

EZCOM-LP

Professional Installers Guide

Version 1.5

Table Of Contents

TABLE OF CONTENTS.....	2
FCC INFORMATION.....	3
Preface.....	3
RF Exposure Information	3
Physical Installation.....	3
Electrical Issues.....	4
Antennas	4
Yagi Installation.....	4
Omni Installation.....	5
Mobile Installation.....	5
Thermal Considerations	6

FCC Information

Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

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.

Warning (Part 15.21)

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

RF Exposure (OET Bulletin 65)

To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 2m separation distance between the antenna and all persons.

Preface

EZCom-LP is an OEM radio module for professional installation in products or assemblies for resale. This device is not intended or marketed for installation by end users. Should EZCom-LP be used for fixed point-to-point operation as defined in FCC rule 15.247.(b).iii the equipment operator, or if the equipment is professionally installed, the installer, is responsible for ensuring the system is used exclusively for point-to-point operations.

RF Exposure Information

When used in a fixed configuration with the Yagi antenna or a mobile configuration with the omni-directional antenna the antenna should be located at least 2 meters from normal human proximity.

Physical Installation

The unit should be firmly attached at four mounting points. The holes are sized for #6 screws and are 5.7" apart on in the long dimension and 1.125" apart in the short dimension. It is critical that the mounting method not touch any of the components mounted on the PCB. Vibration mounts should be used if the device is expected to see shock or vibration in excess of 1G.

The SMA connectors should be secured with 8 ounce-inches of torque. Ensure that the cabling does not present more than a few pounds of stress to the connectors themselves. With enough leverage, (such as seen with 0.5" and larger coax) it is possible to break the solder joints on the connectors.

Electrical Issues

The system supply must be 5V +/- 2%. As the main power amplifier runs directly off the 5V supply with only passive filtering it's important to keep the voltage within these limits. Under voltage will cause the unit's microprocessor to enter reset mode. Over voltage could potentially damage the transmit section. A power supply able to deliver at least 1 Ampere should be used. Place the supply close to the radio (less than 3 feet), use 22 gauge or larger wire and if possible provide a 470uF or larger capacitor between power and ground where it enters the radio. The capacitor isn't needed if the supply can be shown not to droop out of voltage tolerance when the radio transmits.

Antennas

Use only the following antennas:

Antenex YB8966	9.2 dBd yagi, must have at least 2.3 dB of cable loss (60 feet of LMR400, or equiv.)
Maxrad MFB9157	7 dBd omni, must have at least 0.2 dB of cable loss (5 feet of LMR400, or equiv.)

Antennas of the same type but with lower gain may be substituted if desired so long as the cable lengths are not changed from those tested. Antennas of higher gain are prohibited. Contact Grayhill if you feel you must use a higher gain antenna.

Yagi Installation

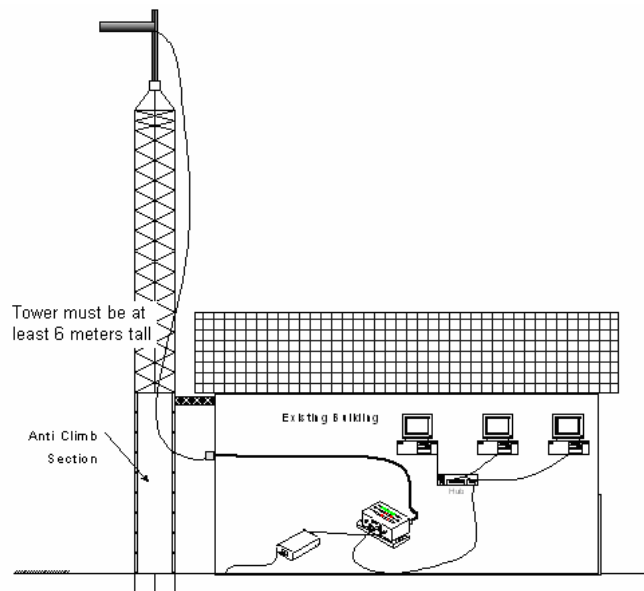


Figure 1. Recommended Antenex Yagi antenna configuration.

The Yagi antenna should be mounted on a tower or pole with clear line of sight to the target radios. As a Yagi antenna concentrates its gain along the direction of the long axis care should be taken to point the Yagi at the target radios as well as can be managed. Under no circumstances may the antenna be operated within 2 meters of a human body. Under no circumstances may the Yagi antenna be operated with less than 2.3dB of cable loss based on the type of coax used. When in doubt use only the pre-measured, Grayhill supplied antenna cable. The installer is responsible for ensuring that the total radiated power is less than +36dBm.

Omni Installation

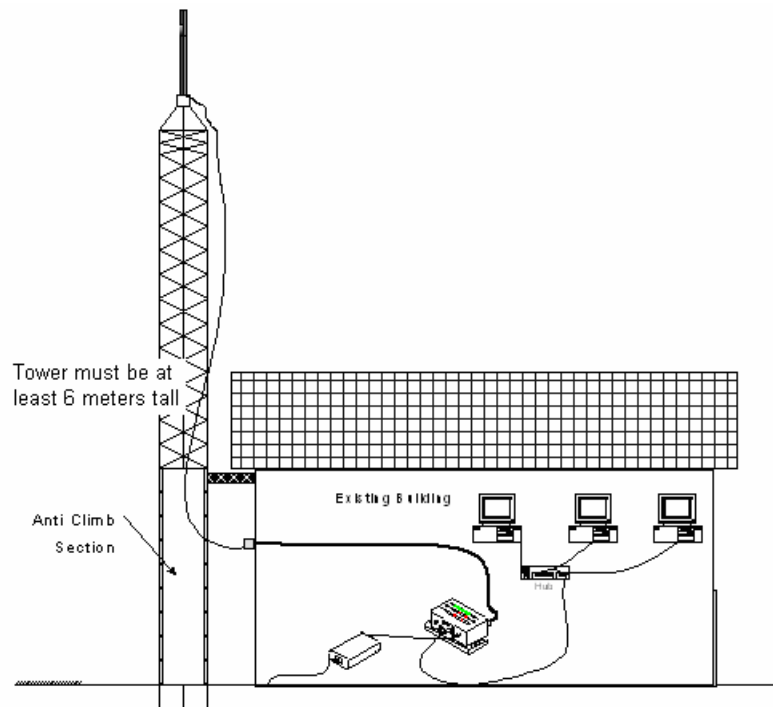


Figure 2. Recommended Maxrad omnidirectional antenna configuration.

Installation of the omni-directional antenna is similar to the Yagi antenna except that the antenna needs no pointing. Under no circumstances may the antenna be operated within 2 meters of a human body. The omni-directional antenna must be installed with a minimum cable loss of 0.5dB based on the type of coax used. When in doubt use only the pre-measured, Grayhill supplied antenna cable. The installer is responsible for ensuring that the total radiated power is less than +36dBm.

Mobile Installation

While EZCom-LP may be used in mobile installations, under no circumstances may the antenna be operated within 2 meters of a human body. The installation must take this into account. Should you need to create an installation where an antenna is closer than 2 meters contact Grayhill to arrange for the exact installation to be tested and submitted for FCC approval.

Thermal Considerations

The unit is rated for operation from -40°C to $+80^{\circ}\text{C}$. Ensure that the enclosure temperature stays within these limits even when exposed to direct sunlight or wind. The unit doesn't generate much heat by itself even while transmitting data. The TX duty cycle is usually less than 30% so don't rely on the unit to heat itself.