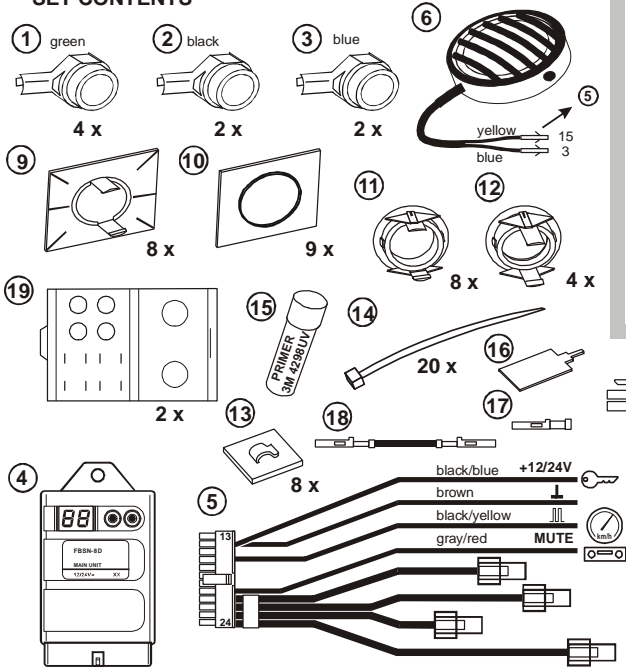
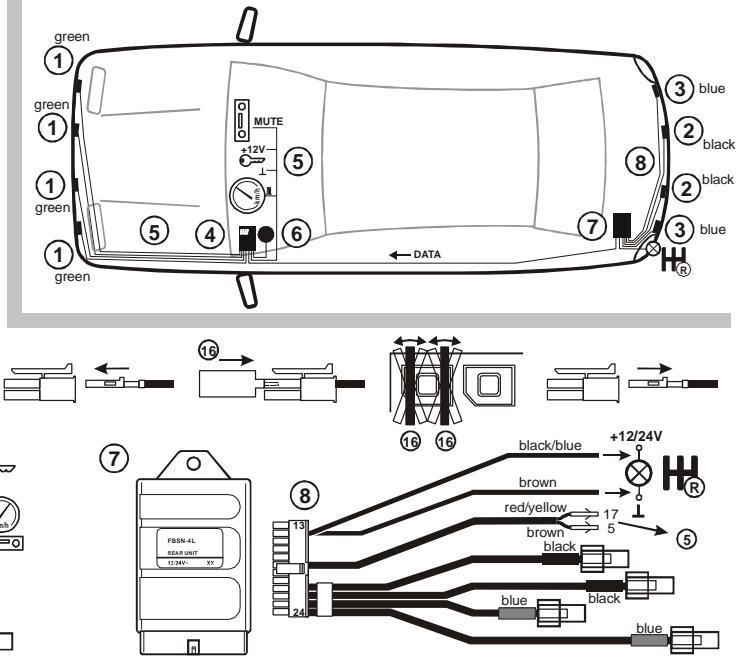


ELECTRONIC PARKING SYSTEM FBSN-8D

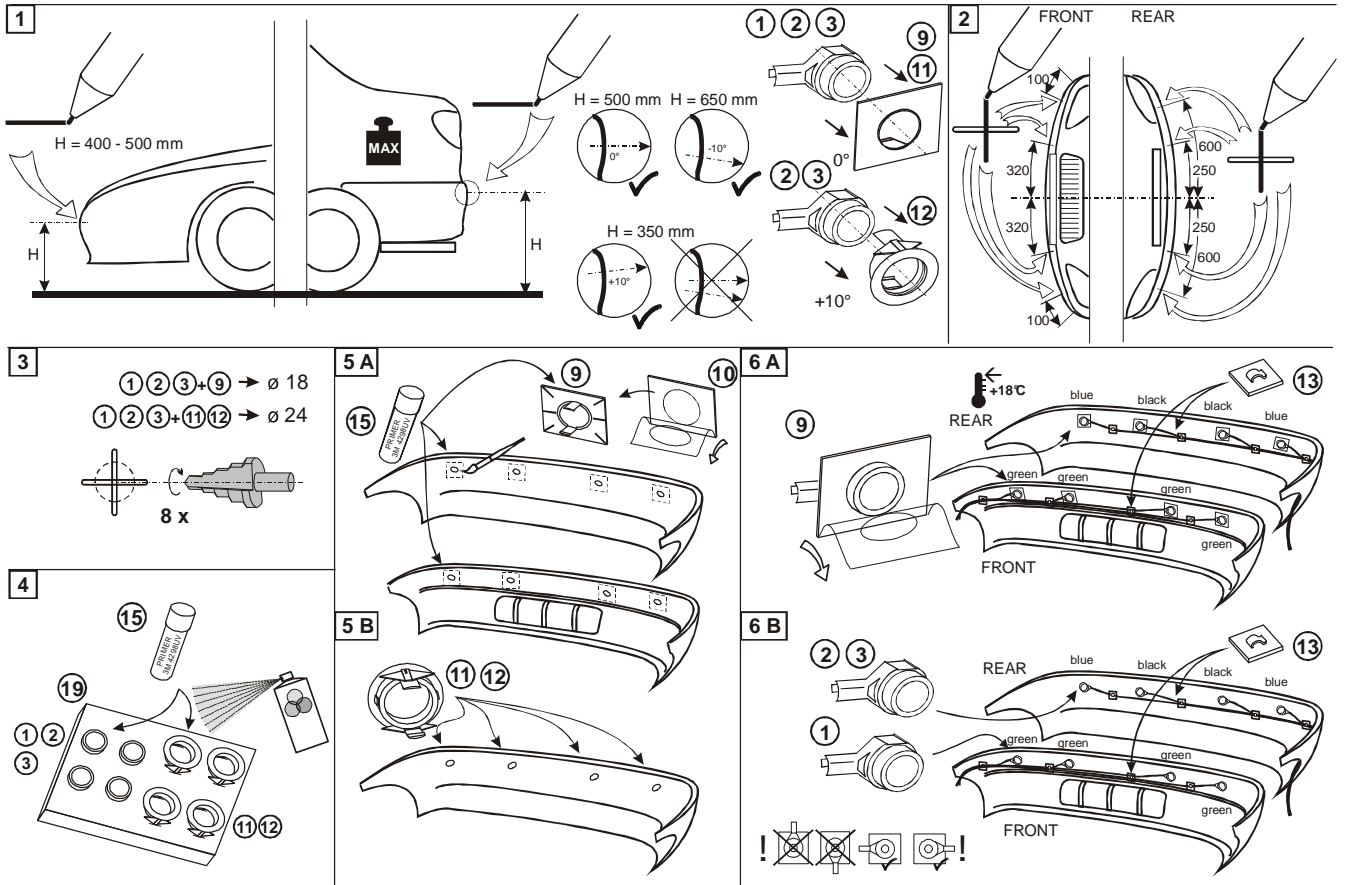
SET CONTENTS



CONNECTION INSIDE THE CAR

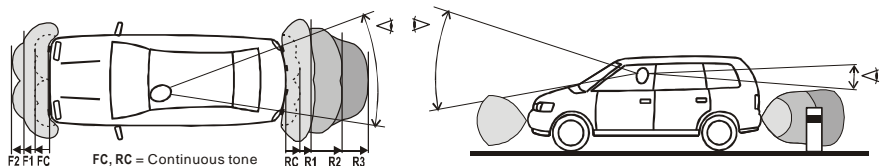


SENSORS INSTALLATION



ZONES OF DETECTION (FACTORY SETTINGS)

ZONE	FC	F1	F2	RC	R1	R2	R3
distance (cm)	25	55	80	35	55	115	160



Electronic parking system FBSN-8D

System consists of following parts:

- 4 front sensors (1) (marked with green colour) are installed in a front bumper.
- 4 rear sensors (two central (2) are marked with black colour, two corner (3) are marked with blue colour) are installed in a rear bumper.
- Main control unit (4) with display and operating buttons is placed under the dashboard.
- Rear control unit (7) in a boot.
- Front cable harness (5).
- Rear cable harness (8) with link cable for data transmission from rear to main control unit.
- Speaker (6)

Description of the function

After switching the ignition on, front sensors are activated. Detection of obstacles and their signalling is launched immediately. After shifting into reverse gear you can hear control signal. Now, either front and rear sensors are activated. Obstacles are signalled audibly by speaker. The faster beeping the closer obstacle is. Volume of the speaker can be adjusted (see chapter Adjustment of parameters). Zones R1, R2, R3 and front zone F (see picture ZONES OF DETECTION) are also distinguished by height of tone. Continuous tone – STOP zone FC, RC. Range of separate zones can be adjusted to vehicle geometry (see chapter Adjustment of parameters). Obstacles which are not approaching are signalled by front sensors only in STOP zone.

To avoid undesirable signalling, utilise possibilities of the sensor deactivation:

- **Automatic deactivation** of the front sensors, if the speed exceeds approximately 10km/h.
- **Push-button** (option, code SWEPS8006F) for temporary deactivation of the front sensors. Lighting push-button indicates, that the front sensors are active. By short push deactivate front sensors until the next shifting into reverse gear or the next ignition switching ON, by long push (longer than 2 seconds) until the next ignition switching ON. Sensors can be activated any time by pressing push-button again.
- **Time window** - if signal of vehicle speed is not at disposal. Front sensors are then active only after the ignition switching ON or after shifting into reverse gear or pushing the push-button. Deactivation is done automatically after certain time since ignition switching ON or reverse gear rejection or pushing the push-button (see chapter Adjustment of parameters).
- **DISABLE input** - cable box (8), pos.19 - by connecting to the chassis (pos.7): rear sensors can be deactivated by switch (option, code SWEPS8006R) or by towing bar socket.

If MUTE function is used, car audio is automatically faded-out during indication of obstacles.

WARNING: Even with electronic parking system installed it is necessary to watch surroundings of the vehicle carefully during manoeuvring. Small obstacles and items with low reflectance do not have to be captured by the system.

Assembly guide

Before assembly, study carefully whole the Assembly guide. Switch the ignition off.
Layout of separate parts of the system is obvious from the picture CONNECTION INSIDE THE CAR.

1. Installation of sensors

IF YOU INSTALL SENSORS INTO A METAL BUMPER, YOU HAVE TO USE APPROPRIATE ADAPTERS (ACCESSORIES).

- Conditions for layout of sensors in bumpers are in the picture. Choose suitable type of brackets and mark centres of the holes. For brackets (9) drill holes $\varnothing 18\text{mm}$, for brackets (11) and (12) holes $\varnothing 24\text{mm}$.
- Paint the sensors, perhaps even brackets (11), (12) according to the colour of a bumper. Use preparation (19). Before painting, apply suitable primer for plastics or Primer (15).
- Apply Primer (15) on the brackets (9). Get it dry for at least 1 minute. Stick the bonding tapes (10).
- Before sticking of the brackets (9) to the bumper clean surroundings of the holes and lay Primer (15). Get it dry for at least 1 minute. Place the sensor into the bracket, remove cover foil, insert sensor into the hole and press bracket fast. Adjust brackets so that connector of sensor comes out horizontally.
- Place the green sensors into the front bumper, blue sensors into the corners of the rear bumper and black sensors into the centre of the rear bumper.

2. Installation of the cabling

- Place the cable box of the front cable harness under the dashboard and pull the cables of sensors through the engine area into the front bumper. Join sensors along the length of the cables. Join black-blue conductor to the voltage +12V switched by ignition key. Join brown conductor to the chassis of the vehicle. Join black-yellow conductor to the signal of speed indicator. Adjust number of pulses per 1 m after accomplishment of the assembly (see chapter Adjustment of parameters). Join grey-red conductor to the input MUTE of audio.
- Place the cable box of rear cable harness in a boot and pull cables of the sensors through to the rear bumper. Join sensors along the length of the cables and according to distinguishing colours. Join black-blue conductor to the rear light. Join brown conductor to the chassis of the vehicle.
- Conduct link cable to the front cable box. Mount contacts into the front cable box:

Red-yellow conductor	pos.17
Brown conductor	pos.5
- Stick the speaker onto the suitable place under the dashboard. Mount the contacts of the speaker's cable into the front cable box:

Yellow conductor	pos.15
Blue conductor	pos.3
- Place main control unit under the dashboard so that operating buttons and display are accessible. Join cable box of the front cable harness.
- Place rear control unit on suitable place in a boot and join cable box of rear cable harness.


Adjustment of parameters

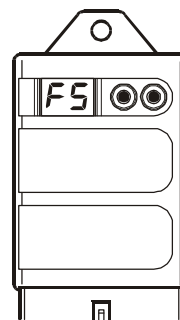
Main control unit FBSN – 8D is equipped with service display and two push-buttons. It enables to display and adjust some parameters of device.
WARNING! Unprofessional manipulation with parameters can seriously limit utility of device!

Display shows:

 **FACTORY SETTINGS,**

or

 **CUSTOM SETTINGS** – if one or more parameters are adjusted in a different way from factory



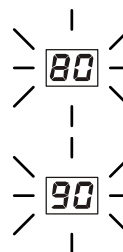
By long push (longer than 2 seconds) of whichever button, activation of service state occurs. Display shows number of chosen parameter.



Choose desired parameter by means of buttons – down by left button, up by right button.



By long push (longer than 2 seconds) of whichever button value of chosen parameter is displayed. Value is blinking.



Change the value of parameter by means of buttons down by left button, up by right button.



By long push (longer than 2 seconds) of whichever button new value is stored and number of chosen parameter is again displayed.



Termination of service state is done automatically, if no button is pushed for certain time.



FACTORY SETTINGS RESTORING: by simultaneous long push (longer than 2 seconds) of both buttons.



Parameters review

NUMBER	DESCRIPTION	RANGE	FACT. SET.	NOTE
01	Volume of the speaker	0, 1, 2	2	0=off, 1=low, 2=high
02	Range of front central sensors	50 – 95 [cm]	80	
03	range of front corner sensors	50 – 95 [cm]	55	
04	range of rear central sensors	120 – 180 [cm]	160	display shows 20 - 80
05	range of rear corner sensors	50 – 95 [cm]	55	
06	STOP zone of front central sensors	25 – 50 [cm]	35	
07	STOP zone of front corner sensors	25 – 50 [cm]	25	
08	STOP zone of rear central sensors	35 – 70 [cm]	35	
09	STOP zone of rear corner sensors	35 – 70 [cm]	35	
10	Suppression of spare wheel indication	0, 1	0	1 = activated by jumper
11	Number of speed signal pulses	1 – 99 [pulses/m]	3	
12	Delay of front sensors deactivation	0, 10 – 60 [s]	0	0 = function not activated
13	Delay of rear sensors activation	0, 1	0	1 = for automatic gearbox
15	Service display	0, 1, 2, 3	0	0 = function not activated 1 = distance of the nearest front obstacle [cm] 2 = distance of the nearest rear obstacle [cm] 3 = calculated vehicle speed [km/h] (test of the speed signal and parameter No.11 setting)
16	Front obstacle indication	0, 1	0	0 = nearing obstacle only 1 = all obstacles

Note: STOP zone = distance from sensor, from which the obstacle is indicated by continuous tone.

Problems solving

- If there is 3 seconds lasting faulty tone after ignition switch ON or shifting into reverse gear, there occurred disconnection or damage of some sensor.

Number of faulty sensor is displayed on the main control unit:



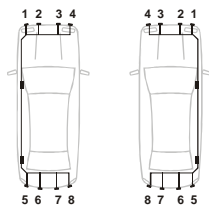
If there is faulty or disconnected more than one sensor, display shows numbers of all the faulty sensors subsequently.

Number of faulty sensor is indicated also audibly by the number of beeps following the faulty tone.

Note: Rear sensors are tested after shifting into reverse gear.

Change faulty sensor as soon as possible, the whole device is out of order!

On the vehicle, separate sensors are numbered as following:



- | | |
|----------|--------------------------------------|
| Sensor 1 | front sensor with the shortest cable |
| Sensor 4 | front sensor with the longest cable |
| Sensor 5 | rear sensor with the shortest cable |
| Sensor 8 | rear sensor with the longest cable |

- If irregular false obstacle indication occurs, it can be one of the following problems:

Frost on sensors	Clean sensors
Sensors are placed too low	Use angle brackets (12) to tilt axe of sensors upwards
Rear side of sensors in a contact with chassis of vehicle	Create separation between sensor and vehicle body

- If the protruding part in the rear of the vehicle causes unwanted obstacle indication (e.g. spare wheel), mount the jumper (18) to the rear cable box (8), pos.16 and 4.
- If it is necessary to disconnect some wire from the control unit cable box, use attached extraction tool (16).
- If it is necessary to connect some wire to the control unit cable box, use attached spare contact (17).

Technical specifications

Supply voltage	9 - 30V
Current consumption (only when ignition is on)	350mA max.
Range of service temperatures	-25...+70°C
Frequency of ultrasound	40 kHz