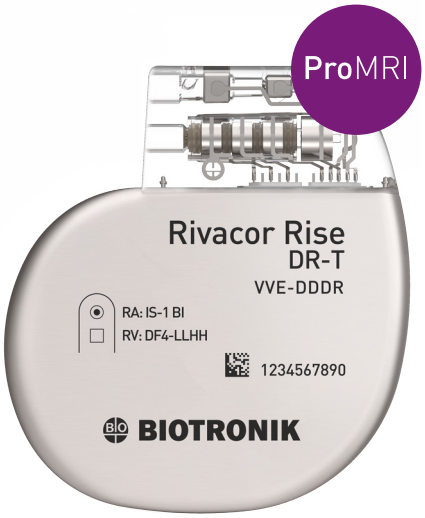
Rivacor Rise DR-T

Dual-chamber ICD



Ordering Information

Model	Connectors	Volume/Weight	Dimensions	Order Number
Rivacor Rise DR-T	DF4 (1x), IS-1 (1x)	32 cm³/77 g	60 x 66.5 x 10 mm	482018

Technical Data

Parameters

Therapy and Monitoring Zones	
Bradycardia	30 ... (5) ... 100 ... (10) ... 160 bpm
AT/AF rate	100 ... (10) ... 250 bpm
VT1 rate and VT2 rate	OFF; 100; 102; 103 ... (2) ... 115; 118 ... (2) ... 122 ... (3) ... 128; 130 ... (3) ... 136; 140 ... (3) ... 146 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 bpm
VF rate	OFF; 150 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 ... (9) ... 240; 250 bpm

Arrhythmia Detection and Redection	
AT/AF detection criteria	Interval; Stability
VT detection criteria	Interval; SMART detection; Onset; Stability; MorphMatch; Sustained VT
Detection counter VT1	10 ... (2) ... 100
Detection counter VT2	10 ... (2) ... 80
Redetection counter VT1	10 ... (2) ... 50
Redetection counter VT2	10 ... (2) ... 40

Arrhythmia Detection and Redection	
Detection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30; 30 out of 40
Redetection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30
SMART detection	OFF; ON
Onset	If SMART = OFF: OFF; 4 ... (4) ... 32 % If SMART = ON: 4 ... (4) ... 32 %
Stability	If SMART = OFF: OFF; ± 8 ... (4) ... ± 48 ms and ± 8 ... (4) ... ± 48 % If SMART = ON: ± 8 ... (4) ... ± 48 %
MorphMatch (if SMART = OFF)	OFF; ON
MorphMatch threshold (if SMART = OFF)	Low; Std.; High
Sustained VT (if SMART = OFF)	OFF; 1 ... (1) ... 3; 5; 10 ... (10) ... 30 min

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ATP Suite VT1, VT2 and VF Zone (ventricular therapy)	
Attempts	OFF; 1 ... (1) ... 10
ATP type	OFF; Burst; Ramp; Burst+PES
Number S1	1 ... (1) ... 20
R-S1 interval	50 ... (5) ... 85; 88; 90; 95 %
S1 decrement (if ATP type = Ramp)	5 ... (5) ... 40 ms
Add S1	OFF; ON
Scan decrement	OFF; 5 ... (5) ... 40 ms
S1-S2, S2-S3 and S3-S4 interval	50 ... (5) ... 85; 88; 90; 95 %
ATP optimization	OFF; ON
Blocking accelerating ATPs (if ATP optimization = ON)	OFF; ON
ATP One Shot timing (only VF zone)	Regular; Early; Adaptive
ATP View	Visualization of programmed therapy
Shock Therapy VT1, VT2 and VF Zone	
1st shock VT1 and VT2	OFF; 2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VT1 and VT2	OFF; 4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VT1 and VT2	OFF; 4*40 J; 6*40 J
1st shock VF	2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VF	4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VF	4*40 J; 6*40 J
Confirmation	OFF; ON
Polarity	Normal; Reversed; Normal → alternating; Reversed → alternating
Waveform	Biphasic; Biphasic 2; Biphasic → alternating; Biphasic 2 → alternating
Shock path	RV → Can+SVC; RV → Can; RV → SVC

Pacing Parameters	
Mode	DDDR-ADIR; DDDR; DDIR; VVIR; AAIR; D00; DDD-ADI; DDD; DDI; VVI; AAI; V00; VDDR; VDIR; VDD; VDI; OFF
Basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Rate hysteresis	OFF; -5 ... (-5) ... -25 ... (-20) ... -65 bpm
Scan/Repetitive	OFF; ON
Night rate	OFF; 30 ... (5) ... 100 bpm
Rate fading	OFF; ON
Upper rate	90 ... (10) ... 180 bpm
Atrial upper rate	OFF; 175; 200; 240 bpm
Mode switching (Mode)	DDIR; VDIR; DDI; VDI
Intervention rate (Mode)	OFF; 100 ... (10) ... 250 bpm
Change of basic rate during MS	OFF; +5 ... (5) ... +30 bpm
Post mode switching rate	OFF; +5 ... (5) ... +50 bpm
Post mode switching duration	1 ... (1) ... 30 min
Onset criterion/ Resolution criterion	3 ... (1) ... 8 out of 8
Rate stabilization during mode switching	OFF; ON
Vp suppression (only in the modes DDDR-ADIR and DDD-ADI)	OFF; ON
Pacing suppression	1 ... (1) ... 8 consecutive Vs
Pacing support	1 ... (1) ... 4 out of 8 cycles
AV dynamics	Low; Medium; High; Fixed
AV delay	15 ... (5) ... 300 ms (fixed); 40 ... (5) ... 350 ms (dynamic)
Sense compensation	OFF; -5 ... (-5) ... -120 ms
AV hysteresis mode	OFF; Positive; Negative; IRSplus
AV hysteresis mode IRSplus (if Ventricular pacing = RV)	AUTO
AV scan/repetitive (Positive)	OFF; ON
Post-shock duration	OFF; 10 s; 30 s; 1 min; 2 min; 5 min; 10 min
Post-shock mode	DDI; VDI; VVI (according to brady mode)
Post-shock basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Post-shock AV delay	50 ... (10) ... 350 ms
Pulse amplitude (A, RV)	0.5 ... (0.25) ... 4.0 ... (0.5) ... 6.0; 7.5 V
Pulse width (A, RV)	0.1 ... (0.1) ... 0.5 ... (0.25) ... 1.5 ms
Capture control (A, RV)	OFF; ATM; ON
Sensing A	Std.; OFF
Sensing RV	Std.; TWS; VFS
Sensor	Accelerometer
PVARP	AUTO; 175 ... (25) ... 600 ms
PMT detection/termination	OFF; ON
MRI brady mode	D00; V00; A00; AUTO; OFF (000)
Basic rate	Mean rate + 15 bpm; 70 ... (5) ... 100 ... (10) ... 160 bpm
Expiration date	Up to 1 year

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Diagnostic Functions	
Recording episodes (AT/AF)	OFF; ON
Recording episodes (SVT)	OFF; ON
Recording episodes (nsT)	OFF; ON (<220ms); ON
Onset for slow nsT	OFF; ON
RV lead monitoring	OFF; ON
Thoracic impedance (TI)	OFF; ON
IEGM Holter	3 × 60 min (Far-field, RA and RV)

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Transmitted Data	AF diagnostics; Heart Failure Monitor diagnostics; Detection and therapy counters; Statistics; Lead measurement values; Battery and system status; ICD program parameters
Message Types	
Trend message	Triggered automatically once every 24 hours
Event message	Triggered automatically after certain cardiac events
Test message	Triggered manually via programmer
Programmer Settings	
Home Monitoring	OFF; ON
IEGM for therapy episodes	OFF; ON
IEGM for monitoring episodes	OFF; ON
Ongoing atrial episode	OFF; 6 h; 12 h; 18 h

Diagnostic Functions	
Length of prehistory	Fixed: 30 s; 5 s (when onset was fulfilled or at induced episodes); 1 min for AT/AF episode if Advanced ON was programmed
Physical Parameters	
Telemetry	RF telemetry; PGH telemetry
Material housing	Titanium
Material header	Epoxy
Longevity	13.5 years[1]

[1]DDD, 2.5 V/0.4 ms, 60 bpm, 500 Ω, 15% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON

Home Monitoring-supported follow-up	
Remote Scheduling	Enable; Disable
HM follow-up intervals/alignment	Individually programmable first date and repetition intervals varying from 20-1096 days; Alignment with a specific day of the week; Only working days or no day alignment
EarlyCheck	Automatic first Home Monitoring-supported follow-up 2 hours after implantation detection
Additionally transmitted data	Periodic IEGM; Rate histogram (V)

Please refer to the technical manual of the device for further technical information.

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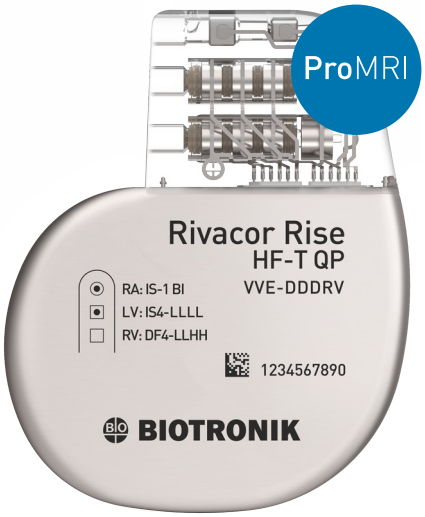
Rivacor Rise HF-T QP

Cardiac Resynchronization Therapy - Defibrillator (CRT-D)



Ordering Information

Model	Connectors	Volume/Weight	Dimensions	Order Number
Rivacor Rise HF-T QP	DF4 (1x), IS4 (1x), IS-1 (1x)	35 cm³/82 g	60 x 75 x 10 mm	482016

Technical Data

Parameters

Therapy and Monitoring Zones	
Bradycardia	30 ... (5) ... 100 ... (10) ... 160 bpm
AT/AF rate	100 ... (10) ... 250 bpm
VT1 rate and VT2 rate	OFF; 100; 102; 103 ... (2) ... 115; 118 ... (2) ... 122 ... (3) ... 128; 130 ... (3) ... 136; 140 ... (3) ... 146 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 bpm
VF rate	OFF; 150 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 ... (9) ... 240; 250 bpm

Arrhythmia Detection and Redection	
AT/AF detection criteria	Interval; Stability
VT detection criteria	Interval; SMART detection; Onset; Stability; Sustained VT
Detection counter VT1	10 ... (2) ... 100
Detection counter VT2	10 ... (2) ... 80
Redetection counter VT1	10 ... (2) ... 50
Redetection counter VT2	10 ... (2) ... 40
Detection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30; 30 out of 40
Redetection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30
SMART detection	OFF; ON
Onset	If SMART = OFF: OFF; 4 ... (4) ... 32 % If SMART = ON: 4 ... (4) ... 32 %
Stability	If SMART = OFF: OFF; ± 8 ... (4) ... ± 48 ms and ± 8 ... (4) ... ± 48 % If SMART = ON: ± 8 ... (4) ... ± 48 %
Sustained VT (if SMART = OFF)	OFF; 1 ... (1) ... 3; 5; 10 ... (10) ... 30 min

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ATP Suite VT1, VT2 and VF Zone (ventricular therapy)	
Attempts	OFF; 1 ... (1) ... 10
ATP type	OFF; Burst; Ramp; Burst+PES
Number S1	1 ... (1) ... 20
R-S1 interval	50 ... (5) ... 85; 88; 90; 95 %
S1 decrement (if ATP type = Ramp)	5 ... (5) ... 40 ms
Add S1	OFF; ON
Scan decrement	OFF; 5 ... (5) ... 40 ms
S1-S2, S2-S3 and S3-S4 interval	50 ... (5) ... 85; 88; 90; 95 %
ATP optimization	OFF; ON
Blocking accelerating ATPs (if ATP optimization = ON)	OFF; ON
ATP One Shot timing (only VF zone)	Regular; Early; Adaptive
ATP View	Visualization of programmed therapy
Shock Therapy VT1, VT2 and VF Zone	
1st shock VT1 and VT2	OFF; 2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VT1 and VT2	OFF; 4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VT1 and VT2	OFF; 4*40 J; 6*40 J
1st shock VF	2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VF	4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VF	4*40 J; 6*40 J
Confirmation	OFF; ON
Polarity	Normal; Reversed; Normal → alternating; Reversed → alternating
Waveform	Biphasic; Biphasic 2; Biphasic → alternating; Biphasic 2 → alternating
Shock path	RV → Can+SVC; RV → Can; RV → SVC
Closed Loop Stimulation	
CLS mode	DDD-CLS; VVI-CLS
Max. CLS rate	80 ... (10) ... 180 bpm
Max. CLS rate at rest	Max. CLS rate; Basic rate + 50; Basic rate + 40; Basic rate + 30; Basic rate + 20; Basic rate + 10 bpm
CLS response	Very high; High; Medium; Low; Very low
Vp required	Yes
Pacing Parameters	
Mode	DDD-CLS; VVI-CLS; DDDR-ADIR; DDDR; DDIR; VVIR; AAIR; D00; DDD-ADI; DDD; DDI; VVI; AAI; V00; VDDR; VDIR; VDD; VDI; OFF
Basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Rate hysteresis	OFF; -5 ... (-5) ... -25 ... (-20) ... -65 bpm
Scan/Repetitive	OFF; ON
Night rate	OFF; 30 ... (5) ... 100 bpm
Rate fading	OFF; ON
Upper rate	90 ... (10) ... 180 bpm
Atrial upper rate	OFF; 175; 200; 240 bpm
Mode switching (Mode)	DDIR; VDIR; DDI; VDI
Intervention rate (Mode)	OFF; 100 ... (10) ... 250 bpm
Change of basic rate during MS	OFF; +5 ... (5) ... +30 bpm

Pacing Parameters	
Post mode switching rate	OFF; +5 ... (5) ... +50 bpm
Post mode switching duration	1 ... (1) ... 30 min
Onset criterion/ Resolution criterion	3 ... (1) ... 8 out of 8
Rate stabilization during mode switching	OFF; ON
Vp suppression (only in the modes DDDR-ADIR and DDD-ADI)	OFF; ON
Pacing suppression	1 ... (1) ... 8 consecutive Vs
Pacing support	1 ... (1) ... 4 out of 8 cycles
Ventricular pacing	BiV; RV; LV
CRT AutoAdapt	OFF; AVadapt; ON
LV T-wave protection	OFF; ON
Triggering	OFF; RVs; RVs+PVC
Maximum trigger rate (DDD-CLS; DDD(R); VDD(R))	AUTO (UTR + 20); AUTO (90 ... (10) ...180) bpm
Maximum trigger rate (DDI(R); VDI(R); VVI-CLS; VVI(R); D00, V00)	AUTO (90 ... (10) ...180) bpm
Shortened min. trigger interval (sMTI)	OFF; 275 ... (25) ... 400 ms
Max. number of sMTI attempts	1 ... (1) ... 3; 5; 10
sMTI delay	0 ... (1) ... 3; 5; 10 cycles
Initially paced chamber	RV; LV
VV delay after Vp	0 ... (5) ... 100 ms
AV dynamics	Low; Medium; High; Fixed
AV delay	15 ... (5) ... 300 ms (fixed); 40 ... (5) ... 350 ms (dynamic)
Sense compensation	OFF; -5 ... (-5) ... -120 ms
AV hysteresis mode	OFF; Positive; Negative
AV hysteresis mode IRSplus (if Ventricular pacing = RV)	AUTO
AV scan/repetitive (Positive)	OFF; ON
Post-shock duration	OFF; 10 s; 30 s; 1 min; 2 min; 5 min; 10 min
Post-shock mode	DDI; VDI; VVI (according to brady mode)
Post-shock basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Post-shock AV delay	50 ... (10) ... 350 ms
Pulse amplitude (A, RV, LV)	0.5 ... (0.25) ... 4.0 ... (0.5) ... 6.0; 7.5 V
Pulse width (A, RV, LV)	0.1 ... (0.1) ... 0.5 ... (0.25) ... 1.5 ms
Capture control (A, RV, LV)	OFF; ATM; ON
Sensing A	Std.; OFF
Sensing RV	Std.; TWS; VFS
Sensing LV	Std.; OFF
DX sensing	OFF; ON
Sensor	Accelerometer
PVARP	AUTO; 175 ... (25) ... 600 ms
PMT detection/termination	OFF; ON
LV pacing polarity	20 vectors
LV sensing polarity	7 vectors
MRI brady mode	D00/BiV; D00; V00/BiV; V00; A00; AUTO; OFF (000)
Basic rate	Mean rate + 15 bpm; 70 ... (5) ... 100 ... (10) ... 160 bpm
Expiration date	Up to 1 year

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Diagnostic Functions	
Recording episodes (AT/AF)	OFF; ON
Recording episodes (SVT)	OFF; ON
Recording episodes (nsT)	OFF; ON (<220ms); ON
Onset for slow nsT	OFF; ON
CRT pacing interrupt	OFF; ON
RV lead monitoring	OFF; ON
Thoracic impedance (TI)	OFF; ON
IEGM Holter	3 × 60 min (3 channels according to IEGM configuration)
Length of prehistory	Fixed: 30 s; 5 s (when onset was fulfilled or at induced episodes); 1 min for AT/AF episode if Advanced ON was programmed

Physical Parameters	
Telemetry	RF telemetry; PGH telemetry
Material housing	Titanium
Material header	Epoxy
Longevity	10.8 years[1]

[1] RA, RV, LV: 2.0 V/0.4 ms, 60 bpm, 500 Ω, RA: 15%, RV, LV: 100% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON

11.7 years (with CRT AutoAdapt) [2]

[2] RA, RV, LV: 2.0 V/0.4 ms, 60 bpm, 500 Ω, RA: 15%, RV: 10%, LV: 100% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON, CRT AutoAdapt: ON

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Transmitted Data	AF diagnostics; Heart Failure Monitor diagnostics; Detection and therapy counters; Statistics; Lead measurement values; Battery and system status; ICD program parameters

Message Types	
Trend message	Triggered automatically once every 24 hours
Event message	Triggered automatically after certain cardiac events
Test message	Triggered manually via programmer

Programmer Settings	
Home Monitoring	OFF; ON
IEGM for therapy episodes	OFF; ON
IEGM for monitoring episodes	OFF; ON
Ongoing atrial episode	OFF; 6 h; 12 h; 18 h

Home Monitoring-supported follow-up	
Remote Scheduling	Enable; Disable
HM follow-up intervals/alignment	Individually programmable first date and repetition intervals varying from 20-1096 days; Alignment with a specific day of the week; Only working days or no day alignment
EarlyCheck	Automatic first Home Monitoring-supported follow-up 2 hours after implantation detection
Additionally transmitted data	Periodic IEGM; Rate histogram (V)

Please refer to the technical manual of the device for further technical information.

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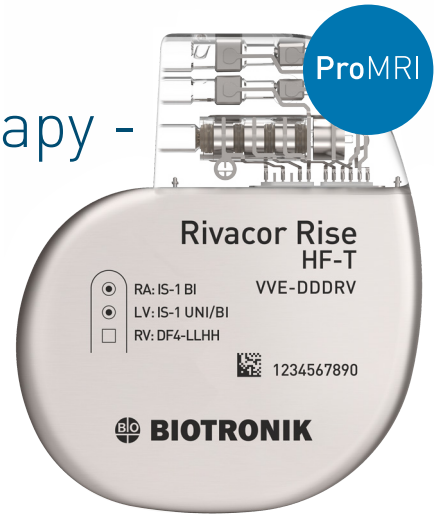
Rivacor Rise HF-T

Cardiac Resynchronization Therapy - Defibrillator (CRT-D)



Ordering Information

Model	Connectors	Volume/Weight	Dimensions	Order Number
Rivacor Rise HF-T	DF4 (1x), IS-1 (2x)	33 cm³/78 g	60 x 71.5 x 10 mm	482017

Technical Data

Parameters

Therapy and Monitoring Zones	
Bradycardia	30 ... (5) ... 100 ... (10) ... 160 bpm
AT/AF rate	100 ... (10) ... 250 bpm
VT1 rate and VT2 rate	OFF; 100; 102; 103 ... (2) ... 115; 118 ... (2) ... 122 ... (3) ... 128; 130 ... (3) ... 136; 140 ... (3) ... 146 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 bpm
VF rate	OFF; 150 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 ... (9) ... 240; 250 bpm

Arrhythmia Detection and Redection	
AT/AF detection criteria	Interval; Stability
VT detection criteria	Interval; SMART detection; Onset; Stability; Sustained VT
Detection counter VT1	10 ... (2) ... 100
Detection counter VT2	10 ... (2) ... 80
Redetection counter VT1	10 ... (2) ... 50

Arrhythmia Detection and Redection	
Redetection counter VT2	10 ... (2) ... 40
Detection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30; 30 out of 40
Redetection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30
SMART detection	OFF; ON
Onset	If SMART = OFF: OFF; 4 ... (4) ... 32 % If SMART = ON: 4 ... (4) ... 32 %
Stability	If SMART = OFF: OFF; ± 8 ... (4) ... ± 48 ms and ± 8 ... (4) ... ± 48 % If SMART = ON: ± 8 ... (4) ... ± 48 %
Sustained VT (if SMART = OFF)	OFF; 1 ... (1) ... 3; 5; 10 ... (10) ... 30 min

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ATP Suite VT1, VT2 and VF Zone (ventricular therapy)	
Attempts	OFF; 1 ... (1) ... 10
ATP type	OFF; Burst; Ramp; Burst+PES
Number S1	1 ... (1) ... 20
R-S1 interval	50 ... (5) ... 85; 88; 90; 95 %
S1 decrement (if ATP type = Ramp)	5 ... (5) ... 40 ms
Add S1	OFF; ON
Scan decrement	OFF; 5 ... (5) ... 40 ms
S1-S2, S2-S3 and S3-S4 interval	50 ... (5) ... 85; 88; 90; 95 %
ATP optimization	OFF; ON
Blocking accelerating ATPs (if ATP optimization = ON)	OFF; ON
ATP One Shot timing (only VF zone)	Regular; Early; Adaptive
ATP View	Visualization of programmed therapy
Shock Therapy VT1, VT2 and VF Zone	
1st shock VT1 and VT2	OFF; 2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VT1 and VT2	OFF; 4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VT1 and VT2	OFF; 4*40 J; 6*40 J
1st shock VF	2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VF	4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VF	4*40 J; 6*40 J
Confirmation	OFF; ON
Polarity	Normal; Reversed; Normal → alternating; Reversed → alternating
Waveform	Biphasic; Biphasic 2; Biphasic → alternating; Biphasic 2 → alternating
Shock path	RV → Can+SVC; RV → Can; RV → SVC
Closed Loop Stimulation	
CLS mode	DDD-CLS; VVI-CLS
Max. CLS rate	80 ... (10) ... 180 bpm
Max. CLS rate at rest	Max. CLS rate; Basic rate + 50; Basic rate + 40; Basic rate + 30; Basic rate + 20; Basic rate + 10 bpm
CLS response	Very high; High; Medium; Low; Very low
Vp required	Yes
Pacing Parameters	
LBBA pacing	NO; YES
Mode	DDD-CLS; VVI-CLS; DDDR-ADIR; DDDR; DDIR; VVIR; AAIR; D00; DDD-ADI; DDD; DDI; VVI; AAI; V00; VDDR; VDIR; VDD; VDI; OFF
Basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Rate hysteresis	OFF; -5 ... (-5) ... -25 ... (-20) ... -65 bpm
Scan/Repetitive	OFF; ON
Night rate	OFF; 30 ... (5) ... 100 bpm
Rate fading	OFF; ON
Upper rate	90 ... (10) ... 180 bpm
Atrial upper rate	OFF; 175; 200; 240 bpm
Mode switching (Mode)	DDIR; VDIR; DDI; VDI
Intervention rate (Mode)	OFF; 100 ... (10) ... 250 bpm
Change of basic rate during MS	OFF; +5 ... (5) ... +30 bpm

Pacing Parameters	
Post mode switching rate	OFF; +5 ... (5) ... +50 bpm
Post mode switching duration	1 ... (1) ... 30 min
Onset criterion/ Resolution criterion	3 ... (1) ... 8 out of 8
Rate stabilization during mode switching	OFF; ON
Vp suppression (only in the modes DDDR-ADIR and DDD-ADI)	OFF; ON
Pacing suppression	1 ... (1) ... 8 consecutive Vs
Pacing support	1 ... (1) ... 4 out of 8 cycles
Ventricular pacing	BiV; RV; LV
CRT AutoAdapt	OFF; AVadapt; ON
LV T-wave protection	OFF; ON
Triggering	OFF; RVs; RVs+PVC
Maximum trigger rate (DDD-CLS; DDD(R); VDD(R))	AUTO (UTR + 20); AUTO (90 ... (10) ...180) bpm
Maximum trigger rate (DDI(R); VDI(R); VVI-CLS; VVI(R); D00, V00)	AUTO (90 ... (10) ...180) bpm
Shortened min. trigger interval (sMTI)	OFF; 275 ... (25) ... 400 ms
Max. number of sMTI attempts	1 ... (1) ... 3; 5; 10
sMTI delay	0 ... (1) ... 3; 5; 10 cycles
Initially paced chamber	RV; LV
VV delay after Vp	0 ... (5) ... 100 ms
AV dynamics	Low; Medium; High; Fixed
AV delay	15 ... (5) ... 300 ms (fixed); 40 ... (5) ... 350 ms (dynamic)
Sense compensation	OFF; -5 ... (-5) ... -120 ms
AV hysteresis mode	OFF; Positive; Negative
AV hysteresis mode IRSplus (if Ventricular pacing = RV)	AUTO
AV scan/repetitive (Positive)	OFF; ON
Post-shock duration	OFF; 10 s; 30 s; 1 min; 2 min; 5 min; 10 min
Post-shock mode	DDI; VDI; VVI (according to brady mode)
Post-shock basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Post-shock AV delay	50 ... (10) ... 350 ms
Pulse amplitude (A, RV, LV)	0.5 ... (0.25) ... 4.0 ... (0.5) ... 6.0; 7.5 V
Pulse width (A, RV, LV)	0.1 ... (0.1) ... 0.5 ... (0.25) ... 1.5 ms
Capture control (A, RV, LV)	OFF; ATM; ON
Sensing A	Std.; OFF
Sensing RV	Std.; TWS; VFS
Sensing LV	Std.; OFF
DX sensing	OFF; ON
Sensor	Accelerometer
PVARP	AUTO; 175 ... (25) ... 600 ms
PMT detection/termination	OFF; ON
LV pacing polarity	6 vectors
LV sensing polarity	2 vectors
MRI brady mode	D00/BiV; D00; V00/BiV; V00; A00; AUTO; OFF (000)
Basic rate	Mean rate + 15 bpm; 70 ... (5) ... 100 ... (10) ... 160 bpm
Expiration date	Up to 1 year

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Diagnostic Functions	
Recording episodes (AT/AF)	OFF; ON
Recording episodes (SVT)	OFF; ON
Recording episodes (nsT)	OFF; ON (<220ms); ON
Onset for slow nsT	OFF; ON
CRT pacing interrupt	OFF; ON
RV lead monitoring	OFF; ON
Thoracic impedance (TI)	OFF; ON
IEGM Holter	3 × 60 min (3 channels according to IEGM configuration)

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Transmitted Data	AF diagnostics; Heart Failure Monitor diagnostics; Detection and therapy counters; Statistics; Lead measurement values; Battery and system status; ICD program parameters
Message Types	
Trend message	Triggered automatically once every 24 hours
Event message	Triggered automatically after certain cardiac events
Test message	Triggered manually via programmer
Programmer Settings	
Home Monitoring	OFF; ON
IEGM for therapy episodes	OFF; ON
IEGM for monitoring episodes	OFF; ON
Ongoing atrial episode	OFF; 6 h; 12 h; 18 h

Diagnostic Functions	
Length of prehistory	Fixed: 30 s; 5 s (when onset was fulfilled or at induced episodes); 1 min for AT/AF episode if Advanced ON was programmed

Physical Parameters	
Telemetry	RF telemetry; PGH telemetry
Material housing	Titanium
Material header	Epoxy
Longevity	12.2 years[1]

[1]DDD BiV, 2.5 V/0.4 ms, 60 bpm, 500 Ω, 15% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON

Home Monitoring-supported follow-up	
Remote Scheduling	Enable; Disable
HM follow-up intervals/alignment	Individually programmable first date and repetition intervals varying from 20-1096 days; Alignment with a specific day of the week; Only working days or no day alignment
EarlyCheck	Automatic first Home Monitoring-supported follow-up 2 hours after implantation detection
Additionally transmitted data	Periodic IEGM; Rate histogram (V)

Please refer to the technical manual of the device for further technical information.

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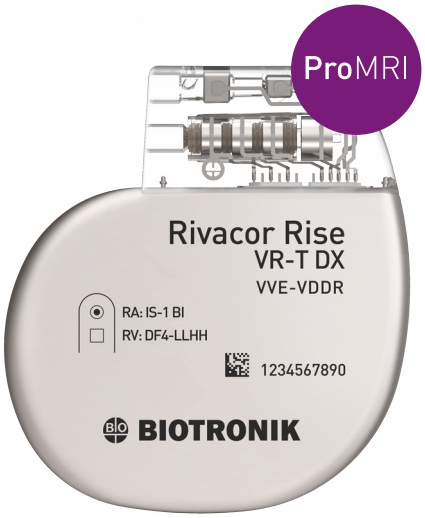
Rivacor Rise VR-T DX

Single-chamber ICD with Complete Atrial Diagnostics



Ordering Information

Model	Connectors	Volume/Weight	Dimensions	Order Number
Rivacor Rise VR-T DX	DF4 (1x), IS-1 (1x)	32 cm³/77 g	60 x 66.5 x 10 mm	482019

Technical Data

Parameters

Therapy and Monitoring Zones	
Bradycardia	30 ... (5) ... 100 ... (10) ... 160 bpm
AT/AF rate	100 ... (10) ... 250 bpm
VT1 rate and VT2 rate	OFF; 100; 102; 103 ... (2) ... 115; 118 ... (2) ... 122 ... (3) ... 128; 130 ... (3) ... 136; 140 ... (3) ... 146 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 bpm
VF rate	OFF; 150 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 ... (9) ... 240; 250 bpm

Ventricular Arrhythmia Detection and Redection	
VT detection criteria	Interval; SMART detection; Onset; Stability; MorphMatch; Sustained VT
Detection counter VT1	10 ... (2) ... 100
Detection counter VT2	10 ... (2) ... 80
Redetection counter VT1	10 ... (2) ... 50
Redetection counter VT2	10 ... (2) ... 40

Ventricular Arrhythmia Detection and Redection	
Detection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30; 30 out of 40
Redetection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30
SMART detection	OFF; ON
Onset	If SMART = OFF: OFF; 4 ... (4) ... 32 % If SMART = ON: 4 ... (4) ... 32 %
Stability	If SMART = OFF: OFF; ± 8 ... (4) ... ± 48 ms and ± 8 ... (4) ... ± 48 % If SMART = ON: ± 8 ... (4) ... ± 48 %
MorphMatch (if SMART = OFF)	OFF; ON
MorphMatch threshold (if SMART = OFF)	Low; Std.; High
Sustained VT (if SMART = OFF)	OFF; 1 ... (1) ... 3; 5; 10 ... (10) ... 30 min

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ATP Suite VT1, VT2 and VF Zone (ventricular therapy)	
Attempts	OFF; 1 ... (1) ... 10
ATP type	OFF; Burst; Ramp; Burst+PES
Number S1	1 ... (1) ... 20
R-S1 interval	50 ... (5) ... 85; 88; 90; 95 %
S1 decrement (if ATP type = Ramp)	5 ... (5) ... 40 ms
Add S1	OFF; ON
Scan decrement	OFF; 5 ... (5) ... 40 ms
S1-S2, S2-S3 and S3-S4 interval	50 ... (5) ... 85; 88; 90; 95 %
ATP optimization	OFF; ON
Blocking accelerating ATPs (if ATP optimization = ON)	OFF; ON
ATP One Shot timing (only VF zone)	Regular; Early; Adaptive
ATP View	Visualization of programmed therapy
Shock Therapy VT1, VT2 and VF Zone	
1st shock VT1 and VT2	OFF; 2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VT1 and VT2	OFF; 4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VT1 and VT2	OFF; 4*40 J; 6*40 J
1st shock VF	2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VF	4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VF	4*40 J; 6*40 J
Confirmation	OFF; ON
Polarity	Normal; Reversed; Normal → alternating; Reversed → alternating
Waveform	Biphasic; Biphasic 2; Biphasic → alternating; Biphasic 2 → alternating
Shock path	RV → Can+SVC; RV → Can; RV → SVC

Pacing Parameters	
Mode	VVIR; VVI; V00; VDDR; VDIR; VDD; VDI; OFF
Basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Rate hysteresis	OFF; -5 ... (-5) ... -25 ... (-20) ... -65 bpm
Scan/Repetitive	OFF; ON
Night rate	OFF; 30 ... (5) ... 100 bpm
Rate fading	OFF; ON
Upper rate	90 ... (10) ... 180 bpm
Mode switching (Mode)	VDI; VDIR
Intervention rate (Mode)	OFF; 100 ... (10) ... 250 bpm
Change of basic rate during MS	OFF; +5 ... (5) ... +30 bpm
Post mode switching rate	OFF; +5 ... (5) ... +50 bpm
Post mode switching duration	1 ... (1) ... 30 min
Onset criterion/ Resolution criterion	3 ... (1) ... 8 out of 8
Rate stabilization during mode switching	OFF; ON
AV dynamics	Low; Medium; High; Fixed
AV hysteresis mode	OFF; Positive; Negative; IRSplus
AV hysteresis mode IRSplus (if Ventricular pacing = RV)	AUTO
AV scan/repetitive (Positive)	OFF; ON
Post-shock duration	OFF; 10 s; 30 s; 1 min; 2 min; 5 min; 10 min
Post-shock mode	VVI; VDI (according to brady mode)
Post-shock basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Pulse amplitude (RV)	0.5 ... (0.25) ... 4.0 ... (0.5) ... 6.0; 7.5 V
Pulse width (RV)	0.1 ... (0.1) ... 0.5 ... (0.25) ... 1.5 ms
Capture control (RV)	OFF; ATM; ON
Sensing A	Std.; OFF
Sensing RV	Std.; TWS; VFS
Sensor	Accelerometer
MRI brady mode	V00; AUTO; OFF (000)
Expiration date	Up to 1 year
Diagnostic Functions	
Recording episodes (AT/AF)	OFF; ON
Recording episodes (SVT)	OFF; ON
Recording episodes (nsT)	OFF; ON (<220ms); ON
Onset for slow nsT	OFF; ON
RV lead monitoring	OFF; ON
Thoracic impedance (TI)	OFF; ON
IEGM Holter	3 × 60 min (Far-field, A and RV)
Length of prehistory	Fixed: 30 s; 5 s (when onset was fulfilled or at induced episodes); 1 min for AT/AF episode if Advanced ON was programmed

Physical Parameters	
Telemetry	RF telemetry; PGH telemetry
Material housing	Titanium
Material header	Epoxy
Longevity	14 years[1]

[1]VDD, 2.5 V/0.4 ms, 40 bpm, 500 Ω, 15% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON

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Transmitted Data	AF diagnostics; Heart Failure Monitor diagnostics; Detection and therapy counters; Statistics; Lead measurement values; Battery and system status; ICD program parameters
Message Types	
Trend message	Triggered automatically once every 24 hours
Event message	Triggered automatically after certain cardiac events
Test message	Triggered manually via programmer
Programmer Settings	
Home Monitoring	OFF; ON
IEGM for therapy episodes	OFF; ON
IEGM for monitoring episodes	OFF; ON

Home Monitoring-supported follow-up	
Remote Scheduling	Enable; Disable
HM follow-up intervals/alignment	Individually programmable first date and repetition intervals varying from 20-1096 days; Alignment with a specific day of the week; Only working days or no day alignment
EarlyCheck	Automatic first Home Monitoring-supported follow-up 2 hours after implantation detection
Additionally transmitted data	Periodic IEGM; Rate histogram (V)

Please refer to the technical manual of the device for further technical information.

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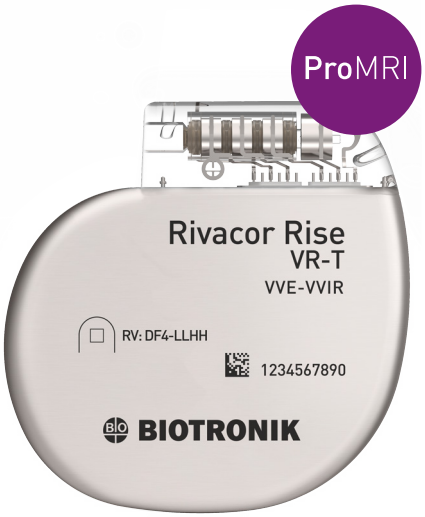
Rivacor Rise VR-T

Single-chamber ICD



Ordering Information

Model	Connectors	Volume/Weight	Dimensions	Order Number
Rivacor Rise VR-T	DF4 (1x)	30 cm³/75 g	60 x 61.5 x 10 mm	482020

Technical Data

Parameters

Therapy and Monitoring Zones	
Bradycardia	30 ... (5) ... 100 ... (10) ... 160 bpm
VT1 rate and VT2 rate	OFF; 100; 102; 103 ... (2) ... 115; 118 ... (2) ... 122 ... (3) ... 128; 130 ... (3) ... 136; 140 ... (3) ... 146 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 bpm
VF rate	OFF; 150 ... (4) ... 162; 167; 171; 176 ... (6) ... 200 ... (7) ... 214; 222 ... (9) ... 240; 250 bpm
Ventricular Arrhythmia Detection and Redection	
VT detection criteria	Interval; Onset; Stability; MorphMatch; Sustained VT
Detection counter VT1	10 ... (2) ... 100
Detection counter VT2	10 ... (2) ... 80
Redetection counter VT1	10 ... (2) ... 50

Ventricular Arrhythmia Detection and Redection	
Redetection counter VT2	10 ... (2) ... 40
Detection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30; 30 out of 40
Redetection counter VF	6 out of 8; 8 out of 12; 10 out of 14; 12 out of 16; 16 out of 20; 18 out of 24; 20 out of 26; 22 out of 30; 24 out of 30
Onset	OFF; 4 ... (4) ... 32 %
Stability	OFF; ± 8 ... (4) ... ± 48 ms and ± 8 ... (4) ... ± 48 %
MorphMatch	OFF; ON
MorphMatch threshold	Low; Std.; High
Sustained VT	OFF; 1 ... (1) ... 3; 5; 10 ... (10) ... 30 min

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ATP Suite VT1, VT2 and VF Zone (ventricular therapy)	
Attempts	OFF; 1 ... (1) ... 10
ATP type	OFF; Burst; Ramp; Burst+PES
Number S1	1 ... (1) ... 20
R-S1 interval	50 ... (5) ... 85; 88; 90; 95 %
S1 decrement (if ATP type = Ramp)	5 ... (5) ... 40 ms
Add S1	OFF; ON
Scan decrement	OFF; 5 ... (5) ... 40 ms
S1-S2, S2-S3 and S3-S4 interval	50 ... (5) ... 85; 88; 90; 95 %
ATP optimization	OFF; ON
Blocking accelerating ATPs (if ATP optimization = ON)	OFF; ON
ATP One Shot timing (only VF zone)	Regular; Early; Adaptive
ATP View	Visualization of programmed therapy
Shock Therapy VT1, VT2 and VF Zone	
1st shock VT1 and VT2	OFF; 2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VT1 and VT2	OFF; 4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VT1 and VT2	OFF; 4*40 J; 6*40 J
1st shock VF	2 ... (2) ... 20 ... (5) ... 40 J
2nd shock VF	4 ... (2) ... 20 ... (5) ... 40 J
3rd – nth shock VF	4*40 J; 6*40 J
Confirmation	OFF; ON
Polarity	Normal; Reversed; Normal → alternating; Reversed → alternating
Waveform	Biphasic; Biphasic 2; Biphasic → alternating; Biphasic 2 → alternating
Shock path	RV → Can+SVC; RV → Can; RV → SVC

Pacing Parameters	
Mode	VVIR; VVI; V00; OFF
Basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Rate hysteresis	OFF; -5 ... (-5) ... -25 ... (-20) ... -65 bpm
Scan/Repetitive	OFF; ON
Night rate	OFF; 30 ... (5) ... 100 bpm
Rate fading	OFF; ON
Post-shock duration	OFF; 10 s; 30 s; 1 min; 2 min; 5 min; 10 min
Post-shock mode	VVI
Post-shock basic rate	30 ... (5) ... 100 ... (10) ... 160 bpm
Pulse amplitude (RV)	0.5 ... (0.25) ... 4.0 ... (0.5) ... 6.0; 7.5 V
Pulse width (RV)	0.1 ... (0.1) ... 0.5 ... (0.25) ... 1.5 ms
Sensing RV	Std.; TWS; VFS
Sensor	Accelerometer
MRI brady mode	V00; AUTO; OFF (000)
Expiration date	Up to 1 year
Diagnostic Functions	
Recording episodes (SVT)	OFF; ON
Recording episodes (nsT)	OFF; ON (<220ms); ON
Onset for slow nsT	OFF; ON
RV lead monitoring	OFF; ON
Thoracic impedance (TI)	OFF; ON
IEGM Holter	2 x 60 min (Far-field, RV)
Length of prehistory	Fixed: 30 s; 5 s (when onset was fulfilled or at induced episodes)
Physical Parameters	
Telemetry	RF telemetry; PGH telemetry
Material housing	Titanium
Material header	Epoxy
Longevity	15.3 years[1]

[1]VVI; 2.5 V/0.4 ms, 40 bpm, 500 Ω, 15% pacing, 2 max. energy shocks/year, Home Monitoring: ON (daily transmission), Diagnostics: ON

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Transmitted Data	Detection and therapy counters; Statistics; Lead measurement values; Battery and system status; ICD program parameters
Message Types	
Trend message	Triggered automatically once every 24 hours
Event message	Triggered automatically after certain cardiac events
Test message	Triggered manually via programmer
Programmer Settings	
Home Monitoring	OFF; ON
IEGM for therapy episodes	OFF; ON
IEGM for monitoring episodes	OFF; ON

Home Monitoring-supported follow-up	
Remote Scheduling	Enable; Disable
HM follow-up intervals/alignment	Individually programmable first date and repetition intervals varying from 20-1096 days; Alignment with a specific day of the week; Only working days or no day alignment
EarlyCheck	Automatic first Home Monitoring-supported follow-up 2 hours after implantation detection
Additionally transmitted data	Periodic IEGM; Rate histogram (V)

Please refer to the technical manual of the device for further technical information.

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