becker nachrichtentechnik

iAMP300600043-R / -VR

20 W High Power Scalar / Vector Amplifier and Signal Generator
300 … 6000 MHz

Features

- Compact 19”, 2 U design
- Rugged design
- Internal CW signal source
- Optional pulse modulator
- Optional vector signal generator
- High accuracy and stable RF power
- AC mains supply

Applications

- Antenna testing
- EMC immunity testing
- R&D
- Medium power wideband amplifiers

similar appearance

At a Glance

The iAMP300600043-R is a compact solid-state power amplifier with an integrated CW RF source and an optional pulse modulator. An RF input also allows the power amplification of externally generated RF signals. The amplifier can be used over a very wide bandwidth.

The user can select between a fixed gain and an automatic-level (ALC) controlled mode. In ALC mode, iAMP300600043-R directly and accurately provides the desired output power level with virtually no drift over time.

Forward and Reverse Power Measurement

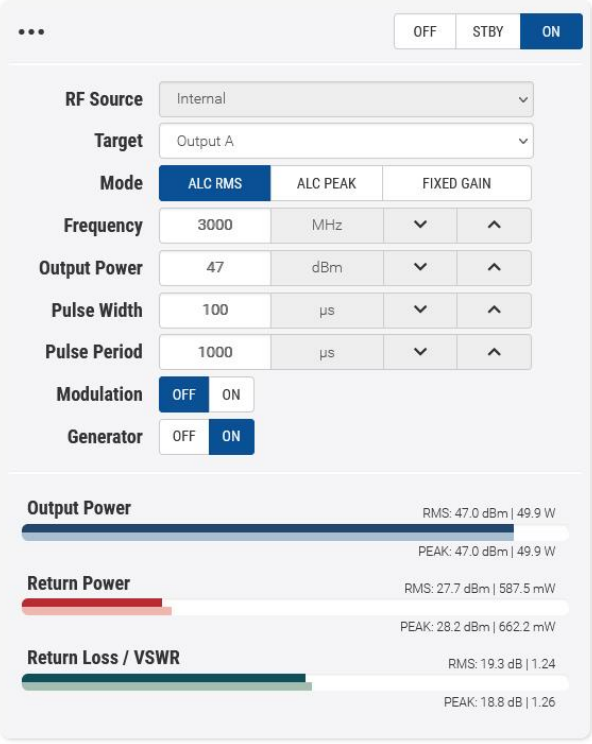
Forward and reverse power is continuously monitored at the output. This allows the operator to monitor the return loss or voltage standing wave ratio (VSWR) of the object being fed. Reflected power measurement serves also to protect the amplifier from excessive mismatch, which leads to automatic switch-off.

Rugged Design

The amplifier device comes with a high-quality aluminum housing that protects the hardware from mechanical damage and avoids EMI influences caused by radio signals coming from the environment. The RF connectors on the unit rear side are N female type.

Graphical User Interface (GUI)

The iAMP300600043-R can be remotely controlled via LAN or USB. An intuitive graphical user interface is accessible via standard internet browser and allows easy control and configuration of the device. Furthermore, remote control via SCPI-oriented ASCII string commands is possible, allowing the integration into automated processes.



similar appearance

Health Monitoring

iAMP300600043-R has an internal health status monitoring. The module temperatures and supply currents are monitored. The health status can be read out via the LAN and USB remote interfaces. In case of critical device states, error signaling is possible via an SNMPv2 trap, while the faulty status is also reflected in the color of the status LED.

The integrated thermal management keeps the noise from cooling fans automatically to minimum level. It also reduces primary power consumption depending on amplifier state.

The unit is factory calibrated, traceable to recognized standards.

iAMP300600040-VR: Variant for Vector Signal Processing

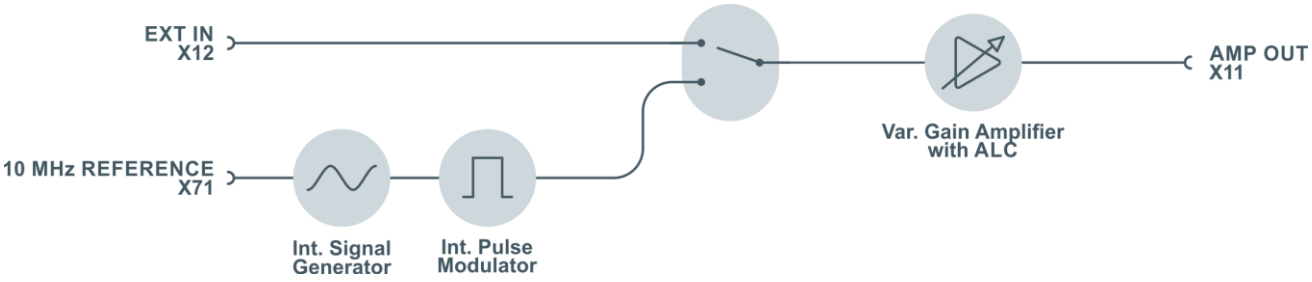
VAR1: Vector Signal Generator

In the iAMP300600040-VR variant, the device integrates a software defined baseband generator and an I/Q modulator to generate high-power multi-standard vector signals for wireless, cellular, automotive and broadcast applications.

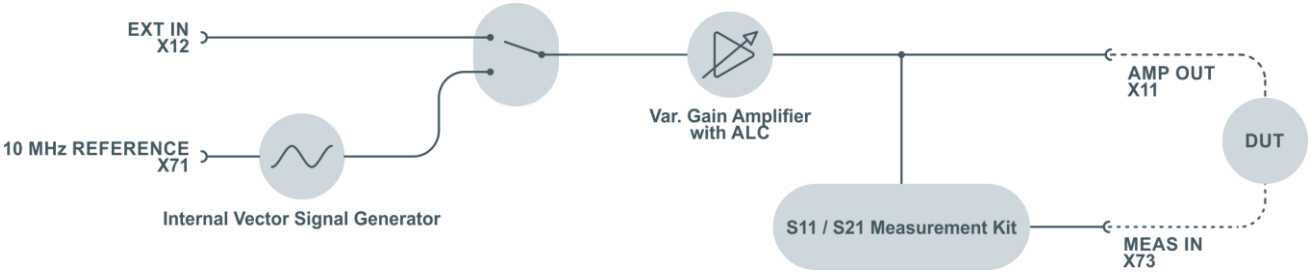
VAR2: S-Parameter Measurement Set

The S-Parameter measurement set offers the possibility of vectorial return loss (S11) and insertion loss (S21) measurement through a connected DUT. This function is ideal for characterizing measuring devices such as antennas. For S21 measurement, the device is equipped with an additional MEAS port.

Principle Block Diagram



iAMP300600043-VR: Variant for Vector Signal Processing



RF-Specification

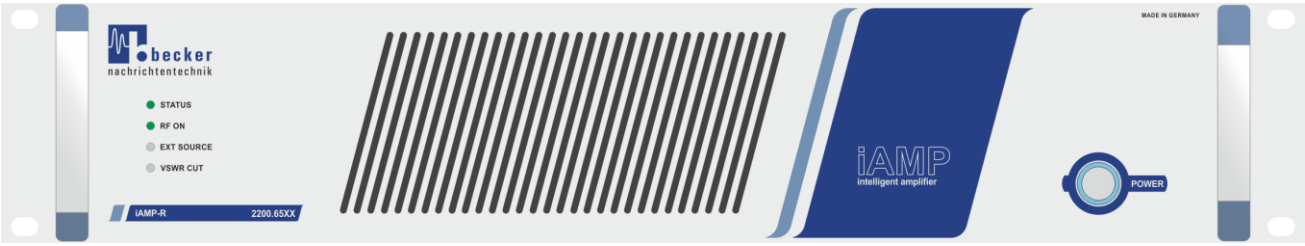
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Impedance	Z_{IN}/Z_{OUT}		50		Ω	
low frequency	f_{MIN}			300	MHz	
high frequency	f_{MAX}	6000			MHz	
minimum output power	P_{RF_MIN}		+15.0	+30.0	dBm	
maximum output power	P_{RF_MAX}	+42	+45		dBm	f ≤ 5.0 GHz
	P_{RF_MAX}	+40	+42		dBm	f > 5.0 GHz
ALC resolution	ΔP_{RF}		0.05		dB	
level accuracy	dP_{RF}		±0.3		dB	CW, RMS detection
harmonics	HD		-27		dBc	f = 3 GHz, P_{RF} = + 36 dBm
non-harmonics	SD		-60		dBc	$P_{RF} = P_{1dB}$
RF connectors	X_{RF}		N female			back panel
CW- und Pulse Generator						
minimum frequency	f_{MIN}			300	MHz	
maximum frequency	f_{MAX}	6000			MHz	
frequency resolution	Δf_{GEN}		10		kHz	
frequency accuracy	df_{GEN}		±5		ppm	
pulse width	t_W	1		9999	µs	
repetition rate	t_P	2		10000	µs	
Ext. generator input						
minimum frequency	f_{MIN_EXT}			300	MHz	
maximum frequency	f_{MAX_EXT}	6000			MHz	
input level	P_{GEN_EXT}		+0	+10	dBm	
RF connector	X_{GEN_EXT}		N female			
REF input						
impedance	Z_{IN}		50		Ω	
frequency	f_{REF}		10		MHz	
input level	P_{REF}	-20	10	+15	dBm	
DC offset	U_{DC}	-20		+20	V	AC coupled
RF connector	X_{REF}		BNC female			rear panel
Variant with vector RF Signal Generator						
low frequency	f_{VMIN}			300	MHz	
high frequency	f_{VMAX}	6000			MHz	
modulation bandwidth	B_V		20		MHz	
S11 magnitude accuracy	$dP_{RF,S11}$		±0.5		dB	
S21 magnitude accuracy	$dP_{RF,S21}$		±0.5		dB	

Common specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	U_{AC}	120	230	260	V	50 / 60 Hz
power consumption	P_{AC}		15		W	standby mode
	P_{AC}		210		W	saturated power
power socket	X_{AC}		IEC-60320 C14			
recommended fuse	F		2x IEC127 F10.0A H/250V			pre-installed
dimensions	B x H x T		approx. 483 x 89 x 460		mm	19”, 2 HE
weight	w		10		kg	
remote interface			RJ45 10/100BaseT			ASCII strings
operating temp. range	T_o	+ 5		+ 45	°C	
storage temp. range	T_s	- 40		+ 70	°C	
Product conformity						
electromagnetic capability	EU: In line with EMC directive (2014/30/EC)					applied harmonized standards: EN61326-1:2013, (for use in control and laboratory environments), EN55035, EN55011 (Group 1, Class B), EN61000-3-2, EN61000-3-3
electrical safety	EU: in line with low voltage directive (2014/35/EC)					Applied harmonized standards: EN 61010-1
Ordering Information						
variants	iAMP300600043-R		2200.6522.1			Scalar Signal Generator
	iAMP300600043-VR		2200.6532.1			Vector Signal Generator
	iAMP300600043-VR		2200.6532.2			S-Parameter Measurement Set
options	iAMP300600043-R-O1		2200.6522.O1			Option Pulse Modulator

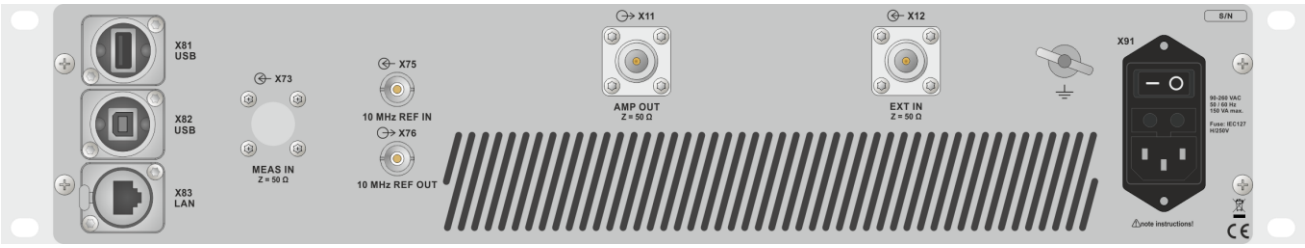
Appearances

Front View



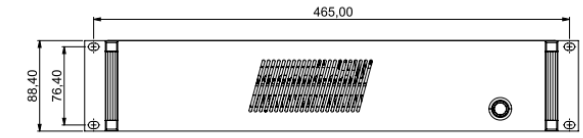
Rear View

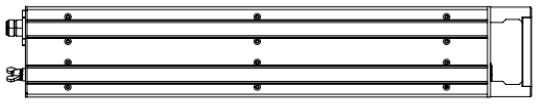
Number of N-connectors on the back depend on product variant

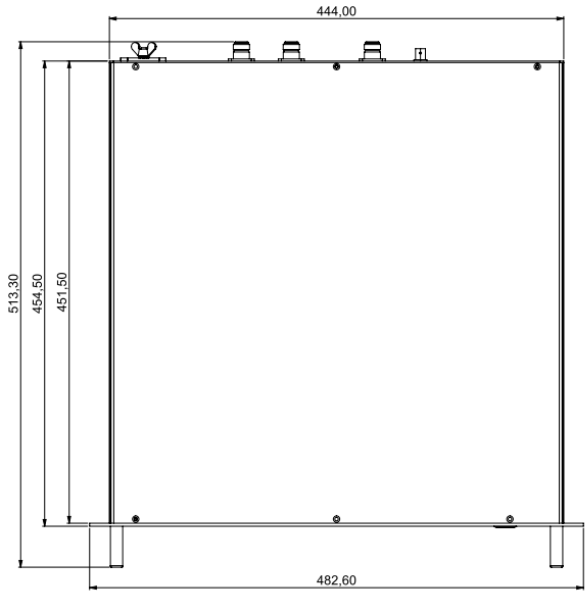


Dimensions

Number of N-connectors on the back depend on product variant







all dimensions in mm
± 2 mm

Related Products

Product	Description
iAMP300600040-R	10 W High Power Scalar / Vector Amplifier / Signal Generator, 300 … 6000 MHz
iAMP300600043-R	20 W High Power Scalar / Vector Amplifier / Signal Generator, 300 … 6000 MHz
iAMP300600047-R	50 W High Power Scalar / Vector Amplifier / Signal Generator, 300 … 6000 MHz
iAMP1700980043-R	20 W High Power Scalar / Vector Amplifier / Signal Generator, 1700 … 9800 MHz