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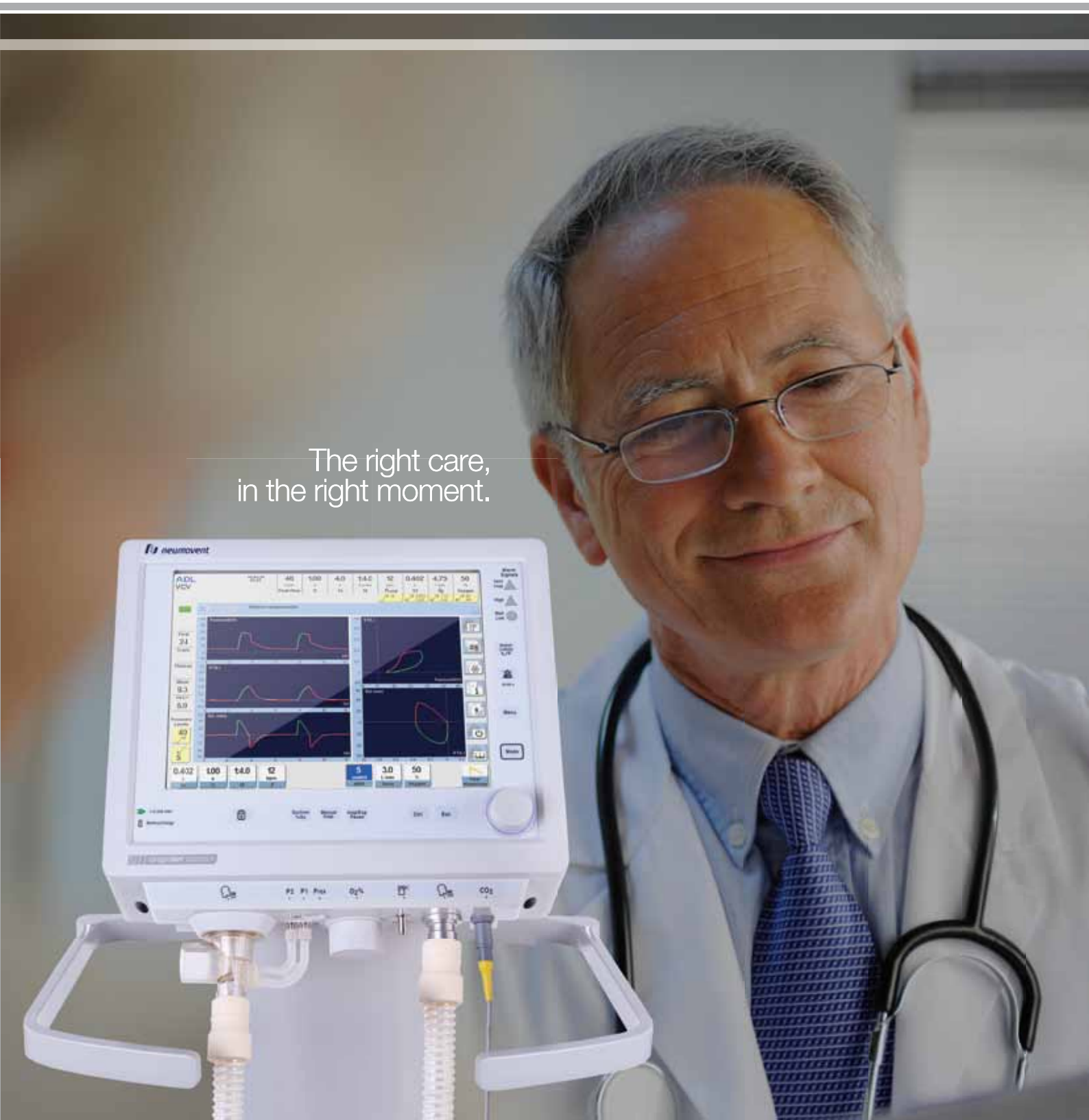
GraphNet advance



- NEONATAL/PEDIATRIC THROUGH ADULT APPLICATIONS
- INTEGRATED INVASIVE AND NON-INVASIVE VENTILATION
- AUTOMATIC LEAK COMPENSATION
- INTEGRATED SOFTWARE FOR VOLUMETRIC CAPNOGRAPHY
- COMPREHENSIVE RESPIRATORY MECHANICS PACKAGE
- NEONATAL PROXIMAL FLOW SENSOR
- ENDOTRACHEAL OR TRACHEOTOMY TUBE COMPENSATION
- 72 HOURS OF TRENDS
- INTERNAL BATTERY CAPACITY > 2 HOURS
- LOW COST OF OWNERSHIP
- TWO YEARS WARRANTY
- **FDA AND CE** APPROVED.

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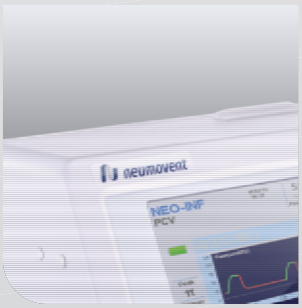
GraphNet advance



Compact design

GraphNet **advance** ventilator provides clear and complete display of vital signs variables on a built-in 12-inch LED screen.

User-friendly and intuitive programming to help manage critical patients safely through:

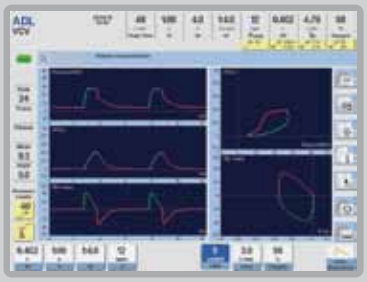
- Touch screen.
- Backlighted knob to confirm parameters.
- Rapid access keys.
- High visibility alarm indicator visible from far away provides early warnings of critical conditions.

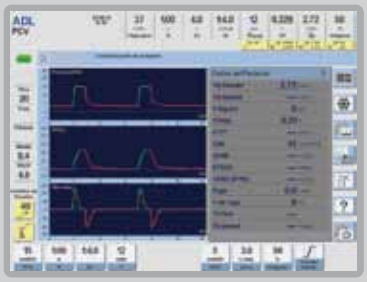
Comprehensive monitoring

Monitoring of vital signs variables such as mandatory and spontaneous minute ventilation, spontaneous frequency, exhalation time constant, leaks, Tobin index (f/vt) and imposed work of breathing (WOBi).

Built-in respiratory mechanics menu provides a vital tool for making correct information-based decision increasing the efficacy of treatment and guaranteeing patient safety.

Proximal neonatal flow sensor, improves flow and volume monitoring independent from compressible volume in the patient circuit.

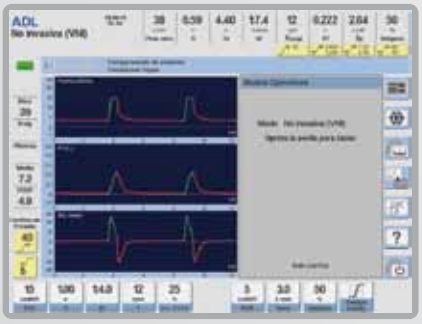




The right care, in the right moment.

Volumetric capnography

Measurements of exhaled CO_2 and physiological dead space and display of volumetric graphs, offers extended monitoring and diagnostic capacity, further increasing patient safety.

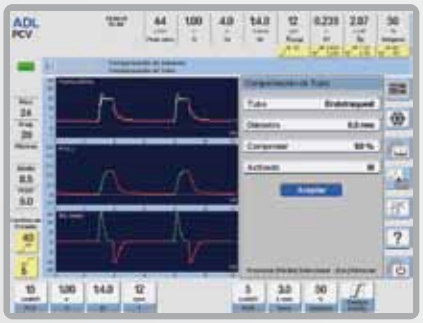


Non-invasive ventilation

A ventilation mode with automatic leak compensation. Provides effective patient ventilation, while keeping the upper respiratory airways intact.
Ability to deactivate tidal volume and minute volume alarms in order to avoid bothering the patient.
Reliable volume and leak monitoring through an interface that improves synchronization and patient comfort.

Endotracheal tube compensation

Offers pressure controlled ventilation based on intratracheal pressure in order to relieve the patient from the respiratory work imposed by the endotracheal tube or tracheostomy.



Intra-hospital transport

Provides for patient transfers inside medical facility without interrupting ventilation and monitoring.

Alternative air supply

In the case of absence or deficiency of the central air supply, an available medical grade air compressor is a viable alternative source of air supply. Optional accessory including 4-wheel cart.

Technical Data and Specifications

INTENDED USE

Ventilator designed to provide Invasive and Non-invasive ventilation for the critical care management of adult, pediatric and neonate-infant (including premature) patients.

OPERATIVE MODES

- VCV – Volume Control (Assisted/Controlled).
- PCV – Pressure Control (Assisted/Controlled).
- PSV – Pressure Support.
- CPAP – Continuous Positive Airway Pressure.
- SIMV (VCV) + PSV.
- SIMV (PCV) + PSV.
- MMV + PSV – Mandatory Minute Ventilation.
- PSV + Tidal Volume Assured.
- APRV – Airway Pressure Release Ventilation.
- PRVC – Pressure Regulated Volume Control.
- NIV – Non-Invasive Ventilation.

NEONATES-INFANTS

- VCV – Volume Control (Assisted/Controlled).
- PCV – Pressure Control (Assisted/Controlled).
- PSV – Pressure Support.
- CPAP – Continuous Positive Airway Pressure.
- SIMV (VCV) + PSV.
- SIMV (PCV) + PSV.
- TCPL – Time Cycled Pressure Limited.
- SIMV (TCPL) + PSV.
- CPAP with Continuous Flow (with leak compensation for NIV).
- APRV – Airway Pressure Release Ventilation.
- PRVC – Pressure Regulated Volume Control.

PARAMETER SELECTION

(according to operative mode and patient category)

- Tidal Volume: 5-2500 mL.
- Programmable Minute Volume (MMV + PSV): 1.0-50 L/min.
- Resulting Minute Volume: 0.01-130 L/min.
- Inspiratory Time:
  - 0.1 – 10 s (in assisted/controlled modes).
  - 0.2 – 30 s (Low time in APRV).
  - 0.5 – 30 s (High time in APRV).
- I:E Ratio: 5:1 - 1:599.
- Respiratory Rate:

ADL: 1-100 bpm.

PED/NEO-INF: 1-150 bpm.

- FiO_2: 0.21-1.0.
- Inspiratory sensitivity:
  - Flow Triggered: 0.2-15 L/min.
  - Pressure Triggered: 0.5-20 cm H_2O below PEEP.
- Expiratory sensitivity for PSV: 5%-80% of the initial peak flow, in steps of 5%.
- PEEP/CPAP: 0-50 cmH_2O.
- Controlled Pressure (PCV): 2-100 cm H_2O.
- Support Pressure (PSV): 0-100 cm H_2O.
- Inspiratory Pause (programmable in VCV): 0-2 s.
- Inspiratory Flow Waveform (in VCV): Rectangular and Descending Ramp.
- Inspiratory Flow (resultant): 0.2-180 L/min.
- Continuous Flow (NEO-INF): 2-40 L/min.
- Limited Pressure in TCPL (NEO-INF): 3-70 cm H_2O.
- Maximum pressure limited (safety limits): up to 120 cm H_2O.

ALARMS

Light and audible signals according to priority and messages on the screen. The system keeps a record of the occurred events with name, date, and time. This record is printable and cannot be deleted. The system allows the deactivation of Tidal Volume and Minute Volume alarms in NIV.

- High and Low Inspiratory Pressure.
- Low Pressure of O_2 and Air, or one of them.
- Main Power Loss.
- Low Battery.
- High Continuous Pressure.
- Technical Failure.
- Disconnection.
- Oxygen not adequate.
- High and Low Minute Volume.
- High and Low Tidal Volume.
- High and Low O_2 percentage.
- Apnea.
- Leak (non-compensable).
- Fan Failure.
- High Respiratory Rate.
- PEEP Loss.
- High and Low $EtCO_2$ (optional with capnography).

OTHER FEATURES AND CONTROLS

- 12” color Touch – screen
- Trends (up to 72 hs).
- Loops: Pressure vs Flow, Pressure vs Volume and Volume vs Flow. They can be saved as reference loops.
- Sighs (in VCV).
- Alarm sound volume regulation.
- Suction $\%O_2$: for suction sequence with variable FiO_2.
- Synchronized Nebulizer.
- Manual Inspiration.
- Inspiratory/Expiratory Pause (manual).
- Inspiratory O_2 sensor.
- Standby function.
- Watchdog.
- Inspiratory relief valve (antisuffocation).
- Pneumatic safety valve: 120 cm H_2O (±5).

COMPLEMENTARY FUNCTIONS

- Altitude compensation for volume correction.
- Body temperature volume correction (BTPS).
- Volume compensation according to patient circuit compliance.
- Leak compensation available in all operative’s modes.
- Endotracheal or tracheotomy tube compensation: compensation of 10%-100% for Ø 4-12 mm.
- Tidal Volume Setting based on Ideal Body Weight (IBW).
- Intra-hospital transport: facilitates the mobilization when the ventilator can only be supplied with oxygen bottles.
- Capnography. Curves of CO_2/Time and Volumetric Capnography (CO_2/VT). Measurements of $ETCO_2$ (partial pressure of CO_2 at the end of expiration), and their derivatives variables (Alveolar Ventilation, Dead Space, CO_2 Elimination (VCO2), VD/VT Ratio, CO_2 expired volume (VTCO2), etc.) (according to patient category). The capnograph (sensor) is an optional accessory.

RESPIRATORY MECHANICS

Selection by onscreen menu:

- AutoPEEP.
- Dynamic and static compliance.
- Inspiratory and Expiratory Resistance.
- Trapped volume measurement.
- Slow Vital Capacity (Non-forced).
- Occluded inspiratory effort during 100 ms (P0.1).
- P/V Inflections Points.
- Maximum inspiratory pressure (Pi max).
- Physiological Dead Space.
- Rapid Shallow breathing index (F/VT Index).
- Imposed work of breathing (WOBi).
- Expiratory time constant (TCexp).

CONNECTIVITY

- RS-232C with DB-9 connector.

ELECTRICAL REQUIREMENTS

- Main Power: 100-240 V / 50-60 Hz. Automatic voltage switching.
- Internal Battery: 11.1 V / 7.8 Ah. Automatic recharge. Estimated duration: 2.5 hours when fully charged. Charge level indicator onscreen.

PNEUMATIC REQUIREMENTS

- Working pressure: 2.8 bar (approx. 40 psi).
- Gases supply:
  - Oxygen: Pressure 3.5-7 bar (approx. 50-100 psi). Connector: DISS 9/16"-18.
  - Air: Pressure 3.5-7 bar (approx. 50-100 psi). Connector: DISS 3/4"-16.
- Automatic gas switching when one of them is absent in order to allow patient ventilation with the remaining gas.

ACCESSORIES

- Reusable patient circuit.
- Two expiratory sets.
- Fixed orifice proximal pneumotacograph for NEO-INF.
- Flexible arm with tubes holder.
- Water filter for compressed air inlet.
- Air supply high pressure hose (3 meters) with 3/4”-16H connectors.
- O_2 supply high pressure hose (3 meters) with 9/16”-18H DISS connectors.
- Nebulizer (complete kit).
- O_2 sensor.
- Adult test lung.
- Neonatal test lung.
- Power cord.
- Four-wheel cart (with brakes).

OPTIONAL ACCESSORIES

- Heater-humidifier.
- Capnograph: sensor Capnostat 5®.
- Micropump nebulizer Aeroneb®Pro from Aerogen.

CE RDA 510k Approved.

Available from software version N11-ADV-01.07.01

TECME

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