

Power Panel T30

Firmware upgrade

Version: 1.0.0

Notice!

Never disconnect the Power Panel from the power supply while a firmware upgrade is in progress!

There is a risk that the Power Panel can no longer be put into service and must be sent to the manufacturer for repair.

Publishing information

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1 Introduction

Notice!

Never disconnect the Power Panel from the power supply while a firmware upgrade is in progress!

There is a risk that the Power Panel can no longer be put into service and must be sent to the manufacturer for repair.

Firmware upgrade 1.0.0 updates the following system-relevant software packages:

- Bootloader 2.0.0, including the associated update system.

Limitation of older bootloader versions prior to V2.0.0:

- The PPT system can be updated only to versions up to V1.5.x.

Advantages of the firmware upgrade:

- Possible to upgrade to PPT system V1.6.0 and later and use new functions.
- Increased security through updated software.
- Enhanced security with support for signed PPT system update packages.

The bootloader version can be viewed on service page **About & Info**.

Format of the bootloader version on the service page:

Version format for bootloader V2.0.0 and later	Version format prior to bootloader V2.0.0
Version number with digits: x.y.z	Specific hash code (e.g. gf800fad)

Information:

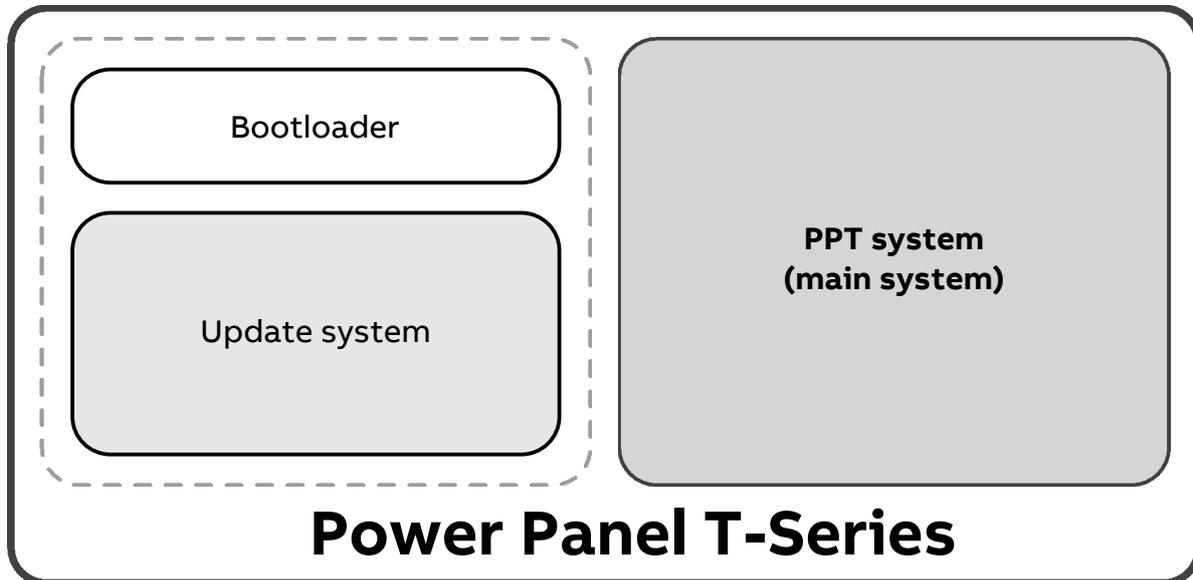
Only perform the firmware upgrade if there is an older bootloader version (<2.0.0) on the Power Panel.

The firmware upgrade must be installed if PPT system \geq V1.6.0 is used.

The firmware upgrade does not need to be installed if a PPT system prior to V1.5.x is used.

2 General information

Schematic diagram of the software running on the Power Panel:



General description of the software components:

- The **bootloader** is loaded first after the Power Panel is switched on. It performs basic initializations and then loads the **main system** in standard mode or the **update system** in update mode.
- The **main system** corresponds to the **PPT system**, which provides the functions of the Power Panel: service pages for configuration, web client for mapp View HMI applications, VNC client for VNC-based HMI applications, OPC UA server and other functions (see the user's manual).
If the **bootloader** loads the **PPT system**, it is started according to the stored configuration.
- In update mode, the **update system** replaces the main system with a new or older version. Update mode must be started explicitly via service page **Update** or the corresponding OPC UA method (see information about the update in the user's manual).

What is a firmware upgrade?

A firmware upgrade contains an alternative main system (firmware upgrade system) that updates the **bootloader** and **update system**.

In the future, the Power Panel T30 will be delivered with a bootloader \geq V2.0.0.

3 Performing a firmware upgrade

Information:

If a firmware upgrade is performed, the firmware upgrade system will overwrite the currently installed PPT system. The configuration of the Power Panel remains unchanged during the firmware upgrade and is not lost.

After the firmware upgrade, a PPT system must be imported to restore the functionality of the Power Panel.

Upgrade medium:

The firmware upgrade is treated like a normal system update. It can therefore be imported via USB flash drive as well as via the network (TFTP/FTP). The two options are described in the Power Panel user's manual.

3.1 Firmware upgrade and updating to a PPT system \geq V1.6.0

3.1.1 Upgrade medium: USB flash drive

1. Prepare an empty USB flash drive with at least 512 MB capacity.
2. Download **firmware upgrade V1.0.0** from the website (download category **Firmware upgrades**) and unpack it to a temporary directory.
3. Copy the unpacked files of the firmware upgrade to the root directory of the USB flash drive.
4. Download the ZIP package of PPT system \geq V1.6.0 from the website (download category **Linux images**) and unpack it to a temporary directory.
5. Copy the unpacked files of the PPT system to the root directory of the USB flash drive.
- ✓ All preparations are completed.
6. Connect the USB flash drive to IF3 of the Power Panel T30.
7. Start the system update with one of the following options:
 - Button *Update* in the login dialog box if the service pages are password-protected.
 - Button *Update settings / boot logo / system* on service page *Update*.
 - OPC UA method *StartUpdate*.
8. The following steps will then be run through automatically:
 - 1) The Power Panel is restarted.
 - 2) The firmware upgrade is detected and installed as the main system.
 - 3) After the firmware upgrade system is started, the message appears that the firmware upgrade is being performed.
Notice! Never disconnect power supply while a firmware upgrade is in progress!
 - 4) After successful completion of the firmware upgrade, a restart occurs within 30 s.
 - 5) The update files for the PPT system \geq V1.6.0 are detected and installed as the main system.
 - 6) The Power Panel is restarted.
- ✓ After the last restart, the updated PPT system \geq V1.6.0 is started with the previously saved configuration.
9. Disconnect the USB flash drive from the Power Panel.

3.1.2 Upgrade medium: Network

1. Configure the Power Panel (with PPT system \leq V1.5.x) for the network update and prepare the network storage device for storing the data.
2. Download **firmware upgrade V1.0.0** from the website (download category **Firmware upgrades**) and unpack it to a temporary directory.
3. Copy the unpacked files of the firmware upgrade to the network storage device.
4. Download the ZIP package of PPT system \geq V1.6.0 from the website (download category **Linux images**) and unpack it to a temporary directory.
5. Copy the unpacked files of the ZIP package to the network storage device.
- ✓ All preparations are completed.
6. Start the system update with one of the following options:
 - Button *Update* in the login dialog box if the service pages are password-protected.
 - Button *Update settings / boot logo / system* on service page *Update*.
 - OPC UA method *StartUpdate*.
7. The following steps will then be run through automatically:
 - 1) The Power Panel is restarted.
 - 2) The firmware upgrade is detected and installed as the main system.
 - 3) After the firmware upgrade system is started, the message appears that the firmware upgrade is being performed.

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 - 4) After successful completion of the firmware upgrade, a restart occurs within 30 s.
 - 5) The update files for the PPT system \geq V1.6.0 are detected and installed as the main system.
 - 6) The Power Panel is restarted.
- ✓ After the last restart, the updated PPT system \geq V1.6.0 is started with the previously saved configuration.
8. Remove the files of the firmware upgrade from the network storage device.

3.2 Firmware upgrade and installing a PPT system ≤V1.5.x

Information:

It is not necessary to perform a firmware upgrade if an update of the PPT system to a version ≥V1.6.0 is not performed.

Notice!

If a firmware upgrade should be performed anyway even though the PPT system ≤V1.5.x is retained, it must be taken into account that the update files of the firmware upgrade and the PPT system ≤V1.5.x have identical filenames. It is therefore important to note the following:

- Filenames are not permitted to be renamed!
- Either two different upgrade media must be used or, after the firmware upgrade is completed, the upgrade files must be replaced with the PPT system update files.

See the following section for detailed information about the filenames.

3.3 Overview of filenames in the ZIP packages

PPT system update ≤V1.5.x	Firmware upgrade 1.0.0	PPT system update ≥V1.6.0	Description
PPTImage.img.gz	PPTImage.img.gz		PPT system update ≤V1.5.x: Image of the PPT system. Firmware upgrade 1.0.0: Image of the firmware upgrade system that contains the new bootloader and current update system.
		PPT30Image.img.zst	Image of the PPT system in the new format.
		PPT30Image.img.zst.sig	Signature to verify the PPT system image.
PPTImage.md5	PPTImage.md5		MD5 checksum of the PPT system image.
		PPT30Image.info	File with information about the update package.
Readme.txt		Readme.txt	Version history and general information about the update package.
licenses.zip	licenses.zip	licenses.zip	Licenses of all software components used.
	FirmwareUpgradelInfo-GER.pdf FirmwareUpgradelInfo-ENG.pdf		This document in German and English.

Due to the renaming of the files starting with PPT system updates ≥V1.6.0, it is possible to provide the files for the firmware upgrade and for PPT system ≥V1.6.0 **together** on one upgrade medium:

► See: "[Firmware upgrade and updating to a PPT system ≥V1.6.0](#)" on page 5

If a PPT system ≤V1.5.x should be imported after the firmware upgrade, then it must be taken into account that the image files PPTImage.img.gz and PPTImage.md5 cannot be saved on the same upgrade medium.

► Possible solutions:

- Using two USB flash drives:
Prepare two USB flash drives and exchange them after the firmware upgrade is completed.
- Using a network update:
Configure the Power Panel for a network update. In the network storage device, first store the files for the firmware upgrade and replace them with the files for the PPT system after the upgrade is completed.
- Using a USB flash drive (firmware upgrade) and network update (PPT system update):
 - 1) Configure the Power Panel for a network update.
 - 2) Copy the update files for PPT system ≤V1.5.x to the network storage device.
 - 3) Prepare the USB flash drive with the files for the firmware upgrade and connect it to the Power Panel.
 - 4) Start the firmware upgrade and remove the USB flash drive after the upgrade is complete.
 - 5) PPT system ≤V1.5.x is then installed from the network storage device.

4 Troubleshooting

4.1 Power Panel performs repeated restarts

If the Power Panel restarts repeatedly and the following messages are displayed in sequence, a valid PPT system has not yet been installed.

1. Message:

A grey rectangular box containing the text "Terminal update (6PPT30.xxxx-20x)" followed by three dots on the next line.

2. Message:

A grey rectangular box containing the text "Firmware upgrade in progress..." followed by "Do not switch off the device during the upgrade!" on the next line.

3. Message:

A grey rectangular box containing the text "Firmware upgrade has already been installed." followed by "Restarting in xx seconds..." on the next line.

The problem is corrected by providing the update files for the desired PPT system. This is done in one of the following ways:

- Remove the USB flash drive with the firmware upgrade from the Power Panel, unpack the ZIP package of the PPT system, copy it to the root directory of the USB flash drive and connect this USB flash drive to the Power Panel.
- Remove the USB flash drive with the firmware upgrade from the Power Panel and deploy the update to the PPT system in the configured network storage device. Updating via the network only works if the previously installed PPT system was configured accordingly.

If the update system detects the update for the PPT system, it will be installed as the main system. After the following restart, the PPT system will be started according to the configuration and the Power Panel will no longer be started repeatedly.

4.2 Other problems

Information:

If other problems are reported, an updated version of this document with additional information will be published on the B&R website.