

# Entrant™ HF

Cardiac Resynchronization Therapy  
Defibrillator (CRT-D)  
CDHFA300Q



## Product Highlights

- Bluetooth® Low Energy (LE) communication enabling smartphone connectivity through data encryption
- SyncAV™ CRT technology offers dynamic AV timing with customizable programming to ensure BiV pacing
- Cold can programmability provides an additional RV-SVC shock configuration to decouple the can from the shocking vector parameters in cases of lead problems
- 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 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 enhance SVT and VT discrimination for reduced inappropriate therapies
- SenseAbility™ sensing algorithm feature provides the flexibility to fine-tune programming around T-wave oversensing without decreasing sensitivity
- The Entrant™ HF CRT-D and Quartet™ quadripolar LV lead feature four pacing electrodes and 10 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
- 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
- Dual patient notification: audio notification through the device and visual notification via myMerlinPulse™ app

## Ordering Information

Contents: Cardiac Pulse Generator

MODEL NUMBER	DIMENSIONS (H x W x T, MM)	WEIGHT (G)	VOLUME (CC)	CONNECTOR
CDHFA300Q	74 x 51 x 12	76	34	DF-4, IS-4, IS-1

\*See MRI Scan Parameters in MRI Ready Systems manual.



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## Product Specifications

### PHYSICAL SPECIFICATIONS

Models	CDHFA300Q
Telemetry	Bluetooth® LE Communication
Delivered/Stored Energy	36/39 J
Volume	34 cc
Weight	76 g
Size	74 x 51 x 12 mm
Defibrillation Lead Connections	DF4-LLHH
LV Lead Connections	IS4-LLLL
Sense/Pace Lead Connections	IS-1
High-Voltage Can	Electrically active titanium can
PARAMETER	SETTINGS
<b>Biventricular Pacing</b>	
VectSelect Quartet™ Programmable Pulse Configuration	Distal Tip 1-Mid 2; Distal Tip I -Proximal 4; Distal Tip I - RV Coil; 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 - RV Coil
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; Biventricular
SyncAV™ CRT Technology Delta	-10 to -120 ms; Off
<b>Sensing/Detection</b>	
SenseAbility™ 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 <sup>-1</sup>
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
<b>Antitachycardia Pacing Therapy</b>	
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 <sup>-1</sup>
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
<b>High-Voltage Therapy</b>	
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
<b>Bradycardia Pacing</b>	
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
Rate-Adaptive Sensor	On; Off; Passive
Programmable Rate and Delay Parameters	Off; Base Rate (min <sup>-1</sup> ); Rest Rate (min <sup>-1</sup> ); Maximum Tracking Rate (min <sup>-1</sup> ); Max Trigger Rate (min <sup>-1</sup> ); Maximum Sensor Rate (min <sup>-1</sup> ); Paced AV Delay (ms); Sensed AV Delay (ms); Rate Responsive AV Delay; Hysteresis Rate (min <sup>-1</sup> ); Rate Hysteresis with Search
Pulse Amplitude	0.25 -7.5 V
Pulse Width	0.05; 0.1 -1.5 ms
LVCap™ 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 <sup>-1</sup>
AMS Base Rate	40; 45; ... 135 min <sup>-1</sup>
Auto PMT Detection/Termination	Atrial Pace; Passive; Off

## CARDIAC RESYNCHRONIZATION THERAPY (CRT) DEVICES

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
<b>Post-Therapy Pacing (Independently programmable from Bradycardia and ATP)</b>	
Post-Shock Pacing Mode	AAI; VVI; DDI; or DDD; Off
Post-Shock Base Rate	30–100 min <sup>-1</sup>
Post-Shock Pacing Duration	0.5; 1; 2.5; 5; 7.5; or 10 min; Off
<b>Device Testing/Induction Methods</b>	
DC Fibber™ Induction Method	0.5 - 5.0 sec
Pulse Duration	
BurstFiberCycle Length	20-100 ms
Noninvasive Programmed Stimulation (NIPS)	2-25 stimuli with up to three extra stimuli
<b>Patient Notifiers</b>	
Programmable Notifiers (On; Off)	BatteryAssurance™ alert, Possible HV circuit damage, HV charge timeout, Long charge time for Capacitor Maintenance, Device at ERI, 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 pacing percentage lower than limit
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
<b>Electrograms and Diagnostics</b>	
Stored Electrograms	Up to 15 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 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
<b>MRI Settings</b>	
Tachy Therapy	Disabled
MRI Mode	DOO, VOO, AOO, Pacing Off
MRI Base Rate	30–100 min <sup>-1</sup>
MRI Paced AV Delay	25–120 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 V Pacing Chamber	RV Only
MRI Timeout	3; 6; 9; 12; 24 hours; Off

### MRI Scan Parameters§

LEAD MODEL	MAGNET (TESLA)	RF TRANSMIT CONDITIONS	SCAN REGION
<b>Quartet™ LV Lead</b>			
1456Q (lead lengths: 86 cm)	1.5T / 3T	Normal Operating Mode	Full-body
1457Q (lead lengths: 86 cm)			
1458Q (lead lengths: 86 cm)			
1458QL (lead lengths: 86 cm)			
<b>Durata™ Defibrillation Lead</b>			
7120Q (lead lengths: 58, 65 cm)	1.5T / 3T	Normal Operating Mode	Full-body
7122Q (lead lengths: 58, 65 cm)			
<b>Optisure™ Lead</b>			
LDA220Q (lead lengths: 58, 65 cm)	1.5T / 3T	Normal Operating Mode	Full-body
LDA210Q (lead lengths: 58, 65 cm)			
<b>Tendril™ STS Pacing Lead</b>			
2088TC (lead lengths: 46, 52 cm)	1.5T / 3T		
<b>Tendril MRI™ Lead</b>			
LPA1200M (lead lengths: 46, 52 cm)	1.5T		

§ 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](http://medical.abbott/manuals).

† LV first with 10 ms interventricular delay

**Customer Support:** 46-8-474-4756

**Brief Summary:** This product is intended for use by or under the direction of a Physician. 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.

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