INSTRUCTION FOR TS RECOVERY AND REPROGRAMMING.

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CONTENTS

1 Installation and Safety instructions

This programming manual is exclusively intended to support updating software of the 900TS00 and 900TS02 touchscreen.

Before you begin, carefully read the Warning & Cautions and the Safety Instruction, in the manual of the appliance to avoid any hazard and act accordingly.

Additionally, carefully read this document before you start with the firmware programming - or project programming procedure.

2 Introduction

This section describes the different 900TS software layers for upgrading the device or reset it to a factory state. The 900TS has the following software layers:

900TS Firmware

The firmware layer contains the operating system and various general applications which are required to run the 900TS projects.

It is strongly recommended to reprogram this layer <u>before</u> programming a 900TS project. Chapter 3 describes the Firmware Recovery procedure for the 900TS firmware.

900TS Project

This layer contains all screens and logic that can be seen when the 900TS is operating normally. The 900TS project layer is customer/product specific.

IMPORTANT

- In case of troubleshooting <u>always</u> follow the flow chart in chapter 5 to guide you through the correct procedures!

3 Firmware programming procedure

Before (re)programming a project onto the 900TS, or when experiencing issues the firmware of the 900TS can be reprogrammed to factory state using this guide. By reprogramming the firmware, any bad flash sectors are detected and will not be used anymore preventing future memory errors. It therefore is important to always perform this procedure <u>first</u> before programming a new project to ensure a clean start!

Requirements

To perform the firmware programming procedure the following items are required:

- An empty USB flash drive (FAT32 file system, max 16 GB, USB 2.0).
- A Firmware Recovery package (software) for either the 900TS**00** or 900TS**02**.

Note: It is recommended to use a different USB flash drive if you experience trouble during the upgrade process.

Firmware Recovery package

The Firmware recovery packages are available on the Web Portal (in: *000\Support Tools\900TS*).

⚠️ **WARNING**
Use the right firmware recovery package for the right hardware version
(the part number in the filename should match the part number of the 900TS):

- *900TS**00**_Firmware_Recovery.zip* for a 900TS**00**_0R touchscreen!
- *900TS**02**_Firmware_Recovery.zip* for a 900TS**02**_0R touchscreen!

⚠️ Always check if you are using the correct Firmware Recovery package before starting. Programming the wrong touchscreen firmware can lead to an <u>unrecoverable</u> bricked state!

The Firmware Recovery packages contain the following files:

<u>900TS00_Firmware_Recovery.zip</u>

Name	Type
drivers	File folder
OneKey	File folder
CeSvr.exe	Application
cesvr15_english_ARMV4.drv	Device driver
context.dat	DAT File
EBOOTND.bin	BIN File
fs.ini	Configuration settings
index.dat	DAT File
LangSetup.ini	Configuration settings
mcgsce.exe	Application
mcgse.ini	Configuration settings
NK.bin	BIN File
Os.ini	Configuration settings
PS_mcgs_95x17_v0.2.bmp	Bitmap image
tpcupdateu.exe	Application
update.ini	Configuration settings
UpSys.dll	Application extension
XLDRNAND.bin	BIN File

<u>900TS02_Firmware_Recovery.zip</u>

Name	Type
drivers	File folder
OneKey	File folder
CeSvr.exe	Application
cesvr15_english_ARMV4.drv	Device driver
context.dat	DAT File
EBOOTND.bin	Binary File
fs.ini	Configuration settings
index.dat	DAT File
LangSetup.ini	Configuration settings
mcgsce.exe	Application
mcgse.ini	Configuration settings
nand201.dll	Application extension
nand202.dll	Application extension
NK.bin	Binary File
Os.ini	Configuration settings
PS_mcgs_95x17_v0.2.bmp	Bitmap image
tpcupdateu.exe	Application
update.ini	Configuration settings
UpSys.dll	Application extension
XLDRNAND.bin	Binary File

Firmware programming

Carefully read all the steps before carrying them out on a 900TS touchscreen.

1. Connect the USB flash drive to your computer.

2. Download the right Firmware Recovery zip-file and extract the folder to the (root of the) USB flash drive. The root of the USB drive should now contain the 'tcpbackup' directory.

3. Eject the USB flash drive from your computer (safely remove it).

4. Insert the USB flash drive in the USB1 port on the touchscreen (Fig. 1). <u>Do not power</u> on the touchscreen yet!
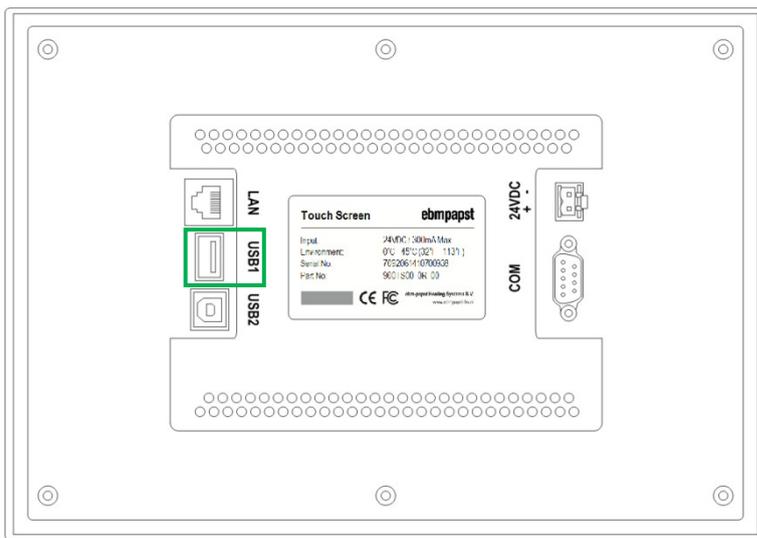
Fig.1

5. Press your finger (firmly) to the screen of the touchscreen and hold it there. Power on the touchscreen. As soon as the start-up screen appears, immediately release your finger (see Fig. 2).

| 1. Press and hold your finger firmly on the touchscreen. | 2. Power ON the 900TS. | 3. Release your finger once the ebm-papst logo appears. |
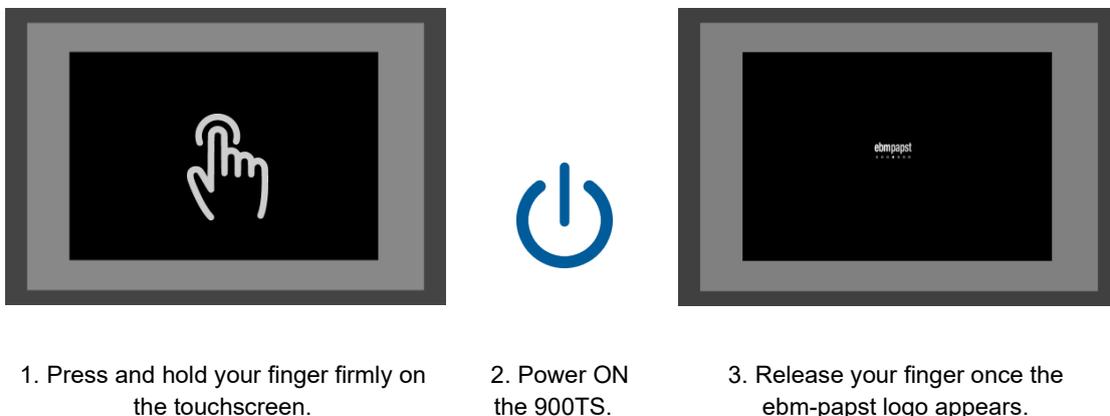
Fig. 2

Proceed if Chinese characters appear on the bottom of the screen (Fig. 3),

otherwise remove the power of the touchscreen and retry step 5.

Fig.3

6. After a few moments the following screen (Fig. 4) appears:
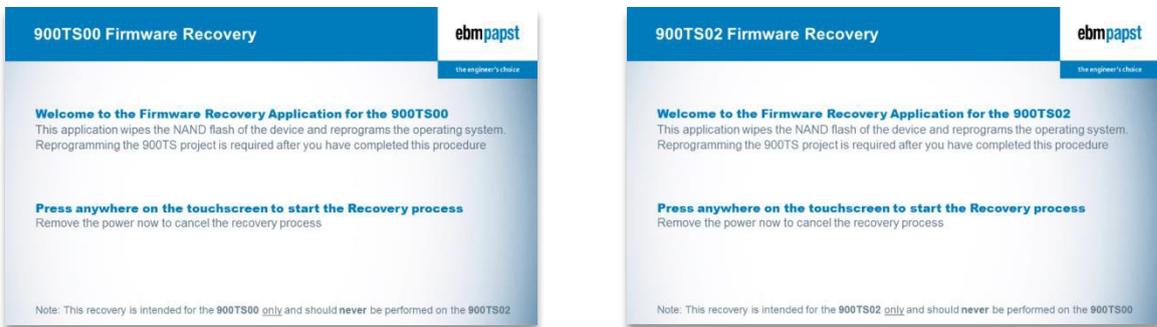
Fig. 4: Left 900TS00 screen, Right 900TS02 screen

Press anywhere on the screen to start the Firmware Recovery process (*or* remove the power to cancel the process. Do not forget to remove the USB flash drive before you power it back on).

Once the Firmware Recovery process has started a window with a progress bar (Fig. 5) will appear.

Fig.5: Left 900TS00 screen, Right 900TS02 screen

NOTE
If the progress bar turns red, the Firmware programming process failed.
Remove the power and retry the entire procedure. If this situation reoccurs, try using a different USB flash drive (FAT32, <16GB, USB 2.0).

7. After the first step of the Firmware Recovery procedure has completed, the following screen (Fig. 6) is displayed. Press anywhere on the touchscreen to reboot the touchscreen and complete the procedure.
→ **Do not yet remove the USB drive!**

During this step the touchscreen will beep continuously.
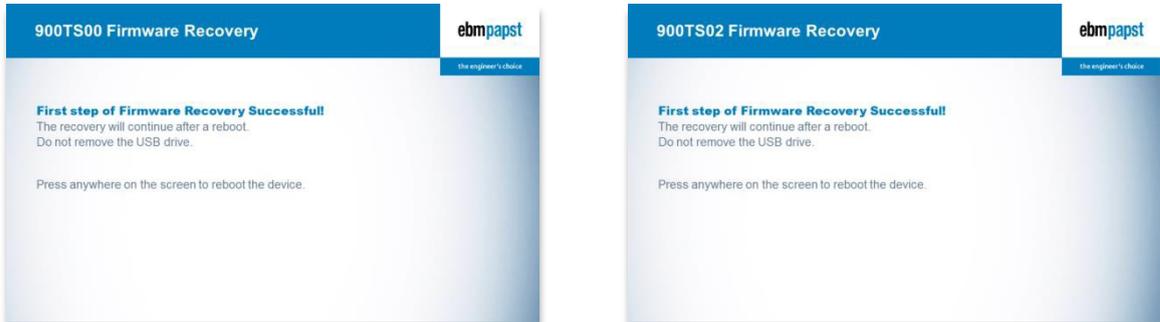
Fig.6: Left 900TS00 screen, Right 900TS02 screen

Once the 900TS has restarted (and beeps), a progress-window appears (Fig. 7).

After a short while, Chinese characters will appears at the bottom of the progress-window (Fig. 7) and the 900TS will beep continuously again:
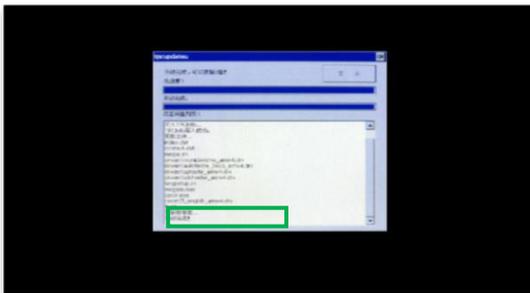
Fig.7

8. Power OFF the 900TS and remove the USB flash drive from the USB1 port.
The process of recovering the memory is now complete.

NOTE
After you have completed this procedure, it is required to program the desired touchscreen project from your Project folder on the Web Portal (see the procedure in Chapter 4).

4   Project programming procedure

⚠️ **IMPORTANT**
Perform the Firmware programming procedure from chapter 3 <u>before</u> reprogramming the 900TS Project!
This ensures that any old project data is removed correctly.

Requirements for updating
To update the firmware on a 900TS the following items are required:

- An USB flash drive (FAT32 file system, max 16 GB, USB 2.0)
- A Firmware installation package (software) for either the 900TS**00** or 900TS**02**.

<u>Note:</u> It is recommended to use a different USB flash drive if you experience trouble during the upgrade process.

Firmware installation package
A zip-file with the new software is available, called9xxTS**00**_x.x.x.x.zip or 00TS**02**_x.x.x.x.zip (depending on your 900TS hardware version).

This zip-file contains the following files:

- A folder called 'tpcbackup'
- A file called 'ulog.txt'

Name	Type
📁 tpcbackup	File folder
📄 ulog.txt	Text Document

Updating the firmware
The following steps are required to program (update) the 900TS firmware:

1. Ensure you have downloaded and extracted the <u>correct</u> firmware that matches the hardware version (TS**00** or TS**02**) onto the USB drive.

2. Eject the USB stick from your computer (safely remove it).

3. Insert the USB stick in the USB1 port on the backside of the touchscreen (see Fig. 1) and power on the touchscreen (if it was not already).
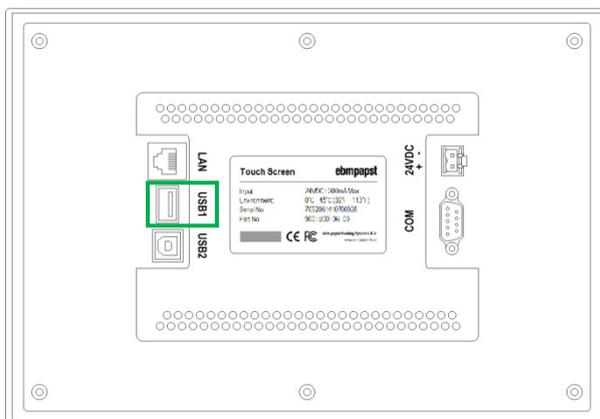
Fig.1: USB1 port located on the back of the 900TS.

4. After a few seconds the following window (Fig. 2) will appear.
   Press the left button (marked in green) to continue.
   Depending on the touchscreen firmware this button will either show 'Yes' or the character '是'.

   (Press the right button ('No', or 否) to cancel the firmware update and close the window).
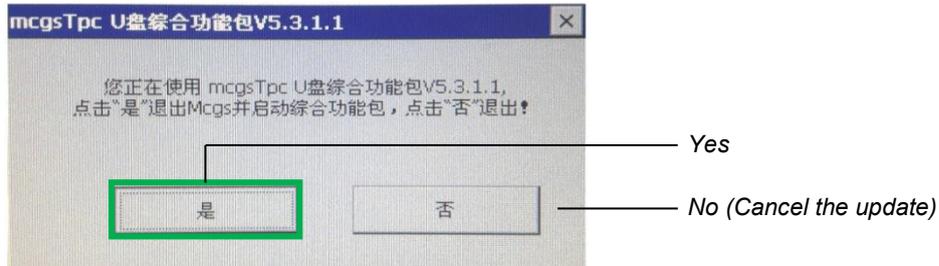
Fig. 2

5. In the following window, press the (middle) button 'Upgrade Project' (Fig. 3).
   (Depending on the touchscreen firmware the button will either show the text 'Upgrade Project' or the characters '用 户 工 程 更 新').
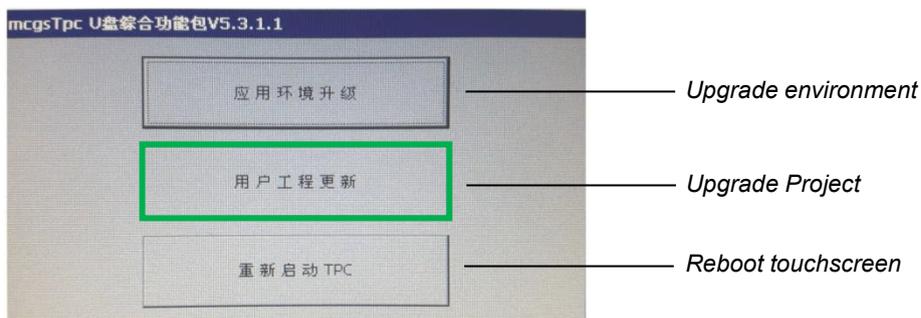
Fig. 3

6. In the following window, press the (left) button 'Start' (Fig. 4).
   (Depending on the touchscreen firmware the button will either show the text 'Start' or the characters '开始').
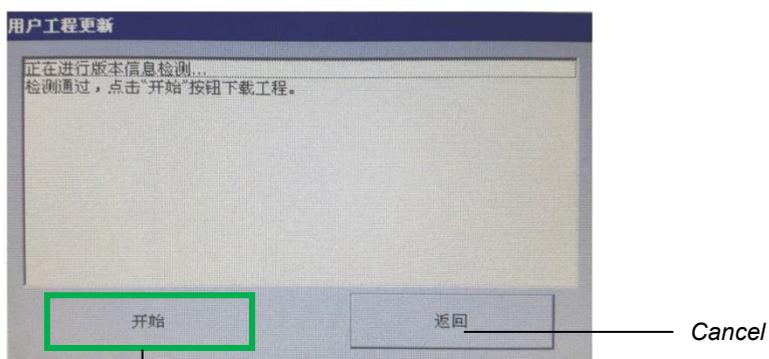
Fig. 4

7. Then press the button (开始下载) on the upper left (Fig. 5) to start the firmware update (Fig. 6):

Start firmware update

Reboot Touchscreen

Stop Upgrade
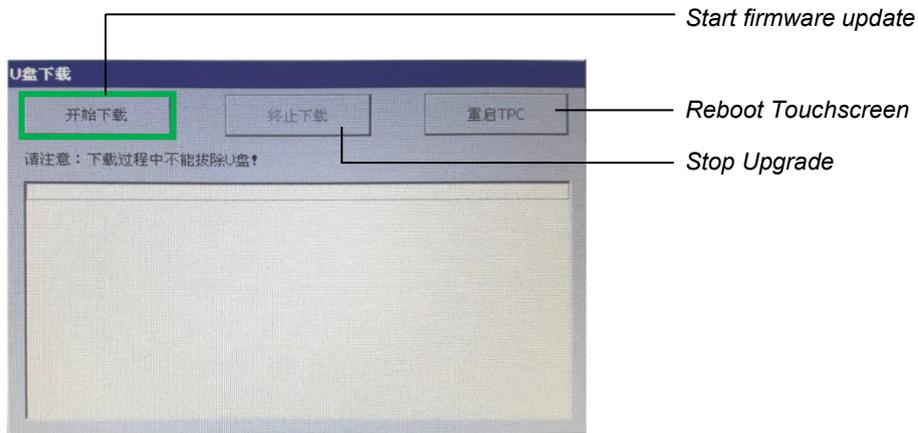
Fig. 5

Fig. 6

After the firmware has successfully been updated, the touchscreen will reboot automatically.

During rebooting <u>unplug the USB stick</u> from the touchscreen, otherwise the firmware-update process will start again (the window displayed at Step 4 - Fig. 2 will appear again).

NOTE
If an error appears on screen during the update-process, power OFF the touchscreen, wait a few seconds and power it back ON to retry. If the problem reoccurs please contact a qualified service technician.

5 Troubleshooting

This chapter guides you through the procedures for solving common 900TS issues.

⚠️ **IMPORTANT**
- Always read all the complete procedure <u>before</u> you start!
- Ensure to check the power supply and cables <u>before</u> you start!
- Follow the flow chart to guide you to the correct procedure(s).

FLOW CHART

```
┌──────────────────┐  No  ┌──────────────────┐  No  ┌──────────────────┐
│ Do you want to   │─────▶│ Did you receive  │─────▶│ Is the 900TS     │
│ reprogram the    │      │ a notification   │      │ completely frozen│
│ 900TS software?  │      │ that the memory  │      │ (even after a    │
│                  │      │ is full?         │      │ reboot)?         │
└──────────────────┘      └──────────────────┘      └──────────────────┘
         │ Yes                     │ Yes                     │ Yes
         ▼                         ▼                         │
┌─────────────────────────────────────────────┐             │
│        REPROGRAM THE 900TS FIRMWARE         │◀────────────┘
│               Go to chapter 3                │
└─────────────────────────────────────────────┘
         │
         ▼
┌─────────────────────────────────────────────┐
│        REPROGRAM THE 900TS PROJECT          │
│               Go to chapter 4                │
└─────────────────────────────────────────────┘
         │ Yes
         ▼
┌──────────────────────────┐  No  ┌──────────────────────────┐
│      PROBLEM             │─────▶│   REPLACE THE 900TS      │
│      SOLVED?             │      │                          │
└──────────────────────────┘      └──────────────────────────┘
         │ Yes
         ▼
┌──────────────────────────┐
│  You have completed the  │
│ procedure(s) successfully!│
└──────────────────────────┘
```