

Faults - Causes - Remedies

Drive 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 ATV71 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 92).
- If an input is assigned to the limit switch function and this input is at zero, the drive can only be started up by sending a command for the opposite direction (see pages 158 and 197).
- 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.

AnF, brF, ECF, 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 224).

AnF, 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 235).

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.
A n F	[Load slipping]	• The encoder speed feedback does not match the reference	• Check the motor, gain and stability parameters. • Add a braking resistor. • Check the size of the motor/drive/load. • Check the encoder's mechanical coupling and its wiring. • If the "torque control" function is used, see "Note" on page 188.
b o 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 242.
b r F	[Brake feedback]	• The brake feedback contact does not match the brake logic control • The brake does not stop the motor quickly enough (detected by measuring the speed on the "Pulse input" input).	• Check the feedback circuit and the brake logic control circuit • Check the mechanical state of the brake • Check the brake linings
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 242 if there is no resistor or braking unit connected to the drive, at and above 55 kW (75 HP) for ATV71...M3X and at and above 90 kW (120 HP) for ATV71...N4.
C r F 1	[Precharge]	• Charging relay control fault or charging resistor damaged	• Turn 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 (ATV71EC71N4 ... M13N4 or ATV71EM12Y...M20Y only)	• Check thyristor with [TEST THYRISTORS] • Check IGBT with [TRANSISTOR TEST] • Check current transformer
E C F	[Encoder coupling]	• Break in encoder's mechanical coupling	• Check the encoder's mechanical coupling
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 79. • 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 72) 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

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Faults, which cannot be reset automatically (continued)

Fault	Name	Probable cause	Remedy
H d F	[IGBT desaturation]	Short-circuit or grounding at the drive output	- Check the cables connecting the drive to the motor, and the motor insulation. - Perform the diagnostic tests via the [1.10 DIAGNOSTICS] menu.
u L F	[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
u n F 1	[Rating error]	The power card is different from the card stored	Check the reference of the power card
u n F 2	[Incompatible PB]	The power card is incompatible with the control card	Check the reference of the power card and its compatibility.
u n F 3	[Internal serial link]	Communication fault between the internal cards	- Check the internal connections - Inspect/repair the drive
u n F 4	[Internal-mftg zone]	Internal data inconsistent	Recalibrate the drive (performed by Schneider Electric Product Support).
u n F 5	[Internal - fault option]	The option installed in the drive is not recognized	Check the reference and compatibility of the option.
u n F 7	[Internal-hard init.]	Initialization of the drive is incomplete	Turn off and reset.
u n F 8	[Internal-ctrl supply]	The control power supply is incorrect	Check the control section power supply
u n F 9	[Internal- I measure]	The current measurements are incorrect	- Replace the current sensors or the power card. - Inspect/repair the drive
u n F 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
u n F b	[Internal- th. sensor]	- The drive temperature sensor is not operating correctly - The braking unit's temperature sensor is not operating correctly.	- Replace the drive 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 242 if there is no braking unit connected to the drive.
u n F C	[Internal-time meas.]	Fault on the electronic time measurement component	Inspect/repair the drive
u n F E	[internal- CPU]	Internal microprocessor fault	Turn off and reset. Inspect/repair the drive.
o C F	[Overcurrent]	- Parameters in the [SETTINGS] (SEt-) 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.
P r F	[Power removal]	Fault with the drive's "Power removal" safety function	Inspect/repair the drive
S C F 1	[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 motor insulation. - 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. - Increase the [Time to restart] (ttr), page 66.
S C F 2	[Impedant sh. circuit]		
S C F 3	[Ground short circuit]		
S o F	[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 parameters settings for the [FREQUENCY METER] (FqF-) function, page 239, if it is configured

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Faults, which cannot be reset automatically (continued)

Fault	Name	Probable cause	Remedy
S P F	[Speed fdback loss]	- Encoder feedback signal missing - Signal on "Pulse input" missing, 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 cable 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

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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 [224](#)). APF, CnF, COF, EPF1, EPF2, FCF2, LFF2, LFF3, LFF4, ObF, OHF, OLF, OPF1, OPF2, OSF, OtF1, OtF2, OtFL, PHF, PtF1, PtF2, PtFL, SLF1, SLF2, SLF3, SrF, SSF and tJF faults can be inhibited and cleared remotely by means of a logic input or control bit ([[Fault inhibit assign](#)] (InH) parameter, page [235](#)).

Fault	Name	Probable cause	Remedy
A P F	[Application fault]	Controller Inside card fault	Please refer to the card documentation
b L F	[Brake control]	- Brake release current not reached - Brake engage frequency threshold [Brake engage freq] (bEn) only regulated when brake logic control is assigned	- Check the drive/motor connection - Check the motor windings - Check the [Brake release I FW] (lbr) and [Brake release I Rev] (lrd) settings, page 165 - Apply the recommended settings for [Brake engage freq] (bEn).
C n F	[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
C o F	[CANopen com.]	Interruption in communication on the CANopen bus	- Check the communication bus. - Check the time-out - Refer to the CANopen User's Manual
E P F 1	[External flt-LI/Bit]	Fault triggered by an external device, depending on user	Check the device which caused the fault, and reset
E P F 2	[External fault com.]	Fault triggered by a communication network	Check for the cause of the fault and reset
F C F 2	[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
L C F	[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
L F F 2	[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.
L F F 3	[AI3 4-20mA loss]		
L F F 4	[AI4 4-20mA loss]		
o b F	[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 143, if it is compatible with the application
o H F	[Drive overheat]	- 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
o L F	[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.
o P F 1	[1 output phase loss]	Loss of one phase at drive output	Check the connections from the drive to the motor

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

Fault	Name	Probable cause	Remedy
o P F 2	[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 228. - 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 following parameters: [IR compensation] (UFR), page 76, [Rated motor volt.] (UnS) and [Rated mot. current] (nCr) page 70 and perform [Auto-tuning] (tUn) page 71.
o S F	[Mains overvoltage]	- Line voltage too high - Disturbed mains supply	Check the line voltage
o t F 1	[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
o t F 2	[PTC2 overheat]	Overheating of the PTC2 probes detected	
o t F L	[LI6=PTC overheat]	Overheating of PTC probes detected on input LI6	
P t F 1	[PTC1 probe]	PTC1 probes open or short-circuited	Check the PTC probes and the wiring between them and the motor/drive
P t F 2	[PTC2 probe]	PTC2 probes open or short-circuited	
P t F L	[LI6=PTC probe]	PTC probes on input LI6 open or short-circuited	
S C F 4	[IGBT short circuit]	Power component fault	- Perform a test via the [1.10 DIAGNOSTICS] menu. - Inspect/repair the drive
S C F 5	[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
S L F 1	[Modbus com.]	Interruption in communication on the Modbus bus	- Check the communication bus. - Check the time-out - Refer to the Modbus User's Manual
S L F 2	[PC com.]	Fault communicating with PC-Software	- Check the PC-Software connecting cable. - Check the time-out
S L F 3	[HMI com.]	Fault communicating with the graphic display terminal	- Check the terminal connection - Check the time-out
S r F	[TORQUE TIME OUT FLT]	The time-out of the torque control function is attained	- Check the function's settings - Check the state of the mechanism
S S F	[Torque/current lim]	Switch to torque limitation	- Check if there are any mechanical problems - Check the parameters of [TORQUE LIMITATION] (tLA-) page 190 and the parameters of the [TORQUE OR I LIM. DETECT.] (tId-) fault, page 237).
t J F	[IGBT overheat]	Drive overheated	- Check the size of the load/motor/drive. - Reduce the switching frequency. - Wait for the motor to cool before restarting

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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 235).

Fault	Name	Probable cause	Remedy
CFF	[Incorrect config.]	- Option card changed or removed - Control card replaced by a control card configured on a drive with a different rating - 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 - Check that there are no card errors. - In the event of the control card being changed deliberately, see the remarks below - Return to factory settings or retrieve the backup configuration, if it is valid (see page 254)
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
DLF	[Dynamic load fault]	Abnormal load variation	- Check that the load is not blocked by an obstacle - Removal of a run command causes a reset
HCF	[Cards pairing]	The [CARDS PAIRING] (PPI-) function, page 243, 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 ATV71 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 supply. - Disable the fault by [Input phase loss] (IPL) = [No] (nO). (page 229)
USF	[Undervoltage]	- Line supply too low - Transient voltage dip - This protection only operates with the drive running in motor mode	Check the voltage and the parameters of [UNDERVOLTAGE MGT] (USb-), page 232

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 254) 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] (drM)
- Encoder cards: [Drive configuration] (drM)
- 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] (drM)
- Encoder card: [Drive configuration] (drM)
- Communication card: [Drive configuration] (drM) and parameters specific to communication cards
- Controller Inside card: [Drive configuration] (drM) 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 [Incorrect config.] (CFF) fault mode on power-up. If the card has been deliberately changed, the fault can be cleared by pressing the ENT key twice, which **causes all the factory settings to be restored**.