ALARIS
KUHNE

■ INSPIRING THE NEXT RF SOLUTION

Version 1.0

KU LNC 3239 C PRO

Manual

+49 (0) 9293 - 800 640
sales@kuhne.alaris.tech
www.kuhne.alaris.tech
Scheibenacker 3, 95180 Berg, Germany

Specifications (Ta = 25 °C):

Type	KU LNC 3239 C PRO
Frequency range (RF)	3200 … 3900 MHz
Noise figure @ 18 °C	typ. 1.1 dB, max. 1.5 dB (LO frequency 3000 MHz, IF amplifier enabled)
Gain (switchable)	typ. 31 dB (high gain), typ. 20 dB (low gain) (LO frequency 3000 MHz)
Output IP3	typ. +23 dBm (high gain), typ. +12 dBm (low gain)

Switchable LO, IF frequencies

Output frequency (LO 3000, 4100 MHz)	200 … 900 MHz
Output frequency (LO 2900 MHz)	300 … 1000 MHz
Output frequency (LO 3100 MHz)	100 … 800 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability (0 … 40 °C)	+/- 3 ppm

Phase noise @ 3000 MHz

@ 1 kHz	typ. -91 dBc/Hz
@ 10 kHz	typ. -96 dBc/Hz
@ 100 kHz	typ. -105 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

CE

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Dimensions / Mounting holes
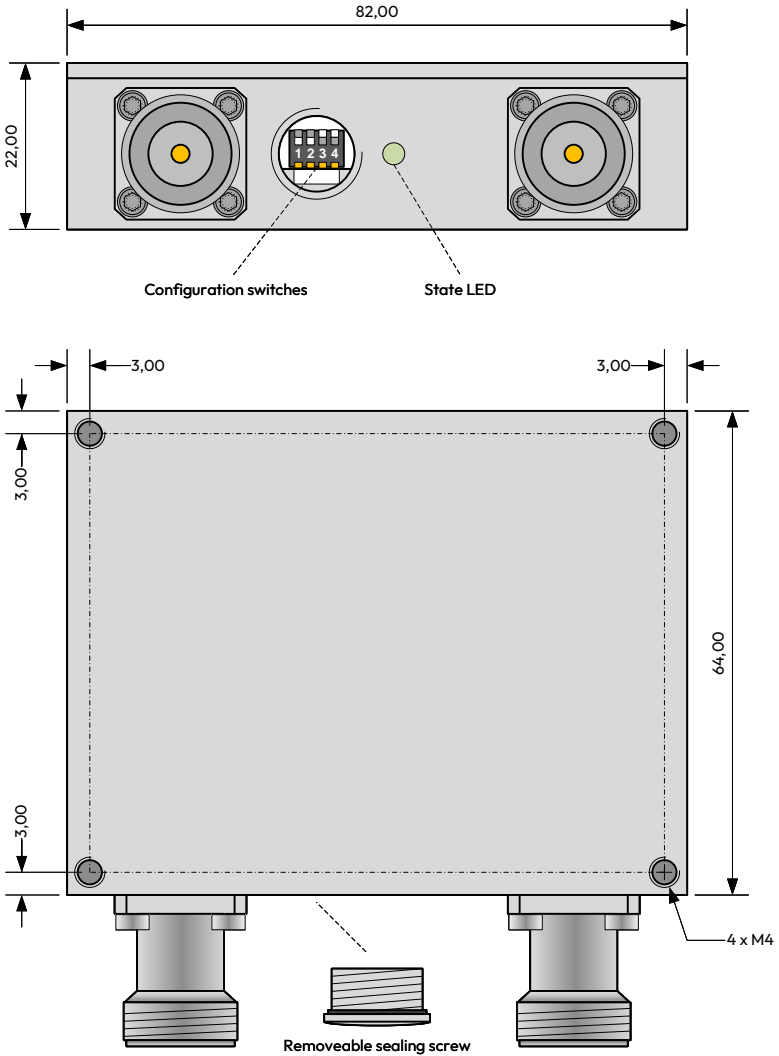
82,00

22,00

Configuration switches

State LED

3,00

3,00

3,00

3,00

64,00

4 x M4

Removeable sealing screw

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Configuration Switches / LED state
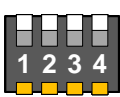
OFF
ON

Switch 1 + 2 - (Local oscillator frequency)

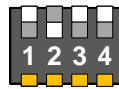**Switch 3** - (Gain)

Switch 4 - (User local oscillator frequency)
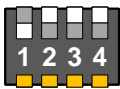
Device Error

LED state
Red

OFF
ON
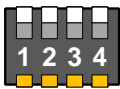
Switch 1 – OFF
Switch 2 – OFF
LO 4100 MHz
IF 900 ... 200 MHz

OFF
ON

Switch 1 – OFF
Switch 2 – ON
LO 2900 MHz
IF 300 ... 1000 MHz

OFF
ON

Switch 1 – ON
Switch 2 – OFF
LO 3100 MHz
IF 100 ... 800 MHz

OFF
ON
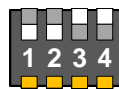
Switch 1 – ON
Switch 2 – ON
LO 3000 MHz
IF 200 ... 900 MHz
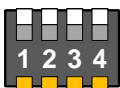
OFF
ON

Switch 3 – OFF

Low Gain
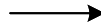
→ **LED state**

Green
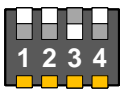
OFF
ON

Switch 3 – ON

High Gain

→ **LED state**

Blue
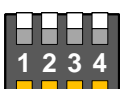
OFF
ON

Switch 4 – OFF

Local oscillator configuration with Switch 1 + 2
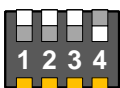
OFF
ON

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 2900 ... 3100 MHz and from 4000 ... 4200 MHz.
The frequency step size of the oscillator frequency is 5 MHz.
The user defined oscillator frequency can be programmed with a special programming cable (see next page).

For example the oscillator frequency can be choosen to 3055 MHz .

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Optional Connector PCB

USB – serial interface cable   connector PCB   spring contacts
FTDI TTL-232R-3V3   Kuhne electronic GmbH
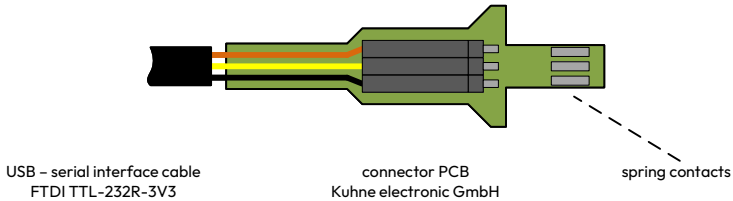
Configure the user defined local oscillator frequency

- 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 3239 C PRO

PLL locked
GAIN high
Selected LO frequency: 4100 MHz
User defined LO frequency: 4100 MHz
User defined LO frequency enabled
```

- send „3055LO" with the terminal program to the converter to get set the user defined oscillator frequency to 3055 MHz

```
New LO frequency 3055 MHz accepted
```

- power down the down converter

- remove the connector PCB

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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 ≥ 1 mm).

– Protection against falling spray up to 60° 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.
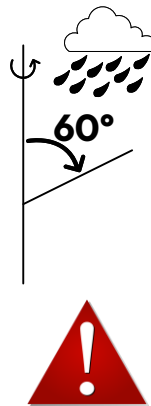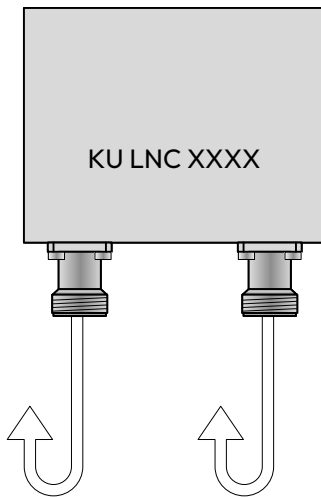
Mounting with the RF connectors vertically downwards

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.
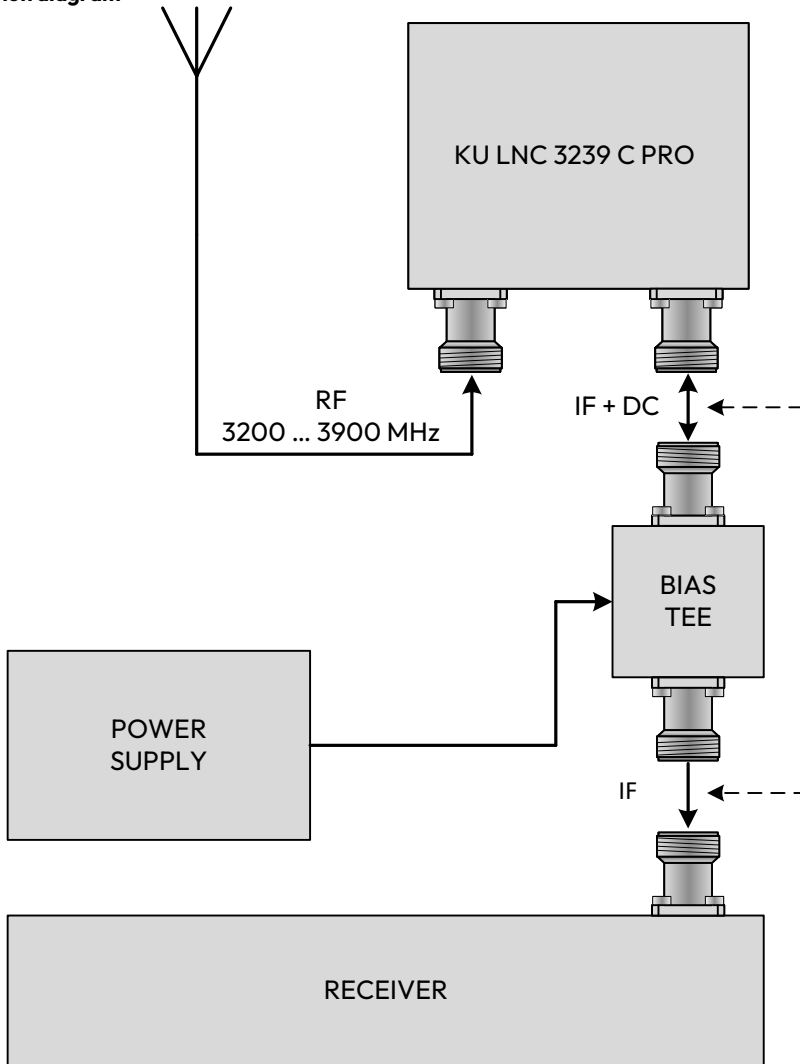
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Application diagram

KU LNC 3239 C PRO

RF
3200 ... 3900 MHz

IF + DC

BIAS
TEE

POWER
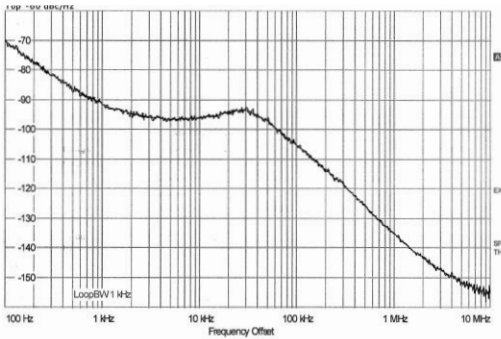SUPPLY

IF

RECEIVER

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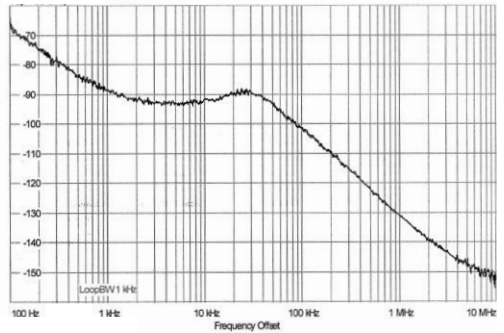THE RF TECHNOLOGY GROUP

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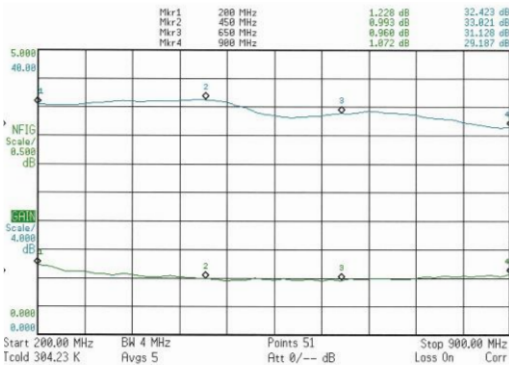Scheibenacker 3, 95180 Berg, Germany

Typical performance

Typical phase noise at 3000 MHz local oscillator frequency
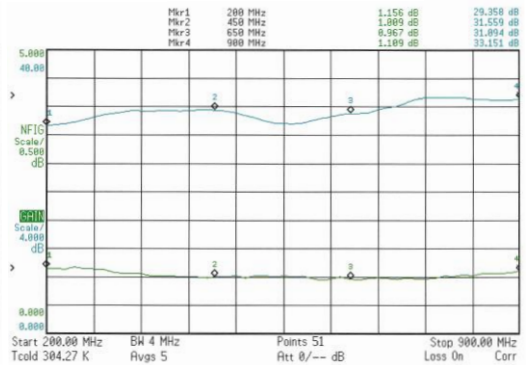
Typical phase noise at 4100 MHz local oscillator frequency

Typical gain and noise figure (3000 MHz LO frequency, IF amplifier on)

Typical gain and noise figure (4100 MHz LO frequency, IF amplifier on)