Chronic atrial fibrillation, or silent atria, may provide no benefit beyond that of single-chamber pacing in such patients. AF Suppression™ algorithm helps control atrial rhythm and maintains AV synchrony. Negative AV/PV Hysteresis is designed to ensure biventricular pacing by temporarily shortening the AV/PV delay upon sensing ventricular activity. DDT Biventricular Trigger Mode provides triggered pacing in the presence of intrinsic R-waves or PVCs to help promote biventricular pacing. Mode Switch Base Rate helps manage ventricular activity during AF episodes. Exclusive AF Suppression™ Algorithm is clinically proven to reduce AF burden and improve quality of life. AT/AF Burden Trend provides weekly count of the percent of time in AF and identifies long-term trends for device or drug management.


Ordering Information
Contents: Cardiac pulse generator

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Dimensions (H x W x T, mm)</th>
<th>Weight (g)</th>
<th>Volume (cc)</th>
<th>Connector</th>
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<tbody>
<tr>
<td>5596</td>
<td>49 x 52 x 6</td>
<td>25</td>
<td>11.5 (±0.5)</td>
<td>IS-1</td>
</tr>
</tbody>
</table>

Indications: Implantation of Frontier II device is indicated for: maintaining synchrony of the left and right ventricles in patients who have undergone an AV nodal ablation for chronic atrial fibrillation and have NYHA Class II or III heart failure, the reduction of the symptoms of moderate to severe heart failure (NYHA Class III or IV) in those patients who remain symptomatic despite stable, optimal medical therapy, and have a left ventricular ejection fraction ≤ 35% and a prolonged URS duration, implantation of Accent™ Accent RF, Atrioventricular, and Atrioventricular RF devices is indicated in one or more of the following permanent conditions: pacemaker, pacemaker, fatigue, disorientation, or any combination of those symptoms. Rate-Mediated Pacing is indicated for patients with cholinergic insufficiency, and for those who would benefit from increased stimulation rates concurrent with physical activity. Dual-Chamber Pacing is indicated for those patients exhibiting: sick sinus syndrome, chronic, symptomatic second- and third-degree AV block, recurrent Adams-Stokes syndrome, symptomatic bilateral bundle branch block when multifocal arrhythmia and other causes have been ruled out. Atrial Pacing is indicated for patients with sinus node dysfunction and normal AV and intraventricular conduction systems. Ventricular Pacing is indicated for patients with significant bradycardia and normal sinus rhythm with only rare episodes of A-V block or sinus arrest, chronic atrial fibrillation, severe physical disability. AF Suppression is indicated for suppression of paroxysmal or persistent atrial fibrillation episodes in patients with one or more of the above pacing indications.

Contraindications: Implanted Cardiotoxic-Defibrillator (ICD). Devices are contraindicated in patients who experience angina or other symptoms of myocardial dysfunction at higher sensor-driven rates. An appropriate Maximum Sensing Rate should be selected based on assessment of the highest stimulation rate tolerated by the patient. AF Suppression stimulation is not recommended in patients who cannot tolerate high atrial rate stimulation. Dual-Chamber Pacing, though not contraindicated for patients with chronic atrial flutter, chronic atrial fibrillation, or silent atria, may provide no benefit beyond that of single-chamber pacing in such patients. Single-Chamber Ventricular Demand Pacing is relatively contraindicated in patients who have demonstrated pacemaker syndrome, have retrograde VA conduction, or suffer a drop in arterial blood pressure with the onset of ventricular pacing. Single-Chamber Atrial Pacing is relatively contraindicated in patients who have demonstrated compromise of AV conduction. Atrial Fibrillation Atrioventricular devices are contraindicated in patients having chronic atrial fibrillation or intermittent atrial fibrillation that does not terminate. For specific contraindications associated with individual modes, refer to the programmer’s on-screen help.

Potential Adverse Events: The following are potential complications associated with the use of any pacing system: air embolism, body-related phenomena, cardiac tamponade or perforation, hematoma, bleeding hematoma, seroma, formation of fibrinous tissue, local tissue reaction, inability to interrogate or program due to programmer or device malfunction, infection/erosion, intermittent or desired pulse generator function due to electrical interference, either electromyogenic or electromagnetic, lead malfunction due to conduction failure or irritation, loss of capture or sensing due to lead dislodgement or reaction at the electrode/tissue interface, loss of desired pacing and/or sensing due to lead disconnection, body reaction at electrode interface, lead malfunction (fracture or damage to insulation), loss of normal device function due to battery failure or component malfunction, pacemaker migration or pocket erosion, partial or complete disconnection, coronary sinus thrombosis, pericardial effusion, pericardial effusion, pericardial effusion, pulmonary edema, rise in threshold and exit block, valve damage, cardiac/coronary sinus dissection, cardiac/coronary sinus perforation, coronary sinus or cardiac vein thrombosis.

Refer to the User’s Manual for detailed indications, contraindications, warnings, precautions and potential adverse events.
Cardiac Resynchronisation Therapy (CRT) Devices

Frontier™ II
Cardiac Resynchronisation Therapy Pacemaker

**PHYSICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model Number</th>
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<tr>
<td>Dimensions (mm)</td>
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<tr>
<td>Weight (g)</td>
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</tr>
<tr>
<td>Volume (cm³)</td>
<td>11.5</td>
</tr>
<tr>
<td>Connector</td>
<td>IS-1</td>
</tr>
</tbody>
</table>

**PARAMETER SETTINGS**

**Resynchronization Therapy**

- QuickOpt™ Timing Cycle Optimization
- Sensor paced AV delay, Interventricular Pace delay
- RV and LV Pulse Width (ms)
  - 0.05, 0.1-1.5 in steps of 0.1
  - 0.0-4.0 in steps of 0.5, 4.5-7.5 in steps of 0.5
- RV Pulse Configuration
  - Unipolar, Bipolar
- LV Pulse Configuration
  - Unipolar, Bipolar, LV Tip-Ring
- Ventricular Sense Configuration
  - RV Unipolar Tip, RV Bipolar, RV Unipolar Tip-Ring, RV Bipolar, LV Unipolar Tip, LV Bipolar, LV Unipolar Tip-Ring, LV Tip-Ring
- Ventricular Pacing Chamber
  - BY, RV only, LV only
- First Chamber Paradox
  - Simultaneous***, RV, LV
- Interventricular Pace delay (ms)
  - 20-80 in steps of 5
- Ventricular Sensitivity (mV)
  - 0.5-5.0 in steps of 0.5, 6-10 in steps of 1, 10-25 in steps of 2.5
- Negative AV/PV/Hysteresis Search (ms)
  - 0.1-0.1 in steps of 0.1, 0.1-10 in steps of 10
- Shortest AV/PV Delay (ms)
  - 30-50 in steps of 5, 60-120 in steps of 10

**Atrial Output/Sensing**

- Atrial Pulse Configuration
  - Unipolar (tip–case), Bipolar (tip–ring)
- Atrial Sense Configuration
  - Unipolar (tip–case), Bipolar (tip–ring), Unipolar Ring (ring–case)
- Atrial Sensitivity‡ (mV)
  - 0.1-0.5 in steps of 0.1, 0.75-2.0 in steps of 0.25, 2.5-5.0 in steps of 0.5
- Atrial Amplitude
  - 0.0-4.0 in steps of 0.5, 4.5-7.5 in steps of 0.5
- Atrial Pulse Width
  - 0.05, 0.1-1.5 in steps of 0.1

**Rate/Timing**

- Mode
  - A00(R), AAI(R), AAT(R), AAO, VOO(R), VVI(R)
- DDD Trigger
  - R-wave
- DDD Timing
  - DDD, DDI
- Base Rate (min⁻¹)
  - 30**, 40-140 in steps of 10
- Hysteresis Rate (min⁻¹)
  - 0.1-10 in steps of 0.1, 10-140 in steps of 10
- Search Interval (min⁻¹)
  - 1-16
- Cycle Count
  - 0.1-5.0 in steps of 0.1
- Intervention Rate (min⁻¹)
  - 0.1-10 in steps of 0.1
  - 10-140 in steps of 10
- Intervention Duration (min⁻¹)
  - 1-5
- Recovery Time
  - Fast, Medium, Slow, Very Slow
- Rest Rate (min⁻¹)
  - 0.1-10 in steps of 0.1, 10-140 in steps of 10
- Maximum Tracking Rate (min⁻¹)
  - 90-130 in steps of 10, 140-180 in steps of 10
- AV Delay (ms)
  - 20, 25-300 in steps of 10, 305-350 in steps of 25, 350-400 in steps of 25
- PV Delay (ms)
  - 25, 30-200 in steps of 10, 225-325 in steps of 25
- Ventricular Refractory Period (ms)
  - 125-500 in steps of 25
- Atrial Refractory (PVARP) (ms)
  - 125-500 in steps of 25
- Ventricular Absolute Refractory Period (ms)
  - 60-240 in steps of 10
- Ventricular Blanking (ms)
  - 50-125 in steps of 1
- Atrial Absolute Refractory Period (ms)
  - 60-240 in steps of 10, 225-325 in steps of 25
- Atrial Refractory Period (ms)
  - 125
- Far Field Protection Interval (ms)⁎
  - 125
- Stored Electrograms
  - Options
    - Sensor Driven
    - No. of Stored EGMs
    - 1, 2, 4, 8, 12
  - Channel
    - Single, Dual
  - Triggers
    - On, Off
    - High Atrial Rate (ms)
      - On, Off
      - 125-300 in steps of 25
    - No. of Consecutive Cycles
      - 2, 3, 4, 5, 10, 15, 20
  - PVC
    - On, Off
    - 125-300 in steps of 25
  - PVC
    - On, Off
  - No. of Consecutive PVCs
    - 2, 3, 4, 5
  - Rate Response
    - Off, On
    - AT/AF Detection
      - On, Off
    - AF/AF Detection
      - On, Off
  - Advanced Hysteresis
    - On, Off

**Other**

- Atrial Response
  - Off, Battery Test
- Atrioventricular Conduction Search (ms)
  - Off, 10-100 in steps of 10
- Atrioventricular Conduction Search (ms)
  - 110-150 in steps of 15, 160-200 in steps of 10, 225-300 in steps of 25
- S1 Burst Cycle
  - 60, 70, 80, 85, 95, 100, 105, 115, 125, 130, 140, 150, 155, 160, 170, 180, 185, 190, 195, 200
- Ventricular Safety Standby
  - Off, On
- PVC Options
  - Off, On
  - +PVAR or PVC
- PMT Options
  - Off, On
  - Beats + PVT, Auto Detect
- PMT Detection Rate (min⁻¹)
  - 90-150 in steps of 5, 160-180 in steps of 10
  - Lead Type
    - Unipolar, Bipolar
- NPS Options
  - Stimulation Chamber
    - Atrial, Right Ventricular
  - Coupling Interval (ms)
    - 200-800 in steps of 10
  - S1 Count
    - 1-25 in steps of 1
  - S1, S2, S3, and S4 Cycle (ms)
    - 100-800 in steps of 10
  - Right Ventricular Support Rate (min⁻¹)
    - Off, 10, 40-90 in steps of 5
  - Sinus Node Recovery Delay (ms)
    - 1-5 in steps of 1

**AF Management**

- AF Suppression
  - Off, On
- Lower Rate Overdrive (min⁻¹)
  - 10
- Upper Rate Overdrive (min⁻¹)
  - 5
- No. of Overdrive Pacings Cycles
  - 15-40 in steps of 5
- Rate Recovery (ms)
  - 8, 12
- Auto Mode Switch
  - Off, DDDR, DDD to DDDR, DDD to DDI, DDD to DTT (I), DDD to DDI (TT), DDD to DDI (I), DDD to DTT (I), DDD to DDI (TT), DDD to DDI (I)
- AMS Base Rate (min⁻¹)
  - Base Rate +0 to Base Rate +35 in steps of 5

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

**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. Devices depicted may not be available in all countries. Check with your St. Jude Medical representative for product availability in your country. Unless otherwise noted, ™ indicates that the name is a trademark of, or licensed to, St. Jude Medical or one of its subsidiaries. ST. JUDE MEDICAL, the nine-squares symbol and MORE CONTROL, LESS RISK, are registered and unregistered trademarks and service marks of St. Jude Medical, Inc. and its related companies. ©2011 St. Jude Medical, Inc. All rights reserved.