

## The complete solution

- ASV-CS algorithm provides therapy designed for CHF patients with CSR and concomitant OSA.
- Mask Fit Assessment feature ensures efficacy.
- Alarms (low pressure, high pressure, mean mask pressure, high leak, circuit integrity, and power failure) impart confidence in home use.
- AutoSet CS2 software provides flexible data display and retrieval

### Live data can be viewed via:

- AutoSet CS2 front panel numerical display—Device Mode, Expiratory/Inspiratory Pressure, Instantaneous Pressure Graphic, Leak, Respiratory Rate, Apnea/ Hypopnea indicator, Tidal Volume, Minute Ventilation, and Target Ventilation
- computer interface to ResView software—displays traces for Pressure, Patient Flow Leak, Minute Ventilation, Target Ventilation, Respiratory Rate, Tidal Volume, Flattening Index, and Event Type.

### Stored data can be viewed via:

- an attached ResLink™ unit with SmartMedia Card to enable data transfer to the clinician's computer
- computer interface to ResScan™ software—displays summary graphs and statistics, and detailed data as traces.

### Modular options

- ResLink module with oximetry option monitors arterial oxygen saturation.
- Integrated humidifier provides comfortable and convenient home therapy.
- Portable operation via car cigarette lighter or battery clamp fittings using DC-30 and battery adaptor.



AutoSet CS2 with ResLink module records SaO2



AutoSet CS2 with integrated HumidAire 2i humidifier



AutoSet CS2 with ResLink SmartMedia Card

# RESMED

### Reference

- Jawahar S, Sloop 1996; 19: S229-31. Kohonen T et al. *Eur Respir J* 1998; 12: 1245.
  - Harley PJ, Zuberi-Khalifa NS. *Am J Respir Crit Care Med* 1996; 153: 272-276.
  - Vogt-Ladhar et al. *ATS, May 2002: Schawditch et al. ATS, May 2002.*
  - Töpfer V et al. *Eur Respir J (Abstracts, 12th ERS Annual Congress) 2002 Sept. 20: 2156.*
  - Kaneko Y et al. *N Engl J Med* 2003; 348(13): 1233-41.
- \* AutoSet CS 2 is not for respiratory failure patients.

### AUTOSET CS™ 2 PRODUCT CODES

Asia/Pacific	25001
Japan/Americas	25002
Germany	25003
France	25004
UK	25005
Europe	25006

AutoSet CS2 is currently undergoing clinical trials in the USA and Germany.

ResMed Corp Poway CA USA +1 858 746 2400 or 1 800 424 0737 ( toll free), ResMed Ltd Bella Vista NSW Australia +61 2 8884 1000 or 1 800 658 189 ( toll free), Offices in Austria, Brazil, France, Germany, Japan, Malaysia, Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland, United Kingdom (see web site for details). Protected by patents: AU 687200, AU 691602, AU 702020, AU 726278, AU 724688, AU 729844, AU 721900, AU 726723, AU 734717, AU 750205, AU 750791, AU 766622, AU 767189, AU 778222/2003, CA 2263176, EP 0661971, EP 1216200, JP 3036997, JP 3727098, NZ 527398, US 6464110, US 5194624, US 52 46989, US 5622282, US 5704345, US 6029869, US 6138676, US 6152129, US 6248261, US 6278969, US 6363923, US 6367474, US 6396739, US 6420391, US 6562572, US 6632998, US 6691834, US 6691931, US 6946248, US 6951271, US 7000908, US 7062117, US 7077132. Other patents pending. Protected by design registrations: AU 147263, AU 147268, AU 147268, CH 128 739, CH 128 716, CH 128 711, DE 40020387, DE 40020396, DE 40021723, US 40020396, FR 02 1407, GB 3007191, GB 3001616, GB 3007192, GB 3001621, JP 1146487, JP 1146486, JP 1146488, JP 1146489, US 5962729, US 5496911, US 0478077, US 0478988, US D489320, US D489384, US D487203, US D489527. Other designs pending. AutoSet CS, AutoSet CS 2, Mirage, Mirage Vista, Ultra Mirage, Mirage Active, ResLink and ResScan are trademarks of ResMed Ltd. ©2006 ResMed Ltd. 1010581/13 06 10

# RESMED

## AutoSet CS™ 2

The new therapy for CHF patients with CSR



# The new therapy for CHF patients with CSR

Patients with severe congestive heart failure (CHF) often have pulmonary edema at night, which may present as paroxysmal nocturnal dyspnea. Cheyne-Stokes respiration (CSR) during sleep is common in these patients and has been demonstrated in up to 45% of patients with left ventricular ejection fraction (LVEF) < 40%<sup>1</sup>.

CSR increases the stress upon the failing heart by causing repetitive hypoxia, increased sympathetic activity, increased cardiac afterload, oscillations in heart rate and blood pressure, and sleep fragmentation. Not surprisingly, CSR is associated with higher mortality in patients with CHF<sup>2</sup>.

Specifically designed for patients who have CSR, AutoSet CS2™ 2 therapy<sup>3</sup>:

- normalizes ventilation, reducing arousals from sleep and decreasing sympathetic activation
- improves cardiac function (LVEF, 6MWD, and VO2 max)<sup>4</sup>
- enhances quality of life<sup>5</sup>.

This suggests that AutoSet CS2 may improve the prognosis when combined with optimized pharmacological therapy.

## An effective way to treat CSR—AutoSet CS2

An Adaptive Servo-Ventilator, the AutoSet CS2 has evolved from Positive Airway Pressure (PAP) ventilators. Controlled trials of medically treated patients with heart failure and obstructive sleep apnea have shown that after one month of PAP therapy,<sup>6</sup> daytime systolic blood pressure is reduced and left ventricular function is improved.

AutoSet CS2:

- offers all the benefits of PAP plus the unique Adaptive Servo-Ventilation algorithm (ASV-CS)
- normalizes breathing quickly by delivering the pressure support needed on a breath-by-breath basis.

When AutoSet CS2 therapy is stopped, Cheyne-Stokes respiration resumes.

## Support when it's needed—The ASV-CS algorithm

This unique algorithm:

- automatically calculates a target ventilation (90% of the patient's recent average ventilation) and selects the correct pressure support to achieve it
- rapidly increases pressure support in response to hypoventilation and decreases it during hyperventilation
- transitions to a timed mode with back-up respiratory rate during severe apnea
- gradually reduces pressure support to a comfortable minimum once breathing is stabilized, to prevent over-ventilation and hypocapnia.

## Maximizing patient comfort and compliance

AutoSet CS2:

- delivers a smooth pressure waveform, which is similar to normal respiration
- using the ASV-CS algorithm ensures pressure support is synchronized to the patient's own recent breathing rate and flow pattern
- provides a constant, low level of positive pressure to help decrease pulmonary congestion/edema—eliminating paroxysmal nocturnal dyspnea.

ACS2 is compatible with a wide range of ResMed masks to ensure optimum fit and comfort—

- Mirage Vista™
- Ultra Mirage™
- Mirage™ Full Face Series II
- Ultra Mirage™ Full Face



Ultra Mirage Full Face Mask for leak and therapy management

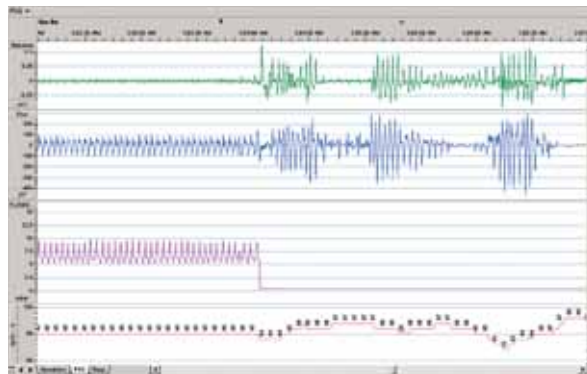


Mirage Active Nasal Mask with ActiveCell Technology

# Ensuring upper airway patency

Many CHF patients periodically have upper airway obstruction during sleep. AutoSet CS2 can easily be adjusted to treat obstructive sleep apnea while resolving CSR.

## AutoSet CS 2



Polysomnography (PSG) showing normalization of breathing with AutoSet CS2. CSR resumes after therapy is stopped. Traces are: abdominal effort, patient flow, flow generator and SpO2.

