

ParticleScan™

Advanced Particle Counters



Airborne Particle Detection

- *Detects airborne particles from $0.3 \geq$ to $5 \mu\text{m}$*
- *Monitor 6 particle sizes simultaneously*
- *Choose from two models:*
 - Pro** for normal environments
 - CR** for cleanrooms and clean areas
- *Data logging to PC and Palm OS® computers*

ParticleScan™:

Advanced Airborne Particle Detection Made Easy

Airborne particles consist of a mixture of solid matter and liquid droplets. Quantifying the concentration of particles in indoor air can give important information about:

- **Air quality in terms of particles**
- **Pollutant sources**
- **Effectiveness of pollution control measures**

Real-Time Particle Measurement

ParticleScan instruments use laser technology to measure particle concentrations in ambient air. The instruments continuously measure the concentration of airborne particles and display an updated reading every six seconds on the easy to read LED display. This enables the user to monitor particle concentration changes as they occur and allows individual pollution sources to be tracked down by using the ParticleScan as a “particle sniffer”.

High Sensitivity

ParticleScan instruments can identify single particles, making them far more sensitive than photometers, which identify only particle clouds.

Particle Sizing

ParticleScan instruments not only count particles they also categorise particles into six size groups ranging from 0.3 microns to 5 microns. This sizing information allows users to focus only on those particle sizes of interest, disregarding the rest.

Data Logging to PC or Palm OS® devices

Every ParticleScan is supplied with software and a transfer cable which allows data logging to PC or Palm OS computers.

Separate Models for IAQ & Cleanroom Use

Two ParticleScan models are available:

The ParticleScan Pro has been designed for IAQ measurements in normal indoor and outdoor environments. It can handle concentrations from 10 thousand to over 20 million particles ($\geq 0.3\mu\text{m}$) per cubic foot. The ParticleScan CR has been designed for cleanrooms or other controlled environments with particle concentrations between zero and 2 million particles ($\geq 0.3\mu\text{m}$) per cubic foot.

Audible Alarm Function

The instrument allows the user to set an individual particle concentration threshold for each individual size channel. An intermittent beeping sound alerts the user should the set threshold be exceeded.

Evaluate Air Cleaning Performance

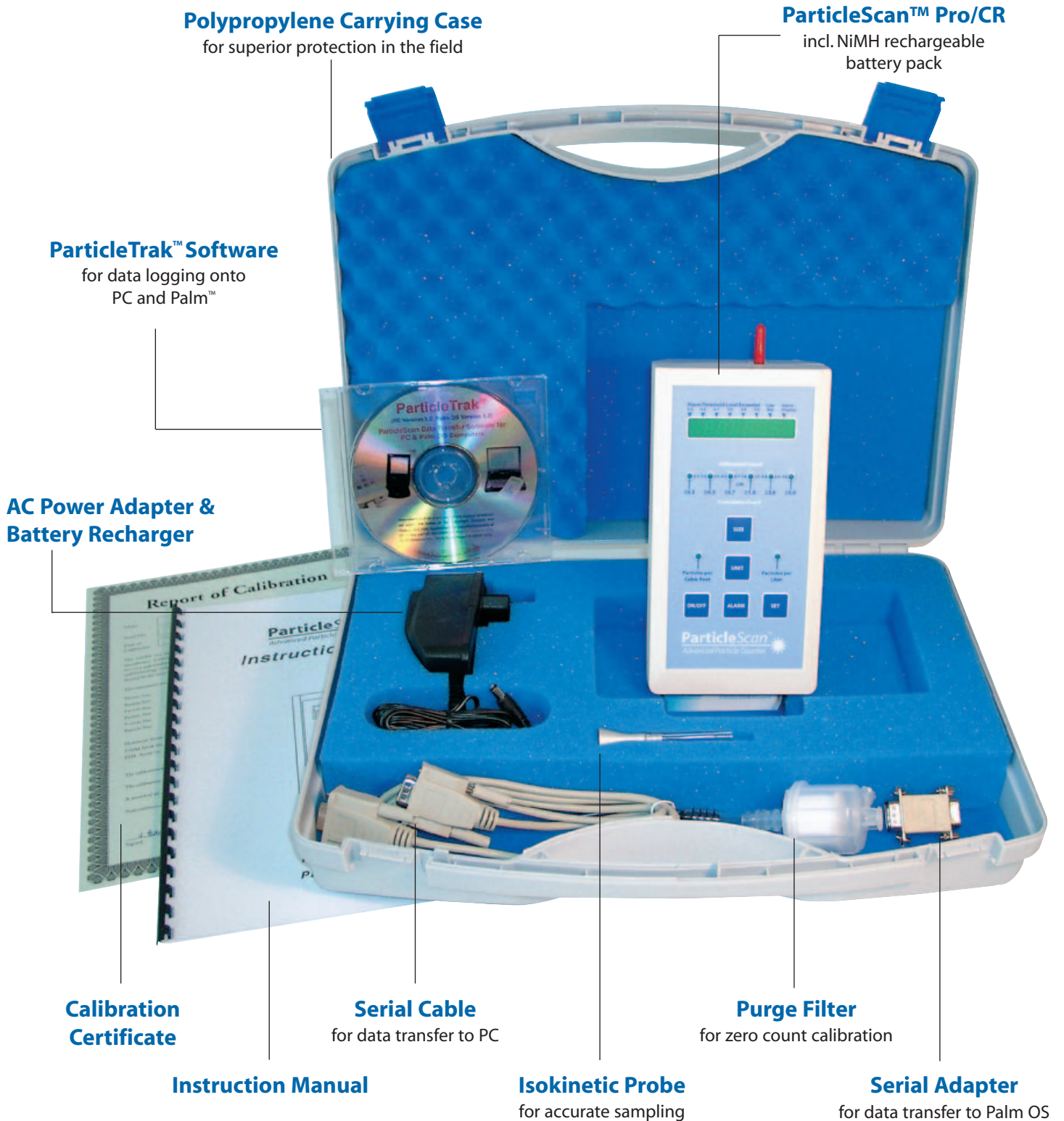
The ParticleScan Pro allows you to evaluate the efficiency of air filters and air cleaning equipment for particulate contaminants. By taking readings at the air intake and the air outlet of a filtration system, you are able to calculate the true particle removal efficiency of the system:

$$\% \text{ Efficiency} = 1 - \frac{\text{Particle count at air outlet}}{\text{Particle count at air intake}} \times 100$$

Improving Indoor Air Quality

Begin by mapping the areas of concern and recording the relative particle levels in each area. Make sure to include areas with both acceptable and unacceptable indoor air quality along with outdoor reference levels. In areas with the highest particle concentration, use the Particle Scan to locate the particle source and take corrective steps. Once remediation is complete, go on to areas with the next highest particle levels and repeat the process.

The ParticleScan™ Kit



Polypropylene Carrying Case
for superior protection in the field

ParticleScan™ Pro/CR
incl. NiMH rechargeable
battery pack

ParticleTrak™ Software
for data logging onto
PC and Palm™

**AC Power Adapter &
Battery Recharger**

**Calibration
Certificate**

Instruction Manual

Serial Cable
for data transfer to PC

Isokinetic Probe
for accurate sampling

Purge Filter
for zero count calibration

Serial Adapter
for data transfer to Palm OS

ParticleScan™ Selection Guide

Which Model is Right for Me?

ParticleScan™ Pro

Industrial Hygienists

- Monitor & log particle levels in commercial and industrial facilities
- Establish a particle concentration profile
- Optimize pollution control measures

Microbiologists & Medical Hygienists

- Monitor & log particle levels in medical and dental facilities
- Track down contamination sources
- Optimize airborne infection control measures

Abatement and IAQ Professionals

- Verify & demonstrate the effectiveness of your contamination control measures
- Track down particulate pollutant sources
- Evaluate effectiveness of remedial action

HVAC Professionals

- Verify filtration efficiency of installed particulate air filters
- Check the filter's efficiency for specific particle sizes



Air Cleaning Professionals

- Compare filter efficiency of different air cleaning equipment
- Check for filter leakage
- Show customers the efficiency of your air cleaning system
- Demonstrate to customers the benefit of upgrading to more efficient filters

Duct Cleaning Professionals

- Show the need for duct cleaning
- Perform measurements according to preliminary NADCA standard
- Certify your work
- Win government & healthcare contracts by particle count validation



ParticleScan™ CR

Cleanroom Operators

- Verify particle concentrations in cleanrooms and clean areas within seconds
- Test the integrity of HEPA filter banks
- Track down particle sources
- Establish a particle concentration profile
- Monitor and log particle concentrations for record keeping and reporting
- Optimize contamination control measures

HEPA Filter Testing

- Determine HEPA filter efficiency
- Check HEPA filter for leaks
- Monitor & log particle levels

Real-Time Data Transfer to PC ...

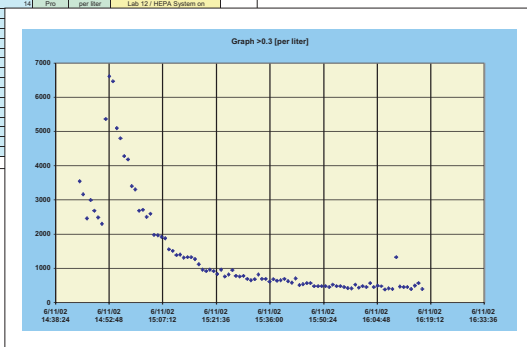


With the supplied ParticleTrak software it's easy to turn your ParticleScan into a continuous data logging device to monitor airborne particle concentrations over time. The software allows particle counts for all six size channels to be stored on your PC.



Laboratory HEPA System (Downtime Analysis)									
Report No.: 6032		Compiled by: L. Armstrong			Company: Armstrong PLC		Date: 11 June 2002		
Timestamp	>0.3	>0.5	>0.7	>1.0	>2.0	>5.0	Model	Unit	Location
6/11/02 14:44:51	2654	202	282	212	189	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:45:51	3164	424	311	194	141	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:46:51	2656	338	240	141	113	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:47:51	2684	410	282	168	127	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:48:51	2684	395	282	189	141	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:49:51	2599	297	240	141	127	14	Pro	per liter	Lab 12 / HEPA System off
6/11/02 14:50:51	2502	297	212	127	113	14	Pro	per liter	Lab 12 / HEPA System off
6/11/02 14:51:51	6071	852	819	521	254	14	Pro	per liter	Lab 12 / HEPA System off
6/11/02 14:52:51	6810	1102	819	480	381	28	Pro	per liter	Lab 12 / HEPA System off
6/11/02 14:53:51	6469	1003	849	424	339	28	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:54:51	6090	1018	878	338	268	28	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:55:51	6982	749	823	811	254	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:56:51	4280	607	428	240	189	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:57:51	4181	621	410	240	189	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:58:51	3854	558	353	184	141	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 14:59:51	3856	498	338	184	156	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:00:51	2684	353	228	141	113	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:01:51	2712	387	254	141	99	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:02:51	2502	287	240	141	113	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:03:51	2599	353	254	127	99	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:04:51	2677	338	184	99	85	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:05:51	2712	387	254	141	99	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:06:51	1879	254	189	99	71	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:07:51	1953	254	189	99	71	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:08:51	1921	254	189	99	85	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:09:51	1879	254	189	99	71	14	Pro	per liter	Lab 12 / HEPA System on
6/11/02 15:10:51	1554	184	127	85	58	14	Pro	per liter	Lab 12 / HEPA System on

...for Graphic Display and Reporting



The ParticleTrak program logs the data directly into an Excel spreadsheet. Once the particle concentrations are recorded, the data can be organised, analysed, documented and printed for reports. The pre-programmed Excel graphs enable you to create descriptive reports for effective client presentations.



Data logging to Palm OS® devices

The supplied ParticleTrak CD-ROM also contains software for Palm OS hand-held devices. This unique program allows you to log particle concentrations onto your Palm OS computer. Once the Palm is connected to the ParticleScan instrument, the display of the Palm will show all six particle concentrations simultaneously. Alternatively you can choose to display the data collected during the past 12 minutes in a graphic format. The stored data can also be transferred to a PC for later analysis and printouts.

ParticleScan™ Comparison Chart

ParticleScan™ Pro	ParticleScan™ CR
Description	
Advanced laser particle counter for the quick and accurate measurement of airborne particle concentrations in normal and polluted indoor and outdoor environments.	Advanced laser particle counter with a flow rate of 0.1 cfm for the fast and accurate measurement of airborne particle concentrations in controlled environments and cleanrooms.
Applications	
<ul style="list-style-type: none"> • Monitor indoor & outdoor particle concentrations • Log air pollution levels for reporting & record keeping • Demonstrate & compare filter efficiency of air & vacuum cleaners • Track down particulate pollution sources • Evaluate effectiveness of pollution control measures • Inspect HVAC equipment & ducting • Spot-check particulate pollution levels at the workplace • Analyse logged data for remedial action • Store, organise, analyse & print data in spreadsheets • Display & communicate air pollution levels effectively in graphs 	<ul style="list-style-type: none"> • Verify particle levels in cleanrooms • Monitor laminar flow benches & clean air cabinets • Test HEPA & ULPA filters for efficiency & leakage • Track down particulate contamination sources • Evaluate effectiveness of contamination control measures • Log air contamination levels for reporting & record keeping • Analyse logged data for remedial action • Store, organise, analyse & print data in spreadsheets • Display & communicate air pollution levels effectively in graphs
Technical Specifications	
Flow rate: 0.025 cfm (0.7075 l/min) Exhaust air: not filtered	Flow rate: 0.1 cfm (2.83 l/min) Exhaust air: HEPA-filtered
Minimum sensitivity: 0.3 µm (microns)	
6 cumulative size channels: 0.3 / 0.5 / 0.7 / 1.0 / 3.0 / 5.0 µm (user selectable)	
5 differential size channels: 0.3 - 0.5 / 0.5 - 0.7 / 0.7 - 1.0 / 1.0 - 3.0 / 3.0 - 5.0 µm (user selectable)	
Sample time: 6 seconds (continuous with no delay time)	
Readout volume units: particles/cu.ft. or particles/litre (user-selectable)	
Readout: 8-digit LED	
Laser source: 680 nm laser diode	
Count update: every 6 seconds	
NiMH rechargeable battery: up to 5 hours operation	
Audible alarm function: programmable for each cumulative size channel	
Computer interface: RS 232	
Dimensions (LxWxD): 8 x 4 x 2.2 inches (205 x 103 x 57 mm)	
Weight: 1.9 lbs. (850 g)	
Warranty: 1 year (parts and labour)	
Supplied Accessories	
Transport case for field use	
Isokinetic probe for accurate sampling	
Purge filter for cleaning & zero calibration	
Mains power adaptor / NiMH battery charger (115V/60Hz or 230V/50Hz)	
CD-ROM with ParticleTrak™ software for data logging onto PC and Palm™	
PC serial cable for data transfer to PC	
Palm™ serial adaptor for data transfer to Palm OS hand-held computers	
Instruction manual	
Calibration certificate	
System Requirements for Data Logging	
PC: Microsoft® Windows 3.0/95/98/NT/Me/XP; CD-ROM drive; available 9 or 25 pin COM port, Microsoft® Excel 97 or later	
Hand-held computers: Palm OS® 3.0 or later	

All technical specifications are subject to change without prior notice.

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