

Diagnostics and Troubleshooting

Drive does not start, no error code displayed

- If the display does not light up, check the power supply to the drive (ground and input phase connections, see page 18).
- The assignment of the "Fast stop" or "Freewheel" functions will prevent the drive starting if the corresponding logic inputs are not powered up. The ATV310 then displays **502.1** in freewheel stop mode and **- - 01** in fast stop mode. **- - 00** is displayed at freewheel stop end. This is normal, since these functions are active at zero so drive can safely stop in case of wire break. Assignment of LI to be checked in the **C o n F / F u L L / 5 0 0 - / 5 0 2 -** menu.
- Make sure that the run command input(s) is activated in accordance with the selected control mode (parameters in **C o n F / F u L L / 2 0 0 -** menu **Type of control 201** (page 44) and **2-wire type control 202** (page 47).
- If the reference channel or command channel is assigned to Modbus, the drive displays **"502.1"** freewheel stop when the power supply is connected and remains in stop mode until the communication bus sends a command.
- "RUN" key is inactive in factory setting. Adjust parameters **Reference channel 1 401** (page 58) and **Command channel 1 407** (page 59) to control the drive locally (**C o n F / F u L L / 4 0 0 -** menu). See "How to control the drive locally" (page 45).

Fault detection codes which cannot be cleared automatically

The cause of the detected fault must be removed before resetting by cycling power to the drive.

F025 and **F028** faults can also be reset remotely by means of a logic input (in **C o n F / F u L L / 6 0 0 -** menu, parameter **Detected fault reset assignment 601** (page 87).

F007, **F025** and **F028** faults can be inhibited and cleared remotely by means of a logic input (parameter **Detected fault inhibition assignment 610** (page 92).

Code	Name	Possible causes	Remedy
F001	Precharge	• Charging relay control fault or charging resistor damaged	• Turn the drive off and then back on again. • Check the connections. • Check the stability of the main supply. • Contact local Schneider Electric representative.
F002	Unknown drive rating	• Power card and stored card versions different	• Contact local Schneider Electric representative.
F003	Unknown or incompatible power board	• The power card is incompatible with the control card	• Contact local Schneider Electric representative.
F004	Internal serial link fault	• Communication interruption between the internal cards	• Contact local Schneider Electric representative.
F005	Invalid industrialization zone	• Internal data inconsistent	• Contact local Schneider Electric representative.
F006	Current measurement circuit	• Current measurement is not correct due to hardware circuit fault	• Contact local Schneider Electric representative.
- - - -	Problem with application firmware	• Invalid application firmware update using the Multi-Loader tool	• Re-download application firmware.
F007	Internal thermal sensor detected fault	• The drive temperature sensor is not operating correctly • The drive is in short circuit or open	• Contact local Schneider Electric representative.
F008	Internal CPU	• Internal microprocessor fault	• Turn the drive off and then back on again. • Contact local Schneider Electric representative.

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Fault detection codes that cannot be cleared automatically (continued)

Code	Name	Possible causes	Remedy
F 0 1 0	Overcurrent	- Parameters in the Motor control menu 3 0 0 - page 52 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. - Connect line motor chokes. - Reduce the Switching frequency range 3 1 5 page 54. - Check the ground connection of drive, motor cable and motor insulation.
F 0 1 8	Motor short-circuit	- Short-circuit or grounding at the drive output - Ground fault while in run state - Motor switching while in run state - Significant current leakage to ground while several motors are connected in parallel	- Check the cables connecting the drive to the motor and the motor insulation. - Connect line motor chokes.
F 0 1 9	Ground short-circuit		
F 0 2 0	IGBT short circuit	Internal power component short circuit detected at power on	Contact local Schneider Electric representative.
F 0 2 5	Overspeed	- Instability - Overspeed associated with the inertia of the application	- Check the motor. - If overspeed is 10% more than Top frequency 3 0 8 (page 52) adjust this parameter if necessary. - Add a braking resistor. - Check the size of the motor/drive/load. - Check parameters of the speed loop (gain and stability).
F 0 2 8	Autotuning fault	- Motor not connected to the drive - Motor phase loss - Special motor - Motor is rotating (being driven by the load, for example)	- Check that the motor/drive are compatible. - Check that the motor is present during autotuning. - If an output contactor is being used downstream, close it during auto-tuning. - Check that the motor is completely stopped.

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Fault detection codes that can be cleared with the automatic restart function, after the cause has disappeared

These faults can also be cleared by turning on and off or by means of a logic input (parameter [Detected fault reset assignment 6 0 1](#) (page 87). F011, F013, F014, F015, F016, F022, F024 and F027 faults can be inhibited and cleared by means of a logic input [[Detected fault inhibition assignment 6 1 0](#) (page 92)].

Code	Name	Possible causes	Remedy
F 0 3 3	AI1 current loss	Detected if: - Analog input AI1 is configured as current AI1 current scaling parameter of 0% 2 0 4. 1 (page 48) is greater than 3 mA - Analog input current is lower than 2 mA	Check the terminal connection.
F 0 0 9	Overbraking	Sudden braking or load inertia too high	- Increase the deceleration time. - Install a module unit with a braking resistor if necessary. - Check the main supply voltage to ensure it is under the maximum acceptable (20% over maximum main supply during run status).
F 0 1 1	Drive overheating	Drive temperature too high	Check the motor load, the drive ventilation and the ambient temperature. Wait for the drive to cool down before restarting. See Mounting and temperature conditions on page 12.
F 0 1 2	Process overload	Process overload	Check that drive parameters and application processes are compatible.
F 0 1 3	Motor overload	Triggered by excessive motor current	Check configuration of motor thermal protection and motor load.
F 0 1 4	1 Output phase loss	Loss of one phase on drive output	- Check the connections from the drive to the motor. - If using a downstream contactor, make sure the connection, cable and contactor are right.
F 0 1 5	3 Output phases loss	- Motor not connected - Motor power too low, below 6% of the rated drive current - Output contactor open - Transient instability in the motor current	- Check the connections from the drive to the motor. - Test on a low power motor or without a motor. In factory settings mode, motor phase loss detection is active Output Phase loss detection 6 0 5 page 90 = 0 1. To check the drive in a test or maintenance environment, without having to use a motor with the same rating as the drive, deactivate motor phase loss detection Output Phase loss detection 6 0 5 = 0 0. - Check and optimize IR compensation 3 1 0 page 53, Rated motor voltage 3 0 4 page 52 and Rated motor voltage 3 0 5 page 52 and then perform Auto-tuning 3 1 8 page 55.
F 0 1 6	Main overvoltage	- Line voltage too high: - At drive power on, supply is 10% over the maximum acceptable voltage level - At power with no run command, 20% over maximal line supply - Disturbed mains supply	- Turn Off the Drive. Check and adjust the line voltage. After line come back to nominal voltage (within tolerance) do power On. - If intermittent F 0 1 6 code appear, set R1 assignment 2 0 5 to 0 1 and it can be connected to upstream protection to avoid overvoltage in the drive. In this case LO1 can be used for others drive status see page 48

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Fault detection codes that can be cleared with the automatic restart function, after the cause has disappeared (continued)

Code	Name	Possible causes	Remedy
F 0 1 7	Input phase loss	• Drive incorrectly supplied or a fuse blown • Failure of one phase • 3-phase ATV310 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 reporting of this fault type by setting Input Phase loss detection detection 5 0 5 (page 90) to 0 0.
F 0 2 1	Load short circuit	• Short-circuit at drive output • Short circuit detection at the run command or DC injection command if parameter IGBT Test 5 0 8 (page 91) is set to 0 1	• Check the cables connecting the drive to the motor and the condition of motor insulation.
F 0 2 2	Modbus interruption	• Interrupted communication on the Modbus network	• Check the connections of communication bus. • Check the time-out (parameter Modbus time out 7 0 4 page 94). • Refer to the Modbus user manual.
F 0 2 4	HMI communication	• Communication interruption with the external display terminal	• Check the terminal connection.
F 0 2 9	Process underload	• Process underload • Time that motor current is below the Application Underload threshold 2 1 1 (page 50) exceeds the Application underload time delay 2 1 0 (page 50) to protect the application	• Check that drive parameters and application processes are compatible.
F 0 2 7	IGBT overheat	• Drive overheated • IGBT internal temperature is too high for the ambient temperature and load .	• Check the size of the load/motor/drive. • Reduce the Switching frequency 3 1 5 page 54. • Wait for the drive to cool down before restarting.

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Fault detection codes that will be cleared as soon as their causes disappear

USF faults can be inhibited and cleared remotely by means of a logic input parameter [Detected fault inhibition assignment 6 I 0](#) (page [92](#)).

Code	Name	Possible causes	Remedy
F 0 3 1	Incorrect configuration	- HMI block replaced by an HMI block configured on a drive with a different rating - The current configuration of customer parameters is inconsistent	- Return to factory settings or retrieve the backup configuration, if it is valid. - If the fault remains after reverting to the factory settings, contact your local Schneider Electric representative.
F 0 3 2 (1)	Invalid configuration	Invalid configuration The configuration loaded in the drive via the bus or communication network is inconsistent. The configuration upload has been interrupted or is not fully finished	- Check the configuration loaded previously. - Load a compatible configuration.
F 0 3 0	Undervoltage	- Line supply too low - Transient voltage dip	Check the voltage and parameters on the Undervoltage phase loss menu 6 0 7 - (page 91).

(1) When the CFI is present in the previous fault menu, it means the configuration has been interrupted or is not fully finished.

Some detected faults that are reset by pressing the RUN key

See [Reset all previous detected faults via Run key F 6 I 4](#) parameter (page [93](#)).

HMI block changed

When an HMI block is replaced by an HMI block configured on a drive with a different rating, the drive locks in Incorrect configuration **F 0 3 1** fault mode on power-up. If the card has been deliberately changed, the fault can be cleared by returning to factory setting.

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Fault detection codes displayed on the remote display terminal

Code	Name	Description
in iE:	Auto-initialization on start	- Macro controller initialization - Searching communication configuration
C o n . E (1)	Communication error	50 ms time out error - This message appears after 220 retry attempts
A - I 7 (1)	Key alarm	- Key pressed down for longer than 10 seconds - Membrane switch disconnected - Display terminal woken up while a key is being pressed
c L r (1)	Confirm fault reset	This message appears if the STOP key is pressed while the display terminal is displaying a fault
d E u . E (1)	Drive mismatch	Drive type (brand) does not match display terminal type (brand)
r o n . E (1)	ROM abnormality	ROM abnormality detected by checksum calculation
r A n . E (1)	RAM abnormality	Display terminal RAM abnormality detected
C P u . E (1)	Other fault	The other detected fault

(1) Flashing