15

Fault tracing

What this chapter contains

The chapter tells how to reset faults and view the fault history. It also lists all alarm and fault messages including the possible cause and corrective actions.

Safety

WARNING! Only qualified electricians are allowed to maintain the drive. Read the safety instructions in chapter *Safety* on page *17* before you work on the drive.

Alarm and fault indications

A fault is indicated with a red LED. See section *LEDs* on page *374*.

An alarm or fault message on the panel display indicates an abnormal drive status. Using the information given in this chapter, most alarm and fault causes can be identified and corrected. If not, contact your local ABB representative.

To display the alarms on the control panel, set parameter *1610 DISPLAY ALARMS* to value 1 (YES).

The four-digit code number in parenthesis after the fault is for the fieldbus communication. See chapters *Fieldbus control with embedded fieldbus* on page *313* and *Fieldbus control with fieldbus adapter* on page *339*.

How to reset

The drive can be reset either by pressing the keypad key RESET EXIT (basic control panel) or RESET (assistant control panel), through digital input or fieldbus, or by switching the supply voltage off for a while. The source for the fault reset signal is selected by parameter *1604 FAULT RESET SEL*. When the fault has been removed, the motor can be restarted.

Fault history

When a fault is detected, it is stored in the fault history. The latest faults are stored together with the time stamp.

Parameters *0401 LAST FAULT*, *0412 PREVIOUS FAULT 1* and *0413 PREVIOUS FAULT 2* store the most recent faults. Parameters *0404*…*0409* show drive operation data at the time the latest fault occurred. The assistant control panel provides additional information about the fault history. See section *Fault logger mode* on page *99* for more information.

Alarm messages generated by the drive

CODE	ALARM	CAUSE	WHAT TO DO
2001	OVERCURRENT *0308* bit 0 (programmable fault function *1610*)	Output current limit controller is active. High ambient temperature.	Check ambient conditions. Load capacity decreases if installation site ambient temperature exceeds 40 °C (104 °F). See section *Derating* on page *378*. For more information, see fault *0001* in *Fault messages generated by the drive* on page *359*.
2002	OVERVOLTAGE *0308* bit 1 (programmable fault function *1610*)	DC overvoltage controller is active.	For more information, see fault *0002* in *Fault messages generated by the drive* on page *359*.
2003	UNDERVOLTAGE *0308* bit 2	DC undervoltage controller is active.	For more information, see fault *0006* in *Fault messages generated by the drive* on page *359*.
2004	DIR LOCK *0308* bit 3	Change of direction is not allowed.	Check parameter *1003 DIRECTION* settings.
2005	IO COMM *0308* bit 4 (programmable fault function *3018*, *3019*)	Fieldbus communication break	Check status of fieldbus communication. See chapter *Fieldbus control with embedded fieldbus* on page *313*, chapter *Fieldbus control with fieldbus adapter* on page *339* or appropriate fieldbus adapter manual. Check fault function parameter settings. Check connections. Check if master can communicate.
2006	AI1 LOSS *0308* bit 5 (programmable fault function *3001*, *3021*)	Analog input AI1 signal has fallen below limit defined by parameter *3021 AI1 FAULT LIMIT*.	For more information, see fault *0007* in *Fault messages generated by the drive* on page *359*.
2007	AI2 LOSS *0308* bit 6 (programmable fault function *3001*, *3022*)	Analog input AI2 signal has fallen below limit defined by parameter *3022 AI2 FAULT LIMIT*.	For more information, see fault in *0008 Fault messages generated by the drive* on page *359*.
2008	PANEL LOSS *0308* bit 7 (programmable fault function *3002*)	Control panel selected as active control location for drive has ceased communicating.	For more information, see fault *0010* in *Fault messages generated by the drive* on page *359*.
2009	DEVICE OVERTEMP *0308* bit 8	Drive IGBT temperature is excessive. Alarm limit depends on the drive type and size.	Check ambient conditions. See also section *Derating* on page *378*. Check air flow and fan operation. Check motor power against drive power.

CODE	ALARM	CAUSE	WHAT TO DO
2010	MOTOR TEMP *0308* bit 9 (programmable fault function *3005*…*3009* / *3503*)	Motor temperature is too high (or appears to be too high) due to excessive load, insufficient motor power, inadequate cooling or incorrect start-up data.	For more information, see fault *0009* in *Fault messages generated by the drive* on page *359*.
		Measured motor temperature has exceeded alarm limit set by parameter *3503 ALARM LIMIT*.	
2011	UNDERLOAD *0308* bit 10 (programmable fault function *3013*…*3015*)	Motor load is too low due to, eg, release mechanism in driven equipment.	Check for problem in driven equipment. Check fault function parameters. Check motor power against drive power.
2012	MOTOR STALL *0308* bit 11 (programmable fault function *3010*…*3012*)	Motor is operating in stall region due to, eg, excessive load or insufficient motor power.	Check motor load and drive ratings. Check fault function parameters.
2013 [1)]	AUTORESET *0308* bit 12	Automatic reset alarm	Check parameter group *31 AUTOMATIC RESET* settings.
2018 [1)]	PID SLEEP *0309* bit 1 (programmable fault function *1610*)	Sleep function has entered sleeping mode.	See parameter groups *40 PROCESS PID SET 1*… *41 PROCESS PID SET 2*.
2019	ID RUN *0309* bit 2	Motor Identification run is on.	This alarm belongs to normal start-up procedure. Wait until drive indicates that motor identification is completed.
2021	START ENABLE 1 MISSING *0309* bit 4	No Start enable 1 signal received	Check parameter *1608 START ENABLE 1* settings. Check digital input connections. Check fieldbus communication settings.
2022	START ENABLE 2 MISSING *0309* bit 5	No Start enable 2 signal received	Check parameter *1609 START ENABLE 2* settings. Check digital input connections. Check fieldbus communication settings.
2023	EMERGENCY STOP *0309* bit 6	Drive has received emergency stop command and ramps to stop according to ramp time defined by parameter *2208 EMERG DEC TIME*.	Check that it is safe to continue operation. Return emergency stop push button to normal position.

CODE	ALARM	CAUSE	WHAT TO DO
2024	ENCODER ERROR *0309* bit 7 (programmable fault function *5003*)	Communication fault between pulse encoder and pulse encoder interface module or between module and drive.	Check pulse encoder and its wiring, pulse encoder interface module and its wiring and parameter group *50 ENCODER* settings.
2025	FIRST START *0309* bit 8	Motor identification magnetization is on. This alarm belongs to normal start-up procedure.	Wait until drive indicates that motor identification is completed.
2026	INPUT PHASE LOSS *0309* bit 9 (programmable fault function *3016*)	Intermediate circuit DC voltage is oscillating due to missing input power line phase or blown fuse. Alarm is generated when DC voltage ripple exceeds 14% of nominal DC voltage.	Check input power line fuses. Check for input power supply imbalance. Check fault function parameters.
2029	MOTOR BACK EMF *0309* bit 12	Permanent magnet synchronous motor is rotating, start mode 2 (*DC MAGN*) is selected with parameter *2101 START FUNCTION*, and run is requested. Drive warns that rotating motor cannot be magnetized with DC current.	If start to rotating motor is required, select start mode 1 (*AUTO*) with parameter *2101 START FUNCTION*. Otherwise drive starts after motor has stopped.
2035	SAFE TORQUE OFF *0309* bit 13	STO (Safe torque off) requested and it functions correctly. Parameter *3025 STO OPERATION* is set to react with alarm.	If this was not expected reaction to safety circuit interruption, check cabling of safety circuit connected to STO terminals X1C. If different reaction is required, change value of parameter *3025 STO OPERATION*. **Note:** Start signal must be reset (toggled to 0) if STO has been used while drive has been running.

[1] Even when the relay output is configured to indicate alarm conditions (eg, parameter *1401 RELAY OUTPUT 1* = 5 (*ALARM*) or 16 (*FLT/ALARM*)), this alarm is not indicated by a relay output.

Alarms generated by the basic control panel

The basic control panel indicates control panel alarms with a code, A5xxx.

ALARM CODE	CAUSE	WHAT TO DO
5001	Drive is not responding.	Check panel connection.
5002	Incompatible communication profile	Contact your local ABB representative.
5010	Corrupted panel parameter backup file	Retry parameter upload. Retry parameter download.
5011	Drive is controlled from another source.	Change drive control to local control mode.
5012	Direction of rotation is locked.	Enable change of direction. See parameter *1003 DIRECTION*.
5013	Panel control is disabled because start inhibit is active.	Start from panel is not possible. Reset emergency stop command or remove 3-wire stop command before starting from panel. See section *3-wire macro* on page *111* and parameters *1001 EXT1 COMMANDS*, *1002 EXT2 COMMANDS* and *2109 EMERG STOP SEL*.
5014	Panel control is disabled because of drive fault.	Reset drive fault and retry.
5015	Panel control is disabled because local control mode lock is active.	Deactivate local control mode lock and retry. See parameter *1606 LOCAL LOCK*.
5018	Parameter default value is not found.	Contact your local ABB representative.
5019	Writing non-zero parameter value is prohibited.	Only parameter reset is allowed.
5020	Parameter or parameter group does not exist or parameter value is inconsistent.	Contact your local ABB representative.
5021	Parameter or parameter group is hidden.	Contact your local ABB representative.
5022	Parameter is write protected.	Parameter value is read-only and cannot be changed.
5023	Parameter change is not allowed when drive is running.	Stop drive and change parameter value.
5024	Drive is executing a task.	Wait until task is completed.
5025	Software is being uploaded or downloaded.	Wait until upload/download is complete.
5026	Value is at or below minimum limit.	Contact your local ABB representative.
5027	Value is at or above maximum limit.	Contact your local ABB representative.
5028	Invalid value	Contact your local ABB representative.

ALARM CODE	CAUSE	WHAT TO DO
5029	Memory is not ready.	Retry.
5030	Invalid request	Contact your local ABB representative.
5031	Drive is not ready for operation, eg, due to low DC voltage.	Check input power supply.
5032	Parameter error	Contact your local ABB representative.
5040	Parameter download error. Selected parameter set is not in current parameter backup file.	Perform upload function before download.
5041	Parameter backup file does not fit into memory.	Contact your local ABB representative.
5042	Parameter download error. Selected parameter set is not in current parameter backup file.	Perform upload function before download.
5043	No start inhibit	
5044	Parameter backup file restoring error	Check that file is compatible with drive.
5050	Parameter upload aborted	Retry parameter upload.
5051	File error	Contact your local ABB representative.
5052	Parameter upload has failed.	Retry parameter upload.
5060	Parameter download aborted	Retry parameter download.
5062	Parameter download has failed.	Retry parameter download.
5070	Panel backup memory write error	Contact your local ABB representative.
5071	Panel backup memory read error	Contact your local ABB representative.
5080	Operation is not allowed because drive is not in local control mode.	Switch to local control mode.
5081	Operation is not allowed because of active fault.	Check cause of fault and reset fault.
5083	Operation is not allowed because parameter lock is on.	Check parameter *1602 PARAMETER LOCK* setting.
5084	Operation is not allowed because drive is performing a task.	Wait until task is completed and retry.
5085	Parameter download from source to destination drive has failed.	Check that source and destination drive types are same, ie, ACS355. See type designation label of the drive.
5086	Parameter download from source to destination drive has failed.	Check that source and destination drive type designations are the same. See type designation labels of the drives.

ALARM CODE	CAUSE	WHAT TO DO
5087	Parameter download from source to destination drive has failed because parameter sets are incompatible.	Check that source and destination drive information are same. See parameters in group *33 INFORMATION*.
5088	Operation has failed because of drive memory error.	Contact your local ABB representative.
5089	Download has failed because of CRC error.	Contact your local ABB representative.
5090	Download has failed because of data processing error.	Contact your local ABB representative.
5091	Operation has failed because of parameter error.	Contact your local ABB representative.
5092	Parameter download from source to destination drive has failed because parameter sets are incompatible.	Check that source and destination drive information are same. See parameters in group *33 INFORMATION*.

Fault messages generated by the drive

CODE	FAULT	CAUSE	WHAT TO DO
0001	OVERCURRENT (2310) *0305* bit 0	Output current has exceeded trip level.	
		Sudden load change or stall.	Check motor load and mechanics.
		Insufficient acceleration time.	Check acceleration time (*2202* and *2205*). Check the possibility of using vector control.
		Incorrect motor data.	Check that motor data (Group 99) is equal to motor rating plate values. If using vector control, perform ID run (*9910*).
		Motor and/or drive is too small for the application.	Check sizing.
		Damaged motor cables, damaged motor or wrong motor connection (star/delta).	Check motor, motor cable and connections (including phasing).
		Internal fault of the drive. Drive gives an overcurrent fault after start command even when the motor is not connected (use scalar control in this trial).	Replace the drive.
		High frequency noise in STO lines.	Check the STO cabling and remove the noise sources nearby.
0002	DC OVERVOLT (3210) *0305* bit 1	Excessive intermediate circuit DC voltage. DC overvoltage trip limit is 420 V for 200 V drives and 840 V for 400 V drives.	
		Supply voltage is too high or noisy. Static or transient overvoltage in the input power supply.	Check input voltage level and check power line for static or transient overvoltage
		If the drive is used in a floating network, DC overvoltage fault may appear	In a floating network, remove the EMC screw from the drive.

CODE	FAULT	CAUSE	WHAT TO DO
		If the overvoltage fault appears during deceleration, possible causes are: • Overvoltage controller disabled. • Deceleration time is too short. • Faulty or undersized braking chopper.	• Check that overvoltage controller is on (parameter *2005 OVERVOLT CTRL*). • Check deceleration time (*2203*, *2206*). • Check brake chopper and resistor (if used). DC overvoltage control must be deactivated when brake chopper and resistor is used (parameter *2005 OVERVOLT CTRL*). Retrofit drive with brake chopper and brake resistor.
0003	DEV OVERTEMP (4210) *0305* bit 2	Drive IGBT temperature is excessive. The fault trip limit depends on the drive type and size.	
		Ambient temperature is too high.	Check ambient conditions. See also section *Derating* on page *378*.
		Airflow through the inverter is not free.	Check air flow and free space above and below the drive (see section *Free space around the drive* on page *34*).
		Fan is not working properly	Check fan operation.
		Overloading of the drive.	50% overload is allowed for one minute in ten minutes. If higher switching frequency (parameter *2606*) is used, follow the *Derating* rules on page *378*.
0004	SHORT CIRC (2340) *0305* bit 3	Short-circuit in motor cable(s) or motor.	
		Damaged motor or motor cable.	Check motor and cable insulation. Check motor winding
		Internal fault of the drive. Drive gives an overcurrent fault after start command even when the motor is not connected (use scalar control in this trial).	Replace the drive.
		High frequency noise in STO lines.	Check the STO cabling and remove the noise sources nearby.
0006	DC UNDERVOLT (3220) *0305* bit 5	Intermediate circuit DC voltage is not sufficient.	Check input power supply and fuses.
		Undervoltage controller disabled.	Check that undervoltage controller is on (parameter *2006 UNDERVOLT CTRL*).

CODE	FAULT	CAUSE	WHAT TO DO
		Missing input power line phase.	Measure the input and DC voltage during start, stop and running by using a multimeter or check parameter *0107 DC BUS VOLTAGE*.
		Blown fuse	Check the condition of input fuses.
		Rectifier bridge internal fault.	Replace the drive.
0007	AI1 LOSS (8110) *0305* bit 6 (programmable fault function *3001*, *3021*)	Analog input AI1 signal has fallen below limit defined by parameter *3021 AI1 FAULT LIMIT*.	
		Analog input signal is weak or does not exist.	Check the source and wire connections of the analog input.
		Analog input signal is lower than fault limit.	Check parameters *3001 AI<MIN FUNCTION* and *3021 AI1 FAULT LIMIT*.
0008	AI2 LOSS (8110) *0305* bit 7 (programmable fault function *3001*, *3022*)	Analog input AI2 signal has fallen below limit defined by parameter *3022 AI2 FAULT LIMIT*.	.
		Analog input signal is weak or does not exist.	Check the source and wire connections of analog input.
		Analog input signal is lower than fault limit.	Check parameters *3001 AI<MIN FUNCTION* and *3021 AI1 FAULT LIMIT*.

CODE	FAULT	CAUSE	WHAT TO DO
0009	MOT OVERTEMP (4310) *0305* bit 8 (programmable fault function *3005*…*3009* / *3504*)	Motor temperature estimation is too high.	
		Excessive load or insufficient motor power	Check motor ratings, load and cooling.
		Incorrect start-up data.	Check start-up data. Check fault function parameters *3005*...*3009*. Minimize IR compensation to avoid heating (parameter *2603 IR COMP VOLT*). Check frequency of the motor (low running frequency of motor with high input current can cause this fault). Let the motor cool down. The necessary cooling time period depends on the value of parameter *3006 MOT THERM TIME*. Motor temperature estimation is counted down only when the drive is powered on.
		Measured motor temperature has exceeded the fault limit set by parameter *3504 FAULT LIMIT*.	Check value of fault limit. Check that actual number of sensors corresponds to value set by parameter *3501 SENSOR TYPE*. Let the motor cool down. Ensure proper motor cooling: Check the cooling fan, clean cooling surfaces, etc.
0010	PANEL LOSS (5300) *0305* bit 9 (programmable fault function *3002*)	Control panel selected as active control location for drive has ceased communicating.	Check panel connection. Check fault function parameters. Check parameter *3002 PANEL COMM ERR*. Check control panel connector. Refit control panel in mounting platform. If the drive is in external control mode (REM) and is set to accept start/stop, direction commands or references through control panel: Check group *10 START/STOP/DIR* and *11 REFERENCE SELECT* settings.
0011	ID RUN FAIL (FF84) *0305* bit 10	Motor ID run is not completed successfully.	Check motor connection. Check start-up data (group *99 START-UP DATA*). Check maximum speed (parameter *2002*). It should be at least 80% of motor nominal speed (parameter *9908*). Ensure ID run has been performed according to instructions in section *ID run procedure* on page *71*.

CODE	FAULT	CAUSE	WHAT TO DO
0012	MOTOR STALL (7121) *0305* bit 11 (programmable fault function *3010*…*3012*)	Motor is operating in stall region due to, eg, excessive load or insufficient motor power.	Check motor load and drive ratings. Check fault function parameters *3010*...*3012*.
0014	EXT FAULT 1 (9000) *0305* bit 13 (programmable fault function *3003*)	External fault 1	Check external devices for faults. Check parameter *3003 EXTERNAL FAULT 1* setting.
0015	EXT FAULT 2 (9001) *0305* bit 14 (programmable fault function *3004*)	External fault 2	Check external devices for faults. Check parameter *3004 EXTERNAL FAULT 2* setting.
0016	EARTH FAULT (2330) *0305* bit 15 (programmable fault function *3017*)	Drive has detected earth (ground) fault in motor or motor cable.	Check motor. Check motor cable. Motor cable length must not exceed maximum specifications. See section *Motor connection data* on page *387*. **Note:** Disabling earth fault (ground fault) may damage drive.
		Drive internal fault.	Internal short-circuit may cause earth fault indication. This has happened if fault *0001* appears after disabling the earth fault. Replace the drive.
0017	UNDERLOAD (FF6A) *0306* bit 0 (programmable fault function *3013*…*3015*)	Motor load is too low due to, eg, release mechanism in driven equipment.	Check for problem in driven equipment. Check fault function parameters *3010*...*3012*. Check motor power against drive power.
0018	THERM FAIL (5210) *0306* bit 1	Temperature of the drive exceeds the operating level of the thermistor.	Check that the ambient temperature is not too low.
		Drive internal fault. Thermistor used for drive internal temperature measurement is open or short-circuited	Replace the drive.
0021	CURR MEAS (2211) *0306* bit 4	Drive internal fault. Current measurement is out of range.	Replace the drive.

CODE	FAULT	CAUSE	WHAT TO DO
0022	SUPPLY PHASE (3130) *0306* bit 5 (programmable fault function *3016*)	Intermediate circuit DC voltage is oscillating due to missing input power line phase or blown fuse.	Check input power line fuses and installation. Check for input power supply imbalance. Check the load.
		Trip occurs when DC voltage ripple exceeds 14% of nominal DC voltage.	Check fault function parameter *2619 DC STABILIZER*.
0023	ENCODER ERR (7301) *0306* bit 6 (programmable fault function *5003*)	Communication fault between pulse encoder and pulse encoder interface module or between module and drive.	Check pulse encoder and its wiring, pulse encoder interface module and its wiring and parameter group *50 ENCODER* settings.
0024	OVERSPEED (7310) *0306* bit 7	Motor is turning faster than 120% of the highest allowed speed due to incorrectly set minimum/maximum speed, insufficient braking torque or changes in load when using torque reference. Operating range limits are set by parameters *2001 MINIMUM SPEED* and *2002 MAXIMUM SPEED* (in vector control) or *2007 MINIMUM FREQ* and *2008 MAXIMUM FREQ* (in scalar control).	Check minimum/maximum frequency settings (parameters *2001 MINIMUM SPEED* and *2002 MAXIMUM SPEED*). Check adequacy of motor braking torque. Check applicability of torque control. Check need for brake chopper and resistor(s).
0027	CONFIG FILE (630F) *0306* bit 10	Internal configuration file error	Replace the drive.
0028	SERIAL 1 ERR (7510) *0306* bit 11 (programmable fault function *3018*, *3019*)	Fieldbus communication break	Check status of fieldbus communication. See chapter *Fieldbus control with embedded fieldbus* on page *313*, chapter *Fieldbus control with fieldbus adapter* on page *339* or appropriate fieldbus adapter manual. Check fault function parameter *3018 COMM FAULT FUNC* and *3019 COMM FAULT TIME* settings. Check connections and/or noise on the line. Check if master can communicate.
0029	EFB CON FILE (6306) *0306* bit 12	Configuration file reading error	Error in reading the configuration files of the embedded fieldbus. See fieldbus user's manual.

CODE	FAULT	CAUSE	WHAT TO DO
0030	FORCE TRIP (FF90) *0306* bit 13	Trip command received from fieldbus	Fault trip was caused by fieldbus. See fieldbus user's manual.
0034	MOTOR PHASE (FF56) *0306* bit 14	Motor circuit fault due to missing motor phase or motor thermistor relay (used in motor temperature measurement) fault.	Check motor and motor cable. Check motor thermistor relay (if used).
0035	OUTP WIRING (FF95) *0306* bit 15 (programmable fault function *3023*)	Incorrect input power and motor cable connection (ie, input power cable is connected to drive motor connection).	Possible power wiring error detected. Check that input power connections are not connected to drive output. Fault can be declared if input power is delta grounded system and motor cable capacitance is large. This fault can be disabled by parameter *3023 WIRING FAULT*.
0036	INCOMPATIBLE SW (630F) *0307* bit 3	Loaded software is not compatible.	Loaded software is not compatible with the drive. Contact your local ABB representative.
0037	CB OVERTEMP (4110) *0305* bit 12	Drive control board overheated. Fault given when measured temperature of the control board (indicated by signal *0150 CB TEMP*) reaches 95 °C for an IP20 drive or 102 °C for an IP66 drive (ACS355-…+B063). Parameter *3024 CB TEMP FAULT* is set to enable with fault.	Check for excessive ambient temperature. Check for fan failure. Check for obstructions in air flow. Check the dimensioning and cooling of cabinet.
0044	SAFE TORQUE OFF (FFA0) *0307* bit 4	STO (Safe torque off) requested and it functions correctly. Parameter *3025 STO OPERATION* is set to react with fault.	If this was not expected reaction to safety circuit interruption, check cabling of safety circuit connected to STO terminals X1C. If different reaction is required, change value of parameter *3025 STO OPERATION*. Reset fault before starting.
0045	STO1 LOST (FFA1) *0307* bit 5	STO (Safe torque off) input channel 1 has not de-energized, but channel 2 has. Opening contacts on channel 1 might have been damaged or there is a short-circuit.	Check STO circuit cabling and opening of contacts in STO circuit.

CODE	FAULT	CAUSE	WHAT TO DO
0046	STO2 LOST (FFA2) *0307* bit 6	STO (Safe torque off) input channel 2 has not de-energized, but channel 1 has. Opening contacts on channel 2 might have been damaged or there is a short-circuit.	Check STO circuit cabling and opening of contacts in STO circuit.
0101	SERF CORRUPT (FF55) *0307* bit 14	Drive internal error.	Replace the drive.
0103	SERF MACRO (FF55) *0307* bit 14		
0201	DSP T1 OVERLOAD (6100) *0307* bit 13	Drive internal error.	If fieldbus is in use, check the communication, settings and contacts. Write down fault code and contact your local ABB representative.
0202	DSP T2 OVERLOAD (6100) *0307* bit 13		
0203	DSP T3 OVERLOAD (6100) *0307* bit 13		
0204	DSP STACK ERROR (6100) *0307* bit 12		
0206	CB ID ERROR (5000) *0307* bit 11	Drive internal error.	Replace the drive.
1000	PAR HZRPM (6320) *0307* bit 15	Incorrect speed/frequency limit parameter setting	Check parameter settings. Check that following applies: • *2001 MINIMUM SPEED* < *2002 MAXIMUM SPEED* • *2007 MINIMUM FREQ* < *2008 MAXIMUM FREQ* • *2001 MINIMUM SPEED* / *9908 MOTOR NOM SPEED*, *2002 MAXIMUM SPEED* / *9908 MOTOR NOM SPEED*, *2007 MINIMUM FREQ* / *9907 MOTOR NOM FREQ* and *2008 MAXIMUM FREQ* / *9907 MOTOR NOM FREQ* are within range.

CODE	FAULT	CAUSE	WHAT TO DO
1003	PAR AI SCALE (6320) *0307* bit 15	Incorrect analog input AI signal scaling	Check parameter group *13 ANALOG INPUTS* settings. Check that following applies: • *1301 MINIMUM AI1* < *1302 MAXIMUM AI1* • *1304 MINIMUM AI2* < *1305 MAXIMUM AI2*.
1004	PAR AO SCALE (6320) *0307* bit 15	Incorrect analog output AO signal scaling	Check parameter group *15 ANALOG OUTPUTS* settings. Check that following applies: • *1504 MINIMUM AO1* < *1505 MAXIMUM AO1*.
1005	PAR PCU 2 (6320) *0307* bit 15	Incorrect motor nominal power setting	Check parameter *9909 MOTOR NOM POWER* setting. Following must apply: • 1.1 < (*9906 MOTOR NOM CURR* · *9905 MOTOR NOM VOLT* · 1.73 / P_N) < 3.0 Where P_N = 1000 · *9909 MOTOR NOM POWER* (if units are in kW) or P_N = 746 · *9909 MOTOR NOM POWER* (if units are in hp).
1006	PAR EXT RO (6320) *0307* bit 15 (programmable fault function *3027*)	Incorrect relay output extension parameters	Check parameter settings. Check that following applies: • Output relay module MREL-01 is connected to drive. See parameter *0181 EXTENSION*. • *1402 RELAY OUTPUT 2*, *1403 RELAY OUTPUT 3* and *1410 RELAY OUTPUT 4* have non-zero values. See *MREL-01 output relay module user's manual* (3AUA0000035974 [English]).
1007	PAR FBUSMISS (6320) *0307* bit 15	Fieldbus control has not been activated.	Check fieldbus parameter settings. See chapter *Fieldbus control with fieldbus adapter* on page *339*.
1009	PAR PCU 1 (6320) *0307* bit 15	Incorrect motor nominal speed/frequency setting	Check parameter settings. Following must apply for induction motor: • 1 < (60 · *9907 MOTOR NOM FREQ* / *9908 MOTOR NOM SPEED*) < 16 • 0.8 < *9908 MOTOR NOM SPEED* / (60 · *9907 MOTOR NOM FREQ* / *9913 MOTOR POLE PAIRS*) < 0.992 Following must apply for permanent magnet synchronous motor: • *9908 MOTOR NOM SPEED* / (60 · *9907 MOTOR NOM FREQ* / *9913 MOTOR POLE PAIRS*) = 1.0

CODE	FAULT	CAUSE	WHAT TO DO
1015	PAR USER U/F (6320) *0307* bit 15	Incorrect voltage to frequency (U/f) ratio voltage setting.	Check parameter *2610 USER DEFINED U1* … *2617 USER DEFINED F4* settings.
1017	PAR SETUP 1 (6320) *0307* bit 15	Only two of the following can be used simultaneously: MTAC-01 pulse encoder interface module, frequency input signal or frequency output signal.	Disable frequency output, frequency input or encoder: • change transistor output to digital mode (value of parameter *1804 TO MODE* = 0 [*DIGITAL*]), or • change frequency input selection to other value in parameter groups *11 REFERENCE SELECT*, *40 PROCESS PID SET 1*, *41 PROCESS PID SET 2* and *42 EXT / TRIM PID*, or • disable (parameter *5002 ENCODER ENABLE*) and remove MTAC-01 pulse encoder interface module.