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## PI Hexapod Emulator

The product CD of the Hexapod controller provides a software which emulates the C-887 Hexapod controller and simulates the connected mechanics (Hexapod and additional axes A, B, K, L and M). You can run this emulation software on a Windows PC and use it, for example, to test the behavior of the Hexapod system if no hardware is present.

The behavior of the emulation is identical to that of the emulated hardware except for the points described in this Technical Note. The standard User Manuals for the C-887 Hexapod controller (MS204E) and for the Hexapod (default: H-840; User Manual MS201E) are also valid for the emulation except for the information superseded by this Technical Note.

Features of the emulation:

- Simulated Hexapod model: H-840.D1  
You can change the simulated Hexapod model as described below.
- Emulated Hexapod controller: C-887 with GCS syntax version 2.0; can be switched to GCS syntax version 1.0. using the CSV command
- Emulated analog input channel with identifier 1; intensity maximum is at the position  $X = Y = Z = 0.4 \text{ mm}$  and  $U = V = W = 0$ .
- Emulation of macros is possible.
- Emulation of the data recorder is possible, but the recorded data is not always meaningful.
- Due to performance issues, no graphical user interface will be loaded.
- The emulation can be used in PIMikroMove or with other software running on the same PC as the emulation software. The connection to the emulation must be established via the TCP/IP interface. The IP address of the emulation is "localhost", the port is "50000".


### Installing the PI Hexapod Emulator

Note that the PI Hexapod Emulator needs QEMU to be installed. QEMU Setup will start during the PI Hexapod Emulator setup sequence. Follow the instructions on the screen and keep the standard selections of the QEMU Setup.

#### Tools and Accessories

- PC with Windows operating system (XP, Vista, 7, 8)
- Installation medium, e.g. product CD of the Hexapod controller (included in delivery)

#### Installing the PI Hexapod Emulator via installation of the main C-887 software package

1. Start the installation by double-clicking the  icon or the **PI\_C-887.CD\_Setup.exe** file in the root directory of the installation medium.
2. Follow the on-screen instructions:
  - When the setup type is to be selected: select **Complete** or **Custom**.
  - For **Custom** setup type: In the **Custom Setup** step, select the "This feature will be installed on local hard drive." option at the **PI Hexapod Emulator** entry.
  - With the **Complete** setup type the PI Hexapod Emulator will be installed automatically.

#### Installing the PI Hexapod Emulator via PI\_Hexapod\_Emulator\_Setup.exe

- Start the installation by double-clicking the **PI\_Hexapod\_Emulator\_Setup.exe** file in the SingleSetups directory of the installation medium and follow the on-screen instructions.

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## Using the PI Hexapod Emulation Software

### Tools and Accessories

- PC with Windows operating systems on which the PI Hexapod Emulator is installed (see above)
- If you want to use the emulation software e.g. with PIMikroMove: PIMikroMove is installed on the same PC as the emulation software.

### Using the PI Hexapod Emulator

1. Start the PI Hexapod Emulator via the **Start > All Programs > PI > C-887 > PI Hexapod Emulator** menu entry.
2. Wait until the emulation software is shown, see figure below. Due to performance issues, no graphical user interface will be loaded for the emulation software. The duration of the starting procedure depends on the PC (can be 50 s or more).

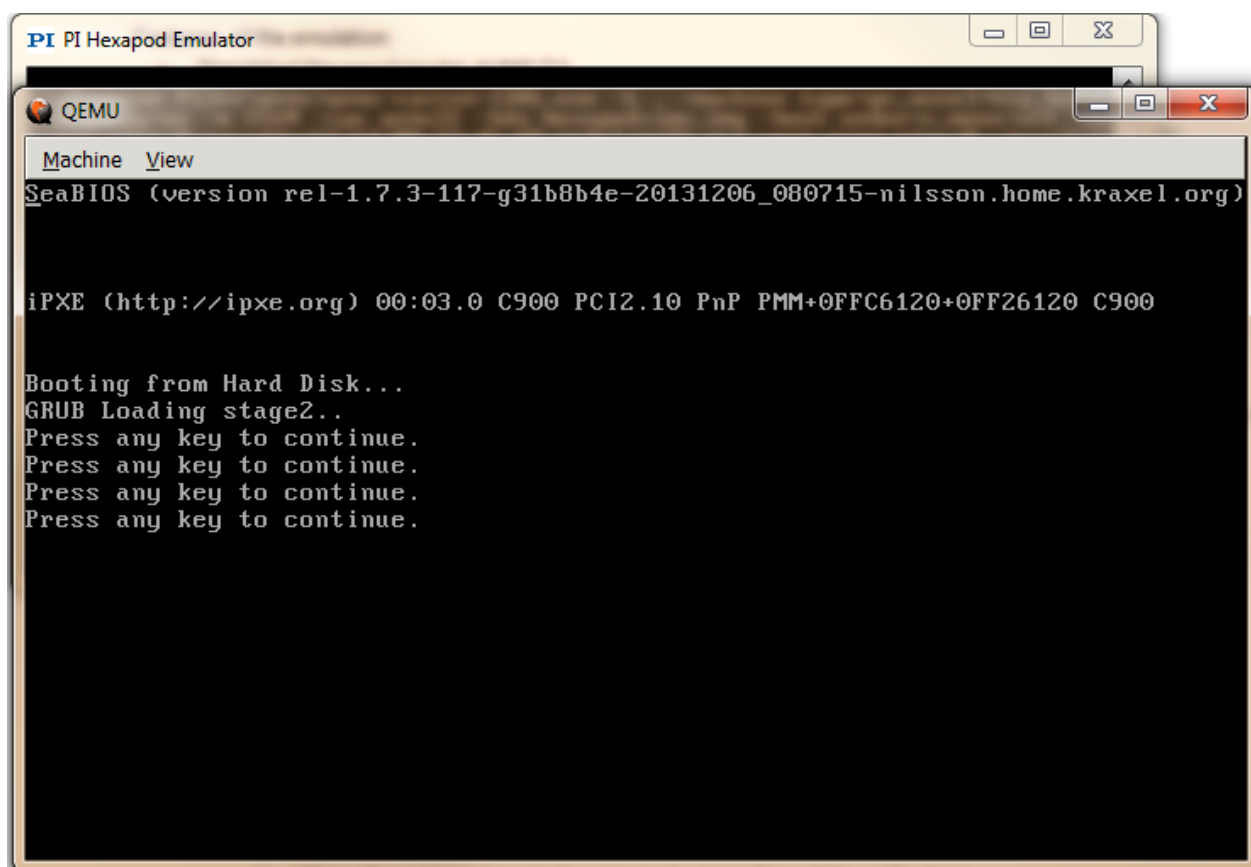
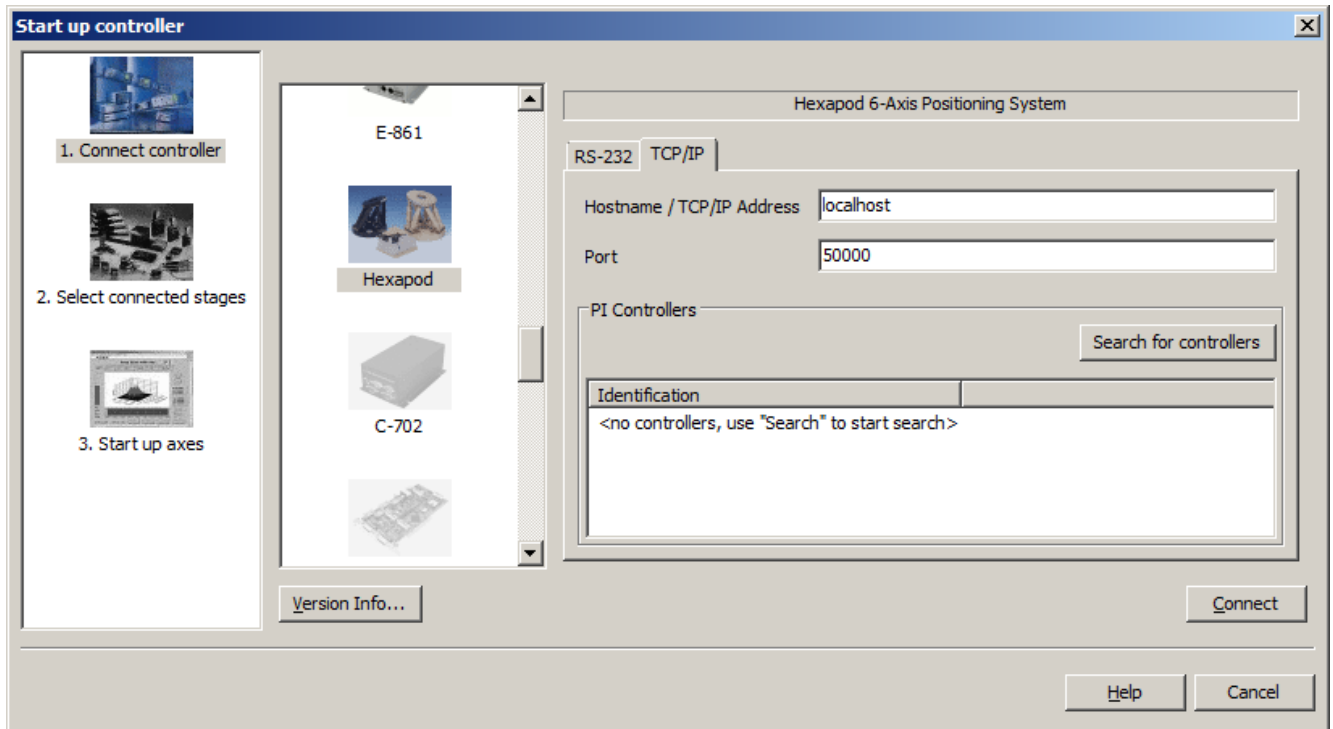


Figure 1: Screenshot of the emulation software

To work with the emulation software e.g. in PIMikroMove:

1. Start PIMikroMove on the PC.

The **Start up controller** window opens at the **Connect controller** step.



**Figure 2: Start up controller window at the Connect controller step**

2. Select **Hexapod** in the field for the controller selection.
3. Select the **TCP/IP** tab card on the right side of the window.
4. Enter **localhost** in the **Hostname / TCP/IP Address** field.
5. Enter **50000** in the **Port** field.
6. Click on **Connect** to establish communication.

When the communication was established successfully, the **Start up controller** window switches to the **Start up axes** step.

- Follow the instructions in „Starting Motions of the Hexapod Platform” and “Starting Motions of the Axes A, B, K, L and M – C-887.11 only” in the User Manual of the C-887 Hexapod controller.

## Changing the Simulated Hexapod Model

1. If you want to change the simulated Hexapod model, send the following command, e.g. in the **Command Entry** window of PIMikroMove:

DBG? SIMUHEXAPOD <string>

where <string> is the new Hexapod model, which can be one of the models listed in the table below. <string> is not case sensitive, but the hyphen and the dot are important and must not be omitted.

If changing the Hexapod model was successful, the emulation sends the response „1“, otherwise it sends „0“.

Note that the response to a CST? command will still show the old Hexapod model.

2. To load the new Hexapod model, restart the emulation software by sending:

RBT

Afterwards, communication must be established again, see above.

3. Check the simulated Hexapod model by sending:

CST?

The response should show the new Hexapod model.

Possible entries for <string>:
H-810.D1
H-811.D1
H-811.DV
H-824.G1
H-824.D1
H-824.GV
H-824.DV
H-840.D1
H-840.G1
H-850.H1
H-850.G1
H-850.HV
H-850.GV
H-206.F1