

Healthcare Sector Imaging & Therapy Systems Division

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New 3-tesla MRI scanner Magnetom Prisma from Siemens is designed to explore new frontiers in MRI application

How can we better understand the complexity of the brain? How can we measure and visualize body physiology? To answer such questions in the fields of neurology, physiology or tissue metabolism, the Magnetom Prisma MRI scanner from Siemens Healthcare will offer a new level of MRI imaging capabilities. The 3-tesla scanner combines high gradient strength and fast gradient slew rates in a way that is unprecedented for commercial whole-body systems worldwide. Based on the same technology platform as the leading 3-tesla scanner Magnetom Skyra, the Magnetom Prisma is capable of extraordinarily high spatial and temporal resolution to achieve outstanding image quality, especially in very demanding applications. To also provide existing customers with these new possibilities, Siemens will offer to upgrade the 3-tesla scanner Magnetom Trio to the latest technology of Magnetom Prisma. The Magnetom Prisma was presented at the 98th Congress of the Radiological Society of North America (RSNA) 2012 in Chicago with a planned European availability in the second half of 2013. It is another innovation under the Agenda 2013 initiative of the Siemens Healthcare Sector.

With Magnetom Prisma, Siemens further enhances its 3-tesla portfolio and sets new standards in gradient strength. In combining 80 millitesla per meter (mT/m) and a slew rate of 200 tesla per meter per second (T/m/s) simultaneously, Magnetom Prisma offers a tandem configuration unavailable in any other commercial whole-body system today. When compared to conventional devices, the scanner's combination of high gradient strength and fast gradient switching speed allows for increased image quality. This can open up new possibilities in areas such as diffusion imaging, because even minor diffusion effects can be captured with a high gradient strength. To make full use of this potential, the new Diffusion Spectrum Imaging (DSI) application makes it possible to resolve fine anatomical details of the brain, such as crossing white-matter fibers by

using up to 514 diffusion encoding directions. In addition to revealing new insights into brain function, Magnetom Prisma has great potential in the research fields of body physiology, organ morphometry, tissue metabolism, and quantitative MRI. Magnetom Prisma's excellent image quality is derived from not only the gradient strength but also advanced shimming solutions that allow for finer and more effective compensation of patient-induced field disturbances.

Magnetom Prisma is based on one technological platform with the 3-tesla scanner Magnetom Skyra. It is designed as leading-edge 3-tesla scanner for clinical research for instance in the field of neurology, while Magnetom Skyra remains the top-of-the-line scanner for advanced clinical imaging. Both systems are equipped with the parallel transmit technology TimTX TrueShape, which can provide better image quality and shorter examination times. Together with syngo ZOOMit, the worldwide first parallel transmit application, it is possible to selectively excite specific regions of the body, enabling entire organs or parts of organs to be evaluated in detail. Magnetom Prisma is equipped with Tim 4G, the fourth generation of Siemens' integrated coil technology. With a new head-neck coil with 64 receive channels for this scanner as well as for Magnetom Spectra, users can combine up to 84 receive channels in a single scan when combining it with the standard body and spine coils – the highest number of receive channels currently available on the market. Supported by 64 or 128 receive channels of the scanner, image quality can be substantially increased while reducing scan time.

Magnetom Prisma can perform challenging research examinations at a consistently high level. Besides zero helium boil-off technology, users benefit from Dot (day optimizing throughput) technology, which makes it possible to select the right scanning strategy, depending on the indication. Dot technology guides users step-by-step through the examination and supports physicians by offering suggestions for their decisions at critical points during the examination. This increases scan consistency and reproducibility. Predefined Dot workflows facilitate the repetition of measurements for a given patient at different time points or the ability to compare examinations obtained at different sites, such as during the course of multi-site research projects.

Customers who have already installed the 3-tesla scanner Magnetom Trio will be offered onsite upgrades to the latest technology of Magnetom Prisma.

Launched in November 2011, "Agenda 2013" is the initiative of the Siemens Healthcare Sector to further strengthen its innovative power and competitiveness. Specific measures, which will be implemented by the end of 2013, have been defined in four fields of action: innovation, competitiveness, regional footprint, and people development.

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Press photos are available at: www.siemens.com/healthcare-pictures/Magnetom-Prisma

For additional information on the Magnetom Prisma, please visit: www.siemens.com/prisma

Magnetom Prisma, TimTX TrueShape, Diffusion Spectrum Imaging (DSI), the head-neck coil, and *syngo* ZOOMit are currently under development. They are not for sale and their future availability cannot be guaranteed.

The **Siemens Healthcare Sector** is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging, laboratory diagnostics, medical information technology and hearing aids. Siemens offers its customers products and solutions for the entire range of patient care from a single source – from prevention and early detection to diagnosis, and on to treatment and aftercare. By optimizing clinical workflows for the most common diseases, Siemens also makes healthcare faster, better and more cost-effective. Siemens Healthcare employs some 51,000 employees worldwide and operates around the world. In fiscal year 2012 (to September 30), the Sector posted revenue of 13.6 billion euros and profit of around 1.8 billion euros. For further information please visit: www.siemens.com/healthcare.