

Firmware Release Notes

Pike F-032B/C (fiber)
Pike F-100B/C (fiber)
Pike F-145B/C (fiber)
Pike F-145B/C (fiber)-15fps
Pike F-210B/C (fiber)
Pike F-421B/C (fiber)
Pike F-505B/C (fiber)
Pike F-1100B/C (fiber)
Pike F-1600B/C (fiber)

Document number: V5.0.0

[Note: This document number does not correspond with any firmware number.]

Date:

13 May 2011

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Summary

This release note details the new features and bug fixes of the firmware of the **AVT Pike series** of cameras in relation to the earlier firmware versions listed above. This is intended to provide an indication of new features available with this release and the progress since the last major release.

The firmware of a Pike camera consists of three integral parts, which are merged together into one .xml file.

Pike F-032/100/145/210/421/505/ 1100/1600 B/C (fiber)

Microcontroller firmware

Release history

Release	Pike F-032B/C (fiber)	Pike F-100B/C (fiber)	Pike F-145B/C (fiber)	Pike F-210B/C (fiber)	Pike F-421B/C (fiber)	Pike F-505B/C (fiber)	Pike F-1100B/C (fiber)	Pike F-1600B/C (fiber)
Current	0.3.6.1 2009-12-16	0.3.6.1 2009-12-16	0.3.6.1 2009-12-16	0.3.6.1 2009-12-16	0.3.6.1 2009-12-16	0.3.6.1 2009-12-16	0.3.8.0 2011-04-29	0.3.8.0 2011-04-29
Pre-decessor	0.3.6.0 2009-09-11	0.3.6.0 2009-09-11	0.3.6.0 2009-09-11	0.3.6.0 2009-09-11	0.3.6.0 2009-09-11	0.3.6.0 2009-09-11	0.3.7.4 2010-02-25	0.3.7.4 2010-02-25
Initial	1.10 2006-06-23	1.15 2006-10-04	1.15 2006-10-04	1.11 2006-07-28	1.10 2006-06-23	0.3.2.0 2008-01-28	0.3.7.4 2010-02-25	0.3.7.4 2010-02-25

Firmware 0.3.8.0 (only Pike F-1100/1600)

1.	<ul style="list-style-type: none">● New feature: Defect pixel correction
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Firmware 0.3.7.4 (only Pike F-1100/1600)

1.	<ul style="list-style-type: none">● New camera F-1100B/C● New camera F-1600B/C
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Firmware 0.3.6.1 (all Pikes)

1.	<p>Bug fixes:</p> <ul style="list-style-type: none">● #739: Improved: Camera firmware stability. In seldom cases, the Pike tended to unpredictable behavior.
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Firmware 0.3.6.0 (all Pikes)

1.	<p>New features:</p> <ul style="list-style-type: none">● Dual-tap offset adjustment (not Pike F-145B/C)● PWM (pulse-width modulation)● Input debounce● Model name field of configuration ROM extended to 40 characters● Disable LEDs function● Frame rates can now be controlled more precisely
2.	<p>Bug fixes (only Pike F-505):</p> <ul style="list-style-type: none">● #666: Corrected: Pike F-505 bouncing trigger input in level mode lead to freezing camera● #676: Corrected: Pike F-505 showed irregular frame rates● #660: Corrected: Pike F-505 sequence mode and LUT: LUT switching was one step too early● #315: Corrected wrong INITIALIZE register● #431: Corrected Format_7 BytesPerPacket behavior● #535: MaxIsoSize revised● #416, 433: Corrected behavior of SIS position setting

Firmware 0.3.5.2 (only Pike F-505)

1.	<p>New feature:</p> <ul style="list-style-type: none">● Dual-tap offset adjustment
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Firmware 0.3.5.2 (only Pike F-210)

1.	<p>New features:</p> <ul style="list-style-type: none">● Channel matcher added● Gain reference adjustable● Low noise binning mode added
2.	<p>Improved:</p> <ul style="list-style-type: none">● Corrected: I/O output pin state error
3.	<p>Bug fixes:</p> <ul style="list-style-type: none">● #412: Corrected re-read problem: stack upgrade due to bugs● #413: Corrected conflict error

Firmware 0.3.5.1 (only Pike F-505)

1.	Bug fixes: <ul style="list-style-type: none">● #603: Corrected: 8x8 binning returned 304x25 instead of 304x254
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Firmware 3.03.00 – 3.03.01 (only Pike F-505)

1.	Improved: <ul style="list-style-type: none">● Sensor timing● Gain references
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Firmware 3.00.01 – 3.03.00 (all Pikes)

1.	New features: <ul style="list-style-type: none">● User adjustable gain references (#483)● SNR increasing binning mode (#490)
2.	Improved: <ul style="list-style-type: none">● Minimum exposure time● Sensor timing for<ul style="list-style-type: none">- Pike F-505B/CC- Pike F-145B/C- Pike F-145B/C -15fps
3.	Bug fixes: <ul style="list-style-type: none">● #353: Corrected: Output pins state could not be read● Corrected: LED functionality● #477: Corrected: While turning on RS232, Pike wrote random data into transmit buffer

Firmware 3.00.01 (all Pikes)

1.	Bug fixes: <ul style="list-style-type: none">● #357: Incompatibility with Microsoft camera drivers● #355: Max GPDataBuffer corrected to 2048● #339: Corrected shading build function● #338: First packet after bus reset was faulty● #232: Improved FPN at certain exposure settings
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Firmware 1.25 – 3.00 (all Pikes)

1.	<p>New features:</p> <ul style="list-style-type: none">● Sequence mode● 4 x / 8 x binning and sub-sampling● Format_7 mode mapping● Secure image signature (SIS)● Trigger counter● Frame info● Quick Format Change Mode (QFCM)● Extended Firmware version registers● Packed 12-Bit Mode● Smear reduction
2.	<p>Bug fixes:</p> <ul style="list-style-type: none">● #325: Mirror and sub-sampling repeats deferred mode● #334: High SNR mode and grab count = 2 does not work● #339: Faulty shading image with image count > 12● #327: Corrected customer key register● #329,#330: Recall of user set does not set trigger mode● #322: Initialize command never restored the factory defaults.

Firmware 1.15 – 1.25 (all Pikes)

1.	Improved update via 1394
2.	Improved general code
3.	Corrected minimum shutter (Pike F-100)
4.	Corrected Format 7 modes color filter IDs

Firmware 1.11 – 1.15 (all Pikes)

1.	Improved auto features
2.	Corrected operations of one-push functions
3.	Added camera status register
4.	Enabled serial COM
5.	Improved exposure / shutter behavior

6.	Improved LUT / storing / loading behavior
7.	Implemented Format 7 color ID filter

Firmware 1.10 – 1.11 (all Pikes)

1.	New features: hue, saturation, color correction, image mirror
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Pike F-032/100/145/210/421/505/ 1100/1600 B/C (fiber)

FPGA firmware

Release history

Release	Pike F-032B/C (fiber)	Pike F-100B/C (fiber)	Pike F-145B/C (fiber) Pike F-145B/C-15fps (fiber)	Pike F-210B/C (fiber)	Pike F-421B/C (fiber)	Pike F-505B/C (fiber)	Pike F-1100B/C (fiber)	Pike F-1600B/C (fiber)
Current	00.03.03.00 2009-09-09	00.03.03.00 2009-09-09	00.03.03.00 2009-09-09	00.03.03.00 2009-09-09	00.03.03.00 2009-09-09	00.03.03.00 2009-09-09	00.03.01.00 2011-04-29	00.03.01.00 2011-04-29
Pre-decessor	3.01.00 2008-08-19	3.01.00 2008-08-19	3.01.00 2008-08-19	0.3.2.0 2009-04-23	3.01.00 2008-08-19	00.03.02.00 2009-07-13	00.03.00.00 2010-05-04	00.03.00.00 2010-05-04
Initial	1.00 2006-06-23	1.00 2006-10-04	1.00 2006-10-04	1.00 2006-07-28	1.00 2006-06-23	00.03.00.01 2008-01-28	00.03.00.00 2010-05-04	00.03.00.00 2010-05-04

Firmware 00.03.01.00 (only Pike F-1100/1600)

1.	● New feature: Defect pixel correction
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Firmware 00.03.00.00 (only Pike F-1100/1600)

1.	● New camera F-1100B/C ● New camera F-1600B/C
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Firmware 00.03.03.00 (all Pikes)

1.	New features: <ul style="list-style-type: none">● Dual-tap offset adjustment (not Pike F-145B/C)● PWM (pulse-width modulation)● Input debounce
2.	Bug fixes (all Pikes): <ul style="list-style-type: none">● #694: Corrected: Random in-image frame counter in Row 0: DCam_DataFormatter changed Bug fixes (only Pike F-505): <ul style="list-style-type: none">● #666: Corrected: Pike F-505 bouncing trigger input in level mode lead to freezing camera● #676: Corrected: Pike F-505 showed irregular frame rates● #660: Corrected: Pike F-505 sequence mode and LUT: LUT switching was one step too early Bug fixes (only Pike-F-145 / Pike F-145-15fps): <ul style="list-style-type: none">● #624: Corrected: inverted double/triple image especially in High SNR mode

FPGA firmware 00.03.02.00 (only Pike F-505)

1.	New feature: <ul style="list-style-type: none">● Dual-tap offset adjustment
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FPGA firmware 0.3.2.0 (only Pike F-210)

1.	New features: <ul style="list-style-type: none">● Offset balance module added● Updated channel matcher ⇒ offset balance is available
2.	Bug fixes: <ul style="list-style-type: none">● Corrected: low-pass filter counter● #572: Revised sub-sampling mode (no speed increase available)

FPGA firmware 00.03.00.02 – 00.03.01.00 (all Pikes)

1.	New features: <ul style="list-style-type: none">● User adjustable gain references (#483)● SNR increasing binning mode (#490)
2.	Bug fixes: <ul style="list-style-type: none">● #491: Corrected: Anti-smear vertical stripes

	<ul style="list-style-type: none"> ● #348: Corrected: Turning off trigger delay caused image trigger ● #365: Corrected: Pike stopped working in level mode after closing / opening
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FPGA firmware 00.03.00.02 (only Pike F-145B/C and Pike F-145B/C-15fps)

1.	Bug fixes: <ul style="list-style-type: none"> ● #395: Optimizations related to IntEna delay and trigger delay
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FPGA firmware 00.03.00.01 (only Pike F-145B/C and F-505B/C)

1.	New camera: Pike F-505B/C
2.	Bug fixes: <ul style="list-style-type: none"> ● #370: Sequencing (gain and offset)

FPGA firmware 1.10 – 3.00 (Pike F-032/100/145/210)

1.	New features: <ul style="list-style-type: none"> ● Smear reduction ● Sequence mode ● SIS (secure image signature) ● Quick Format Change Mode ● 4 x/ 8 x binning and sub-sampling ● Packed 12-Bit Mode ● Support of new family member: Pike F-145-15fps
2.	Changes: <ul style="list-style-type: none"> ● Improved standard parameter update timing ● New firmware version registers
3.	Bug fixes: <ul style="list-style-type: none"> ● #323: Higher FPN at certain exposure time settings ● #341: HighSNR + Trigger requires 2 triggers to make image ● #342, #345: White balance does not work with mirror

FPGA firmware 1.15 – 3.00 (Pike F-421)

1.	New features: <ul style="list-style-type: none"> ● Smear reduction ● Sequence mode
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	<ul style="list-style-type: none"> ● SIS (secure image signature) ● Quick Format Change Modes ● 4 x/ 8 x binning and sub-sampling ● Packed 12-Bit Mode ● Improved standard parameter update timing ● New firmware version registers
2.	Bug fixes: <ul style="list-style-type: none"> ● #323: Higher FPN at certain exposure time settings ● #341: HighSNR + Trigger requires 2 triggers to make image ● #342, #345: White balance does not work with mirror

FPGA firmware 1.00 – 1.15 (Pike F-421)

1.	Improved image quality in Mono8 (#283)
2.	Corrected change from level mode to free-run during Iso-Ena (#292)
3.	Corrected LUT behavior (#304)


FPGA firmware 1.00 -1.10 (Pike F-032/100/145/210)

1.	Improved image quality in Mono8 (#283)
2.	Corrected change from level mode to free-run during Iso-Ena (#292)
3.	Corrected LUT behavior (#304)

Appendix

How to find out, which **firmware versions** your camera has:

First way

1. Start **AVT SmartView** (ask your local dealer for a copy of it). Double-click on the desired camera (e.g. Pike F-032B).
2. In SmartView window click on **Edit settings** button  .
3. Click on **Adv1** tab.

Here you find the **Version Information (Microcontroller and FPGA)**.

Second way

Read out the version information on register level as follows:

Register	Name	Field	Bit	Description
0xF1000010	VERSION_INF01	μC type ID	[0..15]	Always 0
		μC version	[16..31]	Bcd-coded version number
0xF1000014			[0..31]	Reserved
0xF1000018	VERSION_INF03	Camera type ID	[0..15]	See table below
		FPGA version	[16..31]	Bcd-coded version number
0xF100001C			[0..31]	Reserved
0xF1000020		---	[0..31]	Reserved
0xF1000024		---	[0..31]	Reserved
0xF1000028		---	[0..31]	Reserved
0xF100002C		---	[0..31]	Reserved
0xF1000030		OrderIDHigh	[0..31]	8 Byte ASCII Order ID
0xF1000034		OrderIDLow	[0..31]	

The µC version and FPGA firmware version numbers are bcd-coded, which means that e.g. firmware version 0.85 is read as 0x0085 and version 1.10 is read as 0x0110.

The FPGA type ID (= camera type ID) identifies the camera type.

You can find the ID list in the **Technical Manual** in the following chapter:

Extended version information register

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