



LTE Gateway for LoRa IoT System

DO0112

Technical Datasheet, DS0046

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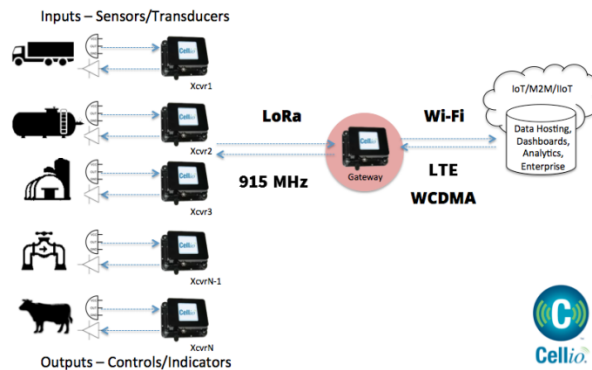


Figure 1: Cellio Gateways Provide a Wireless Link between Transceivers and the Cloud

1. Features

- Cellular Connectivity
 - Single SKU Option (Verizon, AT&T)
 - 700/850/AWS1700/1900 MHz
 - Internal antenna
- GPS with internal antenna (optional)
- 915 MHz LoRa Transceiver link
 - 1 Mile line-of-sight range
- Power
 - 5-7VDC supply (included)
 - Lithium backup battery included
- Environmental
 - IP68 for enclosure if barrel jack is properly mated with included power adapter. Power adapter is not IP rated.

– Lithium battery temperature limits

- Charge: 0°C to 45°C
- Discharge: -20°C to 60°C
- Storage: -20°C to 45°C

2. Applications

- Agriculture
- Automation
- Compliance
- Environmental
- Food and Beverage
- Supply Chain
- Transportation

3. Description

The Cellio system, comprised of Transceivers and Gateway(s), provides a low-cost avenue for gaining visibility into invaluable operations and assets (sensors, instruments, equipment, location, usage, status, decision making, supply chain, operator indicators, etc.). The Cellio system is suited for single locations as well as extensive enterprise configurations spanning the continent. Partnered with cellular carriers, back-end cloud platforms, and sensor instrumentation companies, full enterprise-level-solution installations can be quick, easily scaled, and very affordable.

Cellio Gateways communicate with Transceivers using the 915MHz ISM band. The DS0046 Gateway then communicates to the cloud using the LTE cellular network (LTE/3G for AT&T).

4. Functional Block Diagram

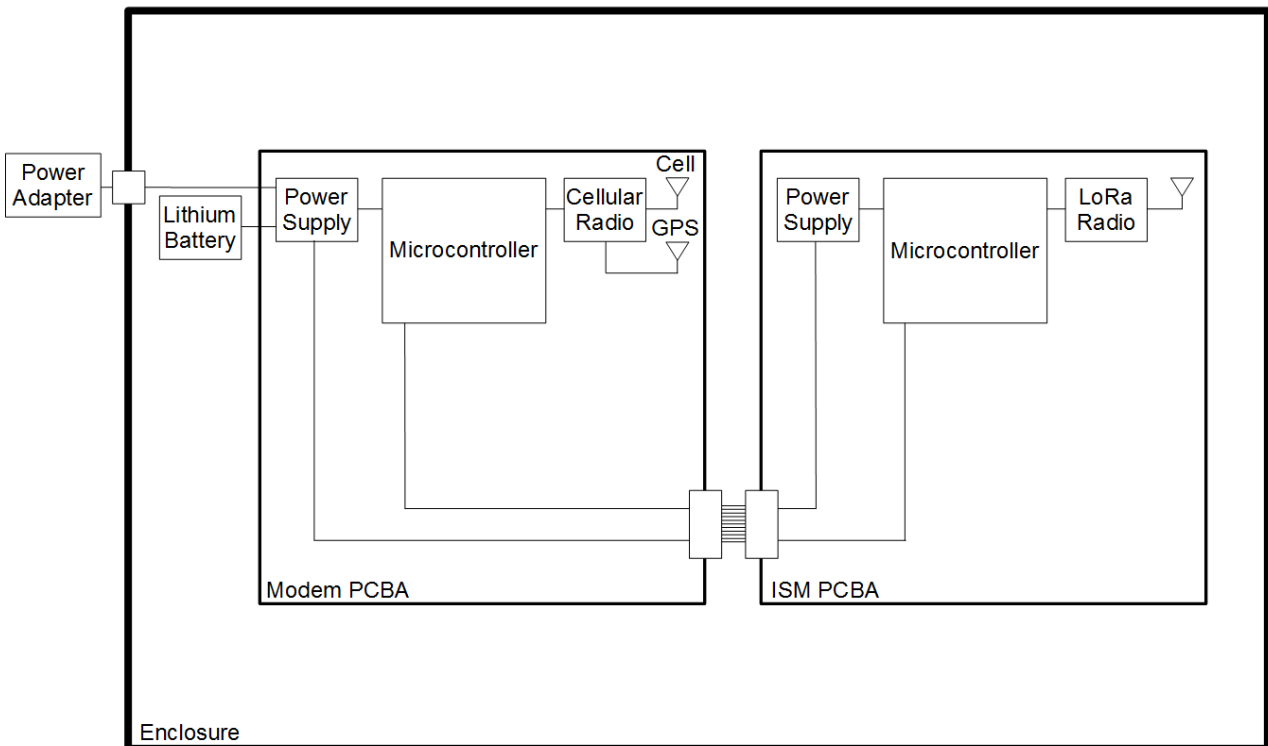


Figure 2: Functional Block Diagram of Cellio Gateway

5. System Power

5.1. Power Adapter

Included with the Gateway is a 6V DC, 1.25A power adapter. The power adapter's connection to the gateway is IP68 rated when installed properly; ensure the knurled lock ring on the power adapter's

barrel plug is securely fastened to the barrel jack on the gateway. The power adapter will be connected to the gateway during the installation process; instructions can be found on your quick-start card.

5.2. Lithium Backup Battery

Included inside the enclosure is a 900mAh Lithium battery capable of powering the Gateway for up to 36 hours if mains power is lost. The battery will be connected to the circuit board inside the enclosure during the installation process; instructions can be found on your quick-start card.

6. Environmental

The electronics in the Cellio Gateway are rated for -40°C to +85°C ambient temperature. The battery may be the limiting factor; please comply with ratings on the installed battery.

- Charge: 0°C to 45°C
- Discharge: -20°C to 60°C
- Storage: -20°C to 45°C

7. Cellular Connectivity/GPS

The DS0046 LTE Gateway is equipped with a quad-band 700/850/AWS1700/1900 MHz radio configured for either a Verizon or AT&T network. The gateway also includes GPS functionality. Both the cellular and GPS antennas are inside the enclosure, so no additional external connections are necessary.

8. Regulatory Information

Cellio Gateways and Transceivers are designed to the highest standards of safety, but they are radio devices which require specific consideration. Please read and understand all of the safety notices, warnings, and cautions for this product. Device Solutions assumes no liability for failure to comply with the safety precautions. See the Cellio Installation Guide for other details about safety.

This device complies with Part 15 of the FCC Rules. This device complies with Industry Canada's license-exempt RSSs. Operation of the device is subject to the following two conditions: (1) The device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme aux normes d'exemption de licence RSS d'Industry Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas causer d'interférence, et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Cellio products (including hardware and software) are not designed or intended to be fail-safe, or for use in any application requiring fail-safe performance, such as life-support or safety devices or systems, class iii medical devices, nuclear facilities, applications related to the deployment of airbags, or any other applications that could lead to death, personal injury or severe property or environmental damage (individually and collectively, "critical applications").

Cellio products are not designed or intended for use in any applications that affect control of a vehicle or aircraft.

Cellio devices are not suitable for use in explosive environments.

Customer agrees, prior to using or distributing any systems that incorporate Cellio products, to thoroughly test the same for safety purposes. Customer assumes the sole risk and liability of any use of Cellio products in critical applications, subject only to applicable laws and regulations governing limitations on product liability.

Contains:

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9. Support

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