



The Gradian CCV: Product Overview

A **comprehensive care ventilator** for:

- ✓ *Post-operative recovery*
- ✓ *Intensive and critical care*
- ✓ *In-patient management*
- ✓ *Ambulance support*
- ✓ *Emergency transport*

Key Functions & Features

Multi-Environment Capability | The Gradian CCV provides 21 total hours of battery backup, including an external battery that comes standard with each unit. It accepts oxygen from cylinders, pipelines, and concentrators, and can compress room air if medical oxygen is unavailable. The Gradian CCV comes with a stable rolling cart and can be detached for bedside or transport use. It also has rugged shock, vibration, and water resistance.

Broad-Featured Capability | The Gradian CCV can be used for adult and pediatric ventilation with a flexible array of modes, including Volume Assist or SIMV, Pressure Assist or SIMV, and CPAP/BiPAP. The device recognizes apnea in spontaneously breathing patients and triggers assisted ventilation.

Enhanced Ease-of-Use | The Gradian CCV offers pre-programmed modes, easy-to-read measurements, and a simple programming interface with no hidden menus.

Low Cost of Ownership | The Gradian CCV's simple maintenance needs, reusable breathing circuits, and generic connections combine to offer significant savings compared to other critical and intensive care ventilators.

The Gradian Guarantee | All Gradian products come with a 3-year service warranty that covers annual preventive maintenance, timely repairs, spare parts, and ongoing customer service from local biomedical technicians.



Gradian Health Systems is a nonprofit medical technology company that works to transform the impact of medical equipment in low-resource hospitals around the world. We combine world-class medical devices with local training and customer service to unleash human potential in delivering care and improving lives.

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The Gradian CCV: Product Specifications

Patient Range

Infant/Pediatric (≥ 5 kg) – Adult

Power Requirements

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

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

Control/Settings

Quick-Start Modes:	Adult & Child
Ventilation Modes:	<ul style="list-style-type: none">• (Pressure or Volume) A/CMV• (Pressure or Volume) SIMV• CPAP & Bi-PAP (can be programmed in custom mode)• Custom modes (3) with programmable ventilation settings available for quick recall
Tidal Volume:	40 – 2,000 mL
Respiratory Rate:	0 or 5 – 60 b/min
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 in PS mode, CPAP & demand flows)
Pressure Control (Target Pressure):	15 – 55 cmH ₂ O
P_{trig} (Sensitivity):	-5 – -1 cmH ₂ O
FiO₂:	21% – 100%
Flow Wave Pattern:	Square or descending**
Auto Lock Function:	On/Off
Remote Alarm Option:	Normally open/closed

*PEEP + PS cannot exceed 25 cmH₂O; **Based on mode selected

Battery Parameters

Internal & External Battery

Battery Composition:	Sealed lead acid
Run Time – 100% O₂:	21 hours total (7.5 hours internal)
Run Time – 60% O₂:	21 hours total (7.5 hours internal)
Run Time – 100% Air (on compressor):	21 hours total (7 hours internal)

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
Water Ingress:	IP x 22

Alarms

High Airway Pressure:	10 – 55 cmH ₂ O
Low Airway Pressure:	5 – 15 cmH ₂ O
Apnea:	20 sec fixed, apnea ventilation mode
Low Source O₂:	Triggers at 40-37 psi
Low Source Air:	Triggers at 40-37 psi
Device Alert:	Malfunction alert
Critical Battery:	Approx. 20 min of battery charge remains
Silence/Reset:	110 sec

Signal Connections

Remote Alarm: ¼" phone jack to connect to nurse call or remote system

Measured Parameters

Monitored Parameters:
<ul style="list-style-type: none">• Paw (Peak, Base)• Delivered Tidal Volume• Spontaneous Breath Count• Internal Battery Level• External Battery Level
Calculated Parameters:
<ul style="list-style-type: none">• I:E Ratio• Flow rate• FiO₂

Dimensions

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)

Gas Source

Air/Oxygen Mixer:	Integrated
Oxygen Input:	40 – 80 psi DISS connection or low-pressure (< 10 psi) barb connection for concentrators
Air Input:	40 – 80 psi DISS connection or entrainment via internal compressor