

Accent MRI™ DR

Dual-Chamber Pacemaker with Wireless Telemetry

Product Highlights

- The Accent MRI pacemaker has been designed and tested for safe performance of a full-body MRI scan, without zone restrictions,¹ using a 1,5 T (Tesla) field-strength MRI scanner.¹ The MRI conditional device:
 - Allows a maximum whole body averaged specific absorption rate (SAR) of 4 watts per kilogram (W/kg) for high image resolution
 - Must be used in conjunction with an MRI lead from St. Jude Medical
- An optional, easy-to-use hand-held device (SJM MRI Activator™ device) can be used to program the device to pre-approved MRI settings pre- and post-MRI scan, decreasing the number of workflow steps and increasing clinic efficiency
- InvisiLink™ wireless telemetry in conjunction with the Merlin@home™ transmitter and Merlin.net™ Patient Care Network (PCN), allows for daily remote monitoring and follow-up.
- AT/AF Alerts can be programmed to notify patients and/or their clinics when a programmed AT/AF threshold or continuous episode duration has been exceeded, or when a high ventricular rate accompanies the AT/AF episode
- A suite of state-of-the-art features—complete automaticity (atrial and ventricular), Ventricular Intrinsic Preference (VIP™) technology, QuickOpt™ timing cycle optimisation, the AF Suppression™ algorithm and SenseAbility™ technology—is designed to deliver optimal therapy for patients at implant and throughout their lives
- Industry-leading longevity offers 9,1 years of service life,² which is supported by a 7-year warranty³



1. The St. Jude Medical™ MRI conditional pacing system can be scanned in patients under the following conditions: horizontal closed bore clinical scanner working in the Normal Operating Mode or First Level Controlled Operating Mode; static magnetic field strength of 1,5 Tesla (T) only; maximum gradient slew rate of 200 T/m/s per axis. See manual for additional details before performing an MRI scan.
2. A,V = 2,5 V @ 0,4 ms; 500 ohms; 100% DDD pacing @ 60 bpm; AutoCapture™ Pacing System OFF; SEGMS ON
3. Terms and conditions apply; refer to the warranty for details.

Ordering Information

Contents: Cardiac pulse generator

Model Number	Dimensions (H x W x T, mm)	Weight (g)	Volume (cc)	Connector
PM2224 (RF)	52 x 53 x 6	24	13,1 (± 0,5)	IS-1

Radiopaque markers

St. Jude Medical identifier



Device MRI symbol

Indications: Implantation of a dual-chamber pulse generator is indicated in one or more of the following permanent conditions: syncope, presyncope, fatigue, disorientation due to arrhythmia/bradycardia or any combination of those symptoms. MRI conditional pulse generator is safe for use in the MRI environment when used in a complete MRI conditional pacing system and according to the instructions in the MRI Procedure Information document for the St. Jude Medical MRI conditional pacing system. Rate-modulated pacing is indicated for patients with chronotropic incompetence, and for those who would benefit from increased stimulation rates concurrent with physical activity. Dual-chamber pacing is indicated for those patients exhibiting: sick sinus syndrome, chronic, symptomatic second- and third-degree AV block, recurrent Adams-Stokes syndrome, symptomatic bilateral bundle branch block when tachyarrhythmia and other causes have been ruled out. Atrial pacing is indicated for patients with sinus node dysfunction and normal AV and intraventricular conduction systems. Ventricular pacing is indicated for patients with significant bradycardia and normal sinus rhythm with only rare episodes of A-V block or sinus arrest, chronic atrial fibrillation, severe physical disability. AF Suppression algorithm is indicated for suppression of paroxysmal or persistent atrial fibrillation episodes in patients with one or more of the above pacing indications.

Contraindications: Dual-chamber pulse generators are contraindicated in patients with an implanted cardioverter defibrillator (ICD). Rate-adaptive pacing may be inappropriate for patients who experience angina or other symptoms of myocardial dysfunction at higher sensor-driven rates. An appropriate Maximum Sensor Rate should be selected based on assessment of the highest stimulation rate tolerated by the patient. AF Suppression stimulation is not recommended in patients who cannot tolerate high atrial-rate stimulation. Dual-chamber pacing, though not contraindicated for patients with chronic atrial flutter, chronic atrial

fibrillation, or silent atria, may provide no benefit beyond that of single-chamber pacing in such patients. Single-chamber ventricular demand pacing is relatively contraindicated in patients who have demonstrated pacemaker syndrome, have retrograde VA conduction, or suffer a drop in arterial blood pressure with the onset of ventricular pacing. Single-chamber atrial pacing is relatively contraindicated in patients who have demonstrated compromise of AV conduction.

Adverse Events: The following are potential complications associated with the use of any pacing system: arrhythmia, heart block, thrombosis, threshold elevation, valve damage, pneumothorax, myopotential sensing, vessel damage, air embolism, body rejection phenomena, cardiac tamponade or perforation, formation of fibrotic tissue, local tissue reaction, inability to interrogate or program a device because of programmer malfunction, infection, interruption of desired device function due to electrical interference, loss of desired pacing and/or sensing due to lead displacement, body reaction at electrode interface, or lead malfunction (fracture or damage to insulation), loss of normal device function due to battery failure or component malfunction, device migration, pocket erosion, or hematoma, pectoral muscle stimulation, and phrenic nerve or diaphragmatic stimulation. The following, in addition to the above, are potential complications associated with the use of rate-modulated pacing systems: inappropriate, rapid pacing rates due to sensor failure or to the detection of signals other than patient activity, loss of activity-response due to sensor failure, and palpitations with high-rate pacing.

Refer to the User's Manual for more detailed indications, contraindications, warnings, precautions and potential adverse events.

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Dual-Chamber Pacemaker with Wireless Telemetry

Product Specifications

PHYSICAL SPECIFICATIONS	
Model	PM2224
Telemetry	RF
Dimensions (mm)	52 x 53 x 6
Weight (g)	24
Volume (cc)	13,1 ¹
Connector	IS-1
PARAMETER SETTINGS	
Rate/Timing	
Atrial Pace Refractory (ms)	190-400 in steps of 30; 440; 470 ²
Atrial Sense Refractory (ms)	93; 125; 157; 190-400 in steps of 30; 440; 470; 500 ²
Atrial Protection Interval (ms)	125 ³
Paced AV Delay (ms)	25; 30-200 in steps of 10; 225-300 in steps of 25; 350
Base Rate (min ⁻¹)	30-130 in steps of 5; 140-170 in steps of 10
Far-Field Protection Interval (ms)	16 ³
Hysteresis Rate (min ⁻¹)	Off; 30 ⁴ -150 in steps of 5
Search Interval (min)	Off; 1; 5; 10; 15; 30
Cycle Count	1-16 in steps of 1
Intervention Rate (min ⁻¹)	Off; Same as Base Rate; 80-120 in steps of 10; Intrinsic +0; Intrinsic +10; Intrinsic +20; Intrinsic +30
Intervention Duration (min)	1-10 in 1 minute intervals
Recovery Time	Fast; Medium; Slow; Very Slow
Maximum Tracking Rate (min ⁻¹)	90-130 in steps of 5; 140-180 in steps of 10
Mode	AOO(R); AAI(R); AAT(R); VOO(R); VVI(R); VVT(R); VDD(R); DOO(R); DVI(R); DDI(R); DDD(R); Pacing Off
Post-Ventricular Atrial Blanking (ms)	60-200 in steps of 10; 225; 250
PVARP (ms)	125-500 in steps of 25
Sensed AV Delay (ms)	25; 30-200 in steps of 10; 225-325 in steps of 25
Rest Rate (min ⁻¹)	Off; 30-150 in steps of 5
Shortest AV Delay (ms)	25-50 in steps of 5; 60-120 in steps of 10
Ventricular Blanking (ms)	Auto; 12-52 in steps of 4
Ventricular Pace/Sense Refractory ⁵ (Fixed) (ms)	125; 160-400 in steps of 30; 440; 470 ²
MRI Settings	
MRI Mode	AOO; VOO; DOO; Pacing Off
MRI Base Rate	30-120 bpm in steps of 5 bpm
MRI Paced AV Delay	25 ms; 30-200 ms in steps of 10 ms; 225-300 ms in steps of 25 ms; 350 ms
MRI Atrial Pulse Configuration	Bipolar
MRI Atrial Pulse Amplitude	5.0 V; 7.5 V
MRI Atrial Pulse Width	1.0 ms
MRI RV Pulse Configuration	Bipolar
MRI RV Pulse Amplitude	5.0 V; 7.5 V
MRI RV Pulse Width	1.0 ms
Output/Sensing	
ACap™ Confirm	On; Off; Monitor
Primary Pulse Configuration	Bipolar
Backup Pulse Configuration	Bipolar
Backup Pulse Amplitude (V)	5.0
Search Interval (hours)	8; 24
A or V Pulse Amplitude (V)	0.25-4.0 in steps of 0.25; 4.5-7.5 in steps of 0.5
A or V Pulse Width (ms)	0.05; 0.1-1.5 in steps of 0.1
A or V Pulse Configuration	Unipolar (tip-case); Bipolar (tip-ring)
A or V Sense Configuration	Unipolar Tip (tip-case); Bipolar (tip-ring); Unipolar Ring (ring-case)
Atrial Sensitivity (mV)	0.1-0.4 ⁶ in steps of 0.1; 0.5; 0.75-2.0 in steps of 0.25; 2.5-4.0 in steps of 0.5; 5.0 ⁷
Ventricular AutoCapture™	
Pacing System	On; Off
Primary Pulse Configuration	Unipolar; Bipolar
Backup Pulse Configuration	Unipolar; Bipolar
Backup Pulse Amplitude (V)	5.0 ²
Search Interval (hours)	8; 24
AutoCapture	
Paced/Sensed AV Delay (ms)	50/25; 100/70; 120/100
Ventricular Sensitivity (mV)	0.5-5.0 in steps of 0.5; 6-10 in steps of 1.0; 12.5 ⁷
SenseAbility™ Technology	Off; On (Automatic Sensitivity Control adjustment for atrial and ventricular events)
A Max Sensitivity (mV)	0.2-1.0 in steps of 0.1
V Max Sensitivity (mV)	0.2-2.0 in steps of 0.1
Threshold Start	(Atrial and Ventricular Post-Sense) 50; 62.5; 75; 100% (Atrial Post-Pace) 0.2-3.0 in steps of 0.1 mV (Ventricular Post-Pace) Auto; 0.2-3.0 in steps of 0.1 mV (Atrial and Ventricular Post-Sense) 0; 30; 60; 95; 125; 160; 190; 220 (Atrial Post-Pace) 0; 30; 60; 95; 125; 160; 190; 220 (Ventricular Post-Pace) Auto; 0; 30; 60; 95; 125; 160; 190; 220
Decay Delay (ms)	
Rate-Modulated Parameters	
Maximum Sensor Rate (min ⁻¹)	80-150 in steps of 5; 160-180 in steps of 10
Rate Responsive AV Delay	Off; Low; Medium; High
Rate Responsive PVARP/VREF	Off; Low; Medium; High
Reaction Time	Very Fast; Fast; Medium; Slow
Recovery Time	Fast; Medium; Slow; Very Slow

Customer Support: 46-8-474-4756

Brief Summary: Prior to using these devices, please review the Instructions for Use for a complete listing of indications, contraindications, warnings, precautions, potential adverse events and directions for use. Devices depicted may not be available in all countries. Check with your St. Jude Medical representative for product availability in your country. Unless otherwise noted, ™ indicates that the name is a trademark of, or licensed to, St. Jude Medical or one of its subsidiaries. ST. JUDE MEDICAL, the nine-squares symbol and MORE CONTROL. LESS RISK. are trademarks and service marks of St. Jude Medical, Inc. and its related companies. ©2011 St. Jude Medical, Inc. All Rights Reserved. Item No: GMCRCM737EN

Sensor	On; Off; Passive
Shortest PVARP/VREF (ms)	125-475 in steps of 25
Slope	Auto (-1); Auto (+0); Auto (+1); Auto (+2); Auto (+3); 1-16 in steps of 1
Threshold	Auto (-0.5); Auto (+0.0); Auto (+0.5); Auto (+1.0); Auto (+1.5); Auto (+2.0); 1-7 in steps of 0.5
AF Management	
AF Suppression™ Algorithm	Off; On
Lower Rate Overdrive (min ⁻¹)	10 ³
Upper Rate Overdrive (min ⁻¹)	5 ³
No. of Overdrive Pacing Cycles	15-40 in steps of 5
Rate Recovery (ms)	8; 12 ³
Maximum AF	
Suppression Rate (min ⁻¹)	80-150 in steps of 5; 160-180 in steps of 10
Atrial Tachycardia	
Detection Rate (min ⁻¹)	110-200 in steps of 10; 225-300 in steps of 25
Auto Mode Switch	Off; DDD(R) to DDI(R); DDD(R) to DDT(R); DDD(R) to VVI(R); DDD(R) to VVT(R); VDD(R) to VVI(R); VDD(R) to VVT(R)
AMS Base Rate (min ⁻¹)	40-170 in steps of 5
Stored Electrograms	
Options	
Priority Options	Off; Low; High
Channel	1; 2; 3
Triggers	
Advanced Hysteresis	Off; Low; High
AMS Entry/AMS Exit/	
AMS Entry and Exit	Off; Low; High
AT/AF Detection	Off; Low; High
Magnet Response	Off; Low; High
High Atrial Rate	
Rate (min ⁻¹)	Off; Low; High
No. of Consecutive Cycles	125-300 in steps of 25
High Ventricular Rate	
Rate (min ⁻¹)	2; 3; 4; 5; 10; 15; 20
No. of Consecutive Cycles	Off; Low; High
PMT Termination	Off; Low; High
Consecutive PVCs	Off; Low; High
No. of Consecutive PVCs	2; 3; 4; 5
Noise Reversion	Off; Low; High
Other	
A and V Lead Monitoring	Monitor; Auto Polarity Switch
A and V Low Impedance Limit (Ω)	100-500 in steps of 25
A and V High Impedance Limit (Ω)	750-2500 in steps of 250; 3000
Lead Type	Uncoded; Unipolar; Bipolar
Magnet Response	Off; Battery Test
Negative AV Hysteresis Search (ms)	Off; -10 to -120 in steps of 10
NIPS Options	
Stimulation Chamber	Atrial; Ventricular
Coupling Interval (ms)	100-800 in steps of 10 ⁸
S1 Count	2-25 in steps of 1
S1 ² ; S2; S3 and S4 Cycle (ms)	Off; 100-800 in steps of 10 (Fixed or Adaptive)
Ventricular Support Rate (min ⁻¹)	Off; 30-95 in steps of 5
Sinus Node Recovery Delay (sec)	1; 2; 3; 4; 5
PMT Options	
PMT Detection Rate (min ⁻¹)	Off; Passive; Atrial Pace ²
PVC Response	90-180 in steps of 5
Ventricular Intrinsic Preference, VIP™ (ms)	Off; Atrial Pace ²
VIP Search Interval	Off; 50-150 in steps of 25; 160-200 in steps of 10
VIP Search Cycles	30 sec; 1; 3; 5; 10; 30 min
Ventricular Safety Standby	1; 2; 3
Diagnostic Trends	Off; On
	AT/AF Activity; Exercise; Lead Impedance; P and R Wave; A and V Threshold
Patient Notifiers	
Programmable Notifiers (On; Off)	Device at ERI; Atrial Lead Impedance Out of Range; Ventricular Lead Impedance Out of Range; AT/AF Burden; AT/AF Episode Duration; V Rate During AT/AF (High V Rate Threshold/ Total Time in High V Rate)
Device Reset	On
Entry into Backup VVI Mode	On
Audible Duration (sec)	2; 4; 6; 8; 10; 12; 14; 16
Number of Audible Alerts per Notification	2
Number of Notifications	1-16
Time Between Notifications (hours)	10; 22
1. ± 0.5 cc	
2. Programming options dependent on pacing mode.	
3. This parameter is not programmable.	
4. The highest available setting for hysteresis rate will be 5 min ⁻¹ below the programmed base rate.	
5. In dual-chamber modes, the maximum ventricular refractory period is 325 ms.	
6. Values 0.1-0.4 not available in a unipolar sense configuration.	
7. Sensitivity is with respect to a 20 ms haversine test signal.	
8. During atrial NIPS in dual-chamber modes, the shortest Coupling Interval will be limited by the programmed AV/PV delay.	
9. S1 Burst Cycle is applied at the pre-programmed S1 cycle length.	