MOMENTUM™ EL (Extended Longevity ICD)
Models D120 and D121

- HeartLogic™ Heart Failure Diagnostic for detecting indications of worsening heart failure status.
- EnduraLife™ Battery Technology provides more power to use more of the device, featuring projected longevity up to 17.5 years for VR devices and 16.0 years for DR devices.*

* Assumes: 2.0V RA, 2.0V RV, 0% pacing, 700Ω, No LATITUDE, No Respiratory Rate Sensor, No Heart Failure Sensor Suite.

### Mechanical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Size (cm) (W x H x D)</th>
<th>Mass (g)</th>
<th>Volume (cc)</th>
<th>Connector Type (RA RV LV)</th>
<th>C-Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>D120</td>
<td>VR</td>
<td>5.37 x 7.79 x 0.99</td>
<td>70.7</td>
<td>31.5</td>
<td>RV: IS-1/DF-1</td>
<td>C1722</td>
</tr>
<tr>
<td>D121</td>
<td>DR</td>
<td>5.37 x 7.79 x 0.99</td>
<td>71.0</td>
<td>31.5</td>
<td>RA: IS-1; RV: IS-1/DF-1</td>
<td>C1721</td>
</tr>
</tbody>
</table>

### Pulse Generator Life Expectancy Estimation (Implant to Explant) with EnduraLife Battery (All Models)

EnduraLife Battery Technology provides clinically proven, industry-leading projected longevity<sup>1-10</sup>. The following tables represent sample pulse generator life expectancy estimation (implant to explant) with EnduraLife battery as provided in product labeling. For specific programmable parameter ranges, refer to product labeling at [www.bostonscientific.com/manuals](http://www.bostonscientific.com/manuals), or contact Boston Scientific technical services or your local representative.

#### Projected Longevity<sup>a</sup>

<table>
<thead>
<tr>
<th>Type</th>
<th>Pacing Amplitude</th>
<th>Pacing</th>
<th>500Ω with LATITUDE™</th>
<th>700Ω with LATITUDE™</th>
<th>900Ω with LATITUDE™</th>
<th>700Ω no LATITUDE™ RS, or HFSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR</td>
<td>2.5 V</td>
<td>15%</td>
<td>15.0</td>
<td>15.1</td>
<td>15.2</td>
<td>17.1</td>
</tr>
<tr>
<td></td>
<td>2.0 V / Off</td>
<td>0%</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
<td>17.5</td>
</tr>
<tr>
<td>DR</td>
<td>2.5 V</td>
<td>15%</td>
<td>13.6</td>
<td>13.7</td>
<td>13.8</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>2.0 V / Off</td>
<td>0%</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>16.0</td>
</tr>
</tbody>
</table>

- Assumes 70 PPM LRL; DDDR mode; 0.4 ms Pulse Width (RA, RV); sensors On, Heart Failure Sensor Suite On.
- Projected longevity is calculated assuming 2 maximum energy charging cycles per year, including automatic capacitor re-forms and therapeutic shocks. These calculations also assume 3-channel EGM Onset is on and that the pulse generator spends 3 months in Storage mode during shipping and storage.
- Assumes ZIP telemetry use for 2 hours at implant and for 40 minutes annually for in-clinic follow-up checks.
- Assumes standard use of the LATITUDE™ Communicator as follows: Daily Device Check on, quarterly scheduled remote follow ups, and other typical interrogations.
- Assumes LATITUDE™ Communicator is not used, Respiratory Sensor is Off, and Heart Failure Sensor Suite is Off.

### Additional Longevity Information

- Boston Scientific devices have corporate warranties at 10 years (VR) and 8 years (DR) in available geographies. Warranty information available at [www.bostonscientific.com/warranty](http://www.bostonscientific.com/warranty).
- Devices use Li/MnO₂ chemistry.
- The Usable Battery Capacity is 1.9 Amp-hours (typical implant to battery capacity depleted).
- Shelf life is 2 years (before use by date).
### Pacing Therapy

**Brady Modes**
- Normal: DDD(R), DDI(R), VDD(R), VVI(R), AAI(R), Off
- Temporary: DDD, DDI, DOO, VDD, VVI, VOO, AAI, AOO, Off

**AT/AF Management**
- ATR Mode Switch, Ventricular Rate Regulation (VRR) - MIN, MED, MAX, Atrial Flutter Response (AFR), PMT Termination, Rate Smoothing

**Automaticity**
- PaceSafe Right Ventricular Automatic Threshold (RVAT), PaceSafe Right Atrium Automatic Threshold (RAAT)

**Rate Adaptive Pacing**
- Accelerometer with sensor trending function

**RV Pacing Reduction**
- AV Search+, RYTHMIQ™, AV Delays to 400 ms, Rate Hysteresis

### Patient Diagnostics

**Daily Trends for Last 365 Days**
- Events, Lead impedances and amplitudes, RA Pace Threshold, RV Pace Threshold

**Arrhythmia Logbook**
- Events Summary, Stored Electrograms with Annotated Markers, Intervals and approximately 17 minutes of multi-channel EGM, always with 10 seconds Onset and event storage prioritization. Implant activation of all available EGMs. On screen measurement of all stored signal amplitudes and timing

**Histograms & Counters**
- Tachy Events and Brady Counters

**AT/AF Diagnostics**
- Atrial Arrhythmia Report, AT/AF Burden, RV Rate During AT/AF, Percent Pacing

**Heart Failure Trends and Diagnostics**
- Heart Failure Management Report, Weight, Blood Pressure, Events, Activity Level, Respiratory Rate, Heart Rate, Heart Rate Variability (SDANN), HRV Footprint, Thoracic Impedance, Night Heart Rate, Sleep Incline
- To note: Weight and Blood Pressure are only available via LATITUDE™

**HeartLogic™ Heart Failure Diagnostic**
- The HeartLogic Index and Alert are a validated diagnostic tool to detect gradual worsening of heart failure over days or weeks using multiple physiological measurements. The HeartLogic Index aggregates measurements from multiple device-based sensors (Heart Sounds, Thoracic Impedance, Respiration, and Night Heart Rate) and reflects changes over time in the patient’s sensor trend data from their respective baseline values.

**HeartLogic™ Heart Failure Management Report**
- HeartLogic™ composite index and alert, S3 Heart Sound, S1 Heart Sound, Thoracic Impedance, Respiratory Rate, Night Heart Rate, Sleep Incline, Activity Level, AT/AF Burden, V therapy, RV Rate During AT/AF, Mean Heart Rate, % LV Paced, Heart Rate Variability (SDANN), Weight, Blood Pressure
- To note: HeartLogic™ composite index and alert, heart sounds, weight, and blood pressure are only available through LATITUDE™

### Implant/In Clinic Follow-Up

**Implant**
- Communication Mode: Programmable values: Enable use of ZIP™ telemetry (MICS)
- Requires initial use of wand for device ID or use wand for all telemetry
- Nominal: Enable use of ZIP telemetry (Requires initial use of wand for device ID)

**In Clinic Follow-Up**
- Wireless ECG

### Remote Follow-Up

**Patient Triggered Monitor (PTM)**
- Triggers the storage of two minutes onset and one minute post – EGMs, intervals, and annotated marker data during a symptomatic episode – by placing a magnet over the device

**Beeper Feature**
- Beep during capacitor charge, beep when explant is indicated, beep when lead impedance measurement (shock or pace) is out-of-range

**Magnet Feature**
- Magnet Response (Off, Store EGM, Inhibit Therapy)

**Remote Monitoring**
- This device is designed to be LATITUDE™ enabled; LATITUDE™ availability varies by region

**Thresholds**
- Automatic storage of last successful daily PaceSafe threshold test for all active chambers

**Wireless**
- Remote follow-up for all devices (MICS)

### Tachyarrhythmia Therapy

**Sensing/Detection**
- Zones VF only, or VF and VT or VF, VT, VT-1
- Lowest Zone can be Monitor Only

**Shock Reduction and Appropriate Therapy**
- AcuShock™ Advanced Technology including Onset/Stability™, RhythmID™ with RhythmMatch™, Dynamic Noise Algorithm (DNA) for sensing, Automatic Gain Control (AGC) with programmable sensing floor, Narrow Band Pass Filter

**Anti-tachycardia Pacing Therapy (ATP) Termination**
- Quick Convert™ in VF Zone. Two programmable ATP schemes in both VT and VT-1 zones. Burst, Ramp, Scan, Ramp-Scan

**Shock Energy**
- 41 J stored, 35 J delivered. First two shocks in each zone programmable. VT-1 has 5 shocks. VT has 6 shocks and VF has 8 shocks. Reverse Last Shock Polarity in zone. Programmable RV Coil to RA Coil and Can (TRIAD), RV Coil to Can, RV Coil to RA Coil (COLD CAN)

**Nominals**
- VF Zone (200 bpm) – Detection: Rate and Duration, Therapy: Quick Convert, 8 high energy shocks
- VT Zone (160 bpm) – Detection: Rhythm ID or Onset/STability, Therapy: ATP x 2, 6 high energy shocks

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**Device Testing/Induction Methods**

**Induction Methods**
- VFb Induction, Shock on T Induction, Programmed Electrical Stimulation (PES), 50 Hz/Manual Burst Pacing

**Commanded Therapy Methods**
- Commanded Shock, Commanded ATP
ICD Systems – RESONATE™ HF, RESONATE™ EL, PERCIVA™ HF, PERCIVA™, VIGILANT™ EL, MOMENTUM™ EL

INDICATIONS AND USAGE
Boston Scientific implantable cardioverter defibrillators (ICDs) are intended to provide ventricular antitachycardia pacing (ATP) and ventricular deactivation for automated treatment of life-threatening ventricular arrhythmias.

CONTRAINDICATIONS
Use of these Boston Scientific pulse generators are contraindicated for the following patients: whose ventricular tachyarrhythmias may have reversible cause, such as: digitalis intoxication, electrolyte imbalance, hypoxia, sepsis; or patients whose ventricular tachyarrhythmias have a transient cause, such as: acute myocardial infarction (AMI), electrocution, drowning; or patients who have aunar pacemaker.

WARNINGS
Read this manual thoroughly before implantation to avoid damage to the pulse generator and/or lead. For single patient use only. Do not reprocess, resterilize. Always have external defibrillation equipment available during implant and electrophysiologic testing. Ensure that an external defibrillator and medical personnel are present during post-implant device testing should the patient require external rescue. Do not use this pulse generator with another pulse generator. Program the pulse generator Tachy Mode(s) to Off during implant, explant, or postmortem procedures to avoid inadvertent high voltage shocks. Do not kink, twist, or braid the lead with other leads as doing so could cause lead insulation abrasion damage or conductor damage. For leads that require the use of a Connector Tool, use caution handling the lead terminal when the Connector Tool is not present on the lead. Do not directly contact the lead terminal with any surgical instruments or electrical connections such as PSA (alligator) clips, ECG connections, forceps, hemostats, and clamps. Do not contact any other portion of the DF4-LH or DF4-LH lead terminal, other than the terminal pin, even when the lead cap is in place. Do not use atrial tracking modes in patients with chronic refractory atrial tachyarrhythmias. Tracking of atrial arrhythmias could result in ventricular tachyarrhythmias. Advise patients to seek medical guidance before entering environments that could adversely affect the operation of the active implantable medical device, including areas protected by a warning notice that prevents entry by patients who have a pulse generator. RESONATE HF, RESONATE PERCIVA HF, PERCIVA VIGILANT EL, MOMEINTUM EL and Vigilant devices with a DF4 right ventricular lead connection are considered MR Conditional. For these devices, unless all of the MRI Conditions of Use are met, MRI scanning of the patient does not meet MR Conditional requirements for the implanted system, and significant harm or death of the patient and/or damage to the implanted system may result. For potential adverse events applicable when the Conditions of Use are met or not met, refer to the MRI Technical Guide. Do not subject a patient with an implanted pulse generator and/or lead to diathermy. If desired, ensure that Patient Triggered Monitor is enabled prior to sending the patient home. Once the Patient Triggered Monitor feature has been triggered by the magnet and an EGM has been stored, or after 60 days have elapsed from the day that Store EGM was enabled, the patient should not apply the magnet.

References:
1. Nine independent studies confirm that CRT-Ds powered by EnduraLife Battery Technology offer industry-leading longevity.

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