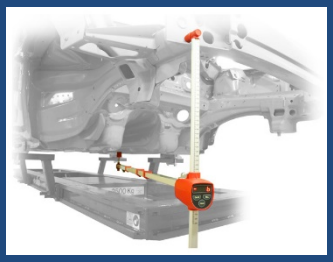
ALLVIS LIGHT



MANUAL MEASURING SYSTEM

Allvis Light – Measuring System

Index

1 Introduction

1.1 General

Congratulations on your purchase of the Allvis Light vehicle measurement tool.

Allvis Light is an electronic measurement tool intended for measuring and checking dimensional accuracy of vehicle unibody and frame.

The tool consist the following main components:

- Allvis Light measuring tool
    - chassis attachments
    - datum rods
    - height measuring rods
    - measuring sockets and tips
    - storage box
- Software program where you type in measuring values from the tool.
- Access to vehicle dimension database with customized report print out features

The **measuring arm** and its attachments and measuring tips, together with **software program** and **data sheets**, makes it possible to measure lengths in **2 dimensions**. You can also **compare the symmetry in height between left and right side** in a very time effective way.

These instructions contain a description of the equipment and directions for its use, handling and maintenance.

Important!

Read the instructions carefully in order to fully understand the correct handling of the Allvis Light measurement and measurement data.

The equipment is intended for use in the auto body shop environment and in accordance with all recognized official safety procedures.

Photos and drawings used throughout these instructions depict the fundamental features and design of the product at the time of publishing and do not reflect potential future design changes.

Warning!

Do not store or keep Allvis Light near computers, credit cards or other magnetic sensible things, though the magnet in the chassis attachment may damage these.

1.2 Maintenance

A. General

The Allvis Light measuring tool includes an electronic measuring arm, a precision instrument requiring proper care and maintenance to maintain its accuracy and performance.

Please follow all instructions and safety procedures very carefully to maintain equipment reliability and to benefit from all of its great features.

B. Maintenance

Be sure to clean all equipment after every use. Special care should be taken when cleaning the electronic measuring arm, in particular each of the moving surfaces.

Use a clean dry cloth without detergent.

Return all parts to the storage box after every use. Check each part individually for any damage that may have occurred during use.

C. Inspection

Have your distributor inspect the complete system at least once every year or when you suspect damaged has occurred, to ensure accuracy and reliability.

Allvis certified distributors use control instruments provided by JNE AB to accurately perform inspections.

D. Scrapping

When it becomes necessary to scrap any of the Allvis Light measuring tool equipment or parts it is essential that every item be sorted for recycling in accordance with local, state and federal requirements.

1.3 Warranty

Important Notice!

AVOID PERSONAL INJURY OR DAMAGE TO EQUIPMENT!

Read all instructions on the correct use of the Allvis Light measurement tool and vehicle dimension data. Incorrect handling can result in personal injury or damage to the equipment.

A one-year warranty is applicable from the date of delivery, and refers to defects in materials and assumes normal care and maintenance.

The warranty assumes that:

- Allvis Light equipment has been used and maintained in accordance with the instructions outlined in this manual.
- Equipment has not been modified or rebuilt without the prior approval of JNE AB via its authorized distributor network.
- Only genuine Allvis Light parts have been used in repairs.

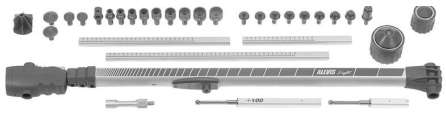
Photos and drawings used throughout these instructions depict the fundamental features and design of the product at the time of publishing and do not reflect potential future design changes.

Allvis Light equipment is intended for use in the auto body shop environment and in accordance with all recognized and applicable safety rules and regulations.

All claims must be referred to an authorized Allvis distributor for evaluation.

2 Allvis Light Measuring Tool

2.1 General description



Allvis Light Measuring Tool

A lightweight telescoping electronic measuring arm made up of aluminum and composite materials forms the main component of the tool.

In the rear end of the tool is an attachment for height level rods. A quick release built accepts the height level rods. On the ball of the rod, snap on the magnetic attachment.

The housing of the electronic control unit with digital display located on the front end of the arm incorporates an easy to operate twist-lock socket for each of the 3 different lengths of height measuring rods.

A level assembly is built into the top of the housing of the electronic unit, for identification of the vehicle's height divergences on symmetric points, left and right side of the vehicle.

Measurement control buttons are located in the front face of the electronic unit. You can here choose your way of measuring by pressing the control buttons.

Inside the front face are most of the electronic parts. Also a battery compartment for the two AA batteries with a consumption time of minimum 50 hours continuously use.

For operating instructions – refer to item numbers 2.2-2.10

2.2 Display function

Startup Allvis Light

NOTE! When you start make sure the telescoping measuring arm is completely collapsed.

Start the electronic by pressing the button On/0 briefly. A digital number 900 (900mm) will appear in the display window representing the minimum collapsed length between the height calibration rod and datum height rod centres.

<u>Note:</u> If display does not read 900 - switch off by holding down the On/0 button for a few seconds and restart following the above procedure.

Normal Measuring

This is the automatic setting after start. The measuring tool work in the area of **900-2650 mm**.

Short Measures

To measure short measures, 400-2150 mm, press On/0 for 2 seconds. Use the tip holder that is attached underneath the measuring arm. Use this measuring area preferably under hood.

Comparative Measuring

The digital reading can be reset for quick comparative checks during normal length measuring operations by briefly pushing the On/0 button to select 0 mm. From this point any change in length will register plus or minus in 1 mm gradients. Additional comparative checking is possible by repeating the above procedure at any time during comparative checking.

Freeze a Measuring Value

Push this button to freeze a measured value in the display. Push it a second time to release this feature.

Display Brightness

Hold this button to increase display brightness – release button when the required setting has been obtained.

Energy Saving Functions

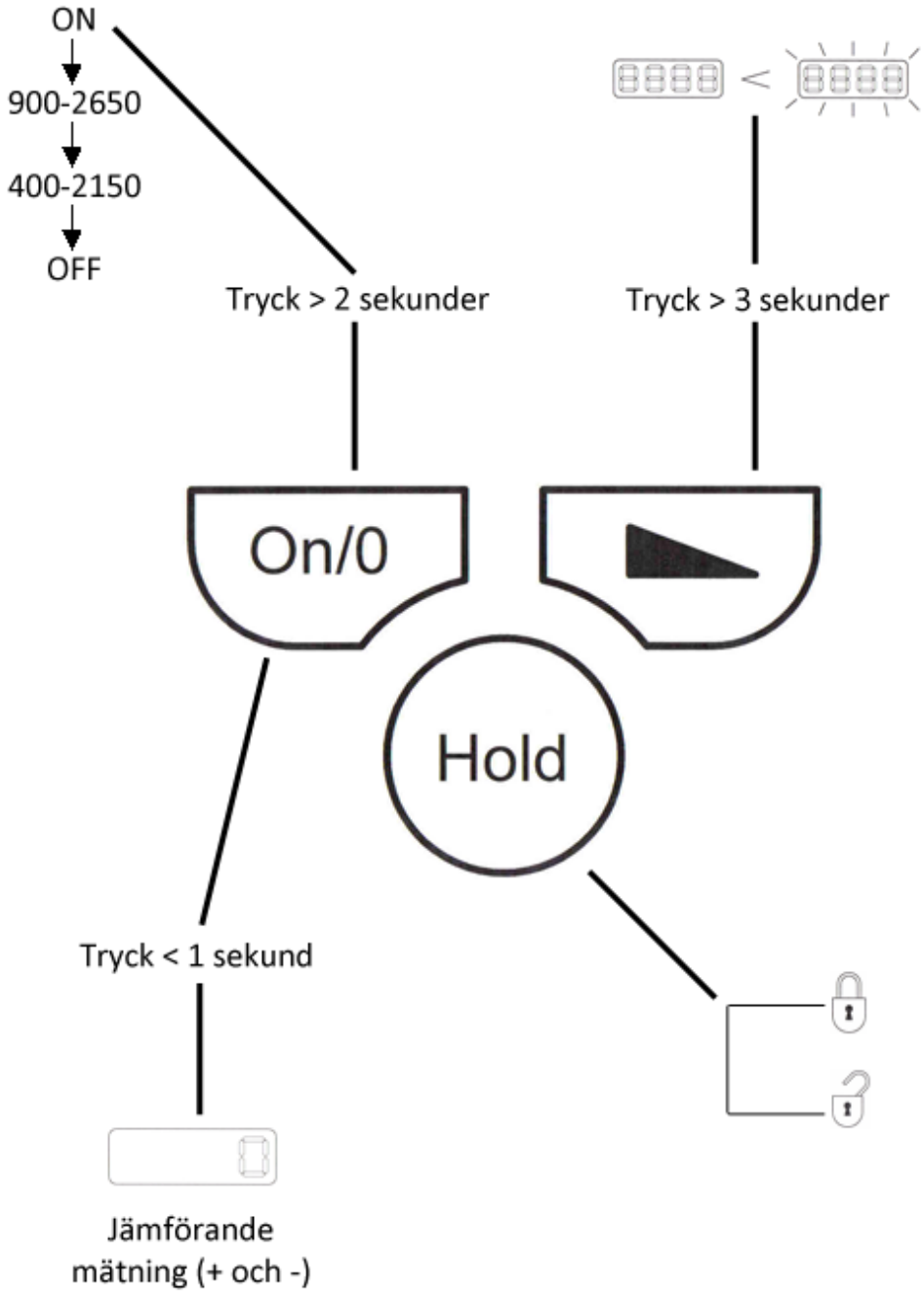
The display will automatically shut down after 5 minutes and be energized again at the slightest movement of the measuring arm.

Shut off Function

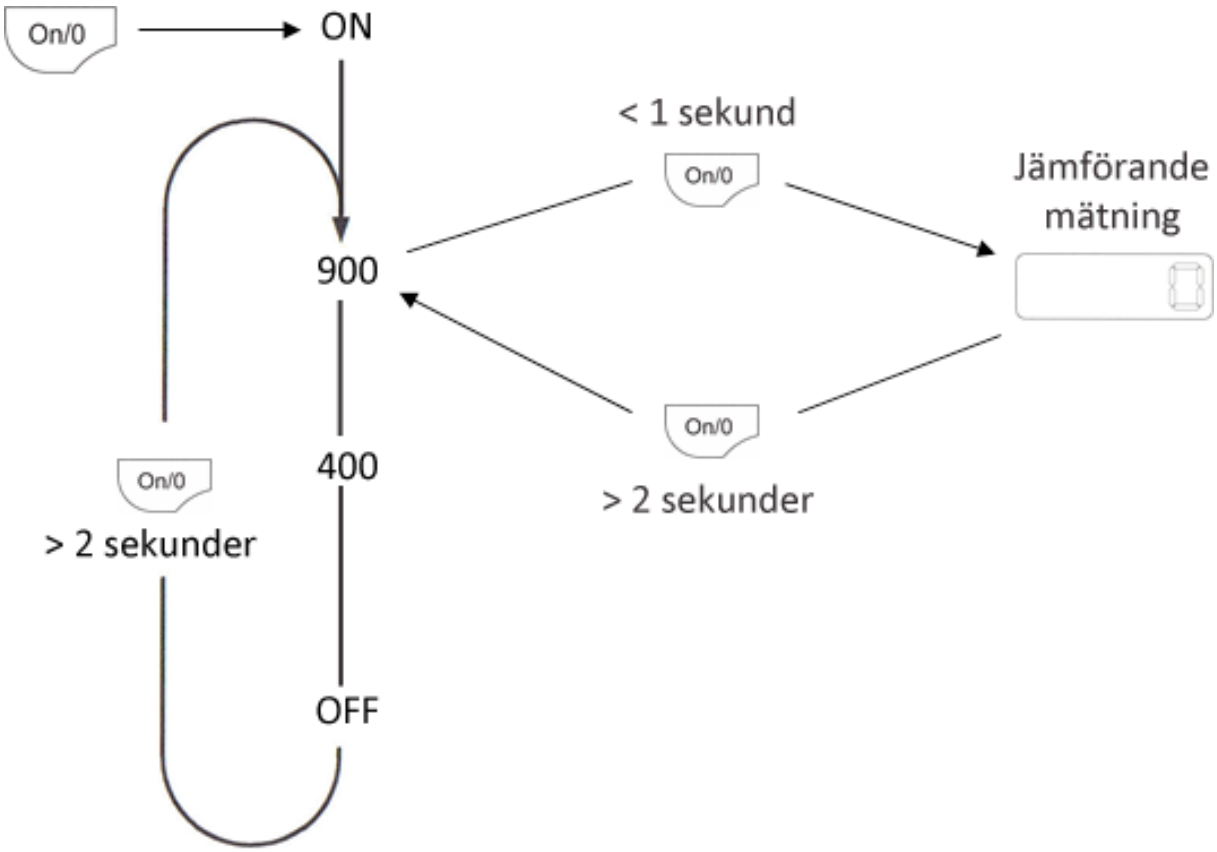
The display will shut down all circuits after 90 minutes of non-operation.

The measuring arm can also be switched off manually by depressing the button On/0 for >3 seconds.

Display functions



Program menu measuring



Parts Included

2.3 Height level rods

Height Level Rods

The measuring tool includes 2 height level rods in two different lengths.

2.4 Magnet attachment

Magnet Attachment Ø35 and Ø60

This attachment is developed to suit most vehicle models on the market.

Use it when a round or oval hole <Ø35 mm is specified as the zero point on the vehicle dimension data sheet.

2.5 Height measuring rods

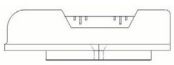
Height Measuring Rods

3 rods are included.

Rod length is determined by the data sheet and should allow for the specified reading to be observed when the rod has been locked in place on the measuring arm.

Insert the rod into the measuring head at the front end of the measuring arm. Position the flat side of the rod towards the “release” mark, set it at the desired height and secure by twisting it to the “lock” position.

2.6 Level



Level

On the measuring head is a level for comparing divergences in height.

2.7 Measuring sockets

Measuring Sockets

The tool includes:

5 measuring tips

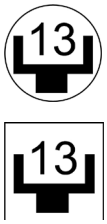
- (2 x Ø25, 2 x Ø35 mm and 1 x Ø60 mm)
- 9 sockets sized from 10-26 mm
- 9 M201 adapters 6-18
- 1 90° holder

Sockets and tips snap into the top of the height measuring rods.

Note!

In the Allvis Light product you only find even numbered measuring sockets.

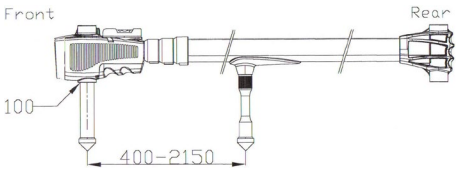
Therefore use the nearest suitable even numbered socket, if the datasheet shows an uneven numbered socket.



Example:

In this situation you choose a 12 mm- or 14 mm socket. You decide which one is most suitable.

2.8 Short measures



Holder for Short Measures – Point to Point

On the measuring tool is an attachment for the holder for "short measures". Screw in the holder and choose suitable socket/tip. Measuring can now be done from 400-900 mm (2150 mm).

NOTE! To change the measuring value to setting 400-2150, press On/0 **for 2 seconds.**

It is also important that the height rod is mounted with the value 100 in the lower edge of the measuring head.

2.9 Change out batteries

The electronic circuit of the Allvis Light measuring arm is powered by 2 x AA 1.5 Volt batteries.

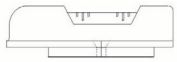
Batteries should be changed out when the digital display begins to flash. It is recommended that both batteries be replaced and that the old batteries be disposed of in accordance with local hazardous waste disposal regulations.

Batteries are located in a hidden compartment on the underside of the electronic measuring head (see photo). Battery cover latch can be released by hand or small flat blade screwdriver.

Note!

Batteries should be installed according to the diagram molded into the inside of the battery compartment to ensure correct terminal polarity. Do not use batteries with power ratings other than 1.5 Volt as this can cause the equipment to malfunction or damage the electronic circuit.

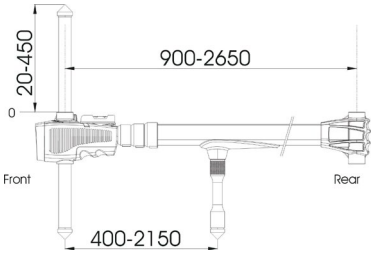
2.10 Technical specification



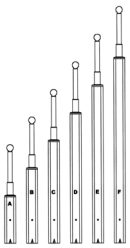
Depending on if the measuring arm is pull out or together, the accuracy of the level varies.

Refer to the table below for the amount of change in height at the measuring head for each graduation of movement in the level.

Extension in mm	Change of height in mm
900	ca 0,5
1800	ca 1,0
2655	ca 1,5



Minimum and maximum measuring range.



The datum rods' difference in height = 100 mm

3 Creating Datasheets

This section (3.1 – 3.6) describes how to install and use the Allvis Light software.

3.1 General

Measurements on Allvis Light data sheets reflect measured values taken from vehicles after they leave the production line also from information received from vehicle manufacturers and great care has been taken to produce accurate and reliable data.

Measurements on Allvis data sheets should be seen as guideline values, since dimensions of vehicles of the same model and year can vary as a result of manufacturing tolerances or previous repairs, also as a result of manufacturer's subsequent design changes.

When significant deviations are detected, or uncertainty about accuracy of the data sheet compared to actual measurements on the vehicle exist, take the following action:

- Check that the selected vehicle model year and type are correct.
- Check that the points measured have been correctly identified and correspond to data sheet references.
- Check that the correct height measuring attachments and adaptors specified on the data sheet are being used.
- When in doubt, contact the distributor or the on-line technical support.

3.2 Liability

Allvis Light, JNE AB and its network of distributors, agents and technical sales representatives directly or indirectly involved in sales or technical support of the Allvis Light product line, cannot be held responsible for damages or losses that may occur through any data errors or lack of information on Allvis Light data sheets, check lists or supplements to check lists, or for user internet connection and computer related errors or malfunctions of internet service providers.

No part of this publication or Allvis Light data sheets may be copied in any form, or illegally stored in any computerized system other than the unit covered by the Allvis subscription agreement signed by the purchaser or user as authorized by JNE AB.

Subject to alteration without notice.

4 Measuring

The technician must have a clear understanding of the damage to the vehicle before attempting to use the Allvis Light measuring tool and vehicle dimension data.

Being well informed and aware of specific structural damage to the vehicle beforehand will highlight possible faults or inconsistencies in measurement values on data sheets at an early stage, also incorrect mounting or measuring points selected by mistake.

Measurement values shown on data sheets and the way the measuring arm is being used should be constantly reviewed to ensure that it is being used correctly. Likewise checking to see that the right vehicle has been selected in the database is equally important.

When in doubt check the above points thoroughly, and if the problem persists, contact the ALLVIS Light distributor or submit your question to our on-line tech support. Refer also to items 3.1 – 3.2.

4.1 Mounting of the magnetic attachment

Make sure that the mounting points on both sides of the vehicle are in the right location, and that they have been cleaned.

Select a suitable height calibration rod and snap the magnetic adaptor onto the ball of the height rod and test attach it in the selected mounting position. Make sure that the magnetic attachment is firmly seated and that there is no play.

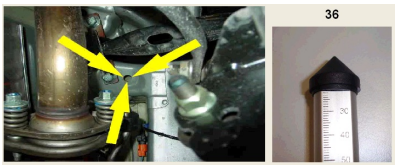
Remove the magnetic attachment with height calibration rod and mount it in the socket at the rear end of the measuring arm. Use firm downward pressure to click the rod in place.

4.2 Length measuring

Before starting to measure it is important to secure the setting of the measuring arm. This is done by compressing the arm altogether and pushing the ON/0 button until the display goes off. With the measuring arm still compressed push the ON/0 button and the digital number 900 (900mm) will appear. The measuring tool will now measure according to this setting and always start measuring from 900 mm.

If during measuring operations any doubt exists about the function of the measuring arm, repeat the above procedure.

	L (mm)			H (mm)
Nr	Data	Measured	+/-	
22-36	2235	0	-2235	251
21-36	2353	0	-2353	
22-35	2353	0	-2353	
21-35	2235	0	-2235	251
22-21	636			



1. Read the height dimension given on the data sheet and select a suitable height measuring rod and socket.
2. Push the height measuring rod and adaptor into the measuring tool and set it to the height dimension given on the data sheet.
3. Mount the magnetic attachment in the intended attachment point under the vehicle. Pull out and adjust the measuring tool so that the selected measurement point can be reached.

   *It can be advantageous here to use the hold feature to freeze the measurement value, especially if it is difficult to see the display while measuring. Press the **HOLD** button briefly to freeze the measurement value. To return, press the **HOLD** button again briefly.*
4. Read the measuring arm's display and compare the length measurement value with the value on the data sheet. (No 1 and 4)

It can be advantageous here to enter the measured value in the data sheet table in order to create a before or after report. Repeat the same procedure on the other side of the vehicle's corresponding and selected length measurement point.

Note that the vehicle can have different measurement values for the right and left side, depending on the design of the vehicle.

4.3 Symmetry measuring (Cross-measuring)

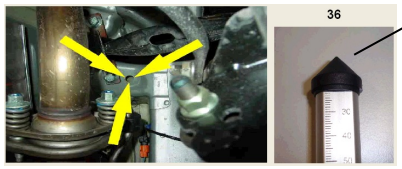
Before starting to measure it is important to check the setting of the measuring arm, see 4.2 LENGTH MEASURING.

Measuring symmetry of a vehicle according to dimension data sheet does not differ to any significant extent from the previous section, 4.2 LENGTH MEASURING.

Symmetry measuring uses basically the same procedure.

It is important during symmetry measuring to <u>NEVER</u> measure or check height deviations at the same time. The reason for this is that the height measurement value can be affected by the lateral inclination of the vehicle. It is, however, important that the height measuring rod be adjusted to the same height applicable to length measuring. In all other aspects, the same procedure as in length measuring applies.

	L (mm)			H (mm)
Nr	Data	Measured	+/-	
22-36	2235	0	-2235	251
21-36	2353	0	-2353	
22-35	2353	0	-2353	
21-35	2235	0	-2235	251
22-21	636			



1. Read the height dimension given on the datasheet and select a suitable height rod. Mount the height rod in the measuring head.
2. Mount the given tip at the top of the height rod.
3. Read the given symmetry dimension on the data sheet (measuring line no 2), which makes the length between the magnet attachment and the measuring point to measure.
4. Mount the magnetic attachment on the chosen magnet point. Pull out and adjust the measuring arm so that selected measurement point can be reached.

   *It can be advantageous here to use the hold feature to freeze the measurement value. Press the **HOLD** button briefly to freeze the measurement value. To return, press the **HOLD** button again briefly.*

	L (mm)			H (mm)
Nr	Data	Measured	+/-	
22-36	2235	0	-2235	251
21-36	2353	0	-2353	
22-35	2353	0	-2353	
21-35	2235	0	-2235	251
22-21	636			

5. Read the measuring arm's display and compare the symmetry (cross) measurement value with the value on the datasheet.

   (It can be advantageous here to enter the measured value in the datasheet table in order to create a before or after report.)

Repeat the same procedure on the other side of the vehicle's corresponding and selected symmetry (cross) measurement point (measuring line no 3).

Note that the vehicle can have different measurement values for the right and left side, depending on the design of the vehicle.

4.4 Comparing heights

Except from measuring length and symmetry with Allvis Light you can also compare heights by help of the sensitive level that is mounted on the measuring head.

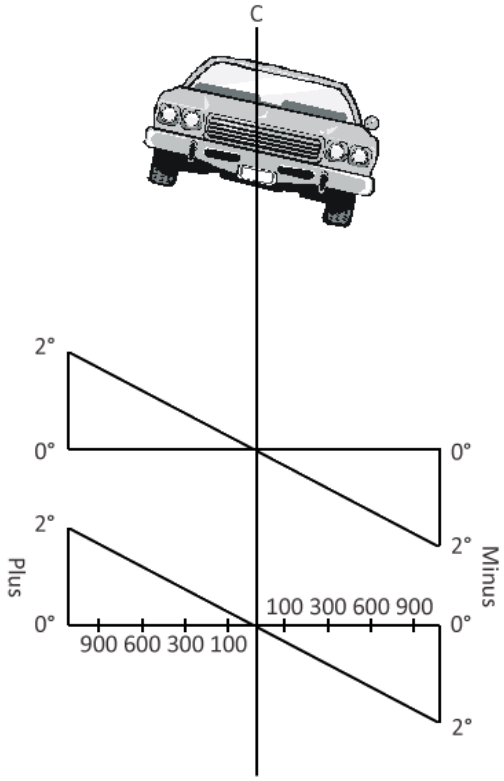
When comparing heights there are several important points to bear in mind.

- As far as possible the vehicle should be positioned on the same lateral level, or this can have an adverse effect on the accuracy of the height measurements. The extent to which the measurement accuracy is affected can be seen in the table in section 4.5 POSITIONING OF VEHICLE.
- That height comparison always is done at the same time as length measurement i.e. when measurement is done parallel with the vehicle's center line.
- The water level on the Allvis Light arm is fixed which often means that it is not on the same level as the vehicle to check. This means that the measuring value stated for the height rod in Allvis Light datasheet only is intended for the settings of the measuring arm when length measurements are done.

To be able to compare heights, from left to the right side of the chassis, you shall now change the height rod and adjust it until the bubble is in the level center. (This comparison is only done on line 1 and 4.)

Move over the measuring arm and mount on the opposite side's measuring point. Pull out to the corresponding check point as you wish to compare and read off the level. If the bubble is not in the center there might be a divergence. Read off the height rod scale and adjust up or down to be able to read the difference in height.

4.5 POSITION OF THE VEHICLE



The positioning of the vehicle is in certain cases decisive for the measurement accuracy with the ALLVIS Light measurement tool.
Above all it is the vehicle's lateral inclination, which is important, since this influences the measurement result when measuring the height of the vehicle.

The table below reports the influence on the measurement accuracy in millimetres and degrees for a specific lateral inclination of the vehicle.

This illustration shows that the vehicle is 1200 mm wide, 600 mm on each side of the centre line, and standing at an inclination of 2°. If one goes out to 600 mm on the scale and down to 2 on the graduated scale this shows that the height difference is 21 mm from the centre line + or - depending on which side is measured. The millimetre scale shows the height difference to be 100 mm from the centre, depending on how many degrees the vehicle is inclined. The example shows how important it is for the vehicle to be level in order to obtain a correct measurement result. The table below shows how much must be added on or taken away to obtain a correct measurement value.

+ Center line of vehicle -

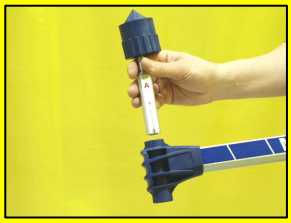
mm	900	800	700	600	500	400	300	200	100	C	100	200	300	400	500	600	700	800	900
0,5°	8	7	6	5	4	3,5	3	2	1	**0**	-1	-2	-3	-3,5	-4	-5	-6	-7	-8
1°	16	14	12	10	9	7	5	3	2	**0**	-2	-3	-5	-7	-9	-10	-12	-14	-16
2°	31	27	24	21	17	14	10	7	3	**0**	-3	-7	-10	-14	-17	-21	-24	-27	-31
3°	46	41	36	31	26	21	16	10	5	**0**	-5	-10	-16	-21	-26	-31	-36	-41	-46

The vehicle height difference in mm from the center of the line.

The degrees show the inclination of the vehicle.
Always try to have the vehicle as level as possible!

5 Quick Guide without Vehicle Dimension Data

1) Mount datum rod

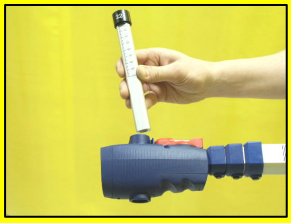


A: Select Datum rod of suitable length.

B: Snap magnetic attachment onto the ball of the datum rod.

C: Insert datum rod into the rear end of the measuring arm. Use firm downward pressure to snap it into the socket.

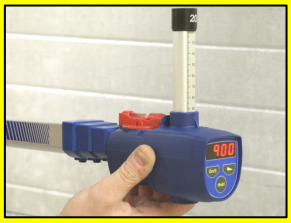
2) Mount height rod



A: Select a height measuring rod and socket to suit the application.

B: Insert height measuring rod into the frontend of the arm, set it at the desired height and twist to secure rod.

3) Start the measuring system



A: Collapse the telescoping measuring arm completely and press **On/0** on the display panel. A digital number (900) will appear in the display window representing the minimum collapsed length of the arm.

4) Mount magnet

A: Mount the magnetic attachment on a symmetrical, undamaged point under the vehicle.

5) Mount socket

A: Pull the measuring arm out until the socket on the height measuring rod is located on the measuring point to be checked.

6) Measuring value 1

A: Adjust the height rod until the bubble in the level is in the center.

B: Read the measuring value on the display

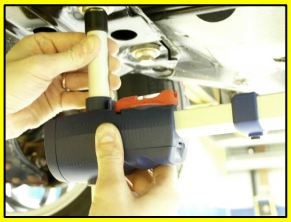
7) Measuring value 2

A: Move the measuring arm to the opposite side of the vehicle and fit the magnetic attachment to an equivalent measuring point.

B: Take a similar length reading on this side.

C: Compare readings.

8) Check height difference



A: Check the level of the arm.

B: Use the height measuring rod to set it level.

C: Read height on the calibrated rod and compare for possible height differences between the two measuring points on opposite sides of the vehicle.

9) Cross measuring

A: Cross check side to side, from each magnetic mounting point to an equivalent measuring point on the opposite side. Compare digital readings to check for symmetry.

6 Adaptors

6.1 Adaptors

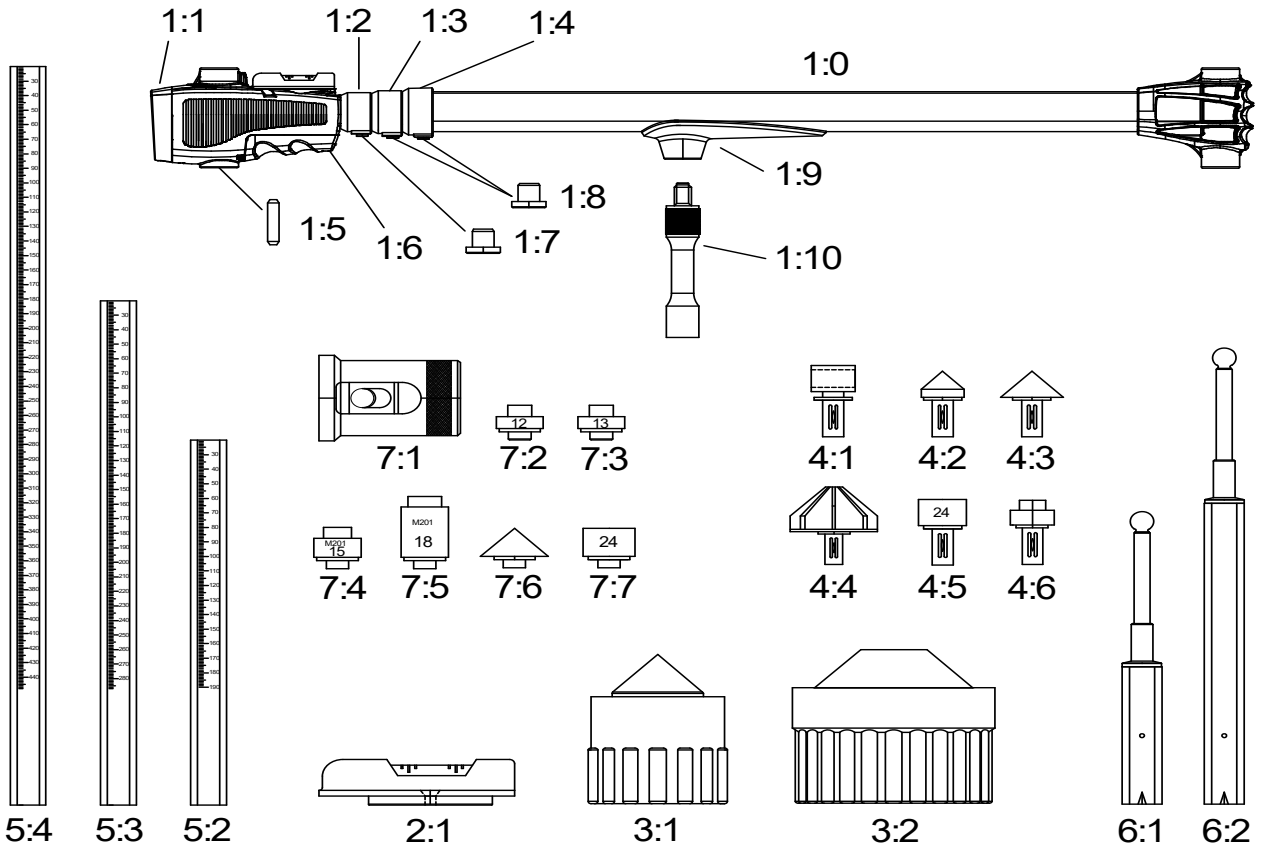
Product development of ALLVIS Light measurement tools is continuously in progress. This also includes the development of different types of adapters, both attachment and measurement adapters.

Your local ALLVIS Light distributor will keep you continuously informed of new product innovations.

If you have any special preferences or requirements, contact your local ALLVIS Light distributor.

7 Technical Notes

7.1 Spare parts



Pos	Art. No.	Name
1:0	XME1900	Measuring tool
1:1	XME1375	Front
1:2	XME1281	Collar 2
1:3	XME1291	Collar 3
1:4	XME1301	Collar 4
1:5	AVP1361	Friction stick
1:6	XME1380	Battery cover
	AVP1450	Battery
1:7	AVP1320	Locking for collar
1:8	AVP1320-2	Locking for collar
1:9	EMK1404	Slide
1:10	EMK1403	Tip holder for slide
2:1	XME1410	Level
3:1	XME1480	Chassis attachment Ø35
3:2	XME222	Chassis attachment Ø60
4:1	XME3100	Tip holder 90°
4:2	XME3000	Measuring tip Ø25
4:3	XME2900	Measuring tip Ø35
4:4	XME2800	Measuring tip Ø60
4:5	XME1390	Socket ø10-28 (state no when order)
4:6	XME2705	Adaptor M201 6-18 (state no when order)

Pos	Art. No	Name
5:2	AVP1190	Measuring rod 185
5:3	AVP1200	Measuring rod 285
5:4	AVP1210	Measuring rod 450
6:1	AVP1110	Datum rod
6:2	AVP1130	Datum rod +100
7:1	AVP1470	Chassis attachment 90°
7:2	AVP1485	Adaptor 12
7:3	AVP1490	Adaptor 13
7:4	AVP1500	Adaptor 15
7:5	AVP1510	Adaptor 18
7:6	AVP1521	Measuring tip short Ø35
7:7	AVP1540	Socket short 10-26 (state no when order)
	AVA111	Complete truck adaptor kit
	XME1263	Allvis Light storage case (complete)
	XME1170	Storage case side

7.2 Declaration of conformity

Declaration of conformity

According to
the EMC Directive 89/336/EEG, 92/31/EEG & the
Low Voltage Directive 73/23/EEG and 93/68/EEG including amendments by the CE-marking Directive 93/68/EEG

Type of equipment

Allvis Light Car Measuring Tool

Brand name or trade mark

JNE

Type designation(s)/Model no(s)

XME1900

Manufacturer's name, address, telephone & fax no

JNE AB

Box 200, S-597 24 Åtvidaberg, SWEDEN

Tel: +46 (0)120 109 90, Fax: +46 (0)120 109 40 E-mail: info@jne.se

The following standards and/or technical specifications, which comply with good engineering practice in safety matters in force within the EEA, have been applied:

Test report/ technical construction file/ normative document

Ref. No: 02024 / Issued by: JNE AB

Standard
EN 55011 Class B,
EN 61000-6-2: 2001, EN 61000-4-2, -3, -8.

Additional information
The product is CE-marked in 2004

As manufacturer/ the manufacturer's authorized representative established within EEA, we declare under our sole responsibility that the equipment follows the provisions of the Directives stated above

Date and place of issue

Åtvidaberg 2004-10-01

Signature of authorized person

Name & Position
Håkan Johansson, Production

JNE AB, SWEDEN
info@jne.se
www.jne.se