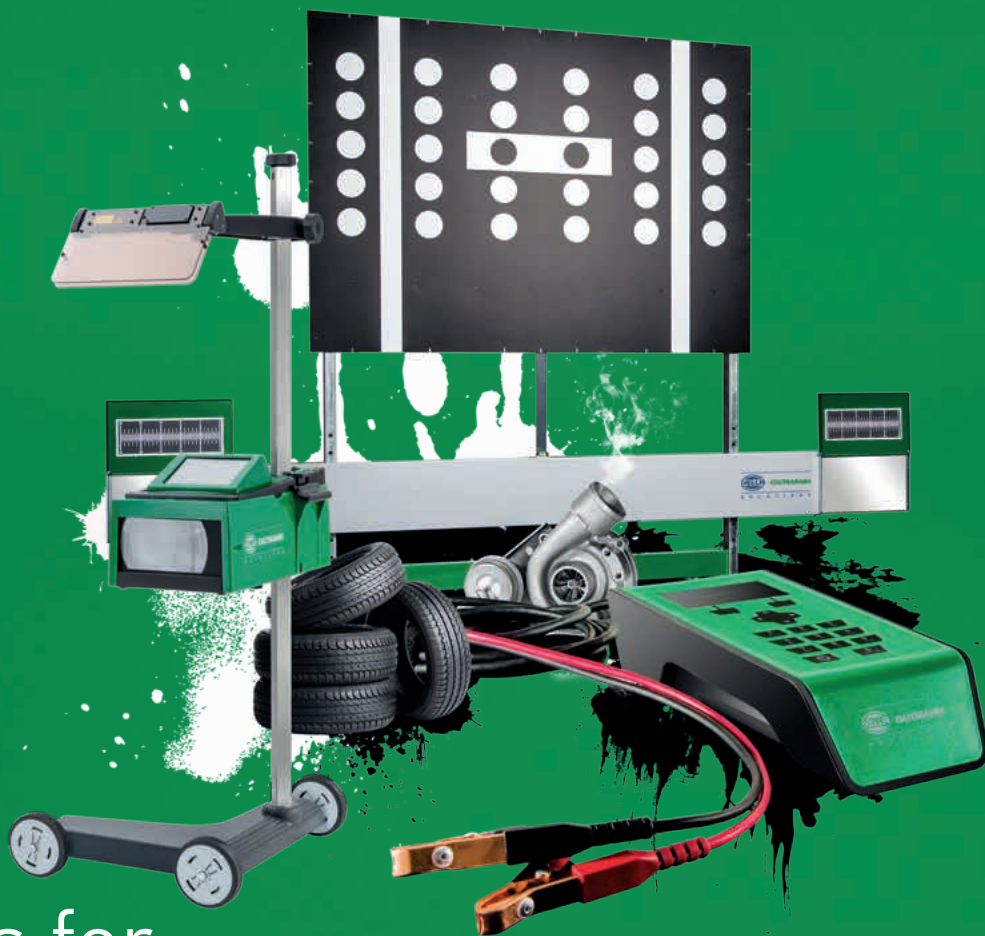




S O L U T I O N S

## Testing and Adjustment Tools



## Tools for Cost-Efficient Workshops



W O R K S H O P S O L U T I O N S

## Anticipate Change and Prepare for the Future

In the past, a large part of the daily workshop routine could be described as being "hands on". If something didn't fit it was made to fit – with a rubber hammer if need be. Technologically, a subwoofer with a 6-disc CD changer was considered top of the food chain. But these days are long gone.

Today's vehicles are packed with state-of-the-art technology with regard to safety and comfort. However, increased comfort and safety make repair and maintenance tasks ever more challenging. Thus, the repair of a small dent may require recalibrating the parking assistant. Window replacement? Recalibrate the camera! And on it goes. You know the drill. Something many workshops may not yet know – but definitely should – are the powerful Testing and Adjustment Tools of Hella Gutmann Solutions.

With these tools, workshops will stay ahead of their competitors when repairing and calibrating driver assistance systems or testing and adjusting any headlight system.

The indisputable reality for workshops today is: Don't let others do what you can do yourself. It reinforces competence and encourages long-term customer loyalty.



Small investments – big payoff. With Testing and Adjustment Tools from Hella Gutmann, your workshop is in perfect shape for servicing and repairing modern vehicles.

\*

*Our headlight aiming devices and the CSC-Tool work in synergy with our diagnostic solutions, thus offering a high level of flexibility. Data of the performed measurements and adjustments can be stored directly in the Car History of the vehicle. All relevant data is available at any time and can be used specifically for maintaining customer loyalty.*

# Brings Light to Headlight Aiming: The SEG Series

Precisely adjusted headlights are a prerequisite for road safety. But let's be honest, wherever you look you are either dazzled by badly adjusted headlights or you see others who seem to cruise around blindly. In short: There is enough work to keep workshops busy. Consequently, there is a great potential for extra revenues.

With the SEG series, Hella Gutmann Solutions provides workshops with high-performance, professional headlight aiming devices of the new generation. Depending on the SEG equipment version, you can measure and adjust even the most advanced headlight systems quickly and

without fuss. However, because workshops do not necessarily want or need the maximum service scope available for headlight aiming devices, the tools of the SEG series come in different versions. The right tool for every requirement.



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**THINKING AHEAD**

All our headlight aiming devices fulfil the requirements of the headlight adjustment directive currently applicable in Germany.

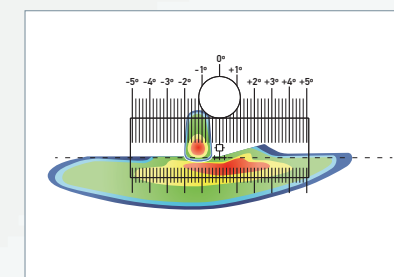
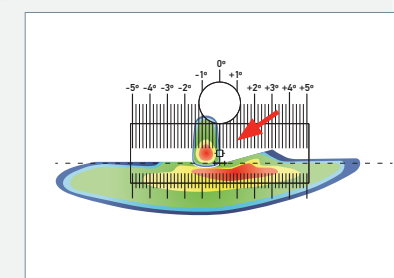
**Fit for all systems**

The whole range of present headlight systems such as halogen, xenon and LED headlights and systems with high beam assist (vertical light / dark boundary) can be tested and adjusted precisely thanks to the new scaling on the SEG IV test screen. For this purpose, SEG V is equipped with a new 8.4" touch screen. Naturally, the tools are suited for all headlight distribution functions like low beam, high beam and fog light.

**Extremely precise**

Today, more and more vehicles are equipped with high beam assist. Depending on the manufacturer, these systems have to be tested, adjusted and evaluated individually. No problem for many SEG models because in SEG IV models for example, the required values can be read out to the nearest 0.1° or they show directly on the display. The ideal solution for analysing the Matrix LED high beam on Audi A8 LED

headlights. The shown correction value is then communicated by the diagnostic tool to the control unit. The SEG thus assumes the decisive role in adjusting headlights which can no longer be adjusted manually.



Also confident with big tasks SEG IV und SEG V models are not only equipped with a very robust column, they also have a wide adjustment range. This enables fast and fuss-free headlight adjustment of passenger cars, trucks and motorcycles but also of agricultural machines or public service vehicles where the headlights are often at a height of over 1.2 m.

**Example:**

**Audi A8 with Matrix LED high beam assist**

The vertical light / dark boundary can be read directly on the measuring scale. The top chart shows the correct position at the zero line. If there is a deviation from this position (bottom chart), the diagnostic tool has to transmit the correction value (distance to zero line) to the control unit (example is the left headlight).

**WELL THOUGHT-OUT FEATURES IN A NUTSHELL**

- SEG aiming devices meet all legal requirements (Germany only)
- Robust design
- Highly precise
- Extremely flexible
- Testing and adjusting even the most advanced headlights
- Suitable for high beam assist
- Suitable for vehicles with main headlights above 1,2 m

# Facilitates Headlight Adjustment: Well Thought-Out Device Features

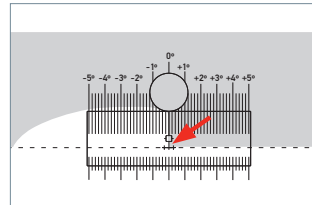
When the SEG Series was developed nothing was overlooked. This is probably the reason why it cuts such a fine figure in the workshop and actively helps workshops generate additional revenues with professional light checks.



Hybrid sight with powerful laser and built-in thread sight = 100 % ready to use.



The digital luxometer precisely calculates the glare rating value of the low beam as well as the light intensity of the high beam.



The photo diode is situated exactly where the light hits the test screen. Thus, the lux value can be measured precisely.



Every SEG is equipped with a high-quality Fresnel lens.



Scale dial for precise adjustment of the light/dark border inclination.



Spirit level for precise adjustment to vehicle ride height.



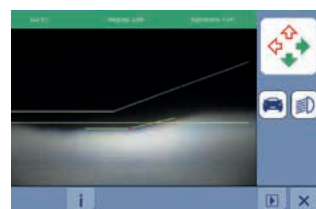
Special clamping mechanism facilitates height adjustment.



Built-in laser positioning aid for comfortable and precise adjustment of the optical housing.



8.4" touch screen directed towards the user for straightforward and intuitive operation.



CMOS camera\* for recording and transmitting light distribution.



USB interface for transferring the stored data to peripheral devices.



Optical housing can be lowered far down to test low sitting headlights.

# Whatever Your Choice – We Have the Appropriate Tool



Functions	SEG V	SEG IV-DLLX	SEG IV-DL	SEG IV-SE	SEG ECONOMY
Digital luxometer	+	+	+	+	+
Broadband sight		+	+		+
Hybrid sight	+			+	
Deflecting mirror		+	+	+	
Fresnel lens	+	+	+	+	+
Laser positioning aid		+	+	+	
Spirit level/eccentric shaft for angle adjustment		+		+	
Rotating column for directing the optical housing	+	+	+	+	
optional conversion to steel caster wheels on height-adjustable rails	+	+	+	+	
Automatic levelling	+				
8.4" touchscreen	+				
Vehicle recognition via Car History	+				
USB interface	+				
WLAN in preparation	+				
Update-enabled	+				
Polymer concrete caster wheel base	+	+	+	+	
Extended column, adjustable to 1650 mm				+	

You have just seen the light and would like to know more about the headlight aiming devices of the SEG series? Your Hella Gutmann sales partner will be happy to advise you.

\* Laser sight  
 \*\* Sight with powerful laser and analogue sight direction  
 \*\*\* The column is made from stainless steel

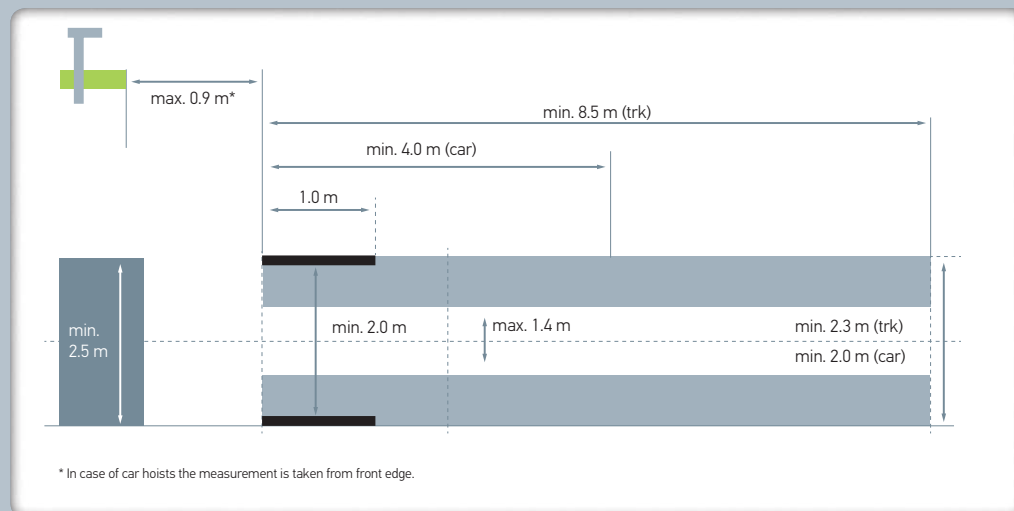
\*SEG V only.



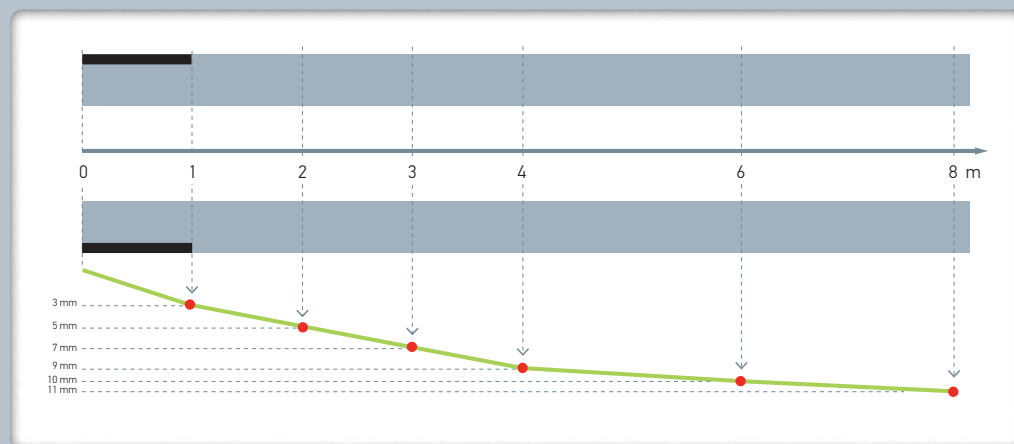
# A Good Setup is Half the Battle: Requirements for a Standardised Headlight Aiming Station

Today, more and more vehicles are equipped with headlight technology and lighting assistance systems. With these constantly evolving systems, the challenges faced by workshops in testing and adjusting headlights have also increased. This concerns headlight aiming devices as well as the test environment. For greater precision in testing and adjusting headlights, Germany

adopted the headlight adjustment directive (HU-Scheinwerfer-Prüfrichtlinie). It includes exact specifications on the requirements when setting up a standardised headlight aiming station. In the following you find some of the requirements that workshops have to meet.



Mandatory overall dimensions of a standardised headlight aiming station.



The surface of the station must be level - only minor deviations are permitted.

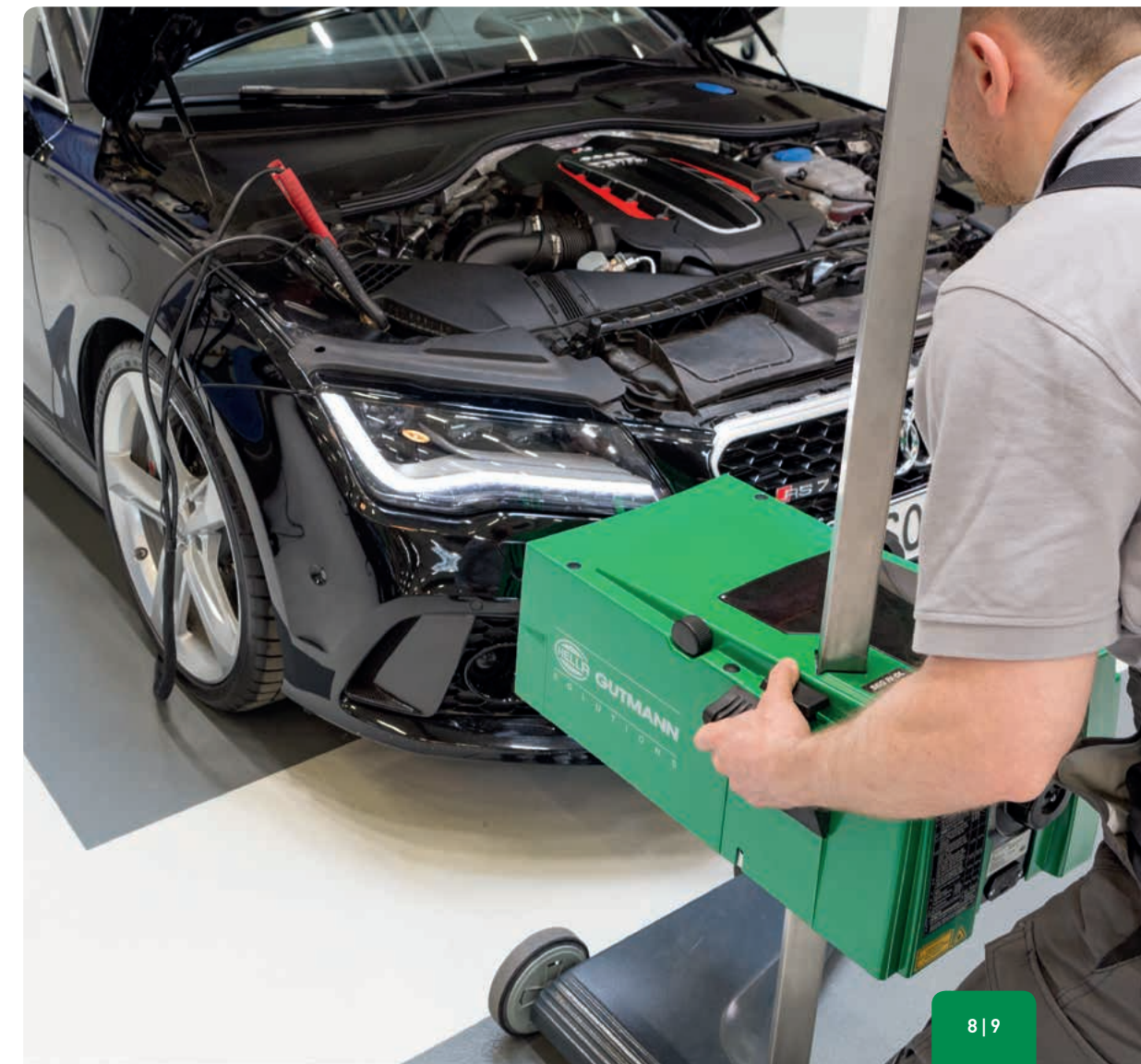
## Requirements

- Aiming station and SEG must form a coherent measuring technology unit.
- All set-up areas for vehicle and SEG must be clearly marked, e.g. with ground markings. There must be at least two lines marking the beginning and the end of the set-up area. It is recommended to further mark the set-up area.
- The set-up area for vehicles must not be more than 1.5% inclined and must be parallel.
- The minimum length of the aiming station for passenger cars is 4 m and for trucks 8.5 m.

- The surface of the headlight aiming station must be even - deviation of max. +/- 1 mm per meter is allowed.
- The headlight aiming station is examined every two years by a specialist and must be approved.

*The specifications mentioned here only relate to the headlight aiming directive applicable in Germany. In other countries, make sure to comply with the relevant country-specific regulations.*

Always prepared.  
The headlight aiming devices of the SEG series are operational in no time for the precise adjustment of all modern headlight systems.



## The Ideal Addition to the SEG Series: The Height-Adjustable Rail System

The height-adjustable rail system is the perfect alternative to expensive workshop alterations. Quickly mounted and adjustable, the rail system convinces with a long service life and a very attractive price. The base set consists of 4 rails with a length of 1500 mm each and a premium set of steel caster wheels for

SEG IV and SEG V. The stable construction ensures a firm stand and precise testing and adjustment results. Thus, it fulfils the different requirements of OE manufacturers as well as the headlight aiming directive applicable in Germany.



The adjustable rail system makes headlight measurement a doddle.

### WELL THOUGHT-OUT FEATURES IN A NUTSHELL

- Height-adjustable rail system
- fulfils the requirements for the set-up area of the headlight adjustment directive applicable in Germany
- Quickly mounted
- Horizontal and vertical levelling
- Also for larger deviations of 20 mm per 3.000 mm rail length
- For exact testing and adjustments
- Readjustment possible at any time
- High-quality steel caster wheel set
- Designed to perfectly fit the matching rails
- Long service life
- Extendable as needed



**THINKING AHEAD**  
fulfils the requirements for the SEG set-up area of the headlight adjustment directive applicable in Germany

## If you're looking for a Multifunctional Workstation: **The Base Plate Levelling System**

The robust and durable base plate levelling system of Hella Gutmann Solutions is the ideal addition for the headlight aiming devices of the SEG series. Expensive workshop modifications due to poor ground surface structure are no longer necessary. With flexible mounting options and the possibility for horizontal and vertical readjustment, the device fulfils the requirements of the

headlight adjustment directive applicable in Germany and of OE manufacturers. Moreover, the system can be used for various other calibration and adjustment procedures - e.g. for front camera and radar systems together with the CSC-Tool of Hella Gutmann.

### WELL THOUGHT-OUT FEATURES IN A NUTSHELL

- Modular system
- Quickly mounted and flexible
- At maximum height compensation only 100 mm high
- Adjustable height compensation up to 30 mm
- Readjustment possible
- Up to 2.45 t axial load
- High-quality insurgency elements galvanized or die-cast aluminium
- Drive-on plates with anti-slip properties
- Plates can be accessed by many vehicles even with low ground clearance and maximum height compensation
- Fulfils the requirements of the headlight adjustment directive applicable in Germany
- Can be used for many calibration and adjustment procedures

For a perfect headlight aiming station:  
The base plate levelling system of Hella Gutmann





# Focussed on Cost Efficiency: Camera and Sensor Calibration Tool

An increasing number of advanced driver assistance systems in vehicles make roads safer and car travel more comfortable. Camera and radar systems are no longer limited to executive or luxury vehicles. Today, many of them can be found in mid-size and compact cars. Consequently, workshops are faced with the challenges that come with testing and calibrating these new systems.

Vehicle manufacturers use different camera and radar components in their driver assistance systems. The CSC-Tool allows you to stay flexible. The system is modular which means that you can adapt it to the models you are working on in your workshop and Hella Gutmann can expand it at any time. You are therefore investing in a future-oriented, cutting-edge technology without having to make any compromises.

In addition to the VAG reference panel, the basic delivery contents of the CSC-Tool include a base support with cross member as well as two wheel alignment modules for obtaining reliable results even without a wheel alignment station. In order to calibrate the camera system according to manufacturer's specifications, the CSC-Tool works with brand-specific reference panels. These reference panels are available individually or as a set. Thus, cameras for the lane keeping assistant, the adaptive lighting system as well as radar sensors for adaptive cruise

control can be calibrated – always in conjunction with the current diagnostic tools of the mega macs series.

## Precise calibration

The CSC-Tool of Hella Gutmann assures precise calibration of radar sensors and cameras. There is no need for a fully equipped wheel alignment station, a level workshop floor or a car hoist. Moreover, the CSC-Tool works with a very low tolerance thus assuring precise results which benefit both workshops and clients. The former by increasing their number of happy customers and the latter by providing greater safety on the road.

## Perfect communication

All data required for adjusting headlight systems can be accessed with the diagnostic tools of the mega macs family. Depending on the software version and individual needs, the service scope can be tailored to the requirements of the workshop.

Easy set-up, quick testing, accurate adjustment - the CSC-Tool of Hella Gutmann Solutions delivers perfect results for maximum vehicle safety.



## Fast payback on investment

The price you have to charge your customer for having the calibration done in a branded workshop often amounts to several hundred Euros. Soon, this money can be put to work for your own benefit. Because already after a few calibrations, the CSC-Tool will start earning you hard cash.

## Checking the toe

A particularly useful accessory for your CSC-Tool is the wheel alignment module „Control“ to determine the thrust line even without a wheel alignment station. Easy to mount, this practical aid uses a laser to optically show you whether all values are within the tolerance range. If values are outside the tolerance range, the vehicle must be adjusted on a wheel alignment station prior to camera calibration.

This saves money and valuable workshop space. It is a well-known fact amongst specialists that requirements will increase in the future. With the modular CSC-Tool of Hella Gutmann you are perfectly prepared for the challenges that come with constantly evolving driver assistance systems.

## WELL THOUGHT-OUT FEATURES IN A NUTSHELL

- One system for many camera and radar systems
- Cost-efficient modular system
- Individually expandable with reference panels and radar kits
- Compatible with the diagnostic tools of the mega macs family
- Easy to use
- Documentation of adjustment/calibration on hard copy and in Car History
- No wheel alignment station/space required
- High measuring accuracy
- Upgradeable at any time
- Special packages for glass specialists and body shops



### THINKING AHEAD

The CSC-Tool was developed as a modular system. You only have to invest once in the basic components. If necessary you can add targets.

## Always on Board: CSC-Tool Mobile

To satisfy the requirements of many users, we have developed a more flexible, mobile solution for camera and radar calibration. This innovative tool opens new opportunities for mobile roadside assistance, vehicle glass repair services, service providers for transport fleets and associated workshops.

The CSC-Tool Mobile offers the same precision as the stationary workshop device. Calibration is always performed in relation to the thrust line. Thus, the mobile version also corresponds to the most stringent manufacturer specifications. Calibration procedure and step-by-step guide via mega macs are identical to those on the stationary CSC-Tool, the only difference being that they are started from a separate menu item.

The mobile calibration tool is markedly lighter than the stationary tool and can be mounted and demounted by one person in a few easy steps. It consists of three main components: a base frame, a top frame and a cross member with extendable mirrors. When folded, it fits easily in a station wagon or small cargo van. The manufacturer-specific reference panels for front cameras have also been redesigned and can be partly folded



## Right at the Forefront: CSC Kit Rear Cam I + II

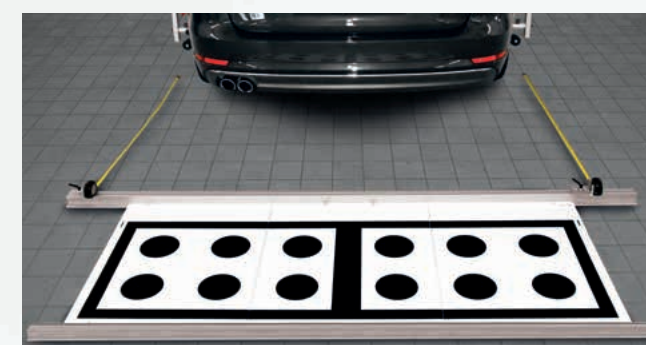
Together with the mega macs software, the CSC Kits Rear Cam I + II enable the exact calibration of the all-round vision camera system and the rearview camera. Indispensable for ensuring maximum safety for customers on every trip.

According to manufacturer's specifications, the cameras must be aligned exactly on the thrust line of the vehicle. No problem with the kits which serve as an addition to the basic CSC-Tool.

The kits include either a reference panel set in frame structure (CSC Kit Rear Cam I – Basic+Addition) or two roll-out optical reference panels (CSC Kit Rear Cam II – Side).



The additional kit Side for the exact calibration of the all-round vision camera system.



Simply advanced when it comes to calibrating rear-view cameras



## Everything on Your Radar: CSC Kit Radar I + II

CSC-Tool can be equipped with two radar kits for accurately calibrating any radar system.

In modern cars it is often necessary to recalibrate the radar system after certain tasks or repair work have been performed. These include collision repair work, wheel or camber adjustment, the addition of ride-height-altering components to the suspension system or a standard service task such as a lock carrier having been set to maintenance position (e.g. during timing belt replacement). All these tasks require system calibration.

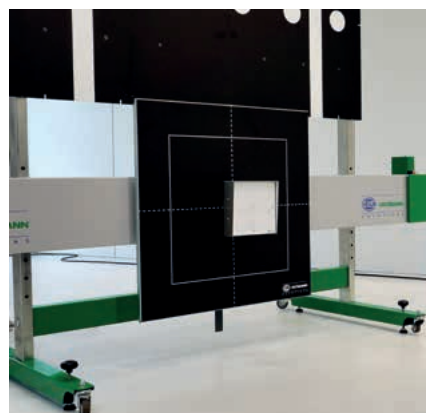
CSC Kit Radar I covers the radar systems of the entire VAG group as well as BMW and includes a magnet laser which is fixed to

the CSC-Tool. Ideally suited for calibrating radar sensors with mirror system. CSC Kit Radar II includes a mirror adjustment device with vacuum bell, several centring rings, a manual vacuum pump and adjustment tools. With the CSC Kit Radar I, workshops are able to calibrate radar sensors without mirror systems like those of Mercedes.

Contact your Hella Gutmann sales partner. He or she will advise you which system is best for your requirements.



Reflection of the laser point on a radar sensor with mirror system.



CSC Kit Radar I consisting of angle adjustment plate and magnet laser.



Part of CSC Kit Radar II: Mirror adjustment device for sensors without mirror system.

\* CSC Kit Radar I + II for CSC-Tool Mobile in preparation

\*\* Adjustment procedure is specified by the vehicle manufacturer.

## It Stays Exciting: BPC-Tool

Battery defects are the most common cause of vehicle breakdown around the world. It is therefore imperative that batteries are regularly checked and recharged if necessary. Only by doing this, sudden battery failure can be avoided. Because the electronics in modern vehicles have become more and more complex and power consumption has risen due to a growing number of power consumers, the demand on battery performance and charging devices have also increased.

A breakdown due to a defective battery can happen to anyone. However, owners of vehicles with start/stop system are particularly hard hit. This is because new batteries for start/stop systems are very expensive. Replacing batteries on mere suspicion cannot be justified without solid reasons. With the Battery Power Check Tool, in short BPC-Tool, Hella Gutmann



Solutions provides workshops with a battery tester which can do much more than show the current state of charge. Together with mega macs 77 or mega macs PC, the BPC-Tool is an indis-

pensable aid for repair shops and roadside assistance services in dealing quickly, efficiently and cost-effectively with battery management systems. With the stand-alone version of the BPC-Client App, it is possible to print out hard-copies of battery and system tests without a diagnostic tool.

## Fully Charged: BPC Charging Devices

Without a robust and practical battery charger, it's "rien ne va plus" in a workshop. But here, the same premise applies: Since every workshop puts different individual requirements on a professional charging device, workshops will find in our product range a wide variety of battery chargers – from the small and compact high-frequency battery charger for gel cell, wet cell und AGM batteries to the extra lightweight professional

jumpstart device with microprocessor control. Very important: For calibration and flashing procedures, a constant voltage supply via a charging device is essential.

Extensive information on our charging devices can be obtained from your Hella Gutmann service partner and in the current product catalogue.



*The Things We Know Today  
About Tomorrow*



## FASHIONING LIGHT

In recent decades, automotive lighting technology has undergone a breathtaking evolution - from halogen headlights to modern headlight systems. This is just the beginning of an extraordinary development. Innovative technologies like the HD LED headlights of HELLA or OLED-based rear taillight systems offer greater lighting power and much greater user comfort. The numerous innovations also take into account the current trends in the automotive industry towards greater connectivity, automated driving, electrification and individualisation. This also creates new opportunities for vehicle and vehicle lighting designers.

In collaboration with Covestro, the lighting experts of HELLA have developed a radically new type of holographic technology.

The rear of the vehicle is equipped with a 3-piece light unit - each with built-in holographic technology. A special foil stores the desired design, which is subsequently laminated onto a glass or synthetic sheet. LED lights or reflectors are used to shine light on the back of the holographic foil. This creates an impressive 3D effect. Holographic foils are space-saving and inconspicuous and are therefore ideally suited for integrating various lighting functions in the body. The system can be applied not only to the rear but also to the sides and front of the vehicle. LED displays can be used in other areas, for example to provide additional animation such as greeting the driver. This could soon be possible not only while the vehicle is stationary but also when driving. Thus, the potential for light will continue to keep us busy and inspired.



### Clear Vista Instead of Faulty Diagnosis: With multibrand diagnostic tools of Hella Gutmann

In the product range of Hella Gutmann, you will find the multibrand diagnostic solution which is suitable for your individual workshop requirements. From the small and convenient devices for fast preliminary vehicle testing to our comprehensive all-rounders with real-time repair concept and direct connection to our Technical Help Line. Looking for a full-featured diagnostic software for your workshop computer or for individual solutions for your business? No problem. You will find all the information on our data solutions under [www.hella-gutmann.com](http://www.hella-gutmann.com) in our **diagnostics brochure** and of course at your Hella Gutmann sales partner.

