



**Lumis™**  
Tx



## Lumis™ Tx: the all-in-one hospital ventilation solution

The Lumis Tx is a multi-purpose non-invasive ventilator that treats the full range of respiratory conditions and is suitable for a variety of hospital environments. It's also a quick and easy solution for treating pre-diagnosed OSA patients who are in your hospital for other conditions or operations.

# One hospital ventilator. Ten modes of therapy.



## Lumis Tx is easy to use

Until now, the varying product needs for hospital-grade ventilators have been met separately with different devices. This can require extra time and costs to the hospital, where staff will need to be trained to be highly competent across a wide array of devices.

Now, Lumis Tx is the only non-invasive ventilation device your hospital needs. Save time and money by training your staff on this one machine and standardize your hospital's ventilator requirements.

### Features

- Hospital-grade alarms available in all modes
- Circuit-disconnect optional alarms
- Clinical data capture and viewing on the device or ResMed's ResScan™ software

### The Lumis Tx enables your hospital to:

- Manage a range of respiratory conditions, such as COPD, with unique algorithms designed to specifically address the needs of each patient
- Improve your staff's flexibility and efficiency with one ventilator containing all therapy modes
- Simplify the hospital-to-home transition so patients get home sooner and are more likely to comply with their therapy



## For COPD patients

Clinical studies show that NIV treatment can help patients slow the progression of their COPD, manage it post-discharge and improve quality of life.<sup>1,2</sup> NIV has also been shown to reduce the recurrence of acute hypercapnic respiratory failure 30 days after an initial event by up to two-thirds.<sup>3</sup>

The following settings are recommended for COPD patients in either S, ST or iVAPS mode:

Default Settings	COPD
Ti Max (sec) <sup>1</sup>	1.0
Ti Min (sec) <sup>1</sup>	0.3
Rise Time (ms) <sup>2</sup>	150
Trigger sensitivity	Medium
Cycle sensitivity	High
PS (cm H <sub>2</sub> O)	8

## For pre-diagnosed OSA patients

More hospitals are treating patients who also have a preexisting OSA condition. However, not all patients know their prescribed pressure, so hospitals require devices with Auto algorithms to ensure that patients are properly ventilated. ResMed's AutoSet™ machines come with alarms to notify staff of high-pressure situations and/or if circuit disconnections are required.

## For restrictive lung disease patients

ResMed is committed to improving the quality of life for patients with neuromuscular disease (NMD) and obesity hyperventilation (OHS) through the use of Lumis Tx's automated algorithms.

ResMed's iVAPS (intelligent Volume-Assured Pressure Support) mode adjusts to a patient's respiratory rate, targets alveolar ventilation (by accounting for the anatomical dead space) and automatically adjusts pressure support as needed to accommodate each patient's unique needs, even as their disease state progresses.

Product	Product code
Lumis Tx	36048
Lumis Tx + H5i™ humidifier	36058
Lumis Tx kit (Includes: Lumis Tx standard, hospital stand, S9™ top plate)	360121
Lumis Tx humidifier kit (Includes: Lumis Tx co-pack, hospital stand, S9 top plate)	360122
H5i heated humidifier (disposable)	36900
H5i heated humidifier (cleanable)	36901
H5i humidifier tub (cleanable)	36800
H5i humidifier tub (disposable)	36803
H5i humidifier tub (30-pack) (disposable)	36804
ClimateLine <sup>MAX</sup> ™ Oxy tube	36996
Oximetry kit (Includes: XPOD oximeter, clip for XPOD, medium soft sensor, 3m cable)	369100
ResMed power station II (RPS II) external battery kit	249004



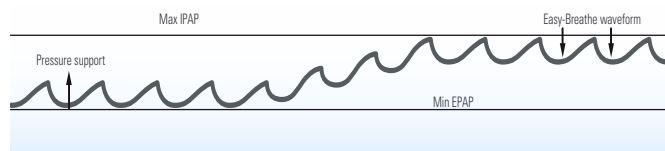
## ResMed comfort features for CPAP/APAP

EPR™ (expiratory pressure relief) decreases the patient's pressure during exhalation (setting options of 1, 2 or 3) to make therapy more comfortable.

## Easy-Breathe (CPAP, AutoSet, VAuto, S, ASV, ASVAuto)

Easy-Breathe is ResMed's unique pressure waveform that helps the patient ease into therapy. The Easy-Breathe waveform offers a gentle increase and decrease in line with natural breathing to offer maximum comfort to the patient.

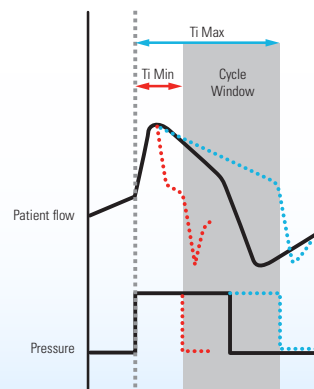
- In CPAP and AutoSet mode, Easy-Breathe is automatically enabled when EPR is selected.
- VAuto, ASV and ASVAuto use the Easy-Breathe waveform for therapy pressure delivery. Patients treated by these modes generally have normal lung mechanics, so Easy-Breathe maximizes their comfort.
- In S mode, Easy-Breathe can be switched on or off.



## ResMed comfort features for bilevel:

Ti Controls allow clinicians to manage patients' inspiratory time according to their disease state:

- Ti Max = maximum amount of time the patient spends in inspiration
- Ti Min = minimum amount of time the patient spends in inspiration
- Rise Time determines how quickly the patient gets to full IPAP volume
- Adjustable trigger sensitivity supports patients with weak inspiratory effort
- Adjustable cycle sensitivity helps synchronize breath termination based on varying patient needs



## Recommended accessories for Lumis Tx



### ResMed Power Station II (RPS II)

This external lithium-ion battery allows Lumis Tx (and other compatible devices) to be used in portable applications, and provides back-up power in case of unexpected mains power failure.



### ClimateLine<sup>Max</sup> Oxy heated tubing

This tube contains a temperature sensor built into the mask end, which is automatically controlled by the Climate Control algorithm to deliver a consistent, comfortable temperature at the mask.



### ResMed standard trolley

It's designed to withstand the day-to-day rigors of hospital use and provides you with a total mobile solution for the Lumis Tx, complete with multiple adjustments and a handy storage basket.



### Oximeter adapter

It easily connects a Nonin Xpod oximeter to the Lumis Tx. The patient's oxygen saturation and pulse rate are recorded onto the SD card inserted into the device for easy access.



### Oxygen connector port

ResMed's oxygen connector port is an accessory validated for use with up to 4 gallons (15 liters) per minute of supplemental oxygen on the Lumis Tx and other ResMed products.

# Automated ResMed therapies make your job easier



## Enhanced AutoSet / VAuto

ResMed can automate patients' ventilation care so you can focus on the rest of their care.

The S9 AutoSet automatically delivers an ideal combination of automatic positive airway pressure (APAP) with Easy-Breathe EPR (expiratory pressure relief) to prevent the collapse of the upper airway during sleep.

Enhanced AutoSet technology can also differentiate between obstructive and central sleep apneas, and respond accordingly. It works by automatically adjusting patients' therapy pressures as their needs change – hourly, nightly and from season to season – to deliver the lowest therapy pressure possible. As a result, AutoSet is clinically proven to increase patient comfort and compliance.<sup>4-6</sup>

### Suitable for:

Obstructive sleep apnea



## iVAPS

Ensure appropriate ventilation for patients with obstructive and restrictive lung disease with ResMed's intelligent Volume-Assured Pressure Support (iVAPS). This unique technology featured in the Lumis Tx adjusts to a patient's respiratory rate, targets alveolar ventilation and automatically adjusts pressure to accommodate the patient's needs with the lowest pressure possible, even as their disease progresses.

### Suitable for:

Neuromuscular disease (NMD) and restrictive lung disease:

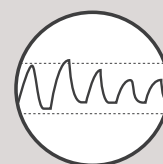
iVAPS can maintain stable ventilation when respiratory effort fluctuates.

Obesity hypoventilation syndrome (OHS):

iVAPS can compensate for changes in respiratory mechanics faster than standard Pressure Support therapy, such as during nocturnal changes in the patient's body position.

Chronic obstructive pulmonary disease (COPD):

iVAPS can compensate for changes in a patient's chronic airflow limitation as their disease state progresses and pressure requirements change. Clinical trials show that iVAPS improves daytime blood gases and nocturnal oxygenation, and increases compliance.<sup>7,8</sup>



## ASV / ASVAuto

Adaptive servo-ventilation (ASV) therapy adapts to every change in a patient's breathing to reduce short-term oscillations and keep ventilation stable. It is the only ASV therapy on the market that responds to the patient's Minute Ventilation (MV) and Respiratory Rate (RR), adapting to changing needs through various sleep stages.

ASV therapy has been featured in more published papers than any other ASV therapy.\* It provides demonstrated results across the spectrum of central breathing disorders for patients with:

- Periodic Breathing
- Other forms of central and concomitant obstructive events<sup>6</sup>
- Complex sleep apnea<sup>9</sup>
- Patients taking opiates or other prescription pain medication<sup>10</sup>

\* Based on available data at the time of publication.





## Lumis Tx modes of support

Mode of ventilation	What it does	Treats patients with...	Pressure capabilities
CPAP (continuous positive airway pressure)	Fixed pressure delivered with optional expiratory pressure relief (EPR)	OSA	4–20 cm H <sub>2</sub> O
AutoSet/APAP (automatic positive airway pressure)	Automatically adjusts pressure in response to flow limitation, snore and obstructive apneas	OSA	4–20 cm H <sub>2</sub> O
VAuto	Automatically adjusts pressure in response to flow limitation, snore and obstructive apneas; Pressure Support (PS) is fixed throughout the night and can be set by the clinician	OSA, non-compliant OSA	4–25 cm H <sub>2</sub> O
ASV (adaptive servo-ventilation)	Targets the patient's minute ventilation, continually learning the patient's breathing pattern and instantly responding to any changes	Central or mixed apneas, complex sleep apnea, Periodic Breathing (PB)	4–25 cm H <sub>2</sub> O
ASVAuto	Provides an ASV algorithm plus expiratory positive airway pressure (EPAP) that automatically responds on the patient's next breath to flow limitation, snore and obstructive sleep apneas	Central or mixed apneas, complex sleep apnea, Periodic Breathing (PB)	4–25 cm H <sub>2</sub> O
S (Spontaneous)	Senses when the patient is inhaling and exhaling, and supplies appropriate pressures accordingly. Both treatment pressures are preset: inspiration (IPAP) and expiration (EPAP)	Non-compliant OSA and COPD	3–30 cm H <sub>2</sub> O
ST (Spontaneous/Timed)	Augments any breaths initiated by the patient, but also supplies additional breaths if the breath rate falls below the clinician's set "backup" respiratory rate	COPD, NMD, OHS and other respiratory conditions	3–30 cm H <sub>2</sub> O
T (Timed)	Supplies a clinician-set respiratory rate and inspiratory/expiratory time, regardless of patient effort	COPD, NMD, OHS and other respiratory conditions	3–30 cm H <sub>2</sub> O
iVAPS (intelligent Volume-Assured Pressure Support)	Maintains a preset target alveolar minute ventilation by monitoring delivered ventilation, adjusting the pressure support and automatically providing an intelligent backup breath	COPD, OHS, NMD and other respiratory conditions	3–30 cm H <sub>2</sub> O
PAC (Pressure Assist Control, also known as Pressure Control)	The inspiration time is preset in the PAC mode; there is no spontaneous/flow cycling. Inspiration can be triggered by the patient when respiratory rate is above a preset value, or delivered at a set time at the backup rate	NMD, pediatric patients weighing more than 30 lbs (13 kg)	3–30 cm H <sub>2</sub> O

- 1 Tsolaki V et al. *Respir Med* 2008
- 2 Duiverman ML et al. *Thorax* 2008
- 3 Cheung AP et al. *Int J Tuberc Lung Dis* 2010
- 4 Vennelle M et al. *Sleep* 2010
- 5 Hukins C. *Sleep* 2004
- 6 Massie CA et al. *Am J Respir Crit Care Med* 2003
- 7 Osoff NS et al. *COPD* 2010
- 8 Jaye J et al. *Eur Respir J* 2009
- 9 Morgenthaler TI et al. *Sleep* 2007
- 10 Javaheri S et al. *J Clin Sleep Med* 2008