

Operation of this train differs from other classic BVE4 or openBVE trains.

Below are listed basic keys to operate it:

To **TURN ON** the train follow this procedure:

- set the reverse to neutral **"N"** position
- press the **4** key
- **wait a few seconds**
- press the **5** key
- hold the **HOME** key until the engine starts (you will hear motor sound and see indicators on the left monitor)
- set the reverse to forward **"F"** position

To **INCREASE / DECREASE TRAIN'S ACCELERATION** keys **2** e **3** (not classic Z and A) must be used.

If you want to run the train with standard BVE-OPENBVE keys, just rename or delete the file *ats.cfg* in the folder *Train\Aln501v2*.

In the following pages additional features will be explained in detail but their use is NOT essential to use the train.

A list of main special keys is located at the bottom of the panel picture and is available during the simulation.

4) CAB DESCRIPTION



- 1 MANOMETERS (Brake cylinders and air reservoir pressure)
- 2 BATTERY CHARGE INDICATOR
- 3 PRESET SPEED DISPLAY
- 4 MOTOR RPM INDICATORS
- 5 TRACTION FORCE INDICATOR
- 6 GENERAL FAILURE LAMP (ON with the engine switched off)
- 7 BRAKE LAMP (ON with train braked)
- 8 SCMT PANEL (for description see the specific paragraph)
- 9 SPEEDOMETER
- 10 WAITING LAMP (turned on for a few seconds after turning the main key on)
- 11 LIGHTS LAMP
- 12 DOORS LAMP (ON with doors closed)
- 13 SPEED SETTING LEVER ("LV")
- 14 TRACTION FORCE SETTING LEVER with preset speed ("LCA")
- 15 LIGHTS SWITCH
- 16 WIPER SWITCH
- 17 HORN
- 18 SWITCH for motor POWER ON / SHUTDOWN and BANK ENABLING
- 19 OPENING DOORS INDICATORS: ON when doors open
- 20 REVERSER LEVER ("LINV")
- 21 TRACTION FORCE SETTING LEVER for manual operation ("LCM")
- 22 BRAKE HANDLE

5) TRAIN OPERATION

(For lights, controls and indicators location refer to previous paragrapher)

BACKGROUND: Authors tried to reproduce as faithfully as possible the real train operation, however some aspects of it has been omitted or simplified to be easily understood even from less experienced users.

POWER ON

- Press **4** key (screens on the control console are lighted up)
- Wait until the yellow WAITING LAMP (located below the speedometer) is turned off
- Press **5** key
- Verify that the **reverser** is in **N position** and adjust it if the case
- Press the **HOME** key

Pressing the HOME key causes:

- Engines ignition
- GENERAL FAILURE lamp turned to off
- Battery charge indicator turned from 22 to 29 V
- New position for engine speed indicators (left monitor)

ACCELERATION

To adjust the acceleration of the train, you can choose between two different modes

- “Manual Run” (Classic Mode for BVE/OpenBve)
 - 2** KEY (to increase the traction force)
 - 3** KEY (to decrease the traction force)

- “Automatic Run”

In this mode you can set the speed which the train must keep and it will be automatically maintained.

The speed setting is visible on the left monitor (at the top center)

Used key are:

PgUp (to increase the speed setting by 5km/h)

PgDn (to decrease the speed setting by 5km/h)

A key (to increase the traction force)

Z key (to decrease the traction force)

BRAKE

Other than air brake, even the hydrodynamic brake is reproduced (active only if the train speed is greater than 10 km/h)

B1 brake position operates hydrodynamics brake only, while with other positions we have the combined action of air and hydrodynamics brakes.

PARKING THE TRAIN ("STAZIONAMENTO")

- **END key** (engine shutdown command, causing the waiting lamp coming on)
- Wait a few seconds, until the lamp is turned off
- **5 key**
- **4 key**

(You can shut down diesel engines also by pressing the 5 key directly, in this case the procedure is the following

- 5 key (engine shutdown command, causing the waiting lamp coming on)
- Wait a few seconds, until the lamp is turned off
- 4 key)

OTHER FUNCTIONS

- 9 key** switching lights ON/OFF
- 0 key** switching wipers ON/OFF

6) SCMT

SCMT (Italian Rail Traffic Management System) is a train control system which protects the train's operation regarding conditions dictated by signals and speed permitted by the line.

Information about signals and maximum speed are sent to the train via "balises" installed along the railway.

More information at http://www.segnalifs.it/it/bl/N_scmt.htm (Italian) and <http://www.ansaldo-sts.com/AnsaldoSTS/EN/Business/MainRailwayLines/SCMT/index.sdo> (English)

POWERING ON

To activate the equipment:

- **The train must be stopped**
- **The brake lever must be in position: N, B1 or B2**: otherwise, trying the activation, activating also the SCMT, an error message will appear on the SCMT monitor.

Pressing the **6** key the monitor in the center of the control console will be switched on and a self test during about 30 seconds will be started. After the self test is finished the message

"Introduzione dati o manovra" will appear on the screen: press then **twice** the **6** key and the monitor will be completely blue with the time indicated on the top right.

At this point SCMT device is active and performs the following functions:

➤ "DEAD MAN"

Whenever the train starts moving, exceeded 3 km/ h, an alarm that goes silenced within 5 seconds using the **SPACE** key is activated.

Otherwise emergency braking will be activated, with a yellow icon on the monitor. In this case we must wait for the train stop and then press **DEL** to release brakes.

➤ TRAIN RUNNING CONTROL

To have the following functions working, the route file using this train must be configured to operate the SCMT device.

When the train get over the first balise, the light blue button higher up on the left monitor is turned on , and a short sound is played.

1) RESPECT OF SPEED LIMITS

If you exceeded the maximum speed permitted by the line, you will get the following effects:

OVERSPEED BY 3 KM/H:

- Hydrodynamic braking
- Red light above the speedometer ON
- Intermittent ring

OVERSPEED BY 5 KM/H:

- Emergency braking
- Red light above the speedometer BLINKING
- Continuous ring
- RF button (bottom right of screen) blinking: once the train speed limits are reached, the RF button is on steady and you can release brakes by pressing the DEL key.

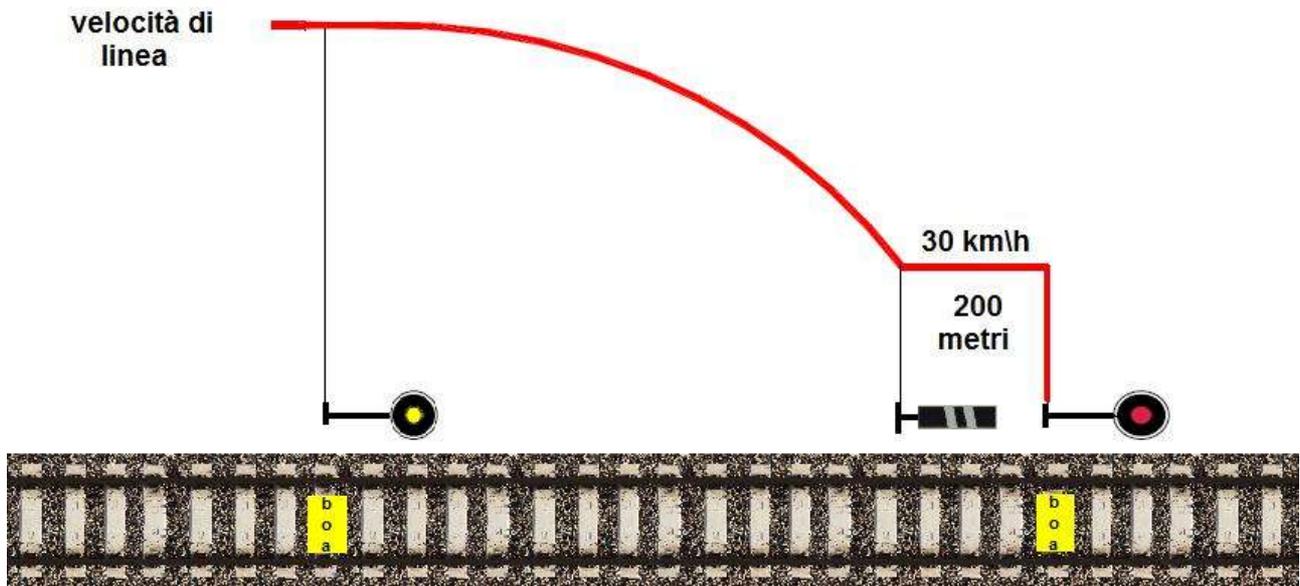
2) RESPECT OF SIGNALS

If the next signal is at danger (red) or indicates restriction of speed (for more details look at <http://www.segnalifs.it>) the equipment makes a braking curve.

Overcoming the braking curve, the SCMT behaves as in case of exceeding the maximum speed.

Here are 2 types of braking curves that you can encounter in the simulation

APPROACH TO A RED SIGNAL



The red line depicts the maximum train speed: in case of approaching a red signal, the braking curve forces the train to reach a maximum speed of 30 km/h 200 meters before the next signal. The speed limit is indicated by the blue light flashing above the speedometer.

Note: Even if in the meantime the passed signal is willing to go ahead (eg look yellow or green), the curve will continue to act until passing the next signal.

If a signal passed at danger (red), the emergency braking is operated, highlighted by the following effects:

- Red light above the speedometer BLINKING
- Continuous ring
- "SR" initials inside a red box on the SCMT monitor
- RF button (at bottom right of screen) blinking
- accensione del pulsante RF (in basso a dx del monitor) lampeggiante

A few seconds after the train stop, the RF button is on steady and you can release brakes by pressing the DEL key.

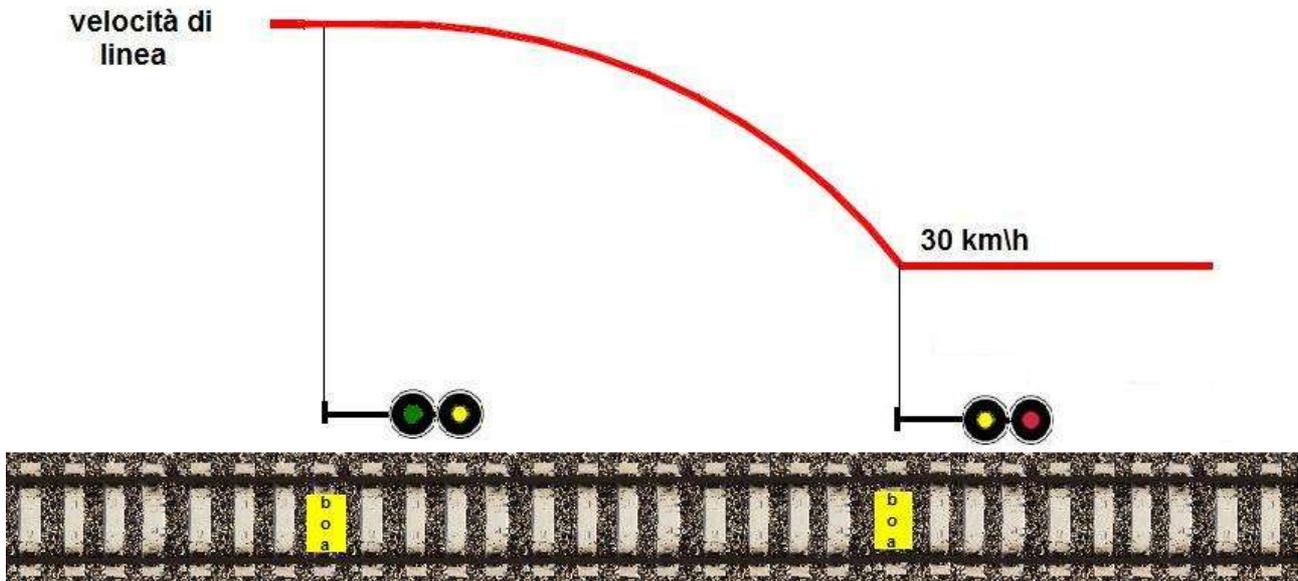
"RED SIGNAL PASSING" PROCEDURE

You can pass a signal at danger, by pressing the **INS** key when the train is stopped or traveling at less than 30 km/h.

This function is called "Red Signal Passing" and is revealed by the red button to the lower left of the monitor. Once the signal is passed at danger, an icon depicting a red signal appears on the monitor.

Warning: After pressing INS, the function remains active for 12 seconds (extendable for another 12 by pressing "INS" again)

SPEED RESTRICTION SIGNALS



When a signal showing Yellow/Green is encountered, it intimates that, starting from the next signal, a top speed of 30 km/h should be respected. In this case the braking curve requires a speed of 30 km/h since the next signal (which will look Red/Yellow).

7) THANKS

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We also thank those who gave permission to use their work done for Train Simulator and those who have tested the train, in particular:

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- Mauro Ciociola, author of the original MSTS cab
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