



HEXAGON

NEXT**SENSE**

CALIPRI C12

Data Sheet



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CALIPRI
C12

1 APPLICATION

CALIPRI C12 is a robotic gap and flush measurement system that can be fully integrated into the line and is used for 100 % checks of automobile bodies. The system can be installed with standard industrial robots as well as HRC lightweight robots – a perfect solution for body in white production lines or also for production lines after the paint shop.

By using CALIPRI C12, you are relying on cutting edge laser light section technology which is using the patented CALIPRI principle in order to safely eliminate the classical error sources of laser light section sensing: No more errors due to sensor roll and tilt angle and no more mathematical extrapolations.

With CALIPRI C12, the gap is measured by 2 sensors simultaneously which enables to capture also the important inner flanks of the gap extremely fast in a single-angle measurement. For tricky gap contours there is additionally the option to switch to multi-angle mode: just like a curious human being would do, the sensor head rotates around the gap and a number of profiles is captured from different angles. The powerful CALIPRI software then merges the different multi-angle datasets leading to the exact and detailed real gap profile of even the most complex gap.

The results from the robotic C12 measuring system are fully compatible to data from the handheld devices (CALIPRI C10, C11, C14 and C15) due to cross-platform evaluation methods. This means that you have full traceability of gap and flush deviations over the whole process chain which is the precondition to get them under control and take the exactly right corrective actions whenever necessary.



CALIPRI C12 and CALIPRI C11 in use



2 CALIPRI ADVANTAGES

Fully automated

- 100 % gap and flush measurement for body in white and paint shop lines.
- Extremely fast and reliable optical measurement proven at many installations worldwide.
- For any industrial or collaborative robot.

Sensor design without compromises

- Double sensor system integrated in one compact housing; factory calibrated.
- Cutting edge thermal control technology is getting rid of the usual errors that are introduced by ambient temperature changes in the factory.
- In case of service issues, the C12 system can be exchanged in a matter of minutes without complex adjustment work.

CALIPRI principle inside (patented)

- Automatic sensor roll & tilt angle correction by use of three instead of one laser line and advanced data analysis algorithms.
- Real data measurement without need for speculative mathematical extrapolations.
- Unique calibration standard for automatic system accuracy check in every shift.

Reliability also for complex gaps

- Extremely fast single angle measurement for simple gaps.
- Optional multi-angle measurement for complex gap forms: the sensor moves around the gap to get profile sections from different view angles.



Gap evaluation methods meeting your company standards

- Get the gaps evaluated according to the needs of your engineering experts.
- No matter if you want to measure parallel to a deep folded edge, if you need the maximum gap, the gap perpendicular to the outer surface or any other evaluation method – with CALIPRI software it is just a matter of a few mouse clicks to get the right method activated.

Fast, intuitive and powerful software package

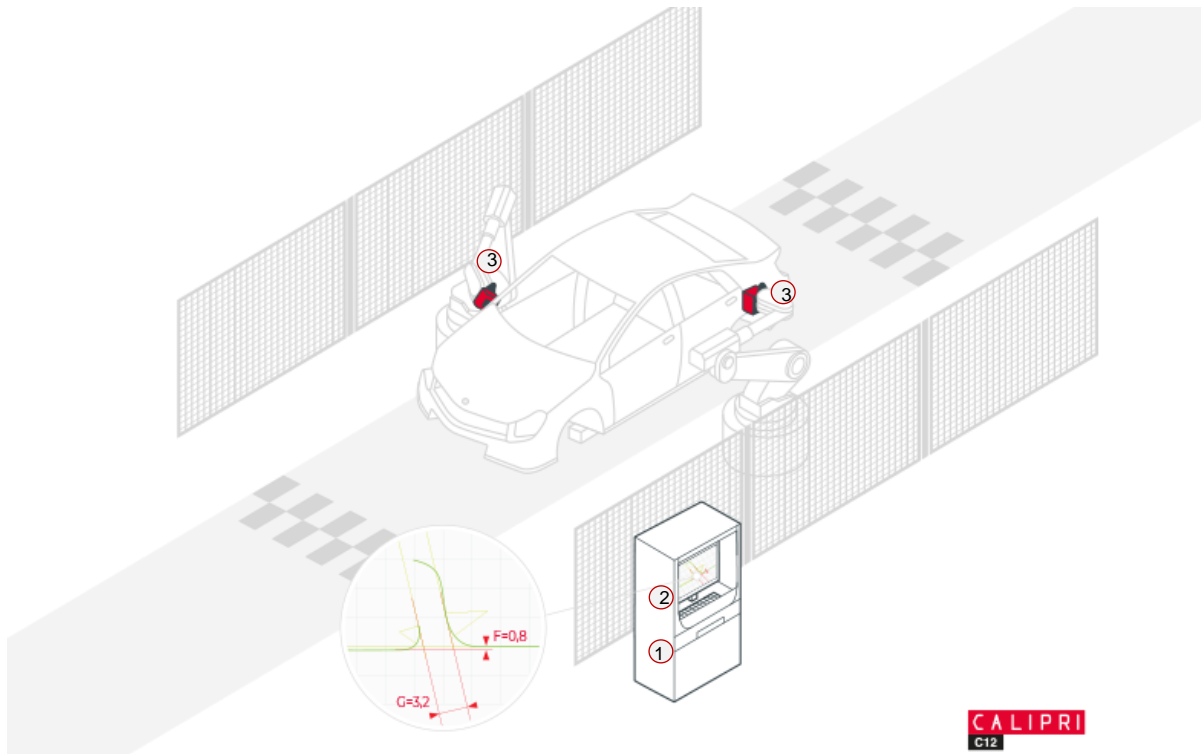
- The experience of more than 15 years of gap and flush measurement condensed into one powerful software package.
- Easy parametrization and system setup, adaptable life visualization for the factory personnel, speed optimized software architecture and unrivalled operational stability.

Competent and committed service and support

- Training courses for technical and maintenance staff by certified NEXTSENSE trainers.
- Competent customer support helping to keep downtime low and get the max out of your CALIPRI C12 system - via telephone, email or remote system access.

3 SCOPE OF SUPPLY & SERVICES

| | 2 robot system | 4 robot system |
|-------------------|---|---|
| Product ID | C12BD01 | C12BD02 |
| Hardware | 2 x sensor CALIPRI C12 | 4 x sensor CALIPRI C12 |
| | 2 x self-test and adjustment standard (gap standard) | 4 x self-test and adjustment standard (gap standard) |
| | 2 x measurement computer | 4 x measurement computer |
| | 1 x control cabinet with monitor | 2 x control cabinet with monitor |
| Software | 2 x Operating System (Microsoft Windows©) | 4 x Operating System (Microsoft Windows©) |
| | 2 x "CALIPRI Inline Software" measurement application | 4 x "CALIPRI Inline Software" measurement application |
| | 2 x Software licence measuring module „Gap & Flush“ (measuring methods for standard gaps) | 4 x Software licence measuring module „Gap & Flush“ (measuring methods for standard gaps) |
| | 2 x Software licence measuring module „Special Gaps“ (measuring methods for complex gap contours) | 4 x Software licence measuring module „Special Gaps“ (measuring methods for complex gap contours) |
| | 1 x CALIPRI Manager (software for measuring plan creation) | |
| Services | Support of installation and integration of measurement system | |
| | Training - Basic for operators, maintenance and IT staff | |
| | 1 year support via phone, email and remote access after commissioning | |



CALIPRI C12 (2-sensor-system)

| | |
|---|-----------------------------------|
| 1 | Control cabinet |
| 2 | Measuring PC with control cabinet |
| 3 | CALIPRI C12 sensors |



4 ADD-ONS

- Visualization Monitor
 - Additional monitor for separate display of measuring point and measuring plan view
 - Product-ID: CAO3049

- Measurement plan creation
 - Includes parameterization, tolerance value input and visualization
 - Product ID: CSM2121 (20 measuring points of one vehicle type)
 - Product ID: CSM2122 (additional 10 measuring points)

- Proof of measurement liability
 - Product ID: CSM2110

- Availability optimization
 - Measuring point availability of up to 99.5 %.
 - Product ID: CSM2112

- Recalibration Service
 - Recalibration of the gap standard incl. certificate
 - Product-ID: CSM3008/C1X

- On-site training
 - Trainings for users and administrators
 - Product-ID: CSM2011/AUT1 (basic training)
 - Product-ID: CSM2011/AUT2 (expert training)

- Service packages
 - 12 months telephone and hotline support including 1 x on-site maintenance and 1 x recalibration of gap standard
 - Product-ID: CSM1034

5 TECHNICAL DATA

| | | |
|---------------------------------|---|---|
| Accuracy | Absolute: | < $\pm 20 \mu\text{m}$ |
| | Repeatability: | < $\pm 20 \mu\text{m}$ |
| Speed | Meas. Time: | $\varnothing 1,0 \text{ s} (< 2 \text{ s})$ |
| Sensor | Design: | Twin Head (measurement from two angles) |
| | Protection rating: | IP54 |
| | Laser class: | 2M |
| | Factory-calibrated with temperature compensation. | |
| Environmental conditions | Operation: Temperature/humidity: | 10 – 40 °C / 20 – 80 % (non-condensing) |
| | Storage: Temperature/humidity: | 0 – 70 °C / 8 – 90 % (non-condensing) |
| Data collection | Sensor technology: | Laser light section |
| | Tilt & roll correction: | Automatic (patented CALIPRI principle) |
| Data transfer | Protocols: | Profinet, Ethernet IP/IO |
| Export formats | Reports: | PDF, direct connection to printer |
| | Data records: | XML, CSV/DXF |
| Application | For the fully automated in-line measurement of gap and flush on car bodies in body in white and paint shop production lines | |





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