

Maintenance

Servicing

The Altivar 61 does not require any preventive maintenance. It is nevertheless advisable to perform the following regularly:

- Check the condition and tightness of the connections.
- Ensure that the temperature around the unit remains at an acceptable level and that ventilation is effective (average service life of fans: 3 to 5 years depending on the operating conditions).
- Remove any dust from the drive.

Assistance with maintenance, fault display

If a problem arises during setup or operation, first check that the recommendations relating to the environment, mounting and connections have been observed.

The first fault detected is saved and displayed, and the drive locks.

The drive switching to fault mode can be indicated remotely via a logic output or a relay, which can be configured in the [\[1.5 INPUTS / OUTPUTS CFG\] \(I-O-\)](#) menu, see, for example, [\[R1 CONFIGURATION\] \(r1-\)](#) page [96](#).

[1.10 DIAGNOSTICS] menu

This menu can only be accessed with the graphic display terminal. It displays faults and their cause in plain text and can be used to carry out tests, see page [219](#).

Clearing the fault

Disconnect the drive power supply in the event of a non-resettable fault.

Wait for the display to disappear completely.

Find the cause of the fault in order to correct it.

The drive is unlocked after a fault:

- By switching off the drive until the display disappears completely, then switching on again
- Automatically in the scenarios described for the [\[AUTOMATIC RESTART\] \(Atr-\)](#) function, page [193](#)
- By means of a logic input or control bit assigned to the [\[FAULT RESET\] \(rSt-\)](#) function, page [192](#)
- By pressing the STOP/RESET button on the graphic display terminal

[1.2 MONITORING] (SUP-) menu:

This is used to prevent and find the causes of faults by displaying the drive state and its current values.

It can be accessed with the integrated display terminal.

Spares and repairs:

Consult Schneider Electric product support.

Faults – Causes – Remedies

Starter does not start, no fault displayed

- If the display does not light up, check the power supply to the drive.
- The assignment of the “Fast stop” or “Freewheel” functions will prevent the drive starting if the corresponding logic inputs are not powered up. The ATV61 then displays **[Freewheel] (nSt)** in freewheel stop and **[Fast stop] (FSt)** in fast stop. This is normal since these functions are active at zero so that the drive will be stopped safely if there is a wire break.
- Make sure that the run command input or inputs are activated in accordance with the selected control mode (**[2/3 wire control] (tCC)** and **[2 wire type] (tCt)** parameters, page 82).
- If the reference channel or command channel is assigned to a communication bus, when the power supply is connected, the drive will display **[Freewheel] (nSt)** and remain in stop mode until the communication bus sends a command.

Faults, which cannot be reset automatically

The cause of the fault must be removed before resetting by turning off and then back on.

AI2F, EnF, SOF, SPF, and tnF faults can also be reset remotely by means of a logic input or control bit (**[Fault reset] (rSF)** parameter, page 192).

EnF, InFA, InFb, SOF, SPF, and tnF faults can be inhibited and cleared remotely by means of a logic input or control bit (**[Fault inhibit assign.] (InH)** parameter, page 203).

Fault	Name	Probable cause	Remedy
A I 2 F	[AI2 input]	• Non-conforming signal on analog input AI2	• Check the wiring of analog input AI2 and the value of the signal • If necessary, modify the fault configuration via [AI2 4-20mA loss] (LFL2), page 202
b D F	[DBR overload]	• The braking resistor is under excessive stress	• Check the size of the resistor and wait for it to cool down • Check the [DB Resistor Power] (brP) and [DB Resistor value] (brU) parameters, page 208.
b U F	[DB unit sh. Circuit]	• Short-circuit output from braking unit • Braking unit not connected	• Check the wiring of the braking unit and the resistor • Check the braking resistor • The monitoring of this fault must be disabled by the [Brake res. fault Mgt] (bUb) parameter, page 208 if there is no braking unit or resistor connected to the drive, at and above 55 kW (75 HP) for ATV61H●●●M3X and at and above 90 kW (120 HP) for ATV61H●●●N4.
C r F 1	[Precharge]	• Load relay control fault or charging resistor damaged	• Switch the drive off and then back on again • Check the internal connections
C r F 2	[Thyr. soft charge]	• DC bus charging fault (thyristors)	• Inspect/repair the drive
d C F	[Differential curent Fault]	• Current difference between power block A and B (ATV61EC60 ... M14N4 or ATVE15...M24Y only)	• Check thyristor with [TEST THYRISTORS] • Check IGBT with [TRANSISTOR TEST] • Check current transformer
E E F 1	[Control Eeprom]	• Internal memory fault, control card	• Check the environment (electromagnetic compatibility) • Turn off, reset, return to factory settings
E E F 2	[Power Eeprom]	• Internal memory fault, power card	• Inspect/repair the drive
E n F	[Encoder]	• Encoder feedback fault	• Check [Number of pulses] (PGI) and [Encoder type] (EnS) page 75 • Check that the encoder's mechanical and electrical operation, its power supply and connections are all correct • If necessary, reverse the direction of rotation of the motor ([Output Ph rotation] (PHr) parameter, page 68) or the encoder signals
F C F 1	[Out. contact. stuck]	• The output contactor remains closed although the opening conditions have been met	• Check the contactor and its wiring • Check the feedback circuit
F d 2	[Damper open]	• The damper remains open although the closing conditions have been met	• Check the damper and its wiring • Check the feedback circuit • Check the time delay for the function, page 174
H d F	[IGBT desaturation]	• Short-circuit or grounding at the drive output	• Check the cables connecting the drive to the motor, and the insulation of the motor • Perform the diagnostic tests via the [1.10 DIAGNOSTICS] menu.

Faults – Causes – Remedies

Faults, which cannot be reset automatically (continued)

Fault	Name	Probable cause	Remedy
ILF	[internal com. link]	Communication fault between option card and drive	- Check the environment (electromagnetic compatibility) - Check the connections - Check that no more than 2 option cards (max. permitted) have been installed on the drive - Replace the option card - Inspect/repair the drive
INF1	[Rating error]	The power card is different from the card stored	Check the reference of the power card
INF2	[Incompatible PB]	The power card is incompatible with the control card	Check the reference of the power card and its compatibility
INF3	[Internal serial link]	Communication fault between the internal cards	- Check the internal connections - Inspect/repair the drive
INF4	[Internal MFG area]	Internal data inconsistent	Recalibrate the drive (performed by Schneider Electric Product Support)
INF5	[Internal-option]	The option installed in the drive is not recognized	Check the reference and compatibility of the option
INF7	[Internal-hard init.]	Initialization of the drive is incomplete	Turn off and reset
INF8	[Internal-ctrl supply]	The control power supply is incorrect	Check the control section power supply
INF9	[Internal-I measure]	The current measurements are incorrect	- Replace the current sensors or the power card - Inspect/repair the drive
INF A	[Internal-mains circuit]	The input stage is not operating correctly	- Perform the diagnostic tests via the [1.10 DIAGNOSTICS] menu. - Inspect/repair the drive
INF b	[Internal- th. sensor]	- The drive temperature sensor is not operating correctly - The braking unit's temperature sensor is not operating correctly	- Replace the temperature sensor - Inspect/repair the drive - Replace the braking unit's temperature sensor - Inspect/repair the braking unit - The monitoring of this fault must be disabled by the [Brake res. fault Mgt] (bUb) parameter, page 208 if there is no braking unit connected to the drive
INF C	[Internal-time meas.]	Fault on the electronic time measurement component	Inspect/repair the drive
INF E	[internal- CPU]	Internal microprocessor fault	Turn off and reset. Inspect/repair the drive
OCF	[Overcurrent]	- Parameters in the [SETTINGS] (SE-) and [1.4 MOTOR CONTROL] (drC-) menus are not correct - Inertia or load too high - Mechanical locking	- Check the parameters - Check the size of the motor/drive/load - Check the state of the mechanism
PrF	[Power removal]	Fault with the drive's "Power removal" safety function	Inspect/repair the drive
SCF1	[Motor short circuit]	- Short-circuit or grounding at the drive output - Significant earth leakage current at the drive output if several motors are connected in parallel	- Check the cables connecting the drive to the motor, and the insulation of the motor - Perform the diagnostic tests via the [1.10 DIAGNOSTICS] menu. - Reduce the switching frequency - Connect chokes in series with the motor - Check the adjustment of speed loop and brake - If [Energy Sav.] (nLd) motor control type is used, change to an U/F type.
SCF2	[Impedant sh. circuit]		
SCF3	[Ground short circuit]		
SDF	[Overspeed]	Instability or driving load too high	- Check the motor, gain and stability parameters - Add a braking resistor - Check the size of the motor/drive/load - Check the parameter settings for the [FREQUENCY METER] (FqF-) function, page 207, if it is configured

Faults – Causes – Remedies

Faults, which cannot be reset automatically (continued)

Fault	Name	Probable cause	Remedy
S P F	[Speed fdback loss]	- Encoder feedback signal missing - No signal on "Pulse input", if the input is used for speed measurement	- Check the wiring between the encoder and the drive - Check the encoder - Check the wiring of the input and the detector used
E n F	[Auto-tuning]	- Special motor or motor whose power is not suitable for the drive - Motor not connected to the drive	- Check that the motor/drive are compatible - Check that the motor is present during auto-tuning - If an output contactor is being used, close it during auto-tuning

Faults – Causes – Remedies

Faults that can be reset with the automatic restart function, after the cause has disappeared

These faults can also be reset by turning on and off or by means of a logic input or control bit ([[Fault reset](#)] (rSF) parameter, page [192](#)). APF, CnF, COF, EPF1, EPF2, FCF2, Fd1, LFF2, LFF3, LFF4, nFF, ObF, OHF, OLC, OLF, OPF1, OPF2, OSF, OtF1, OtF2, OtFL, PHF, PtF1, PtF2, PtFL, SLF1, SLF2, SLF3, SPIF, SSF, tJF, and ULF faults can be inhibited and cleared remotely by means of a logic input or control bit ([[Fault inhibit assign.](#)] (InH) parameter, page [203](#)).

Fault	Name	Probable cause	Remedy
APF	[Application fault]	Controller Inside card fault	Please refer to the card documentation
CnF	[Com. network]	Communication fault on communication card	- Check the environment (electromagnetic compatibility) - Check the wiring - Check the time-out - Replace the option card - Inspect/repair the drive
COF	[CAN com.]	Interruption in communication on the CANopen bus	- Check the communication bus - Check the time-out - Refer to the CANopen User's Manual
EPF1	[External flt-LI/Bit]	Fault triggered by an external device, depending on user	Check the device, which caused the fault, and reset
EPF2	[External fault com.]	Fault triggered by a communication network	Check for the cause of the fault and reset
FCF2	[Out. contact. open.]	The output contactor remains open although the closing conditions have been met.	- Check the contactor and its wiring - Check the feedback circuit
Fd1	[Damper stuck]	The damper remains closed although the opening conditions have been met	- Check the damper and its wiring - Check the feedback circuit - Check the time delay for the function, page 174
LCF	[input contactor]	The drive is not turned on even though [Mains V. time out] (LCt) has elapsed.	- Check the contactor and its wiring - Check the time-out - Check the line/contactor/drive connection
LFF2	[AI2 4-20mA loss]	Loss of the 4-20 mA reference on analog input AI2, AI3 or AI4	- Check the connection on the analog inputs - If necessary, modify the fault configuration via [AIx 4-20mA loss] (LFLx), page 202
LFF3	[AI3 4-20mA loss]		
LFF4	[AI4 4-20mA loss]		
nFF	[No Flow Fault]	Zero fluid	- Check and rectify the cause of the fault. - Check the zero fluid detection parameters page 183.
ObF	[Overbraking]	Braking too sudden or driving load	- Increase the deceleration time - Install a braking resistor if necessary - Activate the [Dec ramp adapt.] (brA) function, page 134, if it is compatible with the application.
OHF	[Drive overhear]	- Power board -PCB over temperature - Braking unit over temperature - Phase module over temperature - Rectifier over temperature	Check the motor load, the drive ventilation and the ambient temperature. Wait for the drive to cool down before restarting
OLC	[Proc. Overload Flt]	Process overload	- Check and remove the cause of the overload. - Check the parameters of the [PROCESS UNDERLOAD] (OLD-) function, page 212.
OLF	[Motor overload]	Triggered by excessive motor current	Check the setting of the motor thermal protection, check the motor load. Wait for the drive to cool down before restarting
OPF1	[1 motor phase loss]	Loss of one phase at drive output	Check the connections from the drive to the motor

Faults – Causes – Remedies

Faults that can be reset with the automatic restart function, after the cause has disappeared
(continued)

Fault	Name	Probable cause	Remedy
OPF2	[3 motor phase loss]	- Motor not connected or motor power too low - Output contactor open - Instantaneous instability in the motor current	- Check the connections from the drive to the motor - If an output contactor is being used, parameterize [Output Phase Loss] (OPL) = [Output cut] (OAC), page 196 - Test on a low power motor or without a motor: In factory settings mode, motor phase loss detection is active [Output Phase Loss] (OPL) = [Yes] (YES). To check the drive in a test or maintenance environment, without having to use a motor with the same rating as the drive (in particular for high power drives), deactivate motor phase loss detection [Output Phase Loss] (OPL) = [No] (nO) - Check and optimize the [IR compensation] (UFR) page 73, [Rated motor volt.] (UnS) and [Rated mot. current] (nCr) parameters, page 65, and perform [Auto tuning] (tUn), page 67.
OSF	[Mains overvoltage]	- Line voltage too high - Disturbed line supply	Check the line voltage
OLF1	[PTC1 overheat]	Overheating of the PTC1 probes detected	- Check the motor load and motor size - Check the motor ventilation - Wait for the motor to cool before restarting - Check the type and state of the PTC probes
OLF2	[PTC2 overheat]	Overheating of the PTC2 probes detected	
OLFL	[LI6=PTC overheat]	Overheating of PTC probes detected on input LI6	
PEF1	[PTC1 probe]	PTC1 probes open or short-circuited	Check the PTC probes and the wiring between them and the motor/drive
PEF2	[PTC2 probe]	PTC2 probes open or short-circuited	
PEFL	[LI6=PTC probe]	PTC probes on input LI6 open or short-circuited	
SCF4	[IGBT short circuit]	Power component fault	- Perform a test via the [1.10 DIAGNOSTICS] menu. - Inspect/repair the drive
SCF5	[Motor short circuit]	Short-circuit at drive output	- Check the cables connecting the drive to the motor, and the motor's insulation - Perform tests via the [1.10 DIAGNOSTICS] menu. - Inspect/repair the drive
SLF1	[Modbus com.]	Interruption in communication on the Modbus bus	- Check the communication bus - Check the time-out - Refer to the Modbus User's Manual
SLF2	[PC com.]	Fault communicating with PC-Software	- Check the PC-Software connecting cable - Check the time-out
SLF3	[HMI com.]	Fault communicating with the graphic display terminal	- Check the terminal connection - Check the time-out
SP1F	[PI Feedback]	PID feedback below lower limit	- Check the PID function feedback. - Check the PID feedback supervision threshold and time delay, page 157.
SSF	[Torque/current lim]	Switch to torque limitation	- Check if there are any mechanical problems - Check the parameters of [TORQUE LIMITATION] (tLA-) page 166 and the parameters of the [TORQUE OR I LIM. DETECT.] (tId-) fault, page 205.
LFJ	[IGBT overheat]	Drive overheated	- Check the size of the load/motor/drive - Reduce the switching frequency - Wait for the motor to cool before restarting
ULF	[Proc. Underload Flt]	Process underload	- Check and remove the cause of the underload. - Check the parameters of the [PROCESS OVERLOAD] (ULd-) function, page 211.

Faults – Causes – Remedies

Faults that can be reset as soon as their causes disappear

The USF fault can be inhibited and cleared remotely by means of a logic input or control bit ([Fault inhibit assign.] (InH) parameter, page 203).

Fault	Name	Probable cause	Remedy
CFF	[Incorrect config.]	- changed or removed - The current configuration is inconsistent	- Check that there are no card errors. - In the event of the option card being changed/removed deliberately, see the remarks below - Return to factory settings or retrieve the backup configuration, if it is valid (see page 224)
CFI	[Invalid config.]	- Invalid configuration The configuration loaded in the drive via the bus or communication network is inconsistent. [Max frequency] (tFr) has been set at a value higher than 599Hz	- Check the configuration loaded previously - Load a compatible configuration - Set [Max frequency] (tFr) at a value lower or equal to 599 Hz
HCF	[Cards pairing]	The [CARDS PAIRING] (PPI-) function, page 209, has been configured and a drive card has been changed	- In the event of a card error, reinsert the original card - Confirm the configuration by entering the [Pairing password] (PPI) if the card was changed deliberately
PHF	[Input phase loss]	- Drive incorrectly supplied or a fuse blown - Failure of one phase 3-phase ATV61 used on a single-phase line supply - Unbalanced load This protection only operates with the drive on load	- Check the power connection and the fuses. - Use a 3-phase line. - Disable the fault by [Input phase loss] (IPL) = [No] (nO). (page 197)
PrtF	[Power Ident]	- The [Power Identification] (Prt) parameter, page 74, is incorrect. - Control card replaced by a control card configured on a drive with a different rating	- Enter the correct parameter (reserved for Schneider Electric product support). - Check that there are no card errors. - In the event of the control card being changed deliberately, see the remarks below
USF	[Undervoltage]	- Line supply too low - Transient voltage dip - Damaged pre-charge resistor - This protection only operates with the drive running in motor mode	- Check the voltage and the parameters of [UNDERVOLTAGE MGT] (USb-), page 200 - Replace the pre-charge resistor - Inspect/repair the drive

Option card changed or removed

When an option card is removed or replaced by another, the drive locks in [Incorrect config.] (CFF) fault mode on power-up. If the card has been deliberately changed or removed, the fault can be cleared by pressing the ENT key twice, which **causes the factory settings to be restored** (see page 224) for the parameter groups affected by the card. These are as follows:

Card replaced by a card of the same type

- I/O cards: [Drive configuration] (drV)
- Encoder cards: [Drive configuration] (drV)
- Communication cards: Only the parameters that are specific to communication cards
- Controller Inside cards: [Prog. card menu] (PLC)

Card removed (or replaced by a different type of card)

- I/O card: [Drive configuration] (drV)
- Encoder card: [Drive configuration] (drV)
- Communication card: [Drive configuration] (drV) and parameters specific to communication cards
- Controller Inside card: [Drive configuration] (drV) and [Prog. card menu] (PLC)

Control card changed

When a control card is replaced by a control card configured on a drive with a different rating, the drive locks in [Power Ident] (PrtF) fault mode on power-up. If the card has been deliberately changed, the fault can be cleared by modifying the [Power Identification] (Prt) parameter, page 74, which **causes all the factory settings to be restored**.