# MODEL MBUC6125S50A
# OUTPUT: 5.725 ~ 6.525GHz
# 100 Watt
# C-BAND BLOCK UP-CONVERTER

**Advantages:**

- Integrated BUC for Better Performance & Reliability
- Monitoring & Controlling through Ethernet
- Tricolour LED Status Indicator to Identify BUC Status Instantly

## ELECTRICAL SPECIFICATIONS

| Parameter | Specifications | |
|---|---|---|
| Input Characteristic | | |
| Frequency Range(MHz) | 950-1750 | |
| Impedance(Ω) | 50 | |
| Input VSWR | 2:1 | |
| Interface | N-type Connector | |
| Output Characteristic | | |
| Frequency Range(GHz) | 5.725 - 6.525（LO=4.775） | |
| Output Power P-1dB W (dBm) | 100 (50) typ | |
| Interface | CPR137G | |
| Transfer Characteristics | | |
| Frequency Sense | Non-inverted | |
| Linear Gain | 80 dB typ | |
| Gain Variation | Over 54 MHz | 1.5 dB |
| | Over the Whole Bandwidth | 5 dB |
| | Over Operation | 5 dB |
| Spurious | In Band | -55 dBc |
| | Out of Band | -50 dBc |
| Inter modulation Product | -25 dBc typ (3dB total back-off from rated power) | |
| Phase Noise（typ） | 100Hz | -65 dBc/Hz |
| | 1kHz | -75 dBc/Hz |
| | 10kHz | -85 dBc/Hz |
| | 100kHz | -95 dBc/Hz |
| Miscellaneous | | |
| Internal Reference Frequency Stability Over Temperature | ±0.02 ppm | |
| External Reference Input | Frequency | 10MHz |
| | Power | -5 to 5 dBm (Unit will automatically switch to internal reference if external reference level falls below -10 dBm nominal） |
| | Phase Noise | -125dBc/Hz@100Hz max.<br>-135dBc/Hz@1kHz max.<br>-145dBc/Hz@10kHz max. |
| M&C Function Interface | Ethernet Port | |
| Attenuator Range Mute Control Status | 20dB Variable, Step size of 0.5dB | |
| LED Function | Green: Normal, Red: Fault, Blue: PA Off | |
| Command Function | PA On/Off, Gain Control, Out-of -lock Alarm, Temperature, Summary Alarm | |
| Internal Function | Lock detector shuts off Tx in case of LO unlocked | |

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## OPERATING POWER REQUIREMENT

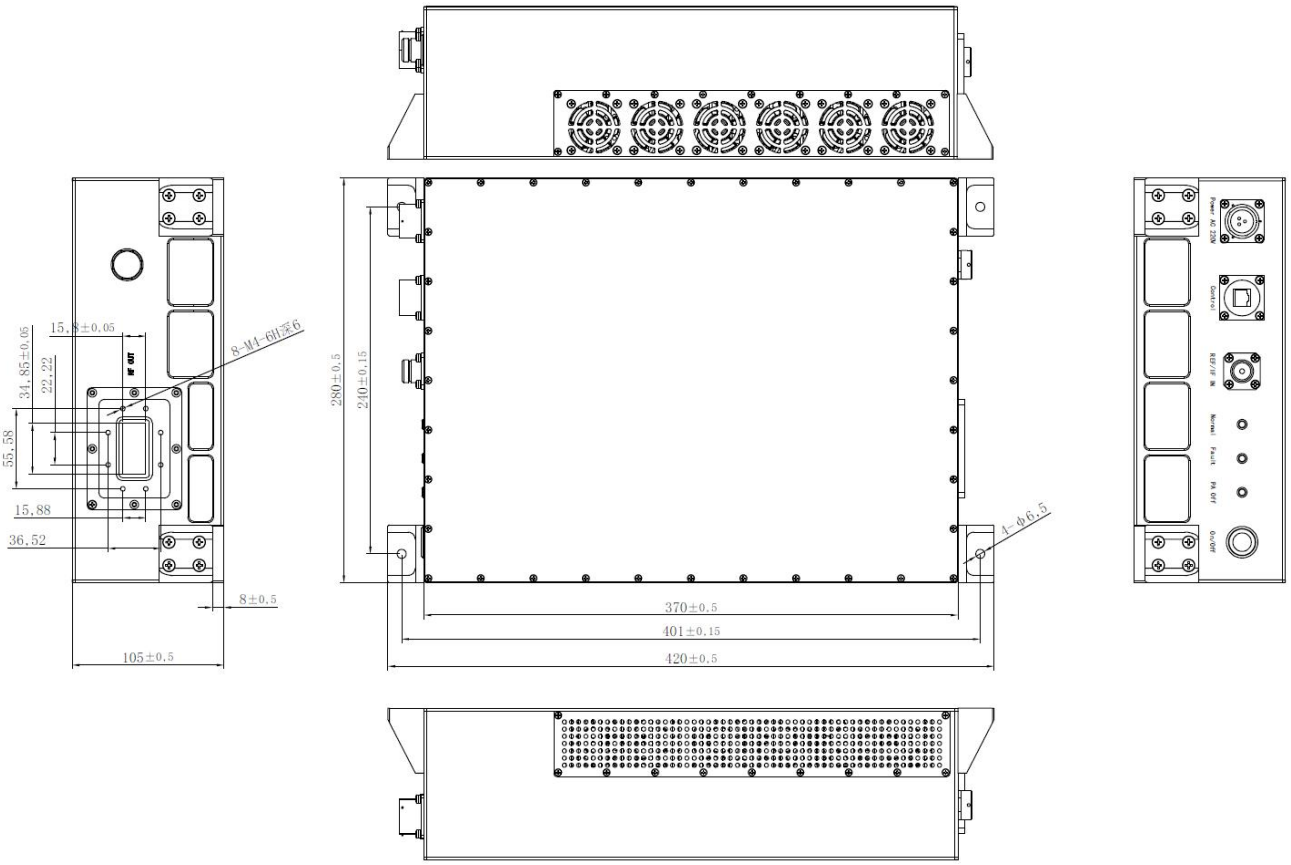
| Parameter | Specifications |
|---|---|
| Operating Voltage | 85 ~265VAC, 50Hz |
| Power Consumption (Watts) | 630(@ Output Power P-1dB) |

## ENVIRONMENTAL CONDITIONS

| Parameter | Specifications |
|---|---|
| Operating Temperature | -40°C to +55°C |
| Humidity | 0 to 100% |
| Water proof/ Dust proof | IP54 |

## MECHANICAL

| Parameter | Specifications |
|---|---|
| Dimensions (L x W x H) | 370 x 280 x 105(mm)/14.57x11.02x4.13(inch) |
| Weight | 10kg /22lb |



## 1. Ethernet Communication Format

Communication adopts UDP mode with point-to-point transmission, with an adaptive rate supporting 10M/100M.

- Local IP: 192.168.1.10 Port: 8888
- Remote IP: 192.168.1.11 Port: 9999
  Messages use header/footer framing.

**Message Format:**

Header | Type | Data | Footer

## 2. Commands

### 2.1 Control Commands:

| No. | Name | Length | Description |
|---|---|---|---|
| 1 | Header | 1 byte | 0x55 |
| 2 | Type | 1 byte | |
| 3 | Data | 1 byte | |
| 4 | Footer | 1 byte | 0xAA |

a) Amplifier ON/OFF Command: `0x55 0x01 0xXX 0xAA`

- Type: 0x01
- ON: Data 0x01 / OFF: Data 0x00

b) Gain Control Command: `0x55 0x02 0xXX 0xAA`

- Type: 0x02
- Gain data in 0.5dB steps: Data 0x10 = 16 × 0.5 = 8dB

### 2.2 Query Commands:

| No. | Name | Length | Description |
|---|---|---|---|
| 1 | Header | 1 byte | 0x55 |
| 2 | Type | 1 byte | |
| 3 | Footer | 1 byte | 0xBB |

a) Lock Status Query: `0x55 0x01 0xBB`
b) Temperature Query: `0x55 0x02 0xBB`
c) Alarm Status Query: `0x55 0x03 0xBB`

## 3. Query Responses

| No. | Name | Length | Description |
|---|---|---|---|
| 1 | Header | 1 byte | 0x55 |
| 2 | Type | 1 byte | |
| 3 | Data | 1 byte | |
| 4 | Footer | 1 byte | 0xBB |

a) **Lock Response:** `0x55 0x01 0xXX 0xBB`

- Locked: Data 0x01 / Unlocked: Data 0x00

b) **Temperature Response:** `0x55 0x02 0xXX 0xBB`

- Data represents signed value in two's complement

- Range: -127°C to +127°C (1°C step)
- Example: +23°C → 0x17; -23°C → 0xE9

c) **Alarm Response:** `0x55 0x03 0xXX 0xBB`

Data bits:

```
Bit7: Reserved
Bit6: Reserved
Bit5: Reserved
Bit4: Reserved
Bit3: [Undefined]
Bit2: Voltage Alarm
Bit1: Current Alarm
Bit0: Temperature Ala
```