InterCity Express
ICE 2 - Class 402
High Speed Train

1 Background

1.1 ICE 2 (Class 402)

The Class 402 ICE 2 Inter-City Express train is the 2nd series of German High Speed trains. It's predecessor the ICE 1 was a great success but it had problems with it's weight per seat being rather high and it being too long for some connections. The ICE 2 consists have one power car and seven cars, instead of the 2 power cars and up to fourteen cars of the ICE 1. If required 2 ICE 2's can be coupled together to increase capacity. These can then be separated at a station and travel to different destinations.

Except for automatic coupling and greater length, ICE2 power cars are almost identical to the ICE 1. The most noticeable difference is, to make room in the nose for the new automatic Schafenberg coupler the headlights and grill are higher up. The non-powered cab car is a combination of middle car with an updated ICE cab to accommodate the carriage profile. Despite the similar exterior to the ICE1 the ICE 2 has other noteable differences. The weight has been significantly reduced and the interior compartments have been removed in favour of an open seating arrangement.

1.2 Specifications

Class Number	Class 402
Formation	8-car (1 Power + 7 Carriages)
Wheel Arrangement	Bo'Bo'
Weight	Trainset: 418t
Height	3.84m
Length	Driver Cars: 20.56,m 1st Class / 2nd Class / Service : 81.23ft (24.76m) Trainset: 205.36m (8 car)
Width	3.07m
Power at Rails	4,800 kW
Tractive Effort	200 kN
Design Speed	174mph (280km/h)

2 InterCity Express Train Set

The following ICE2 Class 402 vehicles are available in this Add On.

2.1 ICE 2 Power Car 402

2.2 ICE 2 Avmz 805-3 1st

2.3 ICE 2 Avmz 805-0 1st

2.4 ICE 2 WSmz 807 Restaurant

2.5 ICE 2 Bvmz 806-0 2nd

2.6 ICE 2 Bvmz 806-3 2nd

2.7 ICE 2 Bvmz 806-6 2nd

2.8 ICE 2 Cab Car 808 2nd

3 Creating an ICE-2 train set

3.1 Scenario Editor

To get your ICE-2 ready for selection in a scenario you will need to enable it in the object set filters, which will add it to the rolling stock list.

Follow these steps to enable the ICE-2:

1. Enter the Scenario Editor. (Note: If a route is locked it will need to be unlocked first before you can enter the Scenario Editor. Unlock by clicking the padlock icon in the bottom right of the screen).
2. Click the Object Set Filter button (the small blue cube on the middle left panel).
3. In the new window which opens on the right hand side, select the following: RSC / ICE2Pack01
4. The ICE-2 will now appear in the list of rolling stock for that route.
5. You may need to repeat this process on other routes or scenarios where you wish the ICE-2 to be displayed.

3.2 Train Formation

Each coach is unique in an ICE-2 consist. The table below shows the correct formation of an ICE-2

Description	Railworks Name
Power Car, Cab	DB ICE 2 Power Car 402
1st Class	DB ICE 2 Avmz 805-3
1st Class	DB ICE 2 Avmz 805-0
Restaurant Car	DB ICE 2 WSmz 807
2nd Class	DB ICE 2 Bvmz 806-0
2nd Class	DB ICE 2 Bvmz 806-3
2nd Class	DB ICE 2 Bvmz 806-6
2nd Class, Cab	DB ICE 2 Cab Car 808

4 Cab Controls

1. Throttle
2. AFB
3. Train Brake
4. Pantograph
5. PZB Controls
6. Start
7. Sander
8. Head lights
9. Doors
10. Sifa
11. Wipers

5 Cab Functions

5.1 AFB Speed Control

The AFB function is similar to the cruise-control function in a road vehicle where a required speed is set by the driver and the vehicle will achieve and maintain that speed by automatically accelerating and braking as needed.
To use the AFB function, push the lever to the left of the throttle forward to set the required speed, denoted by the bug around the outside of the speedometer.
Acceleration is controlled by the throttle lever, so the lower this is set, the longer it will take to attain the set cruise speed. If the brake lever is in the hold position (notch 2) the train air brakes will be applied in addition to dynamic braking if necessary. The driver retains complete control of braking and acceleration while the function is active.
To deactivate the function, pull the AFB lever fully back.

Function	Keyboard
Increase	Y
Decrease	C

5.2 SIFA Driver Vigilance

The SIFA vigilance alerter is disabled at startup, but can be activated or deactivated by pressing 'Shift+Enter(Numpad)'. After activation you should press the 'Enter' key to initially acknowledge activation. While the train is moving, the driver is required to confirm an alarm every 30 seconds by pressing the 'Enter' key.
Initially the SIFA light on the cab dashboard will be lit. After 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 alert by pressing the 'Enter' key.

5.3 LZB

LZB is a cab signaling and train protection system. LZB brake intervention is off by default. It can be enabled with Ctrl-numpad+. B indicator will show when brake intervention is enabled. LZB displays will activate when needed, regardless of brake intervention state, LZB active is shown by Ü.
LZB is activated by an LZB start sign. It is ended by LZB end magnets. Displays can also be enabled/disabled by the user pressing Ctrl/shift-numpad+ (usefull for existing routes with no magnets).
LZB will override any enabled PZB (enabled by Crl-Enter(Numberpad)). PZB will run in the background and will takeover when LZB deactivates. This may be in a restricted state resulting from 1000hz magnets. Active 2000hz magnets will also cause a brake application with LZB.

When active LZB shows the distance to the next speed change, on a 4000m range graphic bar, or digits upto 9900m. The next speed target is shown in digits at the base of the speedo, if the next speed target is less than the current speed limit, in which case the current speed limit is shown. The current speed limit is always displayed with a bug on the speedo.

Exceeding the limit will cause the G light to be shown. When LZB brake intervention is enabled if the limit is exceeded for 5 seconds the brakes will be applied.

When approaching reduced speed targets (including 000 for red signals) the limit bug will command a decelleration rate by gradually moving the bug counter clockwise. While commanding decelleration the G light will be shown.

If the AFB is used with active LZB then the train speed will be managed to the lower value of the AFB target or LZB target, and thus provides a degree of automatic train control. It will not stop for stations.

At the end of an LZB section the ENDE light will flash. If LZB brake intervention is enabled this must be acknowledged within 10 seconds or the brakes will be applied.

5.4 PZB90 Cab Signaling

The PZB90 function is similar to the UK AWS function. By default it is disabled.

The following keyboard controls are used for operation:

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

There are six cab dashboard lights associated with the function - 85, 70, 1000, 500, befehl40 and S.

Function	Control Panel Light(s)
85km/h maximum / Normal operation	85
45km/h maximum	Alternating 70 85
25km/h maximum	500 + alternating 70 85
Distant at warning passed. 85km/h maximum	85 + 1000
Stop signal approaching. 45km/h maximum	85 + 500
Emergency brake applied	S + flashing 1000

5.4.1 Pulling away

When first pulling away the PZB will enter the starting program mode until speed exceeds 5km/h. This is shown by the 70 and 85 lights flashing alternately. Speeds below 45km/h will be allowed for the next 700m. If there is no adverse stop signal ahead the speed monitoring can be cancelled with the 'End' key. However, if the monitoring is cancelled and the next signal is red when passing the 500hz magnet (similar to an AWS ramp), the emergency brakes will be applied, whatever the train speed.

5.4.2 Passing a Distant Signal at Warning

When passing a distant signal set at warning, the signal should be acknowledged with the Acknowledge key ('Page Down') within 2.5 seconds of passing or the emergency brakes will be applied. After acknowledging the signal, the 1000 light will

show, and 85 will start flashing. You now have 23 seconds to reduce speed to 85km/h or less, or the emergency brakes will be applied.

Once train speed drops below 85km/h the speed will be monitored to this maximum. This cannot be cancelled while 1000 is lit. 700m after passing the distant signal, the 1000 light will go out. The speed monitoring can now be released

If the train speed drops below 10km/h while 1000hz 85km/h monitoring is active, hen the maximum speed will be reduced to 45km/h. This is indicated by 70 and 85 flashing alternately as per the start program mode.

If speed monitoring is not cancelled with the Release key ('End') it will expire 1250m after the distant signal (providing another active distant has not been passed).

5.4.3 Approaching a Stop Signal at Danger

If the stop signal ahead is red then passing a 500hz magnet will cause the 85 and 500 lights to be displayed steady. If the train speed exceeds 65km/h at this point the emergency brakes will be immediately applied. If not, you have 153m to reduce speed to below 45km/h, or again the emergency brakes will be applied.

If train speed drops below 10km/h while 500hz 45km/h monitoring is active then the maximum monitored speed will be reduced to 25km/h. This is indicated by 70 and 85 flashing alternately together with the 500hz lit.

Speed monitoring cannot be released while the 500hz light is on. It is extinguished, and the 500hz monitoring expired, 250m after passing the 500hz magnet, which should be approximately the position of the associated stop signal.

If an adverse stop signal is passed (2000hz magnet) the emergency brakes will immediately be applied.

5.4.4 Passing a Stop Signal at Danger

If it is necessary to pass a red signal, press and hold the Override key ('Del') while passing the signal. Ensure train speed is below 40km/h. As the signal is passed, the befehl40 light will show. The Override key can now be released. If the 1000 and 500 lights are out then any speed monitoring can be cancelled using the Release key.

6 Guide to Driving

6.1 Pulling away from Station

- Confirm T lights are out.
- Put reverser into forwards (w key).
- Push brake handle forwards to release (' key).
- Push power handle forwards to start moving (a key).
- When speed passes 5km/h 70-85 lights will start flashing. Press Free control (end key) to cancel. Lights should stop flashing and 85 will be displayed steady.
- Move AFB lever to select desired line speed (set speed shown on digits on speedo).
- Push power handle fully forwards.
- Move brake handle one notch rearwards to "hold" position.

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6.2 General Line Driving

- Every 30 seconds the sifa light will come on. Immediately press the sifa button (numpad enter key) to cancel.
- Line speed changes, including basic reductions, can be handled by simply moving the AFB lever to select the desired speed.
- If the brakes are used manually remember to reselect the "hold" position after releasing them (this allows the AFB to use the train brakes, if necessary).

6.3 Approaching Adverse Signal

- Basic German signals are 2 aspect, there are home (stop) signals, and distant signals. Note a home head and the next distant head can be located on the same post. The approach to a distant signal is indicated by distance marker boards ,III, II, I at 300m, 200m and 100m from signal.
- When approaching a distant signal which is showing yellows or green/yellow press and hold the acknowledge control (pagedown key) while passing the signal post. 1000Hz will light and 85 will start flashing.
- Start service (ie near full braking) to ensure speed is below 85km/h within 23 seconds.
- Continue braking for a stop at the next home signal (1km away by default).
- When the speed has reduced below 10km/h 70-85 will start flashing. Do not exceed 45km/h while these lights are flashing.
- When the signal ahead clears, press the Free control to cancel the flashing, and resume normal driving.

6.4 Passing Red Signal

- If it is necessary to pass a red signal (e.g for a coupling operation) press and hold the Override control (delete key) while passing the signal post. Do not exceed 40km/h. Befehl40 will light on passing the signal, the control can then be released.

7 Scenarios

7.1 The DB ICE 2

Learn to drive the DB ICE 2 in this introductory scenario. Take your time to read the information provided and drive the ICE 2 to Augsburg.

Difficulty: Easy
Duration: 15 minutes
Time of day: Morning
Season: Winter
Weather: Overcast Rain

7.2 ICE 2 Munich

Drive the ICE 2 fast service from Augsburg to Munich, stopping at Pasing.

Difficulty: Medium
Duration: 30 minutes
Time of day: Afternoon
Season: Winter
Weather: Cloudy

7.3 ICE 2 The Gathering Storm

Drive the ICE 2 during a storm with heavy rain, keeping an eye on the signals as you are held up by the train ahead.

Difficulty: Hard
Duration: 45 minutes
Time of day: Evening
Season: Autumn
Weather: Stormy, heavy rain

7.4 ICE 2 The Gathering Storm CS

Challenge yourself by playing the career version of The Gathering Storm. Improve your score and earn your place on the rankings!

