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Programming Guide

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Programming methods in OEM production



1. Programming Tool with PB31 in GUI mode

GUI mode is the traditional way to use the Programming Tool.

Programming can be performed using either a lix file or a software key string.

To use lix file:

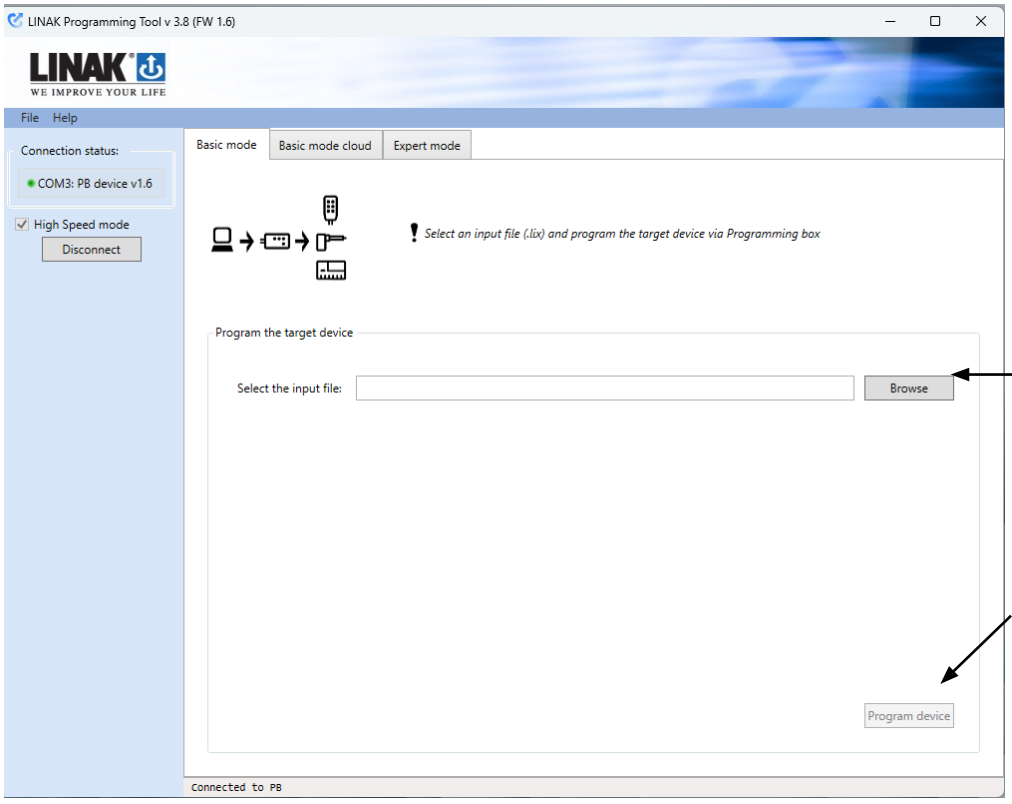
1. Connect PB31 to the computer.
2. Connect PB31 to the control box.
3. Open the Programming Tool and select basic mode.
4. Browse to and select the required lix file.
5. Start the programming process.
6. Confirm that programming has completed successfully.

To use software key string:

1. Connect PB31 to the computer.
2. Connect PB31 to the control box.
3. Open the Programming Tool and select the applicable cloud-programming function in basic mode.
4. Enter the software key string in the software key field.
5. Start the programming process.
6. Confirm that programming has completed successfully.

Basic mode

Used for programming with lix files.



Browse
to find lix file

Program device
Start programming with this button

2. Programming Tool with PB31 in console mode



Console mode is the command-line interface of the Programming Tool.

It is intended for integration into the OEM's production automation system, where programming can be initiated automatically without using the graphical user interface.

Unlike GUI mode, console mode does not require the operator to select the software manually in the Programming Tool. Instead, the programming process is initiated using a command with predefined parameters. This enables the OEM's production system to control and automate the programming process.

Open a command prompt and navigate to the Programming Tool installation folder, typically C:\LINAK\PT\. Run PTconsole -help to view the available command-line options.

```
C:\>LINAK\PT\PTconsole -help
```

Programming can be performed using a lix file:

-lix:{lixFileName} --- replace {lixFileName} with the required lix filename or path.

See example in picture below.

```
C:\>LINAK\PT\PTconsole -lix:C:\LINAK\PT\LixFiles\20710502.lix
```

Or programming can be performed using a software key string from the cloud:

-cloud:{swKey} --- replace {swKey} with the appropriate software key string.

See example in picture below.

```
C:\>LINAK\PT\PTconsole -cloud:6f1648ae8e4c40ffb8125872c0277453
```

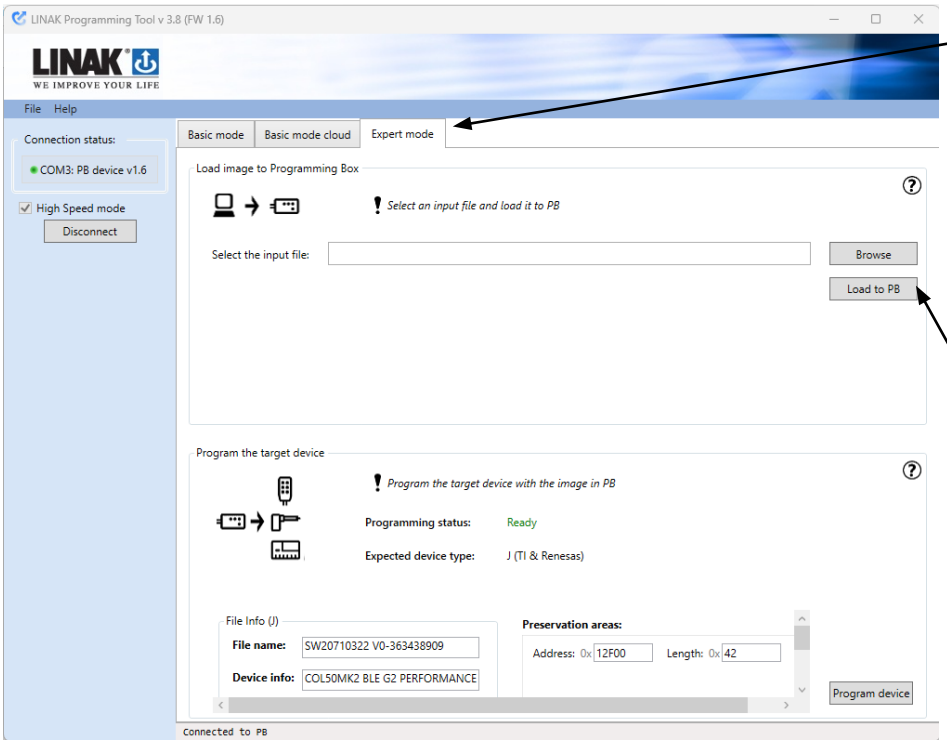
3. PB31 in standalone mode



Standalone mode enables a prepared programming configuration to be loaded onto the PB31 and subsequently applied without maintaining a connection to a computer.

To use PB31 in standalone mode:

1. Connect PB31 to your computer.
2. Open the Programming Tool and select expert mode.
3. Browse to find lix file.
4. Load the selected lix file to PB31.
5. Disconnect PB31 from the computer.
6. Connect PB31 to the relevant control box.
7. Start the programming process.
8. Confirm that programming has completed successfully.



Expert mode
For advanced users. Programming with different file format possible.

Load to PB31
The file must first be loaded to PB31. After loading the file, you can disconnect the PB31 and use it as standalone.

Traceability

According to IEC 60601 requirements, it must be possible to identify the software embedded in a medical device.

This requirement can be fulfilled by:

- Recording the software number and version in the production process and making the information available relevant personel.
- Including the software version on the label of the final medical device.

Therefore, when LINAK OEMs program software into LINAK products during their own manufacturing process, there is generally no requirement to relabel the LINAK products, provided that the software identification can be traced and accessed.

```
C:\>LINAK\PT\PTconsole -readHwId
Waiting for device connection...
Establishing connection with PB on port:COM3
Current PB version is v0.104068
Connected to PB
Reading hardware information from PB...
MMCU_SW_NUMBER_INFO: 20710502
MMCU_SW_VERSION_MAJOR_INFO: 1
MMCU_SW_VERSION_MINOR_INFO: 0
ID_DATA_VERSION: 1
HARDWARE_ID: 3
PO_AND_SERIAL_NO: 20543025
Disconnected
```

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