

Fan 60 x 60, 12 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.47 A
Airflow	63 m3/h
Noise	44 dBA
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

Fan 60 x 60, 24 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.24 A
Airflow	46,8 m3/h
Noise	39 dBA
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

Fan 80 x 80, 12 V

including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.2 A
Airflow	70 m3/h
Noise	35 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 80 x 80, 24V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.2 A
Airflow	90 m3/h
Noise	40 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 80 x 80, 12 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.35 A
Airflow	90 m3/h
Noise	40 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 80 x 80, 24 V

including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.07 A
Airflow	70 m3/h
Noise	33 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 120 x 120, 24 V

including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.4 A
Airflow	234.4 m3/h
Noise	48 dBA
Bearing System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

**Fan 120 x 120, 12 V HP - high power fan
including fan grill**



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 1.6 A
Airflow	323 m3/h
Noise	54 dBA
Bearing System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

Fan 120 x 120, 12V

includig fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	0.8 A
Airflow	234.4 m3/h
Noise	48 dBA
Beraring System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

Fan 60 x 60, 12 V

including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.15 A
Airflow	40 m3/h
Noise	34.5
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

MKU 23 G4, 13 cm Transverter

NEW - NEW - NEW

Multiband 13cm Transverter

2,3 GHz Transverter for EME

Uplink for the geostationary satellite Es'HailSat-2



Multiband

Description

Find a detailed description under downloads.

Features

- Input for an external 10 MHz reference source
- Internal stabilized oscillator (can be used instead of 10 MHz reference frequency)
- Four switchable frequency bands in the 13 cm band
- RX and TX frequency range independent configurable
- Big attenuator at the IF input for input power up to 5 watts
- Fuses are self-resettable (polyfuses)
- Super low noise converter in the receive path
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- Adjustable sequencer delay
- PTT can be switched by a voltage on the IF connector or by connecting the PTT pin to ground
- Detector output (DC voltage) for monitoring the output power

Applications

- EME
- Uplink for the geostationary satellite Es'Hail-2
- RX-TX switching of DB6NT transverters

Accessories

Included accessories:

Female header	1 piece	2x 13 mm
	1 piece	2x 4 mm

As a 10 MHz frequency source we recommend the 10 MHz GPS-Frequency Standard by ID Elektronik, DK2DB
 - 10 MHz GPS-Frequency Standard (ID Elektronik, DK2DB)

Technical specifications:

RF range	2320 ... 2322 MHz
-	2304 ... 2306 MHz
-	2300 ... 2302 MHz
-	2400 ... 2402 MHz
IF range	144 ... 146 MHz
-	146 ... 148 MHz
IF input power	0.5 ... 5 W, adjustable
LO accuracy @ 18 °C	typ. +/- 2 ppm, max. +/- 3 ppm (without ext. ref.)

LO frequency stability (0 ... +40 °C)	typ. +/- 2 ppm, max. +/- 3 ppm (without ext. Ref.)
Output power	typ. 1 W
RX gain	typ. 20 dB
Noise figure @ 18 °C	typ. 1.5 dB
External reference input	10 MHz / 2 ... 10 mW (sine or square wave)
Reference input connector	SMA-female, 50 ohms
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 1 A (TX)
Case	milled aluminium
Dimensions (mm)	100 x 60 x 13
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms
Weight	140 g (typ.)

MKU 47 G2, Transverter

47088 ... 47090 MHz



Transverter

Description

The integration of former external components, like e.g. image rejection filter, low noise amplifier as well as the switching of receiving and transmitting path enables the installation of a 47 GHz station with just a small number of components. Only an oscillator module with 11736 MHz and a waveguide switch are necessary. The design of the LO input allows the use of existing oscillators. The waveguide connectors are designed to work with PROCOM and UG383/U flanges. For the control of an external waveguide switch, there is a 12V output on the transverter that is only powered during the transmission phase.

A bigger attenuator at the IF input port allows an input power of up to 5 watts. Self-resettable polyfuses prevent damages of the transverter module, especially if it is used in a portable station. The small mechanical dimensions of the transverter, which is designed in SMD technology, allow the installation of a small portable station as well as a powerful home station.

Of course, the transverter can be extended by for example a low noise amplifier or a power amplifier module.

Features

New features of the transverter MKU 47 G2

- IF input power up to 5 W
- Built in 47 GHz amplifier for receive and transmit
- With the usage of image-rejection up-/down-converters, an external image rejection filter is not required necessarily
- Fuses are self-resettable (polyfuses)

Well-tried functions and features - based on MKU 24 G2

- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- PTT can be switched by voltage on the IF connector or by connecting the PTT pin to ground

Accessories

<http://www.i3opw.it/rele47GHz/Rele47.html>

Technical specifications:

RF range	47088 ... 47090 MHz
IF range	144 ... 146 MHz
IF input power	1 ... 5 W, adjustable
ext. LO frequency	11736 MHz
ext. LO input power	typ. 10 mW, max. 30 mW
Output power	min. 30 mW
RX gain	min. 19 dB, adjustable
Noise figure @ 18 °C	typ. 6.0 dB, max. 7.0 dB

Image rejection	typ. 17 dB
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 200 mA (RX) / typ. 400 mA (TX)
Case	milled aluminium
Dimensions (mm)	127 x 74.5 x 18
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	R500 / WG24 / WR19
LO connector / impedance	SMA-female, 50 ohms
Weight	290 g (typ.)
Frequency step size	

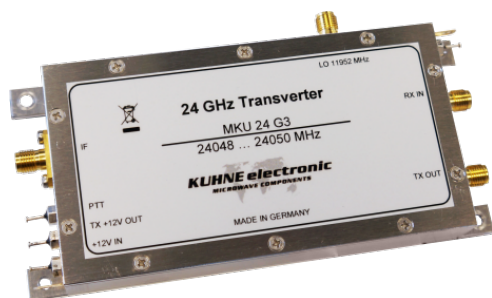
MKU 24 G3, Transverter

NEW - NEW - NEW - NEW

24048 ... 24050 MHz

The new design of our transverter for 24 GHz features better performance and many new functions.

Built-in 2 W Power Amplifier



Features

New features of the transverter MKU 24 G3

- Built-in 2 W Power Amplifier
- Usage of an image rejection mixers for better image rejection

Well-tries functions and features - based on MKU 24 G2

- Fuses are self-resettable (polyfuses)
- IF input power up to 5 W
- Built-in image rejection filter
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- PTT can be switched by voltage on the IF connector or by connecting the PTT pin to ground

Technical specifications:

RF range	24048 ... 24050 MHz
IF range	144 ... 146 MHz
IF input power	0.5 ... 5 W, adjustable
ext. LO frequency	11952 MHz
ext. LO input power	10 ... 30 mW
Output power	typ. 2 W, min. 1.5 W
Spurious rejection	typ. 30 dB
RX gain	typ. 25 dB, adjustable
Noise figure @ 18 °C	typ. 3.5 dB, max. 4 dB
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 120 mA (RX) / max. 2 A (TX)
Case	aluminium
Dimensions (mm)	130 x 59 x 18
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms
Weight	220 g (typ.)

MKU 24 G3 USA, Transverter

NEW - NEW - NEW - NEW

24192 ... 24194 MHz

The new design of our transverter for 24 GHz features better performance and many new functions.

Built-in 2 W Power Amplifier



Features

New features of the transverter MKU 24 G3

- Built-in 2 W Power Amplifier
- Usage of an image rejection mixers for better image rejection

Well-tries functions and features - based on MKU 24 G2

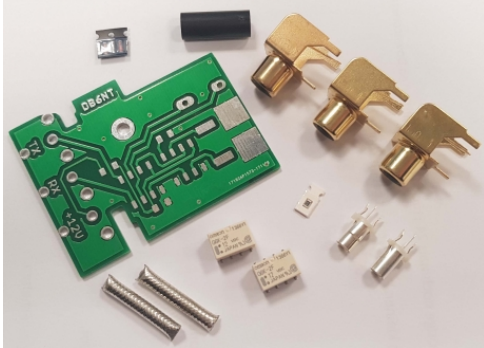
- Fuses are self-resettable (polyfuses)
- IF input power up to 5 W
- Built-in image rejection filter
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- PTT can be switched by voltage on the IF connector or by connecting the PTT pin to ground

Technical specifications:

RF range	24192 ... 24194 MHz
IF range	144 ... 146 MHz
IF input power	0.5 ... 5 W, adjustable
ext. LO frequency	12024 MHz
ext. LO input power	10 ... 30 mW
Output power	typ. 2 W, min. 1.5 W
Spurious rejection	typ. 30 dB
RX gain	typ. 25 dB, adjustable
Noise figure @ 18 °C	typ. 3.5 dB, max. 4 dB
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 120 mA (RX) / max. 2 A (TX)
Case	aluminium
Dimensions (mm)	130 x 59 x 18
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms
Weight	220 g (typ.)

Transverterinterface for IC7300 KIT

Transverter Interface for the IC7300 SDR Transceiver



Description

Since the transceiver IC7300 has no transverter output, a small PCB has been developed to allow the connection of a transverter.

The circuit described here is intended for installation in the transceiver. In this case, the connector strip on the rear wall, which is intended for the connection of an external tuner, is banned in the interior and the interface circuit board is installed in its place. The circuit separates the RF connection in the transceiver between the RF PCB and the PA PCB in transverter mode and allows the connection of a transverter. The transverter module is activated by feeding in + 12V via the TRX-IN input. Now the transmit signal (about 0.3 mW) on the TX-OUT socket and the receiver input on the RX-IN socket are available. The built-in shortwave PA of the transceiver is terminated with 47 OHM in the input. A further deactivation of the PA is not provided, since otherwise interventions in the transceiver are necessary, which exclude a possible warranty service of the manufacturer.

The printed circuit board is made of 1.5 mm thick epoxy material and is simply installed in the position shown in the photo. On the bottomside of the board two short pieces of 35 ohm 3.6 mm semi-rigid cables are soldered, which have the correct dimensions to fit into the sockets of the RF-UNIT of the transceiver. These short lengths of cable should be adjusted in length and orientation to the sockets. The center conductors should be sharpened with the file. This facilitates the insertion into the sockets on the circuit board.

The construction, as well as the installation of the PCB should be done with a practiced and careful hand!

Please note: The installation is at your own risk.

Part list

- 1 PCB
- 2 Relais G5K-2F-12V
- 2 Diode LL4148
- 1 resistor 47 Ohm 1206
- 3 female connector Cinch RCA
- 1 distance sleeve
- 2 female connector TMP-V
- 2 cable SM141-35 Ohm

MKU 57 G4, 6 cm Transverter

5760 ... 5762 MHz



Transverter

Description

The MKU 57 G4 is our new 6cm transverters evolution step. It features the standard IF frequencies 144 / 146 MHz and 432 / 434 MHz in one module. The IF frequency can be setup up by the customer with jumpers. The high-quality VCTCXO oscillator guarantees an excellent frequency stability without external reference frequency. For even higher stability requirements the external 10 MHz reference frequency input can be used.

Find a detailed description under downloads.

Features

- User selectable IF (2m / 70 cm)
- Local-Oscillator with high frequency stability VCTCXO
- Additional input for 10 MHz reference frequency
- Big attenuator at the IF input for input power up to 5 watts
- Fuses are self-resettable (polyfuses)
- Super low noise converter in the receive path
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- PTT can be switched by voltage on the IF connector or by connecting the PTT pin to ground
- Detector output (DC voltage) for monitoring the output power

Accessories

- As a 10 MHz frequency source we recommend the 10 MHz GPS-Frequency Standard by ID Elektronik, DK2DB
- 10 MHz GPS-Frequency Standard (ID Elektronik, DK2DB)

Technical specifications:

RF range	5760 ... 5762 MHz
IF range	144 ... 146 MHz
-	146 ... 148 MHz
-	432 ... 434 MHz
-	434 ... 436 MHz
IF input power	0.5 ... 5 W, adjustable
LO accuracy @ 18 °C	typ. +/- 0.5 ppm (without ext. ref.)
LO frequency stability (-5 ... +55 °C)	typ. +/- 0.5 ppm (without ext. ref.)
Phase noise @ 1 kHz	typ. -98 dBc/Hz
Phase noise @ 10 kHz	typ. -105 dBc/Hz
Phase noise @ 100 kHz	typ. -100 dBc/Hz
Phase noise @ 1 MHz	typ. -125 dBc/Hz
Output power	typ. 250 mW
Spurious rejection	min. 40 dB, typ. 50 dB
Harmonic rejection	typ. 50 dB
RX gain	min. 20 dB
Noise figure @ 18 °C	typ. 1.0 dB, max. 1.2 dB
External reference input	10 MHz / 2 ... 10 mW (sine or square wave)

Reference input connector	SMA-female, 50 ohms
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 0.8 A (TX)
Case	milled aluminium
Dimensions (mm)	155 x 63 x 36
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms
Weight	370 g (typ.)

MKU 13 G4, 23 cm Transverter

1,3 GHz Transverter

Adjustable IF



Features

- Input for an external 10 MHz reference source
- Internal stabilized oscillator (can be used instead of 10 MHz reference frequency)
- Switchable IF frequency (144 ... 146 MHz, 50 ... 52 MHz, 28 ... 30 MHz)
- Very high spurious and harmonic rejection even at 28 MHz IF
- IF range for RX and TX independent configurable
- Big attenuator at the IF input for input power up to 5 watts
- Fuses are self-resettable (polyfuses)
- Super low noise converter in the receive path
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- Adjustable sequencer delay
- PTT can be switched by a voltage on the IF connector or by connecting the PTT pin to ground
- Detector output (DC voltage) for monitoring the output power
- Low power IF mode

Anwendungen

- EME
- RX-TX switching of DB6NT transverters

Accessories

Included accessories:

Female header	1 piece	2x 13 mm
	1 piece	2x 4 mm

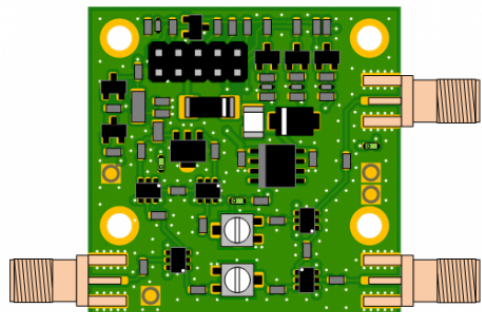
As a 10 MHz frequency source we recommend the 10 MHz GPS-Frequency Standard by ID Elektronik, DK2DB
- 10 MHz GPS-Frequency Standard (ID Elektronik, DK2DB)

Technical specifications:

RF range	1296 ... 1298 MHz
IF range	144 ... 146 MHz
-	50 ... 52 MHz
-	28 ... 30 MHz
IF input power	0.5 ... 5 W, adjustable
LO accuracy @ 18 °C	typ. +/- 1.5 ppm (without ext. ref.)
LO frequency stability (0 ... +40 °C)	typ. +/- 0.5 ppm (without ext. ref.)
Output power	min. 1 W
RX gain	typ. 20 dB
Noise figure @ 18 °C	typ. 0.6 dB
External reference input	10 MHz / 2 ... 10 mW (sine or square wave)
Reference input connector	SMA-female, 50 ohms
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)

Current consumption	typ. 1 A (TX)
Case	milled aluminium
Dimensions (mm)	100 x 60 x 13
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms
Weight	140 g (typ.)

MKU SW IF



Description

Use the PCB MKU SW IF to add a low power interface to you transverter module. The PCB was designed to work for example with the MKU 13G4 or MKU 23G4. Together with the LOW POWER IF mode of the transverter modules it can be used with transceivers with low drive level of a few mW or less.

Features

- useable with transceivers with one common transverter connector
- useable with transceivers with two separate transverter connectors
- TX IF amplifier for drivel levels below 1 mW
- adjustable RX gain
- adjustable TX gain

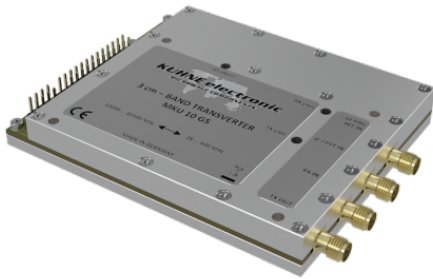
Technical specifications:

RF - range	10 ... 500 MHz
Insertion loss	typ. 2 dB
PTT - Connector	Pinheader
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Connector supply voltage	Pinheader
Current consumption	10 mA (RX) / 100 mA (TX)
Dimensions (mm)	40 x 40 (with connectors)
IF connectors / impedance	SMA-female, 50 Ohms

MKU 10 G5, 3 cm Transverter

NEW - NEW - NEW

- Covering full 3 cm amateur radio band from 10000 MHz to 10500 MHz
- Flexible IF choice from 28 MHz to 440 MHz
- Very high spurious and harmonic rejection even at 28 MHz IF
- Low power IF mode
- Easy configuration of the transverter with our Kuhne Suite (works with Firmware V1.1)



Description

Find a detailed description under downloads.

Features

- Covering full 3 cm amateur radio band from 10000 MHz to 10500 MHz
- Flexible IF choice from 28 MHz to 440 MHz
- Very high spurious and harmonic rejection even at 28 MHz IF
- Low power IF mode
- Input for an external 10 MHz reference source
- Local-Oscillator with high frequency stability VCTCXO
- IF range for RX and TX independent configurable
- Big attenuator at the IF input for input power up to 5 watts
- Fuses are self-resettable (polyfuses)
- Low noise converter in the receive path
- Transmit gain and receive gain separately adjustable
- Control output for additional amplifier stages or a coaxial relay
- Adjustable sequencer delay
- PTT can be switched by a voltage on the IF connector or by connecting the PTT pin to ground
- Detector output (DC voltage) for monitoring the output power

Anwendungen

Applikation MKU 10 G5 - MKU PA 3CM-2W A
Applikation MKU 10 G5 - MKU PA 3CM-4W A
Applikation MKU 10 G5 - MKU PA 3CM-8W A
Applikation MKU 10 G5 - MKU PA 3CM-30W A
Applikation MKU 10 G5 - MKU PA 3CM-60W B

Technical specifications:

RF range	10000 ... 10500 MHz
IF range	28 ... 440 MHz
IF input power	0.5 ... 5 W, adjustable
LO accuracy @ 18 °C	typ. +/- 0.5 ppm (without ext. ref.)
LO frequency stability (-5 ... +55 °C)	typ. +/- 0.5 ppm (without ext. ref.)
Phase noise @ 1 kHz	typ. -94 dBc/Hz
Phase noise @ 10 kHz	typ. -103 dBc/Hz
Phase noise @ 100 kHz	typ. -105 dBc/Hz
Phase noise @ 1 MHz	typ. -123 dBc/Hz
Output power	min. 200 mW
Spurious rejection	typ. 50 dB
Harmonic rejection	typ. 48 dB

RX gain	typ. 25 dB
Noise figure @ 18 °C	typ. 1.3 dB
External reference input	10 MHz / 2 ... 10 mW (sine or square wave)
Reference input connector	SMA-female, 50 ohms
PTT control	contact closure to ground or +12 V on the IF-cable
Supply voltage	+13.8 V DC (+12 ... 14 V DC)
Current consumption	typ. 580 mA
Case	milled aluminium
Dimensions (mm)	100 x 80 x 14
IF connectors / impedance	SMA-female, 50 Ohms
RF connectors / impedance	SMA-female, 50 ohms (separate RX/TX connectors)
Weight	370 g (typ.)

KU EDPU - 5.0 External Display Unit

Versatile in use Intuitive to use Plug & Play

Display suitable for

- MKU LO 8-13 PLL
- MKU LO 8-13 PLL-2
- MKU 76 G2 (together with MKU LO 8-13 PLL)
- MKU 10 G5
- MKU UP 2424 B

The 5-inch display unit from Kuhne electronic GmbH was developed to offer excellent picture quality and state-of-the-art functions in a robust housing. It is supported by many of our products.

Included supply

- Mini-DIN connection cable (1 meter)
- DC connection cable (2 meters)



Description

The 5-inch display unit from Kuhne electronic GmbH was developed to offer excellent picture quality and state-of-the-art functions in a robust housing. The display supports many of our products and thus makes configuration/operation easier. Connecting the products is quick and easy thanks to the fixed plug-in system. We offer appropriate adapters as accessories for connecting the products.

Features

- Easy handling
- Automatic device detection
- Updatable
- Mounting holes on the back

Technical specifications:

Screen Size (inch)	5 inch
Screen Resolution	800 x 400 pixel
Screen Type	IPS-touchscreen (capacitive)
Power Supply	10 ... 14 V
power consumption	150 mA
Operating Temperatur	-20 ... +70 °C
Dimension (mm)	165 x 95 x 23 mm
Weight	408 g

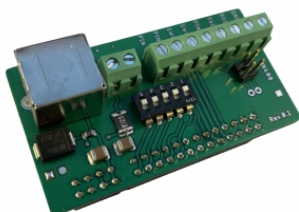
KU UIB-A - User Interface Board A

The adapter board facilitates the configuration of our products. It can be plugged directly onto the terminal strip.

Easy access to connections Display extension available Plug & Play

Display suitable for

- MKU LO 8-13 PLL
- MKU LO 8-13 PLL-2
- MKU 76 G2 (together with MKU LO 8-13 PLL)
- MKU 10 G5
- MKU UP 2424 B
- MKU 23 G4
- MKU 13 G4



Description

The adapter board facilitates the configuration of our products. It can be plugged directly onto the terminal strip. And makes it possible to connect a display unit (KUEDPU5.0) for selected products, so configuration without a PC is possible.

Technical specifications:

Power Supply	10 ... 14 V
Dimension (mm)	62 x 34 x 25 mm
Weight	18 g