Data

MAGNETOM Avanto
Tim [76x32]
SQ-engine

SIEMENS
medical

Tim – Total imaging matrix

[76x32]. 76 seamlessly integrated coil elements. 32 RF channels.

- Up to 76 simultaneously connected coil elements which can be seamlessly integrated into one examination
- 32 independent receiver channels (Analog/Digital Converters, ADCs)

Almost all receiving coils with up to 76 coil elements in total can be connected simultaneously. They can be seamlessly integrated into the examination without repositioning the patient or even changing a single coil.

iPAT – Advanced iPAT capabilities

- Full iPAT throughout the whole body – without patient repositioning or changing the coil setup
- Multi-directional, i. e. three dimensional, high-speed, high-resolution iPAT
- Flexible iPAT through use of multiple coils and Matrix Coil Mode
- iPAT with acceleration factors up to 4 (one direction) or 12 (with iPAT[2], optional)[1)]
- Tim Assistant ensures ease-of-use and optimized iPAT settings

1) With iPAT Extension Option

Gradients

General

Gradient duty cycle	100 %
Gradient performance for each axis	
Max. amplitude	45 mT/m[2)]
Min. rise time	200 µs from 0 to 40 mT/m
Max. slew rate	200 T/m/s
Vector gradient performance (vector summation-of all 3 gradient axes)	
Max. eff. amplitude	72 mT/m
Max. eff. slew rate	346 T/m/s

2) Value is valid for longitudinal direction. Max. amplitude for horizontal and vertical direction: 40 mT/m

Gradient Amplifier

Water-cooled, highly compact, modular design
Ultra-fast solid-state technology with very low switching losses

Max. output voltage[3)]	2,000 V
Max. output current[3)]	625 A

3) Values for each of the 3 gradient axes

Resolution Parameters		
	Min. FoV	5 mm
	Max. FoV	500 mm
	Min. slice thickness 2D	0.1 mm
	Max. slice thickness 2D	200 mm
	Min. partition thickness 3D	0.05 mm
	Max. partition thickness 3D	20 mm
	Min. slab thickness 3D	5.4 mm
	Max. slab thickness 3D	500 mm
	Max. matrix	1024
	Highest in-plane resolution	9 µm

Spin Echo	Matrix	128	256
	Min. TR	6.2 ms	6.8 ms
	Min. TE	3.2 ms	3.7 ms

Inversion Recovery	Matrix	128	256
	Min. TR	28 ms	28 ms
	Min. TE	3.2 ms	3.7 ms
	Min. TI	22 ms	22 ms

2D GRE (TurboFLASH)	Matrix	128	256
	Min. TR	1.4 ms	1.5 ms
	Min. TE	0.50 ms	0.63 ms
	Min. measurement time	34 ms	42 ms

3D GRE (ceMRA)	Matrix	128	256
	Min. TR	1.4 ms	1.5 ms
	Min. TE	0.50 ms	0.63 ms

TrueFISP	Matrix	128	256
	Min. TR	2.0 ms	2.4 ms
	Min. TE	0.84 ms	1.0 ms
	Min. measurement time	78 ms	102 ms

TSE (HASTE)	Matrix	128	256
	Min. echo spacing	2.5 ms	2.6 ms
	Min. TR	6.2 ms	6.8 ms
	Min. TE	3.3 ms	3.9 ms
	Min. measurement time	93 ms	109 ms
	Max. Turbo factor	512	

TurboGSE	Matrix	128	256
	Min. echo spacing	0.9 ms	1.1 ms
	Min. TR	6.2 ms	6.8 ms
	Min. TE	3.5 ms	4.0 ms
	Max. Turbo factor	65	
	Max. EPI factor	21	

EPI (single-shot and multi-shot)	Matrix	64	128	256
	Min. echo spacing	0.29 ms	0.41 ms	0.61 ms
	Min. TR	10 ms	10 ms	10 ms
	Min. TE	2.1 ms	2.2 ms	2.4 ms
	Min. measurement time	12 ms	15 ms	21 ms
	Max. EPI Factor	256		

Diffusion Imaging	Matrix	64	128	256
	Max. b-value [s/mm²]	10,000	10,000	10,000
	Min. TE with b = 1,000 [s/mm²]	52 ms	53 ms	57 ms

All matrices without interpolation.
Combinations of the stated parameters are not always possible; some parameters may require optional application packages.

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