GARO® ELECTRIC VEHICLE CHARGING

DOMESTIC CHARGERS

- SMART METERING
- LOAD BALANCING
- PME FAULT DETECTION
- MONITORING SOLUTIONS
- OZEV GRANT APPROVED

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GARO ELECTRIC CHARGING

V. 06/21

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 OZEV 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 is 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 offers a range of GLB Wall Mounted Chargers with PME Fault Protection built-in (Page 7 & 12). EV distribution boards are also available for use with EV chargers without built-in PME fault detection. These boards 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 our distribution boards range on p16 & 17.
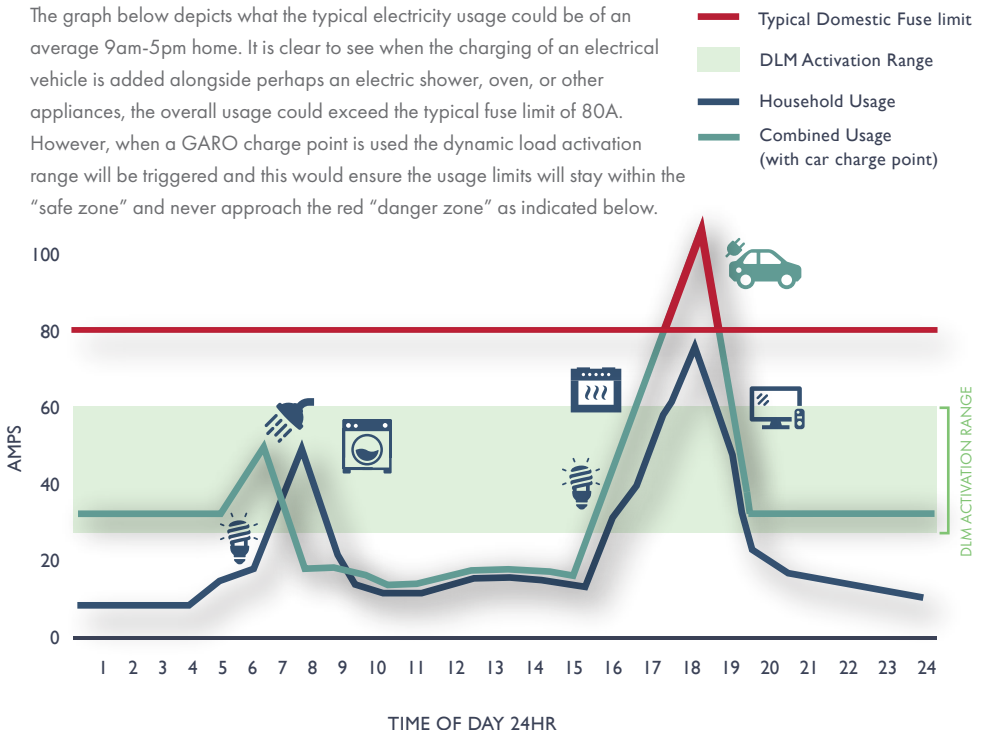
DYNAMIC LOAD MANAGEMENT

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-T274FCPME
TYPE 2 TETHERED LEAD

GLBDC-T274WOPME
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)*

- ☑ **PME FAULT DETECTION** *Disconnects all phases & earth if a PME fault is detected*

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*

NEW!
NOW WITH PME
FAULT DETECTION
BUILT-IN

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*

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

Wi Fi

- ⊘ **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

RFID

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

WI-FI and RFID

for GLBDC & GTBDC Models

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.
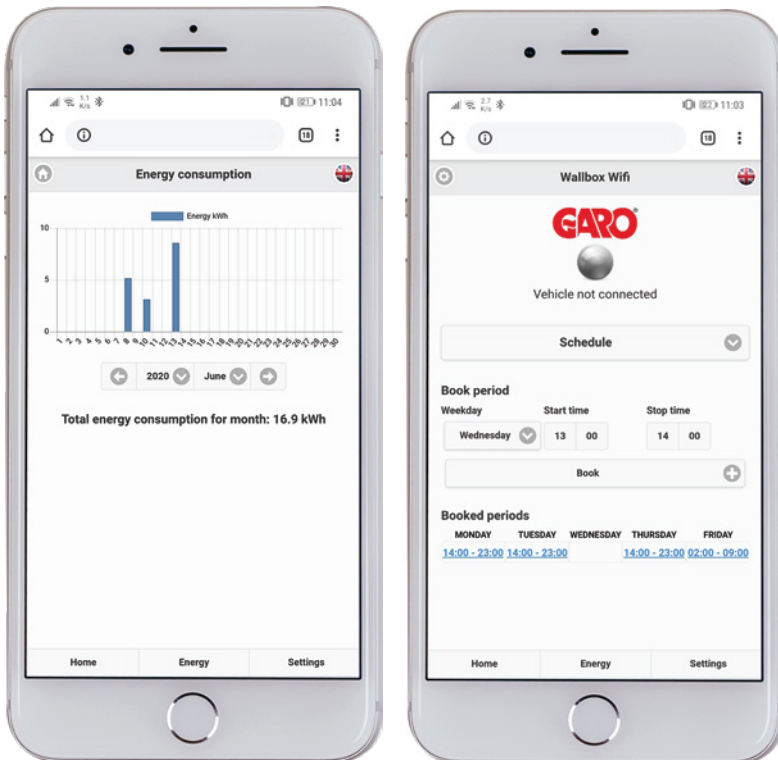
G-CLOUD for GARO GLBDC

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.

GLBBDCMT274FCLPE
TYPE 2 TETHERED LEAD

GLBBDCMT274WOLPE
TYPE 2 SOCKET

Office for
Zero Emission
Vehicles

FULL OZEV APPROVAL

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*

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

- ☑ **TYPE 2 SOCKET**

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

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

- ☑ **PME FAULT DETECTION** *Disconnects all phases & earth if a PME fault is detected*

OPTIONS

- ☑ **GLB-RFID** *RFID reader*

- ☑ **RFID-CARDS** *or* **RFID-TAGS**

- ☑ **GNM1D-100-RS485** *DLM Meter*

- ☑ **BACK OFFICE SOFTWARE**

NEW!
NOW WITH PME
FAULT DETECTION
BUILT-IN

GARO TWIN - THE SMART TWO-CAR EV CHARGER

GTB-B-DCM-T274WOARL
TYPE 2 SOCKET, WITH METERS, LAN

Office for
Zero Emission
Vehicles

FULL OZEV APPROVAL

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*
- ✓ **OCPP1.6** *Ready to integrate to payment & monitoring solution of your choice*
- ✓ **TYPE 2 SOCKET**
- ✓ **LAN CONNECTION** *For control & billing*
- ✓ **RFID OPTION** *For additional security*

OPTIONS

- ✓ **GTB-RFIDKIT** *RFID reader*
- ✓ **RFID-CARDS** *or* **RFID-TAGS**
- ✓ **GNM1D-100-RS485** *DLM Meter*
- ✓ **BACK OFFICE SOFTWARE**

GARO TWIN - THE SMART TWO-CAR EV CHARGER

GTB-B-DCM-T274WOARM
TYPE 2 SOCKET, WITH METERS, 4G

Office for
Zero Emission
Vehicles

FULL OZEV APPROVAL

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*

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

- ✓ **TYPE 2 SOCKET**

- ✓ **4G CONNECTION** *For control & billing*

- ✓ **RFID OPTION** *For additional security*

OPTIONS

- ✓ **GTB-RFIDKIT** *RFID reader*

- ✓ **RFID-CARDS** *or* **RFID-TAGS**

- ✓ **GNM1D-100-RS485** *DLM Meter*

- ✓ **BACK OFFICE SOFTWARE**

OZEV - BRIEF SUMMARY

DOMESTIC GRANT FOR EVSE

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

Office for Zero 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 OZEV grant and an OZEV approved OZEV 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

METAL ENCLOSURES - IP41

G2EV40

Metal Consumer Unit with a 40A Type A RCBO, 2 Module

G4EV40

Metal Consumer Unit with a 40A Type A RCBO, 4 Module

G6EV40PME

Metal Consumer Unit with a 40A Type A RCBO, 6 Module
Provides PME Fault Detection

G8EV40PMEB

Metal Consumer Unit with a 40A Type B RCBO, 8 Module
Provides DC Leakage Protection & PME Fault Detection

G12EV40PMEDLMB

Metal Consumer Unit with a 40A Type B RCBO, 12 Module
Provides Dynamic Load Management, DC Leakage Protection &
PME Fault Detection

GARO DISTRIBUTION BOARDS

GC6EV40PME

Plastic Consumer Unit with a 40A Type A RCBO,
6 Module, Provides PME Fault Detection

GC8EV40PMEB

Plastic Consumer Unit with a 40A Type B RCBO,
8 Module, Provides DC Leakage Protection &
PME Fault Detection

GC12EV40PMEDLMB

Plastic Consumer Unit with a 40A Type B RCBO, 12 Module
Provides Dynamic Load Management, DC Leakage Protection &
PME Fault Detection

GLB & GTB

WALL CHARGER ACCESSORIES

PRODUCT CODE	DESCRIPTION	CURRENT	VOLTAGE
CCM32T2T1-5	Type 2 to Type 1, **5 Meter** EV Cable	32	**240** Single Phase
CCM32T2T2-5	Type 2 to Type 2, **5 Meter** EV Cable	32	**240** Single Phase
CCM32T2T2-8	Type 2 to Type 2, **8 Meter** EV Cable	32	**240** Single Phase
CCM32T2T2-10	Type 2 to Type 2, **10 Meter** EV Cable	32	**240** Single Phase
CCT32T2T2-5	Type 2 to Type 2, **5 Meter** EV Cable	32	**400** Three Phase
CCT32T2T2-8	Type 2 to Type 2, **8 Meter** EV Cable	32	**400** Three Phase
CCT32T2T2-10	Type 2 to Type 2, **10 Meter** EV Cable	32	**400** Three Phase

GLB-WIFI	WiFi Module
GLB-RFID	RFID Module
GTB-RFIDKIT	Dual RFID Module for GTB
RFID-TAGS	Pack of 5 RFID Tags
RFID-CARDS	Pack of 5 RFID Cards
RFID-116-L1	Charger RFID Reader

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

GNM1D-RS485	Meter in Charger, SinglePhase	**45A**
GNM1D-100-RS485	Meter in Board, SinglePhase	**100A**
(DLM Meter)		

EV CABLE

GNM1D-100-RS485

DLM METER

CHARGING STATION
TEST EQUIPMENT
RECOMMENDED FOR INSTALLERS

GLB & GTB

WALL CHARGER ACCESSORIES

PRODUCT CODE	DESCRIPTION
SH-GHL	Canopy
SKT-GHL	Cable Holder

WALL BRACKETS
MVR-AB	Plate Mounted Post Oval for GTB
GTB-WB	GTB Wall Bracket

GROUND MOUNTS
GLBFD	Single & Double Mounting Post for GLBs
ST-GHL	Mounting Pillar 1 GLB
ST-GHL-D	Mounting Pillar for 2 GLB's
GTB-PB-TUBE60	GTB Post Bracket 60mm (used with MVRP or MVRF)
MVRF	1500mm Ground Floor Foundation Pole for GLBFD / ST-GHL
MVRP	Plate Mounted Post 750mm for GTB
GTB-PB-OVAL	GTB Post Bracket (to be used with MVR-AB)

GLB COVERS
GLB-COVERWHITE	GLB White Cover
GLB-COVERGREY	GLB Grey Cover
GLB-COVERBUR	GLB Burgandy Cover

GLB COVER
GLB-COVERBUR

CABLE HOLDER
SH-GHL

CANOPY GLB
SKT-GHL

MOUNTING PILLAR
SINGLE GLB
ST-GHL

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