Basic Installation Guide

LGATE 120

SINGLE-PHASE SOLAR MONITORING SOLUTION

Version 4.2

LGATE 120 MODELS

Model	Communication Features
LGate 120 3GX	Cellular only, no Ethernet or Rs485 wires
LGate 120 3GY	Cellular, RS485, and Ethernet
LGate 120 3GZ	Cellular only, contains Zigbee chip

***Note**: Instructions for the LGate 120 3GX and 3GZ are contained within this guide. Additional details for the 3GY can be found in the LGate 120 Installation Guide appendix.*

TABLE OF CONTENTS

IMPORTANT PRODUCT INFORMATION

DANGER – ELECTRICAL SHOCK HAZARD

All installation and servicing on the LGate 120 and accompanying products should only be performed by qualified personnel and only within the scope of these installation instructions.

Disconnect the LGate 120 from the power source (both the breaker to the LGate and the AC disconnect) when servicing the product.

The LGate is not intended for use in life-support applications.

WARRANTY

THE FOLLOWING ACTIONS WILL VOID THE LIMITED WARRANTY:

- Removing or disassembling any part of the LGate 120.
- Breaking the tamper seal on the LGate 120.
- Joining the RS485 or Ethernet cables to another conductor inside the meter socket.
- Installing or operating the LGate 120 in any way not specified by this installation guide.

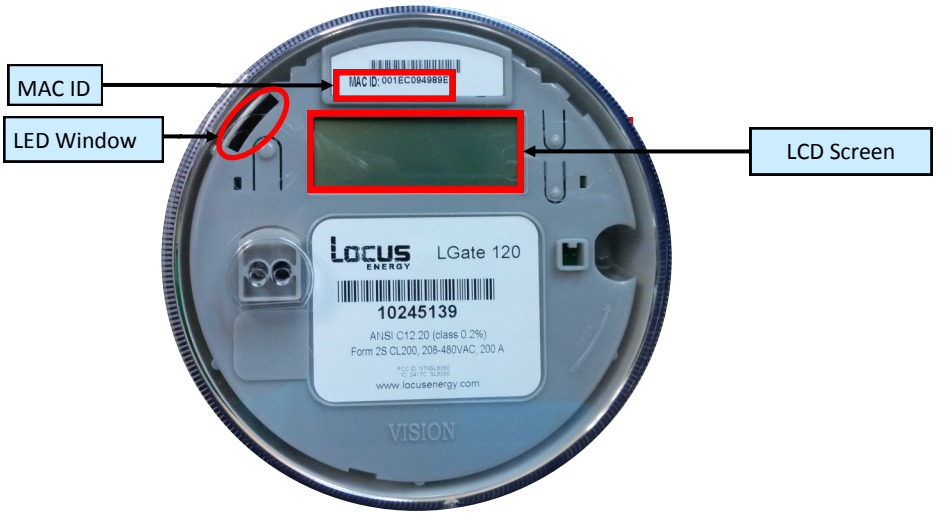
To obtain a copy of the Locus Energy, LLC Hardware Product Limited Warranty, please have your head office or program administrator contact your Locus Energy Account Manager.

RECOMMENDED INSTALL EQUIPMENT

- Laptop
- Power drill
- Wire stripper
- Mounting screws
- Form 2S 200A meter socket
- Volt meter
- Ammeter / clamp meter
- Shielded twisted pair wire (for inverter direct monitoring only)
- Gel-filled crimps (for inverter direct monitoring only)
- Junction box (for inverter direct monitoring only)
- Network cable crimper
- RJ45 heads (for Ethernet connection only)

LGATE 120 DATALOGGER

METER FACE



THIS GUIDE DOES NOT CONTAIN INFORMATION ON RS485 AND ETHERNET CONNECTIONS TO THE LGATE 120 3GY. PLEASE SEE THE LGATE 120 3GY APPENDIX FOR DETAILS

REVENUE GRADE MONITORING

This section covers the installation of the LGate 120 revenue-grade core monitoring system. This type of monitoring works with single-phase inverters and power sources up to 200A.

***IMPORTANT**: The LGate 120 does not ship with a meter socket included. For proper installation, the LGate 120 meter must be mounted in an installer-supplied meter socket that meets the following specifications:*

- *Form Factor 2S*
- *Current rating of 200A or higher*
- *Voltage rating of 600VAC or higher*
- *All-weather rating (for outdoor installations)*

***Note**: Confirm the installation has been performed correctly and to code before leaving the site.*

***IMPORTANT :** Do not install meter in direct sunlight.*

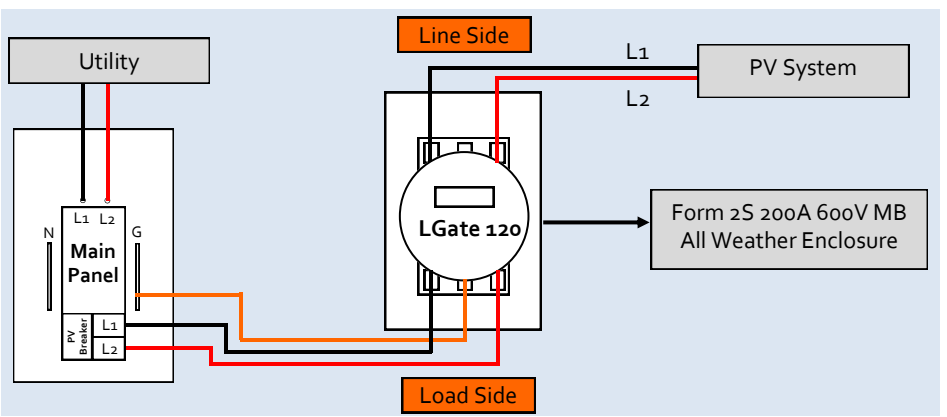
***Note**: Please reference appendix for Ethernet or RS485 related instructions.*

1. INSTALLING THE METER

Mount the meter socket (purchased separately) between the PV system and the electrical panel. Run the AC lines from the combined inverter output through the meter socket - ***line side to load side*** - and to the PV breaker on the electrical panel, then attach the LGate 120 meter to the meter socket.

Ground the meter socket to the ground in the main panel.

***Note**: If using a solar-dedicated subpanel, label the panel with "PV Loads Only" signage.*



2. CONNECTING TO THE NETWORK

The LGate 120 requires a network connection to communicate. The cell modem is the primary method of communication; if there is no cellular reception or using the cell modem is not an option, then use the secondary method, installing an Ethernet cable.

◊ **Preferred Connection Method - Cell Modem**

The LGate 120 comes installed with a cell modem. No additional configuration is necessary for this method.

***Note**: Store the unused Ethernet cable inside the meter box with the coupler left on.*

◊ **Secondary Connection Method - Ethernet Cable**

The LGate 1203GY has a built in Ethernet cable. Please reference the LGate 120 3GY Appendix for Ethernet related instructions.

VERIFYING INSTALLATION

The correct LED screen configuration is marked with a ☑ symbol.

1. NETWORK CONNECTION

The phone icon on the LCD screen indicates the network connectivity of the LGate 120.

***Note**: After setting Cell mode to **false**, the phone icon will indicate network connectivity on the Local Area Network.*

Within 30 minutes of system power-up:

☑ 1. *Solid phone icon:* The last data packet was sent successfully.

2. *Blinking phone icon:*

   ◊ *Blinking quickly*: The last data packet was not sent successfully but the cellular signal strength (if applicable) is strong.

   ◊ *Blinking slowly:* The last data packet was not sent successfully and the cellular signal strength (if applicable) is weak.

3. *No phone icon:* The LGate 120 is not connected to the network and the last data packet was not successfully sent. For an Ethernet cable connection, double-check the pin-out on the Ethernet cable (*see the 120 3GY Appendix*). For a cell modem connection, contact technical support to troubleshoot.

After 30 minutes:

☑ 1. *Solid phone icon:* The last data packet was sent successfully.

2. *No phone icon:* The last data packet was not successfully sent

***Note**: Resetting the LGate initializes the same behavior as within 30 minutes of system power-up. You can use this to assess cellular strength on existing sites.*

2. RS485/MODBUS CHECK

The switch icon indicates if any RS485 / Modbus devices are connected. If unsure whether inverter direct monitoring has been purchased for this project, contact your company, lease provider, or program admin.

☑ Switch icon is on: All external devices are communicating correctly (comm 1 or 2).

Switch icon is off: At least one of the external devices is not communicating OR the LGate is not configured for external devices. *See the 120 3GY Appendix for more details*

3. METER PLACEMENT CHECK

The arrow on the bottom right-hand side of the LED screen indicates the direction of energy flow through the meter socket, depending on the direction of the arrow.

Meter Placement Arrow

⚠ Pointing toward the left: If the PV system is on and generating energy, the meter socket was installed backward. Verify that the inverter wires running through the meter socket go from line side to load side (top to bottom).

4. READING VERIFICATION

Check that the energy (kWh), power (kW), and current (A) readings that cycle on the LED screen match the inverter output.

If power readings are negative, the meter socket was installed backward. Verify that the inverter wires running through the meter socket go from line side to load side (top to bottom).

Current (A) 37.0

Instantaneous Power (kW) 249

Total Energy (kWh) 680221

Instantaneous Power (kW) 218

5. INSTALLATION CONFIRMATION

Contact your office, program administrator, or lease provider to confirm the system is connected.

LGATE 120 FAQ

1. What is revenue-grade accuracy?
2. How can I test cellular signal strength?

1. WHAT IS REVENUE GRADE ACCURACY?

The LGate 120 has been ANSI C12.20 certified (accurate to 0.2%) only when installed as specified below:

Only one wire runs through each leg of the meter socket.

Only PV loads are being measured; i.e. no loads, back-up system, batteries, etc.

2. HOW DO I TEST CELLULAR STRENGTH?

The LGate 120 cell modem uses the AT&T cellular network to communicate. There are two methods of testing the strength of the cellular signal at the installation site:

- ◊ Using an AT&T cell phone, check the reception at the site: in general, one bar indicates sufficient signal strength, but more bars are preferable to establish the initial connection.
- ◊ Visit AT&T's website to view the cellular reception in the region of the site (select "Data" in the Domestic section and "3G" in the View Coverage by Device Type section for the best results).

***Note**: This tool gives a high-level view of the cellular reception in the region. The signal strength may be lower in an enclosed space or in a basement.*

After the LGate 120 is powered up, check the phone icon on the LCD screen. If the phone icon is off, the unit is not currently connected to the network (*see the Verifying Installation section on page 7 for more information*).

If you decide to use the Ethernet cable instead of the cell modem, additional configuration is required (*see the LGate 120 appendix for more information)*.