

AutoSet CS™2

Data Management Guide

English

The following table shows where data from the AutoSet CS2 flow generator can be viewed. Data displayed in ResScan™ can be downloaded via:

- cable directly from the flow generator
- the SmartMedia™ card in the ResLink™.

Note: Please refer to your flow generator clinical guide for further details.

Viewing Data

Parameter	AutoSet CS2		ResScan	ResControl II™	
	Treatment screens	Results screen		View tab	PSG tab
Type of data	LIVE	STORED	STORED	LIVE	LIVE
Pressure (Inspiratory / Mean / Expiratory) (cm H ₂ O)			✓		
Peak Inspiratory Pressure (cm H ₂ O) ¹	✓		✓		
Pressure (Instantaneous) (cm H ₂ O)				✓	
Median Mask Pressure (cm H ₂ O) ¹		✓			
EEP (cm H ₂ O) ¹	✓		✓		
AHI/AI		✓	✓		
Events	✓		✓	✓	
Flattening					✓
Flow (L/sec)					✓
Leak (L/min)	✓	2	✓	✓	✓
Minute Ventilation (L/min)	✓	3	✓	✓	✓
Pulse Rate (beats/min) ⁴			✓		
Respiratory Rate (breaths/min)	✓	3	✓	✓	✓
SpO ₂ (%) ⁴			✓		
Target Ventilation (L/min) ¹	✓		✓	✓	✓
Tidal Volume (mL)	✓	3	✓	✓	✓
Usage		✓	✓		

1. ASV-CS mode only.

2. 95th percentile data.

3. 5th–95th percentile data.

4. Only available if ResLink is attached to the flow generator and an oximeter is used.

Glossary of Terms

AHI (Apnea-Hypopnea Index)

The Apnea-Hypopnea Index (AHI) is calculated by adding together the total number of apnea and hypopnea events over a period of time.

For statistics, it is the total number of events divided by total daily usage. For graphs, the AHI count is incremented at the occurrence of every event and reset every hour.

Apnea

An apnea is the temporary absence or cessation of breathing. An apnea is scored when there is reduction in breathing by 75% of the baseline breathing for at least 10 seconds.

Daily Usage

Daily usage is total usage in a single session (a session starts at midday and finishes 24 hours later).

EEP (End Expiratory Pressure)

EEP is the pressure delivered at the end of expiration. It is the lowest pressure delivered during a respiratory cycle (breath).

Events

An event is the occurrence of a residual apnea or hypopnea.

Events are recorded as they occur. The maximum number of events stored per session is 2000.

Flattening

Flattening is a measure of partial upper airway obstruction.

This measurement is based on the shape of the inspiratory flow-time curve. A flat shape suggests upper airway obstruction.

Flow

Flow is an estimate of the airflow entering the lungs.

It is derived by taking the total flow and then removing the leak and mask vent flow components.

Hypopnea

A hypopnea is an episode of shallow breathing during treatment. A hypopnea is scored when there is a reduction in

breathing by 50% of baseline breathing for 10 seconds or more. The event is scored after 10 seconds of the hypopnea.

Leak

Leak is an estimate of the total rate of air escaping due to mouth and mask leaks.

It is derived by analyzing the inspiratory and expiratory airflows, together with the expected mask vent flows.

High or changing leak rates may affect the accuracy of other measurements.

Median Mask Pressure

Median mask pressure is a median statistic calculated over samples of average mask pressure (three minute averaging). When trended over multiple sessions it provides an indication of any change in treatment pressure.

When the flow generator is operating in CPAP mode this statistic should equal the CPAP pressure.

Minute Ventilation

Minute ventilation is the volume of air breathed in (or out) within any 60-second period.

A typical minute ventilation range for adults is 5–12 L/min.

Peak Inspiratory Pressure

Peak inspiratory pressure is the pressure the device is intending to deliver at the end of inspiration. It is the highest pressure delivered during a respiratory cycle (breath).

Pressure (ResControl II)

Pressure is an estimate of the instantaneous pressure delivered at the mask.

Pressure (Inspiratory / Mean / Expiratory)

Pressure (inspiratory) is the same as peak inspiratory pressure.

Mean pressure is an estimate of the pressure delivered at the mask, averaged over a respiratory cycle (breath).

Pressure (expiratory) is the same as EEP (End Expiratory Pressure).

Pressure Support (PS)

Pressure support is the difference between the peak pressure at the end of inspiration and the minimum pressure at the end of expiration (ie, the amplitude of the pressure waveform delivered).

Pulse Rate

The number of heart beats in a 60-second time frame. The pulse rate is calculated by an attached oximeter.

Respiratory Rate

Respiratory rate is the frequency of breathing, expressed as the number of breaths per minute.

SpO₂

The saturation of blood hemoglobin with oxygen, expressed as a percentage. The oxygen saturation is calculated by an attached oximeter.

Target Ventilation

Target ventilation is the minute ventilation that the flow generator is attempting to achieve. Pressure support is increased if the minute ventilation falls below this target, and decreased if it goes above.

Tidal Volume

Tidal volume is the volume of air inspired or expired in one respiratory cycle (breath).

Total Hours Used

Total hours used is the total patient usage over a selected time range.

Usage

Usage is the length of time that a patient receives therapy from the device.

The start and end times of the first 20 individual periods of usage are available for each session when using ResScan.

Used Days

Used days is the total number of days where daily usage exceeded the compliance threshold (X hours Y minutes).

% Used Days

% used days calculates the percentage of used days out of the total number of days selected.

ResScan Downloaded Data

Via cable	Via ResLink
✓ (365 summary sessions; 3–4 detailed sessions)	✓ (365 summary sessions; 30 detailed sessions)

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ResScan Review Screens

Statistics	Summary Graphs	Detailed Graphs	Oximetry Statistics (via ResLink)
✓	✓	✓	✓

ResScan Review Screen Display Descriptions

	Statistics	Summary Graphs	Detailed Graphs	Oximetry Statistics (via ResLink)
AHI/AI		✓ Shows a vertical bar graph where the lower segment is the median AI per hour, and the upper segment is the median AHI per hour.	✓ Shows a cumulative total of the number of apneas and hypopneas that have occurred. The cumulative total is reset every hour, on the hour.	
EEP (cm H ₂ O)	✓ Shows the measured EEP maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Shows the measured EEP maximum, 95th percentile, and median statistics for single sessions.	✓ Shown in the Pressure Detailed Graph.	
Events			✓ Apnea events are shown at the time they started. Apneas are shown as a red symbol where the height is proportional to the duration of the apnea. The number at the top of the symbol is the duration of the apnea in seconds. Hypopneas are recorded and made available after ten seconds. Hypopneas are shown as blue rectangles.	
Leak (L/min)	✓ Shows the maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Shows the maximum, 95th percentile, and median statistics for single sessions.	✓ Shown as a blue trace. A red line provides a reference level of the recommended maximum acceptable leak.	
Minute Ventilation (L/min)	✓ Shows the maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Shows the maximum, 95th percentile, and median statistics for single sessions.	✓ Shown as a blue trace. A red trace shows the target ventilation.	
Peak Inspiratory Pressure (cm H ₂ O)	✓ Shows the maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Shows the maximum, 95th percentile, and median statistics for single sessions.	✓ Shown in the Pressure Detailed Graph.	
Pressure (Inspiratory / Mean / Expiratory) (cm H ₂ O)			✓ Peak Inspiratory Pressure is shown as a blue trace. Mean Pressure is shown as a green trace. EEP is shown as a red trace.	
Pulse Rate (beats/min)			✓ Shown as a blue trace.	✓
Respiratory Rate (breaths/min)	✓ Maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Shows the maximum, 95th percentile, and median statistics for single sessions.	✓ Shown as a blue trace. A red line provides the backup breath rate reference level.	
SpO ₂ (%)			✓ Shown as a blue trace. A red line provides the 90% reference level to assist identification of desaturations.	✓

ResScan Review Screen Display Descriptions (continued)

	Statistics	Summary Graphs	Detailed Graphs	Oximetry Statistics (via ResLink)
Target Ventilation (L/min)	✓	✓	✓ Shown on the Minute Ventilation Detailed Graph as a red trace.	
Tidal Volume (mL)	✓ Maximum, 95th percentile and median statistics for the selected sessions in the Data Browser.	✓ Maximum, 95th percentile, and median statistics for single sessions.	✓ Shown as a blue trace.	
Usage	✓ Total hours used, Daily usage, Used Days ≥ X:YY hours, Used Days < X:YY hours, Total days and % Used Days. Calculated for the selected sessions in the Data Browser.	✓ Each period is shown as a solid bar. A hollow bar indicates a period of usage where the end-time is unknown. There is a limit on the maximum number of separate bars that are shown for a single session.		

ResScan Detailed Graphs Specifications

Parameter	Resolution	Range	Sampling period (sec)	
			via flow generator	via ResLink
Events (sec)	1 (apnea duration)	10–120 (apnea duration)	Aperiodic ¹	Aperiodic ¹
Leak (L/min)	0.5	0–120	1	1
Minute Ventilation (L/min)	0.1	0–40	4	4
Pressure (Inspiratory / Mean / Expiratory) (cm H ₂ O)	0.2	0–25	4	4
Pulse Rate (beats/min) ²	1	18–120	n/a	1
Respiratory Rate (breaths/min)	0.2	0–40	1	1
SpO ₂ (%) ²	1	0–100	n/a	1
Target Ventilation (L/min)	0.1	0–40	4	4
Tidal Volume (mL)	1	0–3000	4	4

- The first 2000 events/session are stored.
- Only available if an oximeter is used with the ResLink.

Updating Settings

Parameter	ResScan via cable	ResControl II
Mode	✓	✓
EEP	✓	✓
MIN PS	✓	✓
MAX PS	✓	✓
Set Pressure (CPAP)	✓	✓
Start CPAP	✓	✓
Ramp Time	✓	✓
Maximum Ramp	✓	✓
Mask	✓	✓
SmartStop	✓	✓
Leak Alert	✓	✓
Low PS Alarm	✓	✓
Alarm Vol	✓	
Local Date & Time	✓	
Language	✓	
Smart Data	✓	