

CI-x70 Series NEXTGEN™

Portable Particle Counter

Pharmaceutical / Industrial Grade
Drop & Vibration Tested



Industry's Smallest and Lightest
(Only 9.4 Lbs. w/ battery)

Ethernet, Wi-Fi, Serial or USB Data
Communications

R/H and Temp Capabilities

Color Capacitive Touch Screen
Pinch to zoom and swipe

User Integrity Audit Trail

New Patented Blower Technology

Lithium-Ion Battery

PDF Quality Assurance Reports

Built-in Light Ring Alarm

Stores Up To 10 Million Samples

1,000 User & Location IDs
(Factory expandable upon
request)

Pharmaceutical Grade Stainless
Steel Enclosure

Fully Integrated Thermal Printer

User Authentication with
5 Security Levels

Compliance: ISO 14644-1/2,
ISO 21501-4, 21 CFR Part 11

Serious Instruments for Serious Users

In business since 1962, Climet has dozens of multi-jurisdictional patents in the field of particle counting. Climet is a pioneer and innovator, having been the first to introduce the battery-powered portable particle counter (CI-500) in 1993. Since then, Climet has developed virtually every meaningful feature for portable particle counters, many of which today are considered an industry standard. This includes but is not limited to high flow rates of 50 LPM, 75 LPM, and 100 LPM. The CI-x70 Series is fully compliant with ISO 21501-4; PIC/S; FDA CGMP; EU GMP, Annex 1; ISO 14644-1/2:2015; 21 CFR Part 11, and others.

Certified HEPA Filter to ISO Class 3

Each particle counter deployed in the Life Science industry must have a HEPA Filtered Exhaust or otherwise risk regulatory action due to rouge particle emissions. Climet is the only manufacturer of particle counters that conducts emissions tests on every new factory model and certifies emissions to ISO Class 3. This provides an added level of assurance to end-users that their particle counters are not adding to the particle burden of their cleanroom.

Interval Calibration Out-of-Tolerance

The main contributing factors affecting Total Cost of Ownership (TCO) are product longevity and high interval calibration in-tolerance rates, which mitigate or eliminate expensive deviation reports and investigations. An end-user study of 700+ Climet particle counters seven years old or less passed their interval calibration 99.6% of the time. In a separate study of 2,000+ Climet particle counters, with approximately 25% of these over 10 years old, the in-tolerance calibration rate was 98.3%. Climet, by an order magnitude, uniquely provides our valued customers with the lowest TCO in the industry by significantly reducing failure investigations associated with interval calibration out-of-tolerances (i.e., Six Sigma Cost of Poor Quality or CoPQ).



Applications Include:

Cleanroom Monitoring & Validation
Medical Device Manufacturing
Pharmaceutical Manufacturing
Pharmaceutical Compounding

Food & Beverage Processing
Aerospace Assembly
Hospitals
Medicinal R&D

CLIMET®
CLIMET INSTRUMENTS COMPANY

Rev 4.0 (Feb 2022)

Channel Sizes	CI-170 Series, CI-570 Series & CI-770 Series CI-1070 Series	0.3 µm, 0.5µm, 1µm, 3µm, 5µm, and 10µm 0.5 µm, 1µm, 3µm, 5µm, 10µm, and 25µm custom size available upon request (additional charges may apply)
Flow Rate	CI-170 Series @ 1 CFM CI-570 Series @ 50 LPM	CI-770 Series @ 75 LPM CI-1070 Series @ 100 LPM
Size Calibration	< ±10% with internal pulse height analyzer (PHA) in compliance with ISO 21501-4.	
Size Resolution	±4% to ±10% typical. Substantially exceeding ISO 21501-4 of ≤ ±15%.	
Count Efficiency	50% Count Efficiency (a measure of size): ≤ ±10% to Climet standards. Substantially exceeding ISO 21501-4 of ≤ ±20%. 100% Count Efficiency (a measure of flow and laser alignment): < ±10%. In compliance with ISO 21501-4.	
False Count Rate	Equal to or better than ISO 21501-4 specifications.	
Sample Volume Uncertainty	Flow Control and internal mass flow meter ensures compliance with ISO 21501-4 Flow Rate tolerance of ± 5%. Sample Volume is user-adjustable in cubic meters, cubic feet, or liters.	
Exhaust	HEPA filtered exhaust factory tested to ensure no leaks and certified to ISO Class 3 emissions. Substantially exceeding ISO standards and recommendations.	
Sanitation	Compatible with all standard cleanroom sanitation and sterilization procedures. Independently tested and certified to be virtually inert to non-condensing VHP gas (calibration sticker will fade after 1,000 cycles). No reduction in warranty if exposed to VHP.	
Data Ports	OUTPUT: RS-232, Wired Ethernet, Wi-Fi, and USB INPUT: RH/Temp Port (RH/Temp probe sold separately) ** Wi-Fi and USB output ports disabled by ADMIN settings, or factory disabled upon request.	
Laser and Collection Optics	Patented metal ellipsoidal mirror gathers more light scatter and provides the highest level of accuracy and repeatability of measurement. Wide scatter sensor uniquely mitigates the effect of particle shape (morphology) and orientation on sizing. No plastic laser or collection optics ensure the industry's highest accuracy and stability of measurement. Contributes to product longevity and offers users the lowest Total Cost of Ownership. Laser alignment uniquely locked during the manufacturing process.	
Mirror Plating	Rhodium-plated metal ellipsoidal mirror uniquely ensures the highest resistance to contamination, decomposition, corrosion, and impact damage compared to chromium, gold, and other metals. Improves product longevity and lowers Total Cost of Ownership (TCO).	
Enclosure	Stainless steel enclosure is impact-resistant and easily cleaned and sanitized. It mitigates the risk of viable contamination and cross-contamination. Further, stainless steel does not contribute to particle burden.	
Display	Industry's first color capacitive touch screen is similar to cell phone technology. Allows users to pinch-to-zoom and swipe.	
Alarms	Triggers at (i) Counts (i.e., user-defined "Alert" and "Action" levels), (ii) Laser Status , (iii) Flow ; and (iv) Low Battery . Plus, the industry's first light ring , providing 360-degree viewability, user-configurable status, and alarms (enable/disable, 5-colors, patterns, etc.). Audible Alarm (100 db) is user-configurable to support multi-pitch beep-on-count and alarms.	
Multi-gas Calibration	A single CI-x70 can measure the particle burden of compressed Clean Dry Air (CDA) and Nitrogen PLUS user-switchable for CO2 and Argon (which requires a special calibration). For CO2 and Argon, use a 1 CFM or 50 LPM flow rate. A high pressure diffuser (CI-302) is required for use with high pressure gases.	
Internal Memory	up to 10 million samples	
Programmable	1000 Programs * 1001 User ID's * 1000 location IDs * * = Factory expandable.	
PDF Reports	ISO 14644; GMP Annex 1; FS 209e; Average Data, Alarm Data, User Audit Log, Program Settings, Stored Data, and Raw Data.	
Cloning	Yes, all models come standard with Unit-to-Unit cloning.	
5 Series Cross Compatibility	All basic Telnet/Serial commands on the older CI-x5x Series directly translate to the CI-x70 Family. The CI-x70 also has additional commands to conduct remote sampling operations. Please, refer to the User Manual for further information. Please, contact Climet Engineering for Modbus addressing.	
Security & Admin Access	Five Security/Access Levels. Enhanced <i>cyber security</i> features, with a Hardened Security Guide . Users can optionally enable minimum password length and complexity check. SFTP and SSH Ethernet options are available through the ADMIN settings, and all Telnet commands work with SSH. Additionally, in accordance with FDA 21 CFR Part 11, §11.10(a), sample data records can be individually computer validated to confirm they are not invalid or have been manipulated – through DataPro 2.5e, Climet USB Translator Utility, Lonza MODA, and other LIMS providers. Call for further details.	
Abort Reporting	A robust abort reporting feature (ADMIN enabled) provides particle counts at the time a sample is terminated (<i>for any reason</i>). Ref. Alarm Code 2. It's the first and only solution that fully complies with FDA 21 CFR Part 11, §11.10(e)	
Printer	Fully integrated thermal printer. No warts or plastic bubbles on the outside exterior that are difficult to clean and sanitize.	

Battery / Electrical Single Battery	CI-170 Series @ 6 hours continuous @ 1 CFM CI-570 Series @ 5 hours continuous @ 50 LPM Continuous at 100% duty cycle w/ Zero Count Filter Installed	CI-770 Series @ 3.5 hours continuous @ 75 LPM CI-1070 Series @ 3 hours continuous @ 100 LPM Recharge Time: 3.5-4 hours w/ Internal charger Wall Power: Universal 100-240 VAC
Dimensions & Weight	8.38" x 7.4" x 9.48" = 587.9 cubic inches. Smallest portable on the market! 9.4 lbs. with battery & 8.4 lbs. w/o battery. The lightest industrial / pharmaceutical grade portable particle counter on the market!	
Environmental	Temperature: 0-36°C (32-97°F). Humidity: 10-90% relative humidity, non-condensing	
ISTA procedure 3a	Drop & vibration tested, and independently certified to ISTA procedure 3a. Only particle counter to be drop/vibration tested.	
Included Accessories	Internal thermal printer, internal battery charger, battery, stainless steel or light blocker isokinetic probe, sample tubing, zero count filter, two rolls of thermal paper, IQ/OQ documentation, manual, external exhaust fitting (as appropriate), and USB flash drive.	
Options	Carrying case, probe stand, HEPA filter scanning probe, spare isokinetic probe, spare battery, validation documentation, external battery charger (comes with internal battery charger), and high pressure diffuser (for sampling high pressure gases).	
	User Authenticator	
User Authenticator Revision 2.0 or higher	The instrument comes with ADMIN enabled/disabled User Authenticator , which uses an LDAP protocol with TLS 1.1 and 1.2. Allows users to securely login with network credentials through an Active Directory. Persistent Login: This allows users to login without needing to re-connect to the network. Admin configurable up to 24 hours with User Authenticator version 2.0 or higher. Searchable " User Integrity Audit Log " with User Authenticator 2.0 or higher. Feature maintains a perpetual audit log of all users. Provides FDA 21 CFR Part 11 user integrity documentation for regulatory audits. Enforces unique UserIDs.	
	Data and User Integrity (ALCOA)	
Attributable	Must have security enabled. Firmware will not allow duplicate UserIDs [FDA 21 CFR Part 11, §11.100(a)] Each user must have an access level assigned [FDA 21 CFR Part 11, §11.3(b)(4); and §11.10(d)]	
Legible	All sample data records are human-readable. All sample data is stored on solid-state memory, which requires no power (i.e., no coin cell batteries).	
Contemporaneous	Internal Real Time Clock (RTC) updates every time it's connected to the network when there's a Network Time Protocol (NTP) Server configured. Ensures the date and time are continually updated, including daylight savings time adjustments.	
Original or True Copy	Users can confirm the sample data record is not invalid or altered in accordance with 21 CFR Part 11, §11.10(a). Compatible with DataPro 2.5e, Clime's USB Translator Utility, Lonza MODA, and other LIMS system providers.	
Accuracy	The use of high-quality materials and a rugged DFM (Design for Manufacturability) provide unparalleled accuracy and stability of measurement.	
	Fully Compliant to FDA 21 CFR Part 11	
Closed System	The 7-Series portable particle counter is a closed system. Files cannot be externally added or modified. Sample data cannot be deleted without proper authorization when security is enabled. Also, see the User Manual for Hardened Security Guide .	
Secure Wi-Fi	For secure WiFi data communications, the 7-Series can be configured to support a RADIUS server, which encrypts wireless communication. The 7-Series also has SSH and SFTP. Automatic Wi-Fi Reconnect and Synchronization: If the counter loses Wi-Fi connectivity, it will automatically reconnect and synchronize with the secure directory. Any missing sample data records will automatically be uploaded upon reconnect.	