

SPHERA™ DR MRI SURESCAN™

Models SPDR01, SPDRL1

Physical characteristics

Physical characteristics	
Size (H x W x D)	
Model SPDR01	44.7 mm x 47.9 mm x 7.5 mm
Model SPDRL1	45.4 mm x 52.3 mm x 7.5 mm
Mass	
Model SPDR01	27.1 g
Model SPDRL1	31.3 g
Volume	
Model SPDR01	12.1 cm ³
Model SPDRL1	13.1 cm ³
Connector	IS-1 BI or UNI
Battery	
Radiopaque ID	PHX
Type	Lithium-iodine
Voltage	2.8 V
Average Projected Capacity	
Model SPDR01	1.3 Ah
Model SPDRL1	1.6 Ah
Longevity (years) ^a	
Model SPDR01	9.0
Model SPDRL1	11.1

^a DDDR or DDD, 100% pacing, 500 ohms, 2.5 V, 60 ppm, .4 ms



Medtronic

Programmable parameters

Parameter	Programmable values
Pacing Modes	DDDR ; DDD; DDIR; DDI; DVIR; DVI; DOOR; DOO; VDD; VVIR; VDIR; VVI; VDI; VVT; VOOR; VOO; AAIR; ADIR; AAI; ADI; AAT; AOOR; AOO; ODO; OVO; OAO
Mode Switch	On ; Off
Lower Rate	30; 35; 40 ... 60 ... 170 ppm (exc. 65, 85)
Upper Tracking Rate ^a	80; 90; 95 ... 130 ... 180 ppm
Upper Sensor Rate	80; 90; 95 ... 130 ... 180 ppm
A and RV Pulse Amplitude ^b	0.5; 0.75; 1.0 ... 3.5 ... 4; 4.5; 5; 5.5; 6; 7.5 V
A and RV Pulse Width	0.12; 0.15; 0.21; 0.27; 0.34; 0.4 ; 0.46; 0.52; 0.64; 0.76; 1; 1.25; 1.5 ms
Atrial Sensitivity	0.18; 0.25; 0.35; 0.5 ; 0.7; 1; 1.4; 2; 2.8; 4 mV
Ventricular Sensitivity	1; 1.4; 2; 2.8 ; 4, 5.6, 8, 11.2 mV
Pacing Polarity (A and V)	Bipolar; Unipolar; Configure
Sensing Polarity (A and V)	Bipolar; Unipolar; Configure
Paced AV (PAV)	30; 40; 50 ... 150 ... 350 ms
Sensed AV	30; 40; 50 ... 120 ... 350 ms
PVARP	Auto ; Varied; 150; 160; 170 ... 500 ms
Minimum PVARP	150; 160; 170 ... 250 ... 500 ms
PVAB	130; 140; 150 ... 180 ... 350 ms
Atrial Refractory Period	180; 190; 200 ... 250 ... 500 ms
Atrial Blanking Period	130; 140; 150 ... 180 ... 350 ms
Ventricular Refractory Period	150; 160; 170 ... 230 ... 500 ms
Ventricular Blanking (After atrial pace) (PVAB)	20; 28 ; 36; 44 ms

^a The atrial and ventricular Rate Limit is 200 ppm (± 20 ppm).

^b Tolerance for amplitudes from 0.5 V through 6.0 V is $\pm 10\%$, and for 7.5 V is $-20/+0\%$. Tolerances are based on 37 °C and a 500 Ω load. Amplitude is determined 200 μ s after the leading edge of the pace.

Therapies to promote intrinsic activation

Parameter	Programmable values
Search AV TM +	On ; Off
Max increase to AV	10; 20; 30 ... 170 ... 250 ms
Sleep	On; Off
Sleep Rate	30; 35; 40 ... 50 ... 90 ppm (exc. 65, 85)
Bed Time	12:00 a.m., 12:15 a.m., 12:30 a.m. ... 10:00 p.m. ... 11:45 p.m.
Wake Time	12:00 a.m., 12:15 a.m., 12:30 a.m. ... 8:00 a.m. ... 11:45 p.m.
Single Chamber Hysteresis	Off; 40; 50; 60 ppm

Rate Response Pacing

Parameter	Programmable values
ADL Rate	60; 65; 70 ... 95 ... 175 ppm
Rate Profile Optimization	On ; Off
ADL Response	1; 2; 3 ; 4; 5
Exertion Response	1; 2; 3 ; 4; 5
Activity Threshold	Low; Medium Low ; Medium High; High
Acceleration	15 s; 30 s ; 60 s
Deceleration	2.5 min; 5 min; 10 min; Exercise
RAAV	On; Off
Start Rate	50; 55; 60 ... 80 ... 175 ppm
Stop Rate	55; 60; 65 ... 120 ... 180 ppm
Maximum Offset	-10; -20; -30 ... -40 ... -300 ms

Additional pacing features

Parameter	Programmable values
PMT Intervention	On; Off
PVC Response	On ; Off
Ventricular Safety Pacing	On ; Off

SureScan™ Pacing parameters

Parameter	Programmable values
SureScan Pacing Mode	AOO; VOO; DOO; ODO
SureScan Lower Rate Interval	60; 70; 75; 80 ... 115; 120 ^a ppm
SureScan PAV	50; 60 ... 110 ms
SureScan Atrial Amplitude	5.0; 5.5; 6.0; 7.5 V
SureScan Atrial Pulse Width	1.0; 1.25; 1.5 ms
SureScan Atrial Sensitivity	0.18; 0.25; 0.35; 0.5; 0.7; 1.0; 1.4; 2.0; 2.8; 4.0 mV
SureScan Ventricular Amplitude	5.0; 5.5; 6.0; 7.5 V
SureScan Ventricular Sensitivity	1.0; 1.4; 2.0; 2.8; 4.0; 5.6; 8.0; 11.2 mV
SureScan Ventricular Pulse Width	1.0, 1.25, 1.5 ms
SureScan Timeout Duration	24 hr

^a User selection will not include 65 ppm or 85 ppm.

Atrial tachyarrhythmia therapies and interventions

Mode switch	
Parameter	Programmable values
Mode Switch	On ; Off
Detected rate	120; 125 ... 175 ... 200 ppm
Detect duration	NO Delay ; 10; 20 ... 60 sec
Blanked Flutter Search	On ; Off

Non-competitive Atrial Pacing	
Parameter	Programmable values
Non-competitive atrial pacing	On ; Off

Automatic pacing, sensing, and lead monitor

Implant detection and initialization	
At the completion of the 30-minute Implant Detection period, Rate Profile Optimization is enabled; the appropriate pacing and sensing polarities are automatically selected by the device; Atrial and Ventricular Capture Management™ is enabled and Amplitude and Pulse width become Adaptive. Sensing Assurance™ is enabled and sensitivity becomes Adaptive. SAV+ is enabled 60 minutes after implant detection is complete.	
Parameter	Programmable values
Implant Detection	On/Restart; Off/Complete
Lead Monitor (A and V)	Configure; Monitor Only; Adaptive (Auto Polarity Switch); Off
Notify If <	200 Ω
Notify If >	1,000; 2,000; 3,000; 4,000 Ω
Monitor Sensitivity	2; 3; 4 ... 8 ... 16

Atrial Capture Management	
Parameter	Programmable values
Atrial Capture Management	Off; Monitor Only; Adaptive
Amplitude Margin	1.5x; 2x ; 2.5x; 3x; 4x (times)
Minimum Adapted Amplitude	0.5; 0.75 ... 1.5 ... 3.5 V
Capture Test Frequency	1; 2; 4; 8; 12 hours; Day at rest; Day at ... ; 7 Days at
Capture Test Time	12:00 a.m.; 1:00 a.m. ... 11:00 p.m.
Acute Phase Days Remaining	Off; 7; 14; 21 ... 84; 112 ; 140; 168 ... 252 days

Ventricular Capture Management	
Parameter	Programmable values
Ventricular Capture Management	Off; Monitor Only; Adaptive
Amplitude Margin	1.5x; 2x ; 2.5x; 3x; 4x (times)
Minimum Adapted Amplitude	0.5; 0.75 ... 2 ... 3.5 V
Capture Test Frequency	15; 30 min; 1; 2; 4; 8; 12 hours; Day at rest ; Day at ... ; 7 days at
Capture Test Time	12:00 a.m.; 1:00 a.m. ... 11:00 p.m.
Acute Phase Days Remaining	Off; 7; 14; 21 ... 84; 112 ; 140; 168 ... 252 days
V. Sensing During Search	Unipolar, Bipolar, Adaptive

Sensing Assurance	
Parameter	Programmable values
Sensing Assurance (A and V)	On ; Off

Diagnostics

Quick Look™ II	
Highlights significant events, Pacing Summary, Threshold and Impedance Trends	
Atrial and Ventricular Pacing Threshold Trends	
Battery Longevity	
Pacing Summary and Access to Rate Histogram	
Atrial and Ventricular Lead Impedance Trends	
Observations	
P-Wave/R-Wave Amplitudes and Access to A and V	
Sensitivity Trends	
Histogram Reports	
Heart Rate Histograms	
AV Conduction Histograms	
Search AV™+ Histogram	
Sensor Indicated Rate Profile	

Atrial and Ventricular Episodes	
Atrial and Ventricular High Rate Episodes	
Multiple EGM Episodes	

Clinician Selected Diagnostics	
Custom Rate Trend	
Atrial Capture Management Detail	
Ventricular Capture Management Detail	
High Rate Detail	

Patient Data Management

TherapyGuide™ — Patient Condition Based Programming

TherapyGuide Fields

Atrial Status
AV Conduction
Heart Failure
Age
Activity Level

Patient Data Stored in Device

Patient Identification
Leads Implanted
Indication for Implant
Device Implanted
Clinician's Stored Notes

Data Management

Automatic Printing of Initial Interrogation Report
Full Page Printing
Save-to-disk Capacity for Electronic File Management

Brief Statement

See the MRI SureScan™ Technical Manual before performing an MRI Scan and Device Manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/adverse events.

IMPORTANT REMINDER

This information is intended only for users in markets where Medtronic products and therapies are approved or available for use as indicated within the respective product manuals. Content on specific Medtronic products and therapies is not intended for users in markets that do not have authorization for use.

INDICATIONS, SAFETY, AND WARNINGS

See the device manual at manuals.medtronic.com for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential adverse events.



www.medtronic.com/manuals

Follow-up and troubleshooting

Follow-up and Troubleshooting

Telemetry Features	
Transtelephonic Monitor	On, Off
Extended Telemetry	On, Off
Extended Marker	Standard, Therapy Trace
Key Parameter History	
Initial Interrogation Report	
Strength Duration Threshold Test	
Ventricular Threshold Test	
Marker Channel™	
Threshold Margin Test	
Exercise Test	
EP Studies	
Magnet Test	
Underlying Rhythm Test	
Sensing Test	
Temporary Test	

Magnet Mode Operation

	BOS	ERI
Dual Chamber Mode	DOO 85 bpm	65
Single Chamber Atrial Mode	AOO 85 bpm	65
Single Chamber Ventricular Mode	VOO 85 bpm	65
ERI	Initiation date	

Recommended Replacement Time (RRT) and Elective Replacement Indicator (ERI)

Replacement Message on programmer (Quick Look™ II)	
Battery/Lead Information	Replacement message and displayed battery voltage on programmer
RRT and ERI Initiation Date	Displayed on programmer

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