

DC-DC Converter Software Change Note ADFIF101

Application: ADFIF101
Application Name: DC-DC Converter Application
Manual: DPD01886A

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.

ADFIF101V103

Replaced Application:	ADFIF101V102
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- Added support for NX8, DCNomVoltage = 963 Vdc.
- Source Min Voltage default set to fixed 200,0 Vdc instead of calculated value if parameter was zero.
 - If value was set to zero, in next power up parameter was 200 Vdc or 345 Vdc depending on unit voltage class.

ADFIF101V102

Replaced Application: ADFIF101V100
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- FB Process Data, current and voltage reference handling moved from 10 ms task to 1 ms task.
- OPT-BH was giving short circuit warning before reading from option board has stabilized on 24 Vdc power up, fixed.

ADFIF101V100

Replaced Application:	ADFIF101V099
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- Power limit function is activated after drive is in run state after a delay (200 ms).
 - Zero voltage was causing error in limit calculation.

ADFIF101V099

Replaced Application:	ADFIF101V098
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- Wrong default setting in P2.2.11.1 V Ref at Start.
 - Was 4 fixed to 3.

ADFIF101V098

Replaced Application: ADFIF101V097
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- CL Voltage reference correction was not send to follower drives, fixed.
- Added V1.15.21 Voltage U % #,## ID3203
- Added V1.15.22 Voltage V % #,## ID3204
- Added V1.15.23 Voltage W % #,## ID3205
 - Scaled to unit nominal DC Voltage

ADFIF101V097

Replaced Application:	ADFIF101V096
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- FR5 500 Vdc ready level from 250 Vdc to 200 Vdc with Black Start settings.
- Added Ramp rated for current reference
 - P2.2.10.2 CurrRefRampDown ID1811
 - P2.2.10.1 Curr.Ref.RampUp ID1810

ADFIF101V096

Replaced Application: ADFIF101V095
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- Added two Klixon inputs F66 Klixon
 - P2.3.2.21 Klixon In 1 ID780
 - P2.3.2.22 Klixon In 2 ID781
 - P2.10.1.7 Klixon Response ID782
- Added input switch monitoring F55 Input Switch
 - P2.3.2.23 Input Switch ID1209
 - P2.10.1.9 Input Switch Respond ID785
- Added Ambien temperature monitoring. F88 Ambien Temp
 - P2.3.2.24 Ambient Temp ID783
 - P2.10.1.8 Ambien Temp Respond ID784

ADFIF101V095

Replaced Application:	ADFIF101V094
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- Added power limit functions
 - P2.5.5.1 Charge Power Limit
 - P2.5.5.2 Discharge Power Limit
- Added active current monitoring function.
 - Warning or fault when certain current level is exceeded.
 - P2.10.8.1 CurrentMonitoringResponse
 - P2.10.8.2 High Fault Limit
 - P2.10.8.3 High Warning Limit
 - P2.10.8.4 Low Warning Limit
 - P2.10.8.5 Low Fault Limit

ADFIF101V094

Replaced Application: ADFIF101V092
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- **Compatibility note:** Source voltage limits in current control mode are now operating as limit regulators, thus it's possible to charge or discharge source while voltage stays at minimum or maximum limit. Read manual for updated descriptions of Source DC Voltage limits.
[ADFIF101 DCDC New Source Voltage Limit Regulator](#)
- **Compatibility note:** On start charging and discharging current limits are released with ramp. default 1000,0 %/s
 - P2.5.1.4 Charge Ramp Up ID1502
 - P2.5.1.5 Discharge Ramp Up ID1532
- Added monitoring signals for temperature measurement channels 1 – 6
- Added Cooling monitoring function
 - Digital input: P2.3.2.20 Cooling monitor ID750
 - Response parameter: P2.10.7.2 Cooling fault response ID762
 - Delay parameter. P2.10.7.1 Cooling fault delay ID751
- Added response selection for quick stop function P2.10.1.5 Quick Stop Indication ID1543
- Added response selection for Run Enable digital input P2.10.1.6 Run Enable Indication ID1177.
- Added P2.5.4.4 Reverse current limit, This parameter defined how much current reference can be reversed to keep the voltage at correct level.
- Added Quick Stop function.
 - Quick Stop Digital input
 - P2.3.2.15 Quick Stop ID1213
 - Quick Stop active bit to Status Word.b11
 - Quick stop indication selection parameter
 - P2.10.1.5 Quick Stop Indication ID1543

- Added Run Enable warning F62
 - Parameter to select response
 - P2.10.1.6 Run Enable Indication ID1177
 - Indication of Warn or fault to Warning Word.B12
- Added 4 digital inputs for source current limitation
 - P2.3.2.16 Charge Limit 1 ID1500
 - P2.3.2.17 Charge Limit 2 ID1501
 - P2.3.2.18 Discharge Limit 1 ID1506
 - P2.3.2.19 Discharge Limit 2 ID1624
 - And corresponding limit parameters
 - P2.5.1.6 Charge Limit 1 ID1503
 - P2.5.1.7 Charge Limit 2 ID1625
 - P2.5.1.8 Discharge Limit 1 ID1513
 - P2.5.1.9 Discharge Limit 2 ID1514
 - When both digital inputs are high limit is set to zero.
- Signal Fault monitoring has now warning limits for high and low signals.
 - P2.11.5.3 High Fault Limit ID1943
 - P2.11.5.4 High Warn Limit ID1945
- Added reference Error monitoring function for current reference.
 - P2.10.6.1 Ref Error Response ID735
 - P2.10.6.2 Ref Error Hysteresis ID753
 - P2.10.6.3 Ref Error Delay ID754
- Added Source voltage limit tripping function
 - P2.10.6.4 Source Vdc Lim Response ID1012
 - P2.10.6.5 Source Vdc Lim Delay ID737
- Added Digital Input inversion parameter
 - P2.3.7.1 DI Inversion ID1091

ADFIF101V092

Replaced Application: ADFIF101V090
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- Added P3.3-5 Multi-Monitor item selection by ID number.
- Added G2.11.5 Signal Fault function.
- Added G2.10.5 External fault
 - Added response for second External Fault input.
- Added P2.9.38-41 SW B11-B14 ID.Bit
 - To select what bits to include in FB Status Word.
- Added support for second OPT-BH Temperature measurement board.

ADFIF101V090

Replaced Application: ADFIF101V089
Used Firmware version: NXP 5.01
System Software requirement: NXPV203
Released to field: -
Used in production: -
Changes in new application:

- Black start for FR4 unit reduced from 250 Vdc to 200 Vdc
 - Activated with P2.5.2.6 EnableBlackStart

ADFIF101V089

Replaced Application:	ADFIF101V088
Used Firmware version:	NXP 5.01
System Software requirement:	NXPV203
Released to field:	-
Used in production:	-
Changes in new application:	

- PI controller was updated to newer version.
 - Reduces system load.
- IO Start mode 2 did not have reset from control place change, fixed.

ADFIF101V088

Replaced Application: ADFIF101V087

Used Firmware version: NXP 5.01

System Software requirement: NXPV203

Released to field: -

Used in production: -

Changes in new application:

- Added P2.7.4.6 DCLinkMeasCalib.
- Current reference maximum limits to 300 %.
 - Needed when big drive rated current has been set to small value.
- Added P2.2.9.3 DirectVdcControl.
 - Same as DCDC Options B12, mindex control.

ADFIF101V087

Replaced Application: ADFIF101V086

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Air-cooled FI4-FI8 500 Vdc and 690 Vdc units have maximum switching frequency of 6,0 kHz.
- P2.5.2.6 LK Low DC renamed to EnableBlackStart
 - No longer license needed.
 - Any value above 0 enables functionality. Thus, no action needed when updating from version where license was needed.

ADFIF101V086

Replaced Application: ADFIF101V082

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Added monitoring signal Power Ref % ID1700

ADFIF101V084

Replaced Application: ADFIF101V082

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- P2.6.4.5 VoltAtMinSignal removed as unnecessary parameter.
- Removed 10 ms delay when reference is given from fieldbus.

ADFIF101V082

Replaced Application: ADFIF101V080
Used Firmware version: NXP4.90
System Software requirement: NXPV196
Released to field: -
Used in production: -
Changes in new application:

- Added analogue output content signals
 - DC Voltage
 - DC Current, bidirectional
 - Power, bidirectional
 - FB Analogue Output
 - Value Control Output

ADFIF101V080

Replaced Application: ADFIF101V079

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- If unsupported P2.9.36 Control Slot Select was requested system load may have increased. Now selection is set internally only once to avoid system load increase.
- Added Delayed Digital Outputs 1 & 2.
- Added Measured Source DC voltage to default datalogger signals.

ADFIF101V079

Replaced Application: ADFIF101V076

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- When Source Voltage feedback was given from fieldbus
Source Mead Vdc was not updated, fixed.
- Added XY-Control mode for Value Control function.

ADFIF101V077

Replaced Application: ADFIF101V076

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Possible to select how Fault and Warning indication to fieldbus and DO behaves. P2.10.1.4 FaultWarnindicat
 - Static signal, as long as warning or fault is active
 - New fault or warning toggles signal for one second.
 - Signal toggles in new fault or warning and status needs to be reset to get signal down.

ADFIF101V076

Replaced Application: ADFIF101V073

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Possible to use voltage feedback from fieldbus for closed loop voltage control.
 - Use Fast Fieldbus (1ms)
 - Use FB Process Data In 1 for voltage feedback.
- Source minimum and maximum voltages are monitored against measured voltage if Closed Loop Voltage control request is active.
- Reference are limited when reaching minimum or maximum source voltages.
- Added I-controller for voltage limits in case of current controller is active.
 - 2 % reference change allowed from I-controller to keep battery voltage at maximum or minimum level.

ADFIF101V073

Replaced Application: ADFIF101V072
Used Firmware version: NXP4.90
System Software requirement: NXPV196
Released to field: -
Used in production: -
Changes in new application:

- Power control mode added as an option for
 - Control Mode ID1858
 - IO Control Mode ID1856
 - FB Control Mode ID1848
- Common power reference ID1869
- Fieldbus power reference ID1141
- IO power reference selection ID1620
- Fieldbus power reference selection ID1621

ADFIF101V071

Replaced Application: ADFIF101V070

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Added pulse control to start signals
 - Added parameters Start/Stop logic ID 300 and Start signal 2 ID 404

ADFIF101V070

Replaced Application: ADFIF101V069

Used Firmware version: NXP4.90

System Software requirement: NXPV196

Released to field: -

Used in production: -

Changes in new application:

- Added support for 16 fieldbus Process Data variables
 - PD 9-16 are visible if a fieldbus board with 16 PD support is in slot D or E.
 - PD 9-16 can be taken into use with the Control Slot Selector -parameter.

ADFIF101V069

Replaced Application: ADFIF101V068
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: -
Used in production: -
Changes in new application:

- Status Word; removed under voltage and over voltage regulator status from Any Regulator Active.

ADFIF101V068

Replaced Application: ADFIF101V067
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: -
Used in production: -
Changes in new application:

- Rising trig monitored for Fault reset from fieldbus, was preventing fault resets from other control places.
- Added individual measuring temperatures for one board.
- Added multi monitoring group to keypad.
- Added "Source DC Ref. In", voltage reference before ramp.

ADFIF101V067

Replaced Application: ADFIF101V066
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: 11.10.2017
Used in production: -
Changes in new application:

- Phase reference mode: 2 / Same was following IU Curr. Ref, fixed to follow Common Current reference.

ADFIF101V066

Replaced Application: ADFIF101V065
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: 11.10.2017
Used in production: -
Changes in new application:

- Master-Follower Synch fault monitored only when power unit has sufficient DC-Link voltage
- Master-Follower Synch fault by default to Fault.

ADFIF101V065

Replaced Application: ADFIF101V061
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: 4.10.2017
Used in production: -
Changes in new application:

- Closed Loop Control status added to Status Word B00
- Closed Loop PI controlled is freezed in case limit controllers are active.
- Source Meas Vdc ID1164 with one decimal.
- Identification parameter selection was not stored, fixed.
- StartUpWizard disabled.
- Discharge indication was active with +0,5 % value, changed to -0,5 %.
- Added external fault 2
- Added FB DIN DO parameters.
- Added possibility have same current in all phases. Individual phase current control.

ADFIF101V061

Replaced Application: ADFIF101V058
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: -
Used in production: -
Changes in new application:

- Closed Loop voltage control development.
- PC start was not reset when control place changed, fixed.
- Added Voltage Reference Chain monitoring group.
- 4 mA fault logic added for analogue input 1 & 2.
- Added measured DC voltage in Vdc for monitoring.
- Monitoring signal reorganisation.
- Source Measured Vdc did not work, fixed.
- In Closed Loop control identification run tripped the drive to closed loop fault, fixed.

ADFIF101V058

Replaced Application: ADFIF101V057
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: -
Used in production: -
Changes in new application:

- Added monitoring signals for Analogue Input 1 and 2
- Analogue output 1 scaling was by default 0 %, fixed to 100 %
- Added digital output for charging indication.
 - Output high when charging is more than 0,5 %.
- Added digital output for discharging indication.
 - Output high when discharging is more than 0,5 %.
- Added analogue output signal for Measured Source Voltage
- Added new parameter for discharge resistance.
- Common voltage reference moved to G2.1
- Common current reference moved to G2.1
- Added reference selection for IO and FB control places
 - Common Voltage and Current Reference
 - FB Voltage and Current reference

ADFIF101V057

Replaced Application: ADFIF101V055
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: 11.4.2017
Used in production: -
Changes in new application:

- Reference handling parameter order changes.
- Added second analogue output
 - Added signal Source Voltage
- Added digital output for charging indication.
- AI1 and AI2 possible to control from fieldbus when set to 0.1
- Added analogue input monitoring signals.
- Added FB WD Delay parameter for activation WD function.

ADFIF101V055

Replaced Application: ADFIF101V053
Used Firmware version: NXP4.83
System Software requirement: NXPV192 (NXP3)
Released to field: 16.1.2017
Used in production: 20.1.2017
Changes in new application:

- Master-Follower function added.
- Follower follows master current and voltage references, regardless how follower settings has been set.
- Keypad communication warning was coming while in follower mode, fixed.
- External fault response set to fault by default.

ADFIF101V053

Replaced Application: ADFIF101V052
Used Firmware version: NXP4.80
System Software requirement: NXPV192 (NXP3)
Released to field:
Used in production: 24.11.2016
Changes in new application:

- Under voltage reference was ramped from zero on power up situation, now set to actual dc voltage level until start command is received.

ADFIF101V052

Replaced Application: ADFIF101V047
Used Firmware version: NXP4.80
System Software requirement: NXPV192 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Improvements to low source voltage stability behaviour.
- Keypad text fix.
- Minimum source voltage limit to 24 Vdc
- Small optimization when references are released after the start command.
- Minimum and Maximum source voltage hysteresis changed that voltage do not go above set limit or below set limit.
 - Was exceeding the limits by half of hysteresis value.
- Datalogger default signal changes.

ADFIF101V047

Replaced Application:	ADFIF101V046
Used Firmware version:	NXP4.80
System Software requirement:	NXPV192 (NXP3)
Released to field:	
Used in production:	16.8.2016
Changes in new application:	

- Fixed one keypad text.

ADFIF101V046

Replaced Application: ADFIF101V045
Used Firmware version: NXP4.80
System Software requirement: NXPV192 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Default writing from AI to ID1866 removed. Needs to set manually if external measurement is used.

ADFIF101V045

Replaced Application: ADFIF101V042
Used Firmware version: NXP4.80
System Software requirement: NXPV191 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Datalogger EEPROM fix.
- Code execution order improvements. Reference has now 10 ms faster reaction time.
- Added thermal monitoring functions.
- Added OPT-BH support for one board.

ADFIF101V042

Replaced Application: ADFIF101V037
Used Firmware version: NXP4.80
System Software requirement: NXPV191 (NXP3)
Released to field:
Used in production: 11.9.2015
Changes in new application:

- Drive did not go ready state on fieldbus control when Basic State Machine was used, fixed.
- Under Voltage drooping was not working, fixed.
- Power [%] monitoring signal added, scaled with parameter Source Nominal Power.

ADFIF101V037

Replaced Application: ADFIF101V034
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Thermistor fault added.
- External fault added.
- Charge maximum time function added.
- Source Current reference had a wrong format, fixed.

ADFIF101V034

Replaced Application: ADFIF101V033
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Status Word B04 was not showing Discharging Allowed status, fixes.
- DIN Status Word 1 & 2 added.

ADFIF101V033

Replaced Application: ADFIF101V032
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production: 8.6.2015
Changes in new application:

- Added monitoring signals
 - Fault Word 1
 - Fault Word 2
 - Warning Word 1
- Added fault simulation function
- Added DI functions for forced control places
 - Keypad Control
 - IO Control
 - Fieldbus Control
- Added "Inching" function for DC Current reference.
 - Two different references, activated with digital inputs.
 - These digital inputs will also start the drive.
- Selection for control mode when control place is IO Control.

ADFIF101V032

Replaced Application: ADFIF101V031
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Added ID Control functions, Value ID Control and DIN ID Control.

ADFIF101V031

Replaced Application: ADFIF101V030
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- DC Ready digital output added.

ADFIF101V030

Replaced Application: ADFIF101V029
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- V Ref Start default to 90 %.
- DC-Link Current has unit of A, fixed to %

ADFIF101V029

Replaced Application: ADFIF101V024
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- More information to Status Word
 - Discharge Allowed B04
 - Charging Allowed B05
 - Voltage Control Active B14
- Under voltage reference is ramped from actual DC-Link voltage to set reference, 200 ms after run status.
- Source minimum voltage default 50 % of Source Nominal Voltage.
- Improvements to charging and discharging current limits release on start and synchronized to under voltage reference ramping.
- Charging and discharging limits reset to zero on stop state.
- V Ref at start was limited to 2, fixed to 3.

ADFIF101V024

Replaced Application: ADFIF101V023
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Source Voltage reference will follow actual Source DC Voltage when in Current Control mode on Run state. Ramped to actual reference when Control mode is changed on the fly.
- Under Voltage reference is set below actual DC-Link Voltage while in stop state.

ADFIF101V023

Replaced Application: ADFIF101V022
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production: 29.1.2015
Changes in new application:

- Fieldbus control profile updates.

ADFIF101V022

Replaced Application: ADFIF101V019
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Source Voltage limits functions development.

ADFIF101V019

Replaced Application: ADFIF101V018
Used Firmware version: NXP4.76
System Software requirement: NXPV190 (NXP3)
Released to field:
Used in production:
Changes in new application:

- Added some essential IO functions.