MAGNETOM ESSENZA

Tim [25×8]
V-engine

SIEMENS

medical

Tim – Total imaging matrix

[25 x 8]. 25 seamlessly integrated coil elements. 8 RF channels.

- Up to 25 simultaneously connected coil elements which can be seamlessly integrated into one examination
- 8 independent receiver channels (Analog/Digital Converters, ADCs)

Almost all receiving coils with up to 25 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 8 (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	
Max. amplitude	30 mT/m
Min. rise time	300 µs
Max. slew rate	100 T/m/s
Vector gradient performance (vector summation of all 3 gradient axes)	
Max. eff. amplitude	52 mT/m
Max. eff. slew rate	173 T/m/s

Gradient Amplifier	
Water-cooled, highly compact, modular design Ultra-fast solid-state technology with very low switching losses	
Max. output voltage[2]	1200 V
Max. output current[2]	150 A

2) Values for each of the 3 gradient axes

Resolution Parameters

Min. FoV	5 mm
Max. FoV[1]	45 cm
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	5.12 mm
Max. slab thickness 3D	450 mm
Max. matrix	1024
Highest in-plane resolution	16 μm

1) Depending on the application, the maximum FoV may be smaller
   (e.g., up to 35 cm in the z-direction)

Spin Echo

Matrix	**128**	**256**
Min. TR	9.7 ms	11 ms
Min. TE	3.6 ms	4.4 ms

2D GRE (TurboFLASH)

Matrix	**128**	**256**
Min. TR	1.46 ms	2 ms
Min. TE	0.62 ms	0.89 ms
Min. measurement time	34 ms	43 ms

3D GRE (ceMRA)

Matrix	**128**	**256**
Min. TR	1.46 ms	1.99 ms
Min. TE	0.62 ms	0.9 ms

TrueFISP

Matrix	**128**	**256**
Min. TR	2.24 ms	2.96 ms
Min. TE	0.94 ms	1.25 ms
Min. measurement time	72 ms	100 ms

TSE (HASTE)

Matrix	**128**	**256**
Min. echo spacing	2.66 ms	3.0 ms
Min. TR	13 ms	16 ms
Min. TE	3.7 ms	4.4 ms
Min. measurement time	71 ms	77 ms
Max. Turbo factor	512	

EPI (single-shot and multi-shot)	Matrix	64	128	256
	Min. echo spacing	0.4 ms	0.6 ms	0.97 ms
	Min. TR	10 ms	10 ms	10 ms
	Min. TE	2.4 ms	2.6 ms	3.2 ms
	Min. measurement time	10 ms	13 ms	16 ms
	Max. EPI factor	256		

Diffusion Imaging	Matrix	64	128	256
	Max. b-value [s/mm^2]	10 000	10 000	10 000
	Min. TE with b = 1 000 [s/mm^2]	66 ms	70 ms	76 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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