

# Efficient. Smart. Synchronized.

## Simplified and Synchronized MR Contrast Injection and Scanning

Strategic  
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Clear Direction.  From Diagnosis to Care.

medRAD® MRXperion  
MR Injection System

## MEDRAD® MRXperion MR-Injector System now with Imaging System Interface (ISI) for MR-Injector coupling

Dynamic contrast-enhanced MR imaging workflows are complex and require precise synchronization of contrast injection and MR scanning to achieve the best imaging quality.

The technologist is required to constantly plan, monitor and time the various steps on the injector and scanner workstations, potentially resulting in high stress, reduced efficiency and suboptimal image quality.

Bayer and Siemens Healthineers have jointly developed ISI to facilitate the MR workflow. The automation of time-critical steps by ISI results in enhanced efficiency for the technologists while helping increase their confidence. This allows them to focus on what really matters- the patient.

### How does ISI work



ISI is a device that connects the MR scanner workstation to the injector workstation. It enables the injector and scanner to efficiently communicate and synchronize, ensuring appropriate scan timing and simplified workflow.

### Advantages of ISI



Enables synchronization



Minimizes potential errors



Simplifies programming



Provides reproducibility



Enhances confidence

# Comparison of conventional vs ISI workflow

## MRA example

### Conventional workflow

### Enhanced ISI workflow

#### Preparation

- > Localizer imaging to gain anatomical overview
- > Vessel scout to gain overview where big vessels are located

#### Timing Bolus

- > Plan and prepare timing bolus examination
- > Set-up timing bolus protocol and arm the injector
- > Prepare patient for injection
- > Arm the scan on MR console (prescans are performed)

- > Start contrast agent injection on the injector console
- > Start MR acquisitions at the same time with second hand

- > Precisely synchronized start of injection and scan with **one click**

#### Time delay (TD) calculation

- > Open mean-curve application and load timing bolus data
- > Derive time-to-arrival
- > Calculate TD based on time-to-center and formula

- > Select supplying vessel in pre-loaded timing bolus images with one click for automated calculation of TD

#### MRA

- > Plan and scan pre-contrast T1w 3D protocol
- > Set-up injection protocol and arm injector
- > Pause dialogue (@scanner) to enter contrast agent and volume applied
- > Arm the post-contrast scan (prescans are performed)
- > Prepare patient for second injection and breath-hold exam

- > Start contrast agent injection on the injector console
- > Monitor time elapsed
- > Apply breath-hold command 3–4 seconds before intended start of scanning (TD)
- > Start the scan at TD
- > "Continue breathing"

- > One click to :
  - Inject contrast
  - Apply timed auto-voiced command before TD
  - Auto-start scan at TD
  - "Continue breathing" command

#### Total steps

21 steps

14 steps

# ISI for MR-Injector coupling helps you -



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