

Epic Edge Maintenance Features

Background

The Epic Edge printer includes enhanced firmware update and printer configuration features to simplify both factory and field setup processes.

There are three major differences between the Edge and Epic 950 printer configuration features;

- The firmware update port (imPort) has been upgraded from an RS232 to a full speed USB 2.0 connection.
- A micro SD card slot has been added to allow firmware updates without the need for a connection to a host device.
- A Reset pushbutton has been added to eliminate the need to unplug and re-plug the printer for maintenance operations.

USB Operation

The USB maintenance port enumerates as a USB CDC (communications device class) virtual serial port and appears as a COM port on the host system. This interface uses drivers provided by Microsoft is directly supported on Windows XP, 7,8 and 10*.

* Windows XP and Windows 7 may require Transact's [USB CDC Driver](#) to help Windows identify the correct Microsoft driver to use. The installer is available by clicking the above Dropbox link.

The USB maintenance port supports the three commonly used Transact printer tools and is backwards compatible with the Epic 950 printer

- Firmware Update (PJ Download and later versions)
- File system management (DL File and later versions)
- Printer configuration utility (Config)

Since, unlike an RS232 connection, the printer is recognized a USB connection when a host is connected to the maintenance port, the need to perform a manual operation at the printer (rack out, cover open, feed button, etc.) has been eliminated. When the USB maintenance connection is detected:

- The printer will disconnect all EGM communication ports
- The printer will internally reset and enter boot loader mode. All features listed above are available in this mode.
- The LEDs on the printer keypad will flash in a specific pattern to inform the operator that the printer has entered maintenance mode.
- After maintenance has been completed and the USB cable removed, the printer will internally reset, apply any pending updates, print a self-test ticket if a firmware download was performed, then re-enable EGM communications.

- If, for any reason, the printer fails to reset when the USB cable is removed, a pushbutton has been provided to force the printer to reset. This button is recessed and requires the use of a paper clip or similar tool to activate. This prevents accidental resets during normal operation.
- If the printer bootloader detects an error with the operating firmware at startup, the printer will remain in boot load mode regardless of the state of the USB connection.

SD Card operation

The SD card interface is a powerful new feature which greatly enhances the printer update process. During power-up and during normal operation the printer checks for the presence of an SD card. If a card is found, the printer disables all EGM communication ports and executes an internal reset into boot loader mode.

Normal Mode

- Once in boot load mode, the firmware checks the card for the presence of a .cbt file. This is a complete firmware image except for the low-level boot loader and is the same file that would be used for a USB download. If a file is found, the file is loaded into the printer and the flash memory is reprogrammed. After the programming is complete, the printer will wait for the SD card to be removed. Once the card removal is detected, the printer will internally reset, apply any pending updates, print a self-test ticket, then re-enable EGM communications.
- If the printer bootloader detects an error with the operating firmware at startup, the printer will remain in boot load mode regardless of the state of the SD card insertion.

Maintenance Mode

The Epic Edge includes enhanced maintenance features to assist with printer integration and debug. The printer is placed in maintenance mode by changing the setting of dip switch 8 to the OFF position (towards the outside of the printer) and resetting the printer. This switch activates two features in the Edge

Com Log

During printer operation all communications with the host EGN will be recorded and save to flash memory. This is similar to the com log function in the Epic 950 except the files are saved to nonvolatile flash for future retrieval.

Enhanced SD Card Interface

When the printer detects an SD card insertion while in maintenance mode the printer will reset into boot loader mode with additional SD card features enabled:

- **Bootloader Replacer:** The printer will look for a special file named Boot****.cbt and, if found, will replace the low-level bootloader with this file.
- **Firmware update:** This operates the same as described in Normal Mode above.
- **Copylist.txt:** If this file exists, the file names contained in this file will be used to form a list of files to copy from the SD card to the printers internal file system. Before a copy is started, a comparison to a preexisting file(s) will be performed to prevent overwriting identical files. During this scan the blink pattern will be a rapid toggle of the cover open and paper LEDs. This feature can be used to quickly add graphics, fonts, or system firmware files to the printer. Its function is similar to that of the USB DL File utility. During the file transfer all LEDs with flash simultaneously.
- **Readlist.txt:** This is the inverse of the copylist function. It allows files for the file system to be transferred to the SD card. This will enable the extraction of files such as the printer com log without requiring a PC connection. Due to security and licensing issues, system files and font files cannot be copied to the SD card using this function. The main purpose of this function is to allow com log data to be retrieved from the printer without the need to attach a host PC.
- **Runme.bin:** This file is loaded from the SD card and immediately executed by the printer. It can contain special printer diagnostics or other executable files. This file is not loaded into the printer flash memory.
- **Reflashboot.bin:** This is the boot loader replacement application. Looks for the presence of a file named bootloader.dat and programs the contents into the printer flash boot area.
- **Dumpflash.bin:** This executable saves an image of the printer flash memory on the SD card. This utility can be used to generate a binary flash image for programming at our CMs.