

# System Interface (SIA-I) Application Software Change Note APFIFF10

**Product:** Vacon NXP  
**Application:** APFIFF10  
**Application name:** System Interface Application  
**Manual:** UD01079

**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.

## **APFIFF10V244**

|                                     |              |
|-------------------------------------|--------------|
| <b>Replaced Application:</b>        | APFIFF10V243 |
| <b>Used Firmware version:</b>       | NXP4.69      |
| <b>System Software requirement:</b> | NXP00002V185 |
| <b>Released to field:</b>           | -            |
| <b>Used in production:</b>          | -            |
| <b>Changes in new application:</b>  |              |

- Code optimization
- Removed unused variables
- Removed monitoring signals that are not updated.
- Minor manual updates.

## **APFIFF10V243**

**Replaced Application:** APFIFF10V242  
**Used Firmware version:** NXP4.69  
**System Software requirement:** NXP00002V185  
**Released to field:** -  
**Used in production:** -  
**Changes in new application:**

- Converted to Vacon Programming
- Firmware to 4.69.
- System Load reduction from 55 % to 45 %

## **APFIFF10V242**

**Replaced application:** APFIFF10V240  
**System software requirement:** NXP00002V180  
**Used in production:**  
**Changes in new application:**

- Added Fast analogue input 1. Control Options B13.
- OPT-AF status was not updated when DC was down, fixed.

## **APFIFF10V240**

**Replaced application:** APFIFF10V239  
**System software requirement:** NXP00002V180  
**Used in production:**  
**Changes in new application:**

- Added follower fault function

## **APFIFF10V239**

**Replaced application:** APFIFF10V237  
**System software requirement:** NXP00002V180  
**Used in production:**  
**Changes in new application:**

- Added Speed Control Out P- and I-part as values for monitoring

## **APFIFF10V237**

**Replaced application:** APFIFF10V236  
**System software requirement:** NXP00002V175  
**Used in production:**  
**Changes in new application:**

- Maximum switching frequency limit was 0 kHz, fixed.

## **APFIFF10V236**

**Replaced application:** APFIFF10V233  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Safe Torque Off status to Alarm word bit 5 status is taken directly from OPT-AF status, thus removing delay from the signal when Safe Off is removed..
- Modulation index limit moved to correct place, was not mend only for PMSM
- In open loop control, closed loop torque speed limits are active by default.
- Added identification parameter IrAddZeroPointVoltage
- Added identification parameter LsVoltageDrop
- Added identification parameter MotorBEMVoltage.
- Added identification parameters IU, IV and IW Offset.
- Added identification parameter Estimator Kp.
- PWM Synch parameter removed, was not used.
- DriveSynch selection is now behind one parameter, MF Mode
- Added disabled selection to PMSM identification mode. Needed when only pulse identification is used.
- Added parameter to select how Load Drooping is removed based on actual speed,
- Added two DIN ID Control functions
- Added Value ID control function
- Removed Encoder fault response Warning OL was originally only testing code.



## **APFIFF10V233**

**Replaced application:** APFIFF10V232  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added open loop speed regulator parameters
- Added Frequency Reference Interpolator TC

## **APFIFF10V232**

**Replaced application:** APFIFF10V231  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added speed error monitoring function.
- Generator side power limit works also in open loop control.
- EMStop by constant power is directly given as percentage of generator power limit, not as Nm or kW.
- Ramp Time Reference parameter did not have ID number.
- Removed "partial" brake resistor load limit function "Brake Resistor Load Limit", (generator side torque limit).
- Several changes to how OL emergency stop operates.

## **APFIFF10V231**

**Replaced application:** APFIFF10V230  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Run led will blink if there is restart delay active.
- Panel speed ref is retained over power down situation.

## **APFIFF10V230**

**Replaced application:** APFIFF10V229  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Identification run with rotating motor was not possible if Closed Loop mode was selected before identification run, changed.

## **APFIFF10V229**

**Replaced application:** APFIFF10V228  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Improvement to PI control function
- Keypad reference is not limited to zero in stop state by brake limiting function.

## **APFIFF10V228**

**Replaced application:** APFIFF10V227  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added Iq limit for encoder fault and fast frequency limit.
- Added phase offset to DriveSynch group
- Added PI function
- Added monitoring for analogue input 1
- Added monitoring for analogue input 2
- Minimum Nom frequency 8,00 Hz
- Minimum motor Voltage 90 V
- Minimum motor rpm 50 rpm

## **APFIFF10V227**

**Replaced application:** APFIFF10V226  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added DriveSynch support
- ID Run status was not updated to keypad, fixed.

## **APFIFF10V226**

**Replaced application:** APFIFF10V225  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added analogue output adjust function
- KTY support for 2 and 3 in series
- Ramp time reference point can be selected between maximum speed and process speed.



## **APFIFF10V225**

**Replaced application:** APFIFF10V224

**System software requirement:** NXP00002V174

**Used in production:**

**Changes in new application:**

- Fixed problem in reference scaling when nominal frequency was not integer.
- Added Open loop Control power limit function for motoring side
- LoadDrooping related to speed reference, load drooping value is set value at NominalFrequency.
- KTY temperature sensor value changed to work with 2 mA.

## **APFIFF10V224**

**Replaced application:** APFIFF10V223  
**System software requirement:** NXP00002V174  
**Used in production:** 8<sup>th</sup> January, 2009  
**Changes in new application:**

- Identification modes are now set correctly based on motor type.
- Added new brake control logic. Old brake functionality can be activated by P2.6.9 Control Options.
- Torque memory minimum time is now -1 ms fixing parameter download error problem.
- When identification mode 4 is selected parameter is now set back to 0 after magnetization current has been calculated.
- Motor Type parameter was not affecting until power down, fixed.

## **APFIFF10V223**

**Replaced application:** APFIFF10V221  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Added application level parameter edit lock.
- Speed Controller relative gain area increased.

## APFIFF10V221

**Replaced application:** APFIFF10V218  
**System software requirement:** NXP00002V174  
**Used in production:**  
**Changes in new application:**

- Possibility to disable external acceleration compensation so that TorqueRefChain is updated while in speed control.
- When using long filtering time it takes long time before torque reference is on correct level.
- PullOutTorque removed from Torque Scaling POU's. Scale is always 1000 = 100,0 %
- Added reset function for "Start" command when control place is changed.
- WindowNegOffLimit scaling was wrong, corrected.
- Added brake chopper modes 4 and 5, this with testing pulse
- Parameter Set function was always trying to load set 1, even if DIN was not used. If something was stored to Set 1 this did overwritten active set at power up.
- Added Power On Time, Energy Meter counter and Energy Trip counter, No monitoring variables. only ID number for FB use.
- CL actual speed scaling do not anymore "compensate" Speed Share affect. Now if speed share is 150 % actual speed feedback is also 150 %
- FB WD pulse fault delay 0,5 s -> 1,10 s
- FB WD Pulse fault maximum delay to 5,00 s
- Added function to keep drive running when FB fault comes with Profibus Board.
- Possibility too use inverted order of PT-100 input. e.g. only input 3 where sensors can be in series.
- SystemBus diagnostic is now faster.

## **APFIFF10V218**

**Replaced application:** APFIFF10V117

**System software requirement:** NXP00002V171

**Used in production:**

**Changes in new application:**

- Parameter P2.5.9 removed. It is written to 1 when fast Profibus is used.
- KTY84 temperature sensor support added. It can be connected to Analog input 1 or 2. Also "PT100 Temp" fault text has been replaced with "Meas Temp" and parameter and monitor value texts have been modified respectively.
- Prevention of start-up function has been removed. The same function is now made with OPT-AF board.
- Motor temperature compensation function improved.

## **APFIFF10V117**

**Replaced application:** APFIFF10V116  
**System software requirement:** NXP00002V171  
**Used in production:** 20<sup>th</sup> December, 2007  
**Changes in new application:**

- Motor control mode parameter (P2.7.4) has been modified. Option "2=Open loop torque" has been changed to "2=Open loop speed/torque". The configuration is chosen by the parameter Torque select (P2.7.5) like in closed loop.
- New monitor value V1.2.46 added. It shows a code of the last active fault.
- Compiled with the IEC61131-3 compiler.

## APFIF10V116

**Replaced application:** ARFIF02V106  
**System software requirement:** NXP00002V170  
**Used in production:** April, 2007  
**Changes in new application:**

- Fixed IO inching function related to used ramp times.
- Fixed update problem in V1.1.10 Din Status Word 1.
- Fixed fault reset problem when forced IO control was used and reset command was given from IO.
- Forced to IO control fault reset problem fixed.
- Torque scale problem fixed (Format change).
- Added function that allows control of any parameter by DI.  
G2.2.3 Connect DIN > ID
- Added Auto reset function P2.13.30 Auto Reset Word 1
- Data mapping default ID numbers corrected
  - 1105 -> 4 P2.17.9
  - 1171 -> 15 P2.17.13
- Added parameter P2.5.9 Speed Reference Interpolator TC.
- Flux Ready signal is kept TRUE when it goes first time to TRUE after start command.
- Added parameter to activate Fast Profibus P2.4.19.
- Added Control Options b2, torque calculation estimation.
- Fixed torque format update when using 100,00 % scaling.
- Fixed torque format update problem when only 24 V was used.
- Added P2.9.22 Speed Error Low Pass Frequency limit.
- Added anti swing functions.
  - P 2.9.23      AntiSwinLowPasTC
  - P 2.9.24      AntiSwingGain
  - P 2.9.25      AntiSwingTC
- Fixed fast Profibus process data update problem.
- Fixed problem with Earth fault protection.
- Added Torque reference selection Master Speed Control Out.
- Fixed double scaling error in FB reference when ProfiDrive was used.

## **APFIFF10V106**

**Replaced application:** APFIFF10V105  
**System software requirement:** NXP00002V155  
**Used in production:** June, 2006  
**Changes in new application:**

- Possibility to use adjustable slip compensation function with PT100. Parameter group G2.9.22.