

It takes two to connect the dots in MRI.



Tim® (Total imaging matrix) technology has made fast, flexible and accurate scans the rule, rather than the exception. But we know there's more to be done, because healthcare is increasingly faced with less – less staff, less reimbursement, less time. Our goal? To significantly improve productivity, across the entire MRI workflow, in the most

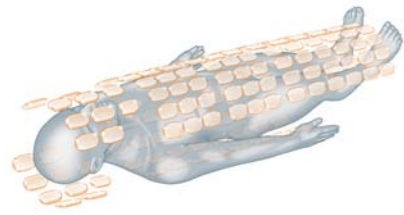


powerful and beneficial way possible. Our answer? To not only advance Tim technology to the 4G level, but to introduce the world to Tim's new partner – Dot™ (Day optimizing throughput) engine. The integration of these two groundbreaking technologies will transform your day with higher productivity. Welcome to the new era of MRI.

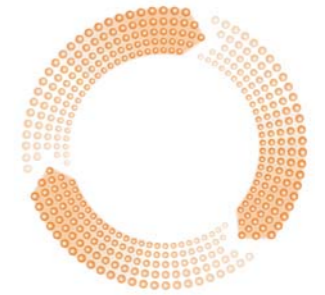
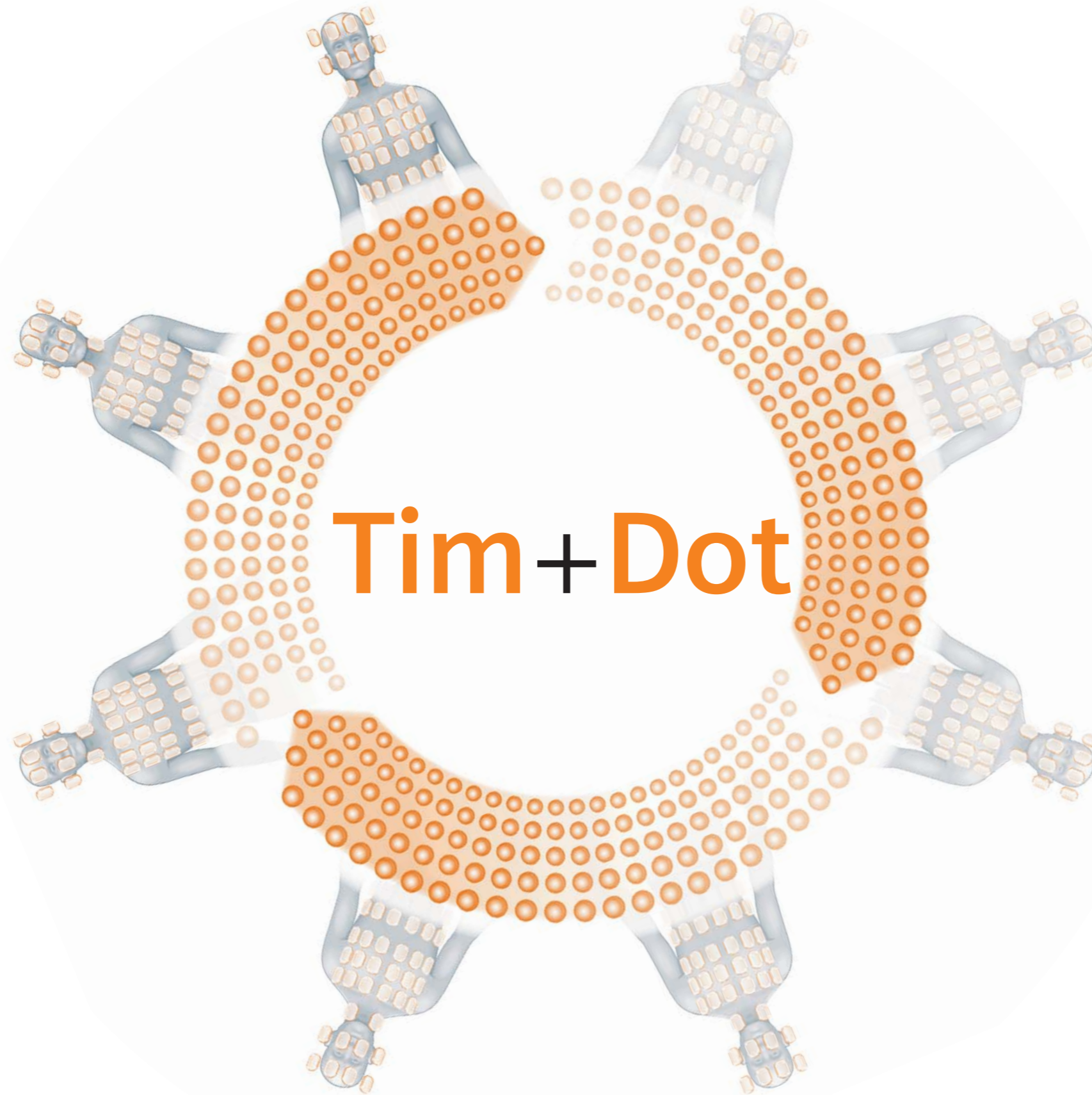
# Tim + Dot

Total imaging matrix technology

Day optimizing throughput engine



Tim advances MR imaging – again – with 4G flexibility, accuracy, and speed. It's Siemens ultimate innovation technology that unlocks imaging power like never before. Tim's newly designed ultra high-density coils are combined with the highest channel configurations ever offered. And, with Tim's new patient-adaptive technology, image quality and acquisition speed go to a whole new level. Think more exams per day. Every day.



Dot, the throughput engine designed to boost productivity, offers a customizable framework for patient personalization, user guidance, and exam automation to help optimize every part of your MR workflow. From reduction in your exam times and improved clinical workflows to enhanced staff efficiencies. Exam by exam, patient by patient, Dot helps to take away the complexity of MR scanning. Dot multiplies the power of Tim resulting in greater image consistency and diagnostic confidence, greater ease of use, and a day that's more productive than ever before.

Together, they redefine productivity.

# Tim is 4G flexibility.

Tim's newly designed, ultra high-density array enables higher resolution and an imaging distance up to 205 cm with no coil repositioning. Delivering extensive coverage of the body. For faster exams and greater diagnostic confidence.

- **Now up to 204 coil elements deliver more signal than ever before.** Allows for flexible Parallel Imaging and supports some of the most demanding applications. Yet our new Tim 4G coils are incredibly lightweight and easy to handle.
- **Now up to 128 channels [204 x 128].** The new standard in channels now starts at 48. With the option of 48, 64, or 128\*, you never have to wonder if you have enough channels to support ultra high-density coils.
- **The Tim Dockable Table is mobility done right.** It offers an innovative multi-directional navigation wheel for easier handling. Critically ill, physically challenged and obese patients (up to 250 kg / 550 lbs) can now be transferred and scanned faster than ever.



# Dot is personalized.

Dot makes it easy to get the best possible results for virtually any type of patient. Dot gives you uniquely tailored, optimized scans configurable to patient condition or clinical question.

- **Optimized exam strategies.** Dot provides exam strategies to help customers quickly adapt their protocols according to the patient's condition and clinical indication. Your protocols are automatically proposed. Just confirm and start scanning.
- **Optimized to patient condition.** Dot adapts to each patient's breath-hold capacity and then links to your best scanning protocol to match.
- **Consistent, high quality exams.** High quality exams are easily reproduced, even when conditions change. This allows for consistent patient exams.
- **Dot speaks your clinical language.** Customize Dot to create your own strategies tailored to your clinical practice. Display only the parameters you need.



\*Available only in 3T

Together, they deliver patient-centered care.

# Tim is 4G accuracy.

Tim 4G offers a completely redesigned RF system and an all-new innovative coil architecture that packs more coil elements in a smaller space. Unlocking the possibility of higher element configurations and higher Signal-to-Noise Ratio (SNR).

- **From meters to microns.** The result is high resolution imaging that holds up even when zooming in on multi-station images. Scan everywhere, zoom anywhere.
- **DirectRF.™** Tim's new all digital-in/digital-out design integrates all RF transmit and receive components at the magnet, eliminating analog cables for true signal purity. This compact and efficient design enables an immediate feedback loop for real-time sequence adaptation.
- **TimTX.** We've designed Tim 4G with the future in mind. TimTX TrueForm enables optimized RF transmission for excellent B1 homogeneity.\*



# Dot is guided.

Dot helps you truly optimize staff resources from every perspective. By allowing you to add critical decision points along the way, Dot guides the user, helping them to scan more reliably. The result is greater efficiency at all levels and a dramatic improvement in image consistency.

- **Real-time on-board guidance.** Dot guides you, intuitively, through even the most complicated exams, step by step. Instant help, how-to descriptions, and example images are readily within view.
- **Integrated decision points.** At critical steps in the scanning process, your decision points are presented. The user can add or eliminate protocols or groups of protocols with the click of a button.
- **Customizable to your standards.** Dot can be easily customized to your steps, images, text, and protocols to follow your standards of care.
- **Dot Display.** Patient data and positioning information is provided at the scanner for easy and fast patient set-up.



\*Available only in 3T

## Together, they enable expert-level scans.

# Tim is 4G speed.

Your time is precious. Tim 4G speed means faster and simpler exam set-up and a dramatically shorter acquisition time. Plus, Tim's 4G processing speed gives you the data you need the instant you need it. Now patient volume—and daily productivity—can really soar.

- **New DirectConnect™ coils eliminate the hassle of cables.** It's the end of cable clutter. And, with no attenuating cable, you'll also enjoy improvement in SNR.
- **New Tim Dockable Table.** Prep your patient anywhere for faster exam set-up and patient throughput. Especially helpful for immobile patients or those requiring extra set-up time.
- **iPAT<sup>2</sup> technology.** Enabling simultaneous parallel acquisition in two directions for fast 3D data—wherever you need it.



# Dot is automated.

With intelligent workflows customized to your standards, Dot takes efficiency to a whole new level. Scans are completed faster and more easily, with reduced chance of errors or repeats.

- **Intelligent workflows.** Dot Engines can be tailored to your clinical needs with simplified workflows that literally take the complexity out of MRI exams – even for cardiac and abdomen.
- **Effortless set-up.** Dot links your protocols and procedures. Optimal Field of View (FoV) is instantly estimated. And automated positioning and alignment of slices provides fast and robust image quality for patients.
- **Timing is synchronized.** Dot integrates AutoVoiceCommands into the scan process, ensuring the synchronized timing of breathing and scanning. In addition, contrast timing is more accurate due to AutoBolusDetection.



Together, they transform the day.



● From planning to scanning to processing in one seamlessly easy way. Tim+Dot dramatically reduce steps in each exam.

● From patients who are frail or claustrophobic to obese or uncooperative. With Tim+Dot, all exams are patient-tailored and all scans are optimized scans.

● From day to night. From cardiac to knee, brain and abdomen. Now improved consistency for MR imaging.

● From one step to the next with on-board workflow guidance. Now you can get more out of your scanner than ever before.

● From every perspective—clinical, workflow, and business—Tim+Dot connect all the dots in MRI—redefining productivity from all dimensions.

Finally, all the dots in MRI are connected.



**Tim revolutionizes:**

- patient comfort
- patient throughput
- diagnostic consistency
- ease of use
- exam time
- scanner utilization
- the future

Tim+Dot are the direct response to today's demanding world of healthcare economics. Together they deliver faster, more efficient throughput for more productivity per day. Consistent, robust images achieved by personalizing the exam for each patient. A staff empowered with the tools they need to provide excellent patient care, more efficiently than ever. And highly optimized use of all resources 24/7. It all adds up to productivity improvements across every aspect of the clinical and business day.



**Dot optimizes:**

- patient exams
- clinical workflows
- resources
- staff
- training needs
- every practice
- the future



Productivity will never be the same.



# Tim

| Feature                               | Description   | 4G Flexibility   | 4G Accuracy   | 4G Speed  |
|---------------------------------------|---|--|---|---|
| <b>204 Coil Elements</b>              | Ultra-high density array of coil elements   | 100% higher density, from local to whole body  |   |   |
| <b>48-64-128* RF Channels</b>         | Enables higher coil density for higher base SNR   | Always enough channels to support ultra high-density coils   | e.g. +20% in the center of the brain                    |   |
| <b>Parallel Imaging</b>               | Improved performance for Parallel Acquisition Techniques (better g-maps with iPAT)  |  | Higher SNR with iPAT                                    | e.g. PAT 4 in body  |
| <b>iPAT<sup>2</sup></b>               | Ultra-high density coils with elements in all directions support iPAT <sup>2</sup> and the paradigm shift to 3D imaging                         |  | Higher SNR with iPAT <sup>2</sup>                       | Increased speed for 3D imaging  |
| <b>DirectConnect™</b>                 | Direct connection for Head/Neck 20, Spine 32  |  |   | No coil cables and faster coil set-up   |
| <b>SlideConnect™</b>                  | Very easy and fast connection of additional coils including Body 18   | One-hand operation   |   | Faster coil set-up with self-locking mechanism                                |
| <b>Tim Coil Workflow</b>              | Posterior coil elements integrated; just add anterior elements and combine; light-weight coils  | Flexible combination of coils  |   | Faster coil positioning; less patient re-positioning                          |
| <b>syngo TimCT</b>                    | Scanning with continuous table movement similar to CT   | Always scan at isocenter; flexible definition of any FoV   | No boundary artifacts between steps                     | Easy, CT-like workflow; no scan pauses during table movement                  |
| <b>Tim Dockable Table</b>             | Advanced docking table with exclusive navigation wheel and integrated Tim coils   | Patient safety in emergency; up to 250kg (550lbs) patient weight compatibility; 360 degree maneuverability |   | Faster patient set-up   |
| <b>DirectRF™</b>                      | The integration of all TX and RX components at the magnet, Digital-in and Digital-out, optical connection between the magnet and equipment room | Easier siting  | Signal purity and improved stability                    |   |
| <b>TimTX TrueForm*</b>                | Solution for B1 homogenization. B1 shimming with 2-channel TX array functionality   | TrueForm helps to reduce SAR, so more slices / coverage is possible.                                       | Excellent B1 homogeneity                                | Higher speed as no additional time for patient specific adjustments required. |
| <b>Highest Receiver Dynamic Range</b> | Up to 169 dB (referred to 1 Hz resolution bandwidth)  |  | Higher SNR  | No receiver adjustments   |
| <b>Dual-Density Signal Transfer</b>   | 2 distinct coil elements are fed to a single cable, unlocking the potential for higher-density coils; unique frequency conversion               |  | Less signal interference, higher robustness, higher SNR | 2x fewer/thinner cables   |
| <b>New Powerful Transmitter</b>       | Higher peak power and higher average power  |  | Increased excitation pulse precision                    | Faster excitation pulses  |
| <b>Real-time Feedback Loop</b>        | Dynamic feedback control of the RF transmit system for temporal stability and power linearity   |  | Signal stability, e.g. fMRI, patient motion             |   |

\* Available only in 3T.

# Dot

| Feature                      | Description  | Personalized   | Guided   | Automated  |
|------------------------------|--|--|--|--|
| <b>Dot Engines</b>           | Tailored, customized workflows simplify MR scanning. Engines** include Brain, Abdomen, Knee, Cardiac                 | Complete customization including Dot Exam Strategies and Dot Decisions | Intuitive instructions including image examples are provided during the exam | Integrated tools such as AutoAlign and breath-hold adaptation support the exam process |
| <b>Dot On-board Guidance</b> | Unique navigation concept to guide the user through the complete exam  | Easily customized to clinical needs                                    | Consistently produce excellent scans   |  |
| <b>Dot Views</b>             | Intuitive views for fast and easy scan handling including Guidance View, Patient View, and Parameter View            | Pre-defined exam set-up and guidance                                   | Comprehensive user guidance  |  |
| <b>Dot Display</b>           | Integrated display of patient information and scanner status   | Patient data is displayed at the scanner                               | Advice for optimal positioning   |  |
| <b>Dot Decisions</b>         | System notifies user at key steps in the exam. Situation-specific protocols are added to the scanning queue          | Easy customization   | Decision assistance when you need it   | Your decision protocols are automatically added to the exam queue                      |
| <b>Dot Exam Strategies</b>   | User customized, tailored scan set-up for different patient conditions   | e.g. adapts to correct for patient motion or breath-hold capabilities  |  | Your protocols are selected; queue is automatically updated                            |
| <b>Dot Control Centers</b>   | Integrated control systems at the magnet for table positioning and Dot Display navigation.                           | Intuitive patient preparation  |  | Faster patient set-up  |
| <b>AutoPosition</b>          | Automatic proposal of patient positioning in the isocenter coinciding with the appropriate Dot Engine                |  |  | Automatic positioning proposal   |
| <b>AutoAlign</b>             | Automatic proposal of slice positioning, available for head, knee, and spine   |  |  | Adjustment of orientation and slice positioning  |
| <b>AutoFoV</b>               | Automatic adjustment of Field of View, (can be predefined by the user to consistently cover the anatomy in question) |  |  | Optimal FoV is adjusted  |
| <b>AutoCoilSelect</b>        | Automatic detection and selection of all coil elements in the active field of view                                   |  | Robust, no errors  | Fully automated  |
| <b>AutoBolusDetection</b>    | Detection of contrast bolus and initiation of scan sequence  | Reduced chance for timing errors                                       |  | Fully automated after entering of ROI  |
| <b>AutoVoiceCommands</b>     | AutoVoiceCommands during the scan provide optimal timing of breathing, scanning, and contrast media injection        | Multiple languages are supported                                       |  | Dot automatically plays the voice commands when required                               |
| <b>Inline Technology</b>     | Processing instead of post-processing: Real-time and automated processing of an abundance of processing steps        |  |  | e.g. Inline MPR, MIP, ADC  |

\*\* Brain Dot Engine is included in the standard configuration; all other Dot Engines are optional.

never be the same.

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