Get Started with PTC-04 programmer

Introduction

This document is your guide through all documentation, tools, firmware, libraries, etc. …
The target of this document is that the user will understand how the environment is created and how \ where the user can find the correct information to answer their questions.

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Hardware

The PTC04 is developed in order to be compatible with most of our Melexis products. Actually, Melexis target being able to test not only our current products but also all our future Products.

Due to the fact it's impossible to implement all needs for future products, Melexis has chosen for a main board and daughterboard concept. The main cost is concentrated in the main board. For all tooling and software developments, this main board will not change and so it will stay compatible.

As well for Melexis as for our customer, the software development cost and the time for evaluating a new product on this programmer is limited to the specific needs for the new products. On hardware level, this might ask for a different daughterboard. This concept also allows Melexis to providing custom made variants by a cheap, easy and fast solution.

Main board

The main board is a standalone tester. If we talk about mini tester, we mean a PTC04 on its own (without Daughterboard).

For all specification and description, electrical and mechanical, please refer to the **Ptc04_DataSheet.pdf**. This document is always applicable, independent of the tested product. This documentation does not specify any information about the daughterboard!

Daughter board

The daughter board is the interface between the PTC04 mini tester and the application. The simplest Daughter board is a few wires only. Standard the PTC04 is delivered without a daughter board. So when the user orders a PTC04 programmer they will need to order the dedicated daughter board for the product (or product group) for which the PTC04 will be used.

Melexis tries to develop the daughter boards on such a way it can support a group of products. A daughter board can easily be ordered by Melexis. The order code mentions the devices name or group that it can handle.

A daughter board is delivered with:

- The Daughterboard itself;
- A replacement rear panel (is in function of the required connections);
- Documentation on this Hardware;
- A DLL library for using the product (or group of products) specific commands;
- Documentation on this software;
- User interface software to evaluate the products (This is not always delivered);

For documentation about the hardware of a daughter board, please refer to the document **Ptc04_DB_xxxxxx_DataSheet.pdf**, where xxxxxx stand for the name of the daughter board. In this documentation the user will find all details about connecting their application to the programmer.

Contents of a PTC04 Set

What's in the box?

- PTC-04 without a daughter board
- Power supply
- Power cables, with European and American connector.
- RS232 serial cable
- USB cable
- Installation CD or Floppy
- Calibration certificate

Software

As depicted in appendix A, the software is always structured in 4 levels. The highest level is the MPT which is not more than a toolbox for the user to make his life easy. Below the structure has the layers of the User Interfaces (UI), the Product Specific Function (PSF) level and finally the firmware layer.

Firmware Layer

80 % of the firmware contains general function of the PTC04. Merged with this, there are module (product) specific commands. These commands are made to communicate with the specific MLX product.

It's important that the correct firmware is loaded in the PTC04 programmer. Software ID functions allow higher layers to check if the firmware can be used for that specific MLX product.

PSF Layer (DLL)

All the interface items between host PC and Programmer are covered by the PSF layer. On this level a DLL makes all functions of the PTC04 and the MLX product available to the user.

The user can make a choice by using any programming language (Lab view, Visual C++, Visual Basic, Excel, etc…) to communicate with the DLL (PSF layer). When the user uses the interface program as delivered by Melexis, this layer is of no importance.

We always recommend the customer to connect his application software to the PSF layer. On this layer, all commands of the firmware are accessible.

Again, two different parts can be found:

- The General Function Library
  PTC04PSF:
  Installation: **PSF0PTC04AAMLX.exe**
  Documentation: **PTC04_PSF_Object_Model.pdf** or **PSF0PTC04AAMLX.pdf**

- The *P*roduct *S*pecific *F*unction Library
  MLXxxxxxyyPSF:
  Installation: **PSFxxxxxxyyMLX.exe**
  Documentation: **PTC04_PSF_MLXxxxxx.pdf** or **PSFxxxxxxyyMLX.pdf**

Tip: Melexis can always provide example source codes in order to show how we program the interface between different instructions.

Requirements

To install and use the MPT of the PTC04 on your system must have the following:

- Win7 or Win10
- A free serial port or a free USB port
- 50 Megabytes of free disk space
- Screen must have minimal resolution of 1024 x 768 with 16 bit colour.

Installation of software

Installing the package from the CD:

- Start Auto-run program
- Press on the MLXxxxxx button (xxxxx stands for the name of the product). It will install the whole package.

For information about how to install the software of the PTC-04 programmer, please refer to:
Installation_Guide_PTC04.pdf and **Installation_Guide_USB.pdf**.

Tools

Melexis provide several tools for free that will help the user solving some questions or problems.

MPT Platform

Melexis develops its software on a general platform (Melexis Programming Toolbox) that makes it easy to add new modules in the future. The MPT will guide and support the user in order to detect the correct programmers, the correct revision of firmware, to guide the user to the correct web update, to support the user using the correct tools like Calibration and firmware uploads. It also manages all delivered DLL. Installation File: **MPTApp.exe**
Documentation: **MPT.pdf**

PTC04 User Interface

The PTC04 User Interface groups all tooling of the PTC04. The UI is installed together with MPT and the PTC04PSF but it is not mandatory for using the product specific function library.
Installation: **UI0PTC04AAMLX.exe**
Documentation: **PTC04_UI.pdf**

Firmware loader

The firmware loader is needed in order to store new firmware into the PTC.
For information about how to use this tool, please refer to the documentation of the PTC04 User Interface.
PTC04_UI.pdf

Calibrator

The Calibrator is a tool that allows our customer to check the calibration of their programmer. The tool will verify the deviation on measurements and supplies. Optional it allows the user to calibrate these parameters. This last item requires a good calibrated voltmeter.

For information about how to use this tool, please refer to the documentation of the calibrator tool.
User_Manuel_Calibration_Software_PTC04.pdf

Firmware Commander

The firmware commander is a tool that is internally used by Melexis. This tool provides the user an interface to play with basic commands like setting the power supplies and performing measurements.

This tool contains also a lot of software samples about how to implement some functions in your own software code. Ask your rep to get access to this tool.
For information about how to use this tool, please refer to the documentation of the PTC04 User Interface.
PTC04_UI.pdf

Test Program

The test program is made to perform a quick check of the hardware of the programmer. It checks the functionality of the fixed power supplies, programmable power supplies, the internal voltmeter, etc…

For information about how to use this tool, please refer to the documentation of the PTC04 User Interface.
PTC04_UI.pdf

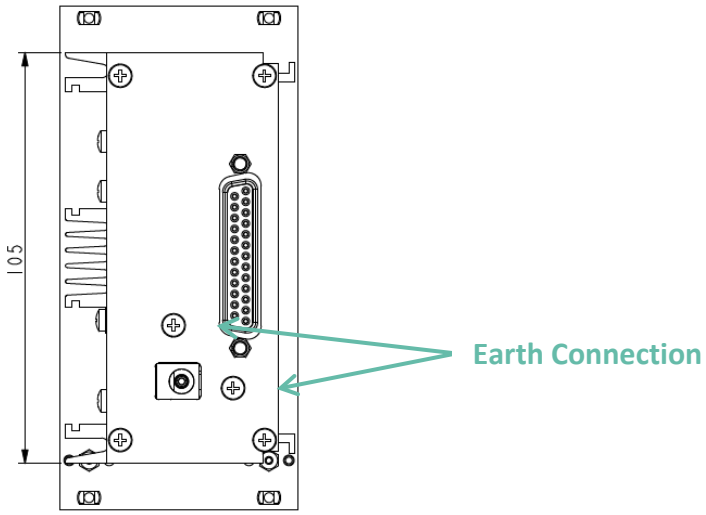
Validity and updates

Generally, Melexis provides all information on our web site. You can register yourself for free and you'll be able to get all updates and modification at any time.
Go to www.melexis.com or contact our Direct Sales team.

Application Information

When using the PTC04 in combination with external equipment or other PTC04's, it is very important to have a good solid earth/ground connection on the different appliances. A bad earth/ground connection on appliances and the PTC04 can cause damage to the PTC04. The measuring unit and the digital channels of the PTC04 are sensitive to level shifts.

The metal case of the PTC04 has to be connected to the earth connection of the power grid via the frame connection or via the earth connection on the back panel of the PTC04.



When using the PTC04 for End of Line calibration of a Melexis product, it is mandatory to use qualified reference equipment for the End of Line verification of the programmed/calibrated product.

CD PTC-04 directory structure

The above mentioned documents can be found on the CD of the PTC-04 in the following directories:

../
Get_Started_With_PTC04.pdf
FAQ.pdf
../Application_Notes
ANMultiPTC.pdf
AN_ActiveX_PSF_LabVIEW.pdf

../MLXxxxxx/Documentation
PSFxxxxxxyyMLX.pdf
UI_xxxxxxyyMLX.pdf
../MLXxxxxx/Soft
HISxxxxxxyyMLX.pdf

../PTC04/Daughter_Board/Documents
Ptc04_DB_xxxxxx_DataSheet.pdf
../PTC04/Documents
Get_Started_With_PTC04.pdf
PTC04_UI.pdf
PSF0PTC04AAMLX.pdf
User_Manuel_Calibration_Software_PTC04.pdf
Installation_Guide_PTC04.pdf
Ptc04_DataSheet.pdf
HIS0PTC04HWMLX.pdf
../PTC04/Soft
HIS0PTC04AAMLX.pdf

../PTC04/USB_Driver/Documents
Installation_Guide_USB.pdf

../Tools/MPT/Documentation
MPT.pdf
MPT_DEVELOPER_REFERENCE.HLP

../Tools/Test_Bench/Documentation
Ptc_Testbench_Magnetic_Datasheet.pdf
Ptc_Testbench_90316_Datasheet.pdf

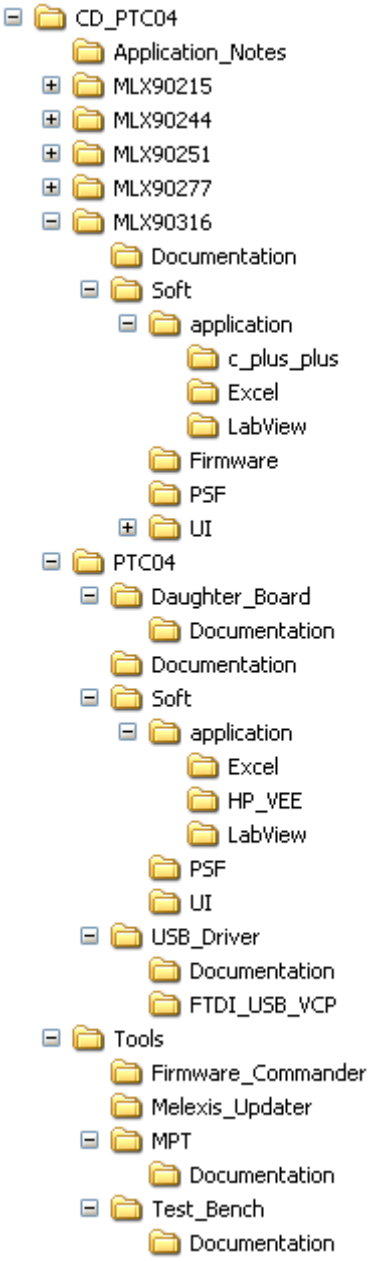
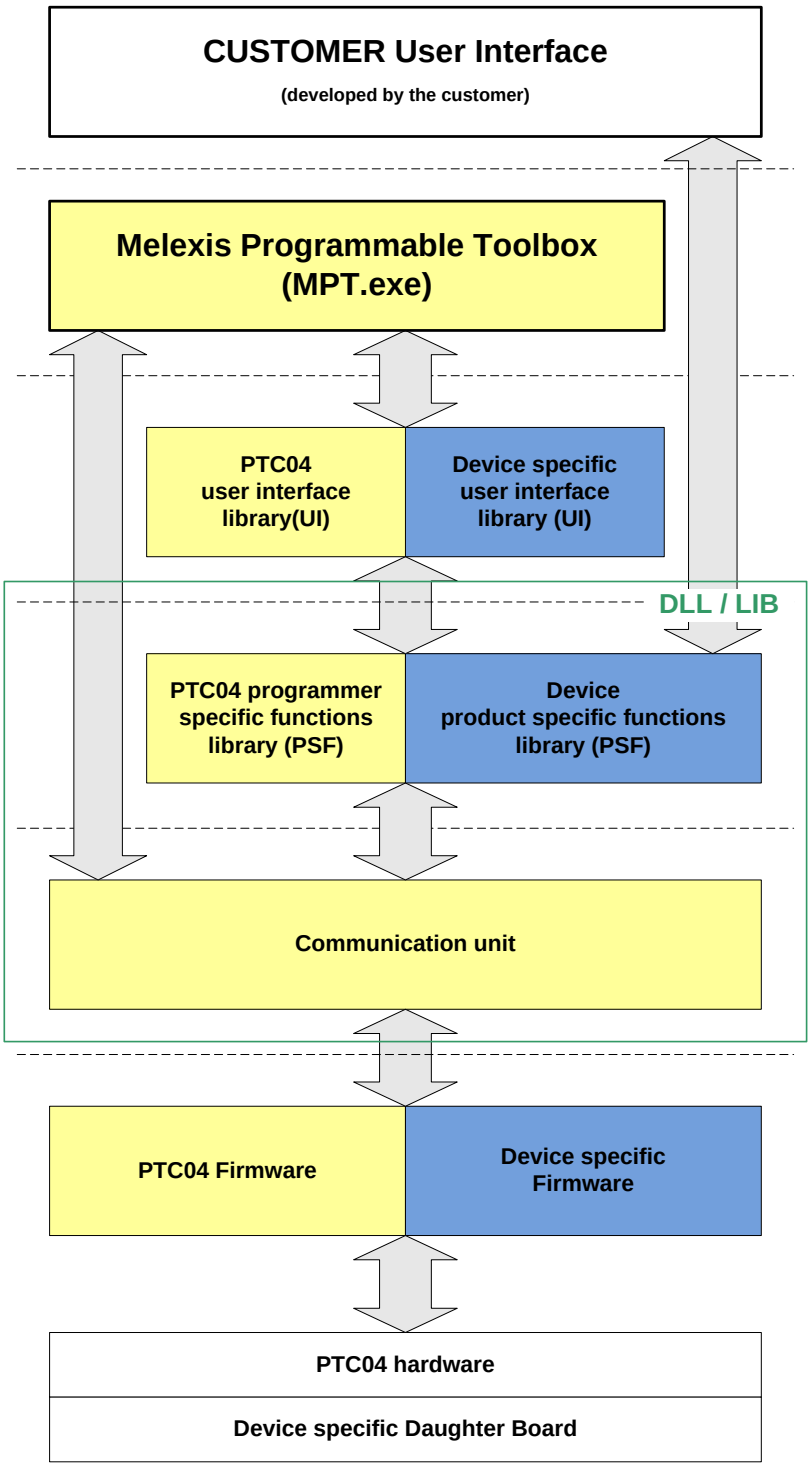


Figure 1: CD PTC-04

Appendix A: Structure of Software and Documentation

PTC04 SW/HW Component Structure



Available documentation

DataSheet MLXxxxxxyy

Get Started with the PTC-04
FAQ PTC04
MPT

UI xxxxxxyyMLX
PTC-04 UI

PSF0PTC04AAMLX
PSFxxxxxxyyMLX

MPT DEVELOPER
REFERENCE

PTC-04 data sheet
PTC04-DB-xxxxx data sheet

Contact

For the latest version of this document, go to our website at www.melexis.com.

For additional information, please contact our Direct Sales team and get help for your specific needs:

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