

PC



***OMSI 2*** *Add-on*

# Three Generations

Articulated buses for ***OMSI 2***

Manual



1992



1999



2012



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Airport Paderborn/Lippstadt  
D-33142 Bueren, Germany

Tel: +49 (0) 29 55 / 76 03-10

Fax: +49 (0) 29 55 / 76 03-33

E-Mail: [info@aerosoft.com](mailto:info@aerosoft.com)

Internet: [www.aerosoft.de](http://www.aerosoft.de)  
[www.aerosoft.com](http://www.aerosoft.com)



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# **Three Generations**

## **Manual**

Add-on for

**OMSI 2 - The Omnibussimulator**

# Content

<b>Introduction .....</b>	<b>6</b>
<b>System Requirements .....</b>	<b>6</b>
<b>Installation .....</b>	<b>7</b>
<b>Aerosoft Launcher .....</b>	<b>8</b>
General information about the Aerosoft-Launcher .....	8
<b>Removal .....</b>	<b>11</b>
<b>The vehicles.....</b>	<b>12</b>
1992-1993 .....	12
1999 .....	14
2012 .....	16
<b>New OMSI features for this add-on.....</b>	<b>17</b>
<b>Acknowledgements.....</b>	<b>18</b>
<b>Busses in detail .....</b>	<b>19</b>
1992/1993 Driver's place overview .....	19
1992/1993 Switchable elements on dashboard.....	22
1992/1993 Switchable elements on window console.....	25
1992/1993 Additional driver's place elements.....	27
1992/1993 Electronic ticketprinter (EFAD) .....	28
1992/1993 Operations and lighting .....	32
1992/1993 Electric wheelchair ramp .....	35
1992/1993 Level control .....	35
1992/1993 Door controls.....	36
1992/1993 Heating and air conditioning .....	37





1999 Driver's place overview .....	39
1999 Switchable elements on dashboard .....	40
1999 Switches on window console .....	42
1999 Additional driver's place elements .....	43
1999 Atron FR Compact .....	44
1999 Central info display (VDV) .....	48
1999 Icons in central info display .....	50
1999 Warnings in central info display .....	50
1999 Master failures .....	51
1999 Door controls .....	52
1999 Lighting, power-save, school bus mode .....	53
1999 Fold-out ramp .....	54
1999 Level control .....	54
2012 General information .....	57
2012 Driver's place overview .....	58
2012 Steering wheel buttons .....	59
2012 Switchable elements on window console .....	60
2012 Additional driver's place elements .....	61
2012 Control lights .....	62
2012 Höft & Wessel ALMEX .....	63
2012 Central info display .....	68
2012 Icons in central info display .....	70
2012 Warnings (yellow) in central info display .....	71
2012 Master failures .....	72
2012 Door operation .....	72
2012 Lights, power-save, school bus lights mode .....	74
2012 Fold-out wheelchair ramp .....	76
2012 Level control .....	76
2012 Interior stop display .....	77
2012 Air conditioning .....	77
2012 Trip recorder .....	80

# Introduction

Have a seat and make yourself comfortable – welcome to your new articulated buses from Hamburg!

Of course these can be used on all other OMSI maps as well. This is guaranteed by improved repaintability to create custom paintworks, dynamic ticket name display on the printer and Euro and DM changers to represent the old and current German currency.

# System Requirements

To play the add-on “Three Generations” as fluid as possible, your pc has to meet the following requirements:

- Processor min. Dual-Core 3,0 GHz
- Graphics card min. 1024 MB (Direct X)
- min. 4 GB RAM
- Operating system Win XP/Vista/7/8
- Internet connection for the online activation
- Free hard disc space min. 1,5 GB

**Please be sure you have installed OMSI 2 before installing the add-on (incl. the 1.04 patch for OMSI or the latest OMSI 2 version)**

**For the online activation an active internet connection is required**



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# Installation

You have to be logged in with administrator rights before you start the installation of “Three Generations”. To start the installation of “Three Generations” run the file you downloaded from your shop account.

After you have chosen your preferred installation language, the welcome screen appears and you will be presented with some important information and the license agreement. Please read it carefully.

You will be asked to insert your email address and your registration key. Please insert it exactly the way it was written in the confirmation mail you received from your download shop. Please keep your registration key on a safe place, You will need it again if a new installation will be necessary.

The installation program will attempt to locate the correct path. If you wish to install to another location, then you will have to enter the correct path for installation manually. In order to do this, click on “Browse” and navigate to the correct path. Before the installation program starts to copy the files onto your hard disc, you will be presented with all the installation details.

The installation program will now copy all of the “OMSI - The Omnibus Simulator” files onto your hard disk.

If you want to make any changes or to install any updates for this program you will need the DVD or the installation file from the download shop and your registration key again.

## Important note!

Subsequent to the installation the Aerosoft-Launcher will be started for the online registration. Learn more about this program in the next chapter.

# Aerosoft Launcher

## General information about the Aerosoft-Launcher

The Aerosoft-Launcher gives you an overview of all Aerosoft products installed on your computer. You will also have easy access to special features available for the several products.

Should the SOFTWARE PRODUCT require an Online Registration, the Aerosoft LAUNCHER will take you through this process. The Aerosoft-LAUNCHER will be automatically installed with the SOFTWARE PRODUCT and will launch at the end of the install process.

You can run the Aerosoft-Launcher at any time via the Windows START menu to check the activation state of your installed SOFTWARE PRODUCTS. Just follow this link:

START | ALL PROGRAMS | AEROSOFT | Aerosoft Launcher

The Aerosoft-Launcher starts up in the "Library" view by default. Here you can see an overview of all installed Aerosoft SOFTWARE PRODUCTS and their state of activation.

The following categories will be shown.

"Aircraft", "Sceneries", "Tools/Missions", "Category-Unknown" and "Simulation".

The SOFTWARE PRODUCT will be placed in one of these categories accordingly during installation. Older SOFTWARE PRODUCTS which do not need an online activation will be placed in the category "Category-Unknown".



In the “Library” view you will also see an overview of current Aerosoft News.

## What is required for an installation?

For an installation and an online-activation you will have to have administrator rights. Please make sure that you have these rights.

You will also need an active internet connection.

## How do I activate a SOFTWARE PRODUCT?

If necessary please change to the “Library” view and select the SOFTWARE PRODUCT for activation.

Click on the button “activate”.The following screen will appear:

**OMSI - Der Omnibussimulator**

Info: Dieser Dialog leitet Sie durch den Aktivierungsprozess. Für die Online-Aktivierung werden Ihre E-Mail-Adresse, die Serien-Nummer des Produkts und eine bestehende Internetverbindung benötigt. Tragen Sie Ihre Daten in die unten stehenden Felder ein. Sollten diese Werte aus Ihrem System automatisch ermittelt worden sein, überprüfen Sie diese bitte und klicken auf die "Online Aktivieren" Schaltfläche.

Shop: Info: Wählen Sie den Shop aus, bei dem Sie das Produkt erworben haben.

☒ Aerosoft  
☐ Andere

E-Mail: Info: Tragen Sie hier bitte Ihre aktuelle Email-Adresse ein. Beachten Sie bitte, dass bei den Download-Produkten die Email-Adresse erforderlich ist, mit der Sie auch in unserem Download-Shop registriert sind!

xxxxxx@xxx.xxx

Seriennummer: Info: Tragen Sie hier bitte die Seriennummer, die Sie beim Erwerb des Produkts erhalten haben, ein.

xxxxxxxxxxxxxxxxxxxxxxxx

Online aktivieren  
Offline aktivieren

Abbrechen OK

Check your email address and your registration key is correct and click on „Online activation“. Please note you will need an active internet connection for this procedure.

Your registration data will be transferred to our Aerosoft server now.

Your information will now be transferred to the Aerosoft server. After a

successful transfer your system will be activated and used without further limitations.

Please note that depending on the safety settings some data of the Aerosoft SOFTWARE PRODUCT need to be personalized.

### Information about the activation status

**GREY** == undefined

**GREEN** == active

**YELLOW** == reactivation required

**RED** == activation unsuccessful

### I want to install the SOFTWARE PRODUCT again. How do I do this?

The "Library" view will show the activation status of each SOFTWARE PRODUCT.

If it is shown in **GREEN**, the SOFTWARE PRODUCTS are active. A new activation is not necessary.

If it shows **YELLOW** the SOFTWARE PRODUCTS have at least been activated once but need a new online activation because of new hardware in your system. Click on the button "activate".

Please note that all required information has been correctly filled in.

### There is an update available for the SOFTWARE PRODUCT. Does it change the activation status?

Normally the activation status will not be changed.

It is possible though that an adoption of the activation status on to the new installed data is necessary.



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If this is the case change to the “Library” view and select the appropriate SOFTWARE PRODUCT.

Click on the “refresh” Button to take over the activation status.

## **I have to reconfigure my PC-System or I have got a new PC. What do I have to bear in mind?**

A check of the activation keys commences every time the Aerosoft-LAUNCHER is started. Depending on the activation status, a new activation might be necessary.

## **Removal**

In order to fully remove “Three Generations” run the Aerosoft-Launcher. Change to the „Library” and select „Three Generations” in the „Simulation” category. The information about „Three Generations” will appear.

Click on the „Uninstall” button. The installation program will start to remove the program from your hard disk.

# The vehicles

## 1992-1993

This 1992 model is, just as the look indicates, based on the common Hamburg citybus.



The series 71 and 73 were included in this add-on. They contain 47 (made in 1992) and 28 (made in 1993) almost identical low floor articulated buses.

This series remains special in Germany because many traffic companies ordered the newer generation "GN2" later in the 90s.

These buses were built on the preceding raised-floor buses with the popular articulation angle protection technique by FFG. The second





door is placed further to the front in comparison to the solo bus. This was done to improve the weight distribution in the joint area. The seats are a little different due to the different door placement.

The 1992/1993 buses use the same automatic transmission as the solo buses, but with a smaller axle output ratio.

The engine is Euro 1 and with 250 HP slightly more powerful than the solo bus, this is necessary to move the larger weight. The EFAD ticket printer and inside stop display are also known from the solo bus.

Door controls are, as it is common in HHA articulated buses, automatic on door 2 and 3. Only the front door can be directly controlled by the driver. The other doors are released with a second switch and can be opened by the passenger.

The later series 73 (year 1993) has just two small differences: an additional side indicator above the front wheels and new skylights that can be used as emergency exits.

The original buses were put out of service in 2009 and reached an above-average life span of 17 years.

Some buses had been refurbished for the soccer world championship in 2006. Many of these are still being used by small bus companies in Germany and Eastern Europe.

# 1999

The 1999 bendy bus required many modifications in the OMSI bus model.



15 of these buses were acquired in 1999 by the VHH and moved over all depots in the Hamburg metro area.

Two of these are still in use as of today (January 2014) in Neumünster, a city in the north of Germany.

This series is very interesting because it was the first order of new articulated buses for the VHH. Also, these remained the only type "GN2" bendy buses in Hamburg. To reduce prices, they did not feature a fog rear light and just small double-light rear lights in the upper rear.

According to the original, the interior and engine were redesigned. The engine is a Euro 2 turbo engine with 299 HP and electronic injection control.



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An automatic transmission with just 4 gears is used, but because of the long axle ratio these buses still reach a higher top speed than the 1992/1993 series.

You will notice the lower window sill in the front area and the split windshield with upright wipers. Many openings for maintenance were moved to the left or to the interior (fuse box).

The middle door is placed in the same spot as in the solo bus, right before the middle axle. It is directly controlled by the driver, only the third door is automatic.

In contrast to the 1992/1993 series this bus features sideways seats in the back. The middle standing area has additional folding seats.

The windows are doubled and sun-protective, you will notice the green tint.

The outside target display is a new version of the KRUEGER flip dot with a slightly changed font type (check the numbers).

The cockpit is a new VDV-style dashboard which was introduced in 1996. It features the ATRON printer also used in 1994 PVG solo buses from the Hamburg add-on. There is a new inside stop display, additional halogen spots above the rear doors and two neon lightbars in the middle.

# 2012

The new 2012 "C2" style bus is still a rare find when this add-on is released.



Orders in 2013 only included the old style, maybe because of high costs and reduced outside surfaces to be used for advertisements.

There will be more of these coming in 2014 though.

There were just 3 "C2" with Euro 6 and 2 Euro 5 in Hamburg when this add-on was made. They can be easily distinguished by black and red front bumper (Euro 5 is black) and the higher rear roof area in the Euro 6. The Euro 6 engine is mounted upright resulting in less window space in the rear.

The Euro 6 version was included in this OMSI add-on. It is a state-of-the-art citybus with AdBlue addition to reduce exhaust gases, ESP system, LED daytime driving lights and other amenities that you would expect in private car.



The paint variations are based on real buses in other cities and are meant to be samples and inspiration for your own repaints. They do not affect the technical systems that might be different in other cities.

The buses feature three double doors, the middle door can be controlled by the driver or automatically by the passengers. A photo sensor will recognize passengers and play a sound to remind passengers to leave the door area when the door is about to close.

The outside target displays are made by LAWO, type LED Benefit. There are two inside stop displays as well. You'll find one fold-out seat in the front standing and two in the back. There are three cameras in the passenger room and one in the drivers space to increase safety. The video material is only recorded by request of the driver or dispatcher.

The trip recorder is a digital unit with analog writing pen, meaning you have to put the paper chart into the drawer before beginning your tour. It is independently mounted in the top rack above the driver's head. For the first time in an OMSI bus, you can open the drawer and put in the cart.

The ticketprinter is a newly designed Almex touchscreen unit. It will not only print tickets but also control target display, station announcements and more. It also features new stuff like UV light for banknote safety, "line tree display" to list all stations coming up and more (check vehicle operations below).

## **New OMSI features for this add-on**

For the first time, the new articulated buses will automatically switch between Euro changers (Hamburg) and Deutsche Mark (all other maps) to make ticket selling easy. There is also a new feature to display fogged up windows. This will occur most likely in the winter time with damp interiors. Windows steaming up on the outside can be wiped free with the front wipers, if the fogging occurs on the inside, this does not work.

The ticketprinters have a new functionality to display ticket names and prices on all maps automatically. This will make ticket selling very easy on all maps with all kinds of tickets.

The 2012 bendy bus has many new contemporary details like daytime driving lights, LED displays, digital information display and power-save functions. It also has a unique door control with the middle door being half-automatic.

Also, you might want to watch loose parts like the retaining straps while driving a curve.

It is understood that all vehicles were made by using original footage, sound recordings, textures and thousands of pictures.

# Acknowledgements

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# Busses in detail

## 1992/1993 Driver's place overview

### Display instruments on dashboard



1	<b>Double pressure gauge (front/middle axle)</b> Indicates storage pressure (white) and current brake pressure (red) for first and second pressure circuit.	11	<b>Light oil pressure low</b>
2	<b>Rev meter (rpm)</b> Idle 580 rpm, allowed maximum speed 2200 rpm.	12	<b>Light ABS/ASR control</b> After engine startup, a self-test will be performed below 5 kph. Lights up when driving if failure or system is currently intervening.

3	<b>Cooling water temperature (°C)</b> Normal: 85-100 °C.	13	<b>Light ASR off/intervention</b> ASR avoids slippage of driving wheels.
4	<b>Transmission oil temperature (°C)</b> Normal: 40-100 °C. Retarder will be switched off when overheating.	14	<b>Light generator</b> Voltage of battery low.
5	<b>Engine oil pressure (bar)</b> Normally between 2-5 bar.	15	<b>Light high beam lights</b>
6	<b>Speedometer, recorder, clock, odometer</b> 2 red lights: upper light when overspeed, lower light when cover open or malfunction.	16	<b>Light turn indicator</b>
7	<b>Hazard flasher</b> Switch, light	17	<b>Light stop request</b> Stop requested when stop button, ramp button or stroller button are pressed by passenger.
8	<b>Light general failure</b> Pressure low, engine or gearbox failure, overtemperature	18	<b>Light ramp request</b> Ramp request buttons are located in the middle standing area and outside at the door.
9	<b>Light parking brake</b>	19	<b>Light level control</b> The airride level control aligns all suspensions to the same height. When blinking, pressured air storage is low.





<b>10</b>	<b>Light retarder off/constantly active</b> When retarder brake is engaged constantly or has been deactivated.	<b>20</b>	<b>Light wheelchair ramp</b> Ramp can be moved out when middle door is closed. When stuck, turn off main electrics.
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<b>21</b>	<b>Light door check</b> All doors closed and released, speed below 5 kph.	<b>27</b>	<b>Light doors released</b> Middle and rear door can be released below 5 kph.
<b>22</b>	<b>Light door control</b> Lights up when at least one door is open or door control system has failed.	<b>28</b>	<b>Light EMR</b> Electronic engine control (EMR) light is on when failure occurs or engine is turned off. In case of malfunction, pull emergency switch or reset the main electrics.

23	<b>Light busstop brake</b> Bus-stop brake will engage when stop brake switched, rear doors open, ramp engaged or kneeling active.	29	<b>Light stroller request</b> With stroller request button (middle standing area or middle door outside), the passengers can request to stop the automatic closure of the automatic middle door.
24	<b>Light window heat</b>	30	<b>Light articulation angle protection</b> The articulation joint angle is being controlled and restricted in emergency situations.
25	<b>Light auxiliary heat</b>	31	<b>LCD temperature display (inside/outside)</b>
26	<b>Light radio communication</b> Lights up when radio switch is pressed. No functionality in OMSI.	n o t p i c t .:	<b>Fuel gauge</b> on the left console below the window

## 1992/1993 Switchable elements on dashboard





1	<b>Hand brake valve</b> Down = engaged, up = released. The spring-loaded brake works without air pressure and ensures safe braking of the vehicle at all times. Applies to middle and rear axle.	8	<b>Retarder constant switch</b> Constantly turns on the retarder brake. This will result in higher gearbox temperature.
2	<b>Steering column switch</b> Switches turn indicator, horn, wipers, washer, and full beam.	9	<b>Retarder off switch</b> Disconnects retarder brake from air pressure foot brake.
3	<b>Function test switch</b> Tests the functionality of master failure light.	10	<b>Front fog lights switch</b>
4	<b>Rear fog lights switch</b>	11	<b>Passenger room lighting front switch</b>
5	<b>Ignition key</b> The HHA traffic company installed ignition keys in all new vehicles at that time. The drivers needed the standard electric key ("Bosch key") and a small extra ignition key.	12	<b>Passenger room lighting rear switch</b>
6	<b>Main electric switch</b> Push in key to engage electrics. Rotation 1 turns on standing lights, rotation 2 driving lights. When the engine is off or key pulled out, energy saving will become active.	13	<b>Door wings lock switch</b> Locks the electric operation of both front door wings, also from the outside.
7	<b>Engine stop switch</b> Stops the engine below 7 kph.	14	<b>Wheelchair ramp switch</b> Operate wheelchair ramp when middle door is closed.

15	<b>Turbo ventilation switch</b> Roof ventilation on/off. These have no connection to heating circuit.	23	<b>Stroller request switch</b> Press down: Stop automatic closure of middle door. Press up: Release stroller request.
16	<b>Front ventilation switch level 1</b> The front ventilation is located in the middle aisle below the windshield.	24	<b>Kneeling switch</b> Kneels down the bus on the right side for easy entry (when doors are closed).
17	<b>Front ventilation switch level 2</b> If engine is turned off, only level 1 is available.	25	<b>Side window heat switch</b>
18	<b>Front ventilation switch level 3</b>	26	<b>Gear selection</b> "D" for most situations. You can limit available gears with 1-3.
19	<b>Floor ventilation switch level 1/2</b> If engine is turned off, only level 1 is available.	27	<b>Stop brake switch</b> Applies brake pressure of 3,5 bar on middle and rear axle to stop the bus at traffic lights or busstops.
20	<b>Driver ventilation switch</b> Level 1/2	28	<b>Front door switch</b> Press down: open, press up: close.
21	<b>ASR off switch</b> Turns off ASR below 30 kph.	29	<b>Door release switch</b> Press down: release rear doors, press up: lock rear doors. Rear doors will close automatically after 5 seconds when opened by a passenger.
22	<b>Right front door wing lock</b> Locks the right (rear) front door wing electrically.	30	<b>Hazard flasher switch</b>



## 1992/1993 Switchable elements on window console

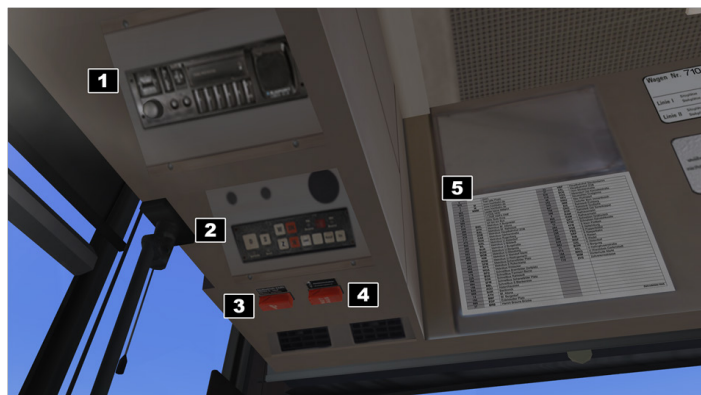


31	<b>Kneeling key switch</b> The kneeling functionality could be locked here, but this was never used. No functionality in OMSI.	38	<b>Air circulation flap switch</b> Closes the circulation flap, resulting in better heat and lower cool power.
32	<b>Temperature selector</b> Blend warm and cold air for interior ventilation.	39	<b>Auxiliary heat switch</b> Oil driven auxiliary heat can operate independently from the engine.
33	<b>Outside mirror setup switch</b> No functionality in OMSI.	40	<b>Air flaps floor ventilation</b>
34	<b>Microphone foot switch</b> For announcement microphone.	41	<b>Radio communication switch</b> No functionality in OMSI.
35	<b>Radio communication foot switch</b> No functionality in OMSI.	42	<b>Window heat switch</b>

<b>36</b>	<b>Cashdesk light switch</b> The cashdesks light will also turn on when driving lights are on and front door is open.	<b>43</b>	<b>Air flaps front ventilation</b>
<b>37</b>	<b>Floor ventilation rear switch</b> Level 1/2	<b>44</b>	<b>Air flaps window ventilation</b>



## 1992/1993 Additional driver's place elements



1	<b>Radio</b> Bus drivers are not supposed to listen to the radio in Germany, but you could give this a try on a service trip.	4	<b>Start inhibit emergency release</b> In case the start inhibit or stop brake is not releasing.
2	<b>RC device</b> No functionality in OMSI.	5	<b>Target code list</b> Lists all target codes on all maps if texture file is found in folder: <b>Texture\Linienlisten</b>
3	<b>EMR emergency operation</b> In case of failure of engine control.		

# 1992/1993 Electronic ticketprinter (EFAD)



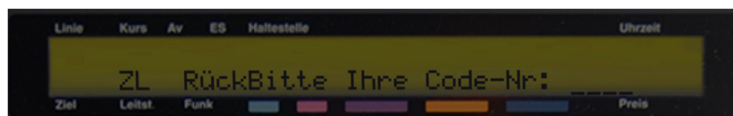
The EFAD is the ticketprinter of the 1992/1993 bus. It also controls the target display and station announcements.



Push in the key and the EFAD will start up. You see the mobile card on the left side. Click on it to push it in.

The driver card has to be logged in to sell tickets, otherwise you can just use the other functions.

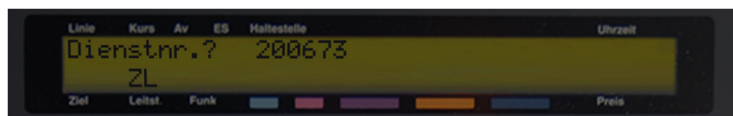




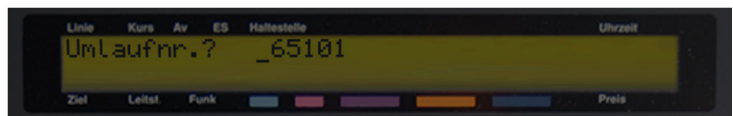
Enter the PIN that shows on the little yellow paper. Confirm with green.



You now have the option to add previous income to the current driver account. If you don't need to add anything, continue with green key.



The employee number is automatically recognized from the driver card, just confirm this screen.



The tour number is necessary to use automatic station announcements and automatic target display in Hamburg. You will find this number in the OMSI menu where you can select the timetable. You can read the following out of the number:

21... = PVG

65... = HHA weekdays

66... = HHA Saturday

67... = HHA Sunday

If you need to change the tour number later, use the key "Li-Krs Weg". You can also enter a target code manually with "Sonderziel". The list of all codes is mounted above the windshield. It is now also possible to enter a course ("Kurs") number. This would be e.g. 09201 for line 92 in Berlin-Spandau. Using a course number means stations need to be advanced manually with the arrow keys.



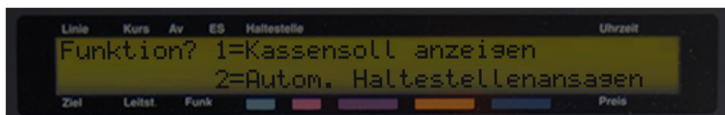
If the tour number is correct and a schedule is active in OMSI, the next trip will be recognized (only Hamburg). Confirm this with green and the EFAD will set target display and announce the stations.

On all other maps (not Hamburg) you have to enter the line and target code or course number manually to activate a tour. Use the black key "Li-Krs Weg" to enter the line/target code menu.



This is the main screen of EFAD. You see line and target code, tour number, next stop name and current timetable delay (60 Sek. = 1.0).

If no schedule is activated or no tour number entered ("Umlauf"), no busstop and delay will be displayed.



Press „Funktion“ to get to the options menu. With number key „1“ you can check the current income debit.



Press number key “2” to deactivate automatic station announcements.

If you want to cancel the current duty, press “Ubr Abr” in the main screen.



The relevant keys for ticket sale are seen colored on the image. Orange (0-4) are standard tickets city, short haul, one way short, one way long, metro area. Purple (Tag) is the day ticket. Blue (Kind Erw) prints a child ticket.

On all other maps (not Hamburg), the keys will have different functionality depending on the map's ticketpack. You will see the correct ticket name in the display.

In Hamburg, you can see the driver's day schedule on the clipboard if the tour number has been entered. If you click on this plan, the line schedule will appear. On all other maps, the clipboard will show the normal line schedule.

The EFAD will be supplied by battery for 10 minutes when the key is taken out.

# 1992/1993 Operations and lighting



The dashboard is based on the well-known solo bus. Only the control lights stroller, angle protection and door release have been added.

Without the key, hazard flasher, pressure gauge and outside door switch are working.

If key is pushed in (rotation 0): round instruments, turn indicator, horn, door control, ignition, angle protection.

The HHA traffic company installed an extra ignition key after putting the buses into service. The normal push button below is used to turn off the engine.

Turning the key to position 1 or 2 activates standing or driving lights, entry lights, instrument lights and outside lights. If the engine is turned off with driving lights turned on, these will be reduced to standing lights until the engine is started up again. When driving lights are active, the door entry lights and the cashdesk light will turn on when the door is open.



You can set the automatic transmission using the gear selector switches 1-2-3-D-N-R.

Use "D" for all 5 forward speeds. Before changing the direction, switch to "N".

The interior lighting is controlled by two switches for front and rear vehicle. The cashdesk light switch is on the left window console.

The master failure light indicates the vehicle is not safe to operate when:



engine rotation is too slow,  
pressured air reservoir is low ( $< 6,5$  bar),  
oil pressure is low ( $< 0,5$  bar),  
engine rotation reaches overspeed,  
transmission oil temperature is too high,  
angle protection becomes active,  
test switch is pressed down.

Control light angle protection lights up when the critical joint angle is reached and the joint protection becomes active. You will hear a buzzer as well.



If the angle reaches the threshold of  $43^\circ$  in reverse gear, the throttle will be blocked and stop brake becomes active to protect the joint.



The angle protection system will perform a self-check when starting up and the light will turn on for a moment.

Keep an eye on the round instruments while driving.

Brake pressure reservoir should always be above 6 bar (white pointer).

The engine temperature should stay around 85 °C, gearbox temperature below 130 °C.

If the gearbox is overheating, try to avoid or turn off the retarder brake and drive with low throttle.

Remember that a cold drivetrain will also result in less acceleration and use the auxiliary heat to warm up the engine quickly.

After ignition, the ABS system will perform a self-check. If the light stays on, a failure has occurred. When the system intervenes while braking, the light will blink several times.



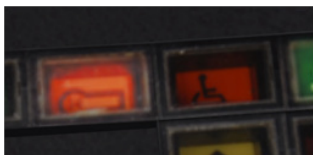
The yellow ASR light will blink when the wheels slip.

It will constantly light up when the ASR has been turned off.



The retarder light shows the retarder brake has been unlinked from the foot brake.

This should only be used when road is slippery because it will increase brake wear and pressured air consumption.



The orange control lights show passenger requests of stop request and wheelchair ramp request.

These are confirmed by opening the doors or engaging the ramp.

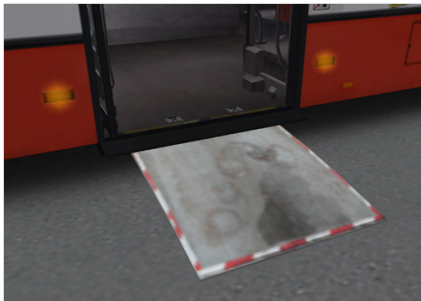


## 1992/1993 Electric wheelchair ramp

All 1992/1993 buses were delivered with electric wheelchair ramps. Some of these were removed later because of frequent failures.

The bus must be stopped and the middle door must be closed to deploy the ramp.

The middle door will be opened automatically when the ramp has deployed if the door release is active.



If you switch off the ramp, it will close the door and retract again. Kneeling up or down the bus is not possible when the ramp is active.

In case the ramp gets stuck, try to reset the electronics by turning off the engine and pull the electrics key for about 10 seconds.

## 1992/1993 Level control



The airride level control levels all 6 wheels to maintain a balanced height independently from loaded weight.

This can also be used to kneel down the bus on the right side for easy entry. The bus will automatically lift up when the doors are closed again.

When pressured air reservoir is low, the yellow airride light will blink.

## 1992/1993 Door controls

The outside door opener is located behind the front cover on the right side. It works independently from the electric system.



The door switches on the dashboard are for front door (left) and rear doors release (right). If the rear doors are released, the passengers can open these by pressing the door button inside or outside.

The doors will automatically close after 5 seconds when no contact is recognized by the photo sensors.



The stop brake switch on the left can be used to stop the bus on traffic lights or when just the front door is open. It works with 3,5 bar brake pressure on the rear axles and saves pressured air when compared to the foot brake. The start inhibit will automatically engage when rear doors are open, ramp engaged or if the bus is kneeled down.

The middle door has a stroller and ramp request button in addition to the door opener. The ramp request will be displayed on the dashboard to







remind the driver of engaging the ramp. The stroller request will deactivate the automatic closure of the middle door and has to be turned off manually by the driver. With the stroller switch on the dashboard, the driver is also able to open the middle door. The door wing lock switches allow to lock one or both wings of the front door.

You will find the following control lights in relation to the door controls:



Release (green): when the bus is ready to leave.

Level control (yellow): when bus is kneeled down

Red: doors open

Start inhibit (red)

Doors released (red): to be opened by passengers

Stroller (yellow): manual control of middle door

## 1992/1993 Heating and air conditioning

The 1992 bus is equipped with a thermostat-controlled hot water circulation heating with auxiliary heating.



The temperature selector to blend warm and cold air is placed on the window console.

Active the upper switches for air flaps windshield, floor and front ventilation.

## Three Generations

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In the middle area, you find the switches for auxiliary heat, window heating and air circulation flap. The ventilation switch at the bottom is for the rear car ventilation.

The auxiliary heat is oil-driven and warms up the engine. It can run independently from the engine.

The combustion starts 30 seconds after start and will be displayed in the yellow control light. If the engine temperature raises above 78 °C, the heating will be paused until the temperature drops below 73 °C. The auxiliary heat will keep running for 3 minutes after being turned off.

There are 6 understool heaters, a front heater in the middle aisle and the driver's place ventilation with two air jets and multiple window airings.



You can use roof hatches, pull-down windows and roof ventilation for cooling. The roof vents in the back have no connection to heating circuits and will exchange inside and outside air.

See the difference between 92's and 93's roof hatches? The newer hatches have new handles and can be used as emergency exits.

There is an electric window and mirror heat system. If the windows fog up, use switches 25 and 42 for window heating.

Pictured switches from left to right:  
Roof vents, front vents level 1-3, understool front level 1-2, driver's vent level 1-2. When the engine is turned off, only the lowest ventilation power is available.





There is a constant loss of interior temperature through doors and circulation jets. Keep in mind that the bus will cool down quickly when doors are open. Also, the large engine will need some time to warm up and remember to switch on the auxiliary heat in the winter time.

## 1999 Driver's place overview

### Display instruments on dashboard



1	<b>Speedometer, recorder, clock, odometer</b> 2 red lights: right light when overspeed, left light when cover open or malfunction.	5	<b>Brake system warning</b> Indicates a warning about the brake or air pressure system.
2	<b>Master failure light</b> Central info system has detected a serious malfunction	6	<b>Full beam lights on</b>
3	<b>Warning light</b> Central info system warns about displayed event or condition.	7	<b>ABS/ASR light</b> Indicates self-check or intervention of ABS.

4	<b>Turn indicators on</b>	8	<b>Central info display</b> This display replaces many of the round instruments and control lights on the dashboard. It shows different kinds of information about the bus, depending on the menu page.
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## 1999 Switchable elements on dashboard

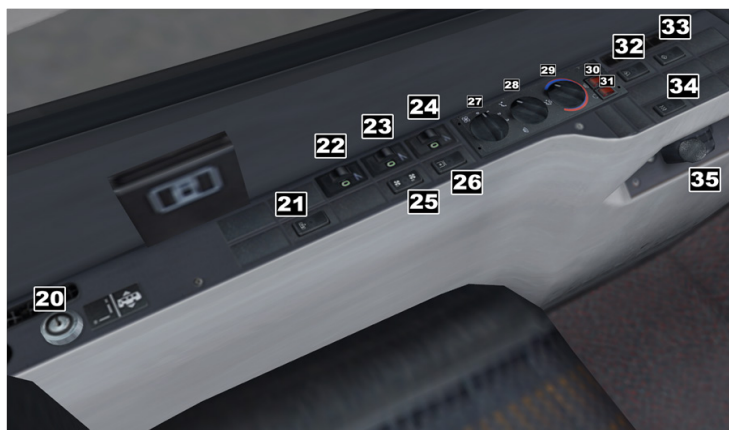


1	<b>Retarder constant switch</b> Constantly turns on the retarder brake. This will result in higher gearbox temperature.	11	<b>Central info display</b> Browse info display and scroll through menu pages.
2	<b>Retarder off switch</b> Disconnects retarder brake from air pressure foot brake.	12	<b>Door wings lock switch</b> Locks the electric operation of both front door wings, also from the outside.
3	<b>ASR off switch</b> Turns off ASR below 30 kph.	13	<b>Kneeling switch</b> Kneels down the bus on the right side for easy entry (when doors are closed).



4	<b>Hazard flasher switch</b>	14	<b>Stop brake switch</b> Applies brake pressure of 3,5 bar on middle and rear axle to stop the bus at traffic lights or bus stops.
5	<b>Microphone switch</b> No functionality in OMSI.	15	<b>Gear selector</b> "D" for all 4 forward speeds. Switch to "R" only when "N".
6	<b>Radio communication switch</b> No functionality in OMSI.	16	<b>School bus light switch</b> Automatic hazard flashers for school buses.
7	<b>Light switch</b> Turn for standing/driving lights, pull out for fog lights.	17	<b>Door release switch</b> 3rd door can be opened by passengers.
8	<b>Interior light switch</b>	18	<b>Front and middle door switches</b>
9	<b>Cashdesk light switch</b> The cashdesk light also turns on when driving lights are on and front door is open.	19	<b>Ignition key</b> The VDV-style cockpit has a combined electrics and ignition key, just like a car.
10	<b>Steering column switch</b> Switches turn indicator, horn, wipers, washer, and full beam.		

# 1999 Switches on window console

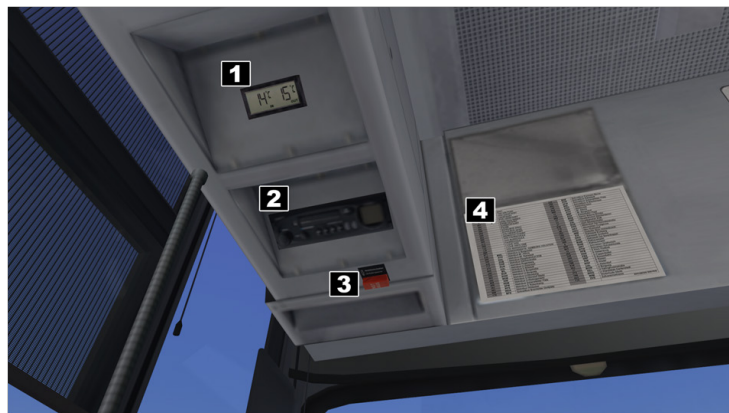


20	<b>Kneeling key switch</b> The kneeling functionality could be locked here, but this was never used. No functionality in OMSI.	28	<b>Selector air flaps</b> Selects active air jets for driver's ventilation.
21	<b>Level control switch</b> Lifts the airride suspension on all wheels to avoid terrain collisions.	29	<b>Temperature selector</b> Blend warm and cold air for interior ventilation.
22	<b>Selector rear hatch</b> For electric skylights in rear car.	30	<b>Window heat switch</b> For side window.
23	<b>Selector middle hatch</b> For electric middle skylight.	31	<b>Circulation flap switch</b> Closes the air circulation flap. Reduces cool power and enhances heat power.



24	<b>Selector front hatch</b> For electric front skylight.	32	<b>Auxiliary heat switch</b>
25	<b>Interior heat ventilation switch</b> Switches interior heat vents to level 1 or 2. When engine is turned off, level 1 will be used.	33	<b>Dashboard setup switch</b> Release the dashboard to move it into position with the mouse.
26	<b>Roof ventilation switch</b> Rear roof ventilation to exchange interior and outside air.	34	<b>Outside mirror heat switch</b>
27	<b>Selector ventilation level at driver</b> 3 levels for driver's place ventilation.	35	<b>Hand brake valve</b> For parking brake.

## 1999 Additional driver's place elements



1	<b>Temperature display</b> Shows inside and outside temperature in °C.	3	<b>Start inhibit emergency release</b> In case the start inhibit or stop brake is not releasing.
2	<b>Radio</b> Bus drivers are not supposed to listen to the radio in Germany, but you could give this a try on a service trip.	4	<b>Target code list</b> Lists all target codes on all maps if texture file is found in folder:  Texture\Linienlisten

## 1999 Atron FR Compact



The Atron is the ticketprinter of VHH and is used to sell tickets, control the target display, inside stop display and station announcements.

The ticketprinter is turned on with the main electrics of the bus. It will keep running with battery power for about 10 minutes after power has been turned off to keep settings during breaks. It will automatically invert display colors at night to avoid blinding.

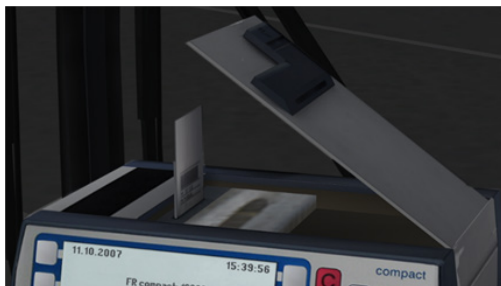
Open the upper lid with a mouse click and insert in the driver's card.





Now you have activated the ticket sales.

Without the card, all "RBL" functions like line and target display are available, but no ticket selling.

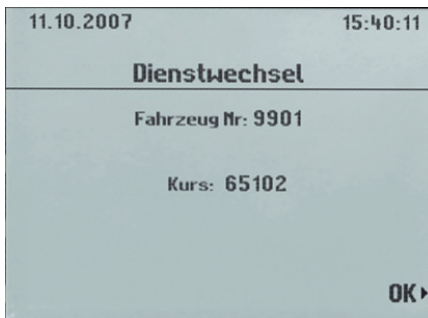


Confirm the start screen with a click on the green key. If any of the 10 display keys (5 left, 5 right) are linked to a functionality, you will see a little arrow on the screen and the name of the function.

The Atron will ask for your tour number on the next screen.

The tour number is required to use automatic station announcements and automatic target display.

You will see this number when you activate a timetable in the OMSI menu.



According to the typed in number, the schedule paper will be displayed on the clipboard.

With the red key "C", wrong entries can be corrected.

You can read the following out of the number:

21... = PVG

65... = HHA weekdays

66... = HHA Saturday

67... = HHA Sunday

Use "F" for function menu and choose "Kurswechsel" to change the tour number later. You can also enter a random line and target code with "Linie/Zielwechsel". The code list is mounted above the driver's head. Remember this is not possible together with a tour number and activated tour.



The schedule information is attached to the clipboard on the left.

On all maps other than "Hamburg Day & Night", you can enter a random tour number like "1".

The printer will automatically recognize the activated OMSI timetable.

You can now also use a course ("Kurs") number, e.g. 09201 for line 92 in Berlin Spandau. This will active station announcements, but you will have to forward stations manually by clicking the arrow keys on the printer.



If the tour number is correct and a schedule is active, you will see the "next tour" request screen.

This will also appear after each complete tour before the next one. If you confirm, the target display will forward to the next target.

If you cancel this query ("Abbrechen" or red key "C"), the tour number will

be deleted and automatic announcements will be stopped.

<b>Umlauf 65102</b>		<b>ab 15:47</b>	
<b>Fahrt</b>	<b>15:47 ZAL</b>	<b>UAL</b>	<b>16:24</b>
<b>◀ Abbrechen</b>		<b>OK ▶</b>	

<b>HVV</b>	<b>Hindenburgstraße</b>	<b>15:56</b>	
<b>109 HBF</b>	<b>E5</b>	<b>15:54:02</b>	
<b>◀ Linie/Kurs: 65102</b>		<b>Verkauf ▶</b>	
<b>◀ Freie Zieleingabe</b>		<b>Wagen zu Wagen ▶</b>	
<b>◀ Meldungen</b>		<b>Funkstellen ▶</b>	
<b>◀ Unfall</b>			

The Atron will switch between stop and drive menu in normal operation mode.

Stop menu allows ticket selling when the driver's card is pushed in.

You can get to stop menu at all times by choosing "Verkauf" from the drive menu.

The Atron will list all tickets of every OMSI map automatically (max. 8 tickets). Pictured is the drive menu. This will come up each time you leave a busstop.

You see the next busstop and its departure time in the top row. In the second line, bus line, target code, current time and delay is displayed.

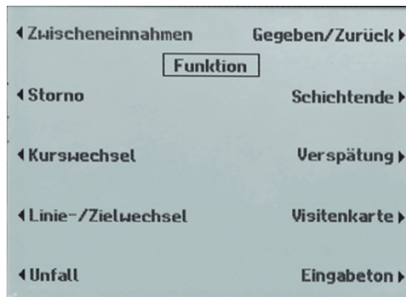
Use the key "Verkauf" to switch back to ticket selling from drive menu. Use "C" to return to drive menu.

You can change the tour number or enter line and target code manually with "Linie/Kurs" or "Freie Zieleingabe". Remember you need to remove the tour number if you want to enter a target code manually.

The "F" key takes you to the function menu.

Here you can check your shift total ("Zwischeneinnahmen") and cancel the last sold ticket („Storno“).

With "Kurswechsel" and "Linie-/Zielwechsel" you can edit the tour number or enter a manual target code. Remember this is not possible when an automatic tour is active.



"Eingabeton" turns off and on the key beep sound.

Use "Schichtende" to end your shift and watch the shift total amount.

## 1999 Central info display (VDV)

A new dashboard called "VDV standard" was introduced in 1996. The old banana-shaped dashboards were also standardized, but not very easy to use. The new dashboards were designed for more usability, convenience and flexibility.



The central display replaces many of the round instruments and control lights. It has 5 display pages: pressure reservoir, fuel, drive and stop menu, warning, failure. The last two menus are only available when warnings or failures occur.

After starting the electrics, fuel and pressure reservoir will be displayed for a few seconds. In case of low pressure or engaged foot brake, the display will not forward.

You can change the displayed menu page with the display browse switch (see picture).

If a warning occurs (yellow light), you can check the warning by pressing the switch. A failure (red light) is always displayed constantly.



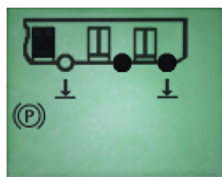
In case of multiple warnings, you can use the switch to browse through all pages.



Pressure reservoir



Fuel tank














Stop menu

The display will switch between stop menu and drive menu automatically, just like the Atron printer. The stop display shows door status (blinking means released, black is open), kneeling and brakes. "P" stands for active parking brake. You will also see a symbol when ramp or stroller request are pressed. When all brakes are released and doors closed, the display will switch to drive menu with reduced information.

Usually you see stop request, A/C and brake information in drive screens. Warnings and failures will appear here as well.

# 1999 Icons in central info display






	<b>Angle protection active</b> Reduces articulation angle to protect the joint.		<b>Stroller request</b> Passenger request for longer 3rd door opening.
	<b>Ramp request</b> Passenger requested wheelchair ramp.		<b>Stop request</b>
	<b>ASR warning</b> ASR system is deactivated or active.		<b>Multiple pages</b> Use the display browse switch to scroll through following pages.
	<b>Parking brake</b>		<b>Retarder</b> Retarder transmission brake active.
	<b>Kneeling (in motion)</b> Right sided or both sided.		<b>Kneeling (ended)</b>
	<b>Auxiliary heat</b> Oil-driven heat active.		

# 1999 Warnings in central info display

Warnings are displayed with the yellow light and a short buzz sound. Usually the bus is still safe to operate then, or the warning can be deleted by resetting (turning off) the electronics.

If multiple warnings occur, they will automatically forward the display pages when driving, or you can use the display browse switch to look through them.













	<b>Battery voltage low</b> Might indicate a defective generator.		<b>Fuel low</b>
	<b>Cooling water low</b> Watch engine temperature.		<b>Engine oil refill system low</b>
	<b>Retarder failure</b> When overheating, retarder is disabled.		

## 1999 Master failures

Serious failures mean the vehicle is no longer safe to operate.

These failures are displayed by the red light and a constant buzz sound. Other display pages are no longer available.

	<b>Pressured air reservoir 1</b> Keep engine running to build more pressure for foot brake.		<b>Pressured air reservoir 2</b> Low reservoir pressure leads to loss of foot brake power and engaging of springload brake.
	<b>System failure</b> Failure of the diagnostic system.		<b>Oil pressure</b> Turn engine off when oil pressure is low.
	<b>Emergency unlock</b> One emergency unlock handle has been opened.		<b>Transmission oil temperature</b> Avoid the use of retarder and drive with low throttle when gearbox is overheating.
	<b>Cooling water temperature</b> Engine loses power and starts steaming when overheating.		<b>Transmission control system</b> Failure of transmission control. Try to reset the electronics.
	<b>Electronic engine control</b> Engine will switch to emergency run program. Try to reset the electronics.		<b>Electronic injection control</b> Failure of diesel injection.

### 1999 Door controls



Outside door opener is located behind the right front opening.



Outside door button lights up when released.



Front and middle door can be operated by the red buttons when electrics are active.

The buttons light up when a door is open. If a button is blinking, a failure occurred or the pressure is too low.

The right-side kneeling (red switch) works only when doors are closed. The start inhibit will be triggered when rear doors are open. You can lock single or both wings at the front door with the two lock switches in the top row.

The right switch with door symbol is the rear door release switch. When active, passengers can use door buttons inside or outside to open the third door. It will close automatically after beeping when the weight sensor in the door step is free.







A memory function allows closing the doors once electrics have been turned off.

When driving lights are switched on, the door entry lights will switch on automatically when a door is open. Also, the front cashdesk light will turn on. The rear doors have additional halogen spots.

## 1999 Lighting, power-save, school bus mode



The main lighting switches are located on the left front of the dashboard.

The rotating switch controls the outside lighting: standing lights, drive lights and fog lights (pull out).

The instruments light is activated together with the outside lights. Full-beams can be controlled with the steering column switch as usual.

The driving lights will be reduced to standing lights by power-save function when the engine is turned off. Use the switch again or turn the engine back on to restore full power.

There are two switches beneath the rotating switch for interior lights. The cashdesk light will also turn on when outside lights are on and one door is being opened. The passenger room lights have only one switch position but will also be reduced by power-save function when engine is turned off.

The toggle switch with mother and child will turn on school bus light mode (press right).

When doors are open and indicator set right, the hazard flasher will become active. When you leave the station with the left indicator, hazard lights will turn off. This makes it a lot easier to drive school bus services where hazard flashers have to be used at each station.



## 1999 Fold-out ramp

Manually operated fold-out ramps were used since 1997 because the electric ramps were highly faulty.

Engaging the ramp will trigger the start inhibit brake and make warning lights flash.

## 1999 Level control

The airride level control levels all 6 wheels to maintain a balanced height independently from loaded weight.

This can also be used to kneel down the bus on the right side for easy entry. The bus will automatically lift up when the doors are closed again.

When pressured air reservoir is low, the yellow airride light will blink.

### 1999 Heating and air conditioning

The 1999 bus is equipped with a thermostat-controlled hot water circulation heating with auxiliary heating.

There is a separate driver's space A/C that is technically no real air conditioning but more an enhanced ventilation.

The passenger room can be heated with 6 understool devices, cooling is possible with 4 automatic skylights, 4 windows and roof ventilation in the back.



The 1999 VDV-style dash has three main elements for ventilation: the driver's AC panel, switches for interior ventilation and skylight dial wheels.



You find the auxiliary heat switch and window heat switch at the top of the picture.

The auxiliary heat is oil-driven and warms up the engine. It can run independently from the engine.

The combustion starts 30 seconds after start and will be displayed in the yellow control light. If the engine temperature raises above 78 °C, the heating will be paused until its temperature drops below 73 °C. The auxiliary heat will keep running for 3 minutes after being turned off.

The driver's place AC panel has three selectors. From top to bottom: mix of warm and cold air, ventilation flap selector, ventilation power.

This panel is just for driver's and window ventilation. The ventilation will automatically be reduced when engine is turned off.

The small red switches activate the side window heating (left) and close the circulation flap (right). Closure of circulation flap will result in better heat and worse cool power.

The roof ventilation in the back has no heating power and is just for exchanging inside and outside air.

The ventilation switch in the lower panel area turns on interior ventilation to level 1 or 2. This is always connected to the heating circuit, no matter what the temperature selector is set to. When the engine is not running, power will be reduced.

There is a constant loss of interior temperature through doors and circulation jets. Keep in mind that the bus will cool down quickly when doors are open. Also, the large engine will need some time to warm up and remember to switch on the auxiliary heat in the winter time.

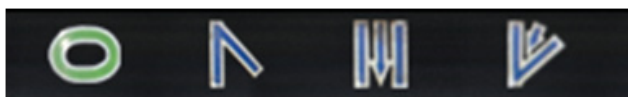


This 1999 articulated bus has 4 skylights with electronic control.. When electric is active, use dial wheels on the window console to set the roof hatch position. The lowest selector is for both roof hatches in the rear car.

When it rains or electric is turned off, every skylight will be closed automatically.

The possible switch wheel positions are:

closed, front open, completely open, rear open.



In case the windows cloud up, activate the window heat and ventilation and set the fan power to maximum.



## 2012 General information



The 2012 bendy bus has the Euro 6 engine built in vertically. That reduces the number of seats in the rear area.



There are three additional fold-out seats.



The right outside mirror has a separate front mirror to check the space in front of the bus.



The interior mirror is divided and has a magnification mirror for the middle door area.

# 2012 Driver's place overview

## Dashboard



1	<b>Light switch</b> Turn for standing/driving lights, pull out for fog lights.	15	<b>Driver's door opener switch</b> Unlocks the driver's door.
2	<b>ASR off switch</b> Working below 30 kph.	16	<b>Gear selector switches</b>
3	<b>Interior room lighting switch</b> Level 1 or 2.	17	<b>Stop brake switch</b>
4	<b>Cashdesk light switch</b>	18	<b>Door release switch</b> For second and third door.
5	<b>Airride lift-up switch</b>	19	<b>Kneeling switch</b> To kneel down bus right-sided.
6	<b>Radio communication switch</b> No functionality in OMSI.	20	<b>Stroller switch</b>



7	<b>Steering column switch</b> Turn indicators, full beams, wiper, washer, horn.	21	<b>School bus lights mode switch</b>
8	<b>Speedometer, Odometer</b>	22	<b>Hazard flasher switch</b>
9	<b>Control lights</b>	23	<b>Front door button</b>
10	<b>Revmeter, engine control light</b>	24	<b>Middle door button</b>
11	<b>Central info display</b>	25	<b>Emergency report foot switch</b> No functionality in OMSI.
12	<b>Door</b>	26	<b>Ignition key</b>
13	<b>Door wing lock switch (both)</b> Locks front door.	27	<b>Announcement foot switch</b> No functionality in OMSI.
14	<b>Door wing lock switch (one-side)</b> Locks selected wing of front door.		



## 2012 Steering wheel buttons

The left steering wheel button forwards the displayed menu page. All other steering wheel buttons have no functionality in OMSI.

Forwarding menu only works when no master failures are being displayed.

# 2012 Switchable elements on window console

28	<b>Kneeling emergency release</b> In case something gets stuck under the bus while kneeled down and doors opened, use the switch to unlock the kneeling lock while doors are open.
29	<b>Dashboard setup switch</b> Unlock the dashboard and move it into position with the mouse. Only works when electrics turned on.
30	<b>Window heat switch</b> For slide window heat.
31	<b>Outside door opener lock switch</b> Disables the outside pressured-air door openers for about 10 minutes.
32	<b>Ventilation level switch</b> Turns on interior ventilation or back to automatic.
33	<b>Radio volume switch</b> No functionality in OMSI.
34	<b>Surveillance video record switch</b> No functionality in OMSI.







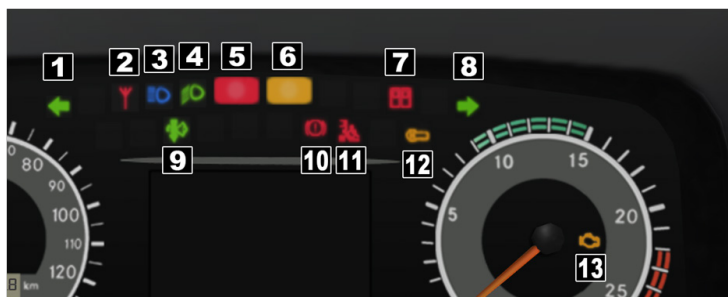
35	<b>Electric mirror adjustment sticks</b> No functionality in OMSI.
36	<b>Slide window switch</b> Opens and closes the electric slide window.
37	<b>Start inhibit emergency release switch</b> Unlocks start inhibit in case it does not release when doors are closed.
38	<b>Hand brake valve (parking brake)</b>

## 2012 Additional driver's place elements

39	<b>Display panel</b> LED target display setup panel, no functionality.
40	<b>A/C panel</b>
41	<b>Trip recorder</b>
42	<b>Radio</b>



# 2012 Control lights



1	Turn indicator left	8	Turn indicator right
2	Radio communication	9	Diesel particulate filter
3	Full beams	10	Brake system failure
4	Drive lights	11	Wheelchair ramp
5	Master failure	12	Stop request
6	Warning	13	Engine control
7	Doors released or open		



## 2012 Höft & Wessel ALMEX



The ALMEX ticket printer is a highly advanced touchscreen device that was developed in cooperation with HOCHBAHN. It sells tickets, controls target display, interior stop display and plays station announcements.

The printer will start together with the main electrics. It will remain in standby for 10 minutes after electrics have been turned off to keep settings, powered by battery. The outside target display is initialized each time the electrics key is toggled.

On the outside of the printer, you find a passenger display, ticket output and change coin output.

There is also a near-field sensor for ticket cards and driver cards, however this is not functional in OMSI.



The ALMEX has two basic operation modes: FIMS (= passenger information and management system) and EFAD (= electronic ticketprinter).

The driver needs to be logged in with staff number and PIN to print tickets. You will find this data on a paper attached to the clipboard each time you get a new bus. The basic functionality of FIMS (line and target display, device settings) can also be used without driver login, but you cannot sell tickets or enter a tour number then.

There is a pause mode and a lock mode to lock the cashdesk and the drawer in it to lock the money when you are having a break. You need to enter the PIN again to unlock it.

When you start your shift, equip the cashdesk with the changer device by clicking into the empty space. You will notice it is not yet possible to give change coins at that point. The driver needs to be logged into the printer to unlock the cashdesk.

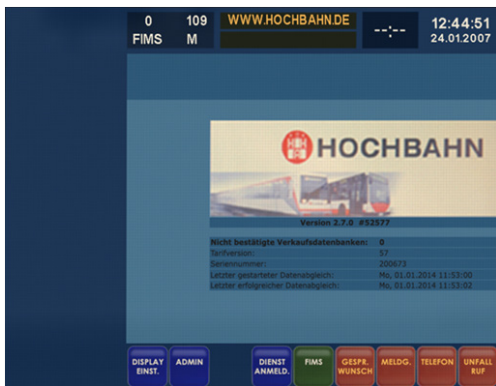
This is the startup screen. Press "Dienst anmelden" to log in the shift.

You will recognize an operable key by the mouse turning into a hand symbol when moved across the icons.

Enter the driver's staff number and PIN into the login screen.

You find this information on the paper attached to the clipboard. On the next screen, you need to type in the Dienstnummer as well.

You need to enter a valid tour number to use automatic target display and station announcements. This number can be seen when you select your timetable in the OMSI menu.





When not driving in Hamburg Day & Night, it is sufficient to enter a random number to activate the tour.

You can go back at all times to change the number with "FIMS" > "Umlauf ändern".

Correct wrong entries with "C".

If the correct tour number was recognized, the next route will be displayed. This also comes up after each complete route of a line.



You will find departure time, start and target code, delay to departure and target display on the screen.

After confirming this screen with the green checkmark, the target display will be set and next route begins. If you cancel this query with the red cross, automatic tour mode will be disabled.

In the EFAD main screen, all available tickets are being displayed. The Almex printer will recognize all tickets on every OMSI map.

The bus-stop tree shows the current stop and the next upcoming 6 stops.

You can manually browse through stops with the bus arrows at the bottom, but this will disable automatic station forwarding.



The top line shows all relevant timetable information: tour number, line and target code, target display, current delay and time and date. The current delay will turn red when bus is too early.

The green keys „FIMS“ and „EFAD“ allow switching between ticket sale and main menu at almost all times when the driver is logged in.

The “FIMS” main menu shows all options that do not relate to ticket sale. You see relevant tour information and have buttons to change tour number, line and target code.



The option keys (bottom right) allow turning on and off automatic station forwarding and announcements.

The options menu is called “Hauptmenü” and can be entered by pressing the blue key in “EFAD” screen.



You can unlock the cashdesk, do a testprint and deactivate the key sound here.

The second page is “Dienst” (= shift), here you can use the UV banknote check and more.

To quit your shift, use “Dienstende” in the options menu.

Most menus have an arrow key to return to the previous menu.



Use “Pause” to lock the cashdesk when leaving the bus for a break. You need to re-enter driver’s PIN to unlock.



When the second-to-last station is passed, the target display will change to “End of line, please do not enter”. Works in Hamburg Day & Night only.

### 2012 Central info display



A new dashboard has been designed for the "C2" that is based on the popular VDV-style dash.

It features a central info display as well, but the display is a lot smaller and some more classic control lights have been used.

When power is cut off the display will run on battery for about 1 minute showing the Hochbahn company logo. In the original bus the manufacturer's logo is shown here.

Pictured right: Pressure reservoir menu.

Front axle, middle/rear axles, third and fourth circuit for doors and level control.

Arrows in top right corner indicate that you can browse through multiple pages.

The central display replaces many of the round instruments and control lights. It has 5 display pages:



Drive and stop menu, warning/failure, pressure reservoir, temperature/voltage. The warning/failure menu is only available when warnings or failures occur.





After starting the electrics, fuel and pressure reservoir will be displayed for a few seconds. In case of low pressure or engaged foot brake, the display will not forward.

You can browse through menus with the steering wheel switch (pictured left).

Drive and stop menu will automatically switch depending on the vehicle speed and door status. If a red failure occurs, you cannot enter any other menu page. Multiple failures can be browsed with the wheel switch.

The display has three stay-on-top areas that constantly display AdBlue and Diesel tank content, time, inside/outside temperature and gear/brake status. AdBlue is carbamide additive for the fuel tank to reduce pollutant emissions.



The bus symbol shows door and level status: green means door released, white open. Filled out axles have active stop/parking brake. The arrows below the bus indicate kneeling or level control.

low the bus indicate kneeling or level control.























The menu page 4 has 2 screens:

Pressure reservoir (pictured on previous page) and temperature/battery voltage.



From top to bottom: cooling water temperature (best 70-90 °C), engine oil pressure (best 2-4 bar) and battery voltage (24-26 V).

## 2012 Icons in central info display








	Menu page		Multiple pages Use steering wheel switch to browse multiple screens.
	Master failure		Warning
	Transmission neutral		Parking brake
	Door open		Door released for passenger operation
	Kneeling/level control		Axle braking
	Stroller request Disengages automatic door closure.		Ramp request Unfold the wheelchair ramp.
	Retarder brake active		Wheelchair ramp unfolded
	Kneeling		Kneeling complete
	ASR off/failure		Angle protection Articulation angle too high.
	Battery not loading		Passenger room A/C
	Window heat		Auxiliary heat



## 2012 Warnings (yellow) in central info display

Warnings are displayed with the yellow light and a short buzz sound. Usually the bus is still safe to operate then, or the warning can be deleted by resetting (turning off) the electronics.











If multiple warnings occur, they will automatically forward the display pages when driving, or you can use the display browse switch to look through them.

	<b>Low fuel</b>		<b>Low AdBlue</b>
	<b>Retarder failure</b> Gearbox temperature might be too high.		<b>No battery loading</b>
	<b>Low cooling water</b>		<b>Angle warning</b>
	<b>Engine oil refill failure</b>		

# 2012 Master failures

Serious failures mean the vehicle is no longer safe to operate.

These failures are displayed by the red light and a constant buzz sound. Other display pages are no longer available.

	<b>Engine control</b> Engine runs in emergency mode.		<b>Transmission control failure</b> Gearbox runs in emergency mode.
	<b>Gearbox oil too hot</b> Avoid full throttle and retarder.		<b>Cooling water too hot</b> Let engine cool down.
	<b>Door opener engaged</b> Buzz will sound when driving.		<b>No oil pressure</b>
	<b>Low pressure circuit 1</b> For foot brake front axle.		<b>Low pressure circuit 2</b> For foot brake middle/rear axle.
	<b>System failure</b> Error in diagnosis system.		<b>Electronic injection control</b> Engine runs in emergency mode.

# 2012 Door operation

The 2012 articulated bus is equipped with three swing-in air-pressured doors.



First and second door can be directly controlled by driver with button 1 and 2.

When door release is pressed (second switch), passengers can open second and third door with inside and outside door buttons. Doors will be closed when door area is free, otherwise a warning beep will sound before closure.



The 3rd cockpit button is just a light to indicate the last door's status.

The door wing lock switches (top row) can be used to lock single or both wings of the front door.

When door release is active, passenger buttons are illuminated.

Remember the driver's door can only be released with the top row right switch because it has an electromechanic safety lock.

Every door wing has a lock wheel on the inside to lock or unlock the wing. It works just like the key lock on the outside.

Due to new safety requirements, every door has an outside emergency unlocker. This can be deactivated by the driver using a switch on the window console.



Red and blue buttons are door request and ramp/stroller request switches. The stroller request will disengage the automatic closure of the door until the driver confirms this.

The middle door stroller button is also the ramp request button. All buttons are also mounted on the inside.

Every door wing has a key lock outside that can be used to physically lock the wing.

There is a LED entry light and an emergency unlock handle with protection cover above every door.

The photo sensor is mounted behind the LED light.



The yellow blinking light indicates unfolded wheel chair ramp or blocked door area when closing.

The outside door opener is located behind the front right opening.

## 2012 Lights, power-save, school bus lights mode

This is the first OMSI bus with LED outside lighting.

There are also automatic daytime running lights.

This bus doesn't have any fog front lights but rear fog lights.





Both are not often needed in Hamburg.

The target displays are LED also and do not need separate lighting anymore.

The light switch on the dashboard switches off - standing lights - drive lights. Instruments and entry lights are coupled with the standing lights.

The daytime running lights are switched on automatically with the engine.

Pull out the switch to turn on rear fog lights.



When front beams are on, door entry lights and cashdesk light will be switched automatically when a door is open.

The driving lights will be reduced to standing lights by power-save function when the engine is turned off. Use the switch again or turn the engine back on to restore full power.



Interior lights have two levels. When the engine is turned off, level one will be activated automatically after one minute. The right switch is for the cash-desk light.

Use the school bus lights switch to activate automatic hazard flasher control.

When doors are open and indicator is set right, the hazard flasher will become active.



When you leave the station with the left indicator, hazard lights will turn off.

This makes it a lot easier to drive school bus services where hazard flashers have to be used at each station.



## 2012 Fold-out wheelchair ramp

The C2 bus can be ordered with a new electric ramp but the manual fold-out ramp is just more reliable and cheaper. Electric ramps have often caused problems in the 1990s.

The ramp symbol will show in the driver's info display when the ramp is engaged. Also, the warning lights and start inhibit are toggled.

## 2012 Level control

The airride level control levels all 6 wheels to maintain a balanced height independently from loaded weight.

This can also be used to kneel down the bus on the right side for easy entry. The bus will automatically lift up when the doors are closed again.

When pressured air reservoir is low, the yellow airride light will blink.





## 2012 Interior stop display

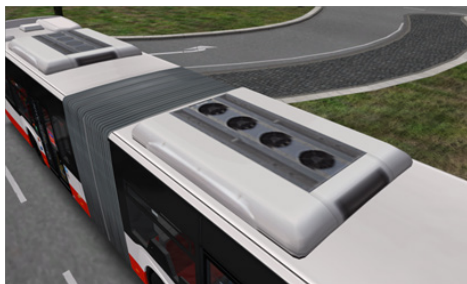


Front and rear car have a two-row stop display each.

The display constantly shows the line and target name and (when a tour is activated in the ticket printer) the next stop.

## 2012 Air conditioning

You might have already noticed the two A/C units on the roof.



There is also an oil-driven auxiliary heat for cold days. The bus has 6 pull-down windows but skylights are no longer used because of powerful air conditioning.

The interior is heated by a floor level side ventilation that is mounted over almost the full length. There is no front, roof or under-seat heat device anymore. Use the A/C panel (pictured left) to operate all A/C related functions. This is mounted above the driver's head.



Let's talk about one common misunderstanding: The left three knobs are just used for driver's place ventilation (see the little symbol below). To turn on passenger's room ventilation, just press the second button in the right button row.

The left three knobs are used to set up driver's workplace ventilation. Left knob is for air flap selection (only feet, dashboard and feet, only dashboard and only windows). Window flaps are open on every position though. The second knob is the temperature selector. The warm air is generated by engine's cooling water circulation. The third knob will steplessly set the ventilation fan power. When the engine is not running, only low fan power is available.

## Ventilation control switch

There is a separate ventilation switch on the window console that changes the ventilation operation mode in the passenger room.



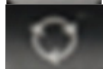
Press up: Turn on fans. When the engine is not running, only low fan power is available. The fans are automatically turned on when passenger A/C is on or air circulation off and the threshold is reached. The fans are always turned off when air circulation is on or inside temperature too low. Press the switch down to switch the manually activated ventilation back to automatic.



The buttons on the right side of the A/C panel switch all A/C functions. The included control light will indicate the related functionality.



**Driver's place A/C** couples driver's ventilation with air conditioning.



**Circulation** Fresh air flaps will be closed for 10 minutes.



**Passenger** room A/C



**Reheat** quickly reheats fogged up windows.



**Auxiliary heat**

### **Driver's place A/C**

Turn on driver's A/C to quickly cool down the workplace. This will only become active when the temperature selector is set to blue area and the outside temperature is above 12 °C.

### **Circulation**

The fresh air circulation flaps will be closed, e.g. when outside air is bad or to quickly raise heat power. Cooling power will be reduced though. The air flaps will open again automatically after 10 minutes.

### **Passenger A/C**

The passenger A/C will control the ventilation power to reach the temperature set point. Read below how to change the set point. When the engine is not running, only low fan power is available. The passenger A/C will automatically turn off when the outside temperature is too low.

### **Auxiliary heat**

The auxiliary heat is oil-driven and warms up the engine. It can run independently from the engine.

The combustion starts 30 seconds after start and will be displayed in the yellow control light. If the engine temperature raises above 78 °C, the heating will be paused until its temperature drops below 73 °C. The auxiliary heat will keep running for 3 minutes after being turned off.

### Reheat

Blows dehumidified air at the windows to for quick defrost.

### Change temperature set point

The set point is programmed 22 °C by default. To change this for your current bus, hold down the passenger A/C button for 5 seconds until the control light starts blinking. Now you can use the button above and below to adjust the set point by 2 °C up or down in the range between 18 and 26 °C. The control lights of all three switches will indicate your set temperature. Press passenger A/C button once to confirm new settings.

## 2012 Trip recorder



This bus has digital modular trip recorder. This means the recorder is no longer included in the speedometer but is externally mounted above the driver's seat in a rack. The recorder has a digital operation panel with LCD display and a manual drawer for the record sheet.

You do not have to expect a police stop-and-search in OMSI. If you want, give this first operable trip recorder in the game a try.



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Open the drawer by clicking the blue eject button on the left. Pull open the drawer with the mouse. Now you can put in a recorder sheet by clicking into the empty drawer. You will then notice the display shows the round symbol for recognized recorder sheet. If you drive without recorder sheet or with the wrong time group, a warning will be displayed.

Use the grey time group switch 1 to change leisure time (bed) to work time (hammer). The square symbol means standby time.

The display shows also time, date and odometer.

After finishing your duty, take out the recorder sheet and switch the time group to leisure time.

## **Hints for modders**

The .hof files for Hamburg are in the common formatting. The 2012 bus has a slightly modified file due to new target displays. On other OMSI maps the buses can be used with all normal OMSI .hof files.

Every bus has a single exterior texture to save texture memory and make repaints easier. Every vehicle has repaint templates in the Texture folder to create own paintworks. The interior is pictured on two textures in every bus: the normal interior textures for player vehicles and the small version for AI on the main texture ("bodyfinal" or "G2").

In the .cti files you will find several variables to modify the looks of the buses:

### **1992/1993**

Changeable textures: Exterior (farbschema\_tex1), decals (farbschema\_tex2), driver's place (farbschema\_tex3), interior design (farbschema\_tex4)

Visibility variables: decals\_HHA (decals of Hochbahn), decals\_HHA\_tankpkt (decal in the windshield), decals\_wheelchair (outside wheelchair decal on front), number\_white (white vehicle number outside).

### **1999**

Changeable textures: Exterior (farbschema\_tex1), decals (farbschema\_tex2), interior design (farbschema\_tex3)

Visibility variables: decals\_vhh (decals of VHH), wagennr\_alt (small vehicle number outside) decals\_wheelchair (outside wheelchair decal on front)

### **2012**

Changeable textures: Exterior (farbschema\_tex1), decals (farbschema\_tex2), interior design (farbschema\_tex3)

Visibility variables: display\_white (white LED target display), outside\_labels (manufacturer's logos), white\_wheelcaps (white wheelcaps)

The ticket printer and target display scripts recognize the map based on the .hof yard name. Some functions are only available in Hamburg and the cashdesk changer will be changed to Euro with a Hamburg .hof file.

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