DB BR120

Release Version 1.0

1 Background

1.1 Loco

The BR120 was originally designed to replace the impressive BR103 and were one of the first electric locomotives to feature three-phase motors, as widely used throughout modern electric locomotives.

Intended to be the first truly universal locomotive with capability to haul fast passenger trains and heavy freight loads. The locomotives were widely used throughout Germany.

Weighing in at 84 tons and delivering 7500hp of power, these lightweight locomotives are versatile for virtually any route.

1.2 Design & Specification

Builder	BBC, Henschel, Krauss-Maffei, Krupp
Locomotive Weight	84 tons
Vehicle Length	63ft (19.20m)
Vehicle Width	9ft 10in (3m)
Vehicle Power	7500 hp (5,600 kw)
Top Speed	124 mph (200km/h)
Brake Types	Air
Tractive Effort	76,000 lb (340 kN)

2 Rolling Stock

2.1 DB BR120

2.2 IR ARkimbz First

2.3 IR Avmz First

2.4 IR Bmpz Second

2.5 Cab Controls and Image

1	Ammeter Dial
2	Voltage Dial
3	CMD Override
4	CMD Free
5	CMD Acknowledge
6	Pantograph
7	Circuit Breaker
8	AFB Lever
9	Throttle
10	Reverser
11	Headlights
12	Sander
13	Direct Brake Release
14	Signal Dimmer
15	Instrument Lights
16	Cab Lights
17	Traction Dial

18	LZB Distance Bar
19	Speedometer
20	Main Reservoir Dial
21	Brake Pressure Dial
22	Manometer
23	Direct Brake
24	Electric Brake
25	Train Brake
26	Wipers
27	Emergency Brake

2.6 Locomotive Keyboard Controls

Key Equivalent	Action
A D	Increase or Decrease Throttle.
W S	Move reverser control Forward or Backward.
: ; @ '	Increase or Decrease Train Brake.
{ [}]	Increase or Decrease Direct Brake.
< , > .	Increase or Decrease Electric Brake.

2.7 General Keyboard Controls

Key Equivalent	Action
T	**Load/Unload.** Press once to load/unload passengers or freight.
H	**Headlights.** Repeatedly pressing will cycle through headlight states where appropriate.
V	**Windscreen Wipers**. Press once to switch on and again to switch off.
Z	**(Expert) Engine Stop/Start**. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.
X	**(Expert) Sander**. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press and hold to activate sander, let go to stop.
Space	**Horn.** Press once to sound the Horn.
B	**Horn.** Press once to sound the Horn.
? /	**Handbrake.** Press to toggle the train Handbrake on and off.
L	**Cab Lights.** Toggle the Cab lights on and off.
P	**Pantograph.** Raise and lower the selected pantograph.
Shift P	**Pantograph Selection.** Cycle through the pantographs.
Ctrl Shift C	**Couple manually.**

3 SIFA

SIFA is short for Sicherheitsfahrschaltung or “Safety Driving Switch”.

The SIFA vigilance alerter is disabled at startup, but can be activated or deactivated by pressing ‘Shift+Enter (Numpad)’. While activated the SIFA light on the cab dashboard is normally switched off. While the train is moving the driver is required to confirm an alarm every 30 seconds.

When the 30 second alarm is triggered the SIFA light on the cab dashboard will illuminate, after an additional 4 seconds an audible alert will sound. After a further 2.5 seconds the emergency brake will be applied. This can be avoided by acknowledging the alarm at any stage by pressing the ‘Enter (Numpad)’ key.

3.1 Key Controls

Function	Keyboard
Activate/Deactivate	Shift+Enter (Numpad)
Alarm Acknowledge	Enter (Numpad)

4 PZB Signalling System

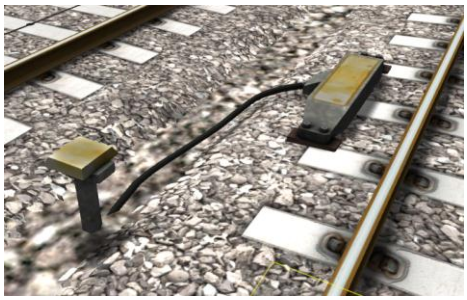
PZB stands for Punktförmige Zugbeeinflussung, loosely translated to English this means “Spotwise Train Control”.

Safe distances between trains are managed conventionally through the use of block-based systems.
A given line is broken up in to a series of blocks, and trains are permitted (via green or yellow) signals to enter a block. While a train is present in a block the signal permitting entry is set to red, preventing any more trains to enter.

As railways have developed, more complex control systems and in-cab signalling have been implemented to improve the safety of the railways and to ensure that drivers are fully aware of what is happening around them by requiring them to react in certain ways according to what is happening.

PZB is a complex system and requires that you understand the varying speed limits and the requirement to respond promptly to the signalling system.

4.1 PZB Track Interface



The PZB system incorporates in-cab signalling, this is where the control desk has indicators, alarms and buttons that will react according to the signalling status on the railway. The mechanism by which this works is a series of “balise” magnets placed on the side of the track. An example of one of these magnets is shown in the image on the left.

4.2 Cab Controls

There are also three controls on the cab desk that you will need to use in order to interact with the PZB system.

These three controls, to the left of the control desk, item 2 in the cab control diagram above, are named as follows:

Override
Release
Acknowledge

4.3 Key Controls

Function	Keyboard
Activate/Deactivate	Ctrl+Enter (Numpad)
Acknowledge	Page Down
Release	End
Override	Del

5 AFB Train Power Control

AFB stands for Automatische Fahr- und Bremssteuerung – or loosely translated in to English it means "Automatic Driving and Braking Control"

AFB allows the driver of the locomotive to set the target speed and then the computer in the locomotive will apply the throttle to obtain that speed and then keep applying throttle or brake in order to maintain it. You can almost think of it as a kind of Cruise Control for trains.

To operate AFB, simply follow these steps:

1. Set the AFB control to the desired speed. Note on the speedometer a small red triangle “bug” will slide around to the configured speed.

2. Release the brakes.

3. Move the throttle control to the desired level of acceleration, at this point the train will begin moving and accelerate to the configured speed.

If you wish to come out of AFB control and return to manual control, simply set the target speed to 0km/h and then the throttle and brake controllers will return to normal manual functionality.

5.1 Key Controls

Function	Keyboard
Increase	Y
Decrease	C

6 Scenarios

3.1 [120] Northbound Regional Express

Starting at Karlsruhe on a rainy morning, this is a northbound replacement passenger service to Mannheim.

- **Duration:** **50 Minutes**
- **Difficulty:** **Medium**

3.2 [120] Southbound Regional Express

Passengers are queueing to board and are eager to get going! You will run these passengers from Mannheim all the way down to Karlsruhe.

- **Duration:** **50 minutes**
- **Difficulty:** **Easy**

3.3 [120] Staying on Track

An order of mixed freight cars have been assembled and you have been tasked to deliver them to Karlsruhe. Will you make it all the way there though? Adverse weathers and a delayed local service will create unnecessary problems for you.

- **Duration:** **35 minutes**
- **Difficulty:** **Medium**

7 Acknowledgements

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Beta Testing Team