



ALARIS
KUHNE

INSPIRING THE NEXT RF SOLUTION

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Version 1.0

KU LNC 172212 C PRO



Manual

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A DIVISION OF

ALARIS
THE RF TECHNOLOGY GROUP



Specifications (Ta = 25 °C):

Type	KU LNC 172212 C PRO
Frequency ranges (RF)	17200 ... 18200 MHz, (LO 16200 MHz) 18200 ... 19200 MHz, (LO 17200 MHz) 19200 ... 20200 MHz, (LO 18200 MHz) 20200 ... 21200 MHz, (LO 19200 MHz)
Noise figure @ 18 °C	typ. 2.5 dB, max. 3.0 dB (max. gain)
Gain (configurable)	typ. 55 dB (max. gain setting), 30 dB gain reduction in 1 dB steps
Output 1 dB compression point	typ. +10 dBm (max. gain setting)
Output IP3	typ. +20 dBm (max. gain setting)
IF	
Output frequency	1000 ... 2000 MHz
Switchable LO	
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability (0 ... 40 °C)	+/- 3 ppm
LO phase noise	
@ 100 Hz	typ. -60 dBc/Hz
@ 1 kHz	typ. -79 dBc/Hz
@ 10 kHz	typ. -87 dBc/Hz
@ 100 kHz	typ. -92 dBc/Hz
@ 1 MHz	typ. -124 dBc/Hz
10 MHz Reference	
Insertion	via output connector
Input level	-3 ... +10 dBm
Operating parameters	
Supply voltage	+9 ... 36 V DC
Current consumption	typ. 270 mA @ 12V
Power consumption	typ. 3.3 W
Mechanics	
Input connector	WR-42
Output connector / impedance	N-male, 50 ohms
Case	milled aluminium, IP43
Dimensions without connector (mm)	82 x 64 x 24
Weight	typ. 230 g
Absolute ratings	
Maximum RF input power	-20 dBm
Operating case temperature range	-20 ... +55 °C

Others

Features

- Low noise figure
- Large bandwidth
- Low phase noise local oscillator
- High frequency stability of the local oscillator
- High linearity
- Small and light-weight to allow easy pole mounting
- Tri-colour LED indicates unit status and gain mode setting
- Overvoltage protection and reverse polarity protection
- Remote power supply via output connector
- Remote LO frequency select via supply voltage
- 10 MHz Reference frequency insertion via output connector
- 30 dB gain adjustment

Applications

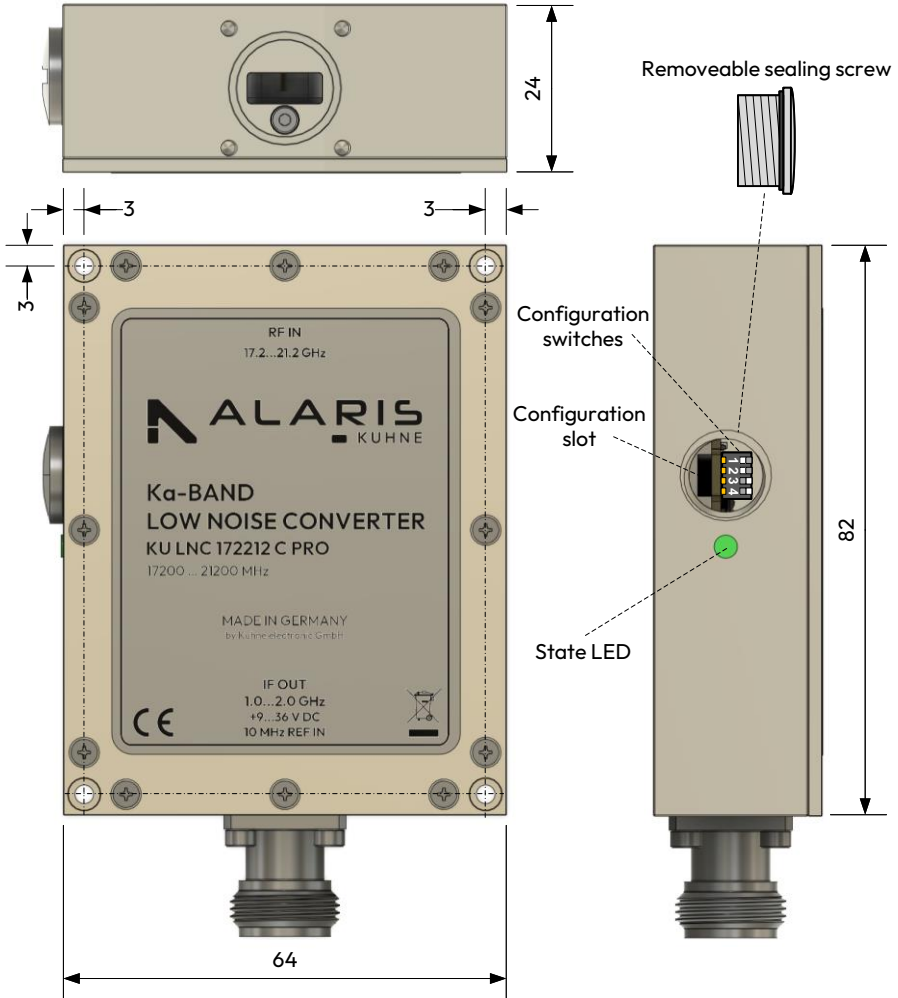
- SATCOM
- Analog and digital transmission systems

CE Konformität / CE Conformity

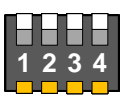
EMC directive 2014/30/EU
Low voltage directive 2014/35/EU
RoHS directive 2011/65/EU



Dimensions (mm) / Mounting holes



Configuration Switches / LED state



↑ OFF
 ↓ ON

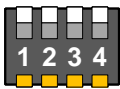
Switch 1 + 2 - (Local oscillator frequency)

Switch 3 - (Gain)

Switch 4 - (User local oscillator frequency)

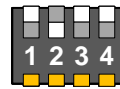
Device Error

LED state
 Red



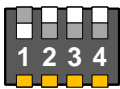
↑ OFF
 ↓ ON

Switch 1 - OFF
Switch 2 - OFF
 LO 16200 MHz
 RF 17200 ... 18200 MHz



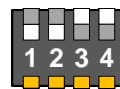
↑ OFF
 ↓ ON

Switch 1 - OFF
Switch 2 - ON
 LO 18200 MHz
 RF 19200 ... 20200 MHz



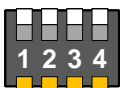
↑ OFF
 ↓ ON

Switch 1 - ON
Switch 2 - OFF
 LO 17200 MHz
 RF 18200 ... 19200 MHz



↑ OFF
 ↓ ON

Switch 1 - ON
Switch 2 - ON
 LO 19200 MHz
 RF 20200 ... 21200 MHz



↑ OFF
 ↓ ON

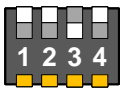
Switch 3 - OFF

0 dB IF attenuation



LED state

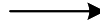
Green



↑ OFF
 ↓ ON

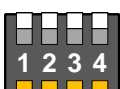
Switch 3 - ON

User defined IF att.



LED state

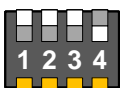
Blue



↑ OFF
 ↓ ON

Switch 4 - OFF

Local oscillator configuration with Switch 1 + 2



↑ OFF
 ↓ ON

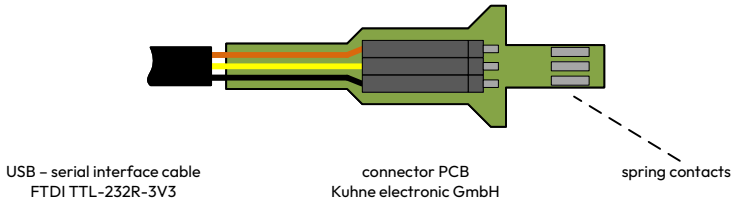
Switch 4 - ON

Local oscillator configuration with Switch 1 + 2 disabled
 User defined local oscillator frequency is enabled

In the case that **Switch 4** is in position **ON** the user defined local oscillator frequency is activated.
 This user defined local oscillator frequency can be selected in the range from 16200 ... 19200 MHz.
 The frequency step size of the oscillator frequency is 10 MHz.
 The user defined oscillator frequency can be programmed with a special programming cable (see next page).

For example the oscillator frequency can be chosen to 16500 MHz.

Connector PCB / serial communication



Configure the user defined local oscillator frequency

- connect the USB – serial interface cable with your PC
- start a terminal program on your PC (for example „hterm“)
- choose the COM port of the USB – serial interface cable

```
BAUDRATE 9600
DATABITS 8
STOPBITS 1
NO FLOW CONTROL
```

- insert the connector PCB with connected USB – serial interface cable into the configuration slot the spring contact must show to the top cover of the down converter

- power up the down converter

- send „s“ with the terminal program to the converter to get the state of the converter

```
Kuhne electronic GmbH - KU LNC 172212 C PRO

PLL locked
0 dB IF attenuation selected
Selected LO frequency: 16700 MHz
LO select via switches
User defined LO frequency: 16700 MHz
User defined LO frequency enabled
```

- send „16700LO“ with the terminal program to the converter to set the user defined oscillator frequency to 16700 MHz

```
New LO frequency 16700 MHz accepted
```

- power down the down converter

- remove the connector PCB

Serial communication

Configure the user defined IF attenuation (0 - 30 dB)

- send „IOAT“ with the terminal program to the converter to set the user defined IF attenuation to 10 dB

```
New ATTENUATION 10 dB accepted
```

Configure if the LO is selected by the internal switches (default setting) or with the supply voltage

- send „LO“ with the terminal program to the converter to select the LO with the internal switches, supply voltage is ignored
- send „RLO“ with the terminal program to the converter to select the LO with the supply voltage, internal switches are ignored

This down converter supports four different RF band segments.
RF ranges are defined through the local oscillator frequency of the down converter.
The local oscillator frequencies can be chosen by the supply voltage of the down converter.
Supply voltage is feed in through the IF-connector.

- Supply voltage between 9 and 11 V DC -> 17200 ... 18200 MHz RF range (LO 16200 MHz)
- Supply voltage between 12 and 17 V DC -> 18200 ... 19200 MHz RF range (LO 17200 MHz)
- Supply voltage between 18 and 23 V DC -> 19200 ... 20200 MHz RF range (LO 18200 MHz)
- Supply voltage between 24 and 30 V DC -> 20200 ... 21200 MHz RF range (LO 19200 MHz)
- Supply voltage between 30 and 36 V DC -> user defined LO frequency



Application diagram

