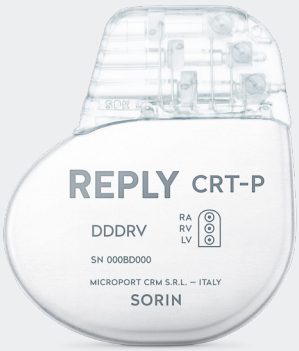


REPLY CRT-P

CARDIAC RESYNCHRONIZATION THERAPY
PACEMAKER (CRT-P)

TECHNICAL SPECIFICATIONS

MicroPort™ CRM

Programmable Parameters

Basic Parameters	
Mode	**DDD** - DDDR - DDD/DDIR - SafeR - SafeRR - SafeR/DDIR - Dplus - Dplus R - Dplus/DDIR - DDTA - DDTV - DDTAV - VDD - VDDR - DDI - DDIR - DOO - VVI - VVIR - VVT - VOO - AAI - AAIR - AAT - AOO - OOO
Basic rate	30 - 40 - 45 - 50 - 55 - **60** - 65 - 70 - 75 - 80 - 85 - 90 - 95 min^{-1}
Rest rate	50 - 55 - 60 - 65 - 70 - 75 - 80 - 85 - 90 - 95 min^{-1}
Maximum tracking rate	100 - 110 - **120** - 130 - 140 - 155 - 165 - 175 - 185 min^{-1}
Rate hysteresis	**0** - 5 - 10 - 20 - 35 %
Rest AV delay	30 - 45 - 65 - 80 - 95 - 110 - **125** - 140 - 155 - 170 - 190 - 205 - 220 - 235 - 250 ms
Exercise AV delay	30 - 45 - 65 - **80** - 95 - 110 - 125 - 140 - 155 - 170 - 190 - 205 - 220 - 235 - 250 ms
AVD paced/sensed offset	0 - 15 - 30 - 45 - **65** - 80 - 95 - 110 - 125 ms
Pacing and Sensing Parameters	
Atrial amplitude	1.5 - 2.0 - 2.5 - 3.0 - **3.5** - 4.0 - 5.0 - 7.5 V
Atrial pulse width	0.1 - 0.25 - **0.35** - 0.5 - 0.6 - 0.75 - 0.85 - 1 ms
Atrial pacing polarity	Unipolar - Bipolar[1]
Atrial sensitivity	0.1 - 0.2 - 0.3 - 0.4 - 0.6 - 0.8 - **1.0** - 1.2 - 1.5 - 1.8 - 2.0 - 2.2 - 2.5 - 2.7 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0 - 6.0 mV
Atrial sensing polarity	Unipolar - Bipolar[1]
Right ventricular amplitude	1.5 - 2.0 - 2.5 - 3.0 - **3.5** - 4.0 - 5.0 - 7.5 V
Right ventricular pulse width	0.1 - 0.25 - **0.35** - 0.5 - 0.6 - 0.75 - 0.85 - 1 ms
Right ventricular pacing polarity	Unipolar - Bipolar[1]
Right ventricular sensitivity	1.0 - 1.2 - 1.5 - 1.8 - 2.0 - 2.2 - **2.5** - 2.7 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0 - 6.0 - 8.0 - 10.0 - 15.0 mV
Right ventricular sensing polarity	Unipolar - Bipolar[1]
Left ventricular amplitude	0.25 - 0.5 - 0.75 - 1 - 1.25 - 1.5 - 1.75 - 2 - 2.25 - 2.5 - 2.75 - 3 - 3.25 - **3.5** - 3.75 - 4 - 4.25 - 4.5 - 5.0 - 7.5 V
Left ventricular pulse width	0.1 - 0.25 - **0.35** - 0.5 - 0.6 - 0.75 - 0.85 - 1 ms
Left ventricular pacing polarity	**Bipolar (LVtip to LVring)** - LVtip to RVring - LVring to RVring - Unipolar (LV tip to CAN)
V chambers	Right - Left - **R+L** - L+R
VV delay	**0** - 8 - 16 - 24 - 32 - 40 - 48 - 56 - 64 ms
Atrial lead polarity switch	ON - **OFF**
Right ventricular lead polarity switch	ON - **OFF**
Left ventricular lead polarity switch	ON - **OFF**
Special Features	
Rate smoothing	**OFF** - Very slow - Slow - Medium - Fast
Acceleration	0 - 5 - 15 - 25 - 35 - 45 %
AV delay shortening	0 - 15 - 30 - 45 - 65 - 80 - 95 - 110 ms
Fallback Mode Switching (FMS)	**ON** - OFF
Mode switch rate	From 30 to 90 by steps of 5; **60** min^{-1}
Anti-PMT protection	**Termin** - Reprog - OFF
Atrial autosensing	Auto - **Monitor**
Right ventricular autosensing	Auto - **Monitor**
Atrial autothreshold	Auto - Monitor - **OFF**
Min. atrial amplitude	1.0 - **1.5** - 2.0 - 2.5 V
Safety atrial amplitude	2.5 - **3.5** - 4.0 - 5.0V
Atrial autothreshold max rate	75 - 80 - 85 - 90 - 95 - **100** - 110 min^{-1}
Right ventricular autothreshold	Auto - Monitor - **OFF**
Min. right ventricular amplitude	1.5 - 2.0 - **2.5** - 3.0 - 3.5 V
Post Ventricular Atrial Blanking (PVAB)	**150** - 165 - 180 - 195 - 210 - 225 - 240 - 255 ms
Atrial Arrhythmia Prevention Parameters	
Pause suppression	A - V - A+V - **OFF**
PAC acceleration	ON - **OFF**
Overdrive	ON - **OFF**
Max. overdrive rate	100 - 110 - 130 - 155 - 185 min^{-1}
Rate-Response Parameters	
Sensor choice	**Twin Trace** - MV - G
Rate response mode	Learn[2] - RRAuto - RRFixed - **NO**
Physical activity	Very low - Low - **Medium** - High - Very high
SafeR™ Parameters	
Pause (max.)	2 - **3** - 4 s
Long PR (max.)	250 - 300 - **350** - 400 - 450 ms
Long PR (min.)	200 - **250** - 300 - 350 - 400 - 450 ms
AVB I switch	**Rest+Exercise** - Exercise
Automatic Detection of Implantation	
Atrial pacing polarity	**Unipolar** - Bipolar
Right ventricular pacing polarity	**Unipolar** - Bipolar
Sleep Apnea Monitoring (SAM)	
Monitoring	ON - **OFF**[3]
Monitoring period	22:00-03:00 - 23:00-04:00 - **00:00-05:00** - 01:00-06:00

As-shipped values shown **in bold.** Nominal values are underlined.

Non Programmable Parameters

Committed period	95 ms
Rate limit	195 min^{-1}
Refractory periods	Dynamic

Follow-Up Functions

Implant data	Detailed patient, device and lead information
Battery status	Magnet rate; battery impedance; battery curve
Atrial, right ventricular and left ventricular leads Impedance	Automatic every 6 hours
Atrial, right ventricular and left ventricular pacing threshold tests	Simultaneous transmission of EGM and markers
Temporary programming	Automatic measurement of P and R amplitudes: simultaneous transmission of EGM and markers
Test assistant Smartcheck	Chained test sequence with automatic saving/printing of results
NIPS (Electrophysiologic studies)	A burst, extra-stimuli sequences
Implant and follow-up report	Available in paper print and electronic format (Adobe® PDF)

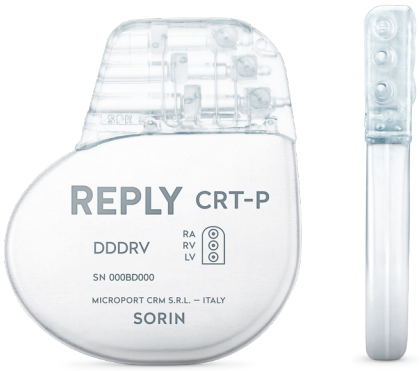
Diagnostics AIDA *(Automatic Interpretation for Diagnosis Assistance)*

All Diagnostics	Always ON
EGM	11 min. atrial and right ventricular channels, 22 stored episodes, annotated markers, synchronized with EGM
EGM Triggers	Mode switching; atrial bursts; ventricular bursts; switches in SafeR mode (AVB I, II, III and pauses)
AV Conduction	Full statistics: - PR intervals distribution - AVB episodes history: AVB I, II, III and pauses; SafeR switch criteria: duration and number of episodes - Occurrence of AVB: night/day; rest/exercise
Histograms and curves	A & V rate and pacing %; atrial arrhythmias (number and time in mode switch, bursts, Premature Atrial Contractions (PACs)); ventricular bursts and Premature Ventricular Contractions (PVCs); pacing threshold follow-up; autosensing histograms of P & R wave amplitudes; lead measurements; V & A autothreshold curves; 7 days 24-hour heart rate curve; 6-month data
Sleep Apnea Monitoring (SAM)	Respiratory Disturbance Index; number and duration of events; 6-month trend data; correlated with time in AF

As-shipped values shown **in bold.** Nominal values are underlined.

Physical and Electrical Characteristics

Dimensions	45.6 x 52.8 x 6.3 mm
Weight	26.5 g
Volume	11.3 cm^3
Connector	3*IS-1
Sensors	Minute Ventilation (MV) and Accelerometer (G)
Battery type	GB8426 Lithium Iodine
Longevity	**8.0 years**: DDDR, 60 min^{-1}. Pacing amplitude: A=RV=2.5 V, LV= 3.0 V, 0.35 ms, 500 Ohms, EGMs & Diagnostics ON, MV sensor ON. Pacing percentage A=15%, RV=LV=100%
	8.2 years: DDDR, 60 min^{-1}. Pacing amplitude: A=RV=2.5V, LV= 3.0 V,0.35 ms, 600 Ohms, EGMs & Diagnostics ON, sensors ON. Pacing percentage A=15%, RV=LV=100%
	7.6 years: DDDR, 60 min^{-1}. Pacing amplitude: A=RV=2.5 V, LV= 3.5 V, 0.35 ms, 500 Ohms, EGMs & Diagnostics ON, MV sensor ON. Pacing percentage A=15%, RV=LV=100%
Magnet rate (BOS / RRT)	96 min^{-1} / 80 min^{-1}



(1) As soon as the detection of implant is confirmed, the lead configuration is automatically programmed to unipolar pacing and bipolar sensing (if a bipolar lead is used) or to bipolar pacing and bipolar sensing (if the values are re-programmed to bipolar in the box and a bipolar lead is used).

(2) 20 minutes after implant, rate response will be programmed to Learn, and Diagnostics will be ON.

(3) Automatic activation at first interrogation after automatic implantation detection.

Not available for distribution or sale in the USA.

MicroPort™ CRM

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