GARO® ELECTRIC VEHICLE CHARGING

DOMESTIC CHARGERS

- SMART METERING
- LOAD BALANCING
- MONITORING SOLUTIONS
- OLEV GRANT APPROVED

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GARO ELECTRIC CHARGING

ABOUT GARO ELECTRIC

GARO
®

An innovative force

Nordic EV Charging Expertise Available in the UK

GARO Electric is one of the UK's main EV charging providers and part of the long established GARO Group. The company's Nordic counterparts are market leaders in the region (the most mature EV market in the world) due to their extensive history, knowledge and expertise in this space. The result is a comprehensive range of charging stations, developed to meet the demand of the entire market, from small domestic settings through to all scales of commercial installation and rapid motorway locations.

GARO Electric UK has adapted this expertise for the UK market, offering a premium quality range for the local market. All GARO charging stations are manufactured in Europe, resulting in immediate stock availability, quality production and speedy timeframes for bespoke orders.

All GARO chargers incorporate a stylish design that can be placed both indoors and outdoors at home or work, smart functionality and a simple charging procedure with built-in protection for personal safety. A three-year warranty is standard across the range.

www.garo.co.uk/evcharging

DOMESTIC CHARGERS

INDEX

GARO® ELECTRIC VEHICLE CHARGING

BUILT WITH FUTURESMART-TECHNOLOGY

KEY FEATURES

- ⊘ EUROPEAN MANUFACTURED

- ⊘ EUROPEAN COMPONENTS

- ⊘ 3 YEAR COMPREHENSIVE WARRANTY

- ⊘ G-CLOUD LITE BILLING SOFTWARE

- ⊘ PROPRIETARY TECHNOLOGY

- ⊘ FREE E-LEARNING OLEV CERTIFICATION

- ⊘ FULL TECHNICAL SUPPORT AVAILABLE

- ⊘ COMPREHENSIVE RANGE:
    - MULTI-USE WALL CHARGERS
    - PILLAR CHARGERS
    - HIGH PERFORMANCE DC FAST CHARGERS
    - FULL OPEN OCPP COMMUNICATION

MAIN DESIGN CONSIDERATIONS

FOR DOMESTIC EV CHARGING

1. WHAT TYPE OF RCCB OR RCBO?

The IET state that a type B RCCB or RCBO must be used due to DC leakage current, unless the manufacturer has fitted DC leakage detection equipment. All GARO Chargers have DC leakage protection built into the product. The Electrical Contractor needs to fit a type A RCCB or RCBO.

2. HOW TO MANAGE THE TOTAL HOUSE LOAD?

All GARO EV chargers have Dynamic Load Management built into the product. This means that the total load in the house in continually monitored and if the total load exceeds the set limit, the EV charger will turn the car down. If the total load reduces, the GARO EV charger will allow the current to the car to increase. We also have priority distribution boards to manage the total load. See priority board GM6-PS on p14.

3. WHAT ABOUT PME FAULT DETECTION

PME Fault Detection is a serious issue for Electrical Vehicle charging. GARO now offer an EV distribution board, that will completely disconnect all phases & earth if a PME fault is detected. There is no need for an earth rod if this distribution board is used. (single phase only) See distribution boards G10EV40PME and G12EV40PMEDLM on p14.

DYNAMIC LOAD MANAGEMENT

PROTECTING YOUR HOME

When a GARO charge point is connected to a property the energy meter communicates with the charge point in real-time. The pre-programmed limit values mean that the property's main fuses can handle the charging load without the main fuse blowing and requiring an expensive electricity network call out.

GARO charge points are equipped with a dynamic load balancing feature that senses the entire properties current electricity consumption and adjusts the charging power accordingly. This means that the main fuse is never overloaded and that the charging current to the car can vary between 6A and 32A. Dynamic load balancing can also be managed where multiple GARO charge points are utilised.

The graph below depicts what the typical electricity usage could be of an average 9am-5pm home. It is clear to see when the charging of an electrical vehicle is added alongside perhaps an electric shower, oven, or other appliances, the overall usage could exceed the typical fuse limit of 80A. However, when a GARO charge point is used the dynamic load activation range will be triggered and this would ensure the usage limits will stay within the "safe zone" and never approach the red "danger zone" as indicated below.

— Typical Domestic Fuse limit

▨ DLM Activation Range

— Household Usage

— Combined Usage
(with car charge point)

AMPS

TIME OF DAY 24HR

DLM ACTIVATION RANGE
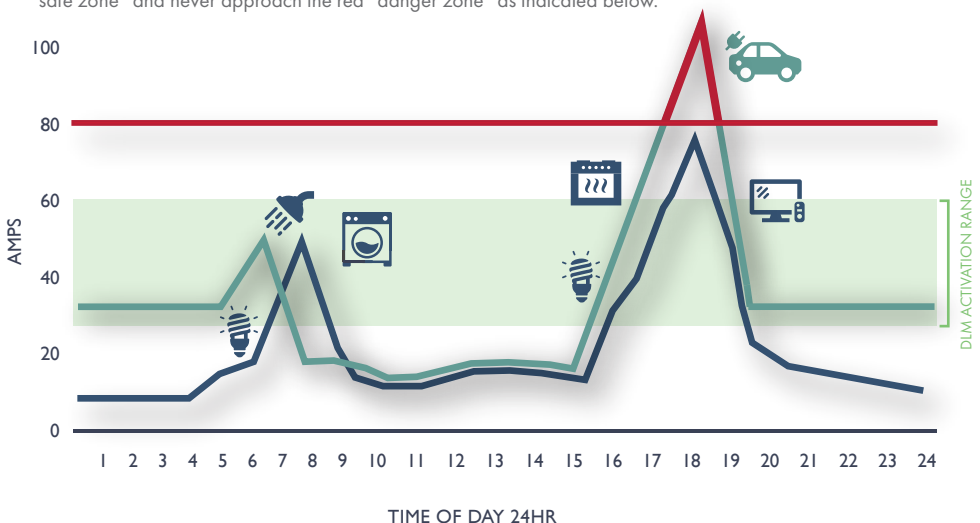
GLBDC-T274FC
TYPE 2 TETHERED LEAD

GLBDC-T274WO
TYPE 2 SOCKET

FEATURES

- ⊘ **DC MONITORING** *Uses a standard Type A RCBO*

- ⊘ **DLM INSTALLED** *To ensure protection of the main fuse* (needs DLM meter)

- ⊘ **MOTORISED INTERLOCK** *To prevent the cable being removed while charging*

- ⊘ **VOLT FREE INPUTS** *For additional control*

- ⊘ **TYPE 2 SOCKET** OR **TETHERED LEAD** (depending on model number)

OPTIONS

- ⊘ **GLB-WIFI** *Wi-Fi Module*

- ⊘ **GLB-RFID** *RFID reader*

- ⊘ **RFID-CARDS** or **RFID-TAGS**

- ⊘ **GNM1D-100-RS485** *DLM Meter*

- ⊘ **GNM1D-RS485** *45 Amp Charger Meter*

- ⊘ **G-CLOUD** *EV Management & Monitoring Software*

GARO TWIN - THE SMART TWO-CAR EV CHARGER

TYPE 2 TETHERED LEAD, **WITH METERS**

GTBDCM-T274FC-A

TYPE 2 SOCKET, **WITH METERS**

GTBDCM-T274WO-A

FEATURES

- **DC MONITORING** *Uses a standard Type A RCBO*
- **DLM INSTALLED** *To ensure protection of the main fuse (needs DLM meter)*
- **MOTORISED INTERLOCK** *To prevent the cable being removed while charging*
- **VOLT FREE INPUTS** *For additional control*
- **TYPE 2 SOCKET** OR **TETHERED LEAD** *(depending on model number)*

OPTIONS

- **GTB-RFIDKIT** *RFID reader*
- **RFID-CARDS** *or* **RFID-TAGS**
- **GNM1D-100-RS485** *DLM Meter*
- **G-CLOUD** *EV Management & Monitoring Software*

GARO TWIN - THE SMART TWO-CAR EV CHARGER

TYPE 2 TETHERED LEAD, **WITH METERS & WIFI**
GTBDCMW-T274FC-A

TYPE 2 SOCKET, **WITH METERS & WIFI**
GTBDCMW-T274WO-A

FEATURES

- **DC MONITORING** *Uses a standard Type A RCBO*
- **DLM INSTALLED** *To ensure protection of the main fuse (needs DLM meter)*
- **MOTORISED INTERLOCK** *To prevent the cable being removed while charging*
- **VOLT FREE INPUTS** *For additional control*
- **TYPE 2 SOCKET** OR **TETHERED LEAD** *(depending on model number)*
- **GLB-WIFI** *Wi-Fi Module*

OPTIONS

- **GTB-RFIDKIT** *RFID reader*
- **RFID-CARDS** or **RFID-TAGS**
- **GNM1D-100-RS485** *DLM Meter*
- **G-CLOUD** *EV Management & Monitoring Software*

WI-FI and RFID

The Wi-Fi module (optional in the GLBDC) allows the charger to be configured and updated remotely. It future-proofs the charger allowing updates for both firmware and software. The Wi-Fi module can be retro fitted in the GLBDC range.

With the Wi-Fi module fitted, the charger can also be fitted with an optional RFID reader for increased security and billing. With the addition of an energy meter it will give the user the ability to view their energy consumption on their mobile phone, tablet or web browser on their PC or laptop. Users will also have the ability to create schedules to suit their lifestyle or energy tariffs.

Propriety, low cost, cloud based reporting system, G-Cloud is available for registered users with RFID cards or tags, providing usage and billing information.
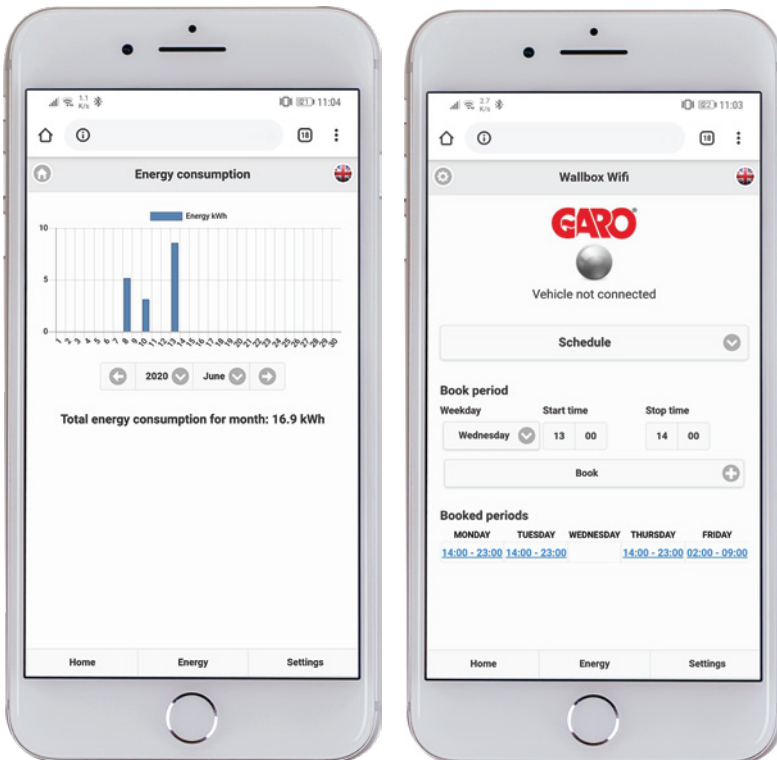
G-CLOUD for GARO GLBDC

FULL CONTROL OVER ALL CHARGERS

G-Cloud is GARO's proprietary web-based measurement collection service, which we provide with updates and technical support. The service gives you clear charge monitoring solution, RFID management, information on energy consumption, user and period statistics, reports and payment data for GARO charge point.

DIVIDED USER STATISTICS

Each user receives an RFID tag that allows access to the charging boxes connected in the area. The same user (payer) can have multiple RFID tags associated with a group, such as family or a department within the company. You can log in to G-Cloud as users or property owners. For the user, there is access to statistics on electricity consumption for their own electric car as well as the opportunity to manage their tags.

VALUE ENERGY MONITORING

For the property owner, G-Cloud's measurement values create a specified basis that allows you to divide the payment between individual users. In addition, the energy monitoring of each charger, user and period provides valuable data for the evaluation of each charging point's use rate and location.

GLB-B-DCMT274FCL
TYPE 2 TETHERED LEAD

GLB-B-DCMT274WOL
TYPE 2 SOCKET

Office for
Low Emission
Vehicles

FEATURES

FULL OLEV APPROVAL

- ☑ **DC MONITORING** *Uses a standard Type A RCBO*

- ☑ **DLM INSTALLED** *To ensure protection of the main fuse (needs DLM meter)*

- ☑ **MOTORISED INTERLOCK** *To prevent the cable being removed while charging*

- ☑ **OCPP1.6** *Ready to integrate to payment & monitoring solution of your choice*

- ☑ **TYPE 2 SOCKET** OR **TETHERED LEAD** *(depending on model number)*

- ☑ **LAN CONNECTION** *For control & billing*

- ☑ **RFID OPTION** *For additional security*

OPTIONS   Wi Fi   RFID

- ☑ **GLB-RFID** *RFID reader*

- ☑ **RFID-CARDS** *or* **RFID-TAGS**

- ☑ **GNM1D-100-RS485** *DLM Meter*

- ☑ **BACK OFFICE SOFTWARE** *Available from third party OCPP software providers*

OLEV - BRIEF SUMMARY

DOMESTIC GRANT FOR EVSE

GARO is pleased to confirm that there are a range of chargers approved for OLEV EV charging grants. This can lead to significant cost savings for property owners.

Office for
Low Emission
Vehicles

KEY DETAILS OF OLEV GRANT

- £350 off the cost of EVSE for a domestic dwelling from 1st April 2020. Other benefits are available in Scotland which allows an additional £300.

- The client must have an electric/hybrid car (or signed a agreement of purchase) and have off road parking.

- The EVSE must be approved under the OLEV grant and an OLEV approved OLEV installer will be required to complete the installation.

- The installer will typically complete the grant process on the clients behalf.

- Domestic installs can be claimed within the limit of one chargepoint per vehicle with a maximum of 2 points per home.

BECOME AN APPROVED EV INSTALLER

FREE Online Training & Certification for GARO EV Charging Range at the online GARO Academy.

www.garo.co.uk/Academy

GARO DISTRIBUTION BOARDS

G4EV40

Metal consumer unit c/w a 40Amp type A RCBO

G4EV40DLM

Metal consumer unit c/w 40Amp type A RCBO & Dynamic load management meter

G10EV40PME

Metal consumer unit c/w 40Amp type A RCBO & PME fault detection & disconnect

G12EV40PMEDLM

Metal consumer unit c/w 40Amp type A RCBO,PME fault detection & disconnect & Dynamic load management meter

GM6-PS

Metal consumer unit c/w priority Shower / Electric Vehicle control. This priority board is extremely effective for controlling the load to an electric vehicle, when an electric shower is also installed. The shower is connected as the "Primary" and the Electric vehicle is connected as the "Secondary". When the shower is activated, the supply to the Electric vehicle is disconnected, and so the main fuse is protected.

GLB

WALL CHARGER ACCESSORIES

PRODUCT CODE	DESCRIPTION	CURRENT	VOLTAGE
GLK2T216A230V	Charging cable Type 2 to type2	16	230
GLK1T232A230V	Charging cable Type 1 to type2	32	230
GLK2T232A230V	Charging cable Type 2 to type2	32	230
GLK2T232A400V	Charging cable Type 2 to type2	32	400
GLB-WIFI	WiFi Module		
GLB-RFID	RFID Module		
RFID-TAGS	RFID Cards		
EVTESTTYPE2	EV Charging Station Test Equipment with tethered lead		
EVTEST TYPE2SKT	EV Charging Station Test Equipment with socket		
EVTEST TYPE1SKT	EV Charging Station Test Equipment with socket		
SH-GHL	Cable Holder		
ST-GHL	Mounting Pillar 1 GLB		
ST-GHL-D	Mounting Pillar for 2 GLB's		
SKT-GHL	Canopy		
GNM1D-RS485	Meter in Charger, SinglePhase	45A	
GNM1D-100-RS485	Meter in Board, SinglePhase	100A	
(DLM Meter)			
MVRF	1500 mm Ground Floor Foundation Pole		
GLBFD	Single & Double Mounting Post for GLBs		

MOUNTING PILLAR
SINGLE GLB
ST-GHL

CANOPY GLB
SKT-GHL

CHARGING STATION
TEST EQUIPMENT
RECOMMENDED FOR INSTALLERS

CABLE HOLDER
SH-GHL

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