DB Class 152 traffic red
Expert-Line

Compatible with Train Simulator 2016-2018

DB Class 152 156-6 with Uacs 947

Content

1 Information

1.1 DB class 152 - Functions available in the Simulation

The most important functions are summarised below (Not all functions are listed)

- ✓ Prototypical driving behaviour
- ✓ Complex regulation system with AFB
- ✓ LZB with Command40 to pass a signal at danger
- ✓ Prototypical PZB90 V2.0 with improvements for LZB end procedure
- ✓ Time-Time SIFA
- ✓ Brake modes R-P-G
- ✓ Brake system with overcharging of the main air pipe pressure
- ✓ Delayed and smoothly regulated e-brake
- ✓ Pantographs selectable and preselectable
- ✓ Panto sparks with sound
- ✓ Double formation possible
- ✓ Spoken system announcements with priority
- ✓ Usable EBuLa
- ✓ Switchable instrument lights
- ✓ Reading lamp and cab light
- ✓ Wipers with interval control
- ✓ Standard TS Effects
- ✓ Extended camera positions
- ✓ vR ZZA compatible
- ✓ SAT and SSTF doors interlocking system compatible
- ✓ Szenario save function compatible
- ✓ Rolling start compatible
- ✓ Ingame language selection
- ✓ Realistic sounds optimized for EFX

1.2 Technical Data DB class 152

Manufacturer:	Siemens, Krauss-Maffei	**Build Dates**:	1996 – 2001
Type:	Electric, rotary current	**Wheel arrangement**:	Bo-Bo
Length / buffer:	19.58 m	**Mass**:	86 t
perm. Output:	6400 kW	**Maximum speed**:	140 km/h

2 The Locomotive

Class 152 156-6 DB (or dynamic number)

Class 152 122-8 Railion Logistics (or dynamic number)

Class 152 087-3 Railion (or dynamic number)

BR152 004-8 Cargo (or dynamic number)


BR152 Cab view

3 Cab and Controls

1 - Traction motor blowers
2 - PZB Command
3 - PZB Free
4 - PZB Acknowledge
5 - Pantopragh
6 - Main curcuit switch
7 - Train voltage switch
8 - Reverser
9 - Cruise control lever
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13 - MTD On/Off
14 - MTD Day/Night
15 - Tractive effort
16 - Speedometer
17 - LZB Display
18 - MFA lamps
19 - Sander
20 - Brake release switch
21 - Headlights
22 - Instument lights
23 - Cablight
24 - EBuLa On/Off
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26 - EBuLa switch pages/plans
27 - Cylinder pressure BAR
28 - Air brake pressures BAR
29 - Even brake pressure switch
30 - Train brake
31 - E-Brake
32 - Direct brake
33 - Horn high/low
34 - ZWS On/Off
35 - LZB On/Off
36 - Battery switch
37 - Pantograph selection
38 - Brame mode selection
39 - Hand brake
40 - Battery voltage gauge
41 - AFB On/Off
42 - Wipers

4 How to drive

4.1 Expert-Line and general hints

We are happy to present you with a new locomotive from virtual Railroads in our Expert-Line range. As usual, Expert-Line models are created for customers who are looking for better and more realistic models for TrainSimulator. Once again, we have enhanced functions integrated into the locomotive.

TS problems: If more than one locomotive is coupled to your train, the brake pressure may be reduced or divided by the engines present in consist. Please keep that in mind when using the brakes.

4.2 Start-Up Procedure

The class 152 is already set up when a scenario starts. But you can set up some systems if you need. For example, the PZB, LZB and SIFA. For further information about it look into the sections below.

4.3 Message- and Help system

Messages:

The locomotive has a special message and help system to give you information about events and errors which occur. You can adjust the systems level with <Ctrl+->
The system is switched on by default and has three levels: 1/only errors, 2/errors and further messages, 3/all messages and debug information for log-mate.
Messages which are necessary can´t be switched off.

PZB/LZB Help system:

The locomotive has a special help system for the security systems PZB and LZB.
If you get an emergency brake due to incorrect operation you will get additional information in a message box.

Message system language selection:

If the language of the displayed messages is in German and you need to display them in English, then please use the key command <Ctrl+Shift+M> to select the different language.

4.4 Battery

Battery voltage:

Before you can start driving with the locomotive the battery need to be switched on.
You do this by pressing <Shift+B>. The battery could only be switched on when the locomotive is not moving and the reverser is set to 0 (zero). The battery is always fully charged. Normally the battery is switched on already at the begin of a scenario.

4.5 Pantograph and Main Switch

Pantograph selection:

Before raising a pantograph you need to choose one or two. Press <Shift+P> to cycle through the four available options *both down*, *Pantograph 1*, *Pantograph 2* and *raise both.*
Please look at the messages especially when you choose both pantographs.
Choosing a pantograph is only possible when the locomotive is standing still.

Raising and lowering the pantograph:

To raise the selected pantograph the reverser needs to be set to M and the main pressure reservoir / HLB needs enough pressure. To raise the pantograph, use the switch in the cab or press <P>. Raising and lowering a pantograph is possible when driving the locomotive. This might be necessary when you reach a neutral section.

Switching the Main switch On or Off:
After you have raised a pantograph you can turn on the main switch with the appropriate switch in the cab or with <Z>. The main switch can also be operated when the locomotive is being driven. Please keep in mind: the main switch will be set to off (tripped) when the pantographs are lowered or other disturbances happen. Normally you can switch on the main switch again without any problems if not you will be informed by messages why not.

4.6 Regulator

Automatic notching control:
With the regulator you select a desired tractive effort and the locomotive then will try to reach that selected value. If you run light engines or lighter trains, then select a lower tractive effort as on heavier trains.

Reverser lock:
The reverser is locked when:

- You used a brake while the reverser is not set to 0 (zero)
- An emergency brake application occurred
- A fault occurred
- The doors of the coaches are open

If the reverser is locked, you can´t select a tractive effort value.

Unlocking the regulator:
To unlock the regulator the following requirements are needed:

- ✓ Set the regulator to 0 (zero)
- ✓ All brakes need to be released
- ✓ Check no emergency braking is active
- ✓ All faults are cleared
- ✓ The main switch is on
- ✓ The doors are closed

4.7 AFB (cruise control)

The locomotive is equipped with AFB (cruise control system). To switch on or off the system you need to follow the steps as described below:

Switching on whilst stationary:

Requirements:
- the locomotive was started up
- the regulator is set to 0 (zero)
- the train brake is applied
- the AFB VSoll-lever is set to 0 (zero)
- there is no active emergency braking applied

Now use the AFB switch or press <Shift+A> to switch on the AFB system. You will hear a speech 3 times, the AFB holding brake will be applied, the VZiel display on the speedometer gauge will light up with '000' and you will get a message on the right upper screen position. The AFB system now is ready to work. Set a speed you wish to reach and hold with the VSoll-lever. The VZiel display and the VSoll needle in the speedometer gauge will change and display your actual setting. To start the run you need to release all bakes and set the

regulator to a value higher than 0. The AFB will release the standing brake and tries to apply some power. You can easily change the speed while driving with the VSoll-lever. To prevent the system from wavering around the zero TE between power and brake force, select a lower regulator value to smooth it out.

Switching on whilst driving:

Requirements:
- the regulator is set to 0 (zero)
- the AFB VSoll-lever is set to 140 (the maximum value)
- there is no active emergency braking applied

Now use the AFB switch or press the keys <Shift+A> to switch on the AFB system. You will hear a speech 3 times, the AFB standing brake will applied, the VZiel display on the speedometer gauge will light up with '000' and you will get a message on the right upper screen position. Set a speed you wish to reach and hold with the VSoll-lever. The VZiel display and the VSoll needle in the speedometer gauge will change and display your actual setting. Set the regulator to the required value and the AFB system begins to do the work.

Switch off:

Use the AFB switch or press the keys <Shift+A>, you will hear a speech 3 times, the VZiel display goes dark (if LZB is not running), the VSoll display moves to 0 (if LZB is not running) and you will get a message on the upper right screen position. After that you need to set the VSoll-lever to 0 (zero) position. Now reapply power with the regulator if needed.

While LZB is running:

The AFB system is able to control the speed whilst running in LZB mode. The procedures to switch on and off are the same as described above. Note, that you can't set a speed with the VSoll-lever that is above the actual LZB maximal speed. But you can set the VSoll-lever to its maximum value while under LZB control. The system reads out the maximum speed that can actually be set. Of course, you can set a speed below the actual LZB speed to travel slower than the line speed (maybe for LZB controlled freight trains).

Please note:
The AFB works a bit differently under LZB control than if you use it in manual driving mode. When running under LZB and the G is lit, then the AFB VSoll speed runs underspeed by 10-20kph to avoid exceeding the speed limit. While the G is lit there will be no power applied by the AFB system.

4.7 Brakes

The locomotive has three brake systems

- Engine brake (direct brake)
- Train brake (automatic brake)
- E-brake (electric rheostatic brake)

Engine brake:
when you enter the cab the loco brake is released. The brake is only used to brake the locomotive and not the train. You can use the brake when starting your train on a hill to prevent the locomotive from rolling back. When you take power, the loco brake should be released.

Train brake:
The train brake is used to brake the whole train. It is a notched brake and can be precisely controlled. Use the brake with care, according to the train weight and track conditions. When you take power the train brake needs to be released.

E-brake:
If both, train brake and E-brake levers, are in the release position they are automatically coupled together when the train brake is used. To use the E-brake independently from the train brake simply decouple the lever by moving it separately.

Brake modes:
The locomotive has three different brake modes (you can maybe call them brake difficulties). They named R, P and G. The main difference between these brake modes are the fill and release rates of the brake cylinder pressures. In mode R and P, the times are 4 seconds to fill, and 20 or 15 seconds to release the brakes. In brake mode R the high braking is active and will do an additive pressure to the locomotive brakes below 130kph to raise the brake force.

The brake mode G is the more interesting one for you, the virtual train driver. You need to consider a good portion of think ahead. Fill rates of about 35 seconds and release rates of more than 90 seconds will attracting your attention. Especially long and heavy trains will do react a lot slower than short and light weight trains. The longer the train the longer the times become to fill and release brakes. Do not brake too hard or you will wait a long time before an already clear signal. Brake too weak and you will be thrown over a blocked signal or a 500Hz magnet which exists mostly to prevent the signal pass at danger. At the end you need to wat if you do a mistake with your braking style. Timing and feeling is what you need here.

To switch the brake mode, set the train brake to emergency position and use the key command <Ctrl+Shift+;>. They get cycled thru. This could only happen when the train is not moving.

> Please note: there is a possibility to set the brake mode from scenario script and then the mode is forced and can't be switched again from the user's sight. If this happens, you will get a message box on the top right corner that informs you about it.

High braking:
On disc braked locomotives there is a system that uses more pressure to brake the loco itself at lower speeds. Disc brakes are not as efficient as block brakes at lower speeds, so they need more pressure to be effective. Below 130km/h the system activates automatically and de-activates if you come back above 160km/h. There is a lamp on the desk that will show you the actual state of the system. It is called "Hohe Abbremsung" and is colored red. The system works automatically, but be aware that due to the additional pressure applied, the locomotive brakes will release more slowly than usual. Release the brakes earlier to prevent too much reduction in speed. The high braking is active only in brake mode R.

Air pipe overcharging, Time reservoir and pressure equalisation:
A feature of locomotives equipped with a Knorr self-regulating brake lever system is that you can overcharge the air pipe with more than 5BAR pressure. It is used to release brakes that are dragging. But if you do it too often you may cause a brake system fault where you can't release the brakes anymore. That happens when the pressure in the equalizing reservoir grows too high. Normally the over pressure releases very slowly over time. But not if the pressure is too high in the whole system. If you reach that state, you have two options to

get the system working again. First one is to simply wait until the pressure is back to a normal pressure, which means the pressure in the equalizing reservoir needs to be zero. Second option is to even up the pressures manually. For that you can use the button 'Angleicher' (even up) to speed up the equalizing reservoir air release a bit. In real life the process also involves releasing the excess pressure on the whole train, it is not possible to replicate this in TS. The over pressure is shown on the brake pipe pressure gauge while pressing the even pipe pressure button.

4.8 Wheel-slip and Sanding

The locomotive is equipped with an automatic wheel-slip protection brake. You normally don't need to get involved with that.

If you pull a heavy train it is very difficult to prevent the wheels from slipping. If you do not reduce the power, the wheels will keep slipping. To master difficult situations like climbing up a hill with a heavy train you can use the sander. Use the switch in the cab or press <X> to switch on the sander.

4.9 FML (Traction motor blowers)

The traction motor blowers on this locomotive are used in automatic mode normally. In that mode, the blowers come alive at a specific traction motor temperature and turn off below that value. You can also switch them on or off manually. Use the key commands <Shift+F> and <Ctrl+F>.

5 SiFa, PZB and LZB (Train protection systems)

5.1 SiFa (vigilance alarm)

The locomotive has a working Zeit-Zeit-Sifa (vigilance alarm) which can be activated or deactivated with <Shift+7> The purpose of the SIFA is to keep the driver vigilant at all times and to allow the locomotive to come quickly and safely to a stop should the driver become incapacitated or otherwise not be in proper control of the train.

If you switched on the SIFA you have to press the space bar every 30 seconds to reset the timer.

If you forget to reset the SIFA timer, the SIFA lamp will lit up on the desk to remind you to press the SIFA button. If you miss this, after 2 seconds you will get a warning speech that will last for a further 2 seconds after which the train will begin braking automatically and give you an emergency warning speech. You can stop that braking on every time with a press on the SIFA pedal to reset the timer. It's not a real emergency braking.

The SIFA will pause if you switch to an outside view. So you can have it switched on even if you want to have some route explorations. Back in cab the SIFA timer runs again from 30secs down.

5.2 PZB 90 V2.0 (point based train protection & control system)

The locomotive has a realistic built in PZB90 system used in Germany for the speed control of trains. We have now overhauled the whole function with better prototypical replication.

Use <Shift+8> to switch PZB on or off.
Change the train PZB mode with <Ctrl+8>.

After switching on or changing the mode the PZB will start a self-test. The PZB can only be switched on or off and the train mode could only be changed when the train is not moving and the reverser is set to V.

Use the following keys to control the PZB:

- <DEL> = PZB Befehl40 / Command40
- <End> = PZB Frei / Free
- <Page down>= PZB Wachsam / Acknowledge

Important: The use of the PZB Wachsam / Acknowledge switch is different to earlier vR locomotives with PZB. The use of the switch will be registered by the PZB system when the switch is releasing! That is a prototypical behaviour and different to earlier PZB systems installed in vR locomotives or other vehicles with PZB equipped. You can switch and hold PZB Wachsam / Acknowledge switch when you pass a 1000Hz magnet, but need to release the switch in between 4sec. to avoid an emergency brake.

PZB help system:
The help system will assist you when you have no experience with the PZB.
It tells you in a message box why you have an emergency brake application when it occurs.
An additional yellow needle on the speedometer gives you information about the target speed. Switch the help system on or off with <Ctrl+->

5.3 Overview of PZB 90

The PZB 90 system is used to ensure that trains are running at correct speeds in certain controlled sections (for example, leading up to signals) and also to ensure that no train can pass a signal at danger.

There are three types of train controlled via the PZB system, these are described as:

Zugart O	Obere (Upper)	Light trains / Passenger trains
Zugart M	Mittlere (Medium)	Heavy trains / Freight trains
Zugart U	Untere (Lower)	Very heavy trains / Freight trains

When you enable PZB with Shift+8 it will start up ready for a Zugart O train.
Zugart can be read in the vR Message window to the right in the cab.
You can use Ctrl+8 to cycle between the train types until you have the one most appropriate for your train. The key differentiators are the maximum speed and the ability to stop, so a long slow heavy freight train should be a Zugart U, for example.

In the descriptions below, the process that is followed is exactly the same regardless of the train type selected, what differs is the speed limits that are enforced.

PZB is implemented by means of three kinds of magnets that are placed on the track; these are described as 500Hz, 1000Hz and 2000Hz. These magnets are only powered if their associated signal is set at a non-clear aspect, if the aspect is clear ('green / green') then the magnets have no effect on the train.

For some controlled element, such as a signal, each of the magnets will be placed in the following order:

- 1000Hz - at some remote point on the track such as the distant signal
- 500Hz - usually 250m before the main signal being checked
- 2000Hz - placed at the signal itself

For this description, a **Zugart O** train is assumed.

Note: In the speed limit descriptions below the line limit always overrides that given in the description. For example, if the description says that you must be below 85km/h and the line limit is 60km/h then this takes precedence.

1000Hz Magnet

A passing train will first meet the 1000Hz magnet and the 1000Hz lamp will light on the PZB display after pressing PZB Wachsam / key Page Down while passing the signal.
On the Train Simulator 2012 HUD, the exclamation point indicator will light up with a wasp black/yellow pattern, but there is no audible indicator. The driver now has four seconds within which to press the PZB Wachsam button (Page Down). Failure to do this will result in emergency brakes being applied.

Having acknowledged the 1000Hz magnet, the driver now has 23 seconds to drop their speed to 85km/h (Note: A different Zugart (M or U) has a different speed) or emergency brakes will apply.

After the train has passed 700m from the 1000Hz magnet the 1000Hz lamp will go out and at this point the driver *may* choose to press PZB Frei (End) to get out of the speed restriction if, and only if, they can clearly see that the controlled signal is now showing a clear aspect. If the driver presses PZB Frei and then runs over an active 500Hz magnet the train assumes the driver has made a mistake and will apply emergency brakes.

500Hz Magnet

On passing the 500Hz magnet, the train must not be exceeding 65km/h or the emergency brakes will be applied. The 500Hz lamp on the PZB display will light up. The train now has 153 meters to reduce speed to 45km/h.

The 45km/h speed limit is now in force for the next 250m. It is not possible to release from this with the PZB Frei button.

2000Hz Magnet

If the train passes an active 2000Hz magnet then it will always apply its emergency brakes as the only time this can happen is if the train is passing a signal at danger.

Other notes

If, while under the control of a 1000Hz or 500Hz magnet, the train stops or spends more than 15 seconds at less than 10km/h the enforced speed limit will be reduced by a further 20km/h and this is then called a restrictive speed limit. This is indicated on the PZB display by the speed indicators (the top row) alternating between two lamps (70 and 85).
Once the magnet lamp goes out you can press PZB Frei (END) to get out of the restrictive speed limit.

Befehl40 ('Order 40km/h')

The Befehl40 button (DEL) allows a special case that instructs the train to *ignore* a 2000Hz (red signal) magnets that it comes across. You are put in to an enforced speed limit of 40km/h while this is active, exceeding this limit will cause the emergency brakes to apply.

To pass the red signal press and hold DEL for PZB Befehl40 until the Befehl40 light lights up.

Type of Train	**Normal Monitoring**		**Restrictive Monitoring**	
	1000Hz	500Hz	1000Hz	500Hz
O (Obere)	165km/h -> 85km/h in 23 seconds	65km/h -> 45km/h in 153m	45km/h constant	45km/h -> 25km/h In 153m
M (Mittlere)	125km/h -> 75km/h in 26 seconds	50km/h -> 35km/h in 153m	45km/h constant	25km/h constant
U (Untere)	105km/h -> 55km/h in 34 seconds	40km/h -> 25km/h in 153m	45km/h constant	25km/h constant

Further Reading

You can find more recommended reading about the German PZB90 system at these links:

- http://www.marco-wegener.de/technik/pzb90.htm
- http://www.sh1.org/eisenbahn/rindusi.htm

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5.4 LZB (continuous line based protection & control system):

Switch on the LZB system with <Shift+6> and have the PZB switched on before. The LZB then will activate itself if you enter an LZB enabled line.

The LZB end procedure is now implemented prototypical but will again depend on the correct route work to act like in real world. Maybe the distance to the end is to short or too long or there is no LZB end defined in the route. LZB end will be signaled in the cab with the LZB 'Ende' lamp within the MFA lamps and an acoustic buzzer sound and need to be acknowledged within 10 seconds with PZB Acknowledge <page down> or you will get an emergency braking applied to a stop. An LZB emergency braking now needs to revoke by pressing the PZB command key <del> for a minimum of 3 seconds.

LZB command 40:
To pass a signal at danger while controlled by LZB you need to apply the command 40 for the LZB. To do so, and if you are stand still and just before a Hp0 (stopping signal), you need to press PZB command <del> for a minimum of 3 seconds to go into the LZB

command mode. They you are allowed to pass the stopping signal aspect with maximum speed of 40kph (about 25mph). All LZB cab signaling will go to a suspend mode and the LZB 40 lamp lit up. After the train passed the signal and a few meters more with its tailing end, the cab signaling comes back again and the LZB 40 lamp will go off. Now you can drive further with the given speeds by the LZB system.

AFB operation while on LZB mode:
When you are released from LZB mode within a LZB end procedure, the AFB will suspend and you need to reset the VSoll lever. Just set it to 0 and right back again to your desired speed. After 3 seconds the AFB will operate again. You can leave the regulator in its position but it is recommended to set them to 0 while that procedure. Note, that a lower speed set with the VSoll lever than the actual speed, the AFB begins braking after that 3 seconds.

Also note, that the AFB never brakes a train to a halt. If you are heading to a stopping aspect, you need to brake manually. Take care of the LZB distance gauge and the VSoll needle within the speedometer to not run into a LZB overspeed or LZB SPAD. Always be save and have one distance LED lit and the speedometer needle a bit lower that the VSoll needle to prevent unnecessary emergency braking.

6 Additional Systems

6.1 Protective section

The package includes special EL-signals. The locomotive can recognize and react to the signals. Two types of signals are included: Main switch off and Pantograph down.
If you miss one of these signals you will get a message about this. If you pass the pantograph down signal with a raised pantograph the scenario will be terminated.

6.2 Door control and train heating

The locomotive has a door control system that could be used with different passenger wagons from the vR Shop. If you open the doors the T lamp on the desk will turn off and you will get a beep sound. To use the door control system, you need to activate the train heating (ZS) with the switch on the desk, or it will not work.

To open the doors you need to use the usal TS key <T>. You then need to close the doors with key command <Shift+T> manually after you heard the whistle sound.

When the doors are open the regulator is locked and it may be necessary to engage the loco brake to prevent the train from rolling.

6.3 Destination board control

The locomotive can handle coaches with the vR destination board system. To switch them you need to use the key commands <0> for upwards, and <Shift+0> for downwards selection.

6.4 Observation

Voltage maximum:
The maximum voltage the locomotive can handle is 600A. With activated ZDS the maximum is reduced to 300A. This locomotive regulates the usable power by itself, and you don’t need to get involved with it. But the reduced voltage reduces also the possible tractive effort you can reach.

6.5 AI Pantograph selection

There are some special functions for the locomotive when it is used as an AI machine.
If it is raining or snowing the right wiper in driving direction will start automatically.

If you write scenarios by yourself you can now decide which pantograph should be raised when the locomotive is used as an AI vehicle. Type in the listed code after the locomotives number in the editor fly out ID field:

- „SA00" = no pantograph is raised (please use the TSs own dead engine system for it)
- „SA10„ = pantograph No. 1 is raised
- „SA01„ = pantograph No. 2 is raised
- „SA11„ = both pantographs are raised

You can see the result of the preselection in the editor right after entering it into the numbering field.

6.6 Double formation and push pull system

The push pull and double formation system implemented in this package is only usable within the package contents. You may put other vR coaches between the locomotives and it will work, but don't try to control other ZDS locomotives with it. It will not work.

On scenario start the ZDS system activates automatically if there are two locomotives in the consist. Otherwise you can switch on it by the key command <Shift+9>. First switch it on in the trailing BR152 and then switch the cabs within 10 seconds and switch it on in the heading 152 too.

6.7 EBuLa

First to say that the EBuLa will be a community driven feature. We just implemented the basic functionality to give you the ability to have a working EBuLa. We will try to help out if you need help. Just ask about within our support channel.

7 Key Layout

Function	Key	Key
Battery Isolating Switch on/off	Shift	B
ZDS/ZWS on / off	Shift	9
Pantograph Selection	Shift	P
Pantograph up / down		P
Main circuit switch on/off		Z
Regulator		A / D
Reverser		W / S
Traction motor blower	Shift / Ctrl	F
Cruise control speed selection lever	(Shift)	Y
Cruise control on / off	Shift	A
Brake mode selection	Ctrl+Shift	;
Train brake		; / ´
E-brake		< / >
Engine brake		[/]
Emergency brake		Backsp (←)
Sander		X
SIFA on/off	Shift	7
SIFA Reset		Space

PZB on/off	Shift	8
PZB Acknowledge		Page down
PZB Release		End
PZB Command		Del
PZB system information	Ctrl+Shift	8
LZB on/off	Shift	6
Horn high		B
Horn low		N
Doors closing (SAT)	Shift	T
Wipers	(Ctrl)	V
Cab light and Reading lamp	(Shift)	L
Instrument lights		I
ZZA up (+10)	(Ctrl)	0
ZZA down (-10)	(Ctrl) + Shift	0
Help system on or off	Shift	[
Message level	Ctrl	]
Message language selection DE/EN	Ctrl+Shift	M
Speech announcement system test (takes time)	Ctrl+Shift	7

8 Hints for scenario creators

You will find the locomotive in the Editor under the provider 'Influenzo' named as 'BR146_0'.

Please place the locomotives so that cab 1 points into the driving direction.
This will prevent a false detection of the driving direction for placing the driver and raising the correct pantograph.

This Expert-Line is able to follow the save and resume function of TS2017. All the important system states are saved, so you can save your scenario and resume it later. Please note that some system values are not stored like an active PZB monitoring.

You can set the brake mode from scenario scripting and force that mode so the user can't change it. The control name is 'BrakeMode' and accepts the values 2, 3 and 4. The values are representing the brake modes: 1=R, 2=P and 4=G. Fire only once and wait until 4 seconds after scenario start to set it up. Use a message window and fire an event to do so. The forced brake mode is scenario save function and rolling start compatible and will remain after a resume.

9 Credits

We say Thank You to all people who helped realizing this package.

Your virtualRailroads Team
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