Norsat International Inc.

USER MANUAL

Installation and Operation Manual for Ku-band BUC 16W/20W/25W MINI



TABLE OF CONTENTS

1. Introduction 3
   1.1 Purpose and Scope 3
   1.2 Introduction for BUC 3
2. Overview 3
   2.1 Block Diagram 3
   2.2 Physical Description 4
3. Safety Instruction 5
4. Interfaces 5
   4.1 Intermediate Frequency (IF) / 10MHz reference Input 5
   4.2 The torque value to connect the cable is shown in Table 1. 5
   4.3 RF OUT 6
   4.4 DC / M&C Connector (optional) 6
   4.5 The interface and pin map of the M&C connector are shown in Table 2. 6
5. Installation 7
   5.1 Check Packing List 7
   5.2 Installation of mounting bracket 7
   5.3 Connecting Coaxial Cable DC, Ethernet and M&C cable (optional) 8
6. Software Installation 8
7. Maintenance 8

|CONFIDENTIAL AND PROPRIETARY
©Norsat International Incorporated (“Norsat”) All Rights Reserved

1. Introduction

1.1 Purpose and Scope

The purpose of this document is to provide installation, operation and maintenance of the 16W/20W/25W Ku-band mini Block Upconverter (hereinafter BUC mini).

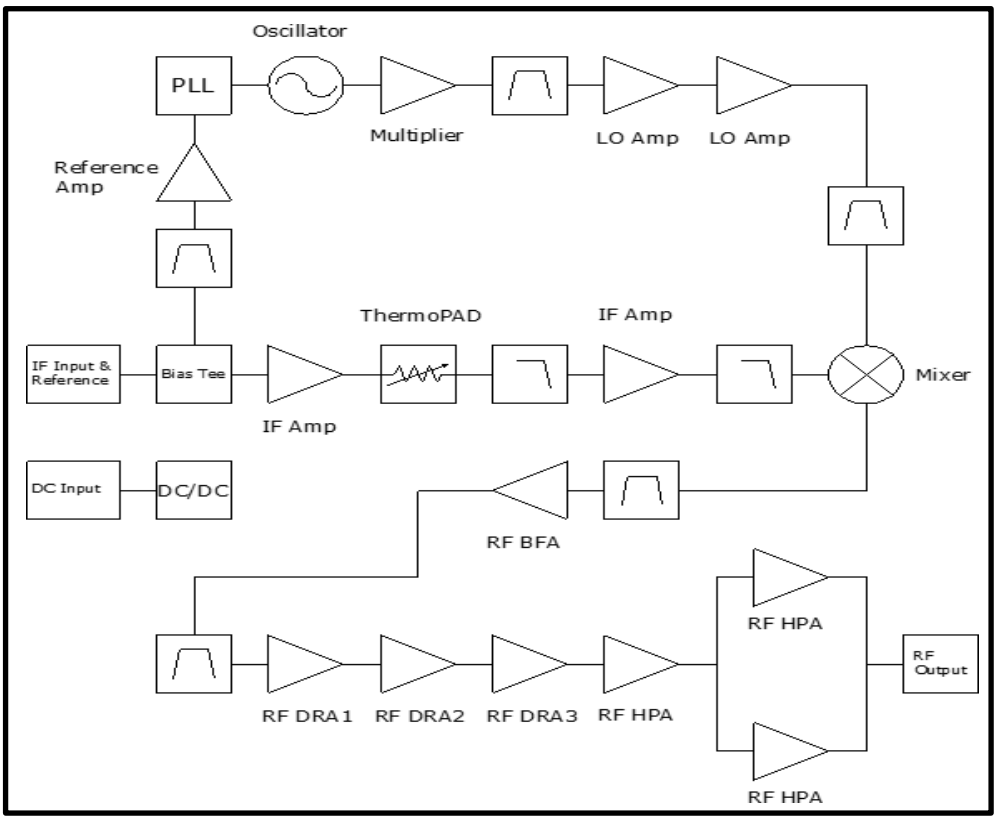
We recommend that the installers familiarize with the product by reading through this manual. Understanding the operation will reduce the possibility of incorrect installation.

1.2 Introduction for BUC

The Block Upconverter is designed to use for VSAT application. The Norsat BUC has high linearity and gain stability over the full operating temperature range. The standard output operating frequency range is 13.75 GHz to 14.50 GHz. The BUC requires a reference signal (10MHz) either externally or internally to maintain correct transmit frequency. The BUC has either a N-type or F-type female connector for input and WR75 waveguide with a grooved flange for output.

2. Overview

2.1 Block Diagram

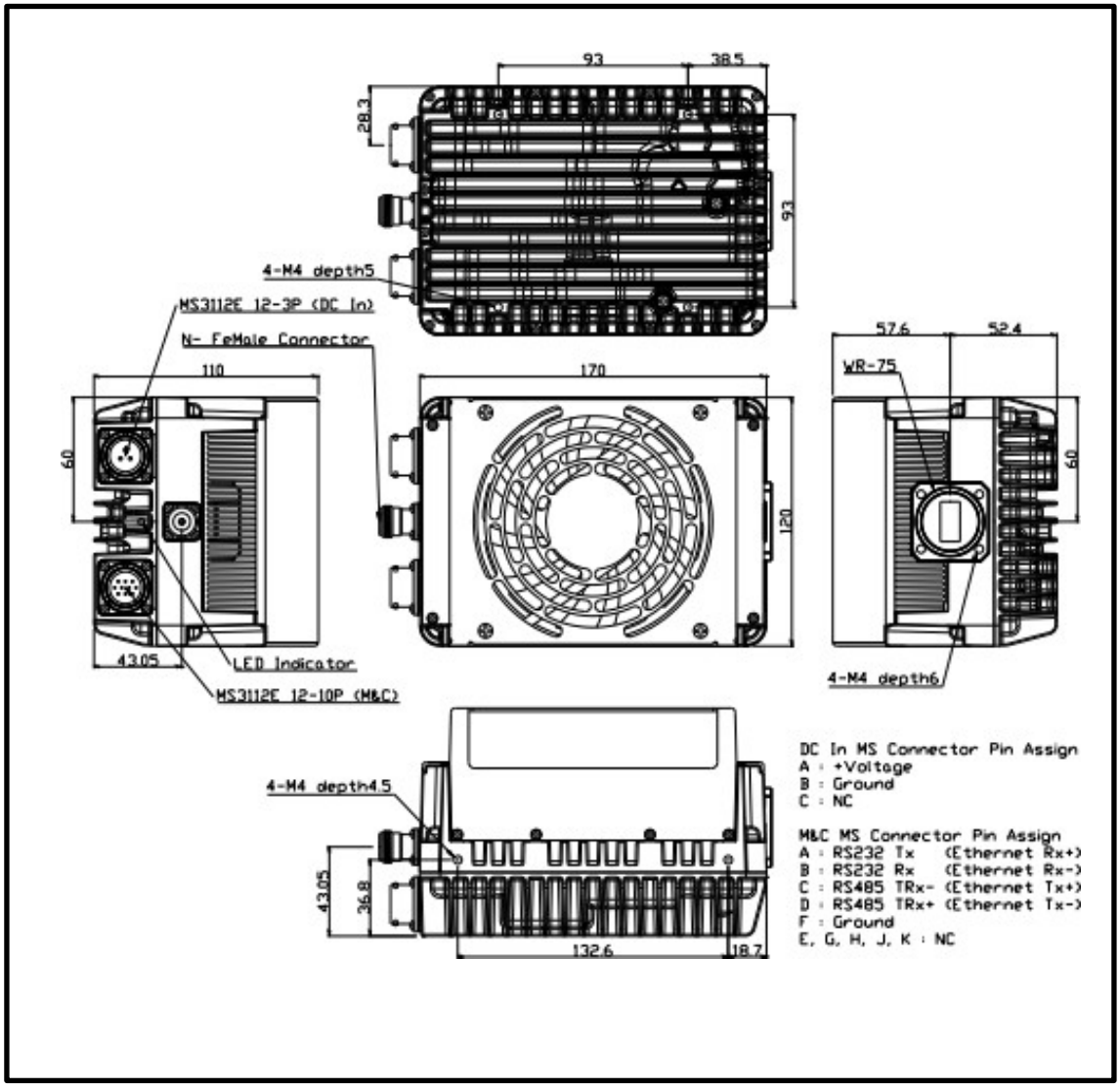


©Norsat International Incorporated ("Norsat") All Rights Reserved

2.2 Physical Description



Outline Drawing



©Norsat International Incorporated ("Norsat") All Rights Reserved

3. Safety Instruction

There is a potential safety risk unless appropriated precautions are taken while working with the BUC. Read the following instructions prior to using the BUC.

1. Do not disassemble the BUC. It may cause malfunction and electrical shock.
2. Input a voltage within the range indicated in specified voltage.
3. Do not operate the BUC without a load or termination attached to the RF signal output
4. Do not expose the BUC to standing water. Failure to follow this precaution could result in electric shock and injury to persons.
5. The BUC should be installed in a stable situation because it may cause serious injuries to persons as well as damage to the BUC.
6. Do not perform maintenance to the BUC when the power supply is connected.
7. Do not look into the waveguide opening when the BUC is powered on.
8. Do not touch the body during operation the BUC.
9. Do not operate the BUC out of operating temperature range, -40°C to +55°C.

4. Interfaces

4.1 Intermediate Frequency (IF) / 10MHz reference Input

Intermediate Frequency (IF) and 10MHz reference signal are provided through N or F type connector. N or F type connector is used for the input port as shown in Figure 1.





Figure 1. N type female connector F type female connector

4.2 The torque value to connect the cable is shown in Table 1.

Connector	Torque value (N/m)
N-type	0.39 - 0.49
F-type	0.39 - 0.49

Table 1. Torque value *1 [kg f/cm] = 0.0980 [N/m]

|CONFIDENTIAL AND PROPRIETARY
©Norsat International Incorporated (“Norsat”) All Rights Reserved

4.3 RF OUT

WR75G waveguide (Grooved) is used for the RF output port as shown in Fig. 2.

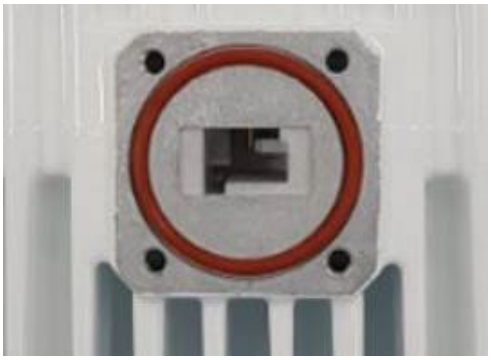


Figure 2. WR75G RF output port

4.4 DC / M&C Connector (optional)

MS 3pin connector is used for DC input and MS10 pin connector is used for the M&C as shown in Figure 3.

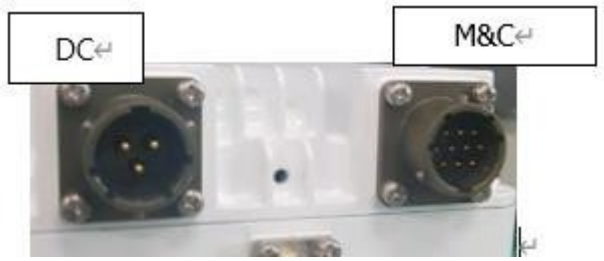
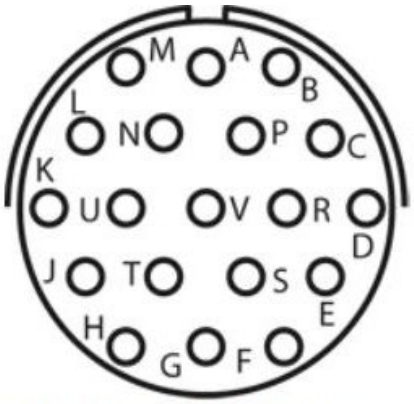


Figure 3. MS 3pin for DC and M10 pin for M&C

4.5 The interface and pin map of the M&C connector are shown in Table 2.

M&C connector pin	Description
A	RS232 Tx
B	RS232 Rx
C	GND
E	RS422 Tx-, RS485TRx-, Ethernet Rx+
F	RS422Tx+, RS485TRx+, Ethernet Rx-
S	RS422 Rx-, Ethernet Tx+
G	RS422 Rx+, Ethernet Tx-

|CONFIDENTIAL AND PROPRIETARY
©Norsat International Incorporated (“Norsat”) All Rights Reserved



** Mating face view of pin layout **

5. Installation

The BUC must be attached to some form of mounting structure which is usually the antenna feed horn or the antenna support structure. Specific mounting procedures will depend on the antenna used. The BUC of Norsat is designed to be easily mounted on most of antenna produced by manufacturer. Locate and install the antenna according to the antenna manufacturer's instructions. Choose an area that is free of interference from motors and electronic equipment.

5.1 Check Packing List

Conduct initial inspection upon receiving the BUC. Please ensure the following:

① Check that the shipping container is not damaged.

② Check that all items in the packing list are not damaged.

③ Check that all items in the packing list are present.

5.2 Installation of mounting bracket

Two (2) M6 mounting holes at each side of BUC as shown in Figure 4 are used to install the mounting bracket. The BUC requires a steady flow of air. To provide sufficient airflow, the BUC shall be properly oriented with the deepest heat sink fins facing up. The BUC has body and cover heat sinks with numerous air cooling fins for cooling. Please do not block the fins and air opening of the fan so that heat sinks are open to fresh air. Adequate cooling for the BUC will provide years of top performance.

|CONFIDENTIAL AND PROPRIETARY
©Norsat International Incorporated ("Norsat") All Rights Reserved



Figure 4. Location of mounting bracket holes

Bolt	Torque Value (N/m)
M6X10MM	12

Table 3. Torque value*1 [kg f/cm] = 0.0980 [N/m]

5.3 Connecting Coaxial Cable DC, Ethernet and M&C cable (optional)

The length (and associated RF losses) of the interconnecting cables must be considered when determining the installing location of the BUC. An inappropriate choice of cable may result in a reduction of output power or even no voltage applied to the BUC. Tightly firm the cable at each end of connection. Make sure that the external connectors are waterproof. The Ethernet cable assembly procedure and RS232/485 cable assembly procedure are described in detail below.

6. Software Installation

The software is a Windows based to monitor and control the BUC.

The user-friendly software installation is described in detail in a separate document.

7. Maintenance

The Norsat BUC is extremely reliable, requiring little maintenance or repair. This contains technical information to help diagnose basic failures.

Maintenance is limited to check the performance of the BUC. No electrical or mechanical adjustment is required for normal operation. Periodic cleaning of the heat sink fins and fan will ensure adequate ambient cooling. Covering of the fan will create a higher than average heat sink temperature. Cooling system is designed to replace fan easily in the field.

©Norsat International Incorporated (“Norsat”) All Rights Reserved

Norsat International Inc.

ABOUT NORSAT

Norsat International Inc., founded in 1977, is a leading provider of innovative communication solutions that enable the transmission of data, audio and video for remote and challenging applications. Norsat's products and services include customizable satellite components, portable satellite terminals, maritime solutions and satellite networks. The company's products and services are used extensively by telecommunications services providers, emergency services and homeland security agencies, military organizations, health care providers and Fortune 1000 companies.

110 – 4020 Viking Way | Richmond | British Columbia | Canada

V6V 2L4 | support@norsat.com

www.norsat.com