

Train Simulator 2020

Bernina Line - Poschiavo to Tirano



1	ROUTE INFORMATION	3
	1.1 Route Overview	3
	1.2 History	3
	1.3 Route Map	.4
	1.4 Rolling Stock and Services	5
	1.5 Route Features	5
2	THE ABE 8/12 ALLEGRA	6
	2.1 Train History	6
	2.2 Design & Specification	6
	2.3 Additional Keyboard Controls	.6
	2.4 Cabin Controls	.7
	2.5 Vsoll Lever and Speedometer Indicator (Speed Control)	8
	2.6 ZSI-90 Safety System	.9
	2.7 Air Brake and Parking Brake	9
	2.8 Running Numbers	9
3	BERNINA EXPRESS PANORAMIC COACHES	11
	3.1 Destination and Coach Number Displays	11
4	3.1 Destination and Coach Number Displays	11 12
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 	11 12 12
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 	11 12 12 13
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 	11 12 13 14
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 	11 12 13 14 14
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 	11 12 13 14 14
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 	11 12 13 14 14 15 18
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 	11 12 13 14 15 18 18
4	 3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 4.8 Group Signal Stopping Points 	11 12 13 14 14 15 18 18 18
4	3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 4.8 Group Signal Stopping Points	11 12 13 14 15 18 18 18 19 20
4	3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 4.8 Group Signal Stopping Points TRACKSIDE SIGNS	11 12 13 14 15 18 18 19 20 20
4	3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 4.8 Group Signal Stopping Points TRACKSIDE SIGNS 5.1 Speed Signs 5.2 Other Signs and Signals	111 12 13 14 14 15 18 18 19 20 20 21
4 5	3.1 Destination and Coach Number Displays SIGNALS USED ON THE BERNINA LINE 4.1 Signals and Permissible Speeds 4.2 Main and Distant Signals 4.3 ZSI Safety System 4.4 Ground Shunt Signals 4.5 Signal Examples 4.6 Request Stops 4.7 Shared Departure Signals 4.8 Group Signal Stopping Points TRACKSIDE SIGNS 5.1 Speed Signs 5.2 Other Signs and Signals OTHER INFORMATION	111 12 13 14 14 15 18 19 20 21 20 21 22

1 Route Information

1.1 Route Overview

The Bernina railway is a single-track metre gauge railway line forming part of the Rhaetian Railway (RhB). It links St. Moritz and Samedan, in the Swiss Canton of Graubünden, with the Italian town of Tirano. Reaching a height of 2,256 metres (7,403 ft.) above sea level at Ospizio Bernina, it is the third highest railway in Switzerland. It also ranks as the highest adhesion railway in Europe. With inclines of up to 7% it is one of the steepest adhesion railways in the world.

On the 7th July 2008, the Bernina Railway and the Albula Railway, which also forms part of the RhB network, were awarded UNESCO World Heritage Site status. The whole site is regarded as a cross-border joint Swiss-Italian heritage area.



1.2 History

In 1904 the Bernina-Bahngesellschaft (BB) was established, with the objective of opening a railway line between St Moritz and Tirano, via the Bernina Pass. In 1906 the BB obtained a concession for the line and opened the route in stages from 1908 onwards. On 1st July 1908 the first sections between Pontresina and Morteratsch, and between Tirano and Poschiavo were completed. On 18th August of the same year the line was extended from Pontresina to Celerina. Then on 1st July 1909 the line reached St Moritz and extended south to Bernina Suot. It took until 5th July 1910 for the whole line to be opened. The construction of the most difficult section of the line was between Bernina Suot and Poschiavo (the highest section of the line over the Bernina Pass. The line was planned and built as an electrified route operating from DC current from the outset. In 1935 the voltage was increased from 750 to 1000 volts.

The Bernina Railway was originally planned to operate only in the summer, but in 1913/14 the BB commenced winter operations on the line. This required further construction of avalanche barriers, snow sheds and galleries.

1.3 Route Map



1.4 Rolling Stock and Services

Since their introduction in 2010 the ABe 8/12 Allegra multiple units provide the main traction on the Bernina railway. These were to replace the ABe 4/4I and ABe 4/4II railcars although some series II railcars still survive. The more modern ABe 4/4 III railcars acquired in 1998 and 1990 also operate services (usually running in multiple). There are also two Gem 4/4 locomotives that can operate either from the DC overhead catenary or from their own diesel-generator.

This fleet of railcars also hauls freight traffic. Freight wagons can be added to passenger trains up to the maximum hauling capacity of 140 tonnes. For safety reasons other freight trains are operated as freight only services. The Bernina Railway freight services mainly comprise heating oil, fuels, timber and containerised goods.

1.5 Route Features

- Metre gauge track system with 3D sleepers, animated junction levers and illuminated indicators covering the 45 km line.
- RhB signalling system with custom designed signal models and features including:
 - Group signals unique to this line
 - Animated Brake Test and "Abfahrbefehl" (departure indicators)
 - Operating "Besetztes Gleis" indicators for entering occupied platforms
 - Three state ground signals that function correctly between main signals
 - ZSI-90 Safety System track magnets and in-cabin equipment
- Random request stop feature.
- Over 100 overhead line equipment and catenary models.
- Custom bridges and infrastructure models designed to accurately represent the stunning engineering of the route.
- Highly detailed station models designed from our survey of the route in 2019 along with many other feature models along the line.
- Many carefully modelled route sections of tram-style street running.
- Detailed rock face models to capture the breath-taking scenery of the route.
- Passenger view for the EWA coach of the Allegra where you can take in the breathtaking scenery and observe the driver's cabin through the glass partition.
- 4 x Bernina Express coach types including first class passenger view.
- Za tank wagons, Lb-v container wagons and Sp-w timber wagons are included.
- Route fully configured for Quick Drive scenarios.
- 3 x Railfan mode scenarios.
- 6 x Career scenarios including a guided tutorial for the ABe 8/12 Allegra train and a Passenger Mode journey.

2 The ABe 8/12 Allegra

2.1 Train History

The Rhaetian Railway ABe 8/12 is also known as an Allegra. It is a dual voltage, metre gauge, 3-car multiple unit. The Swiss locomotive and railcar classification system dictates the train name with ABe 8/12 denoting an electric railcar train with first and second class compartments, and a total of 12 axles, eight of which have powered traction motors.

The ABe 8/12 trains were delivered between 2009 and 2011. They have been built for routes with steep inclines such as the Arosa line, the Bernina Railway, and the line from Landquart to Davos. They are dual voltage trains, to enable them to run on both the Rhaetian Railway's core network, which is electrified at 11 kV AC, and on the Bernina Railway, which is electrified at 1,000 V DC.

The first class compartment at the front and rear of each set offers a view of the driver's cabin and line ahead.

On the 5th of December 2009, during regular testing in the Vereina Tunnel, an Allegra set a new metre gauge railway speed record of 139 km/h.

2.2 Design & Specification

Number Range	3501 - 3515
Coach Wheel Arrangement	Во-Во
Weight	106 tonnes
Set Length	49.5 m
Width	2.65 m
Power Output	AC: 2,800 kW
	DC: 2,400 kW
Max Speed	100 km/h

2.3 Additional Keyboard Controls

L – Toggle Cab Light On / Off	V – Toggle Wipers On / Off
I – Increase Instrument Lights	SHIFT+P – Select Centre Pantograph
SHIFT+I – Decrease Instrument Lights	CTRL+P – Select Outer Pantographs
Q – ZSI Acknowledge	P – Toggle Main Switch (Drop/Raise
	Pantos)
Y – Increase Vsoll Lever Position	X – Toggle Sander
C – Decrease Vsoll Lever Position	

2.4 Cabin Controls

1	Combined Throttle and Dynamic Brake	18	Train Braking Force Indicator
2	Vsoll Lever (Speed Control Select)	19	Differential Traction Force Indicator
3	Reverser	20	Catenary Voltage Indicator
4	Main Switch (Drop/Raise Pantographs)	21	Train Status and Clock Display
5	Warning Whistle	22	Sun Visor
6	Headlights Selector Switch	23	Train Vacuum Brake Lever
7	Instrument Lights Dimmer	24	Unit Air Brake and Parking Brake Lever
8	Outer Pantographs Selector	25	Emergency Brake
9	Inner Pantograph Selector	26	Cabin Lights Button
10	Wiper Switch	27	Doors Open Indicator Lamps
11	ZSI Acknowledge Button	28	Request Stop Halt Indicator Lamp
12	ZSI System Lamps	29	Current Destination / Route Display
13	Vsoll Speed Selected Indicator	30	Destination Select Buttons
14	Speedometer KPH	31	Opening Cabin Door
15	Train Vacuum Braking Pressure Indicator	32	Opening Cabin Door Window
16	Brake Pipe Pressure Indicator	33	Opening Cabin Window
17	Brake Cylinder / Main Reservoir Indicator	34	Sander Button

Refer to the illustrations on this page and on page 8.



© Copyright Rivet Games Ltd, all rights reserved



Note: Controls that are not identified above have no function even if they are animated.

2.5 Vsoll Lever and Speedometer Indicator (Speed Control)

The Allegra is equipped with automatic speed control. The desired maximum speed for the line ahead should be selected using the Vsoll Lever and this will be indicated by the moving Vsoll Speed Indicator on the Speedometer. Speed selection can be made in 5 km/h increments from

5 to 100 km/h. There is also an additional selection of 33 km/h provided specially for the Arosa Line.

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. If the Allegra is hauling coaches and wagons then the level of the throttle will need to be higher than normal.

When hauling coaches and wagons the driver must also supplement and balance the system by manually applying the Train Vacuum Brake and/or the unit Air Brake. This is especially important when braking at lower speeds as the speed control system only uses the dynamic brake and this is much less effective at lower speeds.

2.6 ZSI-90 Safety System

You are alerted by the ZSI safety system when you pass a distant signal (Vorsignal) that is displaying a warning. The ZSI Acknowledge Button and ZSI Warnung Lamp will start to flash accompanied by an audio beep. You must press the ZSI Acknowledge Button immediately otherwise the emergency brakes will be applied automatically. Once pressed there will be five further lamp and audio alerts to remind you that you are driving under a distant signal caution. A ZSI alert will also be activated when you pass a main signal displaying Aspect 6 (Short Journey – Expect Obstruction).

2.7 Air Brake and Parking Brake

The Allegra Air Brake and Parking Brake are combined on a single lever. The unit's Air Brakes are applied gradually as the lever is moved back towards the driver. The Parking Brakes (Handbrakes) are applied once the lever is moved back to the maximum position. This should be done if stopped at a station or while you are changing cabins. The Parking Brakes <u>MUST</u> be fully applied before opening passenger doors.

2.8 Running Numbers

If you wish to make use of the Allegra in your own scenarios, it is possible to customise the initial Pantograph selection and Destination Displays for the player and Al trains during the creation of a scenario. There are fifteen valid sets of running numbers as follows:

		EW	A		E\	VB	
Set	Panto	Vehicle	Name	Route	MWC	Vehicle	Name
3501	A or D	35001	а о	ΑΝ	35601	35101	а о
3502	A or D	35002	а о	ΑΝ	35602	35102	а о
3503	A or D	35003	а о	ΑΝ	35603	35103	а о
3504	A or D	35004	а о	ΑΝ	35604	35104	а о
3505	A or D	35005	а о	ΑΝ	35605	35105	а о
3506	A or D	35006	а о	ΑΝ	35606	35106	а о
3507	A or D	35007	а о	ΑΝ	35607	35107	а о
3508	A or D	35008	а о	ΑΝ	35608	35108	а о
3509	A or D	35009	а о	ΑΝ	35609	35109	а о
3510	A or D	35010	а о	ΑΝ	35610	35110	а о
3511	A or D	35011	а о	ΑΝ	35611	35111	а о
3512	A or D	35012	а о	ΑΝ	35612	35112	а о
3513	A or D	35013	а о	ΑΝ	35613	35113	а о
3514	A or D	35014	а о	A N	35614	35114	a o
3515	A or D	35015	а о	ΑΝ	35615	35115	а о

Route Letter	
А	Blank Display
В	Chur - Tirano (Bernina Express)
С	Tirano - Chur (Bernina Express)
D	Chur - St. Moritz (Regio Express)
E	St. Moritz - Chur (Regio Express)
F	St. Moritz - Tirano (Regio)
G	Tirano - St. Moritz (Regio)
Н	Filisur - Davos Platz (Regio)
-	Davos Platz - Filisur (Regio)
J	Chur - Arosa (Regio)
К	Arosa - Chur (Regio)
L	Chur - Davos Platz (Regio Express)
М	Davos Platz - Chur (Regio Express)
Ν	Allegra: Please Do Not Board

There are fourteen RhB routes provided for destination and internal train displays:

We will use the following example of an Allegra three coach consist to explain the configuration:

		EW	EV	VB			
Set	Panto	Vehicle	Name	Route	MWC	Vehicle	Name
3504	D	35004	d	F	35604	35104	d

This gives us the following running numbers for the three vehicles:

This train initialises as set 3504 with DC (outer coach pantographs) and "St.Moritz to Tirano" as the displayed destination. For six coach Allegra consists it is essential that the same **Panto** and **Route** selections are entered for both EWA vehicles to avoid errors.

The system also allows players to select destinations while driving Quick Drive scenarios.

3 Bernina Express Panoramic Coaches

3.1 Destination and Coach Number Displays

If you wish to make use of the coaches in your own scenarios, it is possible to customise the Destination Display and Coach Number during the creation of a scenario.

In order to display a specific destination and coach number, the correct value must be entered into the vehicle properties window. This number consists of a 7 digit value containing both numbers and a letter.

The 7 digit value is arranged like so: **VVVVCCD**

VVVV	= the Vehicle number (the white number displayed on the side of the coach)
CC	= the Coach number (the two digit coach number displayed on the LED screens)
D	= the Destination (the destination text displayed on the LED screens)

Example shown above: 129134C (where "C" is for Tirano to Chur) – see valid destinations below:

- A Chur to St.Moritz
- B St.Moritz to Chur
- C Tirano to Chur
- M Tirano to St.Moritz
- N Pontresina to Tirano
- P Tirano to Pontresina
- R Reserved
- S Tirano to Samedan
- T St.Moritz / Samedan to Tirano
- U Chur to Tirano
- W Bernina Express Welcome
- X Blank

4 Signals used on the Bernina line

4.1 Signals and Permissible Speeds

Swiss railways use two main families of signalling - the "L" system and the "N" system. The Bernina Line is part of the Rhaetian Railway (RhB) network and it uses a variant of the "L" system. The main difference in the RhB version of the "L" signalling is that the speeds that relate to the signal aspects are different from other L systems.

The L system has signals indicating the state of the next section of track ("Main" signals) and signals providing advanced warning of the state of these main signals ("Distant" signals).

RhB signals use distinct main and distant signal heads as shown in the next section and these can be mounted either individually to form a main signal (Hauptsignal) and a distant signal (Vorsignal) or both mounted on the same signal post (Combined Signal).

Main signals show that the line immediately ahead is blocked or the line is clear at the current line speed or display a reduced speed that must be achieved by the driver before passing the main signal.

Distant signals provide advanced warning of a speed reduction commencing from the next main signal and usually provide ZSI Safety System protection (see below).

In Switzerland, signals are normally positioned on the left-hand side of the track, however, where there is reduced visibility or multiple tracks, they can be also positioned on the right-hand side of the track.

4.2 Main and Distant Signals

This table illustrates the signal aspects and associated permissible speeds that are used on the RhB network.

											<i></i>			
Note	ΔΠ	shuntina	onerations	should	take	nlace	at a	maximum	of '	30 k	m/h	in	station	areas
11010.		onuning	operations	onoura	lano	piuoo	uiu	maximum	01 0	<i>JO N</i>			otation	urcus.

Aspect	Meaning	Distant Signal	Main Signal
Aspect 0	Stop		(Hauptsignal)
Aspect 1	Clear – Maximum speed is as shown on relevant speed signs		00000
Aspect 2	30 km/h Maximum Speed		00000
Aspect 3	45 km/h Maximum Speed		
Aspect 6	 30 km/h Maximum Shunting Speed (Short Journey – Expect Obstruction) You are alerted by the ZSI safety system when you pass the distant signal <u>and</u> the main signal that is displaying Aspect 6. 		0.000

4.3 ZSI Safety System

You are alerted by the ZSI safety system when you pass a distant signal (Vorsignal) that is displaying a warning. In the driving cab, the ZSI Acknowledge Button and ZSI Warnung Lamp will start to flash accompanied by an audio beep.

When this happens, you must press the ZSI Acknowledge Button (or the "Q" key) immediately otherwise the emergency brakes will be applied automatically. Once pressed there will be five further lamp and audio alerts to remind you that you are driving under a distant signal caution.

A ZSI alert will also be activated when you pass a main signal displaying Aspect 6 (Short Journey – Expect Obstruction).

4.4 Ground Shunt Signals

These signals are normally mounted on short ground posts, however at stations they are sometimes mounted below the platform canopy. When they are located alongside a Main Signal they co-act and display the appropriate aspect according to the aspect the Main Signal is set to.

Aspect	Meaning	Ground Shunt Signal
Stop	Stop at this signal	
Warning	The next Main Signal or Shunt Signal is at Stop or you are entering a siding / end of line	
Clear	The next signal is displaying a proceed aspect	

4.5 Signal Examples

The following examples illustrate the most common signal combinations along with an explanation of their use.



This is a main signal (Hauptsignal) that is currently showing Aspect 3 to alert the driver that 45 km/h is the maximum permissible speed allowed beyond this point.

Head 1 is the Main Signal Head

Head 3 is a co-acting Ground Shunt Signal

Head 4 is a Brake Test / Departure Indicator

If vehicles are uncoupled or coupled to a train then the driver must carry out a brake test before departure.

Break test signals

During the brake test, the ground staff communicate with the driver using this indicator as follows:

Apply Brakes

Release Brakes

Brake Test Successful

Ready for Departure (Abfahrbefehl)

Although these indicators are displayed in this simulation they do not need to be obeyed while driving a scenario.



This is a combined signal that is currently showing Aspect 3 on the Main Signal Head to alert the driver that 45 km/h is the maximum permissible speed allowed beyond this point. The Distant Signal Head is showing that the next signal ahead is displaying Aspect 0 (Stop).

Head 1 is the Main Signal Head

Head 2 is the Distant Signal Head

Distant signals usually provide ZSI protection.



This is a Distant Signal that is currently showing that the next signal ahead is displaying Aspect 0 (Stop).

Head 2 is the Distant Signal Head

Distant signals usually provide ZSI protection.



This is a Distant Repeater Signal that is currently showing that the next signal ahead is displaying Aspect 0 (Stop).

A Repeater Signal can be identified by having a smaller Distant Head. These signals are located between a Main Signal and its preceding Distant Signal at locations where visibility is restricted such as on tight curves or where bridges obstruct the view.

Head 5 is the Distant Repeater Signal Head

Repeater signals **DO NOT** provide ZSI protection.



This combined signal on approach to a station has an additional Occupied Track Indicator.

If you need to proceed past a signal showing a Stop aspect in to an occupied track then you will need to press TAB during the scenario to ask the signaller for permission. If permission is granted then the signaller will set the Main Signal Head to the aspect shown here. The Main Signal Head will display Aspect 2 to limit your speed to 30 km/h and the Occupied Track Indicator (Besetztes Gleis) will illuminate with four horizontal lights. The Distant Signal Head will go dark.

Head 6 is the Occupied Track Head (Besetztes Gleis)

If the Main Signal Head does not have the lights necessary to display Aspect 2 then Aspect 0 (Stop) will continue to be displayed and the Occupied Track Indicator will illuminate with four diagonal lights instead meaning you have consent to overrun the signal.

4.6 Request Stops



The signal shown above right is provided at the approach to request only stations. It is activated by passengers at the station by pressing a button at the information point. When activated the two white lights on the signal flash together to indicate to the driver that passengers wish to board their train.

The driver must also check the Request Stop Halt Indicator Lamp on the cabin desk on approach to a request stop. If this is illuminated then a passenger wishes to leave the train and has already pressed one of the onboard request stop buttons. Ensure that at least one passenger door opens on the Allegra when making a request stop.



4.7 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 (1 green and 1 yellow light) on the shared signal for departure from the left-hand track.

4.8 Group Signal Stopping Points

At some shared departure signal locations a Group Signal Stopping Point is used instead of Im marker boards positioned next to each departure track. A sign showing a downwards pointing arrow (without an Im aspect number) tells the driver where to stop if the shared main departure signal does not currently apply to his/her track.

On the Bernina Line some Group Signal Stopping Points have been installed that illuminate with a white arrow to indicate that the departure signal currently applies to this track and that the driver has permission to proceed up to the departure signal. If it is not illuminated then the driver must stop at the arrow sign.



5 Trackside Signs

5.1 Speed Signs

The line speed on RhB routes is advised using track speed signs. For a reduction in speed the driver first sees a reduce speed sign that indicates the target speed. The driver must then reduce his speed before passing a commencement sign situated ahead of the first sign. Main Signals always override any speed indicated by a trackside sign.

	Meaning	Signs
Reduce Speed	Reduce your speed to that shown on this sign before you reach the next speed restriction commencement sign.	45
	If the sign shows two speeds the higher speed applies to passenger trains and the lower speed to freight trains.	45 50
Speed Restriction Commencement Sign	Your train must have reduced speed to that advised at the previous Reduce Speed Sign before passing this sign.	
End of Speed Restriction Sign	If the speed restriction is on a short section of the line then this sign indicates that the driver can return to the speed prior to the speed restriction once the rear wagon or coach has passed this sign.	
Increase Speed	This sign indicates that the driver can increase the train speed once the rear wagon or coach has passed this sign to the speed shown.	55
	If the sign shows two speeds the higher speed applies to passenger trains and the lower speed to freight trains.	80 60

5.2 Other Signs and Signals

	Meaning	Signs
Whistle Sign	The driver should sound his whistle or warning horn at this sign.	
Level Crossing Sign	This sign is mounted on signal posts prior to a level crossing.	
Limit of Shunting Sign	Outside station areas these signs indicate the limit of shunting operations. During scenarios you do not need to obey these signs as they are only positioned for visual completeness.	
End of Electrification Sign	Where the overhead catenary wires end, these signs are used to alert the drivers of electric trains to proceed no further than the sign. They are suspended from the catenary wires or mounted on the junction indicators where only one route ahead in not electrified as shown below.	

6 Other Information

This document is provided as a guide to Rivet Games' Bernina Line add-on route for Train Simulator, a product provided for entertainment purposes.

There is more information on this route at http://www.rivet-games.com/bernina along with links to detailed reference material.

If you do notice errors in this document, please let us know at support@rivet-games.com

Please give feedback on the Rivet Games forums: forums.rivet-games.com, as well as leave a review on the Steam store to help others decide whether they would enjoy this route.

This document is © copyright Rivet Games Limited. Redistribution is not permitted without prior written consent.

7 Acknowledgements

We would like to thank the Rhaetian Railway for their assistance in developing this route and for permission to use their branding on models included with this product.

We also wish to thank the third party partner team at Dovetail Games and the beta testers for their help and support in developing this product.

We would especially like to thank Thomson Interactive Limited for permission to use the ABe 8/12 Allegra, Bernina Coaches, Sp-w and Lb-v wagons as the vehicles for this route.

- end -