The Gradian CCV is a comprehensive care ventilator that provides mechanical ventilation in a wide variety of settings—including those with unreliable access to oxygen and/or electricity. It is built to ventilate critically-ill patients wherever they present, with up to 21 hours of battery power and portability features to enable ease of use throughout the continuum of critical care.

**Versatile Ventilation**
Invasive and non-invasive ventilation with Assist Control, SIMV, and CPAP/BiPAP modes

**Enhanced Portability**
Bed hooks, handle, shoulder strap, and optional rolling cart for convenient use and transport

**Long-Life Battery Power**
Internal and external batteries allowing for use for up to 21 hours

**Use with Room Air**
Internal air compressor to enable use of room air with/without medical oxygen

**Multiple Oxygen Sources**
Can use oxygen from pipelines, cylinders, and most concentrators

**User-Friendly Features**
Tactile, straightforward interface with programmable ventilation profiles for specific disease states

The Gradian CCV is CE-certified and has been cleared by the U.S. FDA.
### Control/Settings

**Quick Start Modes:** Adult & Child (programmable)

**Ventilation Modes:**
- (Pressure or Volume) Assist Control
- (Pressure or Volume) SIMV
- CPAP & Bi-PAP
- Custom modes (3) with programmable ventilation settings available for quick recall

**Mode Switch:** Seamless transition between pressure and volume modes

**Tidal Volume:** 40 – 2000 mL

**Respiratory Rate:** 0 or 5 – 60 BPM

**Inspiratory Time:** 0.5 – 2.0 sec

**PEEP/CPAP:** 0 – 25 cmH\(_2\)O

**Pressure Support (PS):** 0 – 25 cmH\(_2\)O

**Flow:** 5 – 60 L/min (flows ≥ 80 L/min possible in PS mode, CPAP & demand flows)

**Pressure Control** (Target Pressure): 15 – 55 cmH\(_2\)O

**Trigger Sensitivity:** -5 to -1 cmH\(_2\)O

**Safety Pressure Relief:** ≤ 85 cmH\(_2\)O

**Set FiO\(_2\):** 21% – 100%

**Flow Wave Pattern:** Square or descending**

**Settings Lock:** On/Off

*PEEP + PS cannot exceed 25 cmH\(_2\)O; **Based on mode selected

### Power Requirements

**AC Voltage:** 110 – 240 VAC, 50/60 Hz, max 1A

**Note:** The Gradian CCV comes with reusable breathing circuits.

### Battery Parameters

**Battery Composition:** Sealed lead acid

- **Internal Battery:** Up to 7 hours
- **External Battery:** Up to 14 hours

### Environmental

**Shock:** 100 G-Force

**Vibration:** To IEC 60068-2-6

**Operating Temperature:** -18°C – 50°C (0°F – 122°F)

**Storage Temperature:** -40°C – 60°C (-40°F – 140°F)

**Operating Humidity:** 5 – 95% non-condensing

**Ingress Protection:** IP22

### Alarms

**High Airway Pressure:** 10 – 55 cmH\(_2\)O

**Low Airway Pressure:** 5 – 15 cmH\(_2\)O

**Apnea:** After 20 sec, activates apnea mode

**Low Source O\(_2\):** Triggers at 40 psi

**Low Source Air:** Triggers at 40 psi

**System Failure:** Malfunction alert

**Critical Battery:** Approx. 20 min of battery charge remaining

**Audible Alarm:** ≥ 70 dB

**Silence/Reset:** 110 sec

### Gas Source

**Air/Oxygen Mixer:** Integrated

**Oxygen Input:** 0 – 80 psi for cylinder, pipeline, or concentrator connection or low-pressure (< 10 psi) barb connection for other sources

**Air Input:** 40 – 80 psi DISS connection or room air entrainment via internal compressor

### Dimensions (without rolling cart)

- **Width:** 34 cm (13.3 in)
- **Depth:** 13 cm (5.3 in)
- **Height:** 35 cm (13.8 in)
- **Weight:** 8.5 kg (18.8 lb)

### Signal Connections

**Remote Alarm:** ¼” phone jack to connect to nurse call or remote system, normally open/closed

### Monitored Parameters

**Measured Parameters:**
- Airway Pressure (Peak, Base)
- Delivered Tidal Volume
- Spontaneous Breath Rate
- Internal Battery Level
- External Battery Level

**Calculated Parameters:**
- I:E Ratio
- Flow rate
- FiO\(_2\)