



MRI™ SureScan® pacemaker system



# Q20SR

## Specifications

Vienkamerinis EKS, turintis dažnio adaptacijos funkciją (SSIR)

Model Q20A2

Single chamber MRI™ SureScan®  
pacemaker system

**vitatron** • The Pace Makers

## Mechanical

Model	Q20A2
Size (HxWxD mm)	40.2x42.9x7.5
Weight (g)	21.5
V (cc)	9.7
Connector	IS-1 BI or UNI
Radiopaque ID	V5

<b>Battery</b>	
Type	Lithium-iodine
Voltage	2.8 V
Average projected capacity	.91 Ah

<b>Longevity</b>	
	12.4 years*
	10.6 years†

## Bradycardia Pacing Programmable parameters

Pacing Modes	VVIR, VI, VVT, VOOR, VOO, AAIR, AAI, AAT, AOOR, AOO, OVO, OAO
Lower Rate	30, 35, 40...60...170 min <sup>-1</sup> (exc. 65, 85)
Upper Sensor Rate	80, 90, 95...130...180 min <sup>-1</sup>
A and RV Pulse Amplitude <sup>a</sup>	0.5, 0.75, 1.0...3.5...4, 4.5, 5, 5.5,

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
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Atrial Sensitivity	0.25, 0.35, 0.5, 0.7, 1, 1.4, 2, 2.8, 4 mV
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Ventricular Sensitivity	0.5, 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
Atrial Refractory Period	180, 190, 200...250...500 ms
Atrial Blanking Period	130, 140, 150...180...350 ms
Ventricular Refractory Period	150, 160, 170...330...500 ms

<b>Therapies to promote intrinsic activation</b>	
Sleep	On, Off
Sleep Rate	30, 35, 40...50...90 min <sup>-1</sup> (exc. 65, 85)
Bed Time	00:00, 00:15, 00:30... 22:00...23:45
Wake Time	00:00, 00:15, 00:30... 8:00...23:45
Single Chamber Hysteresis	Off, 40, 50, 60 min <sup>-1</sup>

## Rate Response Pacing

ADL Rate	60, 65, 70...95...175, 180 min <sup>-1</sup>
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

## MRI Pacing Parameters

SureScan <sup>®</sup> Pacing Mode	AOO, VOO, OAO, OVO
SureScan Lower Rate Interval	60, 70, 75, 80 ... 115, 120 <sup>b</sup> min <sup>-1</sup>
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 Atrial Pulse Width	1.0, 1.25, 1.5 ms
SureScan Timeout	

Duration	24 hr
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## Atrial Tachyarrhythmia Therapies and Interventions

Conducted AF Response <sup>a</sup>	Regularize V-V during AT/AF On, Off
Maximum Rate (min <sup>-1</sup> )	80, 85, 90...110...130

## 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;

Ventricular Output Management is enabled and Amplitude and Pulse Width become adaptive. Sensing Assurance<sup>™</sup> is enabled and Sensitivity becomes adaptive.

Implant Detection	On/Restart, Off/Complete
Lead Monitor (A and V)	Off, Configure, Monitor Only, Adaptive (Auto Polarity Switch)
Notify If <	200 Ω
Notify If >	1000, 2000, 3000, 4000 Ω
Monitor Sensitivity	2, 3, 4 ... 8 ... 16

### Ventricular Output Management

Ventricular Output Management	Off, Monitor Only, Adaptive
Amplitude Margin	1.5x, 2x, 2.5x, 3x, 4x (times)

Minimum Adapted	1.9Automatinis amplitudes parinkimas
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Acceleration	15 s, 30 s, 60 s
Deceleration	2.5 min, 5 min, 10 min, Exercise

1.4 p.d Svoris ne didesnis nei 25g

1.8 Tarnavimo trukmė

1.3 p.d.AAIR ir VVIR re-imai

1.5 p.d maks impulso amplitudė ne mažiau 7.5V

1.11 p.d. Jautrumas skilveliuose

1.6 p.d. Maks impulso trukmė ne mažiau 1,5ms

1.10 Jautrumas prieširdžiuose

1.11 p.d. Jautrumas skilveliuose

1.7 p.d. Keičiamas impulso poliškumas

1.9Automatinis amplitudes parinkimas

1.9Automatinis amplitudes parinkimas

1.1 p.d.Prieširdžių ir skilvelių adaptacija fiziniam krūviui

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  
00:00, 1:00...23:00  
Acute Phase Days  
Remaining Off, 7, 14, 21...84, 112, 140, 168...  
252 days  
V. Sensing During Search Unipolar, Bipolar, Adaptive  
Sensing Assurance  
Sensing Assurance (A and V) On, Off

## Diagnosics

### Cardiac Dashboard II

Highlights significant events, AT/AF and pacing summary, threshold and impedance trends

Ventricular pacing threshold trends

Battery longevity 1.14 p.d. Sumine susitraukimu dažnio histograma

Pacing summary and access to rate histogram

Atrial and ventricular lead impedance trends

Number of hours/day in atrial arrhythmia, percentage of time

Access to AT/AF diagnostics

Observations

P-wave amplitude and access to A and V sensitivity trends

CardioTrend™ 1.15 [vykių] registratorius

Trend data compiles up to 6 months of daily clinical information in an easy-to-interpret graphic format

### Histogram reports

Heart rate histograms 1.14 p.d. Sumine susitraukimu dažnio histograma

Sensor indicated rate profile

Atrial and ventricular episodes

1.16 prieširdžių ir skilvelų didelio dažnio epizodų registravimas

High rate episodes

Atrial arrhythmia durations

Multiple EGM episodes

1.12 p.d. intrakardines elektrogramos registravimas realiuoju laike

Clinician selected diagnostics

Custom rate trend

Ventricular output management detail

High rate detail

## Patient Data Management

Patient data stored in device

Patient identification

Leads implanted

Indication for implant

Device implanted

Clinician's stored notes

Tarnavimo trukmė,  
stimuliuojant 100 proc.  
60 k./min. dažniu 2,5V;  
0,4 ms

### Data management

Automatic printing of initial interrogation report

Full page printing

Save-to-Disk capacity for electronic file management

## 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  ion threshold test

Ventricular threshold test

Marker Channel™ 1.13 p.d. "Marker channel"

Threshold margin test

Exercise test

EP studies

Magnet test

Underlying rhythm test

Sensing test

Temporary test

### Magnet mode operation

	BOS	ERI
Single chamber atrial mode	A00 85 min <sup>-1</sup>	65
Single chamber ventricular mode	V00 85 min <sup>-1</sup>	65

### ERI

Initiation date

Recommended Replacement Time (RRT) and

Elective Replacement Indicator (ERI)

Replacement message on programmer (Cardiac Dashboard II)

Battery/lead information Replacement message and displayed battery voltage on programmer

RRT and ERI initiation date Displayed on programmer

## References

\*SSIR or SSI 50%, 2 V, 60 min<sup>-1</sup>, 0.4 ms, 500 OHM.

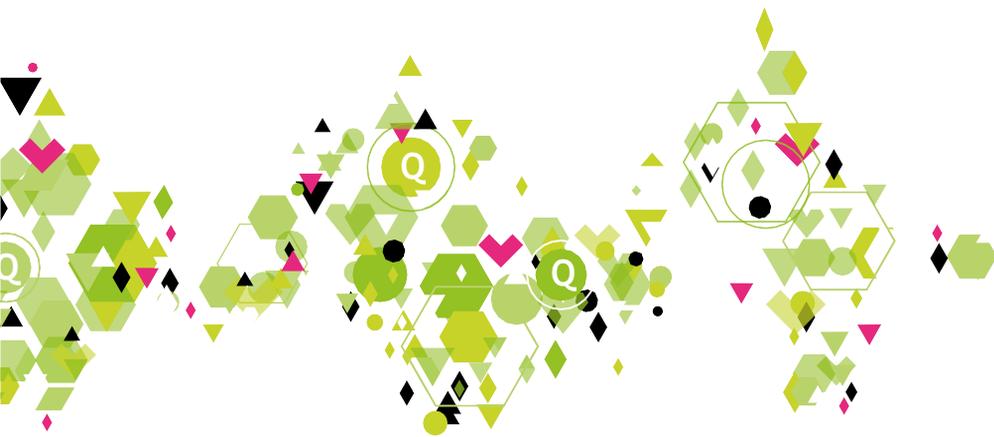
**† SSIR or SSI 100%, 2 V, 60 min<sup>-1</sup>, 0.4 ms, 500 OHM.**

**‡ Tolerance for amplitudes from 0.5 V through 6.0 V is ± 10%**, and for 7.5 V is -20/+0%. Tolerances are based on 37 °C and a 500Ω load. Amplitude is determined 200 μs after the leading edge of the pace.

<sup>b</sup> User selection will not include 65 min<sup>-1</sup> or 85 min<sup>-1</sup>.

<sup>c</sup> Conducted AF Response is functional during VVIR modes.

Nominal values indicated in **bold**



### Vitatron. The Pace Makers

Vitatron - based in Europe - is the only medical device company that specializes exclusively in pacemakers. Since 1962, Vitatron pacemakers have helped restore more than 1,000,000 people in more than 60 countries to a full life. We strive to achieve perfection in everything we do. This results in unique patient-focused therapies, as well as highly cost-effective pacemakers that are easy to use.

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Q20SR • Single chamber

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