



Contamination Control Instruments
CCI vK GmbH & Co. KG
www.cci-vk.de

PARTICLE MEASUREMENT
ON SURFACES

CCI-KIT



Special development:
CCI complete package –

CCI-Kit with optional accessories:
// Stainless steel cleanroom equipment trolley
// Extendable holder for equipment trolley
up to approx. 3 m height

Further optional accessories
available – see following pages.

Measurements
also available as
a CCI service



CCI-Kit:
Particle counter (OPZ)
Kanomax Model 3905
mounted on a PCU-3 control unit
and a DLS-20 surface probe



Special development CCI-KIT

Particle measurement on surfaces

The purity of products is defined not only by the cleanliness of the air, but rather by the purity of the product surfaces. Particle measurement on surfaces can only be achieved in conjunction with conventional **Optical Particle Counters (OPC)** for air by detaching the particles from the surfaces.

CCI modifies market-proven particle counters and expands their range of applications with the additional function of particle counting on surfaces to create a variable system. Even after the corresponding modification, the original function of the particle counter remains unchanged and can therefore be used without restriction for measuring both airborne particles and surface particles.

The **DLS probe** was developed to increase the particle removal rate from surfaces. This sampling probe is pressed against the surface during measurement. Filtered compressed air flows onto the surface and removes particles. Since the probe forms a hermetic seal against the surface, measurements can also be taken outside of cleanroom conditions.

Using battery-powered particle counters and compressed air as the release medium, CCI developed the **PCU-3 (Power Control Unit)**. This can be programmed so that the user can define four programmes for the measurement sequence:

- // Pulse time, cycles (multiple compressed air pulses) and pause time programmable
- // PCU determines total measurement time for setting on the particle counter
- // Sample duration can be varied as required (sampling time is usually between 5 and 15 seconds)
- // Configuration of 4 measurement programmes possible
- // User guidance + status display during measurement
- // 2 user levels for configuration
- // Typical measurement sequence:
 - Assemble the system
 - Connect compressed air
 - Select measurement programme on PCU
 - Set measurement time on OPZ
 - Perform measurement

To the CCI-Kit
Product Video



LASER PARTICLE COUNTER SOLAIR 3100E



Art. no.	Standard scope of delivery OPZ	Amount
110100	Laser particle counter SOLAIR 3100E <ul style="list-style-type: none"> • Stainless steel housing • Battery and mains operation 230 V • Measurement of 6 particle sizes: > 0.3 µm > 0.5 µm > 1.0 µm > 3.0 µm > 5.0 µm > 10.0 µm • Flow rate 28 l/min • Digital display of particle counts (touchscreen colour display) • Menu navigation in German, among other languages • Data storage: 3,000 measured values • 50 different methods programmable • Light source: laser diode (20-year warranty) • ISO 21501-4 compatible • Interfaces: RS-485 Modbus, Ethernet, USB, USB flash • Automatic calculation according to FS 209E, ISO 14644-1, EU-GMP • Built-in printer, Li-ion battery, vacuum pump • Isokinetic sampler with 3 m specially coated hose • Zero filter 	1

Art. no.	Additional items (required)	Amount
110110	Software for data encoding Data from memory via USB stick for MS Excel for reading and further processing of measurement data	1
110132	Modification of sockets on the particle counter and matching plugs Replacement of OPZ connections with high-quality, unmistakable units	1
100306	Large transport box (aluminium) for CCI-Kit (to prevent damage during transport)	1

Art. no.	Optional accessories/Spare parts	Amount
110107	Zero filter as replacement (1 filter is already included with the particle counter)	1
110119	Cover cap for air sampling probe and connection to the zero filter	1
100305	Small transport box (aluminium) for SOLAIR 3100E particle counter with standard accessories	1



SOLAIR 3100E particle counter with DLS-20 surface probe



Lighthouse SOLAIR 3100E particle counter mounted on PCU-3 control unit with DLS-20 probe



OPC connections before modification



OPC connections after modification



Cover cap for air sampling probe



Large transport box for CCI-Kit

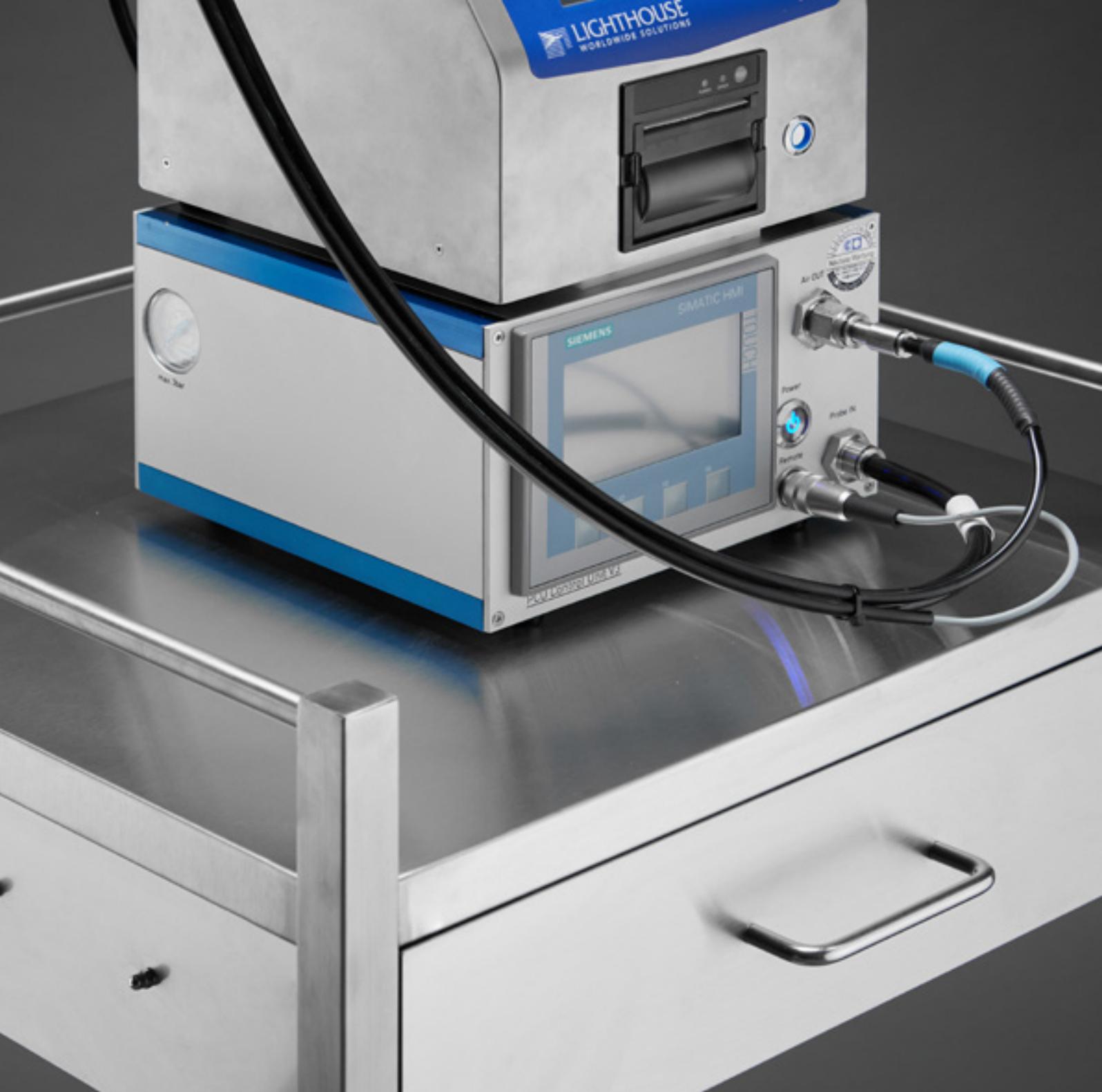
PARTICLE COUNTER CONTROL UNIT PCU-3



Art. no.	Standard scope of delivery PCU-3	Amount
110130	CCI particle counter control unit PCU-3 For measurements on surfaces, for all sampling probes – including those with compressed air <ul style="list-style-type: none"> • Programmable for variable cycle number and duration, 4 memory locations for programmes • Includes all necessary hoses, connecting cables and blind plugs • Hose adapters 4/6 6/8 8/10, metal design, nickel-plated (set) 	1
Art. no.	Additional items (required)	Amount
110133	Conversion for mechanical connection of particle counter (OPC) and control unit (PCU) as a portable unit	1
Art. no.	Optional accessories	Amount
110136	Hose adapter 4/6 6/8 8/10 in stainless steel design (set)	1
110152	Cleanroom equipment trolley made of stainless steel – Premium Material 1.4301 50 x 50 x 100 cm (W x D x H) Brushed surface, surface roughness Ra < 0.8 µm, double-shell body, double-shell top plate with 3-sided railing made of stainless steel round tube, Drawer with degreased, cleaned and Zeiss TF 100 HV grease-lubricated stainless steel pull-outs, Double-shell drawer front with stainless steel bow handle, Double-shell stainless steel shelf with 3-sided railing made of stainless steel round tube, 4 electrically conductive and non-marking stainless steel castors (2 x swivel and 2 x swivel-lock castors)	1
110151	Stainless steel cleanroom equipment trolley – Standard Material 1.4301 50 x 50 x 100 cm (W x D x H) Brushed surface, surface roughness Ra < 0.8 µm, double-shell body, double-shell top plate with 3-sided stainless steel round tube railing, drawer with double-shell drawer front with stainless steel bow handle, double-shell stainless steel shelf with 3-sided stainless steel round tube railing, 4 electrically conductive and non-marking stainless steel castors (2 x swivel and 2 x swivel-lock castors)	1



PCU-3 fixiert an Partikelzähler



OPZ + PCU-3
on stainless steel cleanroom equipment trolley



Programmable for variable cycle count and duration



Mechanical connection, can be fixed with Allen key

Scope of delivery / Optional accessories

SURFACE PROBE DLS-20

Art. no.	Standard scope of delivery surface probe	Menge
110125	DLS-20 surface probe for operation with compressed air <ul style="list-style-type: none"> Probe housing with air and electrical connections Probe head with O-ring, made of Kalrez (white = KW / black = KS) or Viton <i>(Please specify your choice when ordering!)</i> Protective cap for probe head with internal O-ring to seal the probe head with stainless steel connector for attaching the zero filter 	1
Art. no.	Optional accessories/Spare parts	Menge
110123	Flexible probe head for axial compensation when placing on the surface DLS-20 with flexible probe head attached. The fixed probe head is replaced with a flexible probe head.	1
110128	VFP surface probe, vertical, Ø 30 mm – with or without O-ring <i>(Please specify your choice when ordering!)</i> Includes Delrin faceplate, protective cap for zero measurement	1
110127	Holder for DLS-20 compressed air probe (on the handle of the particle counter) <i>Recommendation!</i> Includes antenna for hose guidance, magnet in stainless steel housing on probe holder, ferromagnetic stainless steel plate on probe	1
110126	Hose package for extending range from PCU-3 to the probe connections with stainless steel adapters, including compressed air hose, sample hose and cable for the start function	1
100090	Black glass plate (100 x 100 x 5 mm) for testing the zero count rate of the system (1 x plate included in standard delivery)	1 PU 5 pcs.
100098	High-gloss polished stainless steel plate (100 x 100 x 1.5 mm)	1
100099	Copper plate (100 x 100 x 2 mm)	1
110122	Protective cap for probe head with internal O-ring for sealing the probe head with stainless steel connector for attaching the zero filter (already included in the standard scope of delivery of a DLS)	1
110121	Probe head with O-ring centred – material Kalrez (white = KW/black = KS) or material Viton <i>(Please specify your choice when ordering!)</i>	1



VFP probe with O-ring



Compressed air probe – probe head with protective cap



All parts assembled to perform a zero measurement



Probe holder on the particle counter for magnetic fixation of the probe and to prevent the hose from kicking off



Standard probe head with 3 possible O-ring variants



Flexible probe head, interchangeable with fixed probe head



DLS-20 with attached flexible probe head



Hose package for extending range

Bracket for stainless steel
equipment trolley



Tripod, floor-standing



Table-top stainless steel bracket
for easy storage



Sampling probe mounted
with a clamp bracket



Cleanroom-compliant packaging
in accordance with SMT standards

Art. no.	Optional accessories / Tripods and Brackets / Equipment trolleys	Amount
110118	Tripod, floor-standing for holding the sampling probe for air • Aluminium, black • 3-stage extendable, max. height 2.85 m • Weight approx. 2 kg • Includes clamp bracket (chrome-plated cast iron)	1
100339	Stainless steel clamp bracket (for mounting the sampling probe on tripod item no. 110118)	1
110117	Table-top stainless steel bracket for holding the sampling probe for air	1
110152	Cleanroom equipment trolley made of stainless steel – Premium (Description on page 6)	1
110151	Cleanroom equipment trolley made of stainless steel – Standard (Description on page 6)	1
110155	Bracket for stainless steel equipment trolley with fixable holders, extendable to approx. 3 m height	1

Art. no.	Optional accessories / Compressed air filter	Amount
110141	Compressed air filter for filtering particles from gases • Stainless steel and Delrin housing • Filter with separation efficiency of > 99.99% at 0.2 µm • Volume flow up to 200 l/min • Operating pressure up to 8 bar (test pressure of housing 12 bar) • Housing volume 0.78 l • Connection: Straight plug connections, hose diameter 10 mm	1
110140	Compressed air filter for filtering particles from gases • Stainless steel and Delrin housing • Filter with separation efficiency of > 99.99% at 0.1 µm • Volume flow up to 200 l/min • Operating pressure up to 8 bar (test pressure of housing 12 bar) • Housing volume 0.78 l • Connection: Straight plug connections, hose diameter 10 mm	1

Art. no.	Optional accessories / Cleanroom-compliant packaging in accordance with SMT standard	Amount
110147	Cleanroom-compliant packaging in accordance with SMT standards As standard, the components are vacuum-packed in bags after the functional and particle tests. In accordance with the packaging regulations of SMT GmbH, the parts can be cleaned in such a way that no particles are visible on the surfaces during a UV inspection. The components are then packaged and sealed in accordance with EUV cleanliness specifications for packaging and transport. Triple packaging for OPZ, PCU and DLS: 1. LDPE-foil 2. Moisture barrier bag 3. LDPE-foil	1

Art. no.	Rental equipment / CCI-Kit (Complete package – consisting of OPC PCU and DLS)	Amount
M00020	Rental rate based on rental period	1

Art. no.	Calibration and maintenance – measuring range 0.3 – 10 µm (recommended once a year)	Amount
111101	Calibration of laser particle counter Lighthouse SOLAIR 3100 E	1
111131	Maintenance of PCU control unit (type-independent)	1
111121	Maintenance of surface probe (type-independent)	1

Art. no.	Training	Amount
109005	Introductory lecture on particles on surfaces and their removal • Explanation and presentation of the individual components • Carrying out demo measurements in the training room • Carrying out demo measurements on relevant components and surfaces in live operation • Final discussion	1
M00021	Device flat rate CCI-Kit / LF environment	1



Contamination Control Instruments
CCI vK GmbH & Co. KG
www.cci-vk.de



CCI vK GmbH & Co. KG
Daimlerstr. 32 | 76344 Eggenstein-Leopoldshafen
Germany
phone +49 721 667393-30 | fax -59
info@cci-vk.de | www.cci-vk.de



**We are certified according to
DIN EN ISO 9001**