

## APFIFF08 Advanced Application Software Change Note

**Application:** APFIFF08  
**Application Name:** Advanced application  
**Manual:** DPD01973

**APFIFF08 Advanced** application is able to operate only up to 599 Hz. Application source code is available only for special cases and is delivered without possibility go above 320 Hz.

### **APFIFF41 Advanced High Speed (Advanced HS)**

Will include APFIFF08 Advanced application functionality and has possibility go above 599 Hz with license key.  
Contact local support to get information how to obtain license key and application vcn, if not delivered from factory preloaded.  
Application source code is not available.

**NOTE 1:** This application is not kept backwards compatible. Read this change note and chapter "Compatibility issues in parameters between versions" before updating the application.

**NOTE 2:** Recommended control board for this application is NXP3, VB761.

**Update Note 1:** This application parameters are not kept backwards compatible if new features or improvements would be difficult to implement by doing so. Read this change note and chapter "Compatibility issues in parameters between versions" from manual before updating the application.

**Update Note 2:** It's recommended to use compare function for parameter changes when updating application, especially in cases when version number change is considerably high.  
Application is constantly developed; this includes changing parameter default values, and if parameters are directly downloaded to drive improved default values may be lost.

## **APFIFF08V237**

<b>Replaced Application:</b>	APFIFF08V236
<b>Used Firmware version:</b>	NXP4.91
<b>System Software requirement:</b>	NXPV197
<b>Released to field:</b>	-
<b>Used in production:</b>	-
<b>Changes in new application:</b>	

- V215 changes were causing PT100 fault if not all sensors were connected, fixed.

## **APFIFF08V236**

**Replaced Application:** APFIFF08V235  
**Used Firmware version:** NXP4.91  
**System Software requirement:** NXPV197  
**Released to field:** -  
**Used in production:** -  
**Changes in new application:**

- Advanced options 7 parameter could not be changed from keypad or from NCDriver, fixed.

## **APFIFF08V235**

<b>Replaced Application:</b>	APFIFF08V234
<b>Used Firmware version:</b>	NXP4.91
<b>System Software requirement:</b>	NXPV197
<b>Released to field:</b>	-
<b>Used in production:</b>	-
<b>Changes in new application:</b>	

- I/f frequency limit calculated from nominal frequency when changed.

## **APFIFF08V234**

**Replaced Application:** APFIFF08V228  
**Used Firmware version:** NXP4.91  
**System Software requirement:** NXPV197  
**Released to field:** -  
**Used in production:** -  
**Changes in new application:**

- Added Advanced Options 6 and 7 as parameters.
- Added parameter StartAngleOffset
- Encoder supervision parameter is locked in run state.
  - Activating selection 4 may cause over current fault.
- Added monitoring values PreventMCReady and NonReadyCouses.
- DTC identification updates for induction motor.
- SCTorqueCainSelect +96 is not reset when other than ID With Run is made.
- Automatic Start Angle Identification will work also motor type 2 and 4.
- Startup Wizard is disabled.
- Parameter automatic backup to keypad is disabled.

## **APFIFF08V228**

<b>Replaced Application:</b>	APFIFF08V226
<b>Used Firmware version:</b>	NXP4.83
<b>System Software requirement:</b>	NXPV197
<b>Released to field:</b>	-
<b>Used in production:</b>	-
<b>Changes in new application:</b>	

- Speed Scale and RMP format moved to be first parameters to better support NCDrive parameter download.

## **APFIFF08V226**

<b>Replaced Application:</b>	APFIFF08V225
<b>Used Firmware version:</b>	NXP4.83
<b>System Software requirement:</b>	NXPV197
<b>Released to field:</b>	14.12.2018
<b>Used in production:</b>	-
<b>Changes in new application:</b>	

- Added Closed Loop over voltage controller parameters to G2.6.5.9

## **APFIFF08V225**

<b>Replaced Application:</b>	APFIFF08V224
<b>Used Firmware version:</b>	NXP4.83
<b>System Software requirement:</b>	NXPV196
<b>Released to field:</b>	-
<b>Used in production:</b>	-
<b>Changes in new application:</b>	

- Added delay for PT100 fault to avoid faults trigger when drive is switched on.



## APFIF08V224

**Replaced Application:** APFIF08V220  
**Used Firmware version:** NXP4.83  
**System Software requirement:** NXPV196  
**Released to field:** -  
**Used in production:** -  
**Changes in new application:**

- Added sensorless control
- Added Encoder Response Warn; To OL
- Ident All for IM will include also DTC Identification
- Added Identification Fail information for monitoring (ID98).
- Parameter Group U/f Settings changed to Open Loop
  - Added I/f start to Open Loop Group. Implemented also for induction motor NXP00002V195.
- F56 Connected to Fault Word.
- Possible to set FB Fault logic to monitor CW.11 also with Control Options 1 B3
- Added identification variables as parameters.
- Added new identification modes.
- **Minor Compatibility issue**
  - TorqSpeedLimitCL default changed to Speed Control

## **APFIFF08V220**

**Replaced Application:** APFIFF08V219  
**Used Firmware version:** NXP4.83  
**System Software requirement:** NXPV192  
**Released to field:** 8.6.2017  
**Used in production:** 8.6.2017  
**Changes in new application:**

- Added monitoring signal FreqOut ABS UINT, calculated from motor speed to have freq out signal with two decimal
- Added monitor value Identfail (ID 98)
- Changed IdentOptions to 35 for PM motor when identification = 4

## **APFIFF08V219**

<b>Replaced Application:</b>	APFIFF08V217
<b>Used Firmware version:</b>	NXP4.83
<b>System Software requirement:</b>	NXPV192
<b>Released to field:</b>	11.10.2016
<b>Used in production:</b>	26.10.2016
<b>Changes in new application:</b>	

- Fieldbus redundancy support added for OPT-E3 and OPT-E5.

## **APFIFF08V217**

**Replaced Application:** APFIFF08V216

**Used Firmware version:** NXP4.76

**System Software requirement:** NXPV191

**Released to field:**

**Used in production:** 15.2.2016

**Changes in new application:**

- DC start and magnetization times removed by default.
- Data logger signals set in application level.

## **APFIFF08V216**

**Replaced Application:** APFIFF08V215

**Used Firmware version:** NXP4.74

**System Software requirement:** NXPV188

**Released to field:**

**Used in production:** 26.10.2015

**Changes in new application:**

- MC Status ID from 67 to correct 64.
- TorqStabGain and VoltStabGain values copied to HW DTC variables.

## **APFIFF08V215**

**Replaced Application:** APFIFF08V214

**Used Firmware version:** NXP4.74

**System Software requirement:** NXPV188

**Released to field:** August, 2014

**Used in production:**

**Changes in new application:**

- Added support for BH option board
  - Parameter and monitoring value names updated.

## **APFIFF08V214**

**Replaced Application:** APFIFF08V210

**Used Firmware version:** NXP4.74

**System Software requirement:** NXPV188

**Released to field:** June, 2014

**Used in production:**

**Changes in new application:**

- Improvements to identification handling on application level.
- Added possibility select RPM format independently of Hz format.
- Switching frequency initial maximum limit 3,6 kHz.
- Speed to AO was not scaled correctly when using other than default RPM format in closed loop control. Open loop control scaling will be fixed to system software release NXP3V189.
- When using torque scale 10000, acceleration above field weakening point was limited, fixed.

## **APFIFF08V210**

**Replaced Application:** APFIFF08V209  
**System Software requirement:** NXP00002V185  
**Used in production:**  
**Changes in new application:**

- Added CB control. Pulse and continuous functions.
- Added parameter to select what is "FBActualSpeed".
  - P2.13.3 FB Act.Speed Sel
  - Added "V: FB Scale Speed" ID1703, this is default signal that is send to fieldbus ("FBActualSpeed").
  - V: FB Actual Seed -> V: FB Actual.
- Control Options B13 to select if "V: FB Actual" is using absolute value.
- "V: Enc 1 Frequency" Changed to "V: Shaft Frequency", as this is from motor control variable "FW:ShaftFrequency".
- Added "V:Enc 1 Frequency" ID1164 uses frequency information from encoder board directly.



## **APFIFF08V209**

**Replaced Application:** APFIFF08V205  
**System Software requirement:** NXP00002V185  
**Used in production:** September, 2013 (20.9.2013)  
**Changes in new application:**

- Added AdvancedOptions5 as parameter
- Several changes in code structure, no direct affect to users.  
May reduce system load in some cases.

## **APFIFF08V205**

**Replaced Application:** APFIFF08V200

**System Software requirement:** NXP00002V185

**Used in production:**

**Changes in new application:**

- Motor identification improvements for induction motor and permanent magnet synchronous motor.
- Internal temperature compensation is activated when successful identification with run has been made, used for closed loop control.
- Name of Emergency Stop changed to Quick Stop.
- Ramp stop was changed to coasting if current was going too low even if conditional flying start was not used, fixed.
- Application has been recompiled with the latest firmware interface 4.69 to benefit from CPU load decrease.
- Quick stop will force motor control mode to speed control.
- Torque Select selections changed.
- It took few start attempts before 4 mA fault was reset permanently, fixed.
- Analogue input 2 4 mA monitoring fault was given faster than Analogue input 1, fixed to same time.
- PB Status Word updated always.
- GSW Data Default changed to 65.
- Added FB Speed Reference and FB Speed Actual as monitoring values.

## APFIF08V200

**Replaced Application:** APFIF08V114  
**System Software requirement:** NXP00002V184  
**Used in production:**  
**Changes in new application:**

- New manual and new parameter order, similar as with Marine, SIA, uGrid and AFE applications.
- Added under voltage controller parameters.
- Removed parameter locks form Fine Tuning Group and Fine tuning group is always visible.
- P2.6.6.9 DampingFilter TC minimum time set to 0.
- P2.6.7.20 & 21 Gear Ratio minimum value changed to 0 (zero).
- Delayed outputs are now inverted by own parameter not with inversion control.

- **Major compatibility issue:**

- **ID numbers has been changed to be more compatible with APFIF09 (Marine) and APFIF40 (SIA-II) applications:**

○ FreqRefInterp. TC:	ID1780 -> ID1184
○ Torque Scale:	ID1601 -> ID1247
○ DeadTimeComp.	ID1580 -> ID1751
○ DeadTimeContCurL	ID1581 -> ID1752
○ DeadTHWComp.Disa	ID1704 -> ID1750
○ ContrInSignal ID	ID1582 -> ID1580
○ Contrl Off Limit	ID1583 -> ID1581
○ Contrl On Limit	ID1584 -> ID1582
○ Contrl Off Value	ID1585 -> ID1583
○ Contrl On Value	ID1586 -> ID1584
○ ControlOutSignID	ID1587 -> ID1585
○ Control Mode	ID1588 -> ID1586
○ Control Filt TC	ID1589 -> ID1721
○ I/f Control Lim	ID1608 -> ID1790
○ I/f Current	ID1609 -> ID1693
○ FBFaultDelay	ID1500 -> ID1850
○ ID Control DI B1	ID1574 -> ID1277
○ B10 Value	ID1578 -> ID1193
○ B11 Value	ID1575 -> ID1182
○ Ramp Rate	ID1579 -> DI1112

## **APFIFF08V114**

**Replaced Application:** APFIFF08V112  
**System Software requirement:** NXP00002V184  
**Used in production:**  
**Changes in new application:**

- Drive did not go to Ready state in Closed Loop control, fixed.
- Small changes that did and affect functionality.

## **APFIFF08V112**

**Replaced Application:** APFIFF08V108  
**System Software requirement:** NXP00002V184  
**Used in production:**  
**Changes in new application:**

- Firmware updated to latest, only possible to use in NXP00002V184

## **APFIFF08V109**

**Replaced Application:** APFIFF08V108  
**System Software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- High Speed support without license requirements added.  
Speeds up to 599 Hz.
- Frequency scale parameter added.
- Max Frequency upper limit was changed from a constant value to changing value depending on Frequency Scale, limiting maximum frequency to 599 Hz.
- Value Control functionality.
- Added two DIN support for Value ID control function
- Added ramp rate for DIN ID control function
- Added FreqRefInterpolatorTC function
- Redundant profibus and possibility to stay run when profibus communication fault.
- Added sine filter parameter sizes.
- Torque reference Analogue input are read now at 1 ms time level.
- Analogue output 1 is at 1 ms time level when filtering time is set to zero.

## **APFIFF08V099**

**Replaced Application:** APFIFF08V098

**System Software requirement:** NXP00002V174

**Used in production:**

**Changes in new application:**

- Removed 1 ms delay from the Ramp follower function.
- Added dead zone function for torque reference.
- Joystick function hysteresis is now dead zone function.

## **APFIFF08V098**

**Replaced Application:** APFIFF08V097  
**System Software requirement:** NXP00002V174

**Used in production:**

**Changes in new application:**

- Speed step and torque step can be given always, previously only during PC control. Also limit of steps are removed.



## **APFIFF08V097**

**Replaced Application:** APFIFF08V096  
**System Software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- FieldBus warning indication if communication faults in slot that is not active control place.
- Warning word updated with FB faults.
- Added support for second PT100 board

## **APFIFF08V096**

**Replaced Application:** APFIFF08V094  
**System Software requirement:** NXP00002V174  
**Used in production:** June 30, 2008 (30.6)  
**Changes in new application:**

- Added FlyStartOptions as parameter
- TorqueStabLimit as parameter, default to 700
- Negative value for DeadTimeCompensation allowed
- TorqStabGainFWP limits to -4000...4000
- TorqStabGain limits to -4000...4000
- Added parameter current limit options
- Added parameter AdConvStartShift
- Torque speed limit for Closed Loop is working with OL control.
- Default response for Input switch response is now stop by coasting.
- Added response parameter for Safe Disable
- Added DO for Safe Disable status
- Added Last Active Fault for monitoring
- Added last Warning for monitoring
- Control Options B13 will active SCTorqueChainSelect B5 and B6. Torque Calculation improvement in CL run.
- Increases Duty cycle parameter maximum limit to 150 %
- Added VoltageCorrection\_Kp as parameter
- Added VoltageCorrection\_Ki as parameter
- License key needed when above 320 Hz.
- Added function to disable encoder fault when brake is closed
- When drive is ramp follower Brake Control speed limit function is bypassed
- Added separate Fieldus fault for slot E, this allows different response when using control slot selector.

## **APFIFF08V094**

**Replaced Application:** APFIFF08V092  
**System Software requirement:** NXP00002V171  
**Used in production:** December 19, 2007 (19.12)  
**Changes in new application:**

- Improvements to disabling Load Drooping with control options and Zero Freq Limit.
- Added inverted Run Enable.
- Added inverted Mechanical brakes acknowledge.
- Improvement to Frequency scale function.
- Added Fine tuning parameters.

## **APFIFF08V092**

**Replaced Application:** APFIFF08V090  
**System Software requirement:** NXP00002V164  
**Used in production:** October 23, 2007 (23.10)  
**Changes in new application:**

- Added tuning parameters for I/f star function for PMSM

## **APFIFF08V090**

**Replaced Application:** APFIFF08V086  
**System Software requirement:** NXP00002V164  
**Used in production:** June 25, 2007 (25.6)  
**Changes in new application:**

- Application compiled with function that reduce process load.

## **APFIFF08V086**

**Replaced Application:** APFIFF08V085  
**System Software requirement:** NXP00002V164  
**Used in production:** May 10, 2007 (10.5)  
**Changes in new application:**

- Corrections to parameter names
- Analogue input 3 and 4 were using wrong filtering formats
  - 1,000 s was actually 10,000 s filter time
- AI3 and AI4 can now connected to any parameter by using ID numbers
- PT100 inputs can be now monitored in reversed order.
- Problem with Run command fixed when making identification run with NCDrive.
  - Drive requested Stop command after identification.
- When using Adjust Input function application did not used scaling factors, fixed.

## APFIFF08V085

**Replaced Application:** APFIFF08V084  
**System Software requirement:** NXP00002V164  
**Used in production:** April 10, 2007 (10.4)  
**Changes in new application:**

- Added watchdog pulse monitoring to FBControlWord.B11/B3
  - a. Feedback in FBStatusWord B15 if application level State Machine in use.
- Added custom input scaling for FB Reference and FB Actual Speed.
- Speed error function can be used also in OL mode
- Added support for Fast Profibus
- Parameter set function corrected
  - a. Set function disabled if selected input is less than A.1.
  - b. Set change allowed only in stop state
- More PMSM identification parameters to parameter list
  - a. Ls Voltage Drop
  - b. Motor BEM Voltage
- Earth fault current limit parameter added.

## **APFIFF08V084**

**Replaced Application:** APFIFF08V083  
**System Software requirement:** NXP00002V164  
**Used in production:** November 10, 2006 (10.11)  
**Changes in new application:**

- Added conditional flying start function
- Filtering time for joystick reference was wrong when control place was keypad or fieldbus, fixed.
- Added possibility to disable hardware filtering for A-Type boards



## **APFIFF08V083**

**Replaced Application:** APFIFF08V082

**System Software requirement:** NXP00002V164

**Used in production:** July 3, 2006 (3.7)

**Changes in new application:**

- Added Smooth brake logic G2.3.9 Brake Control
- CL and OL Start magnetization current is set by default 70 % of Unit Nominal Current.
- Start DC magnetization time is set by default 100 ms OL and CL.
- Information about negative frequency in Status Word
- Information about Flux Ready in Status Word
- Flux ready state increased from 75 % to 90 %
- Added DIN control for parameters by using ID numbers
- Wrong text in P2.3.3.29, fixed
- NCDrive help comments updated.

## **APFIFF08V082**

**Replaced Application:** APFIFF08V081  
**System Software requirement:** NXP00002V164  
**Used in production:** April 7, 2006 (7.4)  
**Changes in new application:**

- Scaling areas of analog inputs and FB scaling is increased to from -320 Hz to +320 Hz.
- Motor nominal minimum frequency limit decreased to 5 Hz
- Motor FWP minimum frequency limit decreased to 5 Hz

## **APFIFF08V081**

**Replaced Application:** APFIFF08V080  
**System Software requirement:** NXP00002V164  
**Used in production:** March 31, 2006 (31.3)  
**Changes in new application:**

- Panel reference was not limited by minimum frequency. Fixed.
- In Panel control direction command was overwritten if direction change lasted more than 3 s. Fixed.
- Start/Stop function 5 did not work. Fixed
- Fieldbus actual speed scaling was wrong. Fixed.
- Added Control Option function that will force LoadDrooping to zero when reference is zero.
- If IO Fault Reset is high other fault resets are ignored. Fixed