



MAGNETOM Avanto
Tim [76x18]
SQ-engine

Tim – Total imaging matrix

■ [76 x 18]. 76 seamlessly integrated coil elements. 18 RF channels.

- Up to 76 simultaneously connected coil elements which can be seamlessly integrated into one examination
- 18 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 iPAT², optional)¹⁾
- Tim Assistant ensures ease-of-use and optimized iPAT settings

1) With iPAT Extension Option

Gradients

General

Gradient duty cycle	100 %
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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⁾	2000 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 μ m

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/mm ²]	10,000	10,000	10,000
Min. TE with b = 1,000 [s/mm ²]	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.