



MRI™ SureScan® pacemaker system



Dvikamerinis EKS, turintis dažnio adaptacijos funkciją (DDDR)

Q70DR

Specifications

Model Q70A2

Dual chamber MRI™ SureScan®
pacemaker system

vitatron • The Pace Makers

Q70DR Specifications

Model Q70A2

Dual chamber pacemaker system

2.1 p.d. dvikamerinis programuojams

Mechanical

| | |
|----------------------------|---|
| Model | Q70A2 |
| Size (HxWxD mm) | 44.7x47.9x7.5 |
| M (g) | 27.1 2.3 p.d. Svoris mažesnis nei 30 g |
| V (cc) | 12.1 |
| Connector | IS-1 BI or UNI |
| Radiopaque ID | V5 |
| Battery | |
| Type | Lithium-iodine |
| Voltage | 2.8 V |
| Average projected capacity | 1.3 Ah |

| | |
|-----------|----------------------------|
| Longevity | 12.1 years* 10.2 years† |
|-----------|----------------------------|

Bradycardia Pacing

Programmable parameters

| | |
|--------------|--|
| SVP Modes | AAIR<-->DDDR, AAI<-->DDD |
| 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 |

2.2 p.d DDDR ir paprastesni programavimo režimai

2.15 p.d. Automatinis stimuliacijos režimo perjungimas

| | |
|----------------------|---|
| Mode Switch | On, Off |
| Lower Rate | 30, 35, 40... 60 ...170 min ⁻¹ (exc. 65, 85) |
| Upper Tracking Rate* | 80, 90, 95... 130 ...180, 190, 200, 210 min ⁻¹ |

2.16 p.d. atskirai programuojamas automatiškai perjungto režimo dažnis

| | |
|---------------------------|--|
| Upper Sensor Rate | 80, 90, 95... 130 ...180 min ⁻¹ |
| A and RV Pulse Amplitude* | 0.5, 0.75, 1.0... 3.5 ...4, 4.5, 5, 5.5, 6, 7.5 V |

2.5 p.d. Impulso amplitudė ne mažiau 7.5 V

2.6 p.d. Impulso trukmė

| | |
|----------------------|---|
| 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 |

2.8 p.d. Jautrumas vidiniams signalui priešird=iuose

2.9 p.d. Jutrumas vidiniams signalui skilveliuose

| | |
|-------------------------|---|
| Ventricular Sensitivity | 0.5 , 1, 1.4, 2, 2.8 , 4, 5.6, 8, 11.2 mV |
|-------------------------|---|

2.7 p.d. Keiciams impulso poliškuma

| | |
|---|---------------------------------------|
| 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 (SAV) | 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... 400 ...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) (PAVB) | 20, 28 , 36, 44 ms |

Therapies to promote intrinsic activation

| | |
|-------------------------------|--|
| SVP Modes | AAIR<-->DDDR, AAI<-->DDD |
| Reduced VP ⁺ | On, Off |
| Max Increase to AV | 10, 20, 30... 170 ...250 ms |
| Sinus Preference [™] | On, Off |
| Sinus Preference Zone | 3, 5, 10 , 15, 20 min ⁻¹ |
| Search Interval | 5, 10 , 20, 30 min |
| Sleep | On, Off |
| Sleep Rate | 30, 35, 40... 50 ...90 min ⁻¹ (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 ⁻¹ |

Nominal values indicated in **bold**

2.4 p.d. Stimuliacijos adaptacija fiziniam kriviui

Rate Response Pacing

| | |
|---------------------------|---|
| ADL Rate | 60, 65, 70... 95 ...175, 180 min ⁻¹ |
| 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 min ⁻¹ |
| Stop Rate | 55, 60, 65... 120 ... 180 min ⁻¹ |
| Maximum Offset | -10, -20, -30... -40 ...-300 ms |

Rate Drop Response

| | |
|-----------------------|--|
| Detection Type | Low Rate, Drop, Both, Off |
| Intervention Rate | 60, 70, 75, 80... 100 ...180 min ⁻¹ (exc. 65, 85) |
| Intervention Duration | 1, 2, 3...15 min |
| Detection Beats | 1, 2, 3 beats |
| Drop Rate | 30, 40, 50 ...100 min ⁻¹ |
| Drop Size | 10, 15, 20, 25 ...50 min ⁻¹ |
| Detection Window | 10, 15, 20, 25, 30 s; 1, 1.5, 2, 2.5 min |

Additional pacing features

| | |
|---------------------------|---------|
| PMT Intervention | On, Off |
| PVC Response | On, Off |
| Ventricular Safety Pacing | On, Off |

MRI Pacing Parameters

| | |
|----------------------------------|--|
| SureScan® Pacing Mode | AOO, VOO, DOO, ODO |
| SureScan Lower Rate Interval | 60, 70, 75, 80 ... 115, 120 ^c min ⁻¹ |
| 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 |
| SureScan MRI Compatibility | 1.5 and 3 Tesla, full body scan |

Atrial Tachyarrhythmia Therapies and Interventions

| | |
|------------------------|---|
| Mode Switch | On, Off |
| Detected Rate | 120, 125... 175 ...200, 210, 220 min ⁻¹ |
| Detect Duration | No Delay , 10, 20...60 sec |
| Blanked Flutter Search | On, Off |

Atrial Preference Pacing (APP) parameters

| | |
|-----------------------------------|-------------------------------|
| APP | On, Off |
| Maximum Rate (min ⁻¹) | 80, 90, 95, 100 ...150 |
| Interval Decrement (ms) | 30, 40, 50...100, 150 |
| Search Beats | 5, 10... 20 , 25, 50 |

Post Mode Switch Overdrive Pacing (PMOP) parameters

| | |
|-------------------------------------|--|
| PMOP | On, Off |
| Overdrive Rate (min ⁻¹) | 70, 75, 80 , 90, 95...120 |
| Overdrive Duration (min) | 0.5, 1, 2, 3, 5, 10 , 20, 30, 60, 90, 120 |

Conducted AF Response^d

Regularize V-V during AT/AF On, Off
Maximum Rate (min⁻¹) 80, 85, 90...110...130

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, SVP modes are enabled; Rate Profile Optimization is enabled; the appropriate pacing and sensing polarities are automatically selected by the device; Atrial and Ventricular Output Management is enabled and Amplitude and Pulse Width become adaptive. Sensing Assurance[™] 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

Atrial Output Management

Atrial Output 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 00:00, 1:00...23:00
Acute Phase Days Remaining Off, 7, 14, 21...84, 112, 140, 168...252 days

Ventricular Output Management

Ventricular Output Management Off, Monitor Only, **Adaptive**
Amplitude Margin 1.5x, 2x, 2.5x, 3x, 4x (times)
Minimum Adapted Amplitude 0.5, 0.75...2.0...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

Diagnostics

Cardiac Dashboard II

Highlights significant events, AT/AF and 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

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

Access to atrial arrhythmia diagnostics

Observations

P-wave/R-wave amplitudes and access to A and V sensitivity trends

CardioTrend

2.13 p.d. Jvykių registratorius

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

Histogram reports

Heart rate histograms

2.12 p.d. Suminė ir ties dažnio histograma

AV conduction histograms

Reduced VP[™]+ histogram

Sensor indicated rate profile

2.14 p.d. Prieširdžių ir skilvelių didelio dažnio epizodų registracija

Atrial and ventricular episodes

Atrial and ventricular high rate episodes

Ventricular rate during atrial arrhythmias

Atrial arrhythmia durations

Multiple EGM episodes

2.10 p.d. elektrogramų registravimo galimybė realiaime laike

Rate drop response episodes

Clinician selected diagnostics

Custom rate trend

Rate drop response detail

Atrial output management detail

Ventricular Output Management detail

High Rate Detail

Patient data stored in device

Patient identification

Leads implanted

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

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 hold test

Marker Channel

2.11 p.d. Stimuliatoriaus veiklos kanalo registravimas Marker channel

Threshold margin test

Exercise test

EP studies

Magnet test

Underlying rhythm test

Sensing test

Temporary test

Magnet mode operation

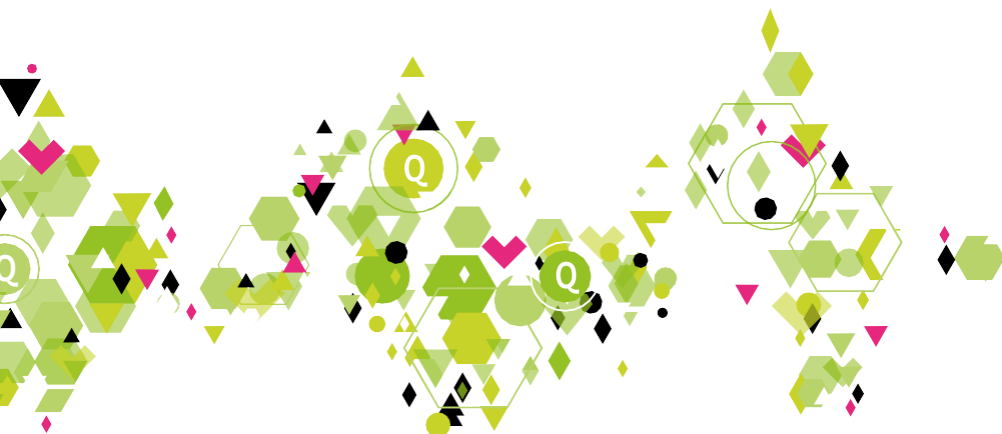
| | BOS | ERI |
|---------------------------------|--------------------------|-----|
| Dual chamber mode | DOO 85 min ⁻¹ | 65 |
| Single chamber atrial mode | AOO 85 min ⁻¹ | 65 |
| Single chamber ventricular mode | VOO 85 min ⁻¹ | 65 |

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

Replacement message on programmer (Cardiac Dashboard II)

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

RRT and ERI initiation date Displayed on programmer



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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References

*SVP mode on 50% atria and 5% ventricular, 1.5 V and 2.0 V, 60 min⁻¹, 0.4 ms, 500 OHM. For Atrial Output Management the Minimum Adapted Amplitude is 1.5 V (nominal). For Ventricular Output Management, the Minimum Adapted Amplitude is 2.0 V (nominal)
†DDDR or DDD 100%, 1.5 V and 2.0 V, 60 min⁻¹, 0.4 ms, 500 OHM. For Atrial Output Management the Minimum Adapted Amplitude is 1.5 V (nominal). For Ventricular Output Management, the Minimum Adapted Amplitude is 2.0 V (nominal).

^a If the Upper Tracking Rate is set to 190 min⁻¹ or higher, the atrial and ventricular Rate Limit is 227 min⁻¹ (± 17 min⁻¹). Otherwise, the atrial and ventricular Rate Limit is 200 min⁻¹ (± 20 min⁻¹).

^b 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 500 Ω load. Amplitude is determined 200 µs after the leading edge of the pace.

^c User selection will not include 65 min⁻¹ or 85 min⁻¹.

^d Conducted AF Response is functional during Mode Switch episodes, DDIR, VVIR and VDIR modes.



Q70DR • Dual chamber

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