Kodak

Thermal 2 Head

Firmware Version 1.09 Release Notes

Document Number
739-00428C-EN

26 May 2008

Copyright 2008 Kodak. All rights reserved.

Revision History

Revision	Date	Author	Comments
A	11 Sep 2007	K Dyck	Created for TH2 firmware V1.09
B	21 Feb 2008	H Chen	Added fix for focus learn failure and disabling NVS parameter update in V1.09d (Section 6.6)
C	26 May 2008	H Chen	Fixed MED AGC parameters in V1.09 conflicting with MED STROKE in V1.00-V1.04 (Section 6.7)

Kodak

Thermal 2 Head
Firmware Version 1.09 Release Notes

CONTENTS

Revision History i

1. Host/Exposure Head Compatibility 1

2. Getting Started 1

3. Laser Safety Practices 1

4. Related Resources 2

5. New Features 2
   - 5.1 Added Head Serial Number to Version Banner 2
   - 5.2 Added Data Path Check 2
   - 5.3 Added Plot Tracking Parameters 3
   - 5.4 Changes for Magnus VLF 3

6. Problems Fixed 3
   - 6.1 Increased Beam Balance Timeout 3
   - 6.2 Fixed Minor Inconsistency with Parameter Restore 3
   - 6.3 Accurately Report Beam Balance Error 4
   - 6.4 Moved AGC to Media Slots 4
   - 6.5 Automatic Retry After Focus Learn Failure 4
   - 6.6 Disabled NVS Update for Plot Counter 4
   - 6.7 Fixed Firmware Downgrade Problem from 1.09 to 1.00-1.04 4

7. NVS Parameter Changes 5

1. HOST/EXPOSURE HEAD COMPATIBILITY

Thermal 2 (TH2) head firmware is distributed as part of a controlled release. This firmware has been qualified against certain versions of MPE, MCE and GMCE firmware for each output device. Head firmware should only be loaded as part of a controlled release package. If you are installing a replacement head:

- See **TechPlanet > Output > All CTP Devices Home Page > Controlled releases** to determine if your head is compatible with the device control software and firmware. If it is compatible, you can install the head without changing any firmware.
- If your head firmware is out-of-date, upgrade the head firmware to the version supported by the controlled release.
- If the device control software and firmware are out-of-date, determine if an upgrade path exists for a newer controlled release. If an upgrade path exists, upgrade the host to the correct controlled release. Otherwise, a head downgrade may be necessary.

2. GETTING STARTED

This document provides release information for thermal 2 firmware version 1.09, which is a significant upgrade from version 1.08. If you are upgrading from a version older than 1.08, read the release notes for each intermediate version to see all of the firmware changes that have been implemented.

Note: This document does not provide specific information about any host platform.

Formatting conventions used in this document:

- All references to monitor commands are in `courier font`. Monitor commands for the exposure head are preceded by the `TH2 >` prompt and monitor commands for the host are preceded by the `>>` prompt.
- All references to NVS parameters are in *italics*.
- All references to scripts are **bold**.

3. LASER SAFETY PRACTICES

To use this document, you *must* have attended an exposure head introductory course given by the Kodak service training department, product specialist or engineering support team. You must be familiar with the necessary safety precautions when working with a thermal head.

DANGER! Never operate the host device with the write laser beam on and a door open. Do not use the service bypass jigs to bypass the door interlocks.

4. RELATED RESOURCES

- TH2 head firmware: **TechPlanet > Output > Heads > Thermal 2 Head > Control/settings > Firmware releases** (http://techplanet.creo.com/firmware/CTP/Head/Thermal2/versions.htm)
- TH2 head controls and settings: **TechPlanet > Output > Heads > Thermal 2 Head > Control/settings** (http://techplanet.creo.com/output/heads/thermal_2/nav/control-set.htm)
- TH2 head troubleshooting: **TechPlanet > Output > Heads > Thermal 2 Head > Troubleshooting** (http://techplanet.creo.com/output/heads/thermal_2/nav/troubles.htm)
- Service Shell: **TechPlanet > Output > Service Tools > Service Shell** (http://techplanet.creo.com/output/service_tools/service_shell/nav/v2-x/index.htm)
- Controlled Releases: **TechPlanet > Output > All CTP Devices > Control/settings** (http://techplanet.creo.com/output/computer_to_plate/all_ctp/nav/control-set.htm)

5. NEW FEATURES

The following features were implemented or modified in Thermal 2 firmware version 1.09.

5.1 Added Head Serial Number to Version Banner

The output of the `TH2> ver` command has been changed to include the serial number of the head.

```
TH2 > ver
Project:         Thermal II
Firmware:        1.09 Release
Build:           3828
Date:            Aug 28 2007 16:05:25
Control board:   4
Xilinx:          45
Serial Number:   T01189
```

5.2 Added Data Path Check

Occasionally data corruption is seen on plate when plotting with a Thermal 2 head. Usually this is due to a faulty cable. However, if the cable is not the problem, verifying the source of the corruption can be difficult. Another possible source for data corruption is a race condition between the host and the head. If the host starts sending data before the head is ready, the buffers will be misaligned.

To verify this is not happening, a check has been added to the start of the plot. The check verifies that no data has been sent before the buffers are ready.

To enable the race condition check, set the system verbosity to debug by typing `TH2> vbs enable sys 7`. If there is a race condition, a message similar to the one shown below displays.

```
CRC = 51 after buffer reset.  Expected CRC = 1
```

5.3 Added Plot Tracking Parameters

Three new parameters have been added to track plotting on the Thermal 2 head.

- *sys plotcounter* tracks the total number of plots successfully started.
- *med plotcounter* tracks the number of plots successfully started using the specified media slot.
- *sys lastmedia* indicates the media that was used for the last plot.

All these parameters are updated at the start of the plot. There is no verification at the end of the plot. In other words, these parameters indicate the number of plots successfully started, not the number of plots successfully completed.

5.4 Changes for Magnus VLF

Various internal changes have been made to support Magnus VLF Controlled Release 4.2. If you are running TH2 head firmware version 1.09 on a Magnus VLF CR 4.2, *you should not downgrade the head firmware*. Doing so causes a variety of failures that may cause plot failures.

6. PROBLEMS FIXED

This section lists problems that have been fixed in Thermal 2 firmware version 1.09.

6.1 Increased Beam Balance Timeout

In thermal 2 firmware version 1.07 the beam balance algorithm was edited to allow a second attempt at balancing the beam. In some cases, this secondary balance attempt was unable to complete because the timeout was too short. In thermal 2 firmware version 1.09 the timeout is increased from 60 seconds to 120 seconds.

6.2 Fixed Minor Inconsistency with Parameter Restore

In previous versions of thermal 2 firmware, the `TH2> prm diff` command reported a change when some floating point numbers were saved and restored using the NVSDump and NVSRestore scripts. This was due to rounding when the display length was limited. This has now been fixed in firmware version 1.09. The `TH2> prm diff` command does not compare beyond what is displayed at the command prompt.

6.3 Accurately Report Beam Balance Error

When a beam balance failure occurs in the field, it is often necessary to relax the beam balance requirements until a replacement head can be shipped. There are two configurable values that set the error threshold for a successful beam balance. The first is *bbs maximumerror* and the second is *bbs maximummae*.

In previous versions of thermal 2 firmware, if either of these error levels were exceeded, the same error was reported.

```
[00218] Beam-Balance: Beam-balance error exceeds the maximum error.
```

Having only one error made it unlikely that the correct parameter would be adjusted when required. In thermal 2 firmware 1.09, a new error has been created to correspond to the maximum mean absolute error (MAE).

```
[00230] Beam-Balance: Mean Absolute Error (MAE) exceeds the maximum
error.
```

6.4 Moved AGC to Media Slots

The automatic gain control (AGC) parameters were previously kept in the focus module. These parameters are *foc agcsamples*, *foc agcsum*, and *foc agcenable*. However, it has been seen that one setting for all media types is not adequate. These parameters have been moved to the media slots so they can be optimized for each media type.

When upgrading to 1.09, the AGC values stored in focus subsystem will be copied to all of the media slots.

Note: If any changes are made to these new media values they will be lost if the firmware is downgraded.

6.5 Automatic Retry After Focus Learn Failure

A focus learn could fail when a bad focus table from a previous learn was used on a good plate. Firmware version 1.09d fixed this issue by automatically flushing the focus table after the first focus learn fails, and retrying the focus learn for a second time.

6.6 Disabled NVS Update for Plot Counter

The sys plotcounter, sys lastmedia, and med plotcounter parameters were previously updated and written back to the NVS every time a plot was performed. This could require performing a garbage collection on the flash device, which delayed the plotting by 6-7 seconds. Firmware version 1.09d fixed this issue by disabling the NVS update for the three parameters.

6.7 Fixed Firmware Downgrade Problem from 1.09 to 1.00-1.04

The media AGC parameters in 1.09 conflicted with the media stroke parameters in firmware versions from 1.00 to 1.04. Firmware version 1.09e fixed this issue

by assigning new parameter numbers for the three media AGC parameters. To downgrade firmware from version 1.09 to any version earlier than 1.05, upgrade the firmware to 1.09e first before downgrading.

7. NVS PARAMETER CHANGES

The following NVS parameters have changed in thermal 2 firmware version 1.09:

NVS Parameter	Comment	See Section
sys plotcounter	new	5.3
sys lastmedia	new	5.3
med plotcounter	new	5.3
foc agcsamples	Moved to med	6.4
foc agcsum	Moved to med	6.4
foc agcenable	Moved to med	6.4
med agcsamples	new	6.4
med agcsum	new	6.4
med agcenable	new	6.4