

Speed HPRx450

*Wireless Data Link
for Data Transfer*

FCC ID: **MLLSPEEDHPRX450**

User Manual

Miltel Communications Ltd.

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Table of Contents

Chapter 1	Introduction	3
1.1	Purpose and Use	3
1.2	System General Description	3
1.3	Theory of Operation.....	4
Chapter 2	Technical Characteristics.....	5
2.1	Technical Specification	5
2.1.1	Electrical	5
2.1.2	Physical.....	6
2.2	Label Contents.....	6
Chapter 3	Installation Instructions	7
3.1	General	7
3.2	Installation.....	7

Chapter 1

Introduction

1.1 Purpose and Use

The *Speed HPRx450* (FCC ID: **MLLSPEEDHPRX450**) is a data link transceiver that is used for data transfer in Miltel's utility consumption readings 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 *Speed HPRx450* 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 *Speed HPRx450* captures any transmission from a *Speed HPTx* transmitter and, after validating the message, transmits the message again. The *Speed HPRx450* relays information from meter reading transmitters to regional concentrators (which are equipped with a radio receiver). The concentrator transfers the data to the central computer for data collection and for further analysis and reporting.

1.3 Theory of Operation

The **Speed HPRx450** is the intermediate link in the meter readings data collection system. It is an independent unit that operates as a repeater (radio relay).

Figure 2-1 (see below) shows a typical installation of a **Speed HPRx450** unit. The device is powered by a 12 volt power supply or by a solar powered battery.

The **Speed HPRx450** 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 regional concentrator.

Figure 1-1: Speed HPRx450 Typical Installation
(shown here with optional solar panels)



Chapter 2

Technical Characteristics

2.1 Technical Specification

2.1.1 Electrical

Max Effective Radiated Power (ERP)	43 mW (Complies with FCC 90.205(g))
Output frequency	450-470 MHz
Carrier wave modulation	2 Level FSK
Power supply	Lithium battery, 3.6 Volt
Receiver Sensitivity	-117 dbm

2.1.2 Physical

Operating temperature	-30°C ÷ +50°C
Water Resistance	Splash resistance (IP-64)
Length	16 cm.
Width	12 cm.
Depth	7.5 cm.
Weight (excluding clamp)	650 gr.
Weight (including clamp)	900 gr.
Clamp material	Stainless steel

2.2 Label Contents (see file: *Speed HPRx450 ID Label*)

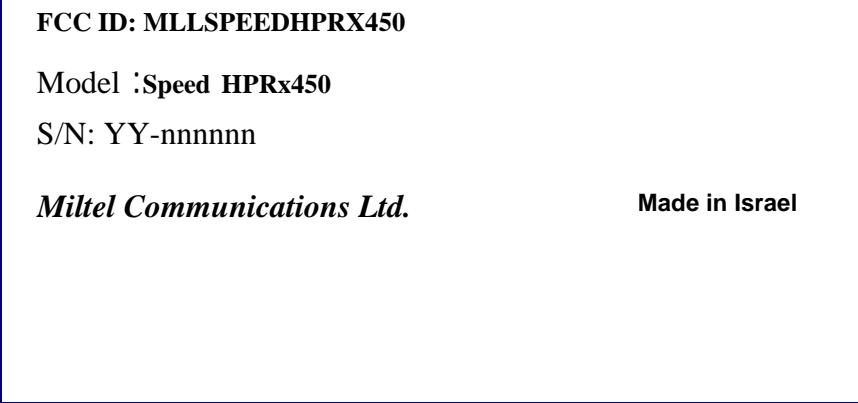


Figure 2-1: **Label Design**

Chapter 3

Installation Instructions

3.1 General

The **Speed HPRx450** is installed by a professional technician.

3.2 Installation

For on-site installation of the **Speed HPRx450** device, proceed as follows:

- 1) Loosen the four screws fastening the unit's box and open the box cover.
- 2) Connect the 12 volt DC power supply (use only U/L approved power supply)
- 3) Install screws and mount to wall or to mast
- 4) Close case
- 5) Install antenna on a mast using the clamp provided

Please Note: FCC RF exposure: Antenna Installation: The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not exceed an antenna gain of 3 dBi. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

- 6) Connect the Coax cable at both ends – to the repeater and to the antenna
- 7) Perform functional radio test by using a **Speed HPTx** transmitter. Verify that the message is relayed by the repeater to the concentrator.

Whenever possible, the repeater should be installed indoors. If outdoor installation is required, the repeater should be installed within a weatherized enclosure.