

**PHILIPS**

smart-sync

MR Clinical application

Fetal Cardiac MR with Ultrasound Gating Device

facilitates Prenatal Diagnosis of Cardiac Disease

Present day prenatal imaging techniques to diagnose congenital heart disease are limited to echocardiography and no alternative method is available when limitations of ultrasound prevent adequate information for a first time right diagnosis.

Now, by combining an MRI compatible Doppler ultrasound system (smart-sync -NORTHH MEDICAL GmbH¹) with a Philips MR system, prenatal fetal cardiac MR is made possible in clinical routine providing additional diagnostic information in fetal congenital heart disease diagnosis, when fetal echocardiography results are inconclusive.

smart-sync

smart-sync can detect fetal cardiac motion and synchronizes the fetal cardiac cycle with the MR image acquisition (gating). Therefore smart-sync allows standard cardiac MR sequence to be used for anatomical and functional fetal cardiac MR imaging.

The device has a seamless wireless integration with Philips MR systems similar to standard VCG setup, with no need for additional software modification, enabling a smooth workflow. The ultrasound transducer is placed on the belly, the position of fetal heart is located using headphones and is fixed with an

easy to use soft elastic belt. The heartbeat is then detected with Doppler ultrasound and is shown on the screen of the display in the magnet room. During image acquisition fetal heart rate and fetal cardiac waveform is wirelessly transferred and updated on the user interface of MR console.

Combining smart-sync with Philips MR systems helps to deliver crisp images of the fetal heart. Recent studies have shown that fetal cardiovascular imaging can add clinical information in 84% of cases affecting clinical decision making and parental counseling².

Field Strength:	1.5T and 3.0T MR systems, excluding Ingenia Prodiva, Multiva systems ³
Prerequisite:	Wireless VCG
Main applications:	Fetal CMR
Sequence:	Standard CMR sequence (BFFE, Q Flow, Mapping)
Integration:	Wireless communication
Image Quality:	Enables gated fetal cardiac MR Imaging



“ smart-sync provides the cardiac gating signal that is necessary to run standard cardiovascular MR sequences with diagnostic quality.”

PD Dr. Björn Schönagel,
Radiology specialist

1 CE marked. Not available for sales in the US yet. This article was approved by the managing director of NORTH MEDICAL for claims made for their cardiac ultrasound device

2 JAMA Network Open. 2021;4(3):e213538. doi:10.1001/jamanetworkopen.2021.3538

3 Ingenia Prodiva 1.5T and Multiva 1.5T are not for sale in the USA.

