

- Specification -

Ku-band 8W BUC

Model No. NJT8318 series

RF Frequency	Local Frequency	IF Frequency
13.75 to 14.5 GHz	12.8 GHz	950 to 1,700 MHz
14 to 14.5 GHz	13.05 GHz	950 to 1,450 MHz

Output Power @ 1dB G.C.P.: +39 dBm (8W)

IF Input Interface: N-type / F-type, Female Connector

Ref. (10MHz) Input: IF Connector

DC Power Input: Circular Connector / IF Connector

RF Output Interface: Waveguide, WR-75

Power Supply: DC Power, +18 to +60 V DC

AC Power Operation, 100 to 240 V AC

M&C Option: FSK M&C / RS-232C Interface

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Microwave Business Division

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Caution

1. While Nisshinbo Micro Devices Inc. (NISD) continually strives to improve the quality and reliability of our products, failures will occur in microwave products over time. For this reason, it is important that customers fulfill their responsibilities to ensure designed-in safety – including failsafe functions, redundancy, and measures to prevent malfunctions and the spread of fire – in order to avoid injuries, accidents, or social repercussions resulting from the failure of any products related to satellite communications on this document (hereinafter, “the product”). Customers must pay careful attention to ensuring the safety of their equipment.
2. The product is designed and tested to function in accordance with its specifications. Do not use under conditions that deviate from the product specifications included in the delivery specifications. NISD assume no responsibility and shall not be liable for any injuries, accidents, or social repercussions resulting from the product being in a poor or damaged state because it was used under conditions that depart from the specifications.
3. The product is covered by a warranty for one year following delivery unless otherwise stipulated in the contract or delivery conditions. In the event of a failure for which NISD are responsible occurring during the warranty period, NISD undertake to repair or replace the product free of charge. Note, however, that the warranty does not cover failures such as those listed here (see bullets below), even if they occur within the warranty period. In addition, in the case of a product being repaired or replaced by us, the starting date for the warranty period is still the original delivery date of the product.
 - Failure due to the product being used in conditions other than those stipulated in the data sheet, specification sheet, etc.
 - Failure due to modifications or repairs carried out by some entity other than our company
 - Failure determined to be the result of unsuitable maintenance or replacement of a consumable item that requires due maintenance
 - Failure due to circumstances that were unforeseeable given the scientific/technological standards at the time of shipment
 - Other failures due to external factors such as fire, earthquake, flood and power supply anomalies for which NISD are not responsible

In addition, the product warranty is limited to the provision of repair services or replacement at no cost. It does not cover secondary damage (to equipment, business opportunities, profits, etc.) or any other damage that may have resulted from failure of the product.
4. The product must be handled appropriately to ensure its continued reliability. Since it can be damaged by the intrusion of water, dust, oil, chemicals, etc., it must be given appropriate protection. Even in the case of a product with an airtight construction, avoid using it in an environment that exceeds the stated levels of waterproofing/dustproofing. Also, be sure to use connectors and waveguides properly.

If replacement parts such as fans are included, proper maintenance is necessary. To maintain product performance and functionality, it is necessary to conduct inspections and maintenance at appropriate intervals and exchange replacement parts when necessary. Improper inspections or maintenance may result in failure.

In addition, the warranty does not cover the use of the product in areas where salt damage can be expected or where there is a substantial presence of corrosive gases such as Cl_2 , H_2S , SO_2 , and NO_2 . If the product is to be used in such areas, at the time of installation you must take appropriate steps to protect the product.
5. If the product is to be used with equipment/systems that must meet special quality and reliability standards (aerospace equipment, medical equipment, power generation control equipment, automotive/railway transportation equipment, safety equipment, disaster prevention and security equipment, etc.), please consult with our sales staff in advance.
6. Some products contain gallium arsenide (GaAs), classified as a harmful substance. To avoid danger, do not incinerate, crush, or chemically treat the product in such a way that gases or dust are released. When disposing of the product, comply with all applicable laws and regulations and do not treat it as general industrial waste or household waste.
7. When exporting a product or technology, observe export laws and regulations such as those governing foreign exchange and foreign trade, and obtain any necessary licenses for export, service transactions, etc.

NISD request that you do not use our products or the technical data published on this document for developing weapons of mass destruction or for any other military purposes or applications.
8. The product specifications in this document are subject to change without notice. If you are considering using a product, delivery specifications must first be settled.

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Scope

This BUC is designed for the block up-converter intended for the satellite communication data uplink application in Ku-band. It can transmit an RF signal (Ku-band: 14.0 to 14.5 GHz or 13.75 to 14.5 GHz) output with up to 8W (+39 dBm) linear as output power @ 1 dB G.C.P. (P1dB). It is combined a GaAs high power amplifier and a block up-converter with a phase locked local oscillator (13.05 GHz or 12.8 GHz) which is synchronized with external 10MHz reference.

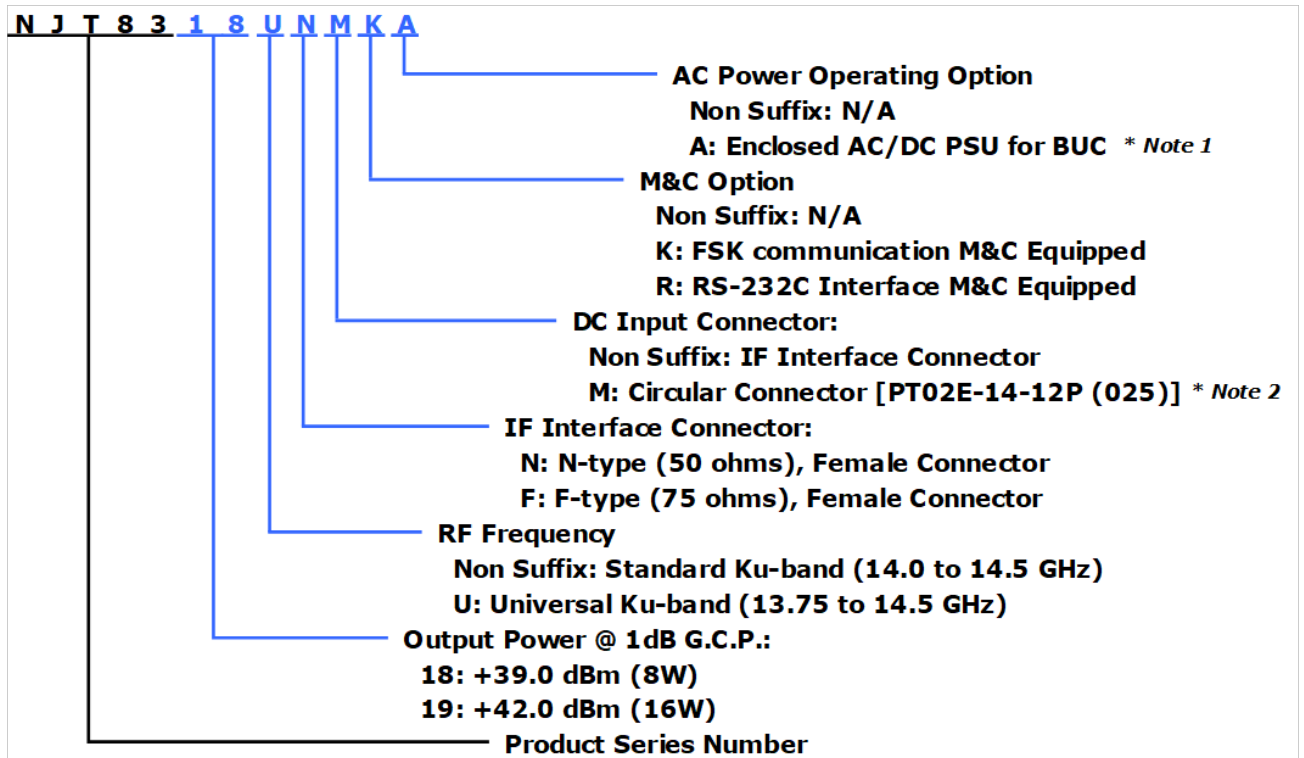
The BUC receives a reference signal (10 MHz) and an IF signal (L-band: 950 to 1,450 MHz or 950 to 1,700 MHz) input and transmits an RF signal (Ku-band: 14.0 to 14.5 GHz or 13.75 to 14.5 GHz) output. It is operated by +24 V / +48 V DC power (Range: +18 to +60 V) input via either Circular Connector or IF Connector.

The BUC comes in a single, weatherized housing rated for outdoor use and has either an N-Type or F-type female connector as IF input, a WR-75 waveguide flange as RF output.

* Above Specifications are subject to change without notice.

Series Model Number

- Numbering System



* Above Specifications are subject to change without notice.

NJT8318 series

● Line-up

Model No.	RF Frequency	Local Frequency	IF Frequency	Output Power @ P1dB	IF Connector	Power Supply	Port for Voltage Input	M&C Option
NJT8318N	14.0 to 14.5 GHz (Standard Ku-band)	13.05 GHz	950 to 1,450 MHz	8W Linear (+39dBm min.)	N-type	+18 to +60 V DC Power	IF Connector	N/A
NJT8318F					F-type		Circular Connector * Note 2	
NJT8318NM					N-type			
NJT8318FM					F-type			
NJT8318NA					N-type	AC Power	IF Connector * Note 1	
NJT8318FA					F-type			
NJT8318NK					N-type	+18 to +60 V DC Power	IF Connector	FSK M&C
NJT8318FK					F-type		Circular Connector * Note 2	
NJT8318NMK					N-type			
NJT8318FMK					F-type			
NJT8318NMR					N-type	AC Power	IF Connector * Note 1	RS-232C M&C
NJT8318FMR					F-type			
NJT8318NMRA					N-type			
NJT8318FMRA					F-type			
NJT8318UN	13.75 to 14.5 GHz (Universal Ku-band)	12.80 GHz	950 to 1,700 MHz		N-type	+18 to +60 V DC Power	IF Connector	N/A
NJT8318UF					F-type		Circular Connector * Note 2	
NJT8318UNM					N-type			
NJT8318UFM					F-type			
NJT8318UNA					N-type	AC Power	IF Connector * Note 1	
NJT8318UFA					F-type			
NJT8318UNK					N-type	+18 to +60 V DC Power	IF Connector	FSK M&C
NJT8318UFK					F-type		Circular Connector * Note 2	
NJT8318UNMK					N-type			
NJT8318UFMK					F-type			
NJT8318UNMR					N-type	AC Power	IF Connector * Note 1	RS-232C M&C
NJT8318UFMR					F-type			
NJT8318UNMRA					N-type			
NJT8318UFMRA					F-type			

*Note1: Additional indoor 150W AC/DC PSU is enclosed for AC Power Option and DC Power is supplied at IF connector of BUC from AC/DC PSU via IF cable.

*Note2: Circular Connector models are available to apply DC voltage via either Circular Connector or IF Connector.

* Above Specifications are subject to change without notice.

1. Electrical Specifications

#	Items	Specifications
1.1.	Output Frequency Range	
	<Universal Ku-band>	13.75 to 14.5 GHz
	<Standard Ku-band>	14.0 to 14.5 GHz
1.2.	Input Frequency Range	
	<Universal Ku-band>	950 to 1,700 MHz
	<Standard Ku-band>	950 to 1,450 MHz
1.3.	Maximum IF Input Level (without damage)	+13 dBm max.
1.4.	Conversion Type	Single, fixed L.O.
1.5.	L.O. Frequency	
	<Universal Ku-band>	12.80 GHz
	<Standard Ku-band>	13.05 GHz
1.6.	Frequency Sense	Positive
1.7.	Output Power @ 1dB G.C.P. (P1dB)	+39 dBm min. over temperature
1.8.	Linear Gain	65 dB nom., 59 dB min.
1.9.	Gain Variation over frequency @ fixed temperature	
	<Universal Ku-band>	5 dBp-p max. over 750 MHz 2 dBp-p max. over 54 MHz
	<Standard Ku-band>	5 dBp-p max. over 500 MHz 2 dBp-p max. over 54 MHz
1.10.	Gain Stability over temperature @ fixed frequency	4 dBp-p max. 2 dBp-p typ.
1.11.	IM3	-28 dBc typ., -24 dBc max. @ total power ≤ +39 dBm - 3 dB
1.12.	ACPR	-28 dBc typ. @ Pout = +38 dBm
1.13.	Requirement for External Reference [Frequency] [Input Power] [Phase Noise]	10 MHz (sine-wave) -5 to +5 dBm @ Input port -125 dBc/Hz max. @ 100 Hz -135 dBc/Hz max. @ 1 kHz -140 dBc/Hz max. @ 10 kHz
1.14.	L.O. Phase Noise	-60 dBc/Hz max. @ 100 Hz -70 dBc/Hz max. @ 1 kHz -80 dBc/Hz max. @ 10 kHz -90 dBc/Hz max. @ 100 kHz -100 dBc/Hz max. @ 1MHz

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#	Items	Specifications
1.15.	Spurious @ P1dB Output [in band] [in receive and] [Out-of-band]	-50 dBc max. @ RF Frequency -70 dBm max. @ 10.95 to 12.75 GHz -50 dBc max.
1.16.	Receive Band Noise Density <Universal Ku-band> <Standard Ku-band>	* In case of RF Freq.:14 to 14.5 GHz -156 dBm/Hz max. @10.95 to 12.25 GHz * In case of RF Freq.:13.75 to 14 GHz -156 dBm/Hz max. @10.95 to 12.25 GHz -125 dBm/Hz max. @12.25 to 12.75 GHz * In case of RF Freq.:14 to 14.5GHz -156 dBm/Hz max. @ 10.95 to 12.75 GHz
1.17.	Noise Figure	20 dB max.
1.18.	Group Delay over any 54MHz	2.5 nS p-p max.
1.19.	Input Impedance <N-type Model> <F-type Model>	50 ohms nom. 75 ohms nom.
1.20.	Input V.S.W.R.	2 : 1 max.
1.21.	Output V.S.W.R.	2 : 1 max.
1.22.	Output Load VSWR for Non Damage	2 : 1 max.
1.23.	DC Power Requirement [Voltage Range] [Power Consumption]	+24 / +48 VDC (+18 to +60 VDC) 65 W typ. @ No IF signal 80W typ., 90 W max. @ Pout = +39 dBm
1.24.	Mute	Shut off the HPA in case of L.O. unlocked, no 10 MHz reference signal, or Over temperature. *Note 3
1.25.	LED Indicator	GREEN: L.O. locked RED: L.O. unlocked (or no 10 MHz reference signal)

* Above Specifications are subject to change without notice.

#	Items	Specifications
1.26.	Monitor and Control	
	<FSK Communication M&C> [Interface] [Functions] [Performance]	650kHz FSK Signal on IF Connector Monitor: Tx Output Power / Temperature / Tx Status / Alarm (Over temperature * Note 3 / L.O. unlock) / Step Attenuator Control: Transmit On/Off / Step Attenuator Tx Output Power: Detector Range: 15 dB (up to P1dB) Reading Accuracy: +/- 1.0 dB Step Attenuator: Attenuator Range: 0 to 15.5 dB Attenuator Step: 0.5 dB <i>*Details are mentioned on Appendix of "Specifications of Monitor & Control".</i>
	<RS-232C Interface M&C > [Interface] [Functions] [Performance]	RS-232C Interface on Circular connector Monitor: Tx Output Power / Temperature / Tx Status / Alarm (Over temperature * Note 3 / L.O. unlock) / Step Attenuator Control: Transmit On/Off / Step Attenuator Tx Output Power: Detector Range: 15 dB (up to P1dB) Reading Accuracy: +/- 1.0 dB Step Attenuator: Attenuator Range: 0 to 15.5 dB Attenuator Step: 0.5 dB <i>*Details are mentioned on Appendix of "Specifications of Monitor & Control".</i>

*Note3: Regardless of cooling fan status, the unit will operate until status of over temperature which turn out at internal temperature of around 100 °C, and the Mute and Alarm will function at status of over temperature.

* Above Specifications are subject to change without notice.

2. Mechanical Specifications

#	Items	Specifications
2.1.	Input Interface	[IF Connector] N-type or F-type, female IF / Ref. / FSK M&C Signal (/ DC) Input [DC Input] IF Connector or Circular Connector * Note 4 - Circular Connector - Part No.: PT02E-14-12P (025) Mating connector: PT06E-14-12S (470) Assignment:  Pin A: N.C. Pin B: N.C. Pin C: N.C. Pin D: N.C. Pin E: GND COMMON (RS-232C) Pin F: N.C. Pin G: RS-232C TxD* Pin H: RS-232C RxD* Pin J: DC Power (+) / Prime Pin K: DC Power (-) / Return; GND COMMON (RS-232C) Pin L: N.C. Pin M: N.C. * Pin G: RS-232C TxD and Pin H: RS-232C RxD are available for only RS-232C Interface M&C models.
2.2.	Output Interface	Waveguide, WR-75 (with Groove)
2.3.	Cooling	Forced-air-cooled
2.4.	Dimension & Housing	180(L) × 130(W) × 80(H) mm [7.09" (L) × 5.12" (W) × 3.15" (H)] without interface connectors and screws
2.5.	Weight	2.4 kg [5.3 lbs]

*Note4: Circular Connector models are available to apply DC voltage via either Circular Connector or IF Connector.

Caution: DO NOT apply DC voltage via both Circular Connector and IF Connector.

If DC voltage is applied on both connectors, it may damage the unit or the unit may not operate properly.

* Above Specifications are subject to change without notice.

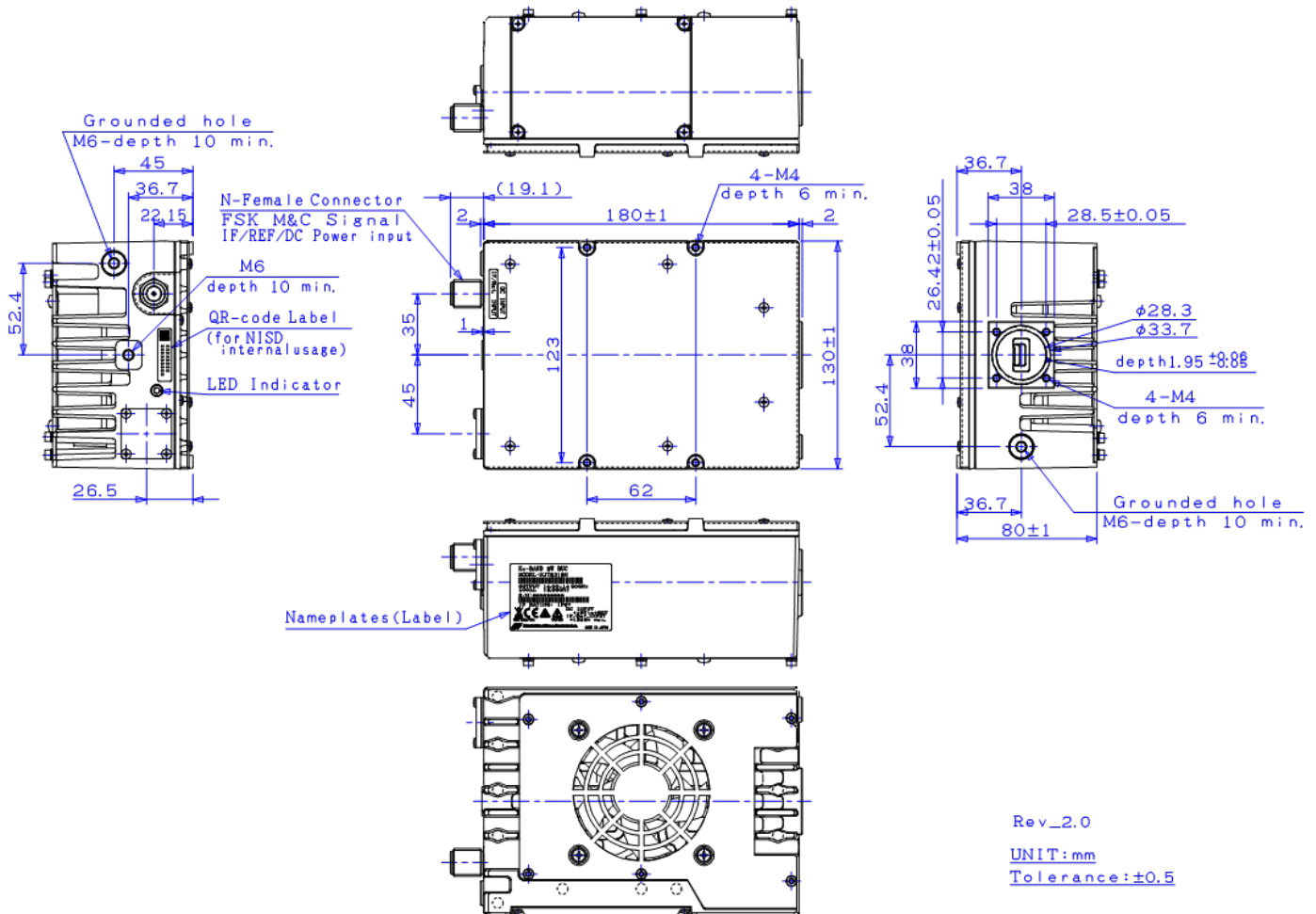
3. Environmental Specifications

#	Items	Specifications
3.1.	Temperature Range (ambient) [Operating] [Storage]	Operation Guarantee: -40 to +75 °C Performance Guarantee: -40 to +55 °C -40 to +75 °C
3.2.	Humidity	0 to 100 %
3.3.	Altitude	15,000 feet (4,572 m)
3.4.	Vibration	5 G [49.03 m/s ²] (3 axis, 50 Hz to 2 kHz) 1 mm p-p (3 axis, 5 to 50 Hz)
3.5.	Shock	30 G [294.20 m/s ²] (3 axis)
3.6.	Waterproof / Dustproof (IP Code)	IP 67
3.7.	Regulations	EU Directive (CE Marking) RE - 2014/53/EU EMC - 2014/30/EU RoHS - 2011/65/EU + (EU)2015/863 Safety: EN62368-1, EN60950-22

* Above Specifications are subject to change without notice.

4. Outline Drawing

- IF / Ref. Input: N-type Female Connector
- DC Input: IF Connector



Accessories

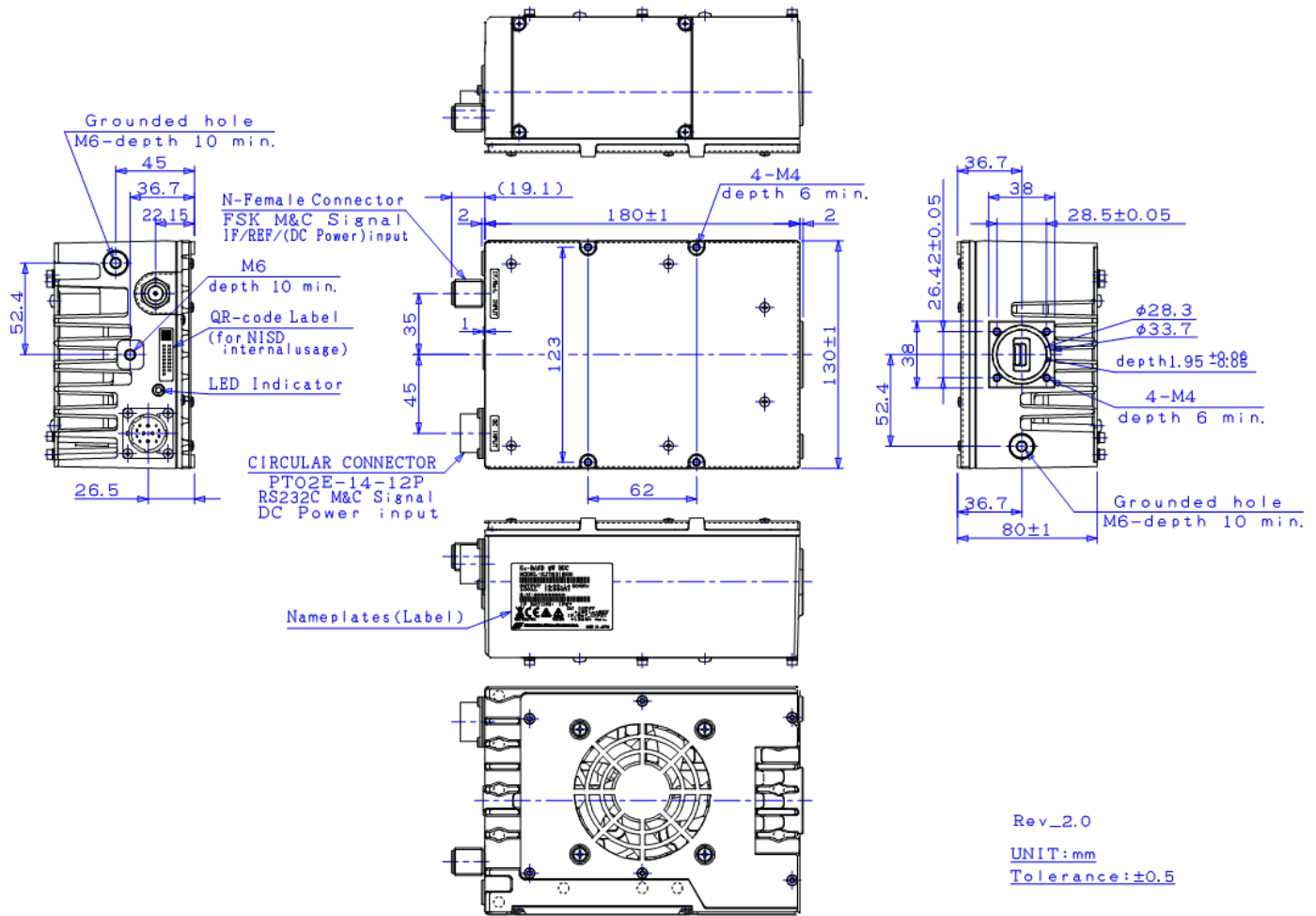
- O-ring, Qty (1), for waveguide flange
- Wrench Key, Qty (1), M4, Hexagon
- Bolts, Qty (4), M4 x 10, Hexagon socket head with spring washer and flat washer, SUS, for waveguide flange
- Screws, Qty (2), M6 x 10, Phillips head with spring washer and flat washer, SUS, for grounded hole

CAUTION

Items	Description
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. Do not touch hot surface to avoid a burn hazard.
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. Do not operate this unit without a load or termination attached to the RF signal output.

* Above Specifications are subject to change without notice.

- IF / Ref. Input: N-type Female Connector
- DC Input: Circular Connector



Accessories

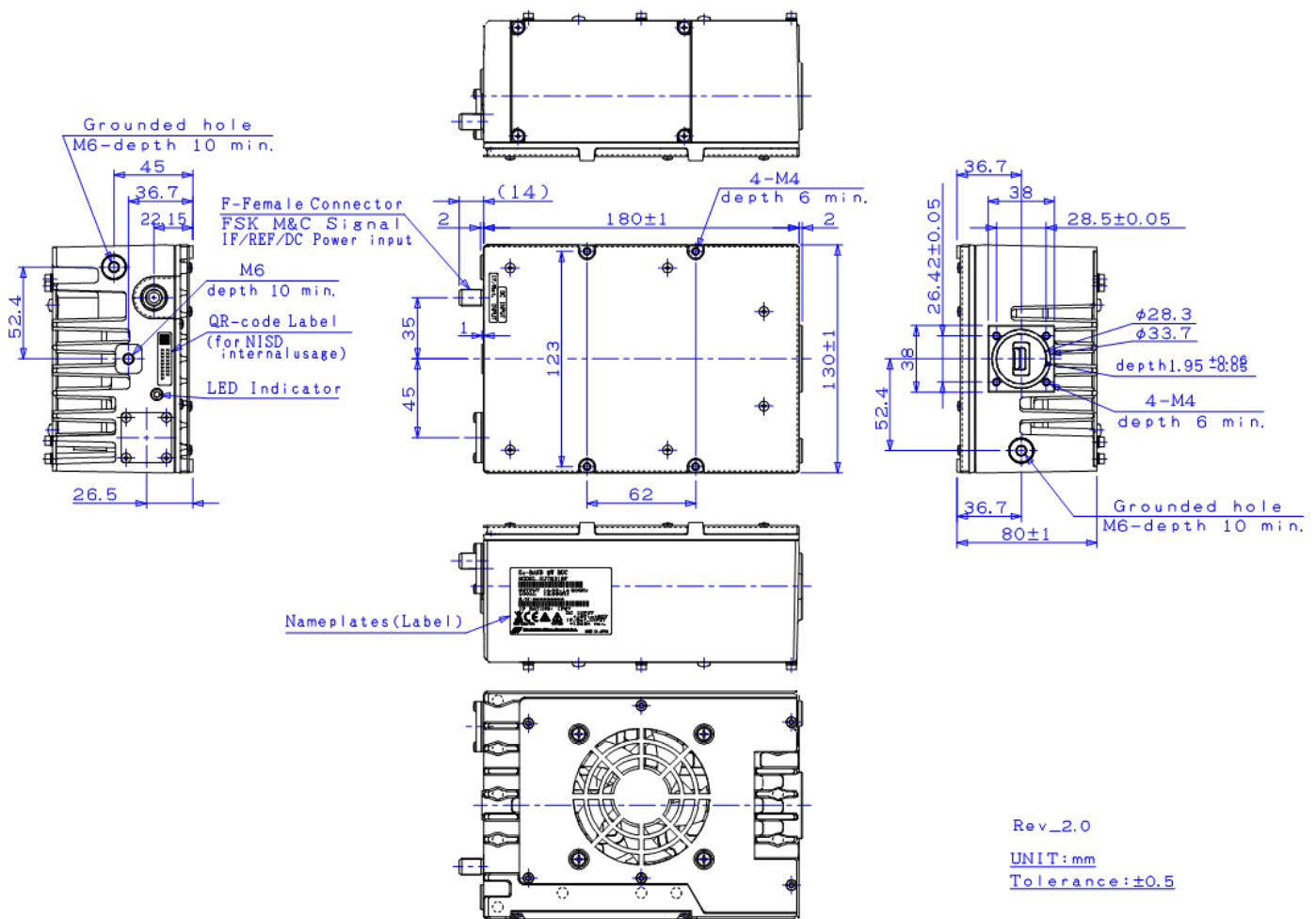
- O-ring, Qty (1), for waveguide flange
- Wrench Key, Qty (1), M4, Hexagon
- Bolts, Qty (4), M4 x 10, Hexagon socket head with spring washer and flat washer, SUS, for waveguide flange
- Screws, Qty (2), M6 x 10, Phillips head with spring washer and flat washer, SUS, for grounded hole
- Connector, Qty (1), Mating connector for circular connector: PT06E-14-12S (470)

CAUTION

Items	Description
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. Do not touch hot surface to avoid a burn hazard.
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. Do not operate this unit without a load or termination attached to the RF signal output.

* Above Specifications are subject to change without notice.

- IF / Ref. Input: F-type Female Connector
- DC Input: IF Connector



Accessories

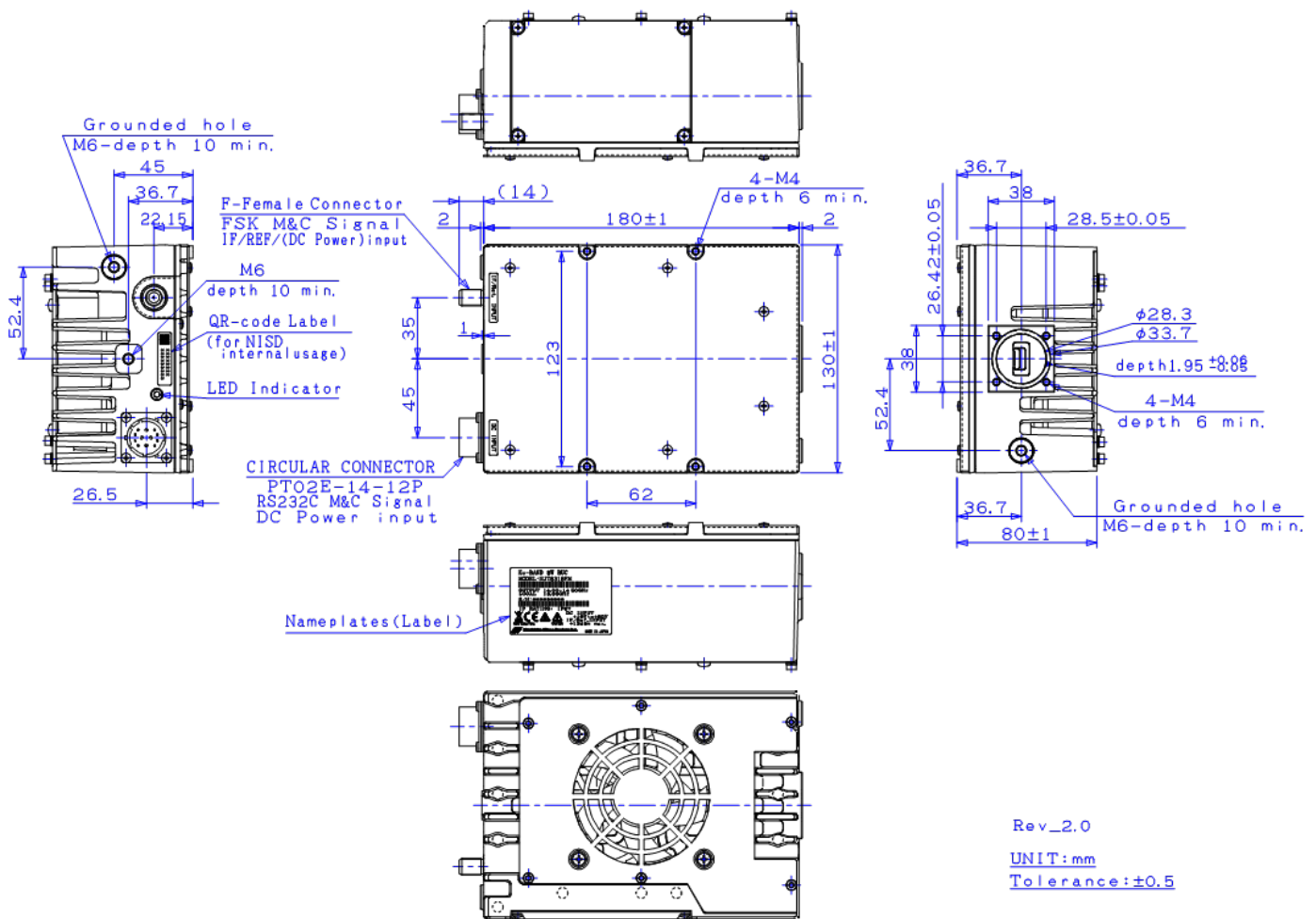
- O-ring, Qty (1), for waveguide flange
- Wrench Key, Qty (1), M4, Hexagon
- Bolts, Qty (4), M4 x 10, Hexagon socket head with spring washer and flat washer, SUS, for waveguide flange
- Screws, Qty (2), M6 x 10, Phillips head with spring washer and flat washer, SUS, for grounded hole

CAUTION

Items	Description
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. Do not touch hot surface to avoid a burn hazard.
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. Do not operate this unit without a load or termination attached to the RF signal output.

* Above Specifications are subject to change without notice.

- IF / Ref. Input: F-type Female Connector
- DC Input: MS Connector (Circular Connector)



Accessories

- O-ring, Qty (1), for waveguide flange
- Wrench Key, Qty (1), M4, Hexagon
- Bolts, Qty (4), M4 x 10, Hexagon socket head with spring washer and flat washer, SUS, for waveguide flange
- Screws, Qty (2), M6 x 10, Phillips head with spring washer and flat washer, SUS, for grounded hole
- Connector, Qty (1), Mating connector for circular connector: PT06E-14-12S (470)

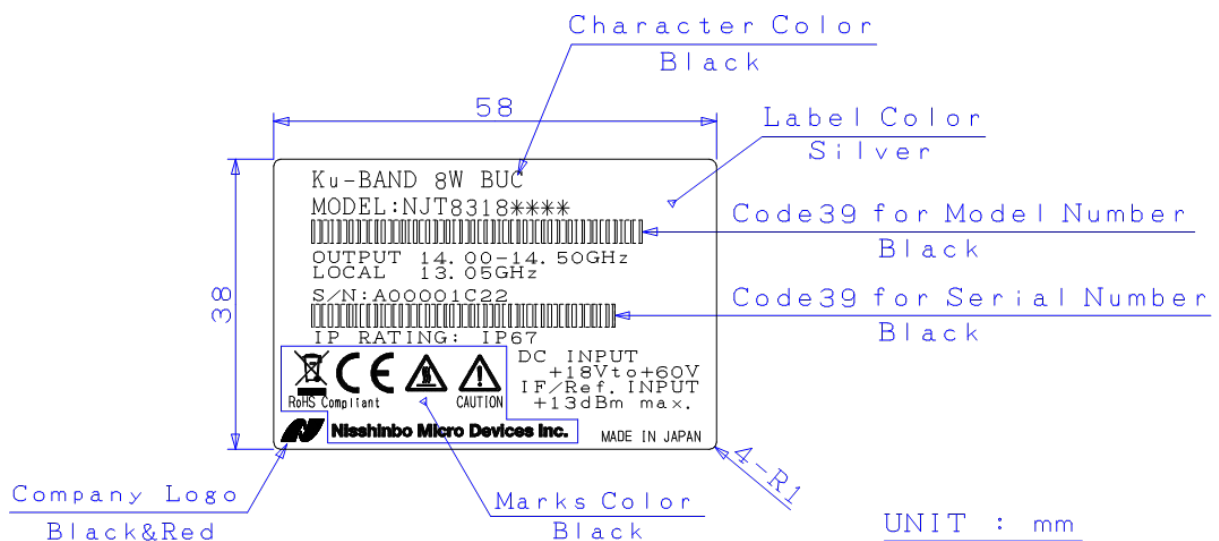
CAUTION

Items	Description
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. Do not touch hot surface to avoid a burn hazard.
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. Do not operate this unit without a load or termination attached to the RF signal output.

* Above Specifications are subject to change without notice.

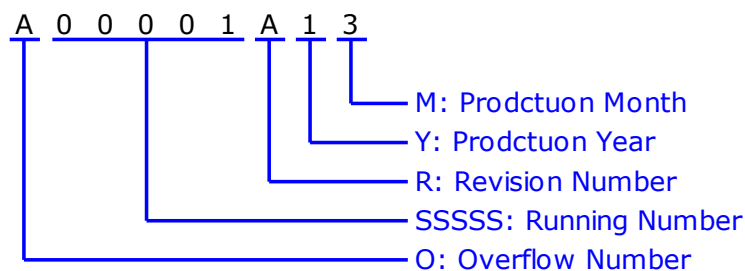
5. Label

5.1. Label Outline



5.2. Definitions

Serial Number (OSSSSSRYM) - ALPHANUMERIC (9 characters)



O: Overflow Number - ALPHABET (1 character)

"A" to "T" except "I" and "O", e.g.: A99999 ⇒ B00001

"V" to "Z": Specified Numbers

SSSSS: Running Number - NUMBER (5 digits)

"00001" to "99999"

R: Revision Number - ALPHABET (1 character)

"A" to "Z" except "I", "O", and "U"

Y: Production Year - NUMBER (1 digit)

"0" to "9", Last Digit of Calendar Number

e.g.: 2021:"1", 2022:"2", 2023:"3".....

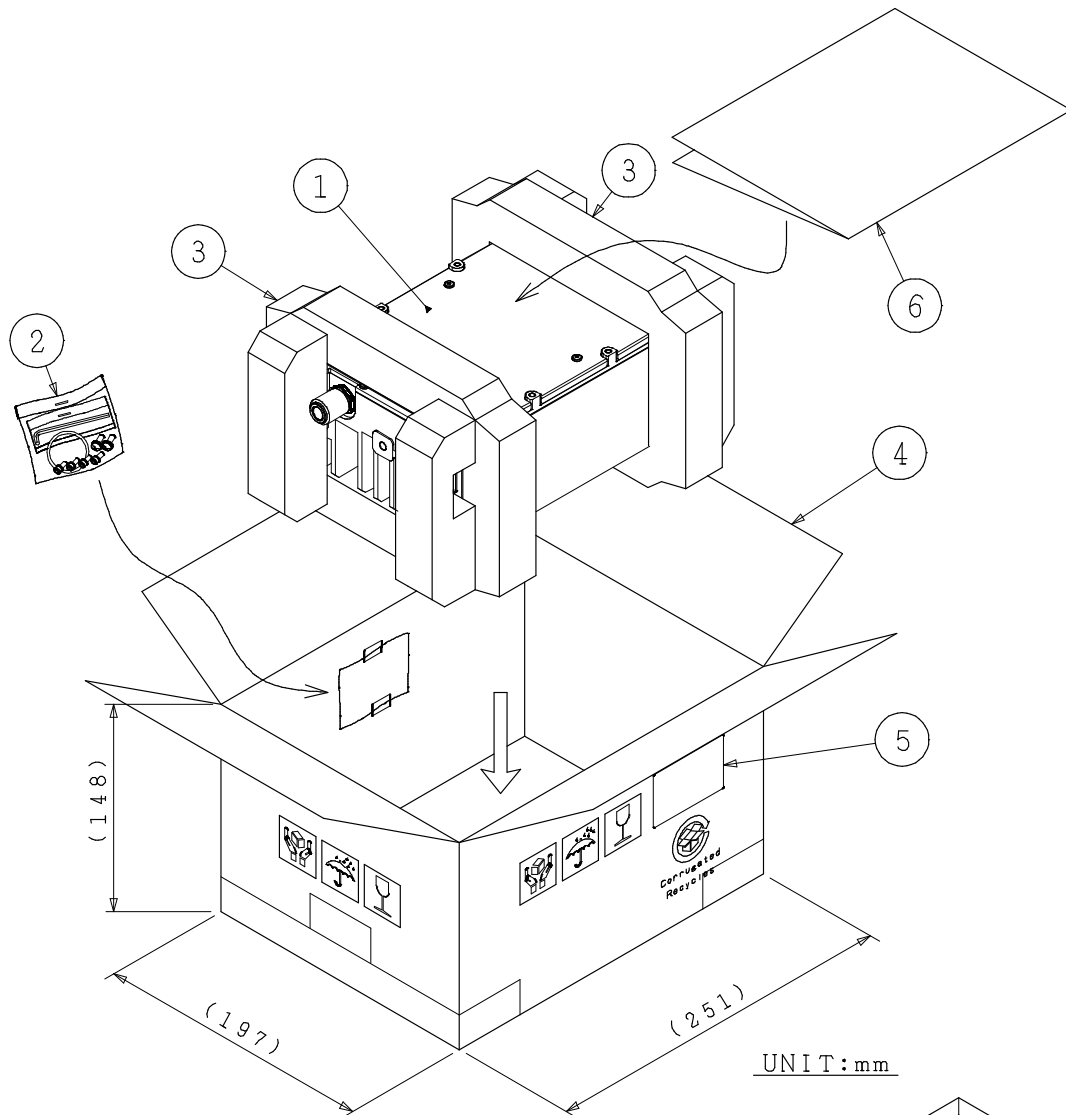
M: Production Month - ALPHANUMERIC (1 character)

"1" to "9", "X" as October, "Y" as November, "Z" as December

* Above Specifications are subject to change without notice.

6. Package

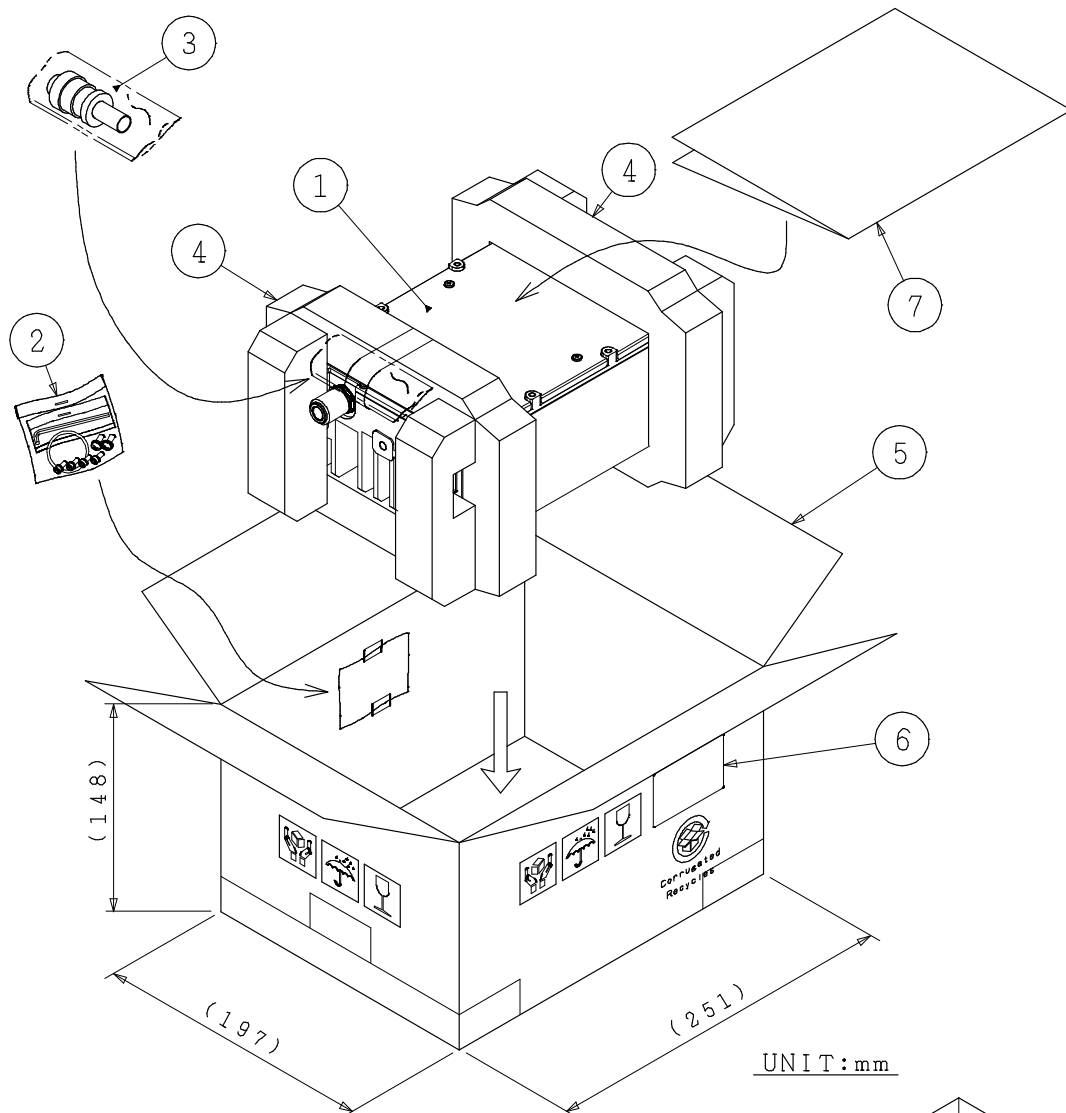
- Models of IF connector for DC Input



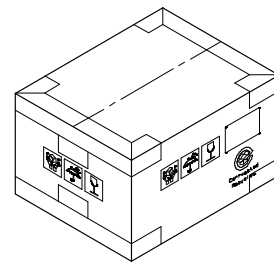
- ①: BUC
- ②: Accessories
 - O-RING
 - Hexagon Socket Head Bolts
M4×10 4Pieces (SUS, SW and W)
 - Hexagon Wrench Keys (M4 Type)
 - Cross Recessed Head Machine Screw
M6×10 2Pieces (SUS, SW)
- ③: Polyethylene foam for package cushioning
- ④: Double-faced corrugated fiberboard
- ⑤: Label
- ⑥: Test Data

* Above Specifications are subject to change without notice.

- Models of Circular Connector (MS connector) for DC Input



- ①: BUC
- ②: Accessories
 - O-RING
 - Hexagon Socket Head Bolts
M4×10 4Pieces (SUS, SW and W)
 - Hexagon Wrench Keys (M4 Type)
 - Cross Recessed Head Machine Screw
M6×10 2Pieces (SUS, SW)
- ③: Accessory
 - MS mating connector
- ④: Polyethylene foam for package cushioning
- ⑤: Double-faced corrugated fiberboard
- ⑥: Label
- ⑦: Test Data



* Above Specifications are subject to change without notice.

7. Handling Precautions

7.1. DANGER



This statement indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Items	Description
Input Voltage	Only input a DC voltage within the range indicated in specifications. <u>Do</u> operate with the input voltage range between +18 and +60 V DC power. When applying higher voltage than specifications (+24 / +48 VDC V as maximum voltage in DC power requirement), it will not only cause this unit failure, but it may also result in <u>electric shock</u> and <u>fire</u> .
Disassembling	<u>Do not</u> disassemble the unit. Disassembling will not only cause this unit failure, but it may also result in <u>electric shock</u> .

7.2. WARNING



This statement indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Items	Description
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. <u>Do not</u> operate this unit without a load or termination attached to the RF signal output.
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. <u>Do not</u> touch hot surface to avoid a burn hazard.

* Above Specifications are subject to change without notice.

7.3. CAUTION



This statement indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. The statement may also be used to indicate other unsafe practices or risks of property damage.

Items	Description
Fan Rotation	<u>Do not</u> insert finger into the fan in every case and time to avoid injury also <u>do not</u> insert any objects into the fan. Keep any objects away from the fan. Incorrect usage may cause injury to self or others.
Disposal	This unit contains gallium arsenide (GaAs), classified as a harmful substance. To avoid danger, <u>do not</u> incinerate, crush, or chemically treat the unit in such a way that gases or dust are released. When disposing the unit, comply with all applicable laws and regulations and <u>do not</u> treat it as general industrial waste or household waste.

7.4. NOTE



This statement is used to notify of installation, operation, or maintenance information that is important, but not hazard-related.

Items	Description
Mounting	<u>Do not</u> block fins of this unit to keep the heat dissipation performance. Normally the unit should be mounted with fan face down.
Grounding	To reduce the risk of damage or broken by lightning surge, the unit should be grounded by connecting the ground wire.
Torque Management	<u>Do not</u> tighten with excessive torque when attaching screws/bolts and connectors. The following value as tighten torque is recommended. ■ Screws/Bolts - M4: 1.52 ± 0.152 N·m M6: 1.58 ± 0.158 N·m ■ IF Connector (N-type / F-type): 0.68 to 1.13 N·m (3.92 N·m as maximum allowable torque. When over this torque, connector may be damaged.)
Weatherproof	The unit mounted in outdoor should be conducted with adequately weatherproof procedure. Do seal all of cable connection points from the connector to the cable sheath by usage of self-amalgamating tape. Ensure the waveguide connection is properly assembled with the enclosed o-ring gasket as accessories. The o-ring gasket is full-type and it is assumed to connect the unit to a flat waveguide flange.

* Above Specifications are subject to change without notice.

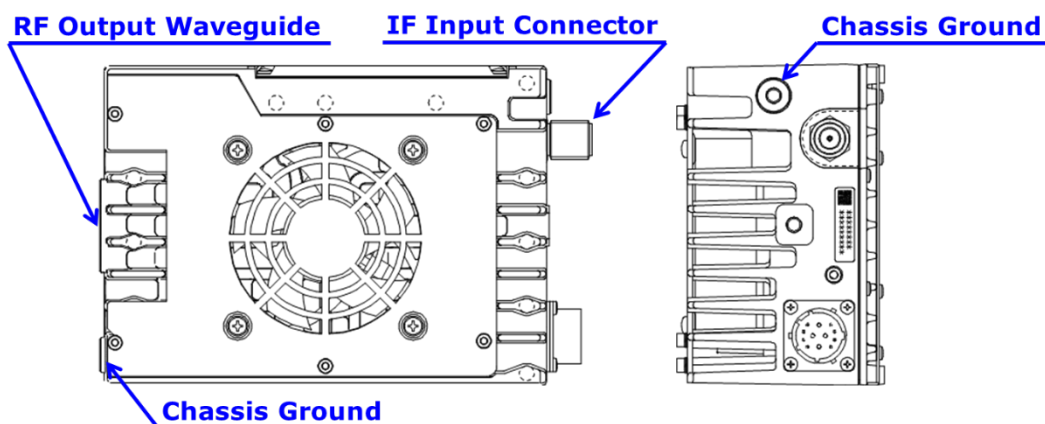
Items	Description
Input Voltage	<u>Do</u> operate with the input voltage range between +18 and +60 V DC power. Avoid applying more than the maximum voltage in this range (including ripple voltage) under any conditions.
Input IF Signal Power	<u>Do not</u> supply the input IF signal over the maximum level (+13 dBm), which is indicated on the product label.
Input 10MHz Signal Power	The 10 MHz reference signal should be supplied with the range between -5 and +5 dBm with sine-wave for correctly operation. <u>Do not</u> supply the signal level of more than +13 dBm, which is indicated on the product label.
High Temperature Operation	It may cause damage and/or degradation of reliability / lifetime to operate the unit in a condition where the ambient temperature exceeds the maximum value, <u>+75 °C</u> , at operating temperature described in the specifications.
Vibration / Shock	When vibration and/or shock impact exceeding the conditions described in the specifications is applied, internal parts may be damaged.
Fan Maintenance	The fan has its lifetime. The fan is to be replaced with a new one at appropriate interval. The recommendation interval of replacement is five(5) years.
Warranty	The unit is covered by a warranty for one(1) year following delivery unless otherwise stipulated in the contract or delivery conditions. Repairs may be possible under payment of charge even for the unit whose warranty period has expired. Opening, removing, disassembling and modifying any parts and components (including the product label, sealing tape and screws) without fan equipment will immediately void the warranty. In any case, the unit of invalid warranty cannot be repaired.

* Above Specifications are subject to change without notice.

8. Instructions Manual

8.1. Descriptions

This section describes the information of connectors and etc.



Items	Description	Purpose
RF Output Waveguide	Waveguide: WR-75 Flange: Square Cover Grooved (Equivalent to PBR 120)	The BUC transmits an RF signal of Ku-band (13.75 to 14.5 GHz, or 14 to 14.5 GHz) output with up to 8W (+39 dBm) linear as output power @ 1 dB G.C.P. (P1dB) via this waveguide.
Chassis Ground	M6 Screw	Common chassis ground / frame ground.
IF Input Connector	F-type Female Coaxial Connector, 75 Ohms OR N-type Female Coaxial Connector, 50 Ohms	The BUC inputs an IF signal of L-band (950 to 1,450 MHz, or 950 to 1,700 MHz), and requires to supply +18 to +60 V DC power and a 10 MHz reference signal via this connector.

8.2. Connection and Installation

This section describes basic installation for the BUC.

8.2.1. Mounting Configuration

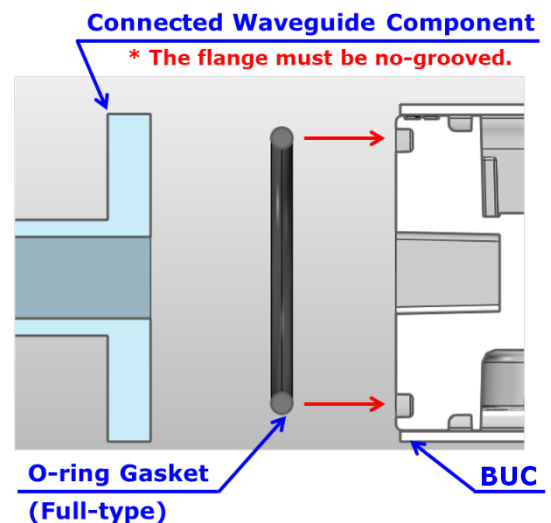
The Unit can be mounted with OMT or the waveguide filter of the satellite antenna.

When mounting with the OMT or the waveguide filter, the following steps should be complied:

* Above Specifications are subject to change without notice.

Step 1: Verify that the groove on the waveguide flange for a gasket is clean.

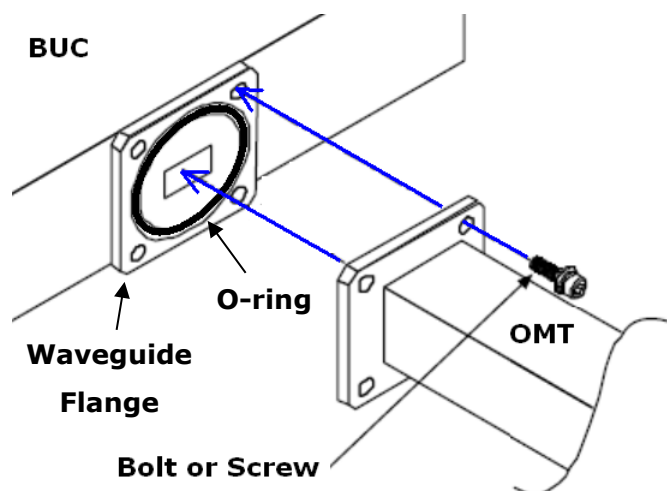
The enclosed o-ring gasket as accessories is full-type and it is assumed to connect the BUC to a flat waveguide flange (non-grooved waveguide flange). Insert the o-ring gasket the groove as shown in the figure on the right. The o-ring gasket and flange groove dimensions is customized and optimized for this BUC; therefore any other o-ring gasket than the enclosed accessory is not permitted for using.



Step 2: Secure the OMT or the filter to the BUC by tightening the enclosed Phillips head screws (M4 x 10 mm) with 1.52 ± 0.152 N·m torque as shown in the figure below, when the thickness of the flange of the OMT or filter is assumed to be 3 to 5 mm. The enclosed washers as accessory must be inserted to bolts before tightening bolts.

When the thickness is exceed 5 mm, the appropriate length screws or bolts based should be prepared on the table on the right.

Flange Thickness of OMT/Filter	Screw Length
3 to 5 mm	10 mm
5 to 7 mm	12 mm
7 to 9 mm	14 mm
9 to 11 mm	16 mm



! NOTE

- ✓ The BUC must be adequately weatherproofed to place in outdoor.
Ensure that the waveguide joint is properly sealed with the enclosed o-ring gasket.

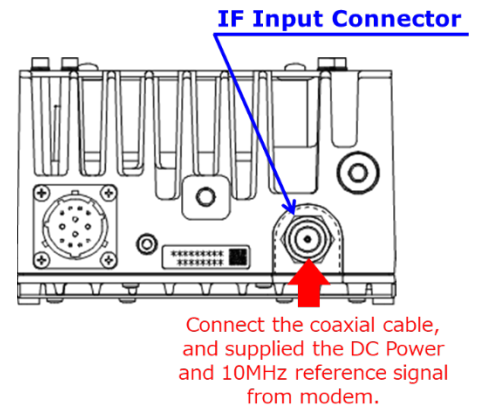
* Above Specifications are subject to change without notice.

8.2.2. Connecting Coaxial Cable

The BUC is connected the modem with a coaxial cable, and requires to supply +18 to +60 V DC power and a 10 MHz reference signal from the modem.

The connection of coaxial cable should be complied with the following steps:

- Step 1: Connect the coaxial cable with the N or F-type male connectors to the coaxial connector equipped with the BUC which is shown in the figure on the right below under 0.68 to 1.13 N·m tighten torque.
- Step 2: Use self-amalgamating tape to seal connector and cable entry points from the connector to the cable sheath.



Do not power on the modem before finishing all of steps of Connecting Coaxial Cable.

! NOTE

- ✓ The BUC must be adequately weatherproofed to place in outdoor.
Do seal all of cable connection points from the connector to the cable sheath by usage of self-amalgamating tape.

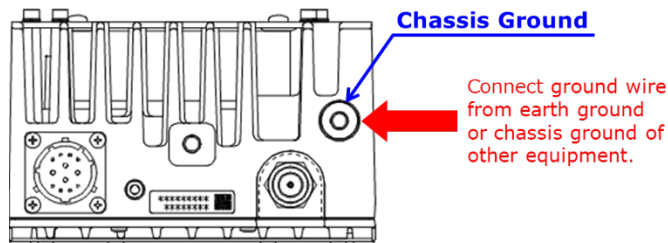
8.2.3. Connecting Ground Wire for Chassis Ground

The BUC can be had the chassis ground of the other equipment (e.g. modem) in common.

Connecting wire for common chassis ground from the chassis ground of the other equipment should be complied with the following step:

Tools Required: #2 Phillips screwdriver

- Step: Connect the ground wire from earth ground or chassis ground of other equipment to the chassis ground with M6 x 10 mm Philips pan head screw under 1.58 ± 0.158 N·m tighten torque.



! NOTE

- ✓ To reduce the risk of damage or broken by lightning surge, the unit should be grounded by connecting the ground wire.

* Above Specifications are subject to change without notice.

8.2.4. Start-up

Start-up will be immediately performed with the following step:

Step: Power on the modem and supply the DC voltage and 10 MHz reference from modem.

DANGER

- ✓ Only input a DC voltage within the range indicated in specifications.
Do operate with the input voltage range between +18 and +60 V DC power.
When applying higher voltage than specifications (+60 V as maximum voltage in DC power requirement), it will not only cause this unit failure, but it may also result in electric shock and fire.

NOTE

- ✓ The 10 MHz reference signal should be supplied with the range between -5 and +5 dBm with sine-wave for correctly operation.
Do not supply the signal level of more than +13 dBm.
- ✓ Do not power on the modem before finishing all of steps of Connection and Installation.

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

This appendix mentions about Indoor 150W AC/DC Power Supply Unit(PSU) for AC power operation option.

Indoor 150W AC/DC Power Supply Unit(PSU)

Model No. NJZ1286

Input AC Voltage Range: 100 to 240 V

Output DC Power: 150 W

Output DC Voltage: +48 VDC

* Above Specifications are subject to change without notice.

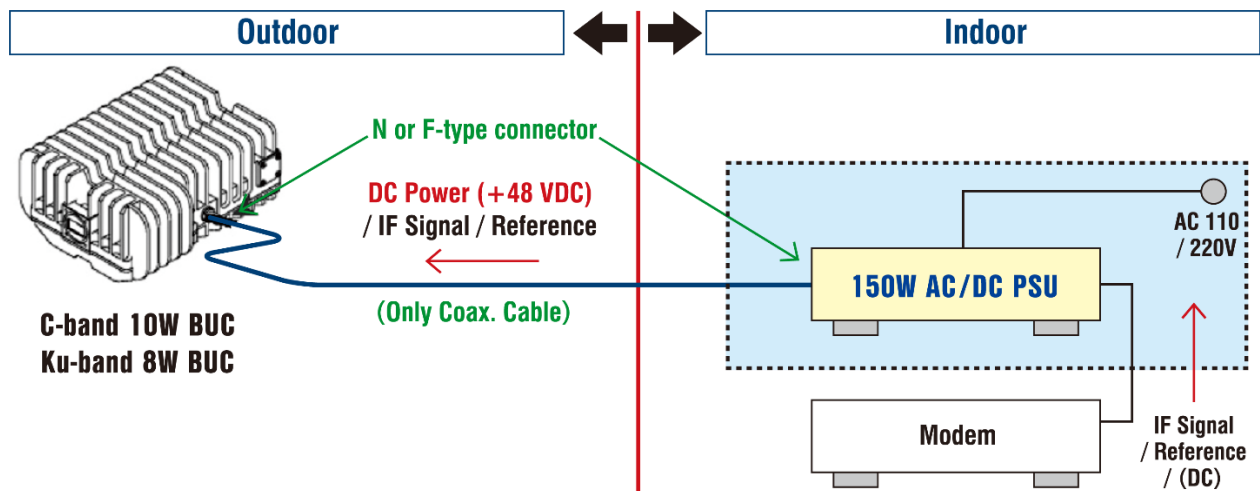
Appendix Indoor 150W AC/DC Power Supply Unit

1. Overview

The power supply unit (PSU) provides a DC power to operate NISD's Ku-band 8W BUCs (NJT5118, NJT5218 and NJT8318 series) and C-band 10W BUCs (NJT5672, NJT5763 and NJT5764 series) via a coaxial cable.

The features are

- Indoor power supply unit with up to 150 W and +48 V DC power output.
- Regardless of Any Types of Modem.
- DC power output can be turned on/off by mechanical switch on the front panel.
- The mode of DC power output can be selected out of in the following mode options by DIP switch on the front panel.
 - Option 1: To keep supplying DC power regardless of modem output status
 - Option 2: To control power DC output on/off by synchronization of input DC voltage on/off from modem
- Directly connect the coaxial cable for IF signal, 10 MHz reference and DC power from modem.
- One Coaxial Cable Solution.
- Compatible with 1U rack-mount.



* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

2. Electrical Specifications

#	Items	Specifications
2.1.	Input AC Voltage Range [Rated Range] [Absolute Maximum Rating]	100 to 240 VAC 90 to 264 VAC
2.2.	Input AC Frequency Range	50/60 Hz
2.3.	Maximum Input AC Apparent Power	200 VA
2.4.	Output Voltage	+48 VDC
2.5.	Output Voltage Accuracy	+/- 10 %
2.6.	Output Current Range	0 to 3.2 A
2.7.	Maximum Output Power	150 W
2.8.	Standby Mode Power • No Connect BUC • Non DC Power Output	10 W max.
2.9.	Efficiency	80 % typ. at 120 VAC, full load
2.10.	Power Factor	0.98 typ. at 120 VAC, full load
2.11.	Output ON/OFF Control	• Rocker Switch on the Front Panel • Mode of DC Power Output Option 1: To keep supplying Option 2: Synchronization with input DC voltage on/off
2.12.	IF Frequency Range	950 to 1,700 MHz
2.13.	IF Input/ Output Impedance < N-type Model > < F-type Model >	50 ohms nom. 75 ohms nom.
2.14.	IF Input/ Output VSWR	2 : 1 max.
2.15.	IF Insertion Loss	1.5 dB max.
2.16.	Input DC Voltage Range at IF Input Interface	+24 / +48 VDC In case of option 2 in mode of DC power output, 50mA min. is needed from modem.
2.17.	Protection	• Internal Primary Current Fuse • Short Protection
2.18.	LED Indicator [DC Output (Power)] [Fan Alarm]	GREEN: Supply a DC Power to BUC GREEN: Normal Condition RED: Abnormal Condition and must be Replacement

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

3. Mechanical Specifications

#	Items	Specifications
3.1.	AC Input Interface	IEC320-C14 inlet
3.2.	IF Input Interface	
	< N-type Model >	N-type, female (50 ohms)
	< F-type Model >	F-type, female (75 ohms)
3.3.	IF Output Interface	
	< N-type Model >	N-type, female (50 ohms)
	< F-type Model >	F-type, female (75 ohms)
3.4.	Cooling	Forced Air by Fan
3.5.	Dimension & Housing without Interface and Switch	(W) 290 x (D) 200 x (H) 44 mm [(W) 11.42" x (D) 7.87" x (H) 1.73"]
3.6.	Weight	1.6 kg [3.5 lbs]

4. Environmental Specifications

#	Items	Specifications
4.1.	Temperature Range (ambient) [Operating] [Storage]	0 to +50 °C -30 to +85 °C
4.2.	Humidity [Operating] [Storage]	30 to 90 %Rh non-condensing 10 to 95 %Rh
4.3.	Vibration	Non Operation 19.6 m/s ² Constant (10 to 55 Hz, Sweep time: 1min., 3 axis, 1hr)
4.4.	Shock	20 G [196.1 m/s ²] (3 axis)
4.5.	Compliance Standard	EN55022 EN55024 EN61000-3-2/3 EN60950-1 / UL60950-1 EN62311
4.6.	Regulations	EU Directive (CE Marking) EMC (2004/108/EC) Low Voltage (2006/95/EC) UL Certification
4.7.	Comply with RoHS (Restricting the use of Hazardous Substances) directives	

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

5. Accessories

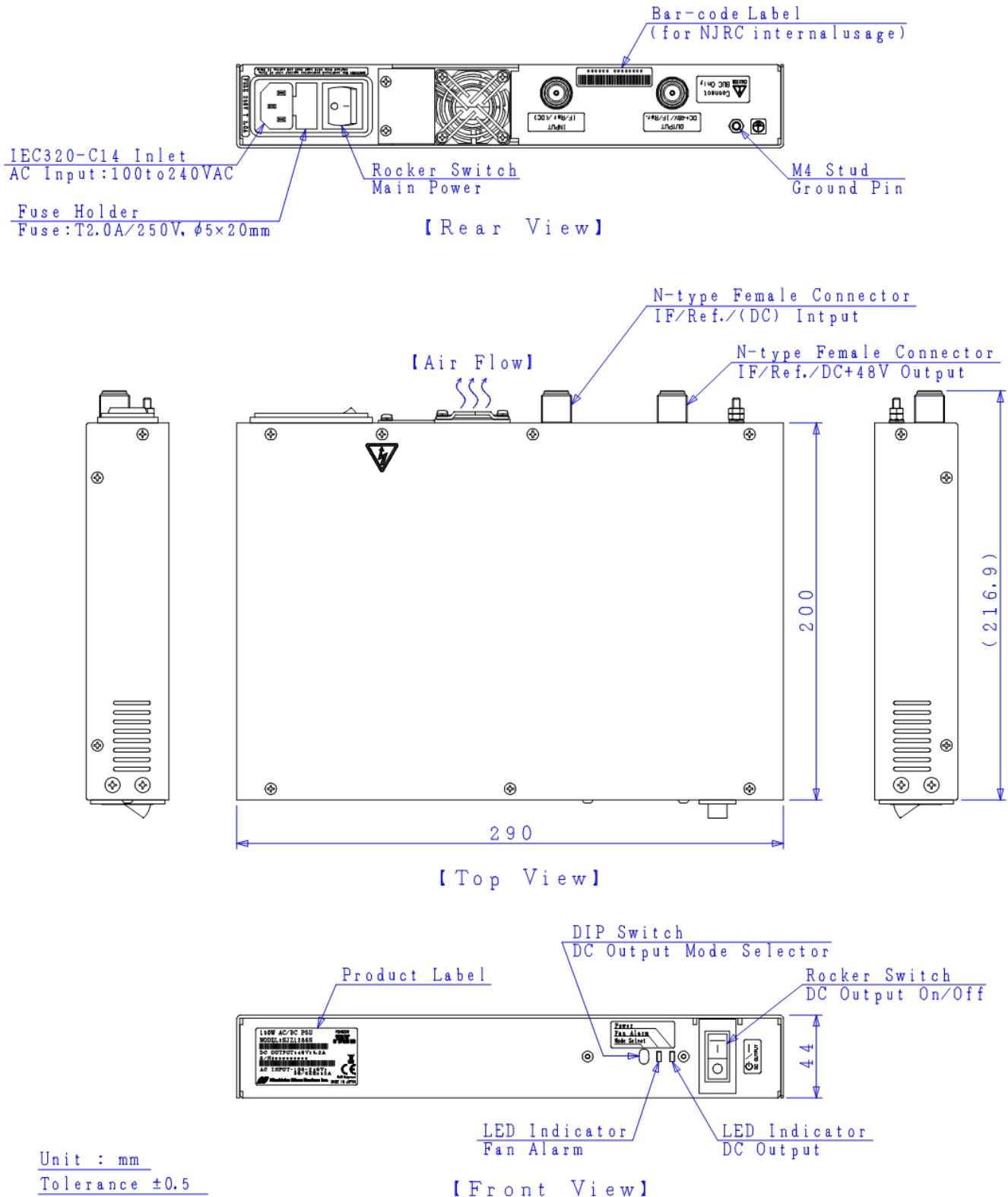
- AC power cable of 2 m (with 3 pins American plug) , Qty (1)
- Coaxial cable of 1 m (Option)
- 1U rack-mount kit (Option)

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

6. Outline Drawing

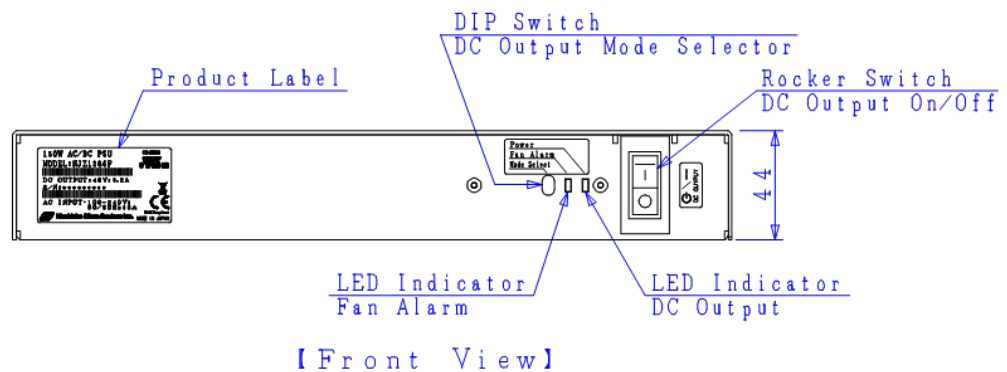
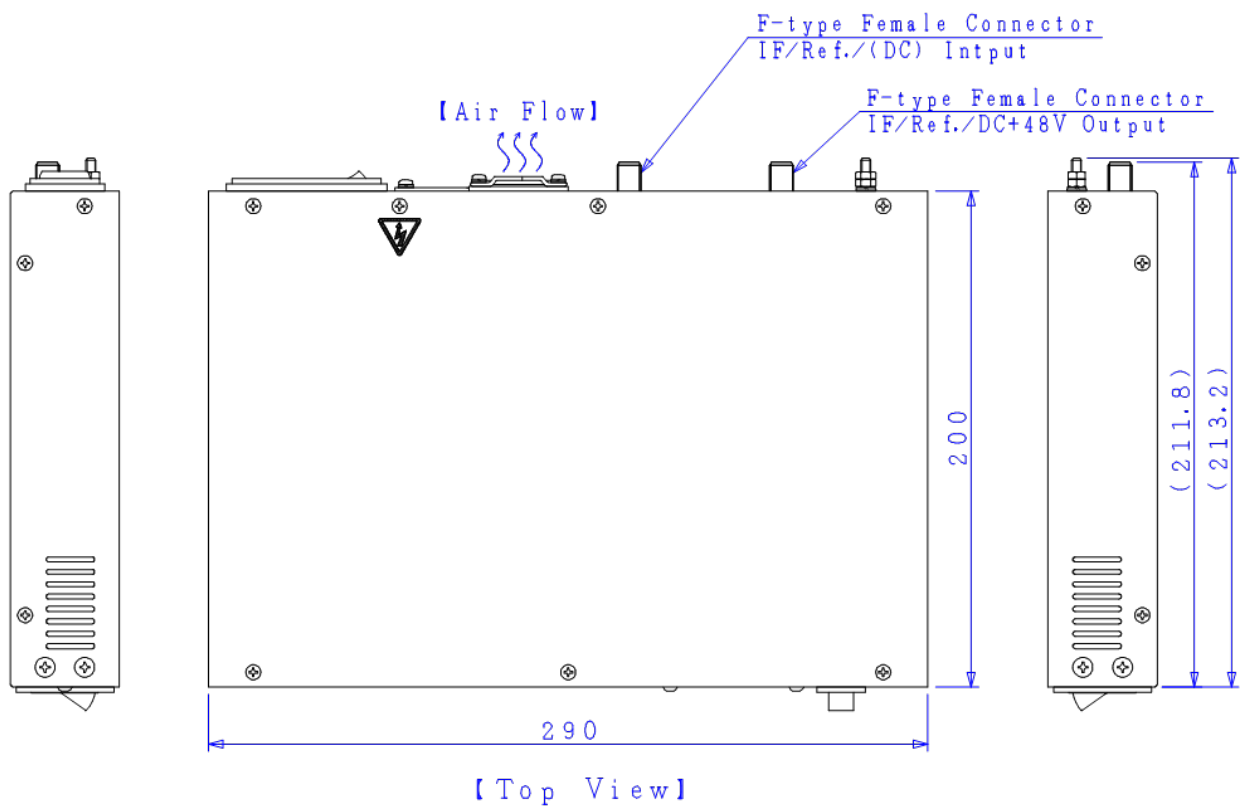
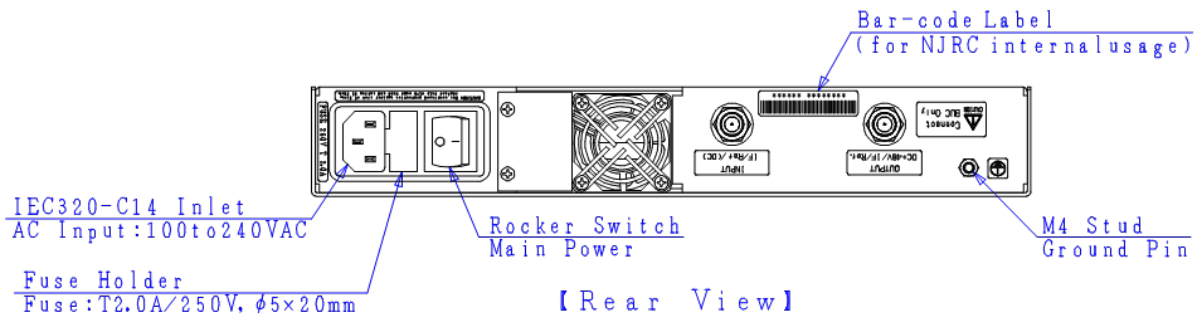
- IF Interface : N-type Female Connector



* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

- IF Interface : F-type Female Connector



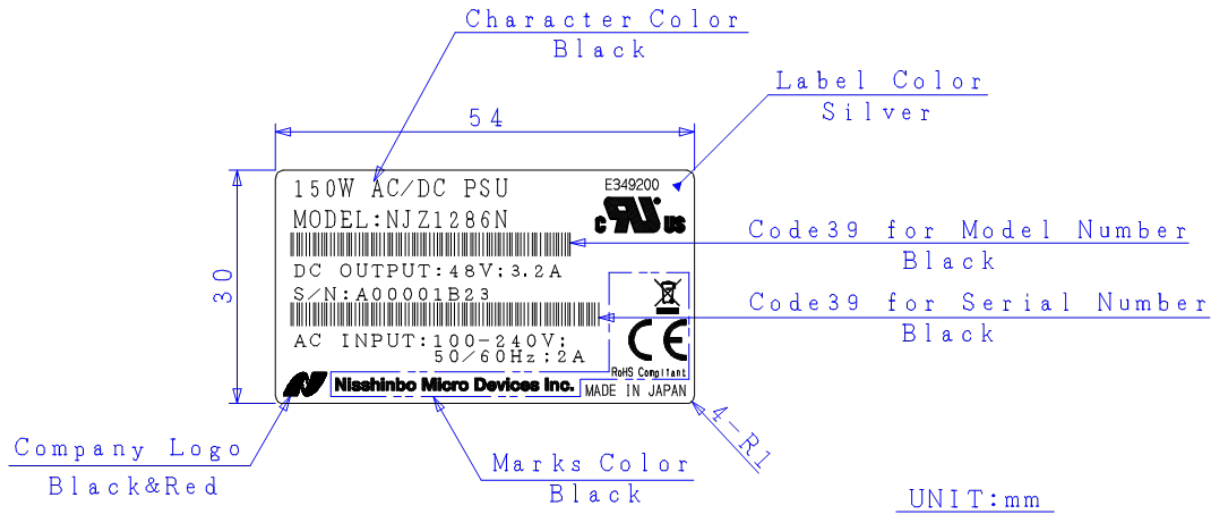
Unit : mm
Tolerance ± 0.5

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

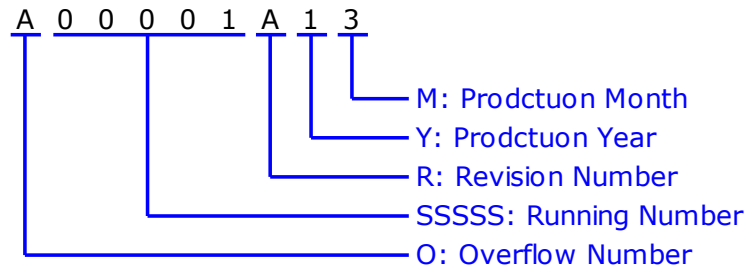
7. Label

7.1. Product Label (e.g. NJZ1286N)



7.2. Definition of Serial Number

Serial Number (OSSSSSRYM) - ALPHANUMERIC (9 characters)



O: Overflow Number - ALPHABET (1 character)

"A" to "T" except "I" and "O", e.g.: A99999 ⇒ B00001

"V" to "Z": Specified Numbers

SSSSS: Running Number - NUMBER (5 digits)

"00001" to "99999"

R: Revision Number - ALPHABET (1 character)

"A" to "Z" except "I", "O", and "U"

Y: Production Year - NUMBER (1 digits)

"0" to "9", Last Digit of Calendar Number

e.g.: 2021:"1", 2022:"2", 2023:"3"....

M: Production Month - ALPHANUMERIC (9 characters)

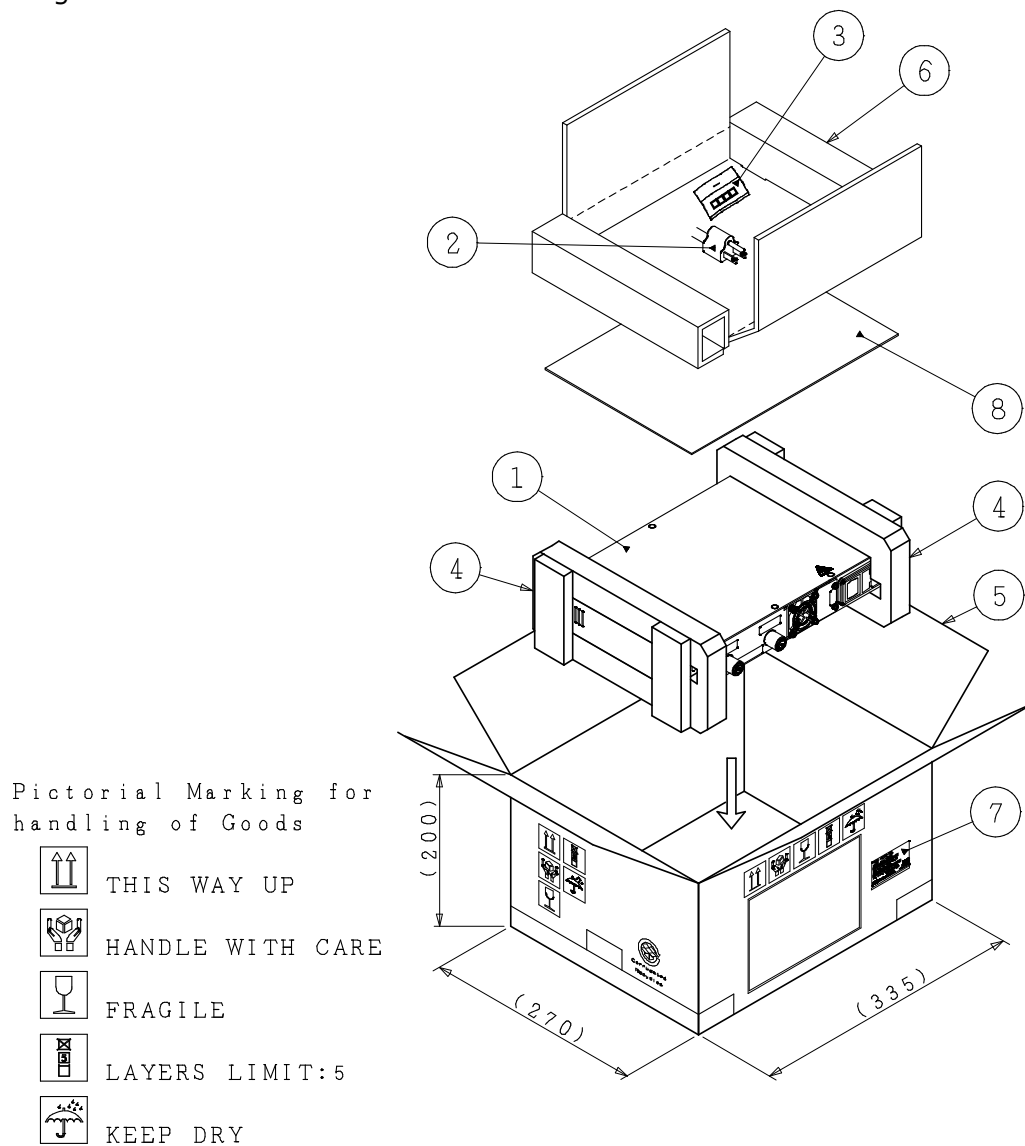
"1" to "9", "X" as October, "Y" as November, "Z" as December

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

8. Package

8.1. Package for PSU



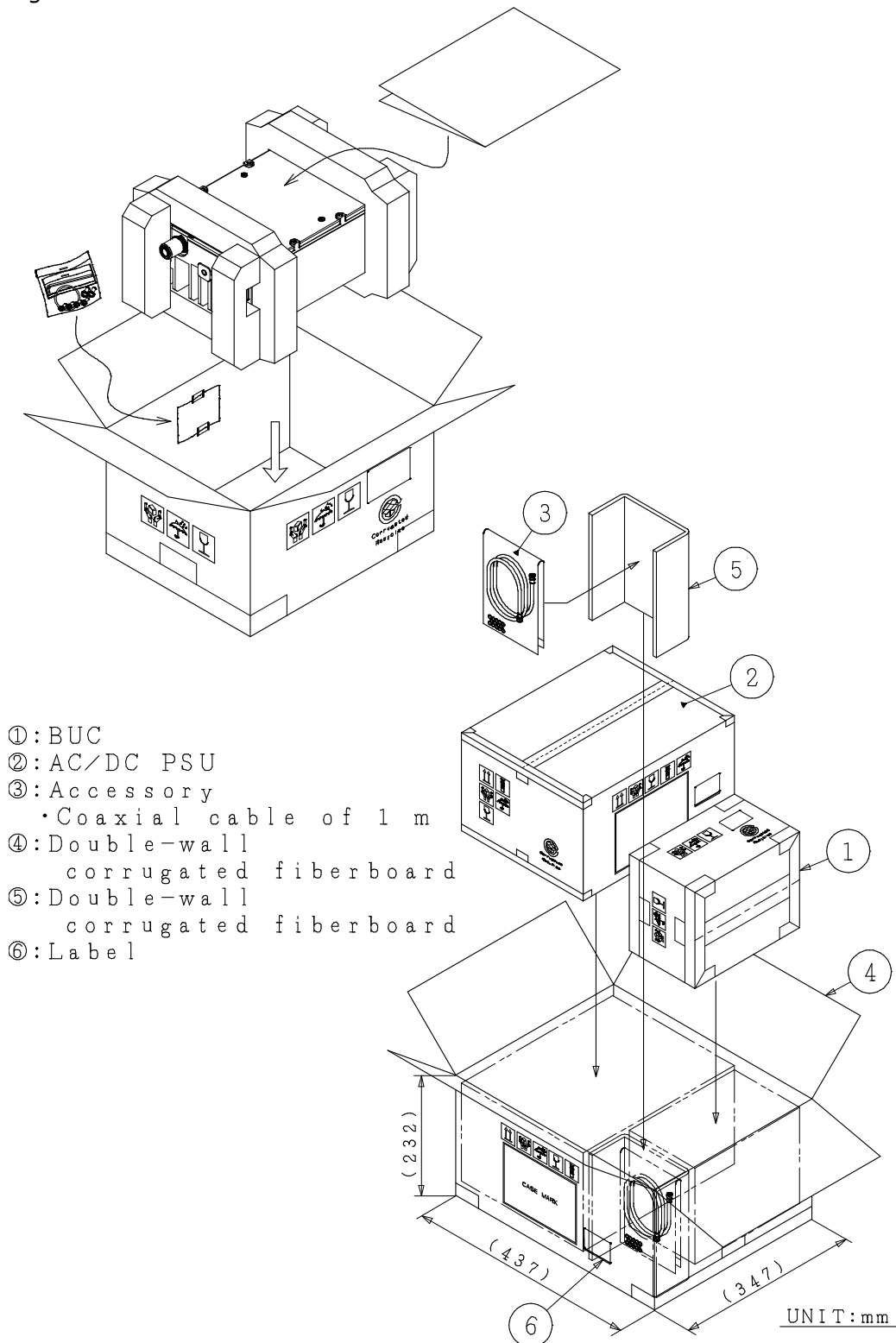
- ①:150W AC/DC PSU
- ②:Accessory
 - AC power cable of 2m
- ③:Accessory
 - Cushioning pad(4 pieces)
- ④:Polyethylene Foam For Package Cushioning
- ⑤:Corrugated Fiberboard(Double Wall)
- ⑥:Corrugated Fiberboard(Single Wall)
- ⑦:Label
- ⑧:User's Manual

UNIT:mm

* Above Specifications are subject to change without notice.

Appendix Indoor 150W AC/DC Power Supply Unit

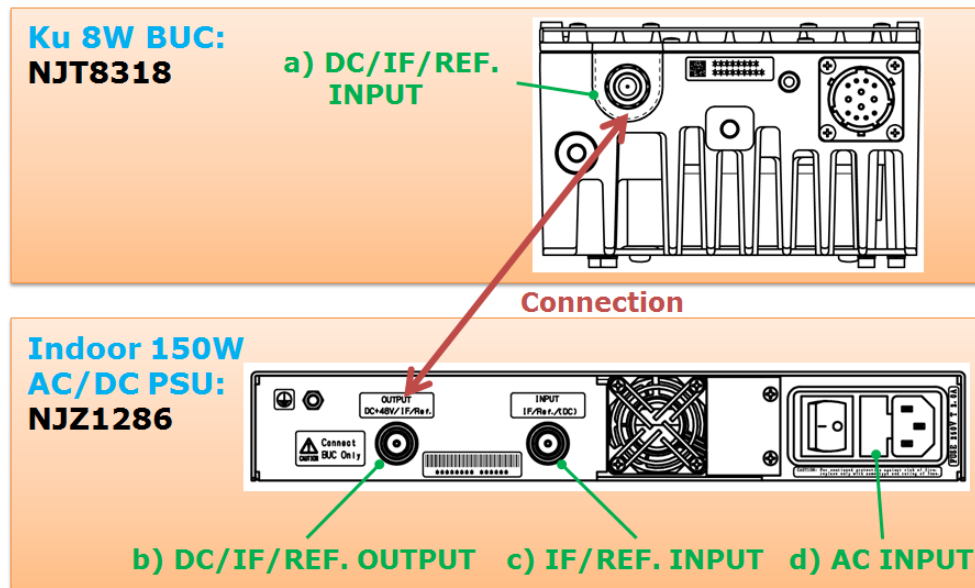
8.2. Package with BUC



* Above Specifications are subject to change without notice.

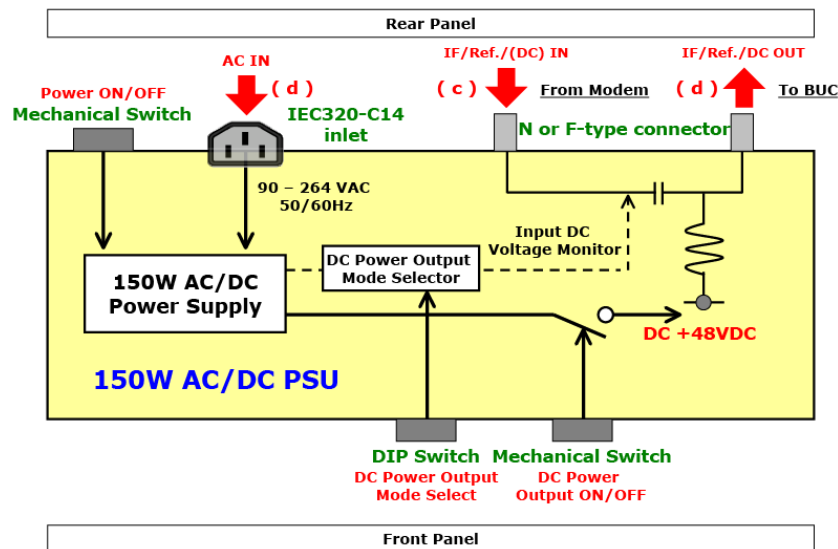
Appendix Indoor 150W AC/DC Power Supply Unit

9. Connection Overview between Ku 8W BUC and 150W AC/DC PSU



10. Basic Operation

Diagram



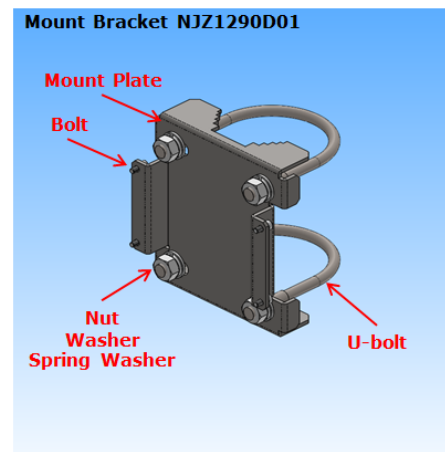
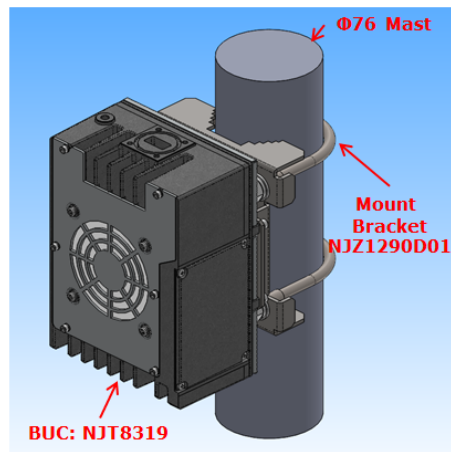
- 1) Main power can be turned on/off by mechanical switch on the rear panel.
- 2) DC power output can be turned on/off by mechanical switch on the front panel.
- 3) DC power output mode can be selected by customer in following two mode options by DIP switch on the front panel.
 - Option 1: Possible always to supply DC power regardless of Modem output status.
 - Option 2: Possible to control power DC output on/off by synchronization of input DC voltage on/off from modem.

* Above Specifications are subject to change without notice.

Mounting Bracket Option

1. Φ76 Mast Mount Bracket of NJT8318 series

- Model No. NJZ1290D01



Item	Qty	Description
Mount Plate	1	SUS
Bolt	4	SUS, M4, with W & SW, for fixing BUC
U-bolt	2	SUS, 65A(2-1/2"), M10
Nut	4	SUS, M10
Washer	4	SUS, for M10
Spring Washer	4	SUS, for M10

* Above Specifications are subject to change without notice.