# ALARIS
## KUHNE
■ INSPIRING THE NEXT RF SOLUTION

**Version 1.0**

# KU LNC 5055 C PRO



# Manual

A DIVISION OF | ALARIS
THE RF TECHNOLOGY GROUP

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www.kuhne.alaris.tech
Scheibenacker 3, 95180 Berg, Germany

## Specifications (Ta = 25 °C):

| Type | KU LNC 5055 C PRO |
|---|---|
| Frequency range (RF) | 5000 ... 5500 MHz |
| Noise figure @ 18 °C | typ. 1.7 dB, max. 2.0 dB (LO frequency 4700 MHz, IF amplifier enabled) |
| Gain (switchable) | typ. 30 dB (high gain), typ. 19 dB (low gain) (LO frequency 4700 MHz) |
| Output IP3 | typ. +23 dBm (high gain), typ. +12 dBm (low gain) |

**Switchable LO, IF frequencies**

| | |
|---|---|
| Output frequency (LO 4700, 5800 MHz) | 300 ... 800 MHz |
| Output frequency (LO 4800 MHz) | 200 ... 700 MHz |
| Output frequency (LO 4600 MHz) | 400 ... 900 MHz |
| LO accuracy @ 18 °C | +/- 2 ppm |
| LO frequency stability (0 ... 40 °C) | +/- 3 ppm |

**Phase noise @ 2040 MHz**

| | |
|---|---|
| @ 1 kHz | typ. -90 dBc/Hz |
| @ 10 kHz | typ. -101 dBc/Hz |
| @ 100 kHz | typ. -100 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
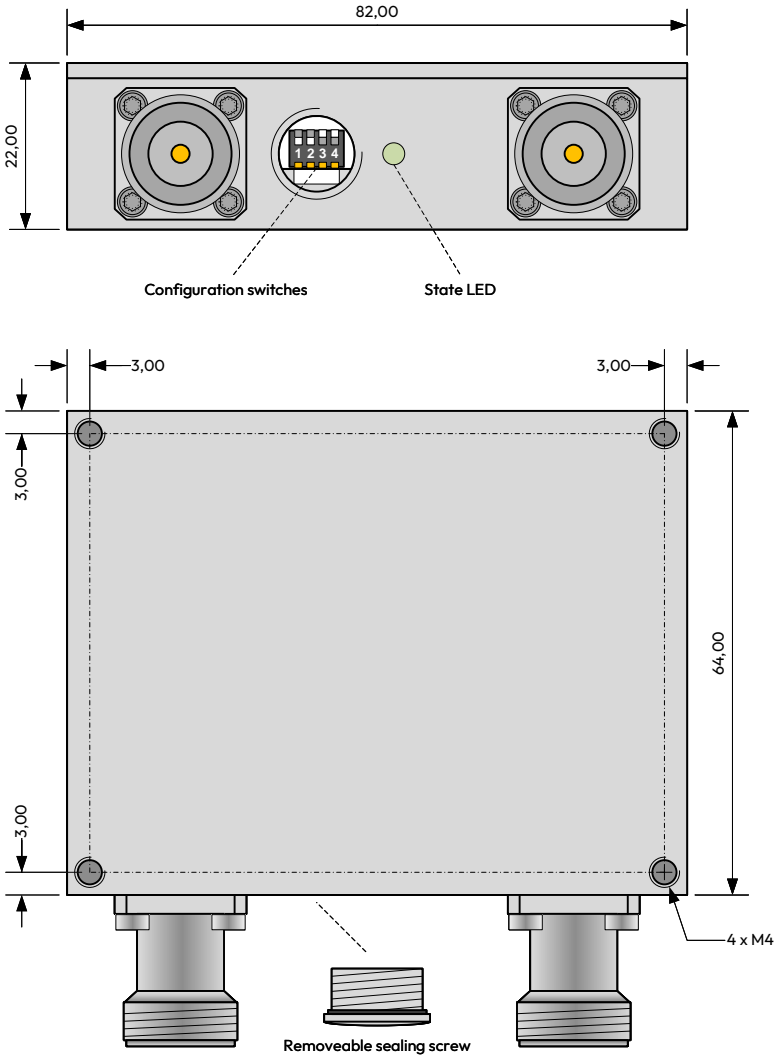RoHS directive 2011/65/EU

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

Directors: Ian Duke/Gustav Wenhold
Reg no: HRB 3350 Hof, VAT-ID-No: DE 813343044, WEEEReg.-Nr. DE34186665

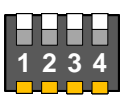Kuhne electronic GmbH
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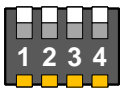## Configuration Switches / LED state

**OFF** / **ON**

**Switch 1 + 2** - (Local oscillator frequency)

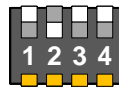**Switch 3** - (Gain)

**Switch 4** - (User local oscillator frequency)
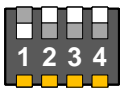
**Device Error**

**LED state**
Red

---

**OFF** / **ON**

**Switch 1 – OFF**
**Switch 2 – OFF**
LO 5800 MHz
IF 800 ... 300 MHz

**OFF** / **ON**

**Switch 1 – OFF**
**Switch 2 – ON**
LO 4600 MHz
IF 400 ... 900 MHz

**OFF** / **ON**

**Switch 1 – ON**
**Switch 2 – OFF**
LO 4800 MHz
IF 200 ... 700 MHz
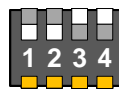
**OFF** / **ON**

**Switch 1 – ON**
**Switch 2 – ON**
LO 4700 MHz
IF 300 ... 800 MHz

---

**OFF** / **ON**

**Switch 3 – OFF**

Low Gain

→ **LED state**

Green
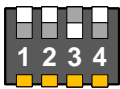
**OFF** / **ON**

**Switch 3 – ON**
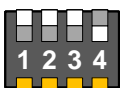
High Gain

→ **LED state**

Blue

---
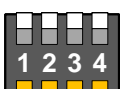
**OFF** / **ON**

**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 4600 ... 4800 MHz and from 5700 ... 5900 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 4740 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 5055 C PRO

PLL locked
GAIN high
Selected LO frequency: 5800 MHz
User defined LO frequency: 5800 MHz
User defined LO frequency enabled
```

- send „4740LO" with the terminal program to the converter to get set the user defined oscillator frequency to 4740 MHz

```
New LO frequency 4740 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.
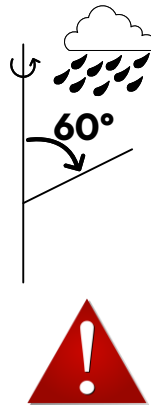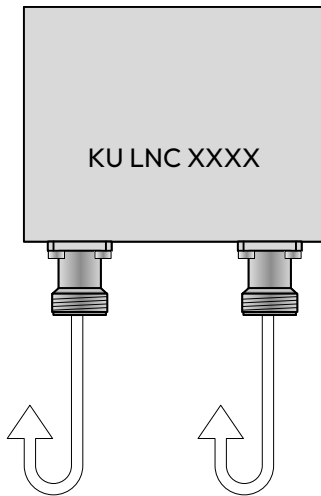


**Mounting with the RF connectors vertically downwards**

**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.
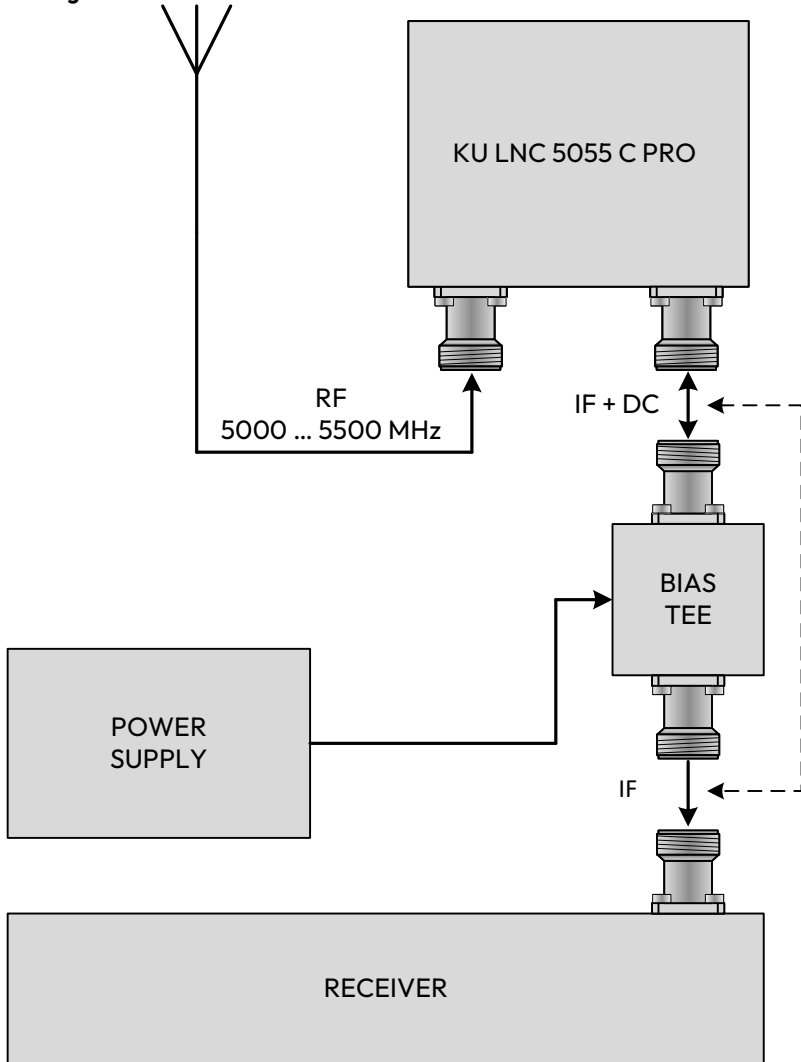
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**Application diagram**

KU LNC 5055 C PRO

RF
5000 ... 5500 MHz
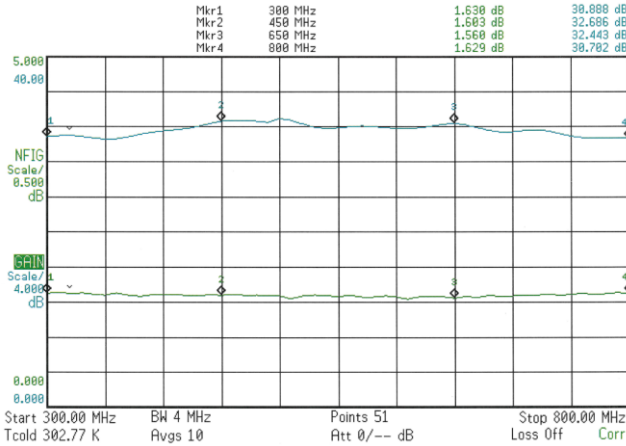
IF + DC

BIAS
TEE

POWER
SUPPLY

IF

RECEIVER

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## Typical performance

Typical gain and noise figure (4700 MHz LO frequency, IF amplifier on)

| | | | | |
|---|---|---|---|---|
| Mkr1 | 300 MHz | 1.630 dB | 30.888 dB |
| Mkr2 | 450 MHz | 1.603 dB | 32.686 dB |
| Mkr3 | 650 MHz | 1.560 dB | 32.443 dB |
| Mkr4 | 800 MHz | 1.629 dB | 30.702 dB |

5.000
40.00

NFIG
Scale/
0.500
dB

GAIN
Scale/
4.000
dB

0.000
0.000

Start 300.00 MHz    BW 4 MHz        Points 51        Stop 800.00 MHz
Tcold 302.77 K      Avgs 10         Att 0/-- dB      Loss Off        Corr

Typical gain and noise figure (5800 MHz LO frequency, IF amplifier on)

| | | | | |
|---|---|---|---|---|
| Mkr1 | 300 MHz | 1.675 dB | 30.618 dB |
| Mkr2 | 450 MHz | 1.642 dB | 31.345 dB |
| Mkr3 | 650 MHz | 1.608 dB | 30.194 dB |
| Mkr4 | 800 MHz | 1.603 dB | 30.896 dB |

5.000
40.00

NFIG
Scale/
0.500
dB

GAIN
Scale/
4.000
dB

0.000
0.000

Start 300.00 MHz    BW 4 MHz        Points 51        Stop 800.00 MHz
Tcold 302.71 K      Avgs 10         Att 0/-- dB      Loss Off        Corr

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