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Research Lab drive

Detailed Specifications

NO MEDICAL DEVICE

DETAILED SPECIFICATIONS

Gradient System	
Controllable gradient outputs	4 (4 amplified and 4 differential)
Built in gradient amplifier	4 x 10 W (max. 10 V / 2 A per channel, voltage controlled, 1.1 Ω)
Port for external gradient amplifier	4 differential ports industrial standard (+/- 15V, R_{diff} = 50 Ω, R_{com} > 1 kΩ)
Gradient points per TR per channel	1021
Gradient system (magspec)	X,Y,Z biplanar gradients
Gradient strength (magspec)	X,Y 0.27 T/m and Z 0.38 T/m
Gradient setting resolution	16 bit
Gradient amplitude resolution	X, Y 8,5 µT/m and Z 11.9 µT/m
Connection of internal gradient amplifier	RJ45
Connection to external gradient amplifier	3M™ Mini Delta Ribbon (MDR); 14 Pins (10214-55G3PC) fits into 10114-3000PE together with 10314-52F0-008
RF TX System	
Direct Digital Synthesis RF output	2ch - 16-bit resolution @ 125 MS/s (up to 333 MS/s)
Pulse setting resolution	8 ns
Pulse phase resolution	less than 0.02°
Pulse frequency resolution	better than 0.03 Hz
Pulse amplitude resolution	16-bit
Pulse duration	8 ns … 250 s
Phase, frequency and amplitude switching	Zero-latency
Internal RF amplifier	23dBm (200 mW), 50 Ω
External RF amplifier	any industrial standard
Blanking signal	0V blank / 5V active TX, 50 Ω
Network analyzer mode	X (tuning and matching – Rx/Tx port)
Generates completely formed RF excitation pulses as well as high resolution digital control signals.	X
Arbitrary Waveform Generation (AWG or 'shaped pulse') capability.	X (phase, frequency and amplitude of each pulse segment on 8 ns grid)
Maintains signal coherence between excitation and acquisition systems at all frequencies.	X
Connection of the receiver/transmitter unit	4x SMB (RX/TX, TX2, TX/RX switch, Blank)

AQ RX System	
Sample rate of the input signal	125 MS/s @ 16-bit (up to 166 MS/s @ 16-bit)
Maximum samples per acquisition window	streaming cache 64kS @ 125 MS/s (up to 166 MS/s) 16 bit (16 bit/S) streaming cache 8kS @ 15 kHz to 31.25 MHz complex 2x48 bit (128 bit/S) streaming bandwidth ~20 MB/s e. g. inf. samples @ <= 1 MS/s depending on system memory
Acquisition phase resolution	less than 0.02°
Acquisition frequency resolution	better than 0.03 Hz
Acquisition window starting point	8 ns grid
Acquisition window duration	8 ns … 250 s
Built in variable preamplifier	5 mV … 500 mV (full scale), NF ~3dB @ full scale <10 mV
Captures input signals above the Nyquist frequency, up to approximately.	100 MHz (up to 600 MHz possible; modification for customized systems by manufacturer)
With signal detection enabled, provides	15 kHz to 31.25 MHz bandwidth of baseband data or 125 MHz raw ADC data.
Wide-bandwidth input amplifier and A/D converter for undersampling applications.	X
Autonomously signal-averaging of the baseband data between multiple acquisitions.	X
Directly captures and digitally demodulates IF/RF signals. The desired baseband bandwidth is user definable through software.	X
TX/RX switch output	SMB (TX2 active +12 V 50 Ω limited to 25 mA / TX2 inactive -12 V, DC 1.25 kΩ, buffered 1 µF 50 Ω)
Miscellaneous	
External clock synchronization	10 MHz; input voltage rect waveform 0.25 to 2 Vpp (LVCMOS 1.8) input voltage sine waveform 1.5 to 2 Vpp (9 dBm ± 1 dBm) (internally terminated with 50 Ω)
Connection to external Clock	SMB
PC connection	USB-B (USB 2.0 High-Speed)
Digital I/Os	6 inputs (>2 V high,<0.8V low, input stage 10 kΩ to GND, 0 < V_{in} < 5.5V) 6 outputs (high 3.3 V, low 0 V, 50 Ω, I_{max} 19 mA) (inputs not functional yet)
Trigger inputs	Digital I/O can be mapped (inputs not functional yet)
Digital I/Os	3M™ Mini Delta Ribbon (MDR); 20 pins (10220-55G3PC) fits into 10320-52F0-008 together with 10120-3000PE
Power supply	12 V DC, >2 A
Power supply unit (external)	100-240 VAC, 50/60 Hz, 6,67 A
Dimensions Control Unit (length x width x height)	27 cm x 9.5 cm x 14 cm

Weight	2.5 kg
Required 3rd party software	MathWorks® MATLAB® 2016a or newer
Languages	English
Software	teach-m open MATLAB® interface
Warranty	24 months

For further information about the product or the manufacturer, please visit our website at

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or contact us.

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