Miltel Transmitter

Wireless Transmitter

for Data Collection

FCC ID: MLLGLXPT2

User Manual

Miltel Communications Ltd. *August 2005*

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Chapter 1

Introduction

1.1 Purpose and Use

The ***Miltel Galaxy Pit 2 Transmitter (***FCC ID: **MLLGLXPT2**) is a data link transmitter that is used for data acquisition in Miltel's telemetric data collection system. This device is installed on-site by a professional field technician, thus it includes technical terms. The equipment is not to be installed by a non-professional individual that has not been trained and authorized.

1.2 System General Description

The Miltel data collection system is a computerized fully system incorporating one-way transmitters that automatically collect data from utility meters and/or other sensors. The system requires no human intervention after initial installation. The system enables remote, continuous and accurate reading of water or gas consumption. The ***Miltel Galaxy Pit2*** transmits the data acquired from various sensors such as water meters, electric meters, to a receiver connected to a regional data concentrator. The concentrator transfers the data to the central computer for data collection and for further analysis and reporting.

Chapter 2

Theory of Operation

2.1 General Description

The ***Miltel Galaxy Pit 2 Transmitter***s the first link in the data collection system. It is an independent unit that does not require an external power source, wiring, or the preparation of any special infrastructure. The unit is installed in proximity to the physical sensor and can be connected to several different sensors in parallel (for example four water meters of adjacent apartment, etc).

Pictures 2-1 (see next page) show typical installations of a ***Miltel Galaxy Pit 2 Transmitter unit***. The unit can be connected to any type of sensor which has a digital output, analog output, dry contact pulsed output (a passive magnetic open/short reed relay), or any active pulse or encoded output.

The ***Miltel Galaxy Pit 2 Transmitter*** acquires the data from the sensor and stores this data in its internal memory. The unit includes a miniature RF transmitter which transmits the data on a periodic basis to a regional concentrator.

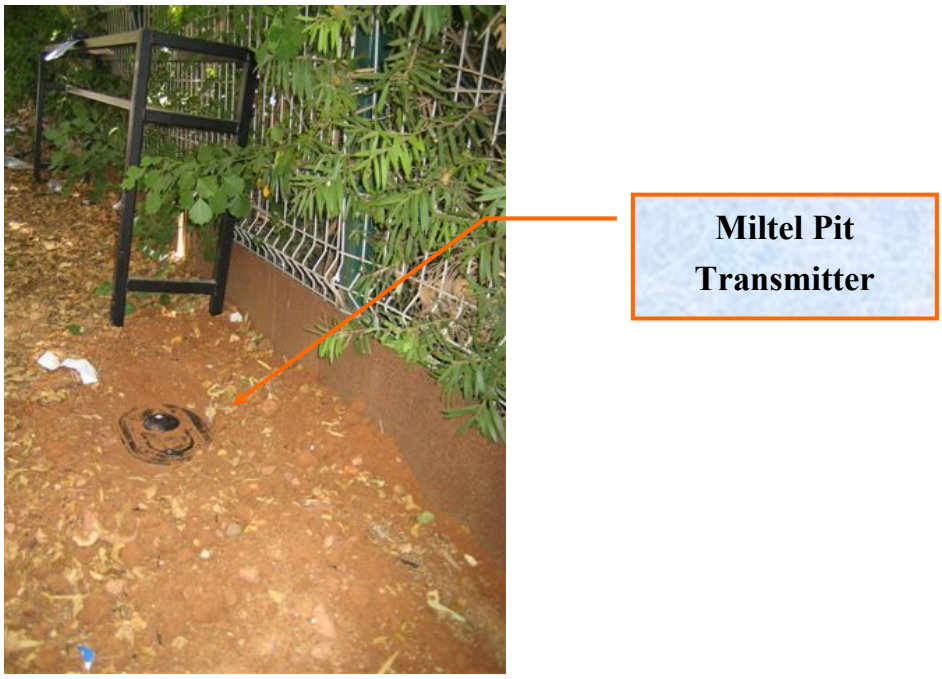

Figure 2-1: Miltel Transmitter Typical Pit Installation

2.2 Block Diagram Description

2.2.1 General

Figure 2-2 describes the block diagram of the ***Miltel Galaxy Pit2 Transmitter***. This device consists of two major sections, all using a common power source:

- Digital section (Micro Controller)
- RF section

A 3.6 volts Lithium battery provides power to all parts of the device. The power supply for the RF section is controlled via the Tx switch (not shown), thus cutting of power to the transmitter unless necessary for actual data transmission (standby mode).

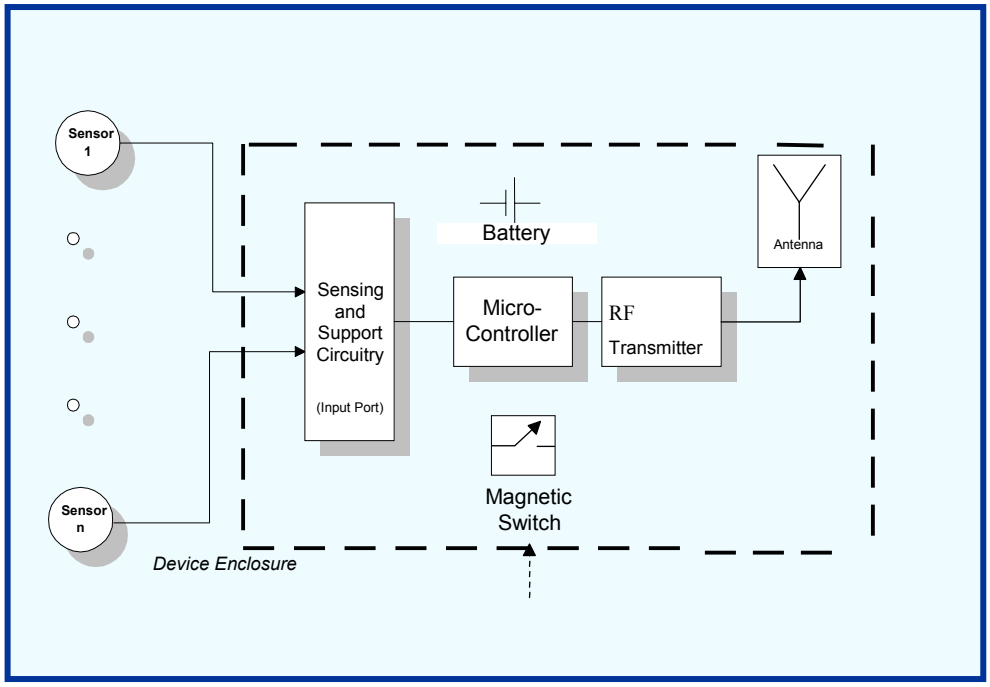

Figure 2-2: Miltel Galaxy Pit 2 Transmitter ***Block Diagram***

2.2.2 Description of Operation

The digital section of the ***Miltel Galaxy Pit 2 Transmitter*** performs the following functions:

- Samples analog sensors OR communicates with digital sensors
- Accumulates data for each sensor separately
- Stores data (including alarms) in internal memory
- Interfaces the data to the RF section

The controller gathers the data for 10-240 minutes before initiating a transmission. If any of the counters/sensors has exceeded a preset value, or any alarm (such as tamper) has been received, the controller generates a single message immediately. Any further message will include alarm information along with counter data, if alarm condition still exists. Note: The duration interval between two transmissions is always greater than 60 minutes.

The messages generated by the controller are 19 bytes each (depending on the number and type of sensors connected). The messages are exported from the digital section to the RF section as serial data (RS-232 standard protocol) via the DATA OUT output of the controller.

The Tx control output of the controller is used for activating the TX switch for the duration of the message, to enable power supply to the RF section thus enabling the transmission of the message (transmit mode).

The RF section takes the message and transmits it through the RD circuitry.

Chapter 3

Technical Characteristics

3.1 Technical Specification

3.1.1 Electrical

Max conducted power output	16.67 dBm (EIRP), 14.52 dBm (ERP)
Radio frequency	450-470 MHz
Carrier wave modulation	2 Level FSK
Power supply	Lithium battery, 3.6 Volt
Input Channels	Pulse / Analog / Digital

3.1.2 Physical

Operating temperature	-30°C ÷+60°C
Water Resistance	IP68

Dimensions

Length	12.5 cm.
Width	Ø 4.4 cm.

Chapter 4

Installation Instructions

4.1 General

The ***Miltel Galaxy Pit 2 Transmitter***s installed by a professional technician. Several possibilities for installation have been programmed into the system in order to provide solutions for installation of various types of sensors including water, gas or electric meters.

4.2 Installation

For on-site installation of the ***Miltel Galaxy Pit 2 Transmitter*** device, proceed as follows:

1) Open the meter box.

2) Insert the ***Miltel Galaxy Pit 2 Transmitter*** to it's place as show on picture Figure 4-1& Figure 4-2:

3) Splice the wires coming from the transmitter with the wires coming from the meter (**Important:** Keep the color coding consistent).

4) Close the meter box cover, as show on picture Figure 4-3.:

Figure 4-1: Miltel Galaxy Pit 2 Transmitter *Installation*

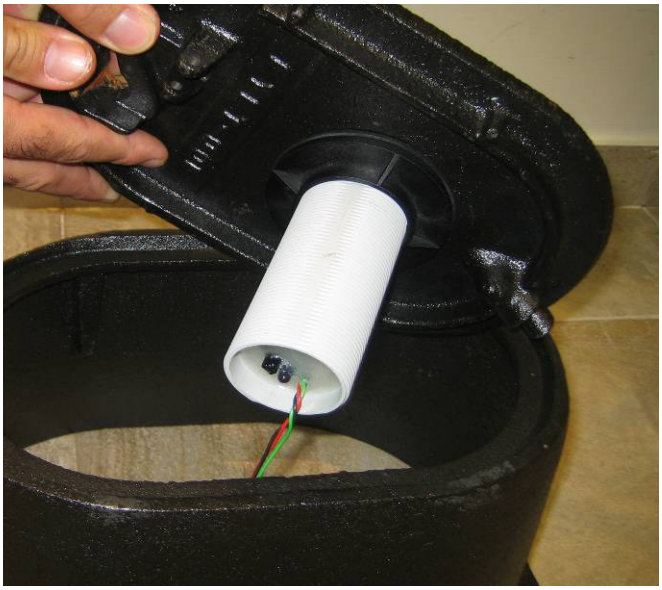

Figure 4-2: Miltel Galaxy Pit 2 Transmitter *Installation*

Figure 4-3: Miltel Galaxy Pit 2 Transmitter *Installation*

NOTICE

This equipment must be installed only by a professional and certified installer that was trained in the proper installation of this device. The intended use is only for the specific application the device was designed for.

Chapter 5

Regulatory Compliance

5.1 FCC Statement

The **Galaxy Pit 2** has been tested and found to comply with the limits 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 in accordance with 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 can be determined 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 and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

Warning!
Changes or modifications to this equipment not expressly approved by Miltel Communications Ltd. could void the user's authority to operate the equipment.

FCC Declaration of Conformity

The Galaxy Pit 2 product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Imported to the USA by:

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Licensing Notice

The FCC rules require the equipment user to obtain a site license before operation of this equipment. Licensing of the equipment is the user's responsibility. The user is required to contact an authorized FCC coordinator for the purpose of obtaining the proper license for the specific location/site where the equipment is to be installed. We strongly recommend that the user should obtain the proper frequency license before ordering of the equipment.