EN

TRAIN SIM WORLD® 4

BERNINA LINE: OSPIZIO BERNINA - TIRANO

RIVET GAMES

STEAM®

dovetail GAMES

CONTENTS

1 BERNINA LINE: OSPIZIO BERNINA - TIRANO

INTRODUCING BERNINA LINE

Welcome to the Bernina Line! This alpine route is a 1000mm metre gauge railway in the Rhaetian Railway network, connecting St. Moritz (Switzerland) with Tirano (Italy).

Our representation covers the exciting section from “Tirano”, located in the valley at around 411m above sea level, with the alpine station “Ospizio Bernina” at around 2.253m above sea level (making it the highest station on the RhB network).

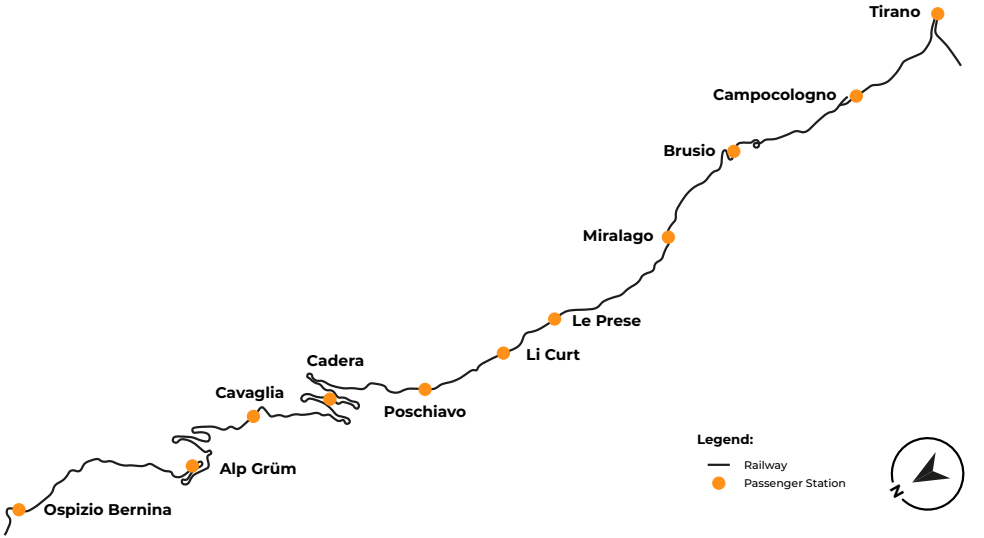
Leaving Tirano station, our train will transform into a tram, driving on the middle of the street. Passing Compocologno, we’re soon driving over the world famous Brusio spiral viaduct, before reaching Brusio station.

Further up, after passing Miralago, we’re driving along beautiful Lago Poschiavo for a bit, before making it to Le Prese and Li Curt - with short tram sections in between.

Next station: Poschiavo, where the main depot is located, offering many options to shunt. The steepest part of our journey now begins, winding up the mountain through Cadera and Cavaglia. Further up we’re arriving in Alp Grüm, a fantastic viewpoint for the Palü glacier and down into the valley!

Covering the last stretch towards our final destination, we’re joining the lake Lago Bianco until we reach Ospizio Bernina, the highest station on the RhB network.

5 BERNINA LINE ROUTE MAP



GAME MODES

JOURNEYS

Blends together more than 24 hours of sequential gameplay. Start a Journey and enjoy hundreds of scenarios, timetabled services, and jobs to complete around the railway.

TRAINING

Training modules give you the knowledge you need to get the most from your locomotives and trains via interactive lessons that teach you key concepts. If you're new to Train Sim World, we recommend you start here to learn the fundamentals.

SCENARIOS

Scenarios are objective-based activities which provide unique experiences. Move coaches around, drive passenger services and experience some of the operations that occur on the route.

TIMETABLES

These provide a host of activities throughout an entire 24-hour time period; Timetable Mode is a new way to play. There's always something to do with a large variety of services to take control of or ride along with. Sit back and enjoy the action and capture amazing screenshots, hop on or off and ride along with the various services as they go about their duties or take control and carry out the duties yourself. Featuring many individual services, you'll always find something going on.

2 RhB ABe 8/12 “ALLEGRA” ELECTRIC MULTIPLE UNIT

INTRODUCING THE RhB ABe 8/12 “ALLEGRA”

The Rhaetian Railway ABe 8/12 is a dual-voltage, metre gauge electric multiple unit, manufactured by Stadler. These “Allegra” (a rhaeteromanian greeting) nick-named units were put into service from 2010 on and consist of 3 cars each.

The naming ABe 8/12 derives from the axles on the train - 8 powered ones, out of the 12 axles in total.

Two things make these trains special: The dual voltage system (making it possible to use these trains on both the Bernina Line and the core RhB network) and the high power output, allowing these units to carry several wagons up the steep gradients on Bernina. For comparison, these units deliver 2.3 megawatt consistently - RhBs most powerful locomotive (the GE 4/4 II) delivers 2.4 mw.

The modern units are equipped with air-conditioning, an ultra-low floor section in the middle coach and first class compartments at either end of the driving units.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Schluss
Betriebsart
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Enter

THE DRIVERS CAB: LEFT VIEW

1. The Emergency Brake Valve opens the vacuum air brake to atmosphere directly, which results in the train brake being fully applied in a short amount of time.
2. The Emergency Plunger also applies the Emergency brakes, see 1 for details.
3. The SiSte reset button acknowledges an active SiSte alert. For more details on the safety systems on this train, have a look at the explanation further down.
4. The Cab Light button toggles the main cab light on and off.
5. The ZSI reset button acknowledges an active ZSI alert. For more details on the safety systems on this train, have a look at the explanation further down.
6. The Doors Close button closes the doors on both sides of the train.
7. The Doors Open Left button opens the doors on the left side of the train.
8. The Doors Open Right button opens the doors on the right side of the train.
9. The Door Platform button activates the retractable door step. This can only be pressed after the doors have opened.
10. The Vacuum Pump switch changes how fast the vacuum for the brake system recharges. Higher refill speeds are required for downhill runs.
11. The Train Brake lever is used to slow and stop the train.
12. The Parking Brake is used to hold the train in position when parked for longer periods of time. It's not intended to be used to slow the train down.
13. The Next Destination button cycles forward through the list of destinations available on the current route.
14. The Previous Destination button cycles backwards through the list of destinations available on the current route.
15. The Next Service Type button cycles forwards through the list of available service types.
16. The Previous Service Type button cycles backwards through the list of available service types.
17. The Telephone will contact the signaller, when clicked. This can be necessary in certain special operation manoeuvres.


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Klimaanlage
Betriebsart
Lüfterdrehzahl
Fzt-Heizung
Zugschluss
Zugkraft
Bremskraft
Hauptbremse
Mg Bremse
ZS
MG

THE DRIVERS CAB: RIGHT VIEW

1. The Cruise Control limits the maximum speed of the train to the value selected. It also uses the e-brake to slow down the train if it's exceeding the set speed limit.
2. The combined throttle and brake lever is used to both accelerate the train if pushed away from the driver, and brake using the e-brake if pulled towards the driver.
3. The Master Switch unlocks the Reverser. The key can only be locked or unlocked with the reverser in the off position and the throttle in the neutral position.
4. The Pantograph selector is used to control the power settings of the train. It doesn't need adjusting, just leave it in "Automatic" mode. "Battery" only uses the battery for power (can't drive the train in this setting), "Pantograph" disables the battery and "Open Main Switch" cuts the power to the train completely.
5. The Reverser is used to set the direction of travel related to the view from the current cab.
6. The Headlights switch allows you to control the light setup on the current end of the train.
7. The ZSI reset button acknowledges an active ZSI alert. For more details on the safety systems on this train, have a look at the explanation further down.
8. The Battery Off button disables power from the on-board battery.
9. The Battery On button enables power from the on-board battery.
10. The Parking Mode button puts the train into Parking Mode - this does not apply any brakes, but it's part of the procedure when switching cabs.
11. The Rearview Mirror knob opens and closes the mirrors on the current end of the train.
12. The Timetable Light Desk dimmer controls the brightness of the timetable light.
13. The Timetable Light Front dimmer controls the brightness of the second timetable light.
14. The Instrument Lighting dimmer controls the brightness of the instrument lighting.
15. The DC Pantograph - Rear button toggles the rear pantograph for DC voltage routes. The updated pantograph state is shown in the display to the left.
16. The AC Pantograph - Middle button toggles the middle pantograph for AC voltage routes.
17. The DC Pantograph - Front button toggles the front pantograph for DC voltage routes.
18. The Heater button toggles the leg heating on and off.
19. The Heater button toggles the foot heating on and off.
20. The SiSte reset button acknowledges an active SiSte alert. For more details on the safety systems on this train, have a look at the explanation further down.
21. The Doors Close button closes the doors on both sides of the train.
22. The Passenger Lights Off button turns the passenger lighting off.
23. The Passenger Lights On button turns the passenger lighting on.
24. The Wiper dial controls the various speeds of the windscreen wiper.
25. The Air Con Operating Mode switch controls the current operating mode of the air conditioning.
26. The Fan Speed switch controls the speed of the air conditioning fan.
27. The Temperature knob sets the temperature for the cab heating.
28. The Tail Lights switch controls the light configuration on the other end of the train.

3 OPERATING THE RhB ABe 8/12

GETTING STARTED

Enter the cab you will be driving in, sit in the driver's seat and check the following:

1. Master Key (Nr 3) is On.
2. Driver Direction Switch (Reverser, Nr 5) is set to Forward.
3. Parking Brake (Nr. 12) is set to 0%.
4. Train Brake (Nr. 11) is set to Release.

Optional:

5. Set headlights (Nr 6) to the matching setting.
6. Set taillights (Nr 28) to the correct setting.

<u>If you wish to run with ZSI enabled:</u>

1. Enable ZSI with the keyboard combo "CTRL + ENTER".

<u>If you wish to run with SiSte enabled:</u>

1. Enable SiSte with the keyboard combo "SHIFT + ENTER".

ON-BOARD SYSTEMS: BRAKES

The RhB ABe 8/12 is quipped with more than just one brake system. Let's have a look at them in detail:

Dynamic Brake / E-Brake

The Allegra is quipped with a modern, dynamic brake. It uses an inverted field of electricity on the electric engines as a resistor to slow down the train. Note that while this is efficient at higher speeds, it will become practially non-existing under 10 km/h. Use the train brake to bring the train to a halt.

Train Brake

The Allegra is quipped with a vacuum train brake as well. This allows the train to safely slow down from any speed and come to a complete stop.
Compaired to a regular air brake, the vacuum brake works the opposite way. Instead of applying air pressure to release the brakes, the vacuum brake creates a vacuum throughout the train to move the brake pads away from the wheels.
In order to slow down a train, a controlled amount of atmospheric air is fed into the system, which causes the brake pads to press on the wheels again.

Parking Brake

The Allegra is also equipped with a parking brake. Note that it should only be used at standstill, if the train is parked for a longer amount of time.

ON-BOARD SYSTEMS: V-SOLL LEVER

The RhB ABe 8/12 features a modern, automatic speed control.

The desired maximum speed for the line ahead should be selected using the V-Soll Lever and this will be indicated by the moving V-Soll Speed Indicator on the Speedometer. Speed selection can be made in 5 km/h increments from 5 to 120 km/h.

This system makes use of the power provided by the driver's throttle selection and cannot exceed this level. The driver must gradually increase the throttle when starting to move the train. As it is a core feature of this train, this system is on by default and cannot be turned off. When initialising the train systems, the V-Soll Speed Indicator will automatically be set to 25 km/h.

4 SAFETY SYSTEMS

SISTE (VIGILANCE SYSTEM)

SiSte is a vigilance system, very close to the German SiFa system. It's purpose is to make sure the driver is still vigilant by requiring him to press a button after a set amount of time.

ENABLING OR DISABLING SISTE

The default state of the SiSte system is disabled. To enable the system you must be seated in the driving seat and the train must be stationary. Use the **Signalling Systems Enabled** control (See Settings > Controls menu). Repeat to disable the system again.

On a PC, you might prefer to use the "SHIFT + ENTER" keyboard combo to activate the system. Use the key combo again to deactivate the system.

COMPONENTS OF SiSte

SiSte has its own button, that lights up if it requires action from the driver. These can be found at several positions in the cab.

ZSI 90 (SAFETY SYSTEM)

The ZSI-90 Train Protection System uses magnets embedded in the track, between the rails, that activates in-cab equipment to alert the driver to signal states ahead. The in-cab ZSI-90 system will trigger a sound and light when the locomotive passes over an active magnet. Active magnets are most often encountered at a Distant Signal showing a warning of a restrictive or stop aspect ahead.

HOW ZSI 90 WORKS

ZSI has a combination of three different colored indicator lights, right below the speedometer.

When you pass a distant or combined signal showing a warning of a restrictive or stop aspect ahead, the yellow lamp will illuminate with an audible alarm. You must then acknowledge this alarm by pressing the ZS button. You'll hear two short beeps and the yellow light will then continue to flash six times to remind you that you're driving under caution.

If you fail to acknowledge the ZSI alarm, the red lamp will come on followed by the emergency brake. See the right side for more details on how to recover from this situation.

If you're passing a signal with a drive aspect, the green lamp will come on. No interaction is required.

ENABLING OR DISABLING ZSI 90

The default state of the ZSI 90 system is disabled. To enable the system you must be seated in the driving seat and the train must be stationary. Use the **Signalling Systems Enabled** control (See Settings > Controls menu). Repeat to disable the system again.

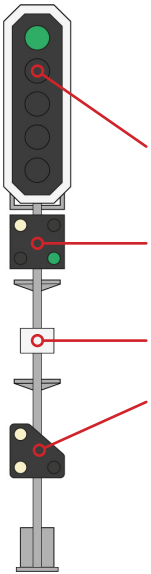
Players on PC might prefer to use the keyboard shortcut, which is pressing "CTRL + ENTER" to activate, and pressing the combo again to deactivate.

EMERGENCY BRAKE RECOVERY

At some point in your Train Sim World driving career, you will encounter an emergency brake application. Whatever the reason, here are some simple steps to get you back on your way quickly:

1. You should always begin by understanding why you received an emergency brake application. Was it an intervention by an on-board safety system? Was it because you tripped a trackside mechanism? Or something else? Understanding the exact cause can significantly help you avoid similar situations in the future.
2. If you can hear an alarm, and you are still moving, you must wait for the train to come to a complete stop before you can acknowledge or cancel the alarm.
3. Acknowledge/Cancel the alarm by pressing the **Alerter Reset Control** (See Settings > Controls menu). All audible alarms should have been silenced. If you can still hear alarms, please refer to the appropriate section about on-board safety or signalling systems.
4. Once at a complete stop, and all alarms have been acknowledged or cancelled, you should always 'reset' your driving controls. Resetting simply means to restore all the driving controls to their default position, neither applying power or braking (except where brake needs to be applied to prevent you from free-rolling) and the direction control or Reverser is set to its neutral or off state. In some instances, you may be required to move the brake handle to the Emergency position before the brakes can be released.
5. Once all the driving controls have been reset, move the Reverser to Forward.
6. Move the brake handle to the release position.
7. Move the throttle lever to a low throttle position to begin applying power.
8. Once the brakes have fully released, the train should begin to move.

5 SWISS RAILWAY SIGNALLING GUIDE



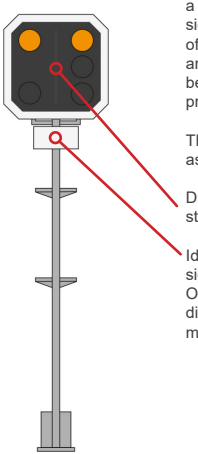
The signal shown opposite is a typical main signal (Hauptsignal) that is currently displaying a Drive aspect. The components of this signal are as follows:

Main Signal head advises of the state of the line ahead. In this case, the head is advising that the route ahead is clear and the driver is allowed to drive maximum line-speed.

Brake Test/Departure Indicator is used by the ground staff to communicate with the driver the status of a brake test. With such steep grades, the importance of conducting regular brake testing is paramount. In this case, the head confirms it is safe to depart.

Identification plate provides the signal's unique reference number.

Co-acting Ground Shunt Signal when mounted alongside a main signal such as in this example, works in conjunction with the main signal head but otherwise generally provides movement authority for shunting purposes. In this case, the head merely advises that the next signal is displaying a proceed aspect. See page 26 for more information on Shunt Signals.



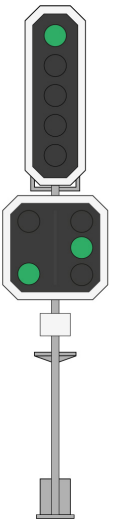
The signal shown opposite is a typical distant signal (Vorsignal). Unlike Main signals which indicate either that the route ahead is blocked, clear at the current maximum permissable speed or a reduced speed applies, distant signals provide advanced warning of degraded aspects (those which are more restrictive than you may be operating under) and usually provides ZSI-90 train protection.

The components of this signal are as follows:

Distant Signal head advises of the state of the next signal ahead.

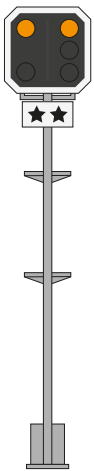
Identification plate provides the signal's unique reference number. One star symbol means it's a distant signal, twin star symbols means it's a repeater.

MAIN & DISTANT SIGNALS



Main signal heads and distant signal heads when mounted to a single post, as shown in this signal, are referred to as Combined signals and are typically used where the signal blocks are relatively close together.

The meaning of this specific signal is advising that the route ahead is clear and the maximum permissable line speed (communicated by lineside signs) applies.



In situations where visibility is restricted such as on tight curves or where bridges may obstruct the view, repeaters are used to provide additional advanced warning of the state of the next main signal. Distant repeaters can easily be identified because their heads are smaller than normal. Their meaning, however, is the same.

We'll continue with an overview of signal aspects, and their meaning, in the table on the following pages.

COLOUR LIGHT OVERVIEW

Distant	Main Signal	Meaning
		You are not permitted to proceed beyond this signal, the route ahead may be obstructed. Preceeding a main Stop aspect, a distant will provide an appropriate warning.
		Proceed, the line ahead is clear. Observe the posted maximum permissable speed limits displayed on line-side signs.
		Proceed at no greater than 30 km/h from the main signal, the line ahead is clear but a reduced maximum permissable speed applies.
		Proceed at no greater than 45 km/h from the main signal, the line ahead is clear but a reduced maximum permissable speed applies.
		Caution, shunt at no greater than 30 km/h, the line ahead may be obstructed. A main signal displaying this aspect will activate the ZSI-90 system which must be acknowledged.

25 SHARED DEPARTURE SIGNALS

Each shared departure signal has corresponding Im marker boards positioned next to each departure track. These are the white signs with the black triangles. The Im aspect number on each sign indicates which aspect on the shared signal relates to each track. When waiting at a shared departure signal you must not pass the Im marker board unless the correct aspect is shown on the shared signal. This ensures adequate clearance between your train and the converging line.

For example, the illustration above requires aspect 1 (1 green light) for departure from the right-hand track and aspect 2 (one green and one yellow light) on the shared signal for departure from the left-hand track.

GROUND SHUNT SIGNALS & SHUNT INDICATORS

Ground signals are normally mounted on short posts at or around ground level. However, at stations, they are sometimes mounted below the platform canopy.

When they are located alongside a main signal they co-act and repeat the appropriate aspect according to the aspect the main signal is displaying.

The possible aspects and their meanings are shown below:

Aspect	Meaning
	You are not permitted to proceed beyond this signal, the route ahead may be obstructed
	Caution, the next main signal or shunt signal is displaying a stop aspect or you are entering a siding / end of line.
	The next signal is display a proceed aspect.

6 RAILWAY & TRAMWAY SIGNS

RAILWAY & TRAMWAY SIGNS

Alongside signals, railway signage also plays an important part of advising or instructing the driver on the route ahead. Below are explanations of each sign you will find on the route:

Sign	Meaning
	Maximum permissable speed applies from the next speed restriction commencement sign. You must reduce speed to the value shown.
	Maximum permissable speed applies from the next speed restriction commencement sign. You must reduce speed to the value shown. On differential signs, the higher speed applies to passenger trains.
	Speed restriction commencement sign advises that you should have reduced speed by this point. Proceeding beyond this sign at a speed higher than required is not permitted.
	End of speed restriction advises that you can proceed at the previous line speed once the rear of the train has passed the sign.
	Increase speed to the value shown on the sign once the rear of the train has passed the sign. On differential signs, the higher speed applies to passenger trains.

Sign	Meaning
	Driver must sound the primary horn/whistle.
	Caution, level crossing ahead.
	Indicates the limit of shunting outside of station zones. If shunting, you must not pass this sign.
	Overhead electrification ends ahead. Drivers of electric trains must not pass this sign.
	Provides advanced warning of an upcoming tramway section.
	Marks the commencement of the tramway section and associated rules apply.

RAILWAY & TRAMWAY SIGNS

Sign	Meaning
	End of tramway. The driver can revert to standard railway operation once the rear of the train has passed the sign.
	When a passenger requests a stop at a station, the lights on this sign located before the station begin to flash.
	To avoid confusion for road traffic on tramway sections, this sign advises that the associated signal applies to trains only.
	This sign is specifically for road traffic and cautions that they are sharing the route ahead with rail traffic. This sign should not be confused with the sign above.

Tramway sections also have some special signals which provide additional guidance on whether road traffic stop lights are protecting the route ahead. Their aspects are explained below:

Sign	Meaning
	Road traffic lights are not functioning.
	Road traffic lights are in the process of being activated.
	Road traffic lights are functioning and the street ahead is protected - the train can proceed.

6 GENERAL INFORMATION

I have a problem downloading the Steam client, how do I contact them?

You can contact Steam Support by opening a customer service ticket at **https://support.steampowered.com**. You will need to create a unique support account to submit a ticket (your Steam account will not work on this page) and this will enable you to track and respond to any tickets you open with Steam.

How do I change the language of Train Sim World 3?

This is an easy process and will allow you to play Train Sim World in English, French, German, Spanish, Russian and Simplified Chinese. To change the language of Train Sim World, double-click on the Steam icon on your PC desktop, left click on 'Library', right click on 'Train Sim World', left click on 'Properties', and finally left click on the Language tab and select your preferred language.

How do I reset my display screen size settings?

It is possible to change the display screen size settings for Train Sim World from within the game. Changing display screen size settings is done from the Settings menu in the Display tab.

For any questions not covered here, visit our knowledgebase at **https://dovetailgames.freshdesk.com**

ABOUT RIVET GAMES

Rivet Games is a team of passionate and talented artists and developers based in Stirling, Scotland. Building on years of prior experience of developing the highest quality environments and vehicles for simulation games, the team have a passion for ensuring everything they do is accurate, built to the highest possible standards, and above all, is fun and enjoyable.

For more information about Rivet Games and to find out more about how they work, please follow them on social media:

www.rivet-games.com
youtube.com/rivetgames
instagram.com/rivetgames
twitter.com/rivetgames
facebook.com/rivetgame

CREDITS & ACKNOWLEDGEMENTS

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