Updating IT-08 Firmware

1 General information

The device offers the capability to update its firmware using personal computer. We go on with development of the devices and keep on working out new firmware versions that provide new features. These new firmware versions come available for free download on our website www.planar.chel.ru in the section that describes the corresponding device from IT-08 family.

The device firmware includes the operating system and Removable Module application. The operating system is stored in the device Base Module and can be updated from PC (see Section 2). The Removable Module application is stored in the Removable Module and also can be updated from PC. Availability of the application on the Removable Module allows for its quick replacement without connecting the device to PC (see Section 3).

Both the operating system and Removable Module application have their unique version numbers of **X.X.X.X** format (e.g. *1.0.0.2*). File with the firmware build for downloading has the **itXXX_build_YYYYYY.bsk2** format, where **XXX** is the device type, and **YYYYYY** is the identification number of the build. For example, the file with the firmware build for IT-081 Analyzer dated February 28, 2012 will have the following name: **it081_build_120228.bsk2**. Also the file name may contain the reference of the firmware application to a certain device hardware version, and other data. The versions of the operating system and Removable Module application are displayed in Identification Data Readout mode (icon in the main menu corresponds to this mode).

2 Updating Firmware via PC

To update your device firmware, proceed as follows:

a) copy the archive with new firmware version from our website (e.g. *it081_build_120228.zip*). This archive contains the firmware and accompanying information describing changes to it;

b) connect the device to USB port of your PC;

c) switch the power of the device on and select the mode of Operation Controlled by PC in the main menu (icon corresponds to this mode). If you cannot enter this mode, start the device in the mode of compulsory firmware updating. To run this mode, first press and hold "**.**" button, then turn the device on while still holding this button. If the loader is started successfully, the following message will appear at the top of the screen: **IT-08 Bootloader v4.1**;

d) start **SoftwareManager** program;

e) in **Device** drop-down list select the required device to update its firmware, and in **File** window select the file with the new firmware version. The **File content** window with the list of available firmware versions will appear on the screen. To view the information about the required program (description, compatible hardware and software versions), click on its name. Then you will see the program information window (figure 1);

f) click **Update** to start the updating.

Figure 1

If your IT-08 functions properly, USB cable is connected correctly, and the software to be downloaded is compatible with the device hardware, the program download onto your device will automatically start, and its progress will be indicated on the screen. After the download is over, the pop-up window will appear indicating that the process has been successfully completed. The IT-08 will reboot and start operating similar to when it has been powered up.

> **CAUTION** Do not interrupt the loading process. This can lead to malfunction of the device. But, if this does occur, repeat the process of program update.

3 Updating Firmware from Removable Module

The device features the possibility of saving the firmware into the memory of the Removable Module. The firmware is saved to the Removable Module automatically in the process of the Base Unit firmware updating from PC. Further on, when another Removable Module is plugged into the Base Unit, the device will automatically load the firmware from this Module in case the device has been operating with the Module of another type or if the versions of the Removable Module applications are different. The device will indicate the firmware loading process from the Removable Module by messages on the screen. After the firmware loading is finished, the device switches to the normal operating mode.

4 Firmware Loader Troubleshooting

In case a hard- or firmware error occurs during the firmware updating or the device switching on, the **Bootloader** program will show the error message on the screen. The list of possible failures and methods of their correction are given below:

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> OS checksum error.** The device firmware does not start.
Possible reason:
Operating system firmware failure.

Methods of correction:
Update the device firmware via PC.

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> OS-meta checksum error**, the device firmware does not start.
Possible reason:
Operating system metadata are damaged.
Methods of correction:
Update the device firmware via PC.

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> Application checksum error**.
Possible reason:
Removable Module application is damaged.
Methods of correction:
- Update the device firmware via PC;
- Update the device firmware from the Removable Module with fault-free application.

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> MC-module not plugged in**, the device firmware does not start.
Possible reasons:
- Removable Module is not plugged in;
- Removable Module is damaged.
Methods of correction:
- Plug in a fault-free Removable Module into the Base Module;
- Press **F1** key to run the program without the Removable Module. In this mode the measurements can not be performed.

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> MC-module ID error**.
Possible reason:
Removable Module identification table is damaged, and the loader cannot identify the Removable Module type.
Methods of correction:
Send the device to repair service to have the Removable Module failure corrected. Otherwise the firmware updating from this Module will be impossible (see section 3).

Defect detection:
When the device is switched on, the following message is displayed by the bootloader on the screen: **> MC-module has no memory**.
Possible reason:
There is not enough memory in the Removable Module to store the application (this type of defect is often for MC-081 Removable Modules with hardware modification 2.81.1).
Methods of correction:
Is not a failure. In this case the firmware updating from this Removable Module is impossible (see section 3).
Possible reason:
Removable Module program memory is damaged.
Methods of correction:

Send the device to repair service to have the Removable Module failure corrected. Otherwise the firmware updating from this Module will be impossible (see section 3).

Defect detection:

When the device is switched on, during the device firmware updating from the Removable Module, the following message is displayed by the bootloader on the screen: **> MC-module checksum error**.

Possible reason:

Failure of Removable Module application stored in it.

Methods of correction:

Update the device firmware via PC. During the update the Removable Module application program code will be replaced with a fault-free program code.

Possible reason:

Removable Module program memory is damaged.

Methods of correction:

Send the device to repair service to have the Removable Module failure corrected. Otherwise the firmware updating from this Module will be impossible (see section 3).

Defect detection:

When the device is switched on or after the Removable Module firmware updating from Removable Module, the following message is displayed by the bootloader on the screen: **> OS and Application versions are incompatible**, the device firmware does not start.

Possible reason:

Removable Module application version is not compatible with the Base Module operating system.

Methods of correction:

Update the device firmware via PC.

Defect detection:

When the device is switched on or during the device firmware updating via PC or from Removable Module, the following message is displayed by the bootloader on the screen: **> Fatal error!**

Possible reason:

Device hardware failure.

Methods of correction:

Turn the device off and then on again, and repeat the required operation. If an error appears again, the device shall be sent to repair service to have its failure corrected.

Defect detection:

When the device is switched on or during the device firmware updating via PC, the following message is displayed by the loader on the screen: **> OS-meta error**.

Possible reason:

Memory hardware error of the operating system metadata.

Methods of correction:

Turn the device off and then on again, and repeat the required operation. If an error appears again, the device shall be sent to repair service to have its failure corrected.