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Application Note for GW IoT G8Q Gateway for Peer-to-Peer Communication Between Master and Slave Devices

Introduction

The GW IoT G8Q is a 4G-enabled industrial gateway used for communication between remote field devices and SCADA systems through a cloud-based MQTT broker. It supports RS485/RS232 devices and operates on 24V DC power. It creates a transparent master-slave communication link between SCADA, PLCs, RTUs, and other Modbus devices over a 4G SIM network.

System Architecture Overview

Application Diagram:

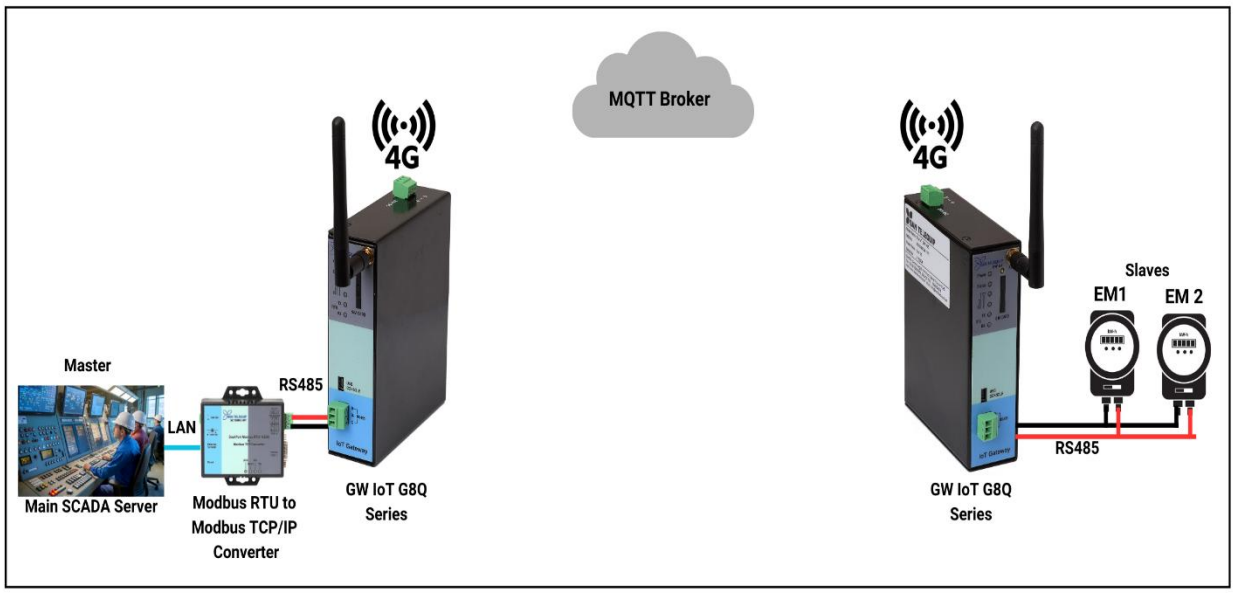

Diagram Explanation

The diagram illustrates a 4G-based MQTT communication architecture using the GW IoT G8Q Cellular IoT Gateway. The Master SCADA Server is connected to the GW IoT G8Q through a Modbus RTU interface (RS485). The gateway uses a 4G SIM card to publish data to a centrally hosted MQTT Broker (cloud or static IP). At the remote location, another GW IoT G8Q gateway subscribes to the same MQTT topics and transfers data to connected Modbus RTU slave devices (such as energy meters) over RS485. This setup creates a transparent and secure communication link between geographically separated sites without requiring complex VPN or static IP configuration.

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Additional Devices That Can Be Connected

The gateway supports the following serial devices, including:

- PLCs and RTUs
- Energy meters and multifunction meters
- Flow meters and temperature controllers
- Variable Frequency Drives (VFDs)
- Protection relays
- Data loggers
- SCADA servers and workstations

Typical Applications

This architecture is commonly used in:

- Energy Management Systems (EMS)
- Remote SCADA monitoring systems
- Solar and renewable energy plants
- Electrical substations and power monitoring
- Water and wastewater treatment plants
- Industrial automation and factory monitoring
- Remote pumping stations

Summary

The GW IoT G8Q Cellular IoT Gateway provides a reliable and scalable solution for remote industrial communication over 4G networks using the MQTT protocol. It enables transparent data exchange between SCADA systems and remote field devices without complex networking requirements. With its industrial-grade design, automatic reconnection capability, and support for multiple Modbus devices, it is ideal for modern IIoT and automation applications.