

# 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 

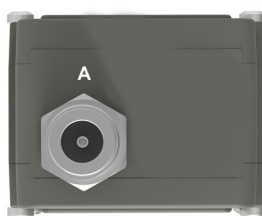


### Description

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.

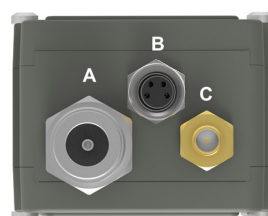
#### LNB connector (standard)



##### 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               | 1.35:1 max., 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  | ±0.5 dB @ 23°C                                                                                                                                                                                                                                       |
|           | Gain flatness            | Within 30 MHz: ± 0.4 dB, ± 1.5 dB max over each band                                                                                                                                                                                                 |
|           | 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).                                                                                                                                    |
|           | Spuriouses 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      |
|           | Miscellaneous            | Enclosed conductive O-ring, hex head mounting screws (M4 x 10) 4 pcs (for LNB)                                                                                                                                                                       |
| OPTIONS   | Options                  | - Separate SMA connector for DC input or Ext. 10 MHz reference<br>- Custom LOs and input frequencies (within 10.70 to 12.80 GHz)<br>- Fixing Points<br>- Alarm and M&C                                                                               |

Ku LNB 10.70-12.75 GHz 2-4 Band

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>

C-BAND

X-BAND

KU-BAND

KA-BAND

Q/V-BAND

RFo FIBER

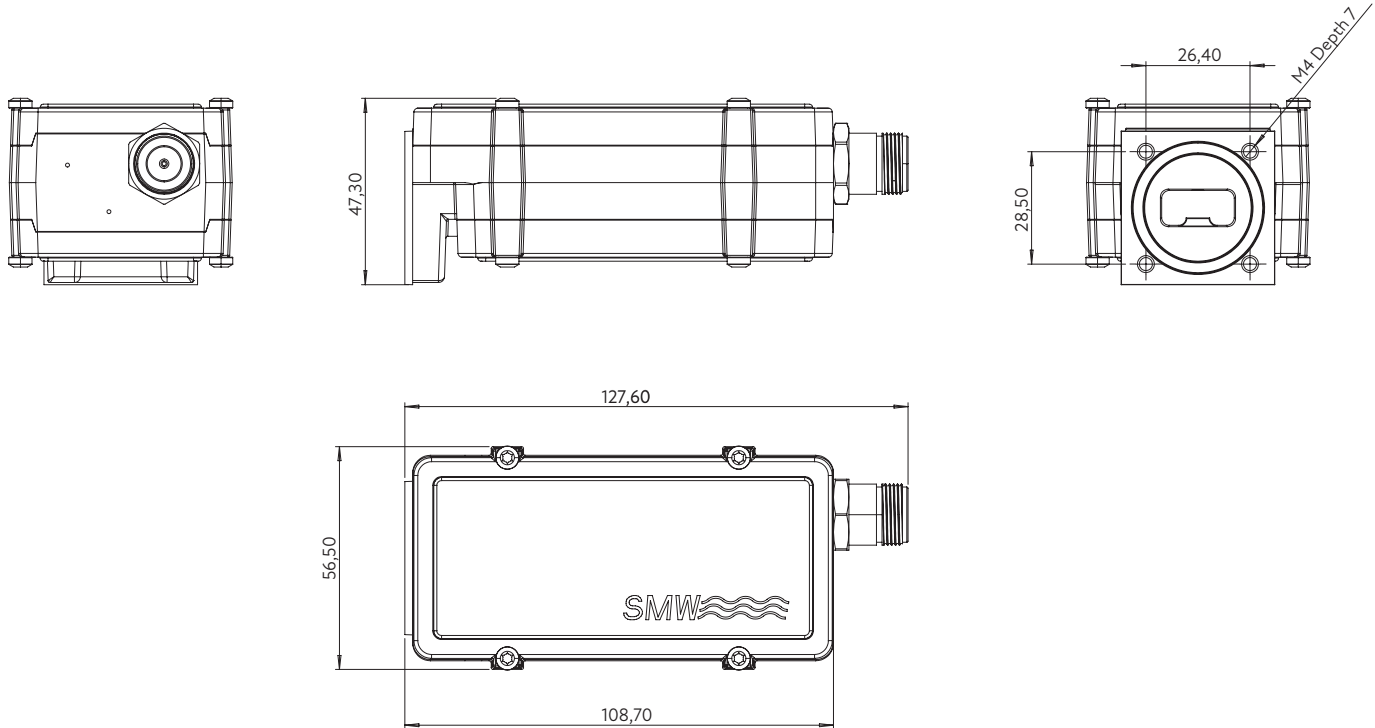
L-BAND

EXT REF

OTHER

## Ku LNB 10.70-12.75 GHz 2-4 Band

### Technical drawing



Professional Satcom Frequency Converters & Components. All products are fully CE and RoHS compliant and every device includes full documentation of performance tests and quality control. Please contact [sales@smw.se](mailto:sales@smw.se) to configure or customize to your needs. Visit [smw.se](http://smw.se) or scan QR code to see our full product range and request a quick quote.

