Refer to assembly drawing No. : EL-312874-01-..
EL-315141-01-..

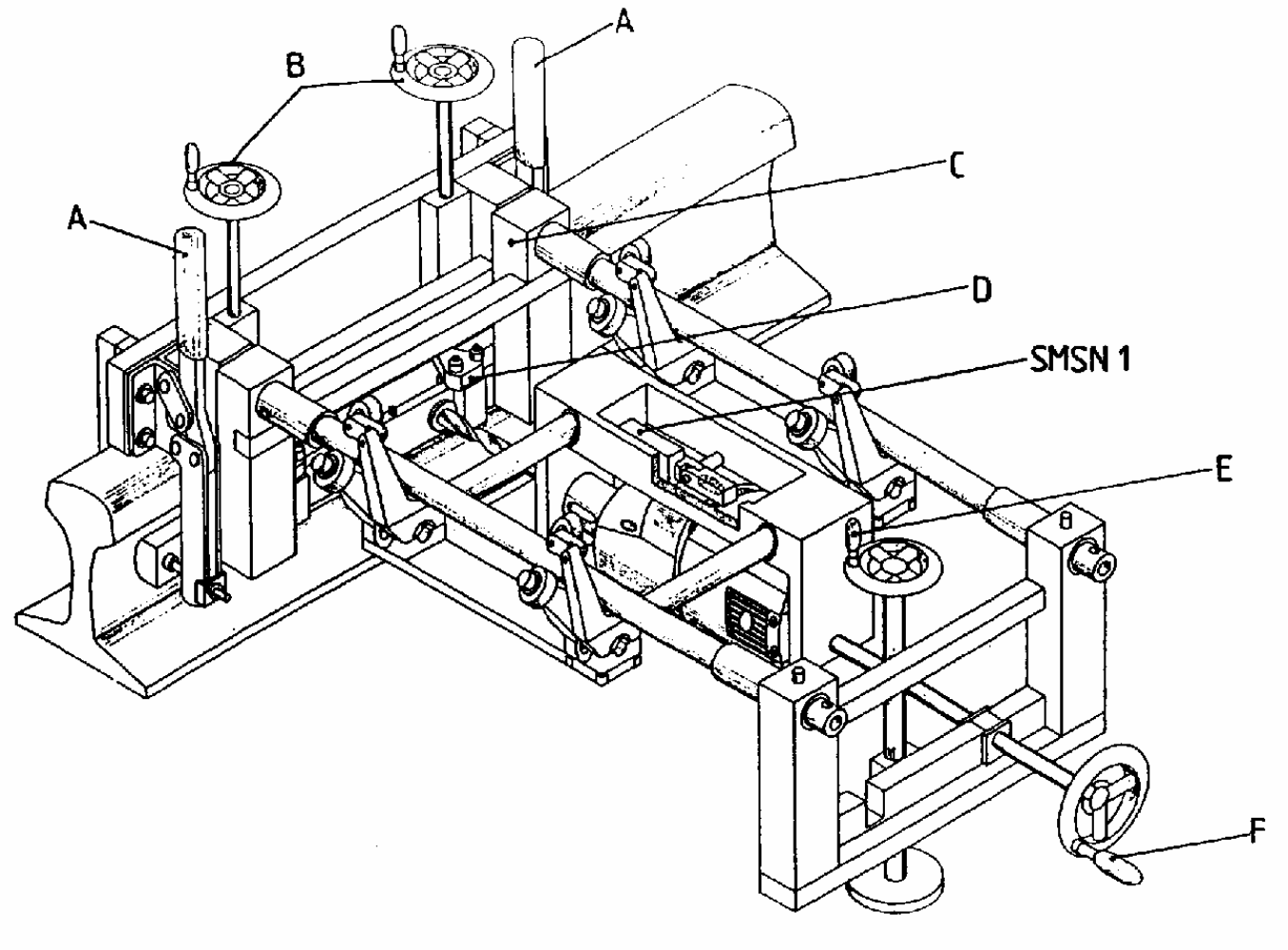
Drilling the mounting holes in the web of the rail

The installation place chosen for operating and location reasons will be shown in the site drawing. The following points should be considered: establish the type of rail to be drilled, mark the sensor's center position on the rail head at the installation place, placement of the sensor at the inner web of the rail, if mounting in a curve placement of the sensor at the inner curve of the inner web of the rail, check there is enough free space for mounting the sensor, make sure the sensor is centered between two rail ties when choosing your mounting location.
(Figure 1-6, page 7).

The drilling of the fixing holes should if possible be done with the BVR 17 drilling machine, since when drilling with another type drilling template the tolerances can be too great.

Drilling the mounting holes with the drilling machine type: BVR17

BVR 17



The fixing holes to attach the sensor to the rail are drilled on site with the BVR 17 machine.
The BVR 17 electrical drilling machine has a connection voltage of 110 VAC and a rating of 720 VA. (A 220VAC type is also available)

Adjust the drilling machine for the type of rail involved.
There are two rotatable triangular stops "**D**" on the BVR 17 to adjust it for use with different rail profiles. These triangles have three distance bolts of different heights corresponding to the types of rail to be drilled.
Position the triangle into the correct position before fitting the drilling machine on the rail. Each distance bolt has the rail type stamped at the side of the triangle. The rail type for the bolt being used is on the opposite from the distance bolt itself (point D).

Note:
It is very important to pay attention to the correct position of the triangular stop, because otherwise the correct distance of the DSS fastening holes to the lower edge of the railhead and consequently the correct installation place of the sensor is not guaranteed, which will also have an effect on the correct functioning of the wheel sensor.
The BVR 17 is supplied with triangular stops and distance bolts for the rail profiles RE115, RE 119, and RE136. Other rail profiles require other triangular stops, which must be specially ordered at the time of purchase of the BVR 17 or can be ordered at a later date when needed.

Fitting the BVR 17
The center point of the wheel sensor is marked in the front drilling head "**C**" of the BVR 17. The center to center dimension of the fastening holes is **145 mm**.
Remove any raised lettering at both side of the rail web so that the BVR 17 will fit flush to the web of the rail and so that the wheel sensor can be mounted flush to the rail after drilling of the fixing holes.
Place the BVR 17 over the marked rail in such a way that the front drilling head "**C**" can slide in the space between the rail head and rail foot. In this position it should be noted that the marking on the rail agrees with the center point of the selected sensor. It may be necessary, under certain conditions, for a sleeper fixing clamp or screw to be removed from the rail foot while the drilling is being done so it does not interfere with positioning of the BVR 17 to the rail.
Snuggly clamp the BVR 17 onto the rail with the two fast clamps "**A**". Pull the distance bolts of the previously set triangular stop under the rail head with the two front spindles "**B"**. The complete BVR 17 is thereby raised up until the triangular stops are firmly against the underside of the rail head.

Transmission of the rail inclination to the BVR 17

The BVR 17 has a special bubble level to measure the rail inclination, type: SMSN 1.
Hold the metal shank of the level at right angles under the rail foot. Bring the level side accurately into the horizontal by centering the bubble. The rail inclination determined in this way is then transferred to the BVR 17. Do not disturb the bubble once your measurement is taken. Place the metal end of the SMSN 1 in the place provided for it on the sliding drill head frame (as shown in the BVR 17 drawing). The adjustment of the inclination of the drilling machine is done by the spindle located on the back slide “E”. The spindle is moved up or down until the metal shank with the bubble is horizontal. It is recommended that a board be placed under the spindle to provide further stability if possible.

The correct inclination setting ensures that the fastening holes are drilled parallel to the foot of the rail and thus the sensor is mounted parallel to the foot of the rail. Put Allround paste 897 or drilling oil on the drill (dia 13mm) and move the transverse slide of the BVR 17 forwards, until the drill enters the drilling bush "**1**" for the first fastening hole.

Place feed spindle "**F**" in the appropriate recess of the rear slide. Switch on the machine and drill with clockwise rotation of the feed spindle at a feed speed appropriate for a high speed drill bit. Pour coolant into an appropriate coolant dispenser. After the first hole at the rail web has been drilled, release the feed spindle by turning feed spindle “**F**”counterclockwise and remove the spindle from the cut out of the back slide. Pull back the drilling machine with the motor running and switch it off. Move the drilling machine sideways push the slide forward until the drill enters the drilling bush **“2”** and drill the second hole in the same way.

After drilling both fastening holes in the web of the rail, release the two forward spindles **“B”** of the BVR 17, release the rapid clamps **“A”**, draw back the front slides, drill motor frame and lift the BVR 17 off the rail.

Checking the fixing holes in the web of the rail

Assembly drawing No EL-312874-01-..

Check the distance between the two fastening holes (hole center to hole center – **145mm**) with a sliding calliper.

Checking the distance of the holes from the lower side of the rail head.
Fasten the gauge to check the wheel sensor holes (type: SBKL1) into the hole drilled at the web using the wing nut. Undo the knurled screw, move the movable shank up against the lower side of the rail head and fasten it again with the knurled screw. Carefully remove the SBKL1 from the rail and read the dimension measured. Repeat this procedure for the second hole. Dimensions should be as shown in the chart below if the holes are drilled properly.

Rail profile	Dimension in mm		Rail profile	Dimension in mm
90 Ra	55.86		132 RE	49.0
100 ASCE	49.9		133 RE	46.7
100 RE	51.1		136 LV	45.84
100 RA	53.6		136 RE	44.4
112 RE	49.3		140 RE	43.7
112 TR	47.78		141 LB	41.16
115 RE	50.46			
119 RE	45.7			
127 LB	50.6			
129 LB	45.50			
130 RE	46.58			
130 Headfree A	47.33			
130 Headfree B	51.09			

Measure the wear on the top of the rail (initial dimension) with SAHL 1 gauge
Put the gauge into the wheel sensor fastening hole and fasten with wing nuts, undo knurled screw, press the movable measuring shank to the top of the rail head and again tighten the knurled screw. Carefully remove SAHL 1 from the rail, read the measured dimension "B" and compare with the table below.

Measure the wear on the top of the rail (initial dimension) by depth gauge SAHL 2.
The wear on the top of the rail is measured perpendicular to the web of the rail from the highest point of the rail head to the highest point of the wheel sensor which is its edge closest to the rail head. The dimension "X" is measured and compared with the table below.

There are colored plastic assembly plates for the wheel sensor. Before fitting the sensor to the rail the fitting plates corresponding to the type of rail used and its measured wear must be installed at the mounting foot of the wheel sensor, in order to ensure the correct inductive field will be obtained and to ensure the necessary switching distance can be reached during adjustment of the wheel sensor (see table).

The table also gives the wheel sensor installation position (sensor top or bottom mounting holes) corresponding to the rails measured wear.

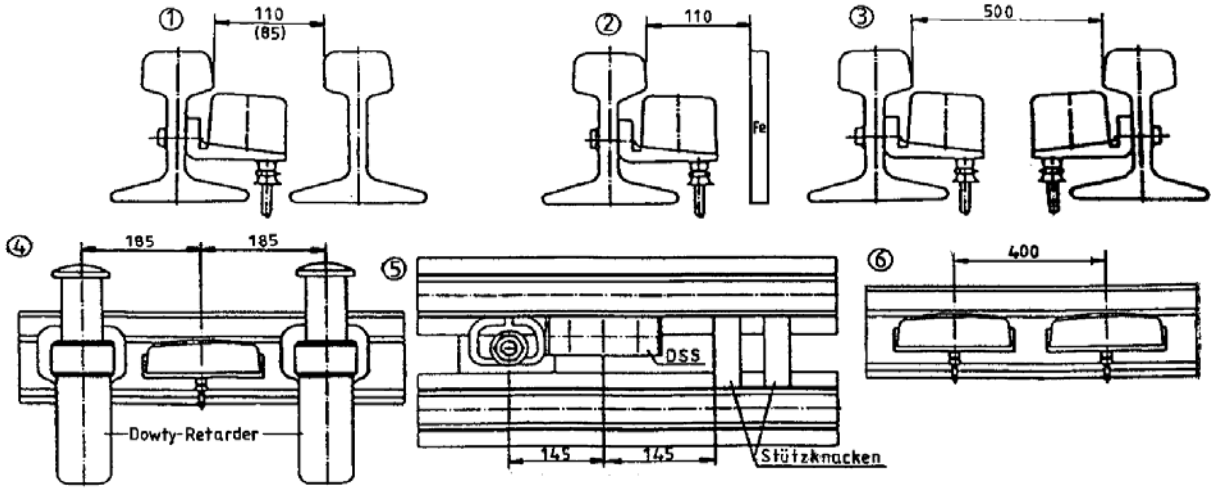
Table: Rail initial measurement

Rail type	Rail height (A) in mm	measured wear degree in mm (+ / - 0,5mm) X	B	mounting position of the DSS	necessary mounting plates	thickness of mounting plates in mm
90 RA	142.9	>37 =<37	>79 =<79	above **not possible**	none	
100 ASCE	146.0	>37 =<37	>79 =<79	above below	none	
100 RE	152.4	>37 =<37	>79 =<79	above **not possible**	blue	1.5
100 RA	152.4	>37 =<37	>79 =<79	above **not possible**	thin red	1.0
112 TR	171.5	>37 =<37	>79 =<79	above **not possible**	thin red	1.0
112 RE	168.3	>37 =<37	>79 =<79	above **not possible**	none	0
115 RE	168.3	>37 =<37	>79 =<79	above **not possible**	none	0
119 RE	173.0	>37 =<37	>79 =<79	above **not possible**	thin red	1.0
127 dudley	177.8	>37 =<37	>79 =<79	above below	Green none	3.6
129 TR	185.7	>37 =<37	>79 =<79	above below	thick red none	4.3
130 RE	171.5	>37 =<37	>79 =<79	above below	thick red/ thin red thin red	4.3 + 1.0 = 5.3 1.0
130 Headfree A	173.8	>37 =<37	>79 =<79	above below	thin red or none none	1.0 0
130 Headfree B	176.2	>37 =<37	>79 =<79	above below	thin red or none none	1.0 0
132 RE	181.0	>37 =<37	>79 =<79	above below	green none	3.6 0
133 RE	179.4	>37 =<37	>79 =<79	above below	green none	3.6 0
136 LV	177.8	>37 =<37	>79 =<79	above below	thick red / grey blue	4.3 + 1.3 = 5.6 1.5
136 RE	185.7	>37 =<37	>79 =<79	above below	thick red / grey blue	4.3 + 1.3 = 5.6 1.5
140 RE	185.7	>37 =<37	>79 =<79	above below	thick red / thin red brown	4.3 + 1.0 = 5.0 2
141 LB	188.9	>37 =<37	>79 =<79	above below	thick white/ thick red brown	4.3 + 1.0 = 5.0 2
152 PS	203.2	>37 =<37	>79 =<79	above below	thick white /thick black thick black	4.3 3.2
155 PS	203.2	>37 =<37	>79 =<79	above below	thick white /thick black thick black	4.3 3.2

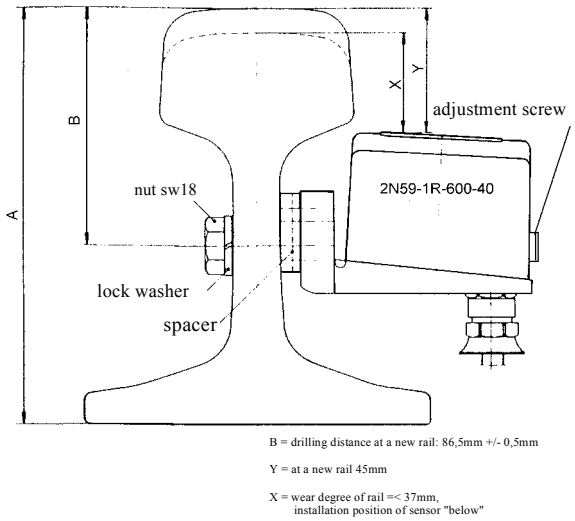
Fitting of the wheel sensor to the web of the rail

Assembly drawing No EL-312874-00-00

Note: Before installation of the sensor, check that there is the necessary free space as shown at the sketches below.
The dimensions in Figures 1 to 6 may not be exceeded. Exception: in the movable area of the tongues of the points the dimension 110 (Figure 1) can be reduced to 85 mm, provided that the wheel sensor is not run over.



Fix the wheel sensor with corrosion resistant close tolerance bolts M 12 x 35 mm, DIN 609-5.6 and the lock washers to the web of the rail (tightening torque 50-60Nm).



Note:
On measuring lengths with several wheel sensors installed it should be noted that all wheel sensors must be reduced at the same time, in order to avoid the measuring length difference of 16 mm that would otherwise appear due to the difference between the displaced fixing holes.

For adjustment and functional check of the DSS see pages 12 - 15.

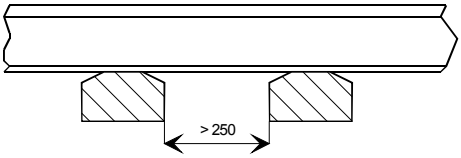
Fitting of the DSS by means of rail clamp type: SSK 6

See assembly drawing page 4

Fixing of the SSK 6 on the rail

Note:
It can only be fitted within a sleeper bay. This bay must correspond to the dimensions in the sketch below. Minimum distance of 250mm is required between the sleepers.

Sleeper bay



Before fitting the SSK 6 the foot of the rail must be cleaned. The SSK 6 must be fitted to the rail so that the assembled wheel sensor is positioned on the inner curve in the track space.

To assemble the SSK 6 on the rail (refer to drawings on page 10 & 11), the nut (SW 36) (1) is screwed off, the lock washer (2) and the support claw (3) pulled off. The claw is put under the rail; the adapter plate (4) is fixed on the SSK 6 with the hexagonal bolts M 12 x 25 mm (5), lock washers and the plain flat washers provided.
Put on the support claws (3) and the lock washers (2), tighten the nut (1) (SW 36) with a torque of 120 – 150 Nm.
Tighten the hexagon screws (5) of the adapter plate (4) to 50 – 60 Nm.

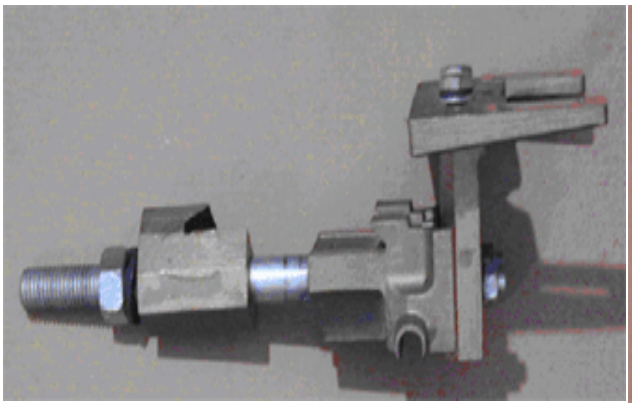
Place the proper colour assembly plates (6) on the side of the DSS in order to obtain the required distance away from the rail web. Refer to the table below as to which colour plates should be used. It is dependent on the actual rail height measured and its relation to dimension "X". Check that the assembly plates are correctly positioned and fitted to the wheel sensor. Fix the wheel sensor (DSS) with two hexagonal screws M 12 x 25 mm (7), lock washers (8) and the plain flat washers (9) onto the adapter plate (4).
Fit the wheel sensor (DSS) so that the assembly plates (6) fit snug against the rail web. It must be possible however too initially move the wheel sensor easily during the height adjustment procedure before final tightening of the M 12 X 25mm bolts.
Fit a protective hose over the wheel sensor cable and connect one end of the hose to the bottom gland of the wheel sensor. The other end will of the cable and hose will be placed inside a junction box. The cable should be fed through an adapter into the inside of the box and the protective hose should fit over the adapter to protect the cable going into the junction box.

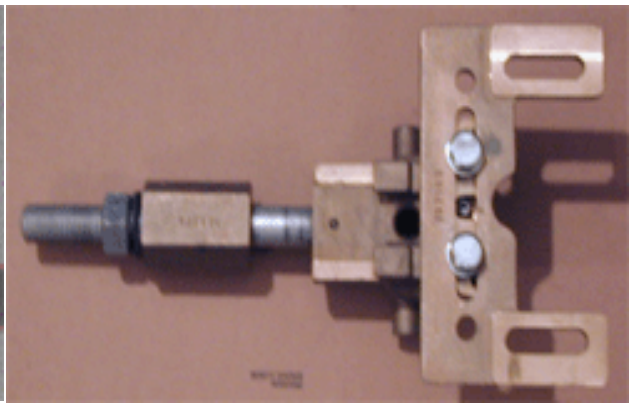
Adjusting height of sensor:
Slightly loosen both hexagonal nuts (SW 18) (10), place the rail initial height gauge type: SAHL 2 on the top of the rail head and measure the distance from the rail head to the highest point on the sensor.

The required assembly height "Y" shown in the SSK 6 drawing, page 10, (distance between top of rail and the top of DSS) depends on the initial dimension "X" measured minus the variable "B".
Measure the actual overall height of the rail (“X”) with a slip gauge or other appropriate measuring tool. To calculate the final dimension “Y” refer to the example below.

Example:	**Rail type**	**:**	**S 49**
	Initial dimension "X"		**: 145 mm**
	Variable "B"	**:**	**104 mm (see table)**
	Assembly height "Y"	**:**	**Initial dimension "X" – variable B"**
			145 mm – 104 mm = 41 mm

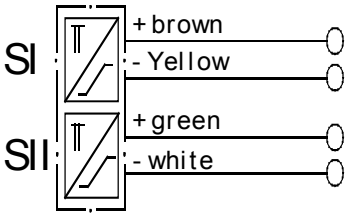
The value "Y" is the distance measured from the highest point of the rail head to the highest point of the wheel sensor. The adjusted dimension can be changed by using the hexagon stud (Inbus S 5) (11) to either lower or raise the wheel sensor attached to the plate to position the wheel sensor to the correct “Y” value required.
Tighten both hexagon nuts (10) to a torque of 50 – 60 Nm, and then check the dimension "**Y**" again to make sure it has not changed.
Firmly press the wheel sensor and its assembly plates to the web of the rail and tighten the two hexagon bolts (7) to a torque of 50 – 60 Nm without changing the position of the DSS.
After assembly of the rail bracket SSK 6 care must be taken that there is no contact with the ballast below the rail clamp, clear this area if needed.





Refer to the SSK 6 drawings during disassembly and reassembly, pages 10 & 11.

<u>Wheel Sensor (DSS) Connection diagram:</u>



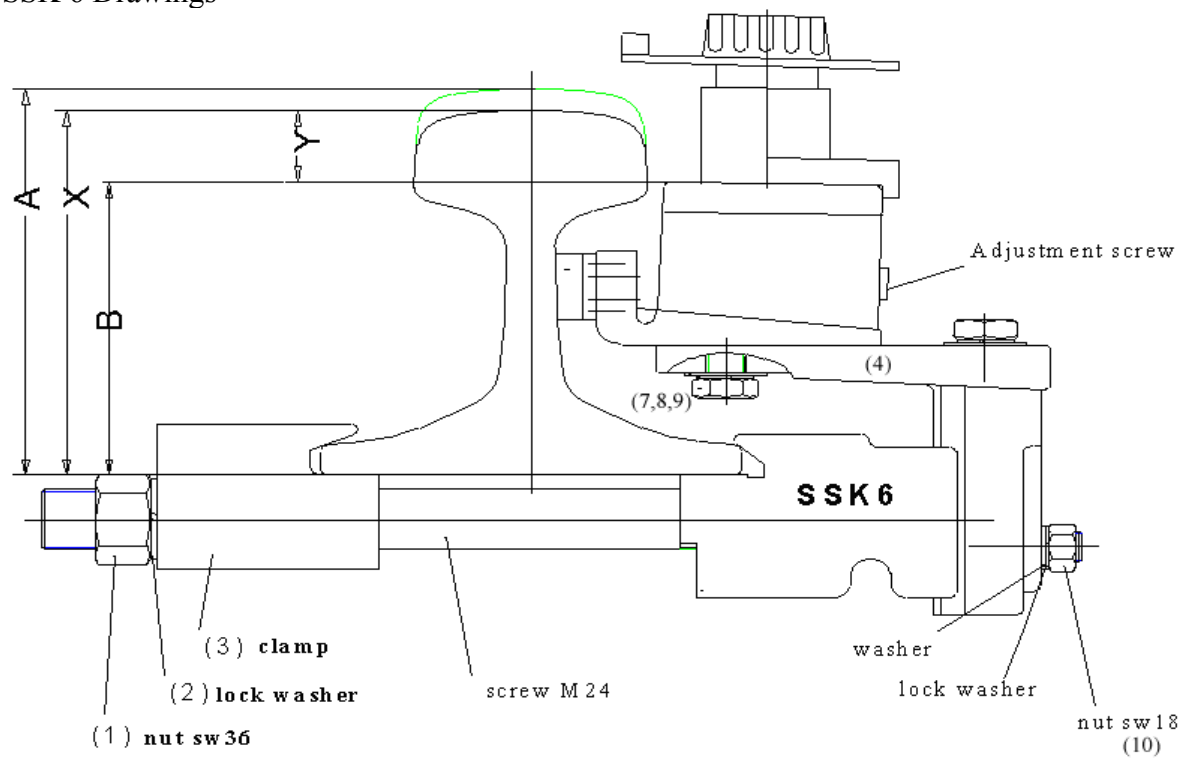
Measure wear on the rail (initial dimension) with slip gauge SAHL 1 or other appropriate measuring device

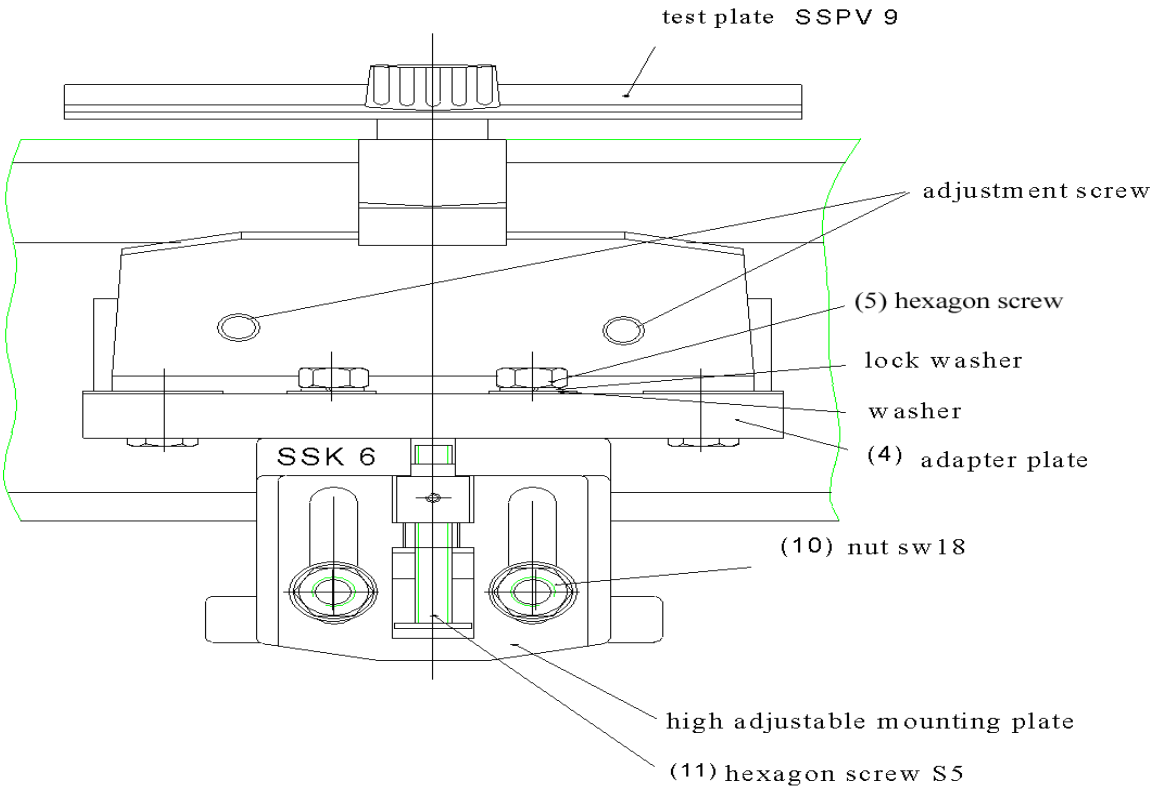
Determine the overall height of the rail with a slip gauge. Read the dimension from the gauge and compare it to “X” in the table below. The value of the variable "B" shown in the drawing above and in the table below is determined dependent on how the measured height compares to the “X” value (above or below) in the list below.

Table: Initial dimensions of the rail

Rail type	Dimension "A" for new rails in mm	Compare initial dimension "X" measured in mm	Variable "B" in mm	Assembly plates Required (colour)	Thickness of the assembly plates in mm
S 49	149	≥ 141	104	red, red	1 + 4.3 = 5.3
S 49	149	≤ 141	95	red	1
S 54	154	> 146	109	1 thin black / 1 thick black	2.8 + 3.2 = 6
S 54	154	≤ 146	100	thin black	2.8
UIC 60	172	> 164	127	thick white	4.3
UIC 60	172	≤ 164	118	None	0
UIC 54E	161	> 153	116	thick white	4.3
UIC 54E	161	≤ 153	107	None	0
90 RA	142.9	> 134.9	97.9	None	0
90 RA	142.9	≤ 134.9	88.9		
100 ASCE	146.0	> 138	101		
100 ASCE	146.0	≤ 138	92		
100 RE	152.4	> 144.4	107.4	blue	1.5
100 RE	152.4	≤ 144.4	98.4		
100 RA	152.4	> 144.4	107.4	thin red	1.0
100 RA	152.4	≤ 144.4	98.4		
115 RE	168.3	> 160.3	123.3	None	0
115 RE	168.3	≤ 160.3	114.3		
119 RE	173.0	> 165	128	thin red	1.0
119 RE	173.0	≤ 165	119		
132 RE	181.0	> 173	136	green	3.6
132 RE	181.0	≤ 173	127	None	0
133RE	179.4	> 171.4	134.4	green	3.6
133RE	179.4	≤ 171.4	125.4	None	
136 RE	185.7	> 177.7	140.7	1 thick red / 1 grey	4.3 + 1.3 = 5.3
136 RE	185.7	≤ 177.7	131.7	blue	1.5
140 RE	185.7	> 177.7	140.7	1 thick red / 1 thin red	4.3 + 1.0 = 5.3
140 RE	185.7	≤ 177.7	131.7	brown	2
141 RE	188.9	>180.9	143.9	white	4.3
141 RE	188.9	≤ 180.9	134.9	white / red	4.3 + 4.3 = 8.6
47 kg	141.3	> 133.3	96.3	1 thin red, 1 thick red	1 + 4.3 = 5.3
47 kg	141.3	≤ 133.3	87.3	red	1
53 kg	157.1	> 149.1	112.1	1 thin red, 1 thick red	1 + 4.3 = 5.3
53 kg	157.1	≤ 149.1	103.1	red	1
60 kg	170	> 162	125	1 thin black, 1 thick black	2.8 + 3.2 = 6
60 kg	170	≤ 162	116	black	2.8

SSK 6 Drawings





Adjustment and functional testing of the DSS for sensor amplifiers designed with an open circuit voltage of 8V and an internal resistance of 1k

Amplifier card types, for example,: 4AB2/1300, 4AB3/1300, 4AB10/1205, 4AB10/1105, 10/1105/1

Test instrument: R58/37
The instrument contains two pieces of electronic equipment for wheel sensors with LED's as function indicators. Power is supplied from a battery that is fitted in the instrument.

Note: Watch the top LED for battery condition. If the LED lights the switching distance measurement may no longer be accurate as the internal voltage is too low. Charge the battery.

Connect the cables of the DSS with those of the same color on the test instrument.
Take test plate type: SSPV 1 and loosen the knob on the test plate by turning it counterclockwise until you see the 50mm mark on the milimeter scale. Position the test plate with its test foot on the wheel sensor center and move test plate delicately downwards in the sensors direction until the function LED of the corresponding system (I or II) lights up. Read the initial length of the milimeter scale on the test plates foot, continue adjustment of the wheel sensor if necessary until both LED's light up at the same time to the preferred switching distance length.

Permissible length: 47 to 48 mm. (Preferred switching distance = 47.5mm)
If the switching distance of the wheel sensor does not lie, due to tolerances of the holes or the rail, between 47 mm and 48 mm, the switching distance can be corrected by turning the adjustment screw: set the wheel sensor test plate type: SSPV 1 to **47.5 mm** and position it on the center of sensor.
At the bottom of the wheel sensor unscrew the knurled protective plastic nut off of the adjustment screw. Now the switching distance can be set as follows.

1. With enclosed brass adjustment tool
Screw on the enclosed adjustment tool and tighten without pushing the adjustment screw out of its adjustment protector.
Force should not be used to turn the adjusting screw, otherwise the adjustment protection may be damaged.
Push the adjustment tool upwards to unlock the protection mechanism.
Turn the adjustment screw: **Right** to increase switch distance
Left to reduce switch distance

The adjustment screw is turned (to the left) until the function LED is no longer lit, then in the other direction until the LED just lights. Check the switch distance by moving the SSPV 1 up until the LED lights go out and then back down until the LED lights come on. Do this several times to ensure each time the LED lights are turning on at the preferred switching distance. Screw on the knurled nut again and lightly tighten. The wheel sensor can be tested at any temperature between - 30°C and +80°C.

2. With adjustment tool type: EW1

Put the adjustment tool type: EW1 in the adjustment screw and push upwards, so that the adjustment protection is not effective. Force should not be used to turn the adjustment screw otherwise the adjustment protection may be damaged.

Turn the adjustment screw: **Right** to increase switch distance
Left to reduce switch distance

The adjustment screw is turned (to the left) until the function LED is no longer lit, then in the other direction until the LED just lights. Check the switch distance by moving the SSPV 1 up until the LED lights go out and then back down until the LED lights come on. Do this several times to ensure each time the LED lights are turning on at the preferred switching distance. Screw on the knurled nut again and lightly tighten. The wheel sensor can be tested at any temperature between - 30°C and +80°C.

Permissible length: 47 to 48 mm.
Should the permissible switch distance lie outside the tolerance then the position of the DSS must be corrected.
Check the switching function by repeatedly putting on SSPV 1.
The DSS can be checked at any temperature between -30° and +80°C.

Optional adjustment using G84 Amplifier module:
The G84 module will need an external power supply which can be connected to the G84 during testing. The G84 module can then be used at the track side as a replacement for the R58/37 test device.
Follow the same adjustment procedures as above. Instead of monitoring the LED's on the R58/37 device you will monitor the OUT and OUT2 LED's at the G84/97 or the Function 1 and 2 lights at the G84/96. As before both LED's must come on at the same time when the preferred switching distance is reached. Use the SSPV 1 to set the correct distance before final adjustment of the wheel sensor.

Adjustment and functional test of the wheel sensor for amplifier cards designed with an open circuit voltage of 8V and a constant current of 3.2mA

Amplifier card types, for example: 4AB 10/1205/1, 4AB10/1105/ 2, 3, 6, 7, 14, 15, 19
4AB 45/1105/ 6, 7, 8, 9

Test instrument Type R58/117
The instrument contains two pieces of electronic equipment for wheel sensors with LEDs as function indicators. Power is supplied from a battery that is fitted in the instrument.

Note: Watch the top LED for battery condition. If the LED lights the switching distance measurement may no longer be accurate as the internal voltage is too low. Charge the battery.

Connect the cables of the DSS with those of the same color on the test instrument.
Take test plate type: SSPV 1 and loosen the knob on the test plate by turning it counterclockwise until you see the 48mm mark on the milimeter scale. Position the test plate with its test foot on the wheel sensor center and move test plate delicately downwards in the sensors direction until the function LED of the corresponding system (I or II) lights up. Read the initial length of the milimeter scale on the test plates foot, continue adjustment of the wheel sensor if necessary until both LED's light up at the same time to the preferred switching distance length.

Permissible length: 45 to 46 mm. (Preferred switching distance = 45.5mm)
If the switching distance of the wheel sensor does not lie, due to tolerances of the holes or the rail, between 45 mm and 46 mm, the switching distance can be corrected by turning the adjustment screw: set the wheel sensor test plate type: SSPV 1 to **45.5 mm** and position it on the center of sensor.
At the bottom of the wheel sensor unscrew the knurled protective plastic nut off of the adjustment screw. Now the switching distance can be set as follows.

1. With enclosed brass adjustment tool
Screw on the enclosed adjustment tool and tighten without pushing the adjustment screw out of its adjustment protector.
Force should not be used to turn the adjusting screw, otherwise the adjustment protection may be damaged.
Push the adjustment tool upwards to unlock the protection mechanism.
Turn the adjustment screw: **Right** to increase switch distance
Left to reduce switch distance

The adjustment screw is turned (to the left) until the function LED is no longer lit, then in the other direction until the LED just lights. Check the switch distance by moving the SSPV 1 up until the LED lights go out and then back down until the LED lights come on. Do this several times to ensure each time the LED lights are turning on at the preferred switching distance. Screw on the knurled nut again and lightly tighten. The wheel sensor can be tested at any temperature between - 30°C and +80°C.

2. With adjustment tool type: EW1

Put the adjustment tool type: EW1 in the adjustment screw and push upwards, so that the adjustment protection is not effective. Force should not be used to turn the adjustment screw otherwise the adjustment protection may be damaged.

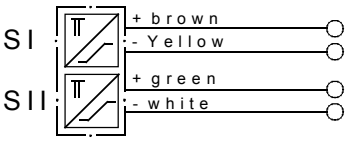
Turn the adjustment screw: **Right** to increase switch distance
Left to reduce switch distance

The adjustment screw is turned (to the left) until the function LED is no longer lit, then in the other direction until the LED just lights. Check the switch distance by moving the SSPV 1 up until the LED lights go out and then back down until the LED lights come on. Do this several times to ensure each time the LED lights are turning on at the preferred switching distance. Screw on the knurled nut again and lightly tighten. The wheel sensor can be tested at any temperature between - 30°C and +80°C.

Permissible length: 45 to 46 mm.
Should the permissible switch distance lie outside the tolerance then the position of the DSS must be corrected.
Check the switching function by repeatedly putting on SSPV 1.
The DSS can be checked at any temperature between -30° and +80°C.

Optional adjustment using G84 Amplifier module:
The G84 module will need an external power supply which can be connected to the G84 during testing. The G84 module can then be used at the track side as a replacement for the R58/37 test device.
Follow the same adjustment procedures as above. Instead of monitoring the LED's on the R58/37 device you will monitor the OUT and OUT2 LED's at the G84/97 or the Function 1 and 2 lights at the G84/96. As before both LED's must come on at the same time when the preferred switching distance is reached. Use the SSPV 1 to set the correct distance before final adjustment of the wheel sensor.

Connection diagram:



Place the wheel sensor cable in a protective rubber conduit, attached the conduit to a junction box, attach the wires inside the junction box to the inground cable wires also brought up inside the junction box. Record the conductor numbers/colors for future use at the indoor equipment.

Maintenance and servicing of the DSS

The wheel sensor is not sensitive to non metallic materials e.g. glass, plastics, rubber, oil, water, dust or similar substances. The wheel sensor surface may only be cleaned with cleaning rags. Wire brushes should not be used or the plastic cover may be damaged.
If it is necessary to carry out work on the track the wheel sensor should be covered, or if necessary, removed since red hot particles may destroy the plastic cover or track equipment could hit and damage the wheel sensor.

The following points should be carried out approximately every 6 months.

Visual inspection for mechanical damage

Measure the wear on the top of the rail to the top of the wheel sensor

Check the fixing screws (tightening torque 50 - 60 Nm)

Check the knurled nuts of the adjustment screws on the sensors are still present

Checking the switching distance of the wheel sensor
Permissible deviation of the switching distance for the sensor
+ 2 mm, -1 mm, max. of 1 mm difference allowed between the wheel sensor internal systems I & II

See adjustment and functional test of the DSS with specific test instruments, pages 12 – 15.

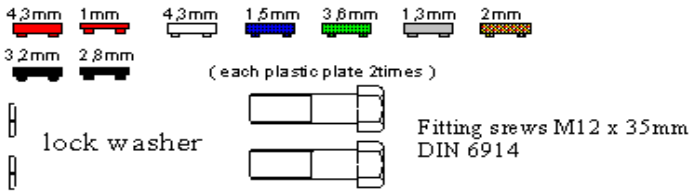
Adjustment without the test device

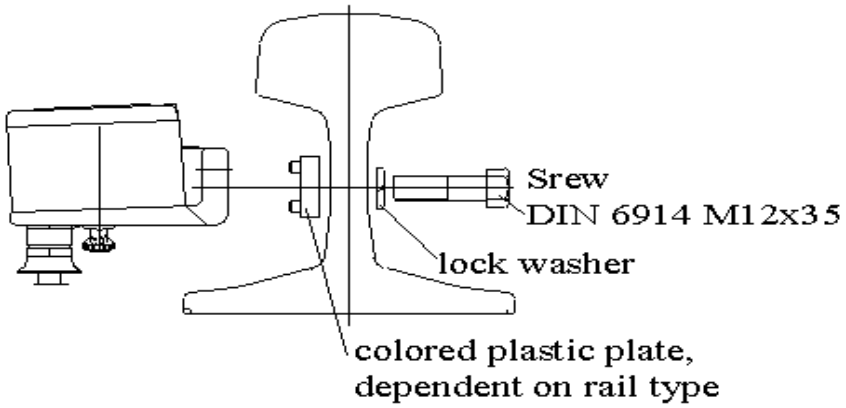
Should the permissible switch distance lie outside the tolerance then the position of the wheel sensor must be corrected.
Check the switching function by repeatedly putting on SSPV 1 or SSPV 9.
The wheel sensor can be checked at any temperature between -30° and + 80°C.
Check the switching distance with a G84 or at the panel amplifier.
Connect a voltage measuring instrument (10V range) in parallel with the wheel sensor systems.
Put the test plate SSPV 1 or SSPV 9 on the middle of the wheel sensor and carefully move it downwards in the direction of the switch until the voltage measuring instrument indicates a voltage of 6.5V (6.3V - 6.7V). Read the length of the milimeter scale on the test foot, continue adjustment with the adjustment screws until both systems indicate the correct voltage when the test plate is set to the preferred switching distance length.

Wheel Sensor Adjustment Chart

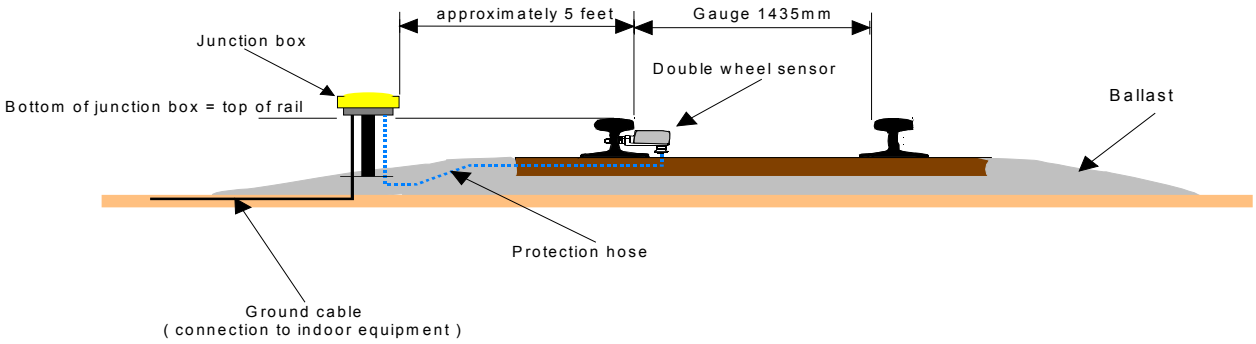
Rail type	Fitting position of the DSS	Switch distance adjustable with adjustment tool EW1 or included knurled brass tool possible :
90 RA	Top	Yes
90 RA	Bottom not possible	No
100 RE	Top	Yes
100 RE	Bottom not possible	No
100 RA	Top	Yes
100 RA	Bottom not possible	No
115 RE	Top	Yes
115 RE	Bottom not possible	No
119 RE	Top	Yes
119 RE	Bottom not possible	No
132 RE	Top	Yes
132 RE	Bottom	Yes
136 RE	Top	Yes
136 RE	Bottom	Yes
140 RE	Top	Yes
140 RE	Bottom	Yes
141 RE	Top	Yes
141 RE	Bottom	Yes
47 kg	Top	Yes
47 kg	Bottom	No
53 kg	Top	Yes
53 kg	Bottom	Yes
60 kg	Top	Yes
60 kg	Bottom	Yes

Mounting parts, delivered with each double wheel sensor, plastic plates are country specified.



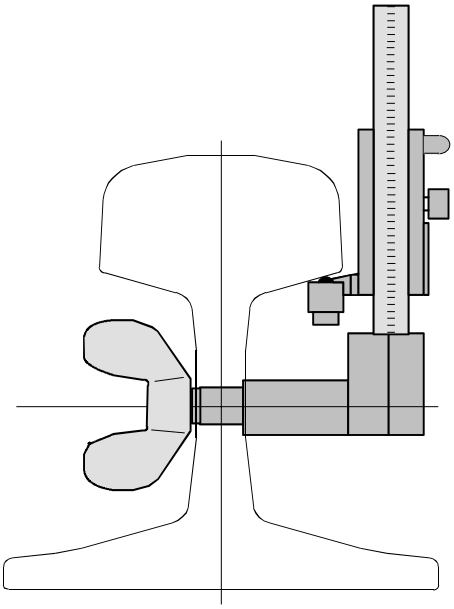


Location of double wheel sensor and junction box at track side



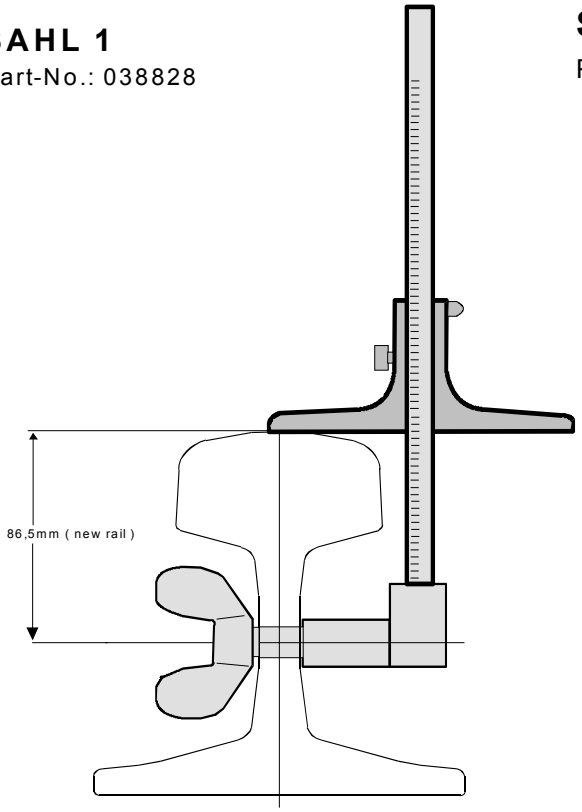
SBKL 1

Part-No.: 040802



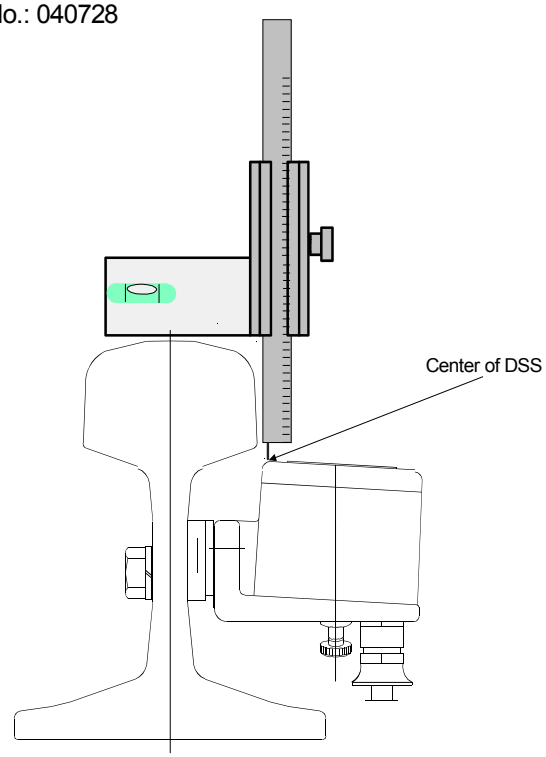
SAHL 1

Part-No.: 038828



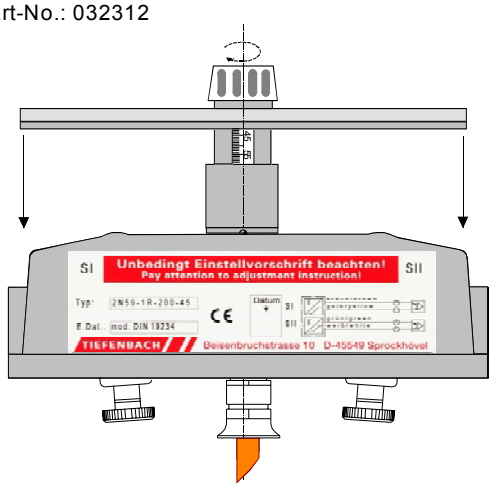
SAHL 2

Part-No.: 040728

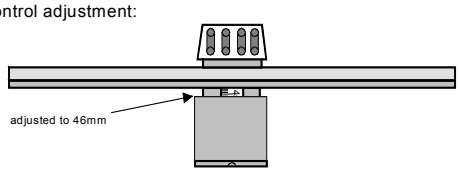


SSPV 1

Part-No.: 032312

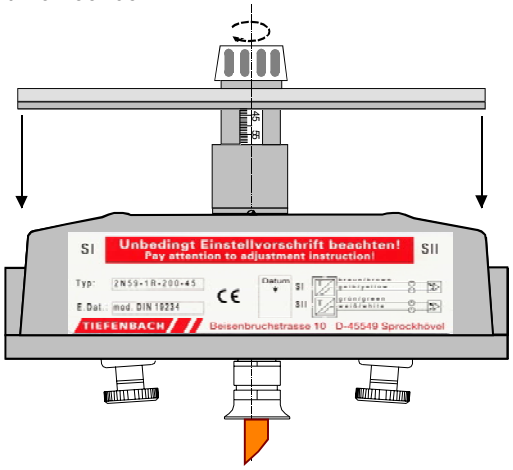


Control adjustment:

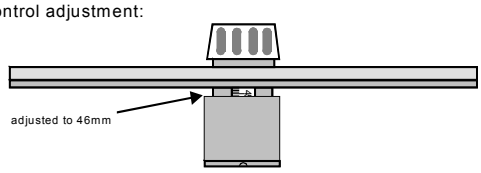


SSPV 9

Part-No.: 351051

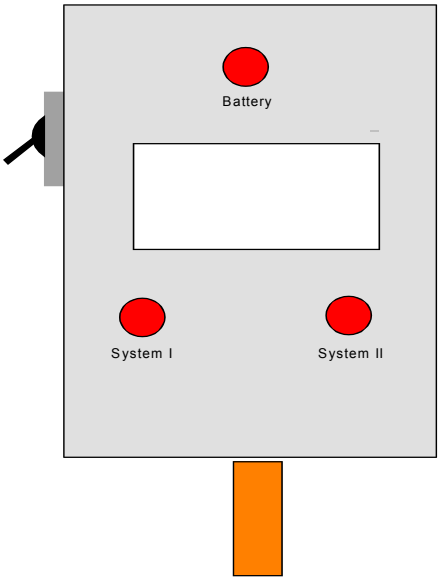


Control adjustment:

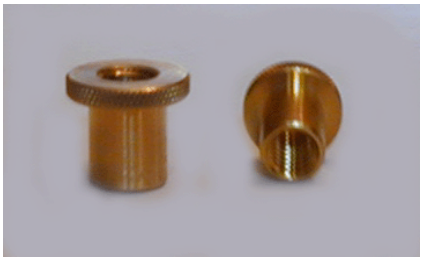


R58/37 Test Device
Part No. 038048

R58/117 Test Device
Part No. 038060



EW 1 Adjustment Tool
Part No. 023846



Brass Adjustment Screw-On Tool