

# Medis<sup>®</sup> Suite MR 4.0

MODULES		PACKAGES					
		ESSENTIALS	ADVANCED EDITION	PREMIUM EDITION	DEDICATED STRAIN	DEDICATED MAPPING	DEDICATED FLOW
Medis Suite MR	Clinical	3D View	✓	✓	✓		
		Function Global	✓	✓	✓		
		Function Regional		✓	✓		
		DSI		✓	✓		
		TSI		✓	✓		
		T1		✓	✓		
		T2/T2*		✓	✓		
		2D Flow	✓	✓	✓		✓
		4D Flow					✓
		Strain LV			✓	✓	
		Strain RV and Atrium			✓	✓	
	Research	T1			✓	✓	
		T2/T2*			✓	✓	
		ECV			✓	✓	



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# Medis<sup>®</sup> Suite MR 4.0

A comprehensive, time-saving and validated solution for Cardiac MR post-processing



# Product Specification Sheet

## **M-MSP: MEDIS SUITE PLATFORM (VIEWER, CONNECTIVITY, REPORTING)**

- Support for Cardiac MR studies of all major MR vendors
- Access to Cardiac MR studies across the network
- Import of cardiac MR studies from local storage media (hard disk, USB, and CD/DVD)
- DICOM connectivity, receiving cases, query and retrieve, pushing results to PACS
- Centralized database, thick client solution possible with multiple clients
- JPEG2000 and enhanced MR support
- AutoQ for preprocessing data
- Review series side by side, drag 'n drop series into the viewer, cross referencing tools, fast paging through series, simple caliper measurements
- **NEW: Measure T1 value based on automatic motion corrected T1 Maps**
- Enhanced workflow, run multiple apps in parallel
- Loading of prior exams in parallel
- Enhanced clinical report, combining all measurements in a single report, snapshots, add comments, save as PDF, view in text format. Clinical XML and JSON output.
- User log in
- Role Based Access Control
- DICOM SR output for results of Clinical applications
- User interface and User manual available in multiple language for the Clinical applications

## **M-MGM: QMASS GLOBAL FUNCTION MODULE (MR)**

- Guided workflow
- LV and RV function analysis
- Global function analysis (Simpson's method) on short axis or transversal stack of cines
- Quantification of custom volumes, such as atrial volumes
- Area-length and Bi-plane volumetric analysis methods for long axis cines
- LV & RV contour detection in SAX based on deep learning
- LV contour detection in LAX based on deep learning
- Semi-automatic contour detection for RV endocardium
- "LiveContour" algorithm to quickly detect endocardial contours
- "Time-Continuous" contour detection
- Automatic exclusion of images in short axis based on information in long axis
- Auto-detection of papillary muscles and trabeculae with "MassK mode"
- Quantification of EDV, ESV, SV, %EF, CO, CI, indexed values (BSA and height), (time to) peak filling and ejection rate
- Various BSA calculation methods for indexed results
- Various normal ranges possible, calculation of z-scores

## **M-MRM: QMASS REGIONAL FUNCTION MODULE (MR)**

- Analysis of regional parameters, such as wall motion, wall thickness, wall thickening and wall thickness changes over time

## **M-DCE: QMASS DELAYED SIGNAL INTENSITY (DSI) MODULE (INFARCT SIZE, T2W ANALYSIS, COMBINED DSI-T2W ANALYSIS)**

- Guided workflow for automatic infarct tissue quantification
- Transfer contours from short axis cine stack
- Various automated threshold calculation methods
- Automatic infarct detection
- Quantification of infarct size (% and mass), infarct transmural
- Quantifying regions of hyper-, intermediate and hypo-intense signal intensities
- Threshold per slice or per sequence of slices
- T2-weighted analysis, combined DSI-T2-weighted analysis
- T2-ratio

## **M-MSU: QMASS TIME SIGNAL INTENSITY (TSI) MODULE**

- Enhanced Contour registration to correct for breathing motion
- Baseline correction methods
- Automatic calculation of relative upslope
- Upslope curves per myocardial segment and user defined ROI's
- Set transmural range for measurement of subendocardial and subepicardial perfusion curves

## M-TTM: QMASS T2/T2STAR ANALYSIS MODULE

- Fast quantification of  $T2^*$  decay time and decay rate
- Color overlay
- Correct for breathing motion

## M-TOM: OMASS T1 ANALYSIS MODULE

- Calculation of T1 relaxation time in MOLLI and Look Locker sequences
- Calculation of residual maps
- Automatic Motion Correction
- Color overlay
- Correction for breathing motion

## M-FLX: QFLOW APP

- Phase-contrast MR blood flow analysis
- Automatic contour detection
- Copy of contours in forward and backward direction
- Various background correction methods to correct for flow-induced artifacts, "Stationary Flow Fit" and
- "Phantom Correction"
- Phase unwrapping to correct for aliasing
- Color-coding to visualize velocities
- Calculation of velocities and volumetric blood flow in up to 4 ROI's
- Automatic calculation of regurgitant fraction and volumes
- Display of min and max velocity pixels
- Calculation of maximum pressure and mean systolic pressure gradient
- Quantification of CSF flow

## M-4DV: QFLOW 4D APP

- Simple MPR tool (multi planar reformatting)
- Single click noise removal
- Single click Background offset correction (1st, 2nd & 3rd order)
- Color overlay displaying the speed
- Allow launching of QFlow quantification of volumes, regurgitant fraction and peak flow velocity (see M-FLX QFlow app, separate license)
- Visualization of Streamlines in 2D and 3D
- Enhanced visualization of vectors
- Review flow as overlay on Cine SSFPs in 2D
- Single click phase unwrap functionality

### M-MRA: 3DVIEW APP

- Viewing 3D MR and CT Angiography series, double oblique viewing, MPR, MIP, slabbed MIP, VR
- CPR (Curved Planar Reformatting)
- Efficient caliper measurements, including double distance measurement
- Sculpting (isolating custom volume of interest)
- Create reformats
- Add temporal resolution

## M-CCT: QMASS GLOBAL FUNCTION MODULE, CT ADD-ON

- Enables Global and Regional analysis for CT

## M-SMR: QSTRAIN MR

- Quantify strain in RV 4 Chamber, Atrial 2 Chamber, LV long and short axis orientations based on feature tracking in SSFP images
- Quantification of Global strain parameters: GLS, GCS, GRS and Fractional Area change
- Quantification of delta rotation
- Quantification of 16 segment AHA strain parameters: Strain, Strain Rate, velocity
- Quantification of RV segmental (septum and free wall) strain parameters: Strain, Strain Rate, velocity
- Generate results for endo, mid and epicardial wall
- Clinical results available in Medis Suite
- More extensively research report can be exported in xml and MS-Excel
- Ability to re-use contours of function analysis for strain quantification

### M-SCT: QSTRAIN CT ADD-ON

- Enables strain analysis for CT and includes all features as listed under M-SMR

**NEW: M-INW: QSTRAIN INWARD DISPLACEMENT  
ADD-ON**

- Quantification of Inward Displacement (InwD) and Inward Displacement Index (InwInd) allowing for the objective evaluation of regional dysfunction.
- Modality independent, works on MR as well as CT series





### NEW: M-HDF: QSTRAIN HEMODYNAMIC FORCES ADD-ON, FOR RESEARCH USE ONLY

- Instant calculation of Hemodynamic Forces from routine apical views, based on a mathematical model validated against 4D Flow MRI.
- Hemodynamic Forces (HDF) analysis for the evaluation of Intra-Ventricular Pressure Gradients (IVPGs), a global property describing LV function.

### MS-ECV: QMAP ECV, FOR RESEARCH USE ONLY

- Create parametric maps for T1-ECV
- Quantification of delta T1 (pre and post adenosine stress exams)
- Supports LL, MOLLI, SR, console generated maps
- Correction factor
- Offset, scaling, fit residual error
- Display of relaxation graphs
- Automatic Motion Correction for pre- and post-contrast T1 images (either one by one or simultaneously)
- **NEW: Automatic Motion Corrected Maps for pre- and post-contrast T1**
- Flexible manual motion correction
- Flexible co-registration of T1 native (pre-contrast) and T1 post-contrast maps

- Comprehensive results for myocardial segments and up to 4 ROI's and segments
- AHA 16 segment model results and bull's eyes
- Save maps as DICOM
- Save results to MS-Excel

### MS-REL: QMAP T1&T2 RELAXOMETRY, FOR RESEARCH USE ONLY

- Create parametric maps for T1, T1\*, T2 and T2\*
- **NEW: Automatic Motion Corrected series and Maps for T1**
- Supports LL, MOLLI, SR, T2 prep and console generated maps
- Correction factor
- Offset, scaling, fit residual error
- Display of relaxation graphs
- Flexible manual motion correction
- Flexible co-registration of T1 native (pre-contrast) and T1 post-contrast maps
- Comprehensive results for myocardial segments and up to 4 ROI's and segments
- AHA 16 segment model results and bull's eyes
- Save maps as DICOM
- Save results to MS-Excel

