

GT6N (EN)

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1 IBIS and Displays

The operation of the IBIS will be described here. IBIS (*Integriertes Bordinformationssystem* = integrated onboard information system) is the main unit of the [PIS](#) (passenger information system).



The four marked buttons are

- *Linie/Kurs* = line / course
- *Ziel* = terminus
- *Löschen* = delete or cancel
- *Eingabe* = enter or confirm

1.1 Peculiarities while startup and shutdown

After moving the direction lever from 0 to I, V or R position, the IBIS will startup. First, "Linie/Kurs: 00000" will appear for a moment, then you can read the "Kleinfunk" status message. *Kleinfunk* is the name for the very short range radio communication. This message can be confirmed with "Löschen". After that, "Linie/Kurs:

00000" flashes again. Now you can enter the line and the course directly or you can abort with the button "Löschen". Now, the IBIS is in the normal operation mode. If you enter a line number other than 0, the IBIS will leave the *Kleinfunk* mode.

If you enter *Linie/Kurs* = 0, the IBIS will reset completely, all codes and numbers will be set to 0 and it will return to *Kleinfunk* mode.

If the direction lever will be set to 0 again, there are two possibilities: If *Linie/Kurs* was set to 0, the IBIS will shutdown after some time. Else, the IBIS switches to some kind of sleep mode and keeps the entered data.

1.2 Display

The first line will show the current bus stop (not yet implemented), the current terminus or state messages. This line will also be used for entries.

The second line shows the following settings:

- Yellow: Line number
- Blue: Course number (not implemented yet)
- Red: Route
- Green: Terminus code
- Magenta: Line special character code (if not 0) or "KFB" if the IBIS is in *Kleinfunk* mode.

1.3 Buttons

Currently, the following keys are supported:

- "Eingabe" (Enter): While you are entering some new data, this button will confirm and save the input. Also you can confirm state messages with this button.
- "Löschen" (Delete/Cancel): Cancels the current entering. Also you can confirm state messages with this button.

The number buttons will be used while entering new codes etc. But some of them have a second function:

- "Linie/Kurs" (Line/course): After pressing this button, you can enter up to 5 code figures. The first three figures represent the line number, the second two the course number. If you do not want to enter a course, just enter two zeros – but these two figures have to be entered every time. You can confirm your input with "Eingabe" (enter), you can cancel it with "Löschen".
- "Ziel" (terminus): After pressing this button, you can enter up to 3 code figures for the terminus display. If you confirm with "Eingabe", you can continue by entering the up to 2 figures long special character code for the line display. If you do not want to add any special character, then just confirm a second time with "Eingabe". At any point, you can cancel the input by pressing "Löschen".

1.4 Example

1.4.1 Startup

- Direction lever to "I" ==> IBIS starts up, you can hear the start melody and the message "Kleinfunk" appears.
- Confirm "Kleinfunk" message with "Löschen". ==> "LINIE/KURS: 00000" flashes
- In case of "LINIE/KURS: 0000" is not flashing and the first line is empty, press "1 / Linie Kurs".

- Enter code, e.g. "1200" for line 12 and course 00 (no course).
- If you made a mistake, just press "Löschen" and again "1 / Linie Kurs".
- Press "Eingabe" ==> Displays show line number "12", but still no terminus.
- Press "4 / Ziel" ==> "ZIEL: 000" flashes
- Enter terminus code, e.g. a 3 for "S Hackescher Markt" (if the Berlin [PIS group](#) was selected) or "Ostend Buchenstr." (if the Diorama [PIS group](#) was selected).
- Press "Eingabe" ==> All displays show the selected terminus.
- If the terminus was not found, "Falsches Ziel" (wrong terminus) will flash.
- Else "SONDERZEICHEN: 00" flashes
- You can confirm the zeros with "Eingabe" or enter a special character code and press "Eingabe".

1.4.2 Enter new line

- Press "1 / Linie Kurs" ==> "LINIE/KURS: #####" flashes (previous entered line and course)
- Enter new code
- "Eingabe"

1.4.3 Enter new terminus

- Press "4 / Ziel" ==> "ZIEL: ###" flashes (previous entered terminus code)
- Enter new code
- "Eingabe" ==> "SONDERZEICHEN: ##" flashes (previous entered special character code)
- If you would like, enter a special character code, followed by "Eingabe". Else just press "Eingabe" or "Löschen".

Enter new line special character code

- Press "4 / Ziel" ==> "ZIEL: ###" flashes (previous entered terminus code)
- Press "Eingabe" ==> terminus does not change, "SONDERZEICHEN: ##" flashes
- Enter new special character code
- Press "Eingabe"

2 Developer Information

2.1 Repaints

If you would like to repaint the GT6N, please mind that you have three textures to change, each one for A, C and B part: EXT_A_1.bmp, EXT_C_1.bmp and EXT_B_1.bmp.

The mapping e.g. of the A part looks like that:



- A: Upper side of the "nose"
- B: Roof over the driver
- C: Inside of the roof edges
- D: Handrails

Everything of the B part is turned around, that means at the top is the left side, below this the right side.

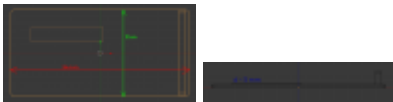
You will find the repaint templates in the OpenSource directory in the LOTUS directory; the templates have the resolution of 4096, after editing, I reduce the resolution to 2048 and sharpen it.

If you would like to repaint over the windows, you will need a second texture per part. Its alpha channel will be interpreted as transparency. You have to exchange these textures: EXT_A_1_Werbung.bmp, EXT_C_1_Werbung.bmp and EXT_B_1_Werbung.bmp.

Interface Information IBIS / [PIS](#)

2.1.1 Geometry

Size and rotation of the IBIS can be seen in the following graphic:



2.1.2 Slot Information

The module class is "IBIS_GT6N"

2.1.3 Script Communication

The IBIS sends its commands to the inside and outside displays via broadcasts with the BusID "[PIS](#)":

- `LINE` (integer): Sends the line number as *Value* (without any course or special char information!), which should be shown on the displays. The command should request the refresh of the displays.
- `TERMINUS_LISTINDEX` (integer): Sends the index (not the code!) of the terminus as *Value*, which should be shown on the displays. The command should request the refresh of the displays.
- `SPECIALCHAR` (integer): Sends the special character code as *Value*. The interpretation of this code has to be done in the display script. This command should **not** request the refresh of the displays! The refresh will be done only, if one of the upper broadcasts will be sent.

The command for startup or shutdown will be received with an explicit message (no broadcast):

- `MAINSWITCH` (integer): *Value = 0* shuts the IBIS down, *Value = 1* starts it up.

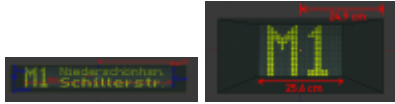
If you would like to script your own systems, you can add as many broadcast commands as you like; the broadcasts will be sent directly from the main unit to all displays (if they support these broadcasts). The GT6N main script has not to be adapted for that purposes.

2.2 Interface Information Outside Displays

For all display systems, you will have one master display, which contains the whole script logic and draw the script textures, and as many slave displays as you like, which does not have any inner logic or textures, but get only the texture ID from the master displays and show only the textures made by the master. The texture ID should be broadcasted, too, using the "DISPLAY_SLAVE_TEX_ID" BusID.

2.2.1 Geometry

The displays are flat and have their origin at the middle of the display area itself. All are orientated like the front matrix. It is important, that they are a little bit too width and too height to fit into the display box of the GT6N, to prohibit any holes at the borders, even if they will be used in different vehicles.



2.2.2 Slot-Informationen

The module classes are "TERMINUSDISPLAY", "TERMINUSDISPLAY_SLAVE" and "LINEDISPLAY_SLAVE".

2.2.3 Script-Communication (Master)

The interaction with the main unit will be done with the broadcast commands `LINE` (integer), `TERMINUS_LISTINDEX` (integer) and `SPECIALCHAR`. For more information please see the description of the IBIS' interface. The BusID is "[PIS](#)".

The illumination will be controlled with a broadcast command, too: BusID "GEN", command ID "LIGHT" and type single. 0 = dark, 1 = normal brightness.

2.3 Source Elements

2.3.1 Script Source Code

You will find the entire source code of the GT6N script (including IBIS and display modules) in the OpenSource directory in the LOTUS directory.

2.3.2 Couplings / Pantographs

You will find the GT6N coupling and pantograph meshes in the attachment. The coupling texture is included, too, the texture of the pantograph is part of the A and C outside texture , which is included in the repaint templates.