

Miltel Wireless Data Link for RF Telemetry Systems

Transceiver 3A

(Receiver/Repeater)

FCC ID: **MLLGL3RPT450**

User Manual

Miltel Communications Ltd.

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Chapter 1

Introduction

1.1 Purpose and Use

The **Transceiver 3A** (FCC ID: **MLLGL3RPT450**) is a receiver/repeater that is used for data transfer in Miltel's radio telemetry system. The system is used for utility consumption readings collection system as well as for other applications such as in agricultural systems or general purpose sensor telemetry system. This device is installed on-site by a professional field technician, thus this manual includes technical terms. The equipment should not be installed by a non-professional individual that has not been trained and authorized.

1.2 System General Description

The **Transceiver 3A** system is a computerized fully automatic radio device. It requires no human intervention after initial installation. The device acts as a store-and-forward radio relay. The **Transceiver 3A** operates as a Gateway (backhaul receiver) or as a repeater that captures transmissions from a Miltel transmitter and, after validating the message, transmits the message again. When operating as a Repeater the device relays information from transmitters to a receiver that acts as a Gateway (base station) which is typically deployed with a RS232 connection to a PC or with a LAN connection (TCP/IP) that allows backhauling data to the backoffice management system. The Gateway (Receiver) transfers the data to the central computer for data collection and for further analysis and reporting.

When operating as a Gateway Receiver, the device receives messages transmitted by Miltel transmitters or messages relayed by a repeater. The receiver can also send commands to any of the repeaters.

The Transceiver device is marketed as two models (as a Receiver or as a Repeater) and under three different commercial trade names (**Datasense** Repeater 3A / Receiver 2A, **Galaxy** Repeater 3A / Receiver 3A and **IrriWise** Repeater 3A / Receiver 2A).

The Transceiver device (both receiver and repeater) can be hooked up to a PC or to a laptop computer for programming purposes during system setup.

1.3 Theory of Operation

The **Transceiver 3A** is the intermediate link in the wireless telemetry data collection system. It is an independent unit that operates as a repeater (radio relay) or as a gateway backhaul device (receiver).

Figure 2-1 (see below) depicts a typical installation of a **Transceiver 3A** unit. The device is powered by a 12 volt power supply or by a solar powered battery.

The **Transceiver 3A** operates its radio receiver on a continuous basis until it receives a message from a nearby transmitter. After capturing the transmitted data message, it sends out an identical message which is forwarded to the Collector.

Figure 1-1: Typical Installation

(shown with optional solar panel)



Chapter 2

Technical Characteristics

2.1 Technical Specification

2.1.1 Electrical

Max. output power	18.8 dBm
Output frequency	450-470 MHz
Carrier wave modulation	FSK
Power supply	12VDC from external AC2DC adapter
Receiver Sensitivity (typical)	-118 dBm

2.1.2 Physical

Operating temperature	-30°C ÷ +60°C
Water Resistance	IP-68
Length	17.7 cm.
Width	8.1 cm.
Depth	5.6 cm.
Weight (excl. mounting plate)	580 gr.

2.2 FCC Label

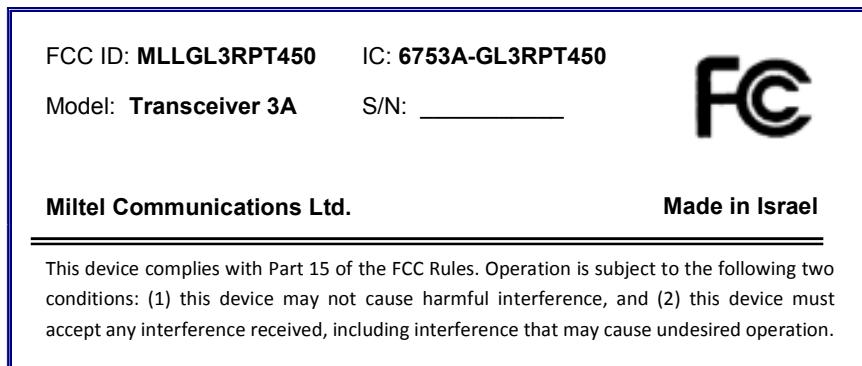


Figure 2-1: **Label Design**

Chapter 3

Installation Instructions

3.1 General

The **Transceiver 3A** should only be installed by a professional technician.

3.2 Installation

For on-site installation of the **Transceiver 3A** device, proceed as follows:

- 1) Loosen the four screws fastening the unit's panel and open the box end cover.
- 2) Connect the 12 volt DC power supply (use only U/L approved power supply) to the 5-pin connector
- 3) Close case
- 4) Install screws and mount to wall or to mast
- 5) Connect the Coax cables at both ends – to the repeater/receiver and to the antenna

3.3 Antennas

The **Transceiver 3A** is supplied with one of the following antenna models and should be installed only with one of these models that are supplied with the device. Installing the equipment with any other antenna other than those listed below may violate FCC regulations and is therefore prohibited.

- Mars Antenna - Model M216
- Phantom Antenna - Model OEM2326-110



FCC Declaration of Conformity

The products described in this manual, include:

- ***Datasense Receiver 3A*** (Transceiver)
- ***Datasense Repeater 3A*** (Transceiver)
- ***Galaxy Receiver 3A*** (Transceiver)
- ***Galaxy Repeater 3A*** (Transceiver)
- ***IrriWise Receiver 3A*** (Transceiver)
- ***IrriWise Repeater 3A*** (Transceiver)

The above products comply 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:

Cereniti Datasense Networks 8910 Purdue Road Suite 480 Indianapolis, Indiana 46268 Telephone: 1-877-237-3648 Fax: 1-877-362-6640	Badger Meter Inc 4545 W. Brown Deer Rd. P.O. Box 245036 Milwaukee, WI 53224-9536 Tel: 800-876-3837	Netafim USA 5470 E. Home Ave. Fresno, CA 93727 Tel: 800-777-6541 Fax: 800-695-4753
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NOTE:

- 1) The equipment user is required by the radio service rules to obtain a license before operating the equipment. Licensing of this equipment is the user's responsibility, and licensability depends on the user's classification and application, and on the selected frequency. The user is strongly urged to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.
- 2) The equipment 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.
- 3) **Warning:** Changes or modifications to this equipment not expressly approved by Miltel Communications Ltd. could void the user's authority to operate the equipment.