becker nachrichtentechnik

TSQA-1X8XE

8 Channel Precise 500 mW RF Power Source, 300 MHz…6000 MHz

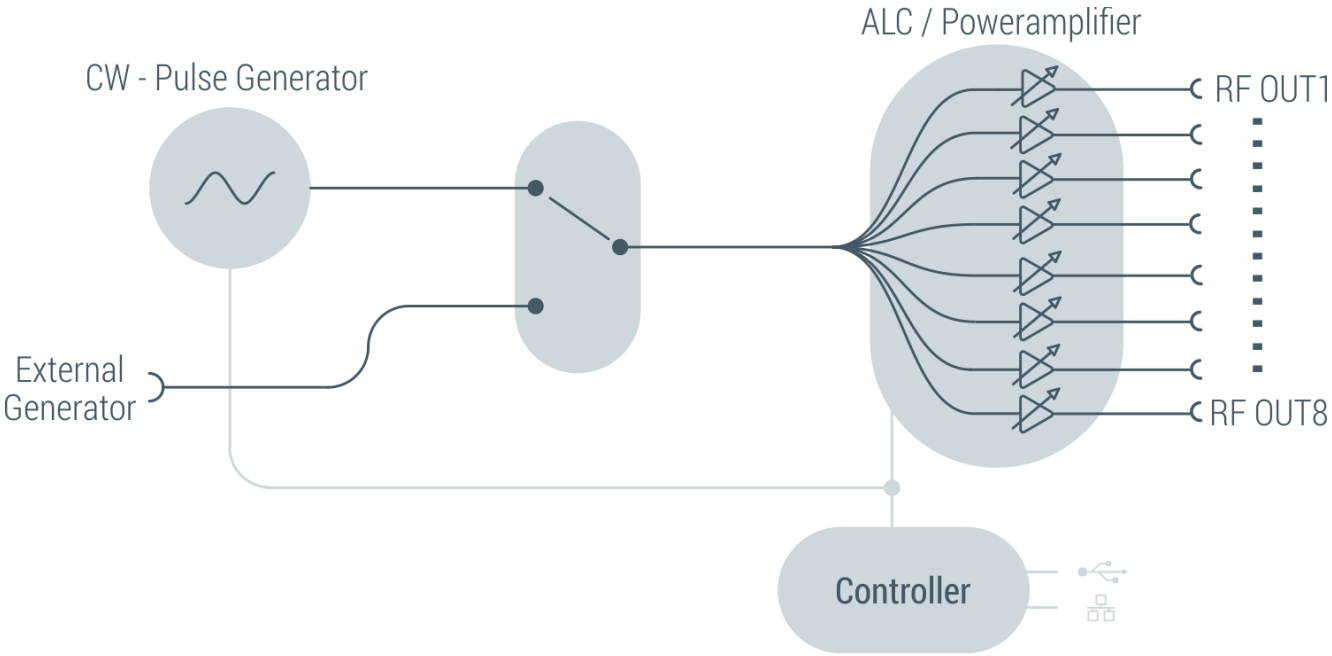
Features

- very high stability over long periods
- high output level accuracy
- ALC (Automatic Level Control)
- GUI (Graphical User Interface)
- CW (Continuous Wave) and pulse operation (option)
- compact 19”, 1 U design

Applications

- qualification of active and passive cellular and wireless front-end components
- research and development (R&D)
- quality assurance (new designs, batch verification)

View shows the variant with RF connectors on the right side.



Scope

TSQA-1X8XE is a compact, medium power multi source with 8 output channels suitable for the frequency range 300 MHz…6000 MHz. The device offers output power up to 500 mW per channel over the full frequency range. Each channel has an ALC for precise output power stability over long periods. The TSQA-1X8XE is equipped with an internal CW RF signal source. Optional an internal pulse generator additional to the CW source is available.

The TSQA-1X8XE implements software for automatic level control to ensure precise RF output levels with long term stability. A adaptive harmonic filter reduce power in harmonics.
A typical application of this system is to perform HTOL RF testing (High Operating Lifetime testing) of RF components.

Flexible control interfaces

Physical remote interfaces: LAN or USB.
TSQA-1X8XE is controllable via GUI (Graphic User Interface) without any additional effort of application software development and regardless of location. Alternatively, the system offers the control via an SCPI inspired ASCII string protocol for ATE (Automatic test Equipment) applications.

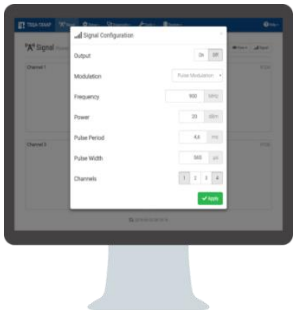
Integrated RF signal source

The integrated signal source generates CW- and optional pulsed signals over the full frequency range with high frequency stability.

Software functionalities

- GUI (Graphic User Interface)

Additional to commanding via remote interface parameters like operating frequency, output level pulse length and pulse period are settable via a GUI.
For taking into account losses of external RF connecting cables, type and length of the cables can be entered. The software calculates the output power level related to the end of the cable.



- ALC (Automatic Level Control)

The RF power levels at the RF outputs are monitored continuously in each channel. The power level will be kept constant automatically. To avoid level overshoots, the ALC algorithm uses a smooth transition.

High port isolation

The TSQA-1X8XE multi power source offers high isolations between the RF output ports. A mismatch at a port should not have any influence to the other ports. The TSQA-1X8XE offers very high isolation between ports to avoid this effect.

High precision of RF output level

Each output channel provides a very precise RF output level with closed-loop level control (ALC), and virtually no visible steps. As a consequence, the symmetry between the 8 outputs as well as the long stability is guaranteed. Also, the control loop's smooth characteristic guarantees avoidance of overshoot.

System self-monitoring

The system can run without human intervention during entire test periods of multiple months. It contains automatic self-checking like current consumption, module temperature and logging of errors.

RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ohm	
number of outputs	n_{OUT}		8			
low frequency	f_{min}			300	MHz	
high frequency	f_{max}	6000			MHz	
mimimum output power	P_{MIN}			-20	dBm	
maximum output power	P_{MAX}	+25	+27		dBm	
ALC resolution	ΔP_{OUT}			0,05	dB	
output power accuracy	dP_{OUT}		± 0.2		dB	within agreed power/frequency ranges
harmonics	D		-30		dBc	
output isolation	S_{23}		-60		dB	adjacent channels, full gain
RF connectors		SMA female				outputs and inputs
CW RF Generator						
frequency range	f_{GEN}	600		6000	MHz	
Resolution	Δf_{GEN}		10		kHz	
Accuracy	df_{GEN}		± 2.5		ppm	
Option O1: Pulse Modulator						
pulse lenght	t_W	577		2300	ms	
period	t_P	4.6		1000	ms	

Common Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	u_{AC}	90	230	260	V	50 / 60 Hz
power consumption	P		80		W	
power plug		type „F“ CEE7/4				
dimensions	W x H x D	approx. 483 x 44 x 431			mm	19”, 1 U
weight			5		kg	
remote interface		RJ45 10/100BaseT				ASCII commands
operating temp. range	T_o	+ 20		+ 30	°C	within specification
storage temp. range	T_s	- 40		+ 70	°C	
EMC		EN61326-1:2013				according directions: 2014/30/EU
safety		EN61010-1:2010				according directions: 2014/35/EU
Ordering information	P/N	1804.6402.1	TSQA-1X8XE			RF connectors on front side
	P/N	1804.6402.2	TSQA-1X8XE			RF connectors on right side
	P/N	1804.6402.3	TSQA-1X8XE			RF connectors on left side
	P/N	1804.6402.O1	TSQA-XE-PULSE			Option: pulse generator

Appearances

TSQA-1X8XE with RF ports on right side

TSQA-1X8XE with RF ports and power/remote

Related Products

Product	Description	P/N
TSQA-1X4AP	4 Channel Precise 16 W RF Power Source 300 MHz…3000 MHz	1606.1202
TSQA-1X8PE	8 Channel Precise 10 W RF Power Source, 300 MHz…6000 MHz	1804.6502