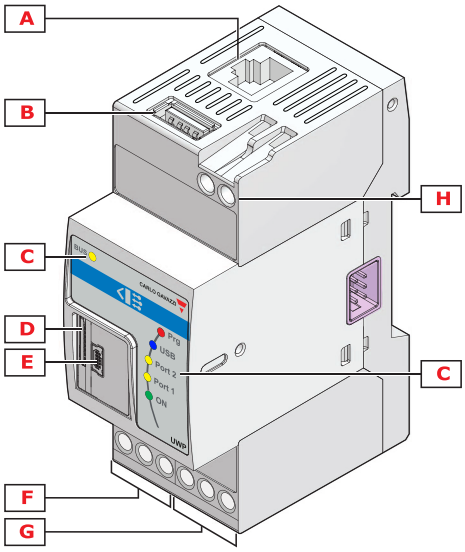


Combination with CMS solution



CSMS = Charging station management system
CPMS Charging point management system

Structure



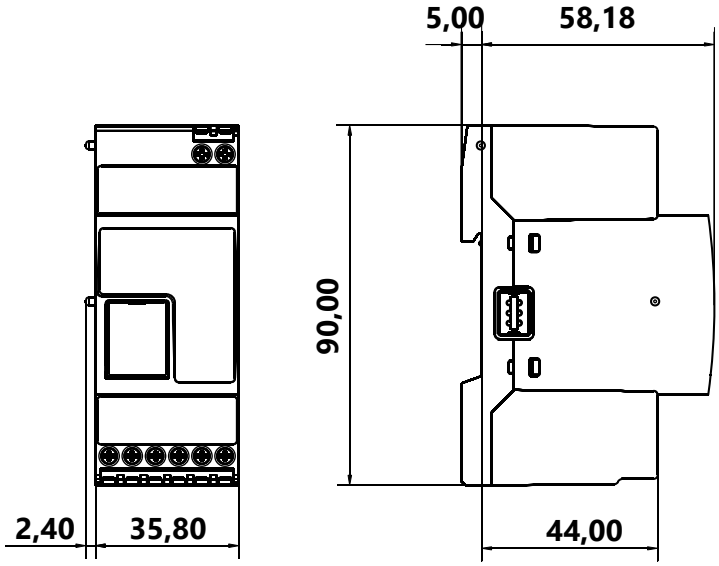
Area	Description
A	Ethernet port
B	USB port (Host function)

Area	Description		
C	**Indication LEDs:**		
	Yellow (ON)	-	Steady: power supply OK
			OFF: power supply KO
	Red (COM)	COM 1 port diagnostic	Steady: external meter configured, communication KO
			Blinking: external meter configured, communication OK
			OFF: external meter not configured
	Blue (CSMS)	CSMS diagnostic	Steady: CSMS configured, communication KO
			Blinking: CSMS configured, communication OK
			OFF: CSMS not configured
	Yellow (EVSEs)	Chargers diagnostic	Steady: At least one charger configured is offline
			Blinking: communications with all chargers OK
	Yellow (modem)	Modem configuration	Steady: modem configured, data connection KO
			Blinking: modem configured, communication OK
			OFF: modem not configured
	Green (Status)	System status	Steady: starting up/updating
			Blinking: normal operation
D	Micro SD memory card slot		
E	Micro-USB port (Device function)		
F	RS485 COM1 port terminals		
G	RS485 COM2 port terminals		
H	Power supply connection block		

Features

General

Material	Noryl, self-extinguishing V-0 (UL94)
Dimensions	2-DIN module
Weight	150 g
Protection degree	**Front**: IP40; **Screw terminals**: IP20
Dielectric strength	4000 V AC RMS for 1 minute
Rejection (CMRR)	65 dB, from 45 to 65 Hz
Terminals	8, screw-type **Section**: 1.5 mm^2 maximum; **Torque**: from 0.4 to 0.8 Nm



Environmental

Operating temperature	-20° to +50 °C (-4 ° to 122 °F)
Storage temperature	-30° to +70 °C (-22 ° to +158 °F)
Humidity (non-condensing)	20 to 90% RH

Power Supply

Power Supply	15-28 V DC
Consumption	≤ 5 W
Battery	1 Metal-ion non-replaceable battery; 0.04 g

Note: The device contains metal-ion batteries. For the sending, you must comply with the relevant packaging and labelling regulation.

Inputs/outputs insulation

Type of input/output	DC power supply	RS485 COM1	RS485 COM2	Ethernet	USB port "H"	USB port "D"	Local bus ports
DC power supply	-	0.5 kV	0.5 kV	0.5 kV	0 kV	0 kV	0 kV
RS485 COM1	0.5 kV	-	0.5 kV	0.5 kV	0.5 kV	0.5 kV	0.5 kV
RS485 COM2	0.5 kV	0.5 kV	-	0.5 kV	0.5 kV	0.5 kV	0.5 kV
Ethernet	0.5 kV	0.5 kV	0.5 kV	-	0.5 kV	0.5 kV	0.5 kV
USB port "H"	0 kV	0.5 kV	0.5 kV	0.5 kV	-	0 kV	0 kV
USB port "D"	0 kV	0.5 kV	0.5 kV	0.5 kV	0 kV	-	0 kV
Local bus ports	0 kV	0.5 kV	0.5 kV	0.5 kV	0 kV	0 kV	-

- 0 kV: inputs / outputs are not insulated.
- 2 kVrms: EN61010-1, IEC60664-1 - over-voltage category III, pollution degree 2, double insulation on systems with max. 300 Vrms to ground.
- 0.5 kVrms: the insulation is functional type Mounting.

Compatibility and conformity

Standards	Electromagnetic compatibility (EMC) - immunity: EN61000-6-2
	Electromagnetic compatibility (EMC) - emissions: EN61000-6-3
	Safety: EN62368-1
Directives	EMC 2014/30/EU
	LVD 2014/35/EU
	RoHS 2011/65/EU

Ports

Ethernet

Standard	ISO9847
LAN configuration	Static or DHCP IP Address; Net Mask; Default Gateway, DNS (primary, secondary)
Client connections	WEB server: Port: 443 (by default*); 5 connections **Note: you can activate port 80.*
Connection type	RJ45 connector (10 Base-T, 100 Base-TX); maximum distance: 100 m

USB

Type	Hi-speed 2.0 Type-A
Mode	Host
Communication speed	60 MB/s
Function	Integration with Modem to provide internet connectivity when LAN not present
Supported devices	USB mass storage: direct connection to UWP 4.0 USB modem/router can be directly connected
Supported File System	ext4, NTFS, FAT32

Micro USB

Type	High-speed USB 2.0 Micro-B
Mode	Device
Speed	60 MB/s
Function	RNDIS (Virtual Ethernet) Network Access via IP: 192.168.254.254

To download the virtual Ethernet network card driver, go to:
https://gavazziautomation.com/images/PIM/BROCHURE/ENG/mini-USB_driver.zip

Micro SD slot

Type	Industrial (from -25 to +85 °C / -13 to + 185 °F)
Capacity	SD and SDHC Up to 32 GB
Function	Backup for disaster recovery
Supported File System	ext4, NTFS, FAT32

TCP/IP ports

Inbound communication

Port number	Description	Purpose
80	HTTP	Access to the internal web-server, API functions
443	HTTPS	Access to the internal web-server, API functions
52325	SSH	Remote service (reserved to support personnel)

**Note: port 443 is the default one but you can also activate port 80.*

EV chargers settings

Port	Description	Purpose
8887	WS	Charger connecting to UWP-DLB using WS (Web Socket)
8886	WSS	Charger connecting to UWP-DLB using WSS (Secure Web Socket)

MAIA Cloud ports

For tunnelling

Access	Ports
MAIA Cloud Web	443/tcp and 1194/udp
MAIA Cloud App software	443/tcp and 1194/udp

Note: through the tunnelling service, all the above-mentioned ports are supported.