

Load management LS4, GTB+, and GLB+

Important:

Any modifications performed on the controller are done at your own risk. GARO is not responsible for any issues caused by incorrect handling or unauthorized changes.

Note, this must be done by a certified electrician

Load management is a critical aspect of installing EV charge points. It involves the effective control and optimization of electrical loads to ensure the safe and efficient operation of systems of the equipment. Three main types of load management are "Managing Operator Current Limit", "Load Management with static value" and "Dynamic Load Management with external meter."

To configure load management, you will need to access the charger's controller through either the new or legacy web interface. Follow the steps provided for the specific web interface you are using.

Before You Start:

You will need a Laptop and a micro-USB to USB-A cable (important that the cable has possibilities for data transfer and not only charging).

This cable should be plugged in from your laptop to the charge controller. If the charger has two charge controllers make sure you plug into the charge controller on the right-hand side and <u>DO NOT</u> remove any cables between the charge controllers.



Step 1.

Plug in the Micro-USB in the controller's config port.

GLB+ only has one controller (see picture below)



Twin+ & LS4 has 2 controllers (see picture below)



Step 2.

Once plugged into the controller open a web browser and navigate to one of the following IP addresses:

- New Interface (white background) refer to page 3 192.168.123.123
- Legacy Interface (red background) refer to page 192.168.123.123/legacy/operator/operator

Note, if you can't access the legacy interface with above IP address please try:

GLB+

192.168.123.123/operator/operator

TWIN+, LS4:

192.168.123.123:81/operator/operator	Outlet 1
192.168.123.123:82/operator/operator	Outlet 2

Login Credentials for both the New and the Legacy Interface:

- Username: operator
- Password: cherry_zone or yellow_zone



Operator Current Limit

Configuring operator current limit through the new Interface

Access the New Interface via IP address: 192.168.123.123

1. Navigate to "LOAD MANAGEMENT" -> "Local" tab (wait for the page to fully load)

LOAD MANAGEMENT
Local
Modbus Interface
SEMP interface (SMA Sunny Home Manager)
EEBus
Dynamic Load Management
Hierarchical Dynamic Load Management
ASKI over OCPP-S

2. Locate the options:

"Operator Current Limit [A]" and

" Operator Current Limit [A]"(Connector 2)" (the latter is available only for LS4 and GTB+). LOAD MANAGEMENT

Local			
Operator Current Limit [A]	i	16	
Operator Current Limit [A] (Connector 2	2)(i)	16	
Max Energy per session [kWh]	í	0	
Max Time per session [h]	i	0	
Energy management from external input	i	Disable	٥
Energy management from external input (Connector 2)	(i)	Disable	\$
Enable Disconnected Upper Limit for SmartCharging	(i)	Off	\$
Enable Disconnected Upper Limit for SmartCharging (Connector 2)	(i)	Off	\$
Delete all Smart Charging profiles	(i)	Delete all	

3. Set the desired current on "Operator Current Limit [A]"

- For outlet 1, "Operator Current Limit [A]"
- For outlet 2 (LS4/Twin+ only): " Operator Current Limit [A]"(Connector 2)"

4. On bottom of the screen, click "Save" to save the configuration. Once saved, the operator current limit should be set, and you can now try a charging session to confirm.

Unsaved changes	Reset all changes	Save	Restart	Restart App	



Configure operator current limit for outlet(s) through the Legacy Interface For Twin+ and LS4 you need to adjust both controllers separately in legacy interface.

Access the Legacy Interface via IP address:	
192.168.123.123:81/legacy/operator/operator	Outlet 1
or 192.168.123.123:82/legacy/operator/operator	Outlet 2

Note, if you can't access the legacy interface with above IP address please try: GLB+ 192.168.123.123/operator/operator

TWIN+, LS4:

192.168.123.123:81/operator/operator	Outlet 1
192.168.123.123:82/operator/operator	Outlet 2

After logging into the charge controller(s), follow these steps.

- 1. Go to the "Settings" tab and scroll down until you see "Operator Current Limit".
- 2. Set the desired current on "Operator Current Limit [A]"

	onarging station internas		1010 01 0
tate	OCPP ChargeBoxIdentity	M50	ID that is sent to the backend and used by the backend t
ettings Default	(ChargePointiD)		The 'EVSE identity' can be used to differentiate a techni ID in the backend from the ID that is presented to the us If set, the 'EVSE identity' will be used for ISO 15118
perator	EVSENdentity		certificate signing requests. When left empty, the ISO 15118 name of the EVSE will be derived from the 'ChargeBoxIdentity'.
/stem			
ocumentation	Connection Type	Ethernet V	The type of data connection used to connect to the backend system. Choose "No Backend" to disable backe communication completely. While using GSM the wallbo can be connected to LANWLAN at the same time.
	OCPP Mode	0CPP-J 1.6 V	This parameter determines whether backend compurcation is drow using the standard OCCP JSON variant or the proprietary Binary OCCP variant of Ebee Smart Technologies. The Binary OCCP variant is workin across MJT networks and therefore does not require a point. Also Binary OCCP using which sits data (factor 20 both as tandard OCCP. Binary OCCP honever require Binary OCCP. Binary OCCP. Binary OCCP accessed side.
	WebSockets JSON OCPP URL of the Backend		The WS/WSS URL of the OCPP backend system. This URL must be the WS/JSON endpoint and begin with "ws or "wss/h". This parameter is only used if OCPP-J 1.6 or OCPP-J 2.0 mode is used. The ChargePoint's ID gets automatically appended when connecting to the backen
	HTTP Basic Authentication password		The password to be used for HTTP Basic Authorization. left empty, HTTP Basic Authorization is not used.
	Free Charging	Off 🗸	Allows charging without authorization via RFID or the backend. Charging is started immediately after a vehicle connected. <u>show more</u>
			Maximum current (in Amperes) that can be signaled to t vehicle for charging. If the parameter 'Installation Curren
			Limit' exists, the 'Operator Current Limit' must be below

3. On bottom of the screen, click "**Save & Restart**" to save the configuration. Once the controller has been restarted the operator current limit should be set, and you can now try a charging session to confirm.





Load Management with static value

Note, if there's different/individual group fuse for each charger you might have to lower each charger's outlet(s) Operator Current Limit to match the fuse size. How Operator Current Limit is configured is mentioned on page 3-4.

Example: If there's a 250A fuse in a cabinet which feeds 3 chargers which each has a separate 25A group fuse you would have to set EVSE Sub-Distribution Limit and EVSE Sub-Distribution Limit to 250 and then lower the Operator Current Limit for each outlet to 12A, otherwise the group fuses would trip.

Configuring load management with static value through the new Interface

Access the New Interface via IP address: 192.168.123.123

Instructions below describes how you configure a charger to be a DLM master or a DLM Slave

DLM Master

After logging into the charge controller(s), follow these steps.

1. Click on Load Management



2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Master (With internal DLM Slave), Once the option is selected you will see further settings

Dynamic Load Management			
Dynamic Load Management - DLM Master/Slave	i	DLM Master (With internal DLM-Slave)	\$
DLM Network Id	i	0	
Disable Discovery Broadcasting	í	Off	\$
Configure Solar Mode for DLM	í	Deactivated	\$
DLM Algorithm Sample Rate	i	30 sec	\$
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	i	100 100	
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	i	100 100	



3. Set **EVSE Sub-Distribution Limit** and **EVSE Sub- Distribution Limit** to the ampere that's always available to the group of chargers.

Dynamic Load Management

Dynamic Load Management - DLM Master/Slave	í	DLM Master (With internal DLM-Slave)			÷
DLM Network Id	í	0			
Disable Discovery Broadcasting	í	Off			\$
Configure Solar Mode for DLM	í	Deactivated			÷
DLM Algorithm Sample Rate	i	30 sec			\$
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	i	100	100	100	
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	í	100	100	100	

• On the bottom of the screen, click "Save" and then "Restart". Once restarted the settings should be applied.

•	Unsaved changes	Reset all changes	Save	Restart		rt App
	Please restart your device to apply changes	Reset all changes	Save	Re	start	Restart App

DLM Slave

After logging into the charge controller, follow these steps.

1. Click on Load Management

GARO
DASHBOARD
DIAGNOSTICS
NETWORK
BACKEND
AUTHORIZATION
LOAD MANAGEMENT
INSTALLATION
SYSTEM
DOCUMENTATION

2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Slave (Master-Auto-Discovery)

(j)

Dynamic Load Management

Dynamic Load Management - DLM Master/Slave

DLM Slave (Master-Auto-Discovery)

3. On bottom of the screen, click on **"Save"** and then **"Restart"**, Once restarted the settings should be applied

Unsaved changes	Reset all changes	Save	Restart	Restart App
Please restart your device to apply changes	Reset all changes	Save	Restart	Restart App

\$



Configuring load management with static value through the Legacy Interface For Twin+ and LS4 you need to adjust both controllers separately in legacy interface.

Example: If a charger (Twin+/LS4) should be configured as a DLM master you would also need to configure the right controller in this charger to be a "DLM Slave (Master-Auto-Discovery)". If the charger should be a DLM slave, you would need to set both controllers to "DLM Slave (Master-Auto-Discovery)".

Access the Legacy Interface via IP address:192.168.123.123:81/legacy/operator/operatoror 192.168.123.123:82/legacy/operator/operatorOutlet 2

Note, if you can't access the legacy interface with above IP address please try: GLB+ 192.168.123.123/operator/operator

TWIN+, LS4:

192.168.123.123:81/operator/operator	Outlet 1
192.168.123.123:82/operator/operator	Outlet 2

DLM Master

After logging into the charge controller, follow these steps.

1. Click on Operator and scroll down until you find" Dynamic Load Management - DLM Master/Slave"

State
> DLM
Settings
> Default
Operator
System
Documentation

Dynamic Load Management - DLM Master/Slave

Disabled 🗸

 Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Master (With internal DLM Slave), Once the option is selected you will see further settings

Dynamic Load Management - DLM Master/Slave	DLM Master (With internal DLM-Slave) V
Configure Solar Mode for DLM	Deactivated
DLM Network Id	0
Disable Discovery Broadcasting	Off •
DLM Algorithm Sample Rate	30 sec 🗸
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100 100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100 100

2. Set EVSE Sub-Distribution Limit and EVSE Sub- Distribution Limit to the ampere that's always available to the group of chargers.



Dynamic Load Management - DLM Master/Slave	DLM Master (With internal DLM-Slave) 🗸
Configure Solar Mode for DLM	Deactivated 🗸
DLM Network Id	0
Disable Discovery Broadcasting	Off •
DLM Algorithm Sample Rate	30 sec 🗸
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	[100 [100 [100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100 100

3. On bottom of the screen, click "Save & Restart" to save the configuration. Once restarted the settings should be applied.



Note, if it's a Twin+/LS4 acting as DLM Master, you would also need to configure the right controller in this charger to be a "DLM Slave (Master-Auto-Discovery)".

DLM Slave

After logging into the charge controller, follow these steps

1. Click on Operator and scroll down until you find" Dynamic Load Management - DLM Master/Slave"

	State
	> DLM
	Settings
	> Default
	Operator
	System
	Documentation
i	

Dynamic Load Management - DLM Master/Slave

Disabled 🗸

2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Slave (Master-Auto-Discovery)

Dynamic Load Management - DLM Master/Slave	DLM Slave (Master-Auto-Discovery)	~

3. On bottom of the screen, click "Save & Restart" to save the configuration. Once restarted the settings should be applied. For a charger with dual controllers (Twin+/LS4) you repeat these steps on the right controller.





Dynamic Load Management with external meter

Note, an external meter needs to be correctly installed and connected to the charger acting as DLM master before configuring the charger's controller(s).

For manuals regarding the external meter types we support, see link below: https://www.garo.se/sv/proffs/support/support-e-mobility/energimatare/manualer

Configuring load management with external meter through the new Interface

Access the New Interface via IP address: 192.168.123.123

DLM Master

After logging into the charge controller(s), follow these steps.

1. Click on Load Management



 Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Master (With internal DLM Slave), Once the option is selected you will see further settings Dynamic Load Management

Dynamic Load Management - DLM Master/Slave	í	DLM Master (With internal DLM-Slave)		
DLM Network Id	í	0		
Disable Discovery Broadcasting	(j)	Off	÷	
Configure Solar Mode for DLM	í	Deactivated	\$	
DLM Algorithm Sample Rate	(j)	30 sec	÷	
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	í	100 100 100		
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	i	100 100 100		



2. Set EVSE Sub-Distribution Limit and EVSE Sub- Distribution Limit to groups fuse value Dynamic Load Management

Dynamic Load Management - DLM Master/Slave	i	DLM Master (With internal DLM-Slave)				÷
DLM Network Id	i	0				
Disable Discovery Broadcasting	i	Off				\$
Configure Solar Mode for DLM	í	Deactivated			÷	
DLM Algorithm Sample Rate	i	30 sec			\$	
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	i	100		100		100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	(j)	100		100		100

4. Set the External Meter Support to "**ON**" Once the option is selected you will see further settings.

External Meter Support	i	On		\$
Meter configuration (Second)	í	No Meter		\$
Main Distribution Limit (L1/L2/L3) [A]	í	100	100	100
External Load Headroom (L1/L2/L3) [A]	í	0	0	0
External Load Fallback (L1/L2/L3) [A]	i	9999	9999	9999
External Meter Location	í	Grid		\$
External Load Averaging Length [sec]	í	5		

5. Choose the correct meter type according to the installed external meter on the dropdown menu for "Meter configuration (Second) and set "Main Distribution Limit" to the fuse value where the external meter is located and measures

External Meter Support	i	On		
Meter configuration (Second)	í	Modbus Meter Garo GNM3T		
Main Distribution Limit (L1/L2/L3) [A]	i	100 100	100	

 On the bottom of the screen, click "Save" and then "Restart". Once restarted the settings should be applied.

Unsaved changes	Reset all changes	Save	Restart	Restart App
Please restart your device to apply changes	Reset all changes	Save	Restart	Restart App

6. After restart, press on "**Diagnostics**" and check "Error(s)" so that it doesn't indicate "External meter not communicating". If the error is present you would need to check the cables from the external meter towards the charger and the configuration of the external meter.



DLM Slave

After logging into the charge controller, follow these steps.

1. Click on Load Management

GARO
DASHBOARD
DIAGNOSTICS
NETWORK
BACKEND
AUTHORIZATION
LOAD MANAGEMENT
INSTALLATION
SYSTEM
DOCUMENTATION

2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Slave (Master-Auto-Discovery)

Dynamic Load Management

Dynamic Load Management - DLM Master/Slave () DLM Slave (Master-Auto-Discovery)

 On the bottom of the screen, click on "Save" and then "Restart", Once restarted the settings should be applied

Unsaved changes	Reset all changes	Save	Restart	Restart App
Please restart your device to apply changes	Reset all changes	Save	Restart	Restart App

\$



Configuring load management with external meter through the Legacy Interface For Twin+ and LS4 you need to adjust both controllers separately in legacy interface.

Access the Legacy Interface via IP address:	
192.168.123.123:81/legacy/operator/operator	Outlet 1
or 192.168.123.123:82/legacy/operator/operator	Outlet 2

Note, if you can't access the legacy interface with above IP address please try: GLB+ 192.168.123.123/operator/operator

TWIN+, LS4:

•	
192.168.123.123:81/operator/operator	Outlet 1
192.168.123.123:82/operator/operator	Outlet 2

DLM Master

After logging into the charge controller, follow these steps.

1. Click on Operator and scroll down until you find" Dynamic Load Management - DLM Master/Slave"

State
> DLM
Settings
> Default
Operator
System
Documentation

Dynamic Load Management - DLM Master/Slave

Disabled	~

2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Master (With internal DLM Slave), Once the option is selected you will see further settings

Dynamic Load Management - DLM Master/Slave	DLM Master (With internal DLM-Slave) 🗸
Configure Solar Mode for DLM	Deactivated
DLM Network Id	
Disable Discovery Broadcasting	Offv
DLM Algorithm Sample Rate	30 sec 🗸
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	



3. Set EVSE Sub-Distribution Limit and EVSE Sub- Distribution Limit to groups fuse value

Dynamic Load Management - DLM Master/Slave	DLM Master (With internal DLM-Slave) V
Configure Solar Mode for DLM	Deactivated
DLM Network Id	0
Disable Discovery Broadcasting	Off v
DLM Algorithm Sample Rate	30 sec 🗸
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100 100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	100 100 100

4. Set the External Meter Support to "**ON**" Once the option is selected you will see further settings.

External Meter Support	On 🗸
Main Distribution Limit (L1/L2/L3) [A]	100 100 100

5. Set "Main Distribution Limit" to the fuse value where the external meter is located and measures

External Meter Support	On 🗸
Main Distribution Limit (L1/L2/L3) [A]	100 100 100

6. Scroll down until you find "**Meter Configuration (Second)**", on the dropdown menu, choose the correct meter type according to the installed external meter

Meter configuration (Second)	Modbus Meter Garo GNM3T	~

 On the bottom of the screen, click "Save & Restart" to save the configuration. Once restarted the settings should be applied.

Save & Restart Settings Default & Restart

7. After restart, press on "State" and check "Error(s)" so that it doesn't indicate "External meter not communicating". If the error is present you would need to check the cables from the external meter towards the charger and the configuration of the external meter.

<u>Note, if it's a Twin+/LS4 acting as DLM Master, you would also need to configure the right controller</u> in this charger to be a "DLM Slave (Master-Auto-Discovery)".



DLM Slave

After logging into the charge controller, follow these steps

1. Click on Operator and scroll down until you find" Dynamic Load Management - DLM Master/Slave"

State		
> DLM		
Settings		
> Default		
Operator		
System		
Documentation		
Dynamic Load Manager	nent - DLM Master/Slave	Disabled

2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Slave (Master-Auto-Discovery)

Dynamic Load Management - DLM Master/Slave	DLM Slave (Master-Auto-Discovery)	~

On the bottom of the screen, click "Save & Restart" to save the configuration. Once restarted the settings should be applied. For a charger with dual controllers (Twin+/LS4) you repeat these steps on the right controller.



Important:

Any modifications performed on the controller are done at your own risk. GARO is not responsible for any issues caused by incorrect handling or unauthorized changes.

For further information, please contact:

Support E-mobility (EV charging, GARO Connect, G-Cloud) Contact: <u>Click here!</u>