CARDIAC RESYNCHRONIZATION THERAPY (CRT) DEVICES

Neutrino™ NxT

Cardiac Resynchronization Therapy
Defibrillator (CRT-D)
CDHFA600Q

MR 1.5T AND 3T MRI-READY*

Product Highlights

- MultiPoint™ pacing delivers multiple LV pacing pulses per cardiac cycle in both LV only and BiV pacing modes
- SyncAV™ *Plus* CRT technology offers dynamic AV timing with adaptive programming to ensure BiV pacing with or without MultiPoint pacing
- Improved shape with reduced volume and thickness
- 40J delivered energy safety shock option for enhanced safety margin
- DeFT Response™ technology offers noninvasive programming options to optimize rescue therapy to each patient's unique physiology and changing conditions
- VF Therapy Assurance decreases time to treatment for arrhythmias in patients who are likely to be hemodynamically unstable
- Antitachycardia pacing (ATP) while charging and prior to charging in the VF zone further extends the programming options for terminating tachyarrhythmias without a high-voltage shock
- ShockGuard™ technology with DecisionTx™ programming designed to reduce inappropriate therapy and minimize the need for programming adjustments at implant
  - SecureSense™ RV lead noise discrimination algorithm detects sustained lead noise and short bursts of oversensing that would otherwise go unnoticed or potentially lead to one or more inappropriate shocks
  - Far Field MD™ morphology discrimination and chamber onset discrimination enhances SVT and VT discrimination for reduced inappropriate therapies
- Sense*Ability*™ sensing algorithm feature provides the flexibility to fine-tune programming around T-wave oversensing without decreasing sensitivity
- The Neutrino™ NxT HF CRT-D and Quartet™ quadripolar LV lead feature four pacing electrodes and 13 pacing vectors to provide more options and greater control to address implant complications such as diaphragmatic stimulation and high pacing thresholds
- Easily test and program with Auto VectSelect Quartet™ multivector testing, offering an efficient workflow for complete results and programming
- DynamicTx™ over-current detection algorithm automatically changes shock configurations to ensure delivery of high-voltage therapy when high current is detected
- MRI Ready device tested in combination with MR Conditional leads for full-body scans using a 1,5T or 3T (Tesla) field strength MRI Scanner*
- New battery provides higher capacity than previous QHR‡ batteries to offer superior longevity/volume ratio
- DF4 connector designed to streamline defibrillation connections into a single terminal pin and reduce the number of set screws
- The CorVue™ congestion monitoring feature measures transthoracic impedance changes over time to provide additional insight into the patient's heart failure condition
- Cold can programmability provides an additional RV-SVC shock configuration to decouple the can from the shocking vector parameters in cases of lead problems
- Premature Atrial Contraction (PAC) Response to avoid pacing the atrium in a vulnerable zone
- Physiologic rate responsive AV Delay and PVARP
- QuickOpt™ timing cycle optimization provides quick and effective optimization at the push of a button

Ordering Information

MODEL NUMBER	DIMENSIONS (H × W × T, MM)	WEIGHT (G)	VOLUME (CC)	CONNECTOR
CDHFA600Q	74 × 51 × 12	76	34	DF-4, IS-4, IS-1

*See MRI Scan Parameters in MRI Ready Systems Manual.

Abbott

Neutrino™ NxT

Cardiac Resynchronization Therapy Defibrillator (CRT-D)
CDHFA600Q

Product Specifications

PHYSICAL SPECIFICATIONS

Model	CDHFA600Q
Delivered/Stored Energy	40/45 J
Volume	34 cc
Weight	76 g
Size	74 × 51 × 12 mm
Defibrillation Lead Connections	DF4-LLHH
LV Lead Connections	IS4-LLLL
Atrial Sense/Pace Lead Connections	IS-1
High Voltage Can	Electrically active titanium can

PARAMETER	SETTINGS
Biventricular Pacing	
VectSelect Quartet™ Programmable LV Pulse Configuration	Distal Tip 1 - Mid 2; Distal Tip 1 - Proximal 4; Distal Tip 1 - Mid 3; Distal Tip 1 - RV Coil; Mid 2 - Mid 3; Mid 2 - Proximal 4; Mid 2 - RV Coil; Mid 3 - Mid 2; Mid 3 - Proximal 4; Mid 3 - RV Coil; Proximal 4 - Mid 2; Proximal 4 - Mid 3: Proximal 4 - RV Coil
MultiPoint™ Pacing	LV1, LV2
Delay MultiPoint Pacing	Delay 1: 5; 10; ... 80 ms Delay 2: 5; 10; ... 50 ms
V. Triggering	On; Off
QuickOpt™ Timing Cycle Optimization	Sensed/Paced AV delay, Interventricular pace delay
V-V Timing	Simultaneous†; RV First; LV First
Interventricular Pace Delay	RV First 10–80/LV First 15–80 ms
Ventricular Sensing	RV only (not programmable)
Ventricular Pacing Chamber	RV only; LV only; Biventricular
SyncAV™ *Plus* CRT Technology Delta	If Type = Percentage: -10; - 15;...-70% If Type = Fixed: -10; -20;...-120 ms; Off
MPP PVAB	125–260 ms
AF Management	
AF Suppression™ Pacing	On; Off
No. of Overdrive Pacing Cycles	15–40
Maximum AF Suppression Rate	80–150 min^{-1}
Sensing/Detection	
Sense*Ability*™ Sensing Algorithm	Automatic sensitivity control adjustment for atrial and ventricular events
Low Frequency Attenuation	On; Off
Threshold Start	Post-Sensed: 50; 62,5; 75; 100%; Post-Paced, Atrial: 0,2-3,0 mV Post-Paced, Ventricular: Auto, 0,2-3,0 mV
Decay Delay	Post-Sensed: 0–220 ms Post-Paced, Atrial: 0-220 ms Post-Paced, Ventricular: Auto, 0-220 ms
Ventricular Sense Refractory	125; 157 ms
Detection Zones	3 zone programming — 1 zone; 2 zones or 3 zones (VT-1; VT-2; VF)
SVT Discriminators	AV Rate Branch; Arrhythmia Onset (Chamber Onset or Sudden Onset); Interval Stability; AV Association Morphology; Discrimination (Far Field MD™ Morphology Discrimination or Original MD) with Automatic Template Update
Monitor Mode	Detection, discrimination and diagnostics, no therapy delivery (VT or VT-1 zone)
Discrimination Modes	On; Passive; Off
SVT Upper Limit	150–240 min^{-1}
SVT Discrimination Timeout	20s - 60 min; Off
Reconfirmation	Continuous sensing during charging
SecureSense™ RV Lead Noise Discrimination Algorithm	On; On with Timeout; Passive; Off
VF Therapy Assurance	On; Off
Antitachycardia Pacing Therapy	
ATP Configurations	Ramp; Burst; Scan; 1 or 2 schemes per VT zone
ATP in VF Zone	ATP While Charging; ATP Prior to Charging; Off
ATP Upper Rate Cutoff	150–300 min^{-1}
Burst Cycle Length	Adaptive (50%-100%); Fixed (200-550 ms)
Min. Burst Cycle Length	150–400 in increments of 5 ms
Readaptive	On; Off
Number of Bursts/Stimuli	1–15 with 2–20 Stimuli
Add Stimuli per Burst	On; Off
ATP Pulse Amplitude	7,5 V independent from Bradycardia and Post-Therapy Pacing
ATP Pulse Width	1,0 or 1,5 ms independently programmable from Bradycardia and Post-Therapy Pacing
High-Voltage Therapy	
DynamicTx™ Over-Current Detection Algorithm	On: Off
DeFT Response™ Technology	Programmable pulse width for P1/P2 and tilt
High-Voltage Output Mode	Fixed Pulse Width; Fixed Tilt
Waveform	Biphasic; Monophasic
RV Polarity	Cathode (-); Anode (+)
Electrode Configuration	RV to Can; RV to SVC/Can; RV to SVC
Bradycardia Pacing	
Permanent Modes	DDD(R); DDT(R); DDI(R); VVT(R); VVI(R); AAI(R); Off
Temporary Modes	DDD; DDT; DDI; VVT; VVI; AAI; AAT; DOO; VOO; AOO; Off
Activity Sensor	On; Passive; Off
Programmable Rate and Delay Parameters	Base Rate (min^{-1}); Rest Rate (min^{-1}); Maximum Tracking Rate (min^{-1}); Max Trigger Rate (min^{-1}); Maximum Sensor Rate (min^{-1}); Paced AV Delay (ms); Sensed AV Delay (ms); Rate Responsive AV Delay; Hysteresis Rate (min^{-1}); Rate Hysteresis with Search
Pulse Amplitude	0,25 - 7,5 V
Pulse Width	0,05, 0,1 - 1,5 ms
LVCap™ 1 Confirm Feature, LVCap™ 2 Confirm Feature	Setup; On; Monitor; Off
RVCap™ Confirm Feature	Setup; On; Monitor; Off
ACap™ Confirm Feature	On; Monitor; Off
Auto Mode Switch (AMS)	DDI(R); DDT(R); VVI(R); VVT(R); Off
Atrial Tachycardia Detection Rate	110–300 min^{-1}
AMS Base Rate	40; 45; ... 135 min^{-1}
PMT Detection/Termination	Atrial Pace; Passive; Off
Rate Responsive PVARP	Low; Medium; High; Off
Rate Responsive V Pace Refractory	On; Off
PAC Response	On; Off
PAC Response interval	200-400 ms
Shortest AV Delay	25–120 ms
Post-Therapy Pacing (Independently Programmable from Bradycardia and ATP)	
Post-Shock Pacing Mode	AAI; VVI; DDI; or DDD; Off
Post-Shock Base Rate	30–100 min^{-1}
Post-Shock Pacing Duration	0,5; 1; 2,5; 5; 7,5; or 10 min; Off
Device Testing/Induction Methods	
DC Fibber™ Induction Method Pulse Duration	0,5–5,0 sec
Burst Fibber Cycle Length	20–100 ms
Noninvasive Programmed Stimulation (NIPS)	2–25 stimuli with up to three extra stimuli
Patient Notifiers	
Programmable Notifiers (On; Off)	BatteryAssurance™ alert, Possible HV circuit damage, HV charge timeout, Long charge time for Capacitor Maintenance, Device at ERI, Atrial lead impedance out of range, Right ventricular pacing lead impedance out of range, Left ventricular lead impedance out of range, High-voltage lead impedance out of range, AT/AF episode duration, AT/AF Burden, High ventricular rate during AT/AF, SecureSense™ lead noise detection, Non-sustained ventricular oversensing, Biventricular/Left ventricular pacing percentage lower than limit, CorVue™ congestion monitoring
Device Parameter Reset	On
Entry into Backup VVI Mode	On
Auditory Duration	2; 4; 6; 8; 10; 12; 14; 16 sec
Number of Audio Alerts per Notification	2
Number of Notifications	1–16
Time Between Notifications	10; 22 hours
Electrograms and Diagnostics	
Stored Electrograms	30 minutes (2 user programmable + discrimination channel), up to one minute programmable pre-trigger data per VT/VF electrograms; additional triggers include lead noise detection, non-sustained ventricular oversensing, morphology template updates, atrial episode, PMT termination, PAC response, magnet reversion, noise reversion
Therapy Summary	Diagram of therapies delivered
Episodes Summary	Directory listing of up to 60 episodes with access to more details including stored electrograms
Lifetime Diagnostics	History of bradycardia events and device-initiated charging
AT/AF Burden Trend	Trend data and counts
Ventricular HV Lead Impedance Trend	Multi-Vector Trend Data
Histograms and Trends	Event Histogram; AV Interval Histogram; Mode Switch or AT/AF Duration Histogram; Peak Filtered Atrial Rate during Atrial Arrhythmia Histogram; Atrial Heart Rate Histogram; Ventricular Heart Rate Histogram; AT/AF Burden; Exercise and Activity Trending; V Rates during AMS; DirectTrend™ reports up to 1 year
PMT Data	Information regarding PMT detections
Real-Time Measurements (RTM)	Pacing lead impedances; high-voltage lead impedances; and signal amplitudes
CorVue Congestion Monitoring	On; Off
CorVue Congestion Monitoring Threshold	8–18 days

MRI Settings	Setting
Tachy Therapy	Disabled
MRI Mode	DOO; VOO; AOO; Pacing Off
MRI Base Rate	30–100 min^{-1}
MRI Paced AV Delay	25–110 ms
MRI RA and RV Pulse Amplitude	5,0 or 7,5 V
MRI RA and RV Pulse Width	1,0 ms
MRI RA and RV Pulse Configuration	Bipolar
MRI LV Pulse Amplitude	0,25-7,5 V
MRI LV Pulse Width	0,05-1,5 ms
MRI LV Pulse Configuration	D1-M2, D1-M3, D1-P4, M2-M3, M2-P4, M3-M2, M3-P4, P4-M2, P4-M3
MRI V Pacing Chamber	RV Only, LV+RV (Simultaneous)
MRI Timeout	3; 6; 9; 12; 24 hours; Off

MRI Scan Parameters§

LEAD MODEL	LEAD LENGTHS	MAGNET (TESLA)	RF TRANSMIT CONDITIONS	SCAN REGION
Quartet™ LV Lead 1456Q, 1457Q, 1458Q, 1458QL	86 cm	1,5T / 3T	Normal Operating Mode	Full-body
Durata™ Defibrillation Lead 7120Q, 7122Q	58, 65 cm	1,5T / 3T		
Optisure™ Lead LDA220Q, LDA210Q	58, 65 cm	1,5T / 3T		
Tendril™ STS Pacing Lead 2088TC	46, 52 cm	1,5T / 3T		
Tendril MRI™ Lead LPA1200M	46, 52 cm	1,5T		

†LV first with 10 ms interventricular delay.

§ For additional information about specific MR Conditional CRT-Ds and leads, including scan parameters, warnings, precautions, adverse conditions to MRI scanning, and potential adverse events, please refer to the Abbott MRI Ready Systems Manual at medical.abbott/manuals.

Customer Support: +914044600102 (India)

Abbott
15900 Valley View Court
Sylmar, CA 91342, USA
Tel: +1 818 362 6822
Cardiovascular.abbott

Brief Summary: Prior to using these devices, please review the Instructions for Use for a complete listing of indications, contraindications, warnings, precautions, potential adverse events, and directions for use.

MAT-2204444 v1.0 | Item approved for India use only.

Abbott