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v1.0.0

KU DIV 2.45-N-716

2.4 – 2.5 GHz ISM-Band

Microwave Power Combiner



Manual

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Specification

Type	KU DIV 2.45-N-716
The specification only refers to the use of two KU SG 2.45 - 450 A Microwave Power Generators	
Output frequency range	2400 ... 2500 MHz
Frequency steps	1 MHz
Frequency stability	+/- 3 ppm
Output power	0 ... 850 W at 50 Ohms min. 800 W
Power steps	2 W
Power accuracy	+/- 0.4 dB max.
Signal waveform	Continuous wave
Temperature range	-20 °C ... 60 °C
Features	Combining two KU SG 2.45 - 450A Microwave power generators (master-slave with phase control)
Supply voltage	10 ... 36 V
Current Consumption	max. 100 mA
Case	Milled aluminium
Input connector (RF)	2x N-male, 50 Ohms
Output connector (RF)	7/16 female, 50 Ohms
Control input	Serial Interface, 3.3 V UART interface external I2C bus extensions
Dimensions (w x d x h)	110 mm x 110 mm x 44 mm
Weight	typ. 1150 g

Features:

- Reverse polarity protection
- Milled aluminium
- Over- / Undervoltage warning and protection
- ON/OFF - Control over interface
- Over temperature protection

Applications:

- Warming or heating through microwaves
- Plasma generation
- Disinfection and sanitization
- Sintering and production of nanostructures

Accessories:

- KU SG 2.45 - 450 A for Combining
- Recommended power supply:
RACM120036SAVENC
- Recommended heat sink:
SK 200 - 160
WK 18-07 Liquid cold plate

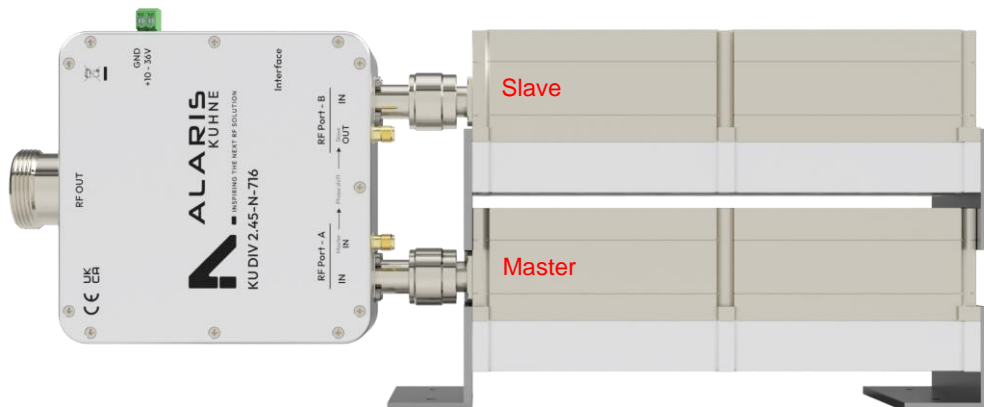
CE Konformität / CE Conformity

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



Connection

Example of the setup with two 450 W generators to combine



The generators are configured and labeled as master and slave before delivery. The master and slave must then be connected to the combiner with SMA cables according to the labeling on the combiner. In addition, for communication, the combiner must be connected to the two generators for the interface connector (I2C bus)

Peripherals

DC PORT

The DC connector is delivered with a 2-pin plug in terminal for 0.129 to 1.31 (mm²)

CONTROL PORT



The 8 pin connector is delivered with a empty coupling housing and 8 pin crimp contacts.

- (1) – UART RX (TTL 3.3V)
- (2) – SCL (internal)
- (3) – SCL (external)
- (4) – GND
- (5) – UART TX (TTL 3.3V)
- (6) – SDA (internal)
- (7) – SDA (external)
- (8) – GND



LED

The LED indicates different operating conditions, warnings and alarms.

-  Normal operation
-  Error state This LED lights up for various errors, you can use the INFO command to query it.

Peripherals description

UART Port

for communication with the combiner

I2C Internal

don't use looks for debugging

I2C External

for communication to the Microwave Power Generators

GND

Reference ground connection

Serial Interface

General Description

Our microwave generators have a serial interface for external control. It has the following specification:

- 3.3V logic levels
- 115200 BAUD data rate
- 8 data bits, 1 stop bit
- No parity, no flow control

The following commands refer to the generator software version 1.4.x and higher.

Programmer's reference

All commands must be followed by a „carriage return“ (0x0D).

If the sent command is unknown, the module returns „*r“.

(Legend: %x: decimals; %x.xf: float values; %xs: letters; A: Acknowledge for valid command; N: Not acknowledge for invalid command or parameter; all answers are terminated with a Carriage Return)

Commands

Command	Function	Return Value
INFO	error messages	
V?	query software version	
SN?	query serial number	%5d
SNM?	query serial number from master generator	%5d
SNS?	query serial number from slave generator	%5d
M0	internal detector adc value (uncalibrated, interference possible)	%5d
M2	forward power master	%5d%1s
M3	reverse power master	%5d%1s
M4	forward power slave	%5d%1s
M5	reverse power slave	%5d%1s
T0	internal temperature	%2.2f
T1	master maximum temperature	%2.2f
T2	slave maximum temperature	%2.2f
O	microwave generators ON	A or N
o	microwave generators OFF	A or N
A	set output power in watts	A or N
A?	query output power in watts	%4d
f	set frequency in kHz	A or N
f?	query frequency in kHz	%7d
p	set phase in degree (for debug only)	A or N
p?	query phase in degree (for debug only)	%3d
BL	Start bootloader for firmware Update	

Notes

