

# INTRODUCTION

The Polar Monitoring LTE Gateway is a RS-485 Gateway that is controlled by the Polar Monitoring Cloud.

This unit can connect to a number of different RS-485 devices that are integrated with the Polar Monitoring Cloud to give remote access and data to Power Meters, Variable Speed Drives, Generator Controllers, Water Meters and many more. See website for list of supported devices.

The following document will provide step by step instructions on how to install the LTE Gateway correctly.

PACKAGE CONTENTS:

- 1x LTE Gateway
- 1x Installation manual
- 1x 1m length power cable
- 1x 1m length RS-485 communication cable

## MOUNTING THE GATEWAY

The Polar Gateway has an IP42 enclosure, It will require additional protection from water and dust ingress.

The Gateway is DIN rail mountable and should be placed into a protective enclosure. It is important to provide adequate space around the device to access terminals for power and communication cables.

Keep in mind that Electro Magnetic Interference (EMI) can cause noise on the cables and Gateway if mounted too close to or parallel with high current power lines, this noise can cause the device to not function properly or have poor reliability of communication data.

## MOUNTING THE ANTENNA

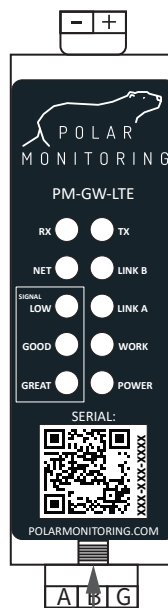
Placement of the antenna is vitally important to the overall function and reliability of the Gateway.

The standard antenna comes with a magnetic base to mount it.

The antenna should be mounted outside where possible and as physically high up as possible. **Do not** mount the antenna inside a metal enclosure. Where possible mount away from any high voltage power cables.

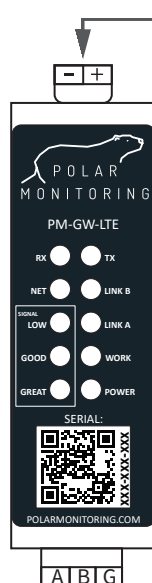
The antenna cable must be securely screwed onto the SMA connection point on the Gateway.

Signal strength can be viewed on the faceplate of the Gateway, and a more detailed signal strength can be seen from the Polar Cloud once the Gateway has been connected.



Antenna SMA Connector

## CONNECTING POWER



9 - 36V DC Input terminal

The Polar Gateway is powered by 9 - 36V DC only. This must be plugged into the terminals: positive "+" and negative "-" as shown.

The power terminals are located on the top of the Gateway.

**Note:** Applying the incorrect voltage will permanently damage the unit.

## CONNECTING RS-485

The LTE Gateway communicates via Modbus RS-485 with other devices.

It is important to follow the "A+" and "B-" when wiring the communication cables. See image below for positioning of RS-485 connectors on the unit.

Refer to the device's manual to ensure the correct connection and configuration.

**Note:** Some devices have A as - (Negative) and B as + (Positive). The installer must then follow the "+" and "-" markings for correct connection.

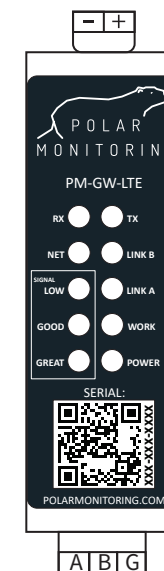
**Note:** It is important that both the Gateway and the device that it is being connected to are powered off while working on the connections.

**Note:** Do not run communication cables parallel to any high current power cables. Keep a minimum distance of 100mm away.

**Note:** Always use shielded twisted pair communication cables for RS-485 connections.

Serial Communication Settings	
Parameter	Value
Baud Rate	9600 bps
Data bits	8
Parity	None
Stop bits	1

\*Ensure that the serial parameters of each slave device are as per the table above.



RS-485 (A+), (B-), G Input Terminals

## FIRST TIME STARTUP

Once the Gateway has been successfully installed and connected to the device that it is monitoring, you can power on the device and Gateway.

During this step a number of lights will illuminate on the Gateway faceplate. Below is a list of the lights with their correct function:

**POWER — Solid Red**  
Gateway has power and is on.

**WORK — Flashing Green**  
The Gateway is working correctly, if solid on or off device is in fault and should be rebooted.

**LINK A — Solid Green**  
Indicates when the Gateway is connected to the Polar Monitoring Cloud.

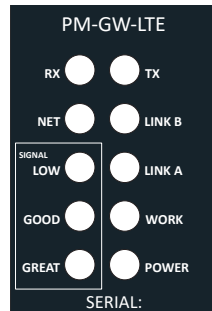
**LINK B — Not Used**

**NET — Solid Green**  
2 flashes means its connected on 2G  
4 flashes means its connected on 4G/LTE.

**SIGNAL**  
Light illumination correlates to the GSM strength of the signal of the Gateway. (If signal is LOW consider installing a high gain antenna.)

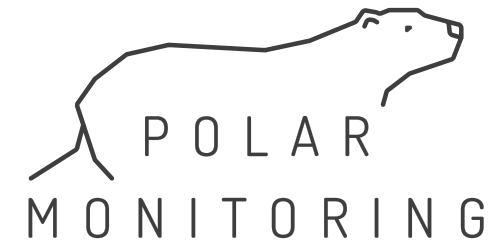
**TX — Flashes Green**  
Flashes when serial data is being transmitted via RS-485 to the device connected to the Gateway.

**RX — Flashes Green**  
Flashes when serial data is being received by the Gateway via RS-485 from the connected device.



## SPECIFICATIONS

Parameters	Description	
Basic Parameters	Power	9V - 36V DC
	Operating Current	Average: 21mA - 50mA Maximum: 54mA (12V)
	SIM/USIM	Data managed sim card included
	Serial interface	RS-485, baud rate 9600 bps
	Antenna interface	SMA female cellular antenna connector
Connection	Dimensions (mm)	28x64x109 (LxWxH)
	Weight (g)	110g
	Operating temperature	-10°C to +55°C
Connection Speeds	LTE FDD	10MbpsDL/5Mbps UL
	GSM	85.6KbpsDL /85.6KbpsUL
Connection Bands	LTE	B1/B3/B7/B8/B20
	GSM	900/1800MHZ



## SUPPORT

Thank you for purchasing a Polar Monitoring Gateway.

For any queries or assistance please look at the Polar Monitoring Wiki Site at:

[www.polarmonitoring.com/wiki](http://www.polarmonitoring.com/wiki)

### LOGIN TO CLOUD PORTAL ON PHONE OR PC

Once the device is connected to the Polar Monitoring Cloud, such that the NET and LINK A Lights are both illuminated, it is time to access the Cloud Portal to view the device. Go to the following url:

<https://portal.polarmonitoring.com/>

To log in enter your unique username or password or sign up as a new user.



SCAN ME for device setup OR  
Scan the QR code on the Gateway

## LTE Gateway Install Manual

PM-GW-LTE