

Ku LNB 10.70-12.75 GHz 2-4 Band

Key features



- Excellent Phase Noise
- Auto LO ref Ext 10 MHz, fallback to Internal ref
- Alarm and Monitoring & Control as option
- Wide IF range 950–2150 MHz
- Lower power consumption 



Description

This upgrade of the bestseller Ku Multiband (also known as Q-PLL) is build on our new innovative technology platform enabling new features and improved performance. This product is switchable and ideal for full freedom of sub-bands available. Designed for single band or multiple bands. Extended IF range 950-2150 MHz.

Legacy Voltage/Tone switching or optional Monitoring & Control functionality you are free to switch sub-band via Modbus RS485 and to monitor several performance parameters. Also the configurable Alarm output alerts you if the signal reception is lost or the external 10 MHz LO reference disappear. Alarm triggers can be used in redundancy control applications.

LNB connector (standard)



Connector A (standard)
Type: N-f, (option F-f or SMA-f)
Functions: L-Band out, DC in, External 10 MHz in

LNB connectors (optional)



Connector B (optional)
Type: M8 female, 4 pin, A-coded
Functions: Alarm and M&C

Connector B (optional)



- 1 = Alarm open collector (max. 200 mA) or optionally DC input.
- 2 = A pos+ RS485
- 3 = B neg- RS485
- 4 = Common (GND)
- 5 = Shield

Connector C (optional)
Type: SMA-f only
Functions: Ext. 10 MHz in and/or DC input

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Technical specifications

Parameter		
MODELS	Freq. GHz	9.75, 10.00, 10.25, 10.50, 10.60, 10.75, 10.80, 10.90, 11.00, 11.05, 11.25, 11.30 GHz or customized LO
	LO frequencies	Multiband Any combination of above LOs, max 8 Bands (legacy mode), examples next page
	Band Switching	Legacy 13/15/18/24 V and 22 kHz tone or via RS485 Modbus RTU (option)
INPUT	Input	WR75 / R120. PBR120 flange
	Frequency range	Within 10.70 to 12.80 GHz
	Pressurizable	0.1 bar max.
	Input max power	0 dBm instantaneous (not continuous)
	DC Input	nom. +12 to +24 V (11V min., 26V max.) through output connector or separate connector (SMA). 5W max.
	Input VSWR	1.9:1 typ., 3.0:1 max. w/o isolator
INTERNAL	LO ref.	Auto LO switch External 10 MHz ref / Internal ±2.5 ppm -40 to +80°C
	Ext. 10 MHz ref.	Sinus wave, input level -10 dBm to +10 dBm through output connector or optionally via separate SMA connector.
	LO Leakage	-60 dBm max. @ waveguide input, -40 dBm max. @ IF output
	Gain	60 dB typ. (55dB min.)
	Gain variation over 24h	±0.1 dB @ 23°C
	Flatness each band	± 1.5 dB max.
	Noise figure	0.8 dB / 59 K typ., 1.0 dB / 75 K max.
	Phase Noise	10 Hz -35dBc/Hz • 100 Hz -65dBc/Hz • 1 kHz -82dBc/Hz • 10 kHz -86dBc/Hz • 100kHz -95dBc/Hz • 1MHz -120dBc/Hz (max.)
	Image Rejection	20 dB min.
	Out of band rejection	20 dB min.
	Desensitization	max. -35 dBm, the absolute level out of band that increases NF by 0.1 dB in the band 13.75-14.50 GHz (uplink Ku).
	Spurioues in band	W/o signal -75 dBm max. With -10 dBm output signal -65 dBc max. @ fc > ±1 MHz and -60dBc max. @ ≤ ±1 MHz.
	Group delay	max. +/- 0.25ns @ 50 MHz BW, max. +/- 1ns @ each band
OUTPUT	IF output range	950-2150 MHz
	Output P1dB	+15 dBm min.
	Output IP3	+25 dBm min.
	Output VSWR	1.7:1 max. (N and SMA connector), 2.3:1 max. (F connector)
	Output Connector	N-type 50Ω , SMA-type 50Ω or F-type 75Ω
GENERAL	Alarm functions (option)	Sum alarm, set via M&C to alarm in any combination of: LNA failure, Total current, LO lock (Ext/Int/n/a), signal power high/low, Supply voltage low. Open collector 3.3 to 28 V, max. 200 mA (pull-up 10 k Ohm at host side), pin 1 in M8 connector.
	M & C functions (option)	Via MODBUS RTU RS485 electrical interface. NOTE! Mates with M8 male connector/Cable, use only shielded cables
	Dimensions	128 x 56 x 47 mm (LNB with N-connector)
	Weight	370 g (LNB with N-connector)
	Temperature range	Storage and operating: -40 to +80°C, -40 to +176°F
	MTBF	MTBF as per MIL-HDBK-217F Notice 2: Environmental Condition GF (Ground Fixed): >690000 hours, Environmental Condition AIC (Airborne, Inhabited, Cargo): >360000 hours, Quality level: Commercial, Temp used for MTBF calculation: +35 C Ambient
OPTIONS	Miscellaneous	Enclosed conductive O-ring, hex head mounting screws (M4 x 10) 4 pcs (for LNB)
	Options	- Separate SMA connector for DC input or Ext. 10 MHz reference - Custom LOs and input frequencies (within 10.70 to 12.80 GHz) - Fixing Points - Alarm and M&C

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Models examples

2-BAND				
Type	Band	LO	Ku-band (GHz)	L-band (MHz)
B	1	10.00	10.95-11.70	950-1700
	2	10.75	11.70-12.75	950-2000
C	1	9.75	10.70-11.70	950-1950
	2	10.75	11.70-12.75	950-2000
E	1	9.75	10.70-11.70	950-1950
	2	10.60	11.70-12.75	1100-2150
W	1	10.50	11.45-11.95	950-1450
	2	11.30	12.25-12.75	950-1450

SWITCHING			
Option	Band	Voltage	Tone
V	1	13 V	
	2	18 V	
T	1	12-20 V	
	2	12-20 V	22 kHz

DC Voltage tolerances	
Nominal Voltage	Tolerance
13 V	11.5 to 14.5 V
18 V	16.0 to 20.0 V

DC Voltage tolerances	
Nominal Voltage	Tolerance
13 V	11.5 to 17.5 V
24 V	18.0 to 26.0 V

22 kHz switching	
Tolerance	22 kHz ±4 kHz
Amplitude Voltage	600 mV ±200mV
Duty cycle	40 to 60 %

3-BAND				
Type	Band	LO	Ku-band (GHz)	L-band (MHz)
H	1	10.00	10.95-11.70	950-1700
	2	10.75	11.70-12.25	950-1500
	3	11.30	12.25-12.75	950-1450
U	1	9.75	10.70-11.45	950-1700
	2	10.50	11.45-12.20	950-1700
	3	11.25	12.20-12.75	950-1500
T	1	9.75	10.70-11.70	950-1950
	2	10.75	11.70-12.25	950-1500
	3	11.30	12.25-12.75	950-1450

SWITCHING			
Option	Band	Voltage	Tone
VT	1	13 V	
	2	13 V	22 kHz
	3	18 V	
V	1	13 V	
	2	15 V	
	3	18 V	
V 24V	1	13 V	
	2	18 V	
	3	24 V	

DC Voltage tolerances	
13 V	11.5 to 13.9 V
15 V	14.2 to 16.3 V
18 V	16.6 to 20.0 V
24 V	20.3 to 26.0 V

4-BAND				
Type	Band	LO	Ku-band (GHz)	L-band (MHz)
N	1	9.75	10.70-10.95	950-1200
	2	10.00	10.95-11.70	950-1700
	3	10.75	11.70-12.25	950-1500
	4	11.30	12.25-12.75	950-1450
O	1	9.75	10.70-11.20	950-1450
	2	10.25	11.20-11.70	950-1450
	3	10.75	11.70-12.20	950-1450
	4	11.25	12.20-12.75	950-1500
R	1	10.00	10.95-11.70	950-1700
	2	10.75	11.70-12.25	950-1500
	3	11.30	12.25-12.75	950-1450
	4	9.75	10.70-11.70	950-1950
V	1	9.75	10.70-11.50	950-1750
	2	10.00	10.95-11.75	950-1750
	3	10.50	11.45-12.25	950-1750
	4	11.05	12.00-12.80	950-1750

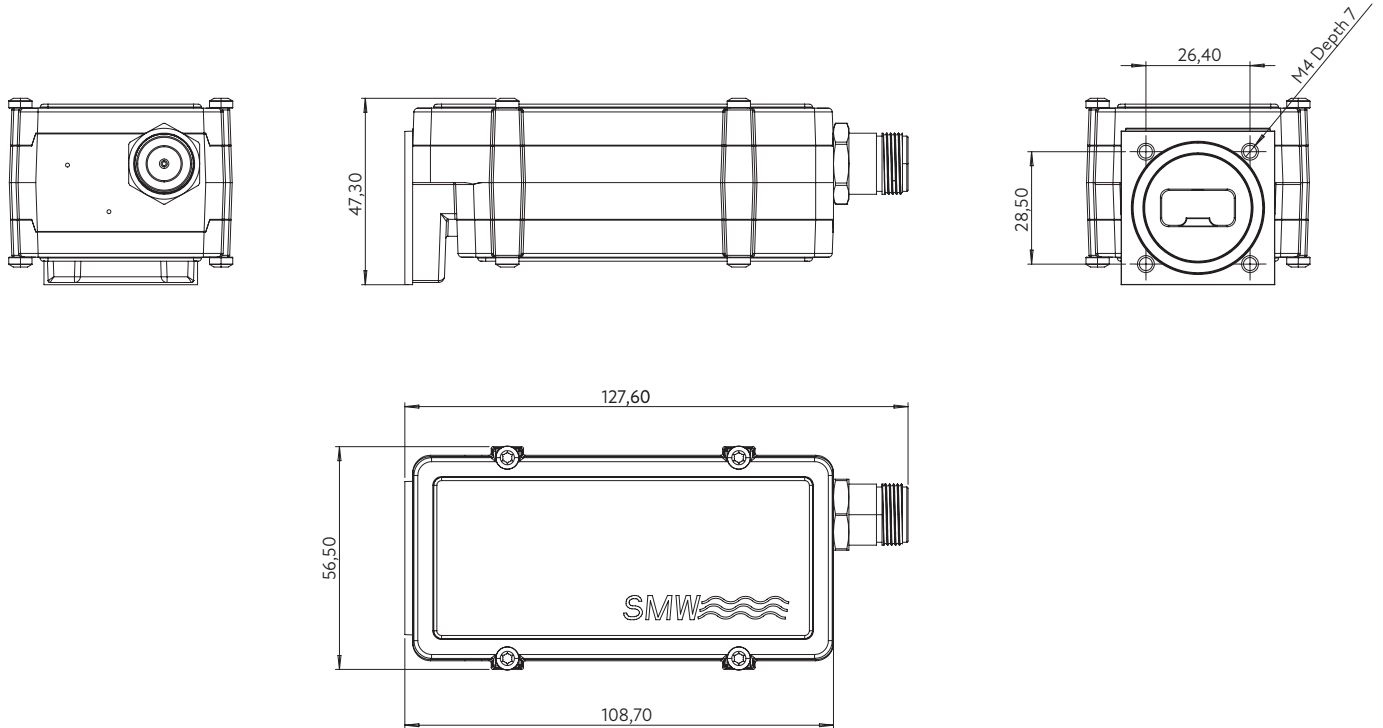
SWITCHING			
Option	Band	Voltage	Tone
VT	1	13 V	
	2	13 V	22 kHz
	3	18 V	
	4	18 V	22 kHz

DC Voltage tolerances	
Nominal Voltage	Tolerance
13 V	11.5 to 14.5 V
18 V	16.0 to 20.0 V

Sub-band switching via Modbus RS485 according to the Modbus register map for these products. Find the product at <https://smw.se>

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Technical drawing



Designed and
Manufactured



IN SWEDEN

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