



ALARIS
KUHNE

INSPIRING THE NEXT RF SOLUTION

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Version 1.0

KU LNC 6471 C PRO



Manual

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A DIVISION OF

ALARIS
THE RF TECHNOLOGY GROUP



Specifications (Ta = 25 °C):

Type	KU LNC 6471 C PRO
Frequency range (RF)	6430 ... 7130 MHz
Noise figure @ 18 °C	typ. 1.5 dB, max. 1.8 dB (LO frequency 6230 MHz, IF amplifier enabled)
Gain (switchable)	typ. 31 dB (high gain), typ. 20 dB (low gain) (LO frequency 6230 MHz)
Output IP3	typ. +22 dBm (high gain), typ. +11 dBm (low gain)
Switchable LO, IF frequencies	
Output frequency (LO 6230, 7330 MHz)	200 ... 900 MHz
Output frequency (LO 6330 MHz)	100 ... 800 MHz
Output frequency (LO 6280 MHz)	150 ... 850 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability (0 ... 40 °C)	+/- 3 ppm
Phase noise @ 1700 MHz	
@ 1 kHz	typ. -86 dBc/Hz
@ 10 kHz	typ. -99 dBc/Hz
@ 100 kHz	typ. -99 dBc/Hz
Operating parameters	
Supply voltage	+9 ... 36 V DC
Current consumption	typ. 250 mA @ 12V (IF amplifier enabled)
Power consumption	typ. 3.0 W
Mechanics	
Input connector / impedance	N-female, 50 ohms
Output connector / impedance	N-female, 50 ohms
Case	milled aluminium, IP67
Dimensions (mm)	82 x 64 x 22
Weight	typ. 230 g
Absolute ratings	
Maximum RF input power	1 mW (0 dBm)
Operating case temperature range	-20 ... +55 °C

Features

- Low noise figure
- Large bandwidth
- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Antenna port protected against static discharge
- 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

Applications

- Multichannel Multipoint Distribution Services (MMDS)
- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems

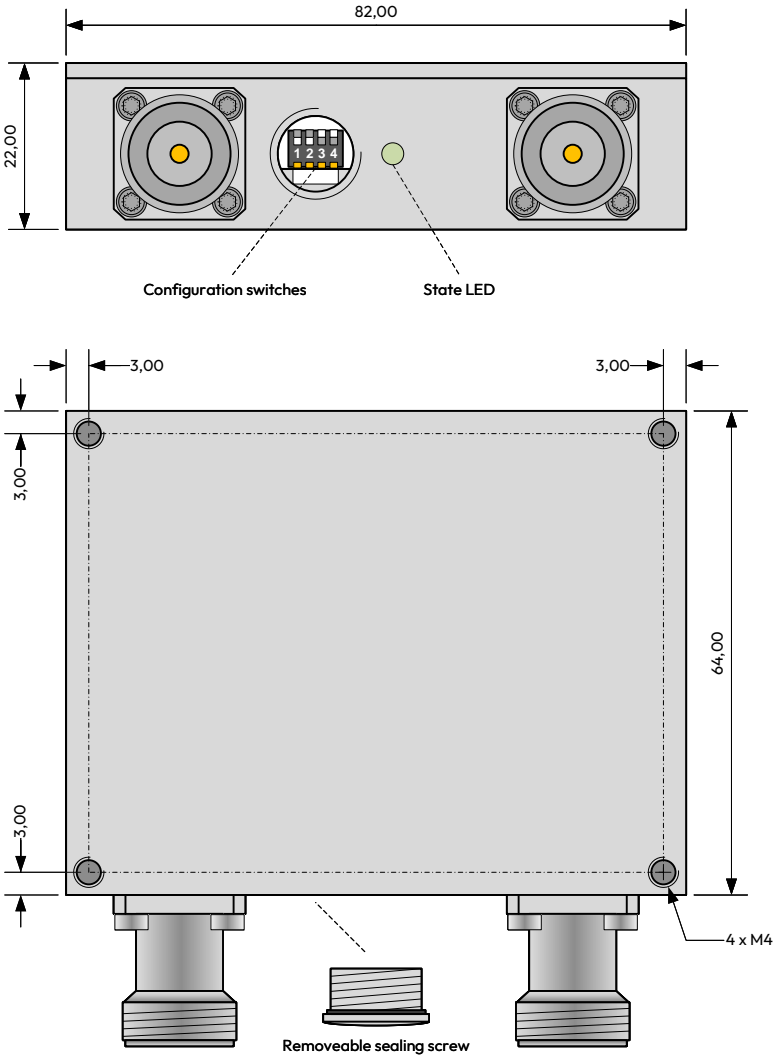
CE Konformität / CE Conformity

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

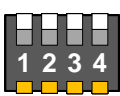




Dimensions / Mounting holes



Configuration Switches / LED state

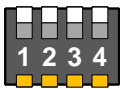


↑ OFF
 ↓ ON

Switch 1 + 2 - (Local oscillator frequency)
Switch 3 - (Gain)
Switch 4 - (User local oscillator frequency)

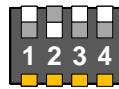
Device Error

LED state
 Red



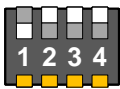
↑ OFF
 ↓ ON

Switch 1 - OFF
Switch 2 - OFF
 LO 6330 MHz
 IF 100 ... 800 MHz



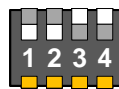
↑ OFF
 ↓ ON

Switch 1 - OFF
Switch 2 - ON
 LO 7330 MHz
 IF 900 ... 200 MHz



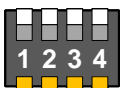
↑ OFF
 ↓ ON

Switch 1 - ON
Switch 2 - OFF
 LO 6280 MHz
 IF 150 ... 850 MHz



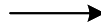
↑ OFF
 ↓ ON

Switch 1 - ON
Switch 2 - ON
 LO 6230 MHz
 IF 200 ... 900 MHz

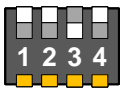


↑ OFF
 ↓ ON

Switch 3 - OFF
 Low Gain



LED state
 Green

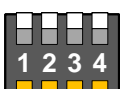


↑ OFF
 ↓ ON

Switch 3 - ON
 High Gain

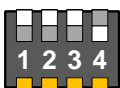


LED state
 Blue



↑ OFF
 ↓ ON

Switch 4 - OFF
 Local oscillator configuration with Switch 1 + 2



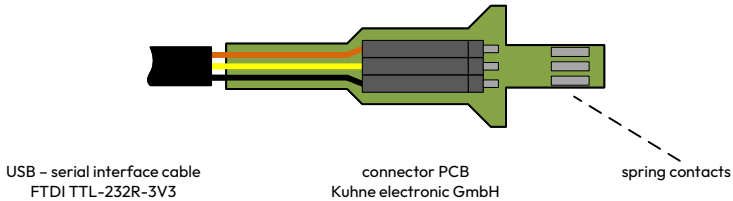
↑ OFF
 ↓ ON

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 6230 ... 6330 MHz and from 7230 ... 7330 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 6270 MHz .

Optional Connector PCB



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 6471 C PRO

PLL locked
GAIN high
Selected LO frequency: 6330 MHz
User defined LO frequency: 6250 MHz
User defined LO frequency enabled
```

- send „6270LO“ with the terminal program to the converter to get set the user defined oscillator frequency to 6270 MHz
- ```
New LO frequency 6270 MHz accepted
```
- power down the down converter
  - remove the connector PCB

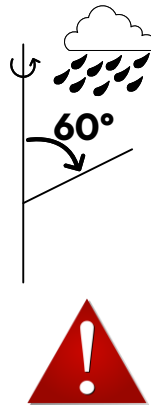
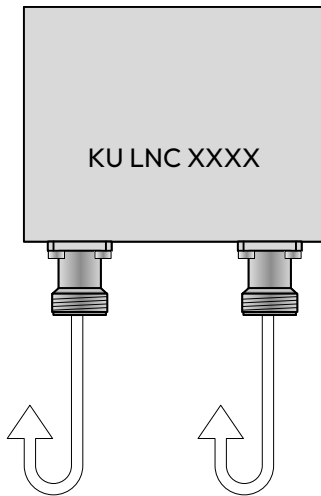
## Mounting instructions

All LNCs from Kuhne electronic GmbH are labelled with at least protection class IP41 in accordance with DIN EN 60529, **unless a higher protection class is explicitly indicated in the valid specifications for the protection class on page 2.**

This provides information on the resistance of the unit against unwanted penetration of foreign bodies or moisture into the interior of the unit according to the following provision:

- Protected against granular solid foreign bodies (diameter  $\geq 1$  mm).
- Protection against falling spray up to  $60^\circ$  from vertical

The LNC modules have been designed with maximum protection against moisture. Nevertheless, water may enter the unit due to the design of the RF connectors, which is why some special features should be taken into account during installation.



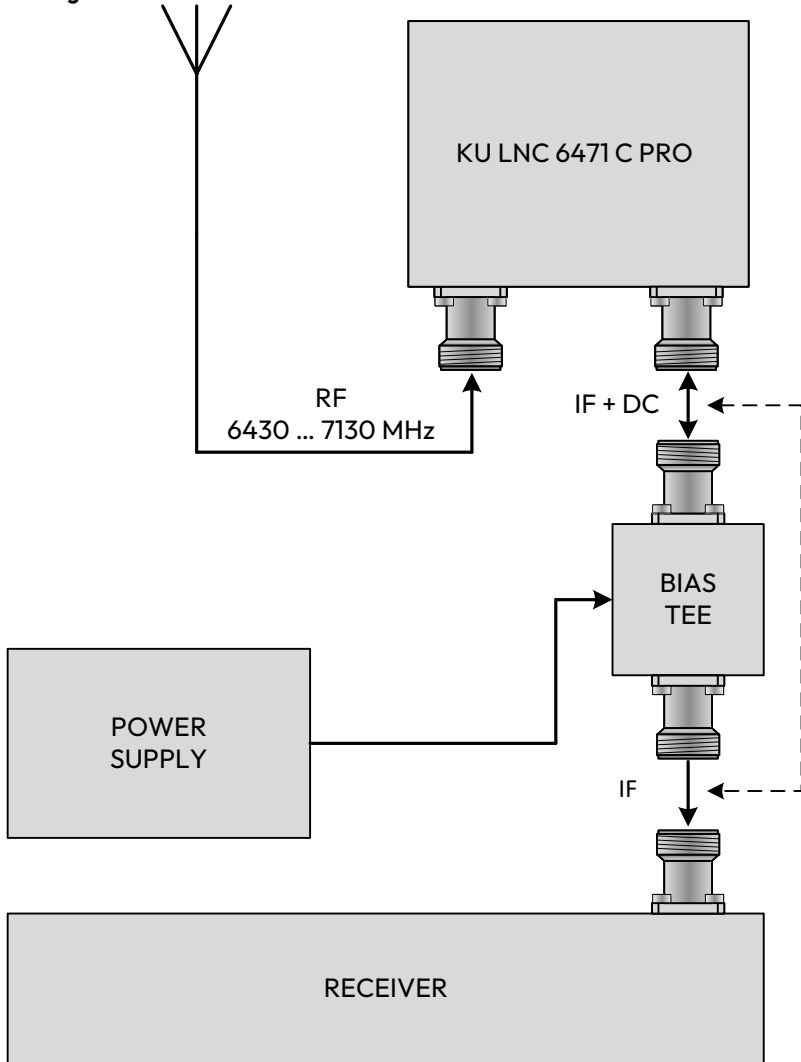
**Mounting with the RF connectors vertically downwards**

**If possible, do not use cable connections with angled elbow connectors, but lead plugs out with a straight cable and a loop pointing downwards.**

In the event of improper installation or handling that does not comply with our recommendations, Kuhne electronic reserves the right to exclude the warranty claim.



## Application diagram





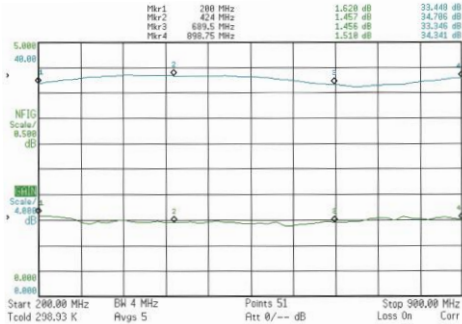
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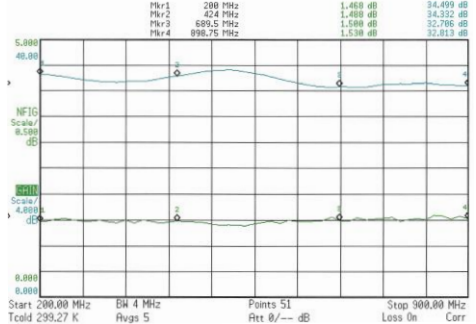
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### Typical performance

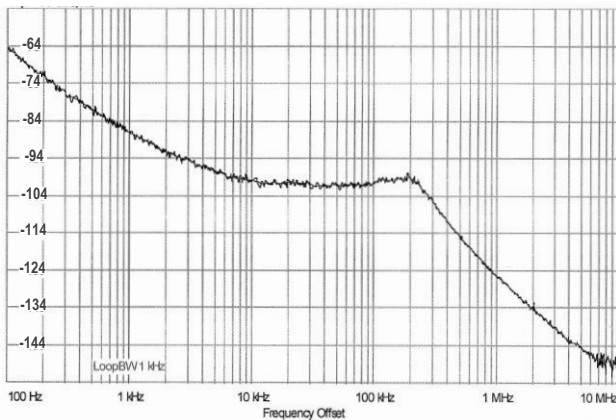
Typical gain and noise figure (6230 MHz LO frequency, IF amplifier on)



Typical gain and noise figure (7330 MHz LO frequency, IF amplifier on)



Typical phase noise at 6230 MHz local oscillator frequency



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