FEATURES & BENEFITS

- Long life alloy and design Telecordia certified exceeding 13 years service life.
- Tested and qualified by Telecordia to meet SR-4228 requirements.
- True Front Access threaded copper alloy inserts for reduced maintenance and increased safety.
- Terminal versatility - ease of diagnostic readings with Ohmic Ring®
- Reduced headspace driving higher energy density, in cabinet or rack applications
- Removable handles for ease of installation
- Innovative front terminal design maximizing energy density with direct connect extrusion fusion weld technology.
- Thermally welded case-to-cover bond to ensure a leak-proof seal.
- Flame-retardant polypropylene case and cover compliant with UL94 V-O with an Oxygen Limiting Index of greater than 28.
- Absorbent Glass Mat (AGM) technology for efficient gas recombination 99% plus.
- Flame-arresting, one-way pressure-relief vent for safety and long life.
- UL-recognized component.
- Multicell design for ease of installation and maintenance.
- Not restricted for air transport - Complies with IATA/ICAO Special Provision A67.
- Not restricted for surface transport - classified as non-hazardous material as related to DOT-CFR Title 49 parts 17 1-189.
- Not restricted for water transport - classified as non-hazardous material per Amendment 27.

APPLICATIONS
- Wireline
- Wireless
- Customer Premise / PBX
- Broadband
- Microwave Repeater
- Fiber Optic Regen Sites

INDOOR/OUTDOOR INSTALLATIONS
- Cabinet Systems
- Rack Systems

THE MOMENT OF TRUTH HAS ARRIVED

TRUE Performance - 100% out of box capacity ratings at installation
TRUE Front Access Terminals - ensuring reliability & connection versatility
TRUE High Energy Density - highest true energy density solution in the market
TRUE Long life design - Telecordia SR-4228 industry leading 13 year service life
TRUE Seismic System - highest capacity energy storage system seismic NEBS tested
TRUE Flexibility - multiple models to fit each customers unique power system demands

PRODUCT LINE EXTENSION TO
C&D TEL VALVE REGULATED LEAD ACID (VRLA) BATTERY SERIES

TEL12-160FW
TEL12-160F
TEL12-180F

THE MOMENT OF TRUTH HAS ARRIVED

TRUE Performance - 100% out of box capacity ratings at installation
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TRUE Flexibility - multiple models to fit each customers unique power system demands
### SPECIFICATIONS

#### Ampere Hour Capacity to 1.75 Volts per Cell @ 77°F (25°C)

<table>
<thead>
<tr>
<th>Model</th>
<th>Discharge Hrs.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>24</th>
<th>36</th>
<th>48</th>
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<th>100</th>
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<tbody>
<tr>
<td>TEL12-160FW</td>
<td>123</td>
<td>143.5</td>
<td>155.2</td>
<td>163.2</td>
<td>169.2</td>
<td>174.0</td>
<td>177.9</td>
<td>181.2</td>
<td>184.0</td>
<td>186.4</td>
<td>190.4</td>
<td>196.3</td>
<td>200.3</td>
<td>203.3</td>
<td>208.9</td>
<td>211.9</td>
<td>214.8</td>
<td>215.5</td>
<td></td>
</tr>
<tr>
<td>TEL12-160F</td>
<td>107.1</td>
<td>124.4</td>
<td>134.6</td>
<td>141.5</td>
<td>146.7</td>
<td>150.8</td>
<td>154.3</td>
<td>159.5</td>
<td>161.5</td>
<td>164.7</td>
<td>169.4</td>
<td>172.6</td>
<td>174.9</td>
<td>179.2</td>
<td>181.4</td>
<td>183.4</td>
<td>183.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEL12-180F</td>
<td>123.1</td>
<td>143.5</td>
<td>155.2</td>
<td>163.2</td>
<td>169.2</td>
<td>174.0</td>
<td>177.9</td>
<td>181.2</td>
<td>184.0</td>
<td>186.4</td>
<td>190.4</td>
<td>196.3</td>
<td>200.3</td>
<td>203.3</td>
<td>208.9</td>
<td>211.9</td>
<td>214.8</td>
<td>215.5</td>
<td></td>
</tr>
</tbody>
</table>

#### Specifications

- **Operating Temperature Range with temperature compensation**
  - Discharge: -40°F (-40°C) to +160°F (71°C)
  - Charge: -10°F (-23°C) to +140°F (60°C)

- **Nominal Operating Temperature Range**
  - +74°F (23°C) to +80°F (27°C)

- **Recommended Maximum Charging Current Limit**
  - C20/5 Amperes (40.1A for TEL12-180F; 34.5A for TEL12-160F; 35.3A for TEL12-160FW)

- **Float Charging Voltage**
  - 13.5 to 13.8 VDC average per 12V unit

- **Maximum AC Ripple (Charger)**
  - 0.5% RMS or 1.5% P-P of float charge voltage recommended for best results.
  - Max voltage allowed = 1.4% RMS (4% P-P) Max current allowed = C20/20

- **Self Discharge**
  - Battery can be stored up to 6 months at 77°F (25°C) before a freshening charge is required. Batteries stored at temperatures greater than 77°F (25°C) will require recharge sooner than batteries stored at lower temperatures. See C&D bulletin 41-7272, Self-Discharge and Inventory Control for details.

- **Equalize charge and cycle service voltage**
  - 14.40 to 14.80 VDC average per 12V unit @ 77°F (25°C)

- **Terminal: Inserted - Inter-unit connector provided**
  - Threaded copper alloy insert terminal to accept 1/4-20 UNC bolt

- **Terminal Hardware Initial Torque:**
  - 110 in.-lbs. (12.4 N-m)

- **Battery Part Numbers**
  - Telcordia Part Numbers
  - TEL12-160FW
  - TEL12-160F
  - TEL12-180F

- **CLEI Code**
  - PBMBC10FRA
  - PBMBB10FRA
  - PBMBD10FRA

- **CPR**
  - 212312
  - 212304
  - 212314

- **Battery Voltage Per Unit**
  - TEL12-160FW: 12 V Monobloc 160 Ah
  - TEL12-160F: 12 V Monobloc 157 Ah
  - TEL12-180F: 12 V Monobloc 181 Ah

- **Ampere Hour Capacity**
  - Model: TEL12-160FW
  - Hour Rate @ 77°F (25°C) to 1.75 V/C: 153 Ah
  - Hour Rate @ 68°F (20°C) to 1.80 V/C: 800 Amperes

- **Maximum Discharge Current**
  - Model: TEL12-160FW
  - Discharge: 5600 Amperes
  - Short Circuit Current: 0.0027 Ohms
  - Battery Impedance 60 Hz (Ω): 121 lbs / 55 kg

- **Battery Weight**
  - Model: TEL12-160FW
  - Weight: 121 lbs / 55 kg

- **Battery Weight**
  - Model: TEL12-160F
  - Weight: 115 lbs / 53 kg

- **Battery Weight**
  - Model: TEL12-180F
  - Weight: 131 lbs / 60 kg
DIMENSIONS

TEL12-160F & TEL12-180F

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A (in mm)</th>
<th>B (in mm)</th>
<th>C (in mm)</th>
<th>D (in mm)</th>
<th>E (in mm)</th>
<th>F (in mm)</th>
<th>G (in mm)</th>
<th>H (in mm)</th>
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<tbody>
<tr>
<td>TEL12-160F</td>
<td>16.56</td>
<td>420.57</td>
<td>17.72</td>
<td>344.99</td>
<td>18.22</td>
<td>482.79</td>
<td>16.37</td>
<td>435.60</td>
</tr>
<tr>
<td>TEL12-160FW</td>
<td>20.35</td>
<td>516.86</td>
<td>21.51</td>
<td>546.25</td>
<td>22.01</td>
<td>559.05</td>
<td>20.16</td>
<td>512.17</td>
</tr>
<tr>
<td>TEL12-180F</td>
<td>20.35</td>
<td>516.86</td>
<td>21.51</td>
<td>546.25</td>
<td>22.01</td>
<td>559.05</td>
<td>20.16</td>
<td>512.17</td>
</tr>
</tbody>
</table>

* All dimensions in inches and (millimeters). All dimensions are for reference only. Contact a C&D Representative for complete dimensions information.

* Note: Batteries to be mounted with 0.5 IN (12.5mm) spacing minimum and free air ventilation.

CONSTANT CURRENT RATINGS - AMPERES @ 77°F (25°C)

| MODEL     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 16 | 20 | 24 | 36 | 48 | 72 | 100 |
|-----------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|
| TEL12-160F| 1.75 | 3.7 | 111 | 63.7 | 45.7 | 36.0 | 29.8 | 25.5 | 22.4 | 20.0 | 18.0 | 16.4 | 14.0 | 10.8 | 8.8 | 7.5 | 5.2 | 3.9 | 2.7 | 2.0 |
| TEL12-160F| 1.80 | 4.1 | 107 | 69.0 | 44.7 | 35.3 | 29.3 | 25.1 | 22.0 | 19.7 | 17.7 | 16.2 | 13.8 | 10.6 | 8.7 | 7.4 | 5.1 | 3.9 | 2.6 | 1.9 |
| TEL12-160F| 1.85 | 4.5 | 99.2 | 59.8 | 42.6 | 33.7 | 28.1 | 24.1 | 21.2 | 18.9 | 17.1 | 15.6 | 13.3 | 10.3 | 8.4 | 7.1 | 4.9 | 3.7 | 2.5 | 1.8 |
| TEL12-160F| 1.90 | 5.0 | 87.0 | 52.7 | 38.8 | 30.9 | 25.8 | 22.2 | 19.6 | 17.5 | 15.8 | 14.4 | 12.3 | 9.5 | 7.7 | 6.5 | 4.4 | 3.3 | 2.2 | 1.6 |

Additional ratings and application information is available in the Battery Selection Program at www.cdstandbypower.net
FRONT ACCESS BATTERY RACK SYSTEMS

• TRUE High Energy Density with TEL12-180F
• Front Access for Ease of Installation and Maintenance
• Pre Wired from the Factory
• Integrated Grounding Hardware and Multiple Grounding points
• TRUE Seismic Systems Shaker Table Tested
• Tested to GR-63-CORE and GR-1089-CORE
• Cable Management System
• Thermal Management Features Ensuring Long Life

Five Tier Seismic Zone 2

Height = 82.13 inches (2086 mm)
Width = 23.5 inches (597 mm)
Depth = 22.52 inches (572 mm)
Weight = 300 lbs (136 kgs)
(without batteries)

Five Tier Seismic Zone 4

Height = 80.69 inches (2050 mm)
Width = 24.88 inches (632 mm)
Depth = 23.63 inches (600 mm)
Weight = 410 lbs (186 kgs)
(without batteries)

Six Tier Seismic Zone 4

Height = 84 inches (2134 mm)
Width = 24.88 inches (632 mm)
Depth = 25.25 inches (641 mm)
Weight = 410 lbs (186 kgs)
(without batteries)

NEBS Level 3 Zone 2
Standard Breaker Panel
Optional Bus Panel
+24VDC 1800 Ah
-48VDC 900 Ah
Height = 82.13 inches (2086 mm)
Width = 23.5 inches (597 mm)
Depth = 22.52 inches (572 mm)
Weight = 300 lbs (136 kgs)
(without batteries)

NEBS Level 3 Zone 4
Standard Breaker Panel
Optional Bus Panel
+24VDC 1800 Ah
-48VDC 900 Ah
Height = 80.69 inches (2050 mm)
Width = 24.88 inches (632 mm)
Depth = 23.63 inches (600 mm)
Weight = 410 lbs (186 kgs)
(without batteries)

NEBS Level 3 Zone 4
Standard Bus Panel
Optional Side Breakers
+24VDC 2160 Ah
-48VDC 1080 Ah
Height = 84 inches (2134 mm)
Width = 24.88 inches (632 mm)
Depth = 25.25 inches (641 mm)
Weight = 410 lbs (186 kgs)
(without batteries)

NEBS Zone 2 5-Tier Racks

<table>
<thead>
<tr>
<th>System Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>110-7050-01</td>
<td>(+) 24VDC Top Common Bus</td>
</tr>
<tr>
<td>110-7050-02</td>
<td>(+) 24VDC 10x 100A Ckt Bkrs</td>
</tr>
<tr>
<td>110-7050-05</td>
<td>(-) 48VDC Top Common Bus</td>
</tr>
<tr>
<td>110-7050-06</td>
<td>(-) 48VDC 5x 100A Ckt Bkrs</td>
</tr>
</tbody>
</table>

NEBS Zone 4 5-Tier Racks

<table>
<thead>
<tr>
<th>System Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>110-7051-01</td>
<td>(+) 24VDC Top Common Bus</td>
</tr>
<tr>
<td>110-7051-02</td>
<td>(+) 24VDC 10x 100A Ckt Bkrs</td>
</tr>
<tr>
<td>110-7051-05</td>
<td>(-) 48VDC Top Common Bus</td>
</tr>
<tr>
<td>110-7051-06</td>
<td>(-) 48VDC 5x 100A Ckt Bkrs</td>
</tr>
</tbody>
</table>

NEBS Zone 4 6-Tier Racks

<table>
<thead>
<tr>
<th>System Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>110-7052-01</td>
<td>(+) 24VDC Top Common Bus</td>
</tr>
<tr>
<td>110-7052-05</td>
<td>(-) 48VDC Top Common Bus</td>
</tr>
</tbody>
</table>

Note: Please contact C&D for additional rack options.