



## GARO LS4 Load Management User Manual

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**GARO LS4 Load Management User Manual**

**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 DO NOT 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  
192.168.123.123:82/operator/operator

**Outlet 1**  
**Outlet 2**

Login Credentials for both the New and the Legacy Interface:

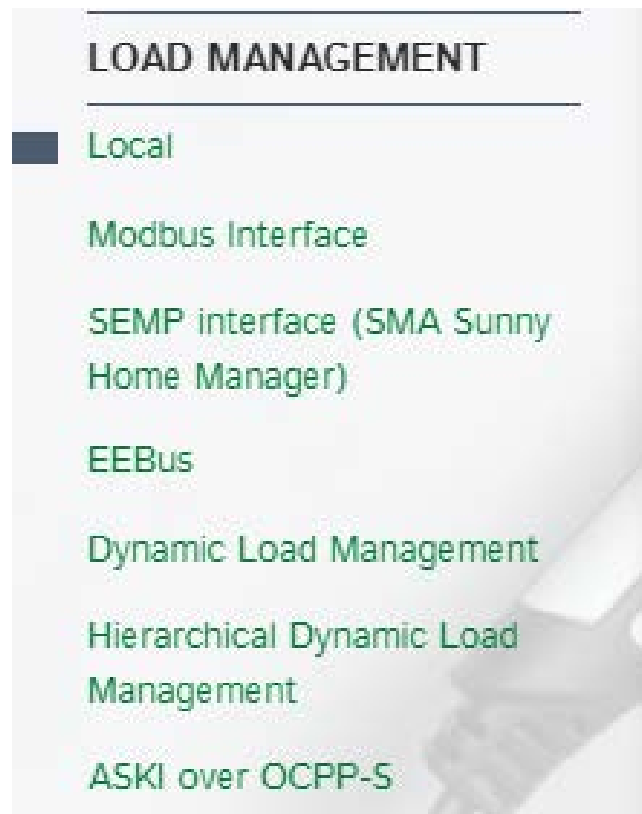
- Username: operator
- Password: cherry\_zone or yellow\_zone

## 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)**



**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]	<input type="text" value="16"/>
Operator Current Limit [A] (Connector 2)	<input type="text" value="16"/>
Max Energy per session [kWh]	<input type="text" value="0"/>
Max Time per session [h]	<input type="text" value="0"/>
Energy management from external input	<input type="text" value="Disable"/>
Energy management from external input (Connector 2)	<input type="text" value="Disable"/>
Enable Disconnected Upper Limit for SmartCharging	<input type="text" value="Off"/>
Enable Disconnected Upper Limit for SmartCharging (Connector 2)	<input type="text" value="Off"/>
Delete all Smart Charging profiles	<input type="button" value="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	<input type="button" value="Reset all changes"/>	<input type="button" value="Save"/>	<input type="button" value="Restart"/>	<input type="button" value="Restart App"/>
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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  
or 192.168.123.123:82/legacy/operator/operator

**Outlet 1**  
**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  
192.168.123.123:82/operator/operator

**Outlet 1**  
**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]”



State		
Settings		
> Default		
Operator		
System		
Documentation		

OCPP ChargeBoxIdentity (ChargePointID)	M50	ID that is sent to the backend and used by the backend to identify the ChargePoint. <a href="#">show more...</a>
EVSE Identity		The 'EVSE Identity' can be used to differentiate a technical ID in the backend from the ID that is presented to the user. If set, the 'EVSE Identity' will be used for ISO 15118 certificate signing requests. When left empty, the ISO 15118 name of the EVSE will be derived from the 'ChargeBoxIdentity'.

Connection Type	Ethernet	The type of data connection used to connect to the backend system. Choose 'No Backend' to disable backend communication completely. While using GSM the wallbox can be connected to LAN/WLAN at the same time.
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OCPP Mode	OCPP-J 1.6	This parameter determines whether backend communication is done using the standard OCPP JSON variant or the proprietary Binary OCPP variant of Ebee Smart Technologies. The Binary OCPP variant is working across NAT networks and therefore does not require a private APN for remote messages to arrive at the charge point. Also Binary OCPP uses much less data (factor 20 to 50) than standard OCPP. Binary OCPP however requires a Binary OCPP proxy on the backend 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://'. 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 backend.
HTTP Basic Authentication password		The password to be used for HTTP Basic Authentication. If left empty, HTTP Basic Authentication is not used.

Free Charging	Off	Allows charging without authorization via RFID or the backend. Charging is started immediately after a vehicle is connected. <a href="#">show more...</a>
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Operator Current Limit [A]	16	Maximum current (in Amperes) that can be signaled to the vehicle for charging. If the parameter 'Installation Current Limit' exists, the 'Operator Current Limit' must be below or equal to the 'Installation Current Limit'. Otherwise, it must be below or equal to the 'Maximum Current'. It can be freely configured, even while charging. This parameter can be changed by the backend for energy management.
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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.

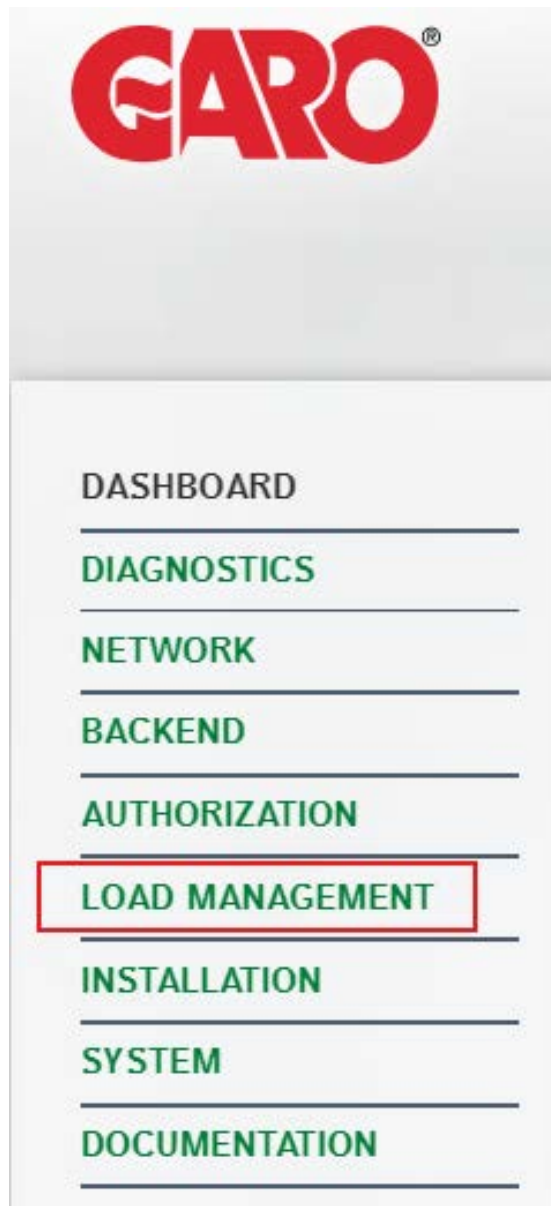
Configuring load management with static value through the new Interface  
Access the New Interface via IP address: 192.168.123.123

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	①	DLM Master (With internal DLM-Slave)		
DLM Network Id	①	0		
Disable Discovery Broadcasting	①	Off		
Configure Solar Mode for DLM	①	Deactivated		
DLM Algorithm Sample Rate	①	30 sec		
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	100	100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	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	①	DLM Master (With internal DLM-Slave)		
DLM Network Id	①	0		
Disable Discovery Broadcasting	①	Off		
Configure Solar Mode for DLM	①	Deactivated		
DLM Algorithm Sample Rate	①	30 sec		
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	100	100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	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

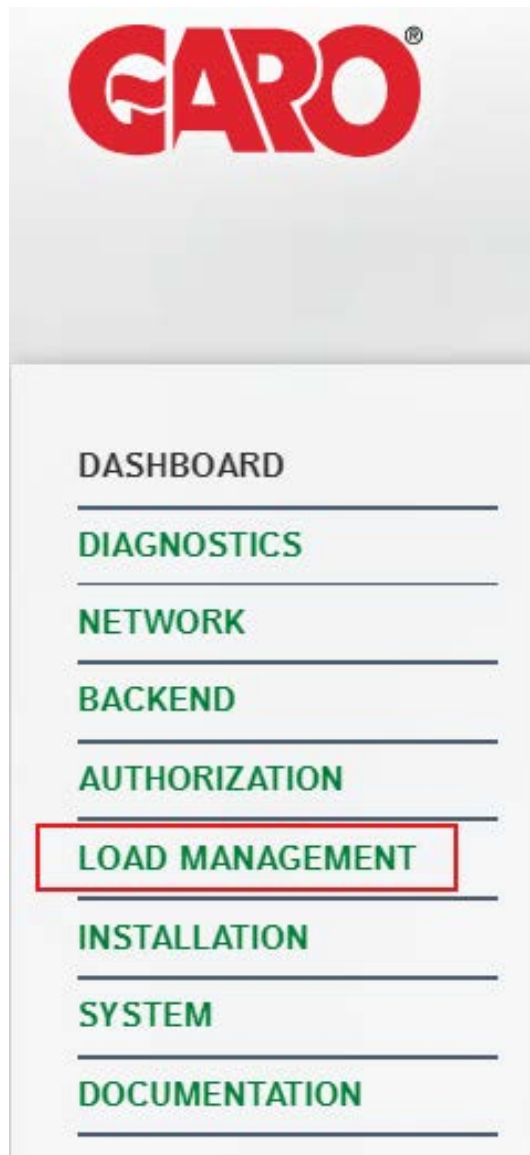
Restart App

## DLM Slave

After logging into the charge controller, follow these steps.

1.Click on Load Management

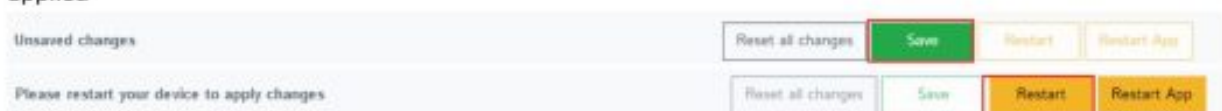




2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose DLM Slave (Master-Auto-Discovery)



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



### 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/operator  
or 192.168.123.123:82/legacy/operator/operator

**Outlet 1**  
**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

192.168.123.123:82/operator/operator

**Outlet 1**

**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)

Configure Solar Mode for DLM

Deactivated

DLM Network Id

0

Disable Discovery Broadcasting

Off

DLM Algorithm Sample Rate

30 sec

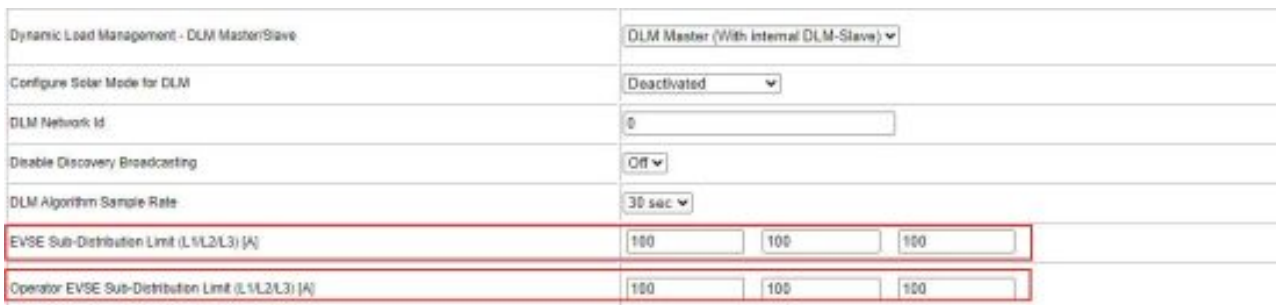
EVSE Sub-Distribution Limit (L1/L2/L3) [A]

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

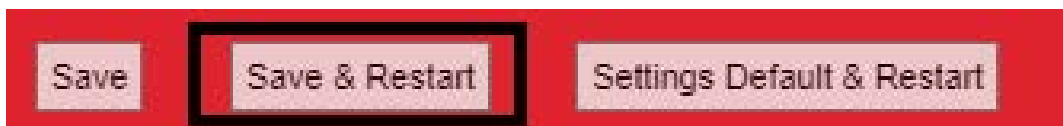
EVSE Sub-Distribution Limit (L1/L2/L3) [A]

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.

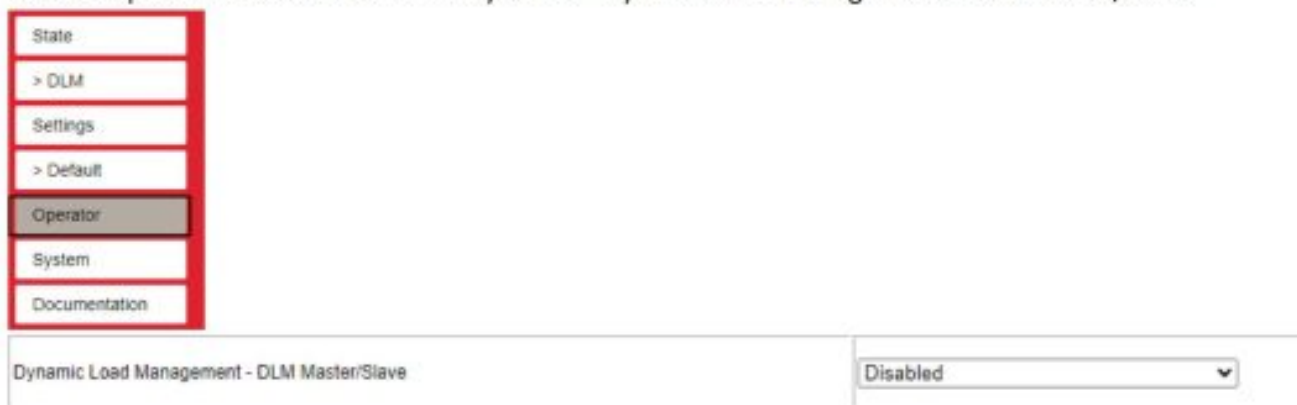


Note, if it's a Twin+/LS4 acting as DLM Master, you would also need to configure the right controller in this charger to be a "DLM Slave (Master-Auto-Discovery)".

### 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"



2. Click on dropdown for Dynamic Load Management – DLM Master/Slave, Choose 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>

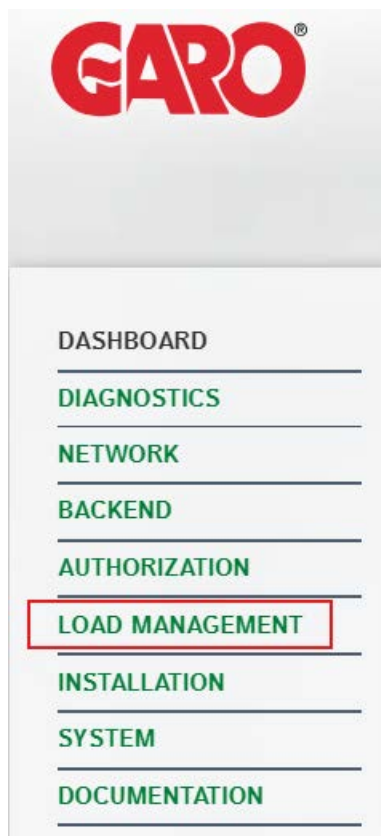
Configuring load management with external meter through the new Interface

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	①	DLM Master (With internal DLM-Slave) ⚙		
DLM Network Id	①	0		
Disable Discovery Broadcasting	①	Off ⚙		
Configure Solar Mode for DLM	①	Deactivated ⚙		
DLM Algorithm Sample Rate	①	30 sec ⚙		
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	100	100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	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	①	DLM Master (With internal DLM-Slave) ⚙		
DLM Network Id	①	0		
Disable Discovery Broadcasting	①	Off ⚙		
Configure Solar Mode for DLM	①	Deactivated ⚙		
DLM Algorithm Sample Rate	①	30 sec ⚙		
EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	100	100
Operator EVSE Sub-Distribution Limit (L1/L2/L3) [A]	①	100	100	100

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

External Meter Support	①	On		
Meter configuration (Second)	①	No Meter		
Main Distribution Limit (L1/L2/L3) [A]	①	100	100	100
External Load Headroom (L1/L2/L3) [A]	①	0	0	0
External Load Fallback (L1/L2/L3) [A]	①	9999	9999	9999
External Meter Location	①	Grid		
External Load Averaging Length [sec]	①	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	①	On		
Meter configuration (Second)	①	Modbus Meter Gars GNM3T		
Main Distribution Limit (L1/L2/L3) [A]	①	100	100	100

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

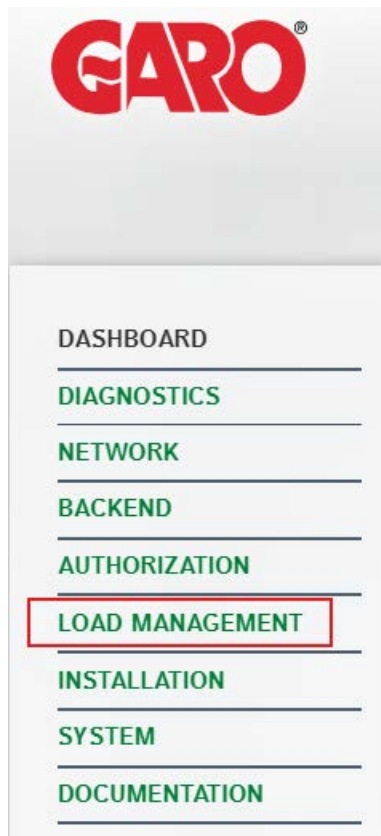
Unsaved changes	Reset all changes	Save	Restart	Restart App
Please restart your device to apply changes	Reset all changes	Save	Restart	Restart App

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.

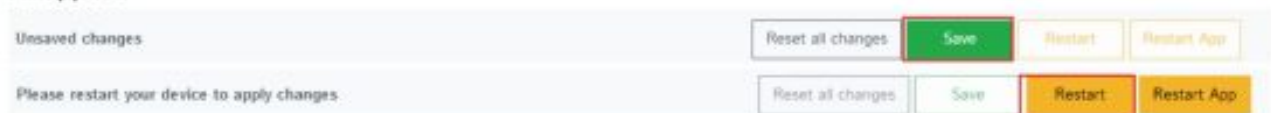
1. Click on Load Management



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



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



**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  
 or 192.168.123.123:82/legacy/operator/operator

**Outlet 1**  
**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”

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



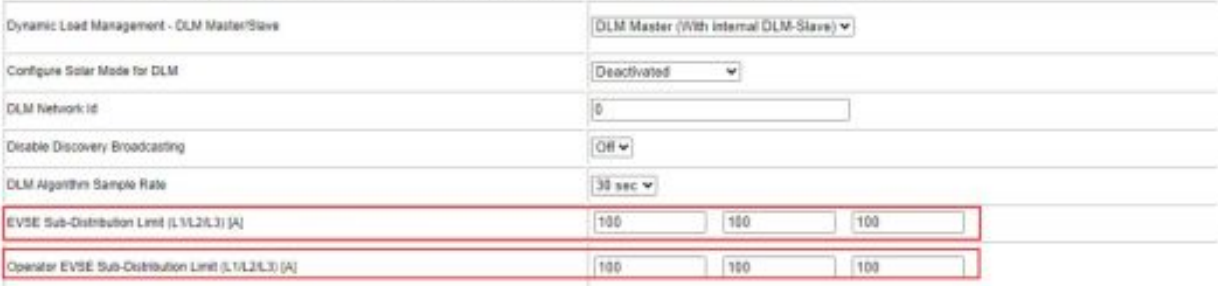
The screenshot shows a vertical menu on the left with the following items: State, > DLM, Settings, > Default, Operator (highlighted with a red box), System, and Documentation. To the right, the page title is 'Dynamic Load Management - DLM Master/Slave' and a dropdown menu is set to 'Disabled'.

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



The screenshot shows the 'Dynamic Load Management - DLM Master/Slave' settings page. The dropdown menu is set to 'DLM Master (With internal DLM Slave)'. Other settings include: 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), and Operator EVSE Sub-Distribution Limit (L1/L2/L3) (A) (100, 100, 100).

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



The screenshot shows the 'Dynamic Load Management - DLM Master/Slave' settings page. The dropdown menu is set to 'DLM Master (With internal DLM Slave)'. Other settings include: 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), and Operator EVSE Sub-Distribution Limit (L1/L2/L3) (A) (100, 100, 100). The EVSE Sub-Distribution Limit and Operator EVSE Sub-Distribution Limit fields are highlighted with red boxes.

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



The screenshot shows the 'External Meter Support' settings page. The dropdown menu is set to 'On'. Other settings include: 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



The screenshot shows the 'External Meter Support' settings page. The dropdown menu is set to 'On'. Other settings include: Main Distribution Limit (L1/L2/L3) (A) (100, 100, 100). The Main Distribution Limit field is highlighted with a red box.

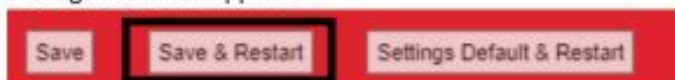


6. Scroll down until you find “**Meter Configuration (Second)**”, on the dropdown menu, choose the correct meter type according to the installed external meter



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 **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.

**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

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)

- 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.**



Save **Save & Restart** Settings Default & Restart

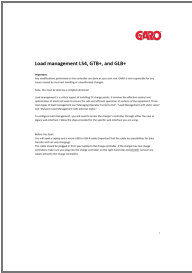
### Important:

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: [Click here!](#)

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Documents / Resources

	<p><a href="#">GARO LS4 Load Management</a> [pdf] User Manual LS4, Twin, GLB, LS4 Load Management, LS4, Load Management, Management</p>
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References

- [User Manual](#)

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