



❖ Clinical In-Service Outline

➔ Overview

❖ General Description

- Electronically powered and microprocessor controlled
- 7 inch color touch screen
- 3 Control Areas
 - Parameters Screen
 - Extended Screen
 - Technical Screen
- Embedded FiO₂ sensor
- Low flow and High pressure oxygen source connections
- Infant, child or adult application (≥ 5 kg or 22lbs)
- 6 Modes: ACMV, SIMV and SPONT, MVG, VTG, Bi-LEVEL
 - 2 Mandatory Breath Types: Pressure Control & Volume Control
 - 2 Spontaneous Breath Types: Pressure Support, simple spontaneous (PS set at 0)
- NPPV - Noninvasive On/ Off (up to 30 ml leak compensation PISTON) (60ml Turbine)
- Power Management
 - Runs on 100-240 V AC
 - Runs on 12-15 V DC
 - 2 lithium Ion Batteries providing up to 12 hours of charge PISTON 8 Hr Turbine
 - Quick replacement of detachable main battery
 - Fast 3 hour recharge



❖ Geography

- Back panel
 - Multiple ports and connections for alarm connections, uploading and downloading information, LAN network logging.
- Low flow oxygen port - uses Oxygen Quick Connect
- Side panels
 - Fresh Gas Intake and filter cover. Attachment socket of Air/Oxygen Entrainment Mixer or Oxygen Blending Bag kit.
 - Emergency Air Intake with filter
- Front panel
 - Primary alarm LED
 - LED alarm indicators
 - Right and left speakers
 - Pressure gauge
 - Patient circuit connector
 - Control buttons
 1. Manual Breath
 2. Control areas
 - a. Parameters
 - b. Extended
 - c. Technical
 3. Alarm reset / Silence (60 secs)
 4. Panel lock
 5. Cancel / Enter to accept or deny changes
 6. Up/Down button to change parameters or display controls



- LCD Touch Screen divided into 3 sections:
 - a. Alarm and power management area - Top section
 - b. Patient monitoring area - Middle section and Wave forms
 - c. Control area - Bottom section (Parameters, Extended, Technical)

A. Alarm and power management area

- Alarms and cautions on left side of area (up to 3 and by priority)
- Battery icons on right side of area (capacity in %, color green and orange, and arrows indicating charging up or depleting charge)

B. Patient Monitoring area

- Ppeak (Peak Inspiratory Pressure)
- Pbase (Baseline airway pressure at the end of expiration)
- Pmean (Mean airway pressure)
- Vte (Expiratory Tidal Volume)
- Vti (Inspiratory Tidal Volume)
- MVe (Expiratory Minute Volume)
- MVi (Inspiratory Minute Volume)
- Actual f (total number of breaths)
- I:E (I:E ratio)
- PIF (Peak Inspiratory Flow)
- FiO₂ (Fraction of Inspired Oxygen)

❖ **Waveforms (Toggle by hitting “Parameters” button switches to either monitoring the patient in numeric values or waveforms.**

- Pressure wave form graphics
- Volume wave form graphics
- Flow / volume loops
- Volume / pressure loops



C. Control area

1. Parameters Screen

- Ptrig (Pressure sensitivity) Flow sensitivity
- PEEP (Positive End Expiratory Pressure)
- PSV above PEEP (Pressure Support Ventilation)
- F (frequency)
- Flow (mandatory flow – volume control ventilation)
- Ti (inspiratory time)
- VCV (Volume Control Ventilation – set tidal volume)/PRESSURE Control set PRESSURE)
- **Low Pressure** (alarm set for low pressure)
- **HIGH pressure** (alarm set for High pressure)
- **Low MV** (alarm set for Low minute volume)
- **HIGH MV** (alarm set for High Minute volume)
- Breath Modes (ACMV, SIMV, SPONTVTG/MVG or BI_LEVEL)

2. Extended Screen

- Buzzer (alarm volume)
- PowerSave (activate/deactivate power saving)
- Waveform (square or descend)
- Apnea Interval (sets apnea time)
- Ti/Flow ctl. (Controls either inspiratory time or flow criteria during VCV)
- Rise Profile (sets the rise time in PCV or PSV)
- PSV Flow Term. (Sets the Expiratory trigger in % of peak flow)
- PSV Ti (Sets the control inspiratory time for PSV)
- FiO2 (Activates monitoring the oxygen %)
- **FiO2 Low** (alarm set for the low oxygen monitored amount)
- **FiO2 High** (alarm set for the High oxygen monitored amount)



3. Technical Screen

- Pressure Units (cmH20 or mbar)
- LOW P Spont (on or off alarm in SPONT mode)
- Language (sets multiple language choices)
- Show info (system information)
- Circuit TEST (calibration process)
- Set LOAD (used to pre-set ventilation configurations)
- Set Save (saves the pre-set ventilation configurations)
- Show Log Alarm (displays alarms that have occurred)
- Show Log Change (displays changes that have been made)
- Goto More (used to access advanced technical menu)

→ Setup

❖ Connecting the power and gas (optional)

- Power Choices
 - AC
 - Battery (show how to remove/replace Main)
 - Back up Internal secondary battery
- Gas Choices
 - No supplemental gas (room air)
 - Low Flow Oxygen (using Oxygen Quick connect or low pressure oxygen blending bag)
 - 50 psi oxygen



- ❖ Assembling the filters, breathing circuit, and humidifier/HME
 - Inline Filter
 - Breathing Circuit
 - Humidifier use or HME

- ❖ Powering up into Standby condition
 - Startup Screen
Circuit Check / (optional) Activate Pre-set / Start Ventilation
 - Activate Preset
 - Technical screen
 - “Set Load” to load and assign the pre-set settings
 - “Set save” to select the assigned pre-set

 - ✓ OPTIONAL for new patient - Clear log for both “Show Log Alarm” and Show Log Change”
 - Performing a Circuit Check

- ❖ Setting Ventilation Controls
 - PARAMETERS SCREEN
 - Selecting the mandatory breath type and mode
 - Set the Main Parameters
 - Set the **Pressure** (HIGH and LOW) and **MINUTE VOLUME** (HIGH and LOW) alarms

 - EXTENDED SCREEN
 - Set Power save to ON & BUZZER level (Loudness)
 - Set **FiO2 High and Low** if needed
 - Set other appropriate values as needed



- TECHNICAL SCREEN
- Adjust and set appropriately as needed

- ❖ Starting Ventilation by pressing and holding the “on/off” button for 2 seconds
- ❖ Pressure Bar / Patient effort indicator
- ❖ Viewing monitored data
 - Numeric data
 - Waveforms and loops
- ❖ Battery Usage Display

- ➔ **Additional**
- ❖ Cleaning and maintenance
- ❖ Air inlet filters
- ❖ Recharging batteries (Make sure the ventilator is plugged in if storing for extended periods greater than 1 week.)

Instructor:

Person taking the In-service

Date:
