Air Liquide
HEALTHCARE

Committed to patients
Everytime, Everywhere

Alice PDx
diagnostic system

Good study results,
better night's sleep

Alice PDx

Alice PDx on patient

Convenient for patients

Portable testing made easy

The Alice PDx is a portable, diagnostic recording device for Obstructive Sleep Apnea (OSA) screening, follow-up and diagnostic assessment of cardio-respiratory sleep disorders. This flexible and portable sleep system incorporates the advanced features required to meet today's industry needs. The Alice PDx enables you to test your patients outside of the lab without compromising study results, helping you to avoid the costs associated with re-testing.

Flexible

The Alice PDx can be used in a sleep lab, alternative care site or a patient's home. The device is convenient for patients who are uncomfortable with, or have limited access to, a lab facility.
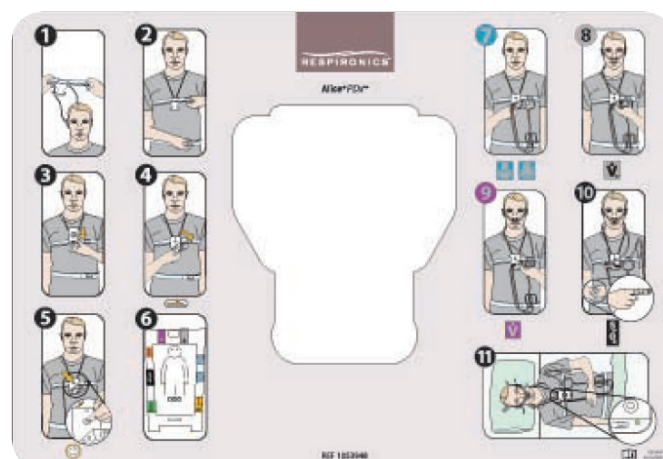
The Alice PDx is field upgradeable, so as new features are added, firmware upgrades will be made available, without having to return your device for service. As updates become available, you will be able to access them via web downloading.

User friendly

The Alice PDx device interface is easy to use, easy to understand and informative. Color-coded labels, located around the perimeter of the device, indicate where to connect the various sensor leads. The display shows the patient only the sensors that need to be connected. The sensor information and indicators help your patients or medical staff to place the sensors correctly and reduce the need for re-testing due to application errors.

A helpful, color-coded, step-by-step diagram is included with the Alice PDx system to walk patients through the appropriate application process.

The Alice PDx is compact and can accommodate side sleepers. The wires have been specifically designed to minimize excess length to make it easier for patients to manage the wires.

Easy reference diagram

Flexible for you

Minimize re-testing

The Alice PDx incorporates our unique Good Study Indicator (GSI).* The GSI is predicated on airflow and oximeter signal quality and displays the amount of "good quality data" needed for a study to be complete and valid. The indicator measures patient airflow, gathered by the nasal cannula and/or the oral thermistor, airflow from therapy devices, and pulse oximetry, gathered by the SpO$_2$ sensor. Without either of these signals, the sleep study would be declared diagnostically invalid because of insufficient data.

Maximize study quality

The Good Study Indicator helps to eliminate the frustration of receiving insufficient study data and the inconvenience and effort involved in rescheduling patients for a repeat study. The GSI visually displays the amount of good quality data in 25-percent increments on the Alice PDx display screen. This information allows the clinician to decide if the patient needs to repeat the study. If the study needs to be repeated, the provider can educate the patient remotely on how to better apply the sensors.
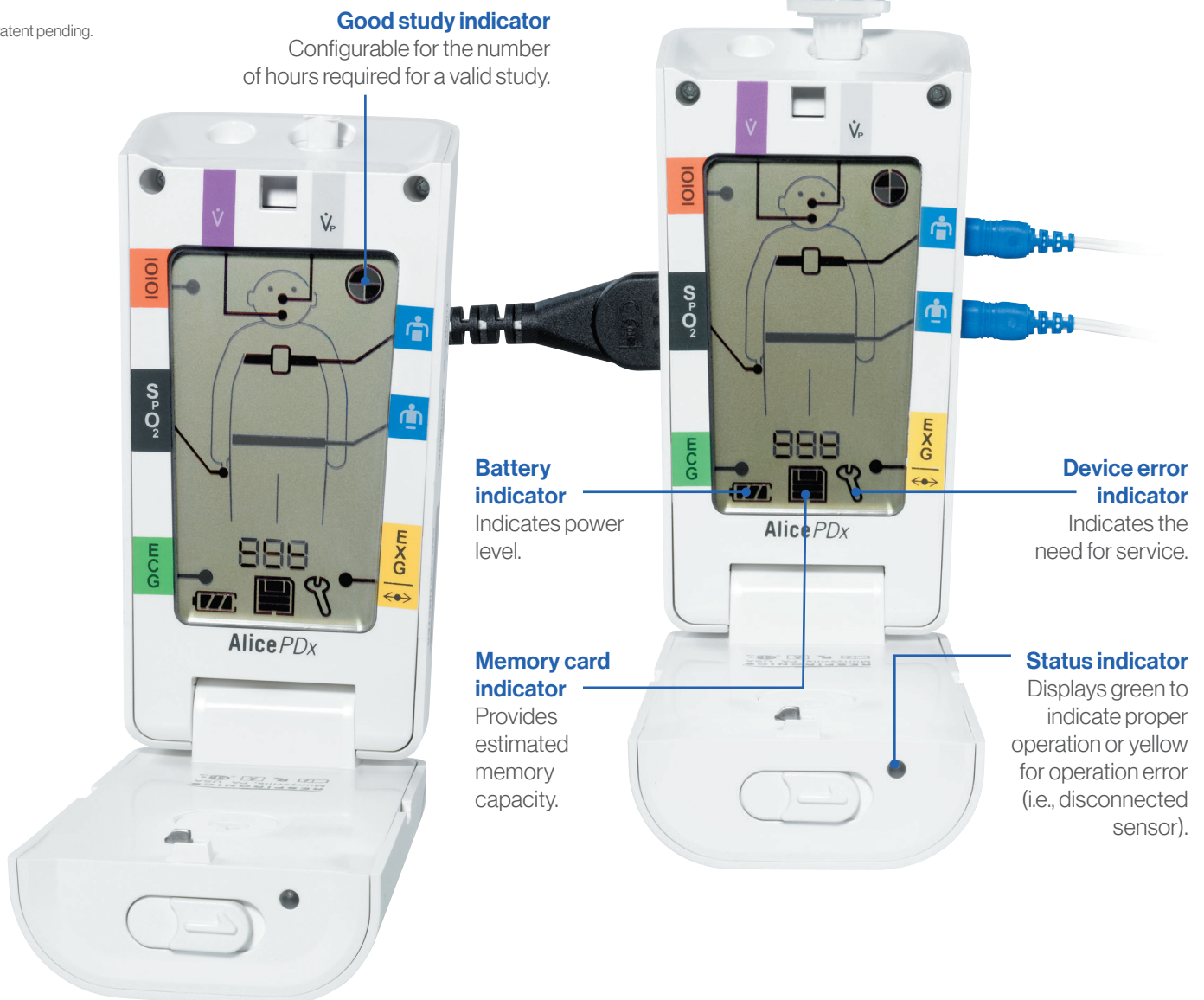
*   Patent pending.

System overview

Sensor cables transmit the appropriate signals to the Alice PDx. The signals are stored on the removable memory card, or if configured to do so, the signals can be displayed from the Alice PDx on a computer running the Alice Sleepware software application.

The base configuration channel set supports testing requirements for levels three and four and includes:

- Nasal pressure cannula
- Oral thermistor
- zRIP abdominal and chest belts
- SpO$_2$
- Body position

In addition to the basic channel set indicators, there are also indicators for the optional ECG and ExG yokes and the optional therapy interface.

Good study indicator
Configurable for the number of hours required for a valid study.

Battery indicator
Indicates power level.

Memory card indicator
Provides estimated memory capacity.

Device error indicator
Indicates the need for service.

Status indicator
Displays green to indicate proper operation or yellow for operation error (i.e., disconnected sensor).

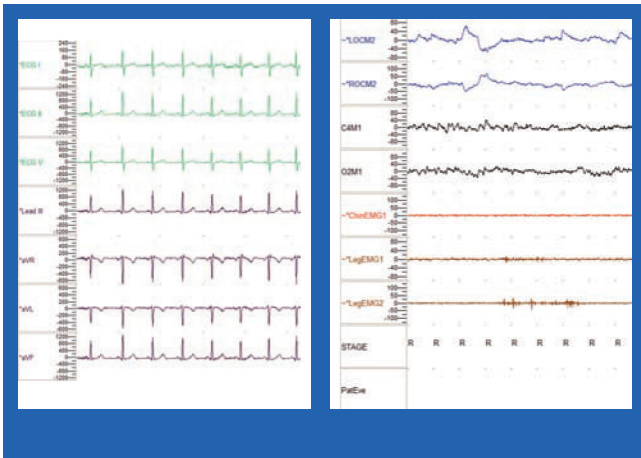## Connecting the Alice PDx to a therapy device

The Alice PDx interfaces with, and supports certain therapy devices with serial or SmartCard connections. When using the Alice PDx, a provider can specify which treatment data to capture along with the appropriate diagnostic channel data. Depending on the Alice PDx configuration selected, it will record up to eight channels such as:

- Patient airflow
- Pressure
- Leak
- Tidal volume
- Event flags (from auto-titrating devices)

This data allows the provider to confirm the therapeutic benefit of the prescribed therapy device for the patient. Once connected to the therapy device, the Alice PDx will record data from the device during the sleep study. Using the pressure cannula port, the Alice PDx can be connected to other therapy devices; however, more limited patient airflow and pressure data will be collected.

Connecting a memory card reader to a computer

After recording, the memory card is removed from the Alice PDx and placed into the provided "plug-and-play" SD card reader. The patient's data is then imported from the SD card to a computer for quick review and analysis with proven Alice Sleepware.

Optional ECG and ExG yokes

The Alice PDx can be interfaced to optional ECG and ExG sensor interface yokes. The ECG yoke consists of five electrode inputs, considered in cardiology to be a three-lead ECG. This provides three measured and four derived ECG channels. The Alice PDx optional ECG yoke can provide one-, six- and seven-channel configurations.

The optional ExG yoke provides 13 inputs to provide four EEG/EOG channels and three EMG channels, including ground and references. This enables sleep scoring.

Multi-night recordings

With the SD card memory and two- to three-night battery life, the Alice PDx can collect information from multi-night recordings when needed. The Alice PDx can be set to start and stop recording automatically to minimize the risk of the patient forgetting to set it.

Single software application

The Alice PDx system is provided with our proven Sleepware software, which has accommodated our Alice in-lab diagnostic systems for years. Sleepware can display live or pre-recorded data in a resolution consistent with your computer hardware specifications. As the need for your lab operation services changes or grows, Sleepware can accommodate your equipment software needs.

- Sleepware provides a single software application for lab and portable testing.
- A single software application helps to avoid confusion and additional training needed for adapting to multiple device-specific software.
- Sleepware allows you to manage your data across larger networks and remote locations, enabling you to perform remote scoring or data access.
- Sleepware software is a computerized process of analyzing polysomnographic data in order to aid a qualified healthcare provider in diagnosing sleep disorders. The Alice PDx device is not intended to replace a qualified healthcare provider or his/her interpretation of data.

Other diagnostic products and tools available

Alice 6 and Sleepware G3

Alice 6 Lab Diagnostic Systems with Sleepware G3 offer full featured flexibility:

- 3 headboxes: LDe (basic), LDxS (advanced sleep) and LDxN (Neuro) feature differential pressure sensor, 3 chin lead with auto re-reference, integrated zRIP technology and Masimo oximetry
- 32 channel EEG Neuro module available
- Sleepware G3:
  - Refreshed design: improved security and workflow design
  - Many features: including fully customizable workspaces and reports, real-time impedance check and integrated database
- Direct connection possible with all our sleep therapy and NIV devices.

Sensors and accessories

We offer a complete line of sensors and accessories including Pro-Tech sensors, zRIP effort technology, PTAF Pressure Flow, electrodes, oximeter sensors and probes. Our sensors help you meet AASM standards.

Patient and clinician training tools

- A video (on DVD) that guides the patient through how to use the PDx and correctly apply the sensors.
- A CD-ROM that guides the clinician through how to configure the Alice PDx and score the data.

Part number information for these training tools is listed under the Ordering Information section of this brochure.

* Our product support service is available in selected countries.

The base Alice PDx system includes

Alice PDx device
Alice PDx professional and user guides
Carrying case
Patient setup carrying case overlay
Serial USB Alice PDx to PC communication cable
USB SD card reader w/extension cable
1 GB SD card
Alice PDx holster (chest holder for device)
Neck lanyard for Alice PDx holster
2 ea. Pro-Tech zRIP effort belts with wireset
5-pack starter pack pressure cannulas
Oral thermal sensor
Nonin SpO$_2$ sensor extension cable
4 ea. AA batteries (packaged separately)
Choice of Nonin SpO$_2$ probe (packaged separately)

Device ordering information	Part number
Alice PDx device kit, international	1043844
Optional components	
ExG yoke, Alice PDx, international	1048415
ECG yoke, Alice PDx, international	1040810

Alice PDx accessories

Accessories	Part number
Alice PDx to MobileLink cable (PC cable)	1040807
Alice PDx to SleepLink cable	1040806
Alice PDx to RS-232 sleep therapy cable	1040805
Alice PDx holster	1053280
Alice PDx holster neck lanyard	1053194
Pro-Flow nasal cannula, adult qty. 60	P1328-60
Pro-Flow nasal-oral cannula, adult qty. 30	P1343
Oral thermistor, Alice PDx	P1379
Nasal-oral thermistor, Alice PDx	P1388
CPAP titration kit (for non-Philips Respironics therapy devices)	P1391
zRIP adult sensor kit (belts and wire sets), Alice PDx	P1837
zRIP effort sensor, adult (24" to 75")/ (61 cm to 190 cm)	P1806
zRIP wireset, Alice PDx	P1170
2-pack SD cards (secure digital card, 1GB ea.)	1053952
Alice PDx quick start guide (carry case overlay) 4-pack	1053948
SpO$_2$ reuseable sensor, adult finger clip	936
SpO$_2$ reuseable flex sensor, adult	953
Adult flex sensor wrap (25-pack)	954A
Software	
Sleepware (included with purchase)	
Training tools	**Part number**
Patient instructions video (DVD)	1055905
Clinician interactive tutorial (CD-ROM)	1055918

Basic PC recommendations:

- Windows®-compatible personal computer running WindowsVista Business, Windows 7 professional (64 bit), Windows 8 professional (64 bit) with a CD-RW drive. A DVD drive is recommended if you will be saving audio/video files onto removable storage media.
- Intel® Pentium® 3 processor (500 MHz) or greater, processor (1 GHz) required for WindowsVista computers
- 512 MB system memory, 1 GB or higher for Windows Vista computers

Alice PDx specifications

Product specifications

Total channels:	Up to 21 with optional ECG and ExG yokes
Base channels:	10 channels: pressure-based flow (w/snore) and thermal airflow, zRIP effort (2), body position, SpO$_2$ (also pleth and pulse rate) and patient marker. Up to eight parameters from Philips Respironics therapy devices may be acquired, including pressure, flow and leak.
Optional yokes/ channels:	ECG yoke; 7 channels: 3-lead ECG providing 3 measured and 4 derived channels ExG yoke; 7 channels: 4 neuro channels (EEG or EOG) and 3 differential EMG, plus references and ground
Input impedance:	ECG: 10MΩ per electrode 20MΩ differential EEG: 2MΩ per electrode 4MΩ differential EMG: 2MΩ per Electrode 4MΩ differential
Bandwidth:	ECG: 0.318Hz to 81Hz EEG: 0.318Hz to 35Hz EMG: 9.7Hz to 86Hz
Input signal range:	ECG: +/- 4mV EEG: +/- 500uV EEG: +/- 150uV
Digital resolution:	Up to 16 bits
Initial sample rate:	Up to 1,000 Hz
Max storage rate:	200 Hz for ECG/ExG, 100 Hz for effort and thermal flow, pressure flow 200 Hz, snore 500 Hz, body position 1 Hz
Communication interfaces:	Serial protocol USB PC cable, SleepLink and serial communication cables for Philips Respironics therapy devices

System physical characteristics

Alice PDx unit: Size:	5" L x 3" W x 2" H (12.7 cm x 7.62 cm x 5.08 cm)
Weight:	Approximately 8 oz (230 grams), (weight does not include batteries)
System power requirements:	Three AA (1.5V) alkaline batteries, 0.43 watts (typical) Alice PDx can support the use of rechargeable batteries.