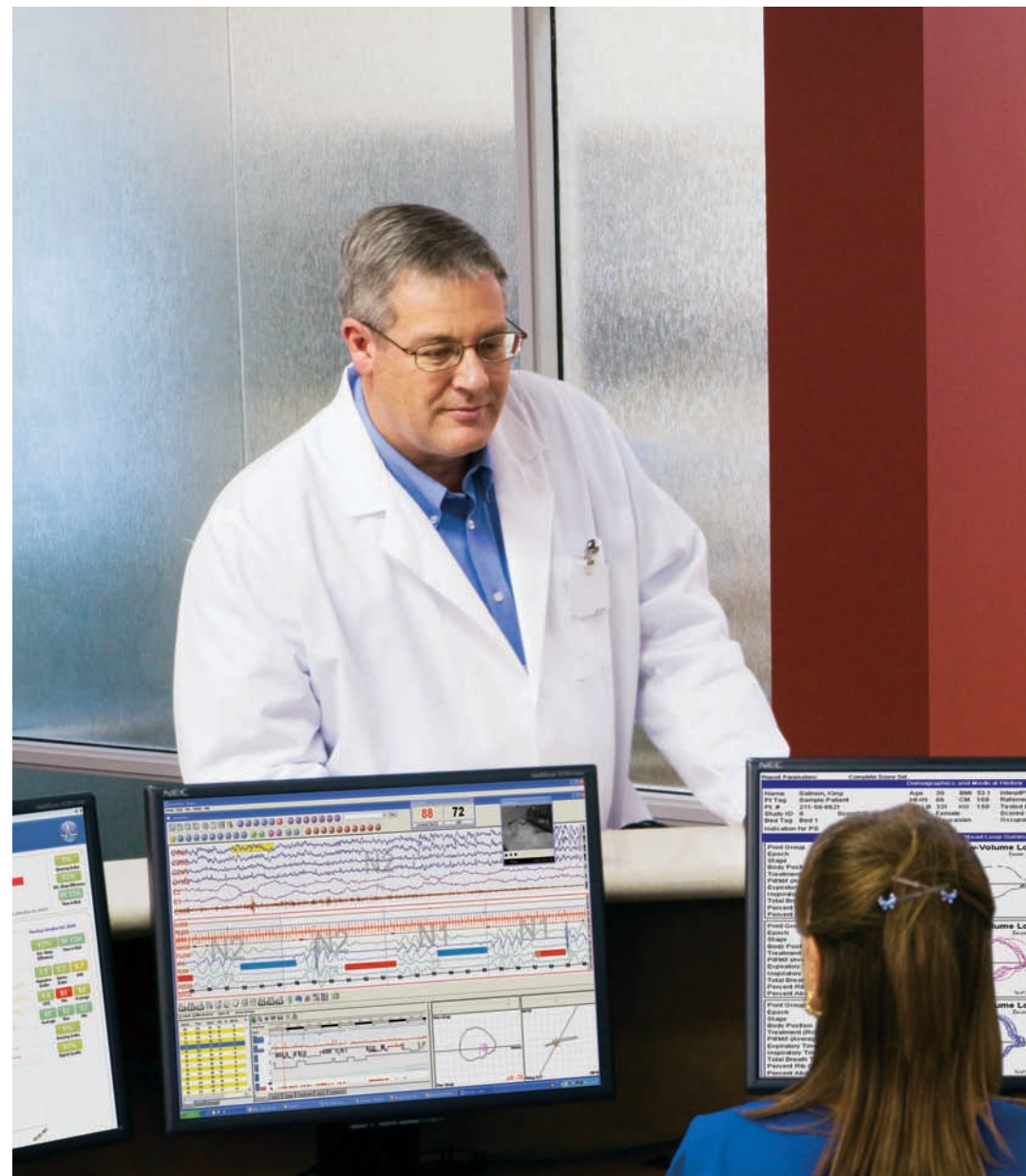# Sleep Diagnostics

With your investment in the SomnoStar® system, you are receiving not only the most sought after sleep system on the market today, but also a partnership with a company dedicated to serving the sleep, respiratory, cardiac and neurology medical communities. For more than 50 years, CareFusion has been a leader in bringing you sophisticated and comprehensive solutions for the sleep market.
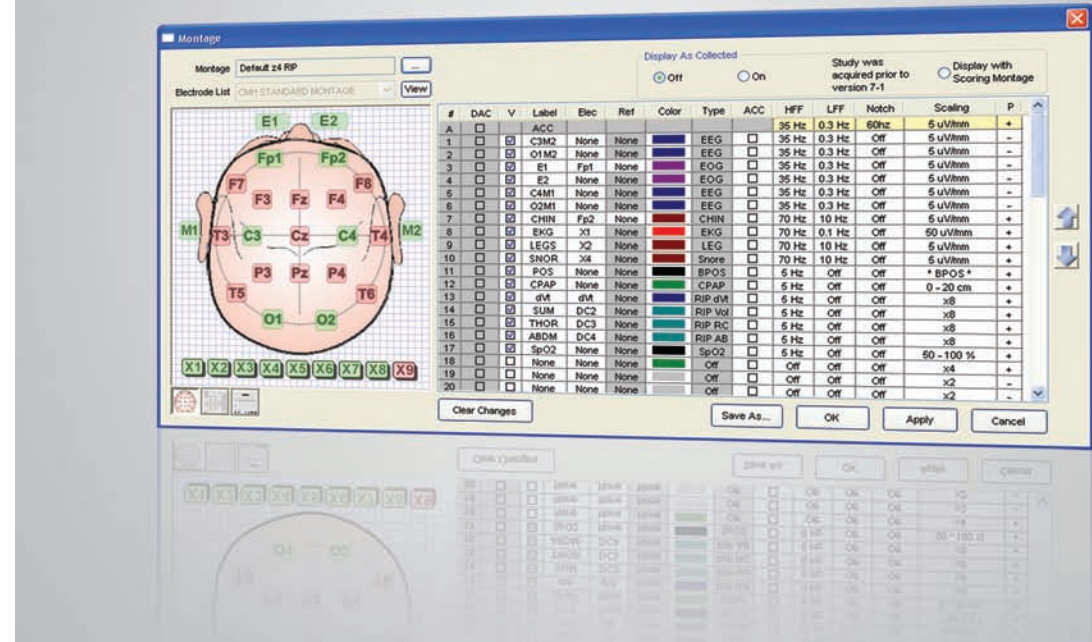
- Utilizing our patented Calibrated Respiratory Flow Volume Loops, you will be able to more accurately diagnose and treat your sleep apnea patients

- Because of the close relationship between sleep apnea and heart dysfunction, the Heart Rate Variability Graph provides a deeper analysis of a patient's cardiac function throughout the entire night in a one-page report[1]

- With our LabManager Microsoft Word report generator, interpretations can be created in a matter of minutes

- 24-hour live tech support, manned by Registered Polysomnographic Technicians, provide professional technical assistance at any time of day

- AASM hardware and software compliant

CareFusion

Data acquisition

The SomnoStar sleep system provides seamless interfaces to a variety of powerful transducer packages, including: Calibrated Respiratory Inductance Plethysmography (RIP) for real-time breath-by breath Flow Volume Loop analysis, nasal pressure flow devices, internal pulse oximetry, capnography, body position, actigraphy and more. With the SomnoStar sleep system, your diagnostic capabilities are vast.

- 64 available channels

- Full re-referencing, including linking M1 + M2 pre and post data collection

- Complete scoring and reporting functionality during data collection

- Real-time collection of calibrated RIP signals with Flow Volume Loops

- Integrated internal digital video and audio

- Heart Rate Variability (HRV)

- 32 AC and 12 DC inputs

- Validated autonomic recording device

- Patient friendly, lightweight head box

- TCP/IP amplifier communication using standard Cat5e cabling

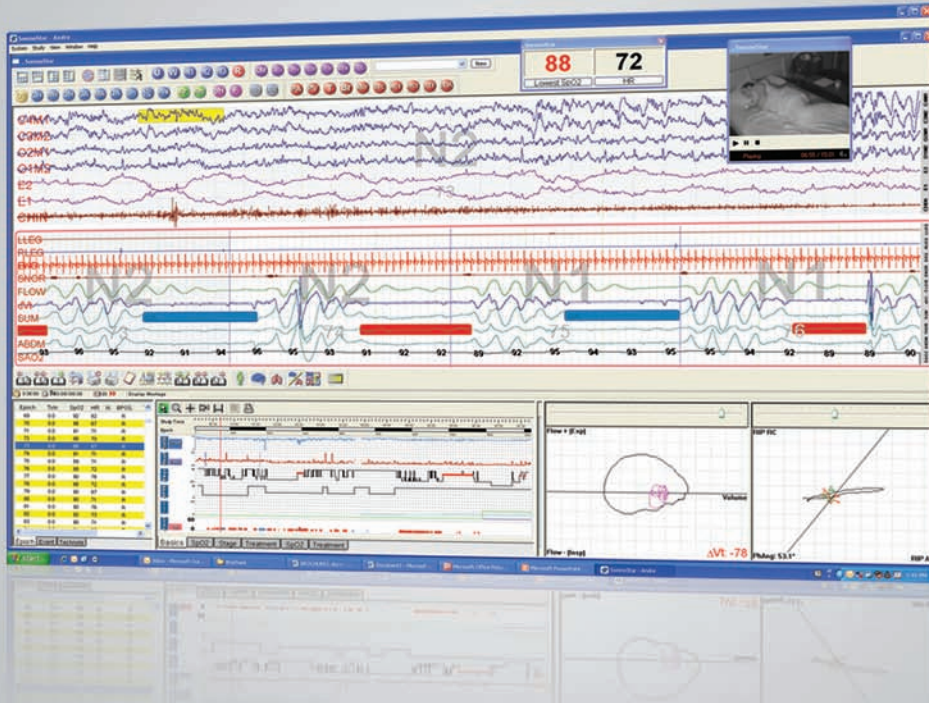- Sampling rate up to 2,000 Hz

Scoring

Manual scoring, automatic scoring or a combination of the two are available. By linking pathophysiological/sleep-fragmenting events and their characteristics to specific channels, volumes of information are sent to the report database. For example, the event, primary labels, event durations and associations with other events like arousals, awakenings and limb movements are accomplished with a single mouse click.

Distinguish a wider variety of sleep disorders and determine effective treatment modalities using our direct integration of Calibrated Flow Volume Loops.
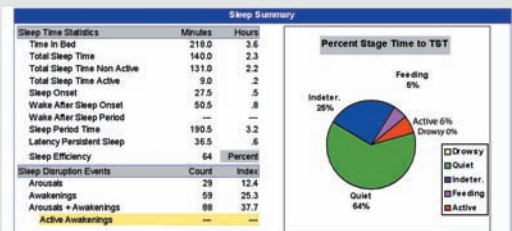
- Automatically link arousals with scored events
- Tabular view for quick epoch data
- Full display customization
- Split time domain
- Mouse-over filter control
- Streamline physician review with bookmarks
- Direct report generation from the scoring software
- CD Review allows SomnoStar Pro system data to be viewed on any PC
- Look-back window allows single channel review over a user-defined period of time (e.g., ECG)
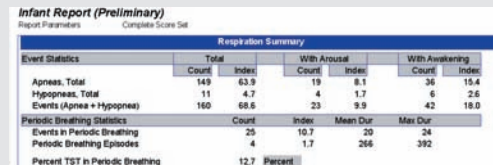
Pediatric/infant parameters

- Customizable pediatric breathing analysis
- Infant staging toolbar containing active, quiet, indeterminate and feeding stages
- Collect and report on pH, $EtCO_2$, CO_2, temperature, actigraphy and more
- Integrated infant reports in LabManager
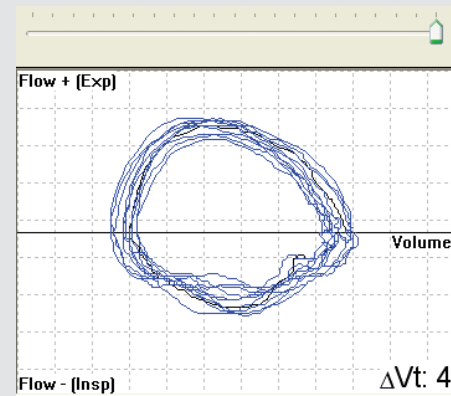
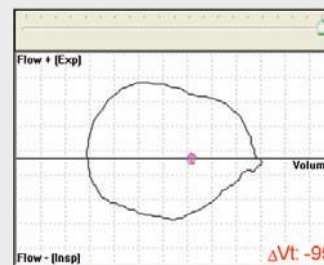### Infant Staging

Periodic breathing

Calibrated flow volume loops

- The Calibrated RIP (cRIP) signal provides breath-by-breath Flow Volume Loops with abdominal/chest wall synchrony for a simplified and more accurate analysis

- Synchronous patient breathing will produce a Konno Mead Loop that is represented by a 45° angle

- Bands placed on the patient's chest and abdomen allow for trouble-free recordings all night long

- Reusable, semi-disposable or disposable bands are available

- Advanced real-time tools, available during acquisition and scoring, aid in identifying apneas, hypopneas and Respiratory Effort Related Arousals (RERAs)
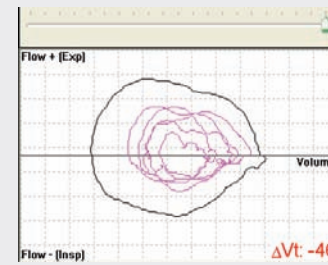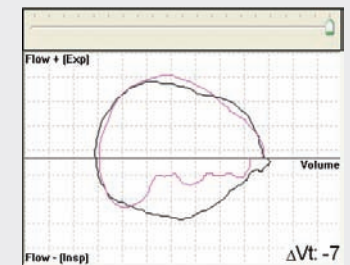

Baseline loop

Once a "signature" baseline loop is selected, the technologist has a visual tool to optimize treatment level
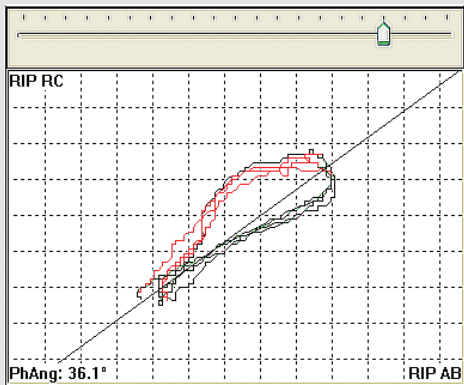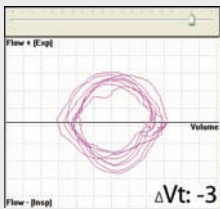

Apnea

Hypopnea
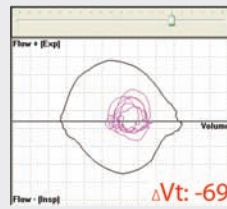
UARS

KonnoMead baseline

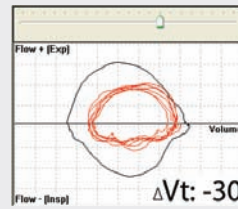
KonnoMead Paradox

Paradoxical breathing is represented when the angle of the Konno Mead Loop rotates counterclockwise
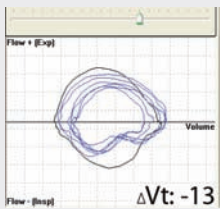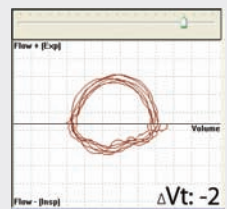

Treatment 1

Treatment 2

Treatment 3

Treatment 4

Treatment 5

- Better view of the patient's inspiratory and expiratory tidal breathing allows you to see actual percentage of change displayed for every breath
- Titrate CPAP back to the baseline, "signature" breath to reduce over- and under-titration
- Individually adjust IPAP and EPAP BiLevel settings to calibrate respiratory signal and optimize therapy
- Reduce the occurrence of central events due to over-titration with true representations of patient's abdominal and thoracic effort

Optimal treatment levels made easy

The SomnoStar Pro system yields more accurate test results than traditional flow-based signals. Using cRIP, technologists can more accurately titrate the patient's therapy. The Calibrated Flow Volume Loops provide a tool to reduce over-titration and under-titration.

Patient compliance is improved with no need for probes, electrodes or tape on the face. One disposable, self-adhering band is place on the patient's chest and another on the abdomen. With nothing attached to the face, patients sleep more comfortably in a more natural testing environment.

Reporting with LabManager

LabManager is a fully integrated sleep/wake database designed specifically to instill value in the procedures performed by the sleep laboratory.

Report generation tools

- Microsoft Word-based development toolbar facilitates the creation of custom reports by inserting LabManager fields and graphics as well as patient photos

- Complete study heart rate variability graphing

- Customized Logic-Tree and unique formula calculations

- Auto interpretation based upon physician-defined parameters

Other LabManager functions

- Patient scheduling with calendar

- Ability to directly interface with Hospital Information Systems (HIS)

- Report the results of patient data queries through the simple Management Report Wizard

- Maintain the highest standards and laboratory QA using comparison reports

- LabManager contains more than 10,000 reportable fields

Connectivity

VLINK

- Bidirectional HL7 interfacing
- ADT data from HIS to ensure data validity and proper billing
- Connects to all hospital and private office EMRs

Remote access

- Citrix and terminal server compatible
- Connect through standard internet communication protocols
- Saves significant time and money in infrastructure costs
- Onsite and remote support

Portable sleep monitoring

Additionally, you can integrate the CareFusion NOX-T3™ portable sleep monitoring device into your sleep diagnostic program. The NOX-T3 device's design is small and lightweight, which may increase comfort for children and adults.

- Unlike other screeners with limited software, the NOX-T3 device has the functionality of a full-fledged sleep software and can navigate, score, review, report and export your data

- Built-in microphone for true recording and playback of respiratory sounds using the latest MP3 technology, true-3D, high-resolution activity and position sensor, and built-in pressure channel

- 14 total channels, with 2 flexible inputs for ECG, EOC, EEG or EMG, makes the NOX-T3 device more acceptable for different markets

References

1   Baumert M, Smith J, Catcheside P, McEvoy R, et al. Variability of QT Interval Duration in Obstructive Sleep Apnea: An Indicator of
    Disease Severity. *Sleep*, 2007; vol 31, issue 07.

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