Diagnostics and Troubleshooting

What's in This Chapter

Overview

This chapter describes the various types of diagnostics and provides troubleshooting assistance.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the instructions in **Safety Information** chapter before performing any procedure in this chapter.

Failure to follow these instructions will result in death or serious injury.

Warning Codes

Warning Codes

List of Available Warnings Messages

Setting	Code	Description
[No Warning stored]	nOA	No warning stored
[Fallback Frequency]	FrF	Reaction on event: Fallback frequency
[Speed Maintained]	rLS	Reaction on event: Speed maintained
[Type of stop]	StE	Reaction on event: Stop following **[Type of stop]** StE without triggering an error
[Ref Frequency Warning]	SrA	Frequency reference reached
[Life Cycle Warn 1]	LCA1	Life cycle warning 1
[Life Cycle Warn 2]	LCA2	Life cycle warning 2
[PumpCycle warning]	PCPA	Pumpcycle monitoring warning , page 255
[PID error Warning]	PEE	PID error warning , page 385
[PID Feedback Warn]	PFA	PID feedback warning , page 377
[PID High Fdbck Warn]	PFAH	PID feedback high threshold reached , page 377
[PID Low Fdbck Warn]	PFAL	PID feedback low threshold reached , page 377
[Regulation Warning]	P,SH	PID feedback monitoring warning , page 248
[Limit Switch Reached]	LSA	Limit switch reached , page 412
[Slack Rope Warning]	rSdA	Slack rope warning , page 328
[Dynamic Load Warning]	dLdA	Dynamic load warning , page 329
[AI3 Th Warning]	tP3A	AI3 Thermal warning , page 166
[AI4 Th Warning]	tP4A	AI4 Thermal warning , page 166
[AI5 Th Warning]	tP5A	AI5 Thermal warning , page 166
[AI1 4-20 Loss Warning]	AP1	AI1 4-20 mA loss warning , page 537
[AI3 4-20 Loss Warning]	AP3	AI3 4-20 mA loss warning , page 537
[AI4 4-20 Loss Warning]	AP4	AI4 4-20 mA loss warning , page 537
[AI5 4-20 Loss Warning]	AP5	AI5 4-20 mA loss warning , page 537
[Drive Thermal Warning]	tHA	Drive overhearting warning
[IGBT Thermal Warning]	tJA	IGBT thermal state warning
[Fan Counter Warning]	FCtA	Fan counter speed warning , page 569
[Fan Feedback Warning]	FFdA	Fan feedback warning , page 569
[BR Thermal Warning]	boA	Braking resistor thermal warning
[Ext. Error Warning]	EFA	External error warning , page 530
[Undervoltage Warning]	uSA	Undervoltage warning , page 547
[Preventive UnderV Active]	uPA	Controlled stop threshold is reached , page 547
[Forced Run]	Frn	Drive in forced run
[Mot Freq High Thd]	FtA	Motor frequency high threshold 1 reached , page 388
[Mot Freq Low Thd]	FtAL	Motor frequency low threshold 1 reached , page 388
[Pulse Warn Thd Reached]	F9LA	Pulse warning threshold reached , page 462
[Mot Freq Low Thd 2]	F2AL	Motor frequency low threshold 2 reached , page 388
[High Speed Reached]	FLA	High speed reached warning

Setting	Code	Description
[Ref Freq High Thd reached]	rtAH	Reference frequency high threshold reached , page 389
[Ref Freq Low Thd reached]	rtAL	Reference frequency low threshold reached , page 390
[2nd Freq Thd Reached]	F2A	Motor frequency high threshold 2 reached , page 389
[Current Thd Reached]	CtA	Motor current high threshold reached , page 388
[Low Current Reached]	CtAL	Motor current low threshold reached , page 388
[High Torque Warning]	ttHA	High torque threshold reached , page 390
[Low Torque Warning]	ttLA	Low torque threshold reached , page 390
[Process Undld Warn]	uLA	Process underload warning , page 454
[Process Overload Warning]	oLA	Overload warning , page 457
[Torque Limit Reached]	SSA	Torque limit reached , page 556
[Torque Control Warning]	rtA	Torque control warning , page 422
[Drv Therm Thd reached]	tAd	Drive thermal threshold reached
[Motor Therm Thd reached]	tSA	Motor thermal threshold reached , page 389
[Mot2 Therm Thd reached]	tS2	Motor 2 thermal threshold reached , page 389
[Mot3 Therm Thd reached]	tS3	Motor 3 thermal threshold reached , page 389
[Mot4 Therm Thd reached]	tS4	Motor 4 thermal threshold reached , page 389
[Power High Threshold]	PtHA	Power high threshold reached
[Power Low Threshold]	PtHL	Power low threshold reached
[Cust Warning 1]	CAS1	Customer warning 1 active , page 566
[Cust Warning 2]	CAS2	Customer warning 2 active , page 567
[Cust Warning 3]	CAS3	Customer warning 3 active
[Cust Warning 4]	CAS4	Customer warning 4 active
[Cust Warning 5]	CASS	Customer warning 5 active
[AFE Mains Undervoltage]	urA	AFE mains undervoltage
[Power Cons Warning]	PoWd	Power consumption warning
[Slipping warn]	AnA	Slipping warning , page 553
[Load Mvt Warn]	bSA	Load movement warning
[Brake Cont Warn]	bCA	Brake contact warning
[AI1 Th Warning]	tP1A	AI1 Thermal warning , page 166
[Backspin Active]	bSC	Backspin control function is active , page 252
[MonitorCircuit A Warn]	iWA	Monitoring circuit A warning
[MonitorCircuit B Warn]	iWb	Monitoring circuit B warning
[MonitorCircuit C Warn]	iWC	Monitoring circuit C warning
[MonitorCircuit D Warn]	iWd	Monitoring circuit D warning
[CabinetCircuit A Warn]	CWA	Cabinet circuit A warning , page 571
[CabinetCircuit B Warn]	CWb	Cabinet circuit B warning , page 572
[CabinetCircuit C Warn]	CWC	Cabinet circuit C warning , page 572
[MotorWinding A Warn]	tWA	Motor winding A warning , page 573
[MotorWinding B Warn]	tWb	Motor winding B warning , page 574
[MotorBearing A Warn]	tWC	Motor bearing A warning , page 574
[MotorBearing B Warn]	tWd	Motor bearing B warning , page 575
[Circuit Breaker Warn]	CbW	Circuit breaker warning , page 576

Setting	Code	Description
[Cab I/O 24V Warn]	P24C	Cabinet I/O 24V missing warning
[AFE Motor Limitation]	CL_M	AFE motor limitation , page 437
[AFE Generator Limitation]	CL_G	AFE regen limitation , page 437
[AFE Sensor thermal state]	tHSA	AFE thermal state warning
[AFE IGBT thermal state]	tHJA	AFE IGBT thermal warning
[Cabinet Fan Fdbck Warn]	FFCA	Cabinet fan feedback warning , page 569
[Cabinet Fan Counter Warn]	FCCA	Cabinet fan counter warning , page 569
[Cabinet Overheat Warn]	CHA	Cabinet overheat warning , page 560
[CMI Jumper Warn]	CM_J	CMI jumper warning
[AFE Fan Counter Warn]	FCbA	AFE fan counter warning , page 569
[AFE Fan Fdbck Warn]	FFbA	AFE fan feedback warning , page 569
[M/S Device Warn]	MSdA	Master/Slave device warning , page 258
[BUO Fan Counter Warn]	FCbb	BUO fan counter warning
[Backlash Warn]	bS9A	Backlash warning , page 286
[BUO Fan Fdbck Warn]	FFbb	BUO fan feedback warning
[BUO Thermal State Warn]	tHWb	BUO thermal state warning
[AFE Bus Ref Warn]	MdW	AFE bus reference link warning
[Encoder Thermal Warn]	tPEA	Encoder module thermal warning , page 166
[Temp Sens AI1 Warn]	tS1A	Temperature sensor AI1 warning (open circuit)
[Temp Sens AI3 Warn]	tS3A	Temperature sensor AI3 warning (open circuit)
[Temp Sens AI4 Warn]	tS4A	Temperature sensor AI4 warning (open circuit)
[Temp Sens AI5 Warn]	tS5A	Temperature sensor AI5 warning (open circuit)
[DC Bus Ripple Warn]	dCrW	DC Bus Ripple Warning , page 202
[Cooling Pump Warn]	CoPA	Cooling pump warning resulting from the detection of an error during pump operation or resulting from **[Pump diagnostics]** CPt (related to ATV9L0).
[Module Overheat]	MoA	Module overheating warning resulting from the ambient temperature monitoring
[Fallback Channel]	AFFL	Automatic fallback behavior activated after a fieldbus communication interruption , page 546
[ON Lock Warning]	LKon	ON lock warning resulting from an external device not ready.

Error Codes

Overview

Clearing the Detected Error

This table presents the steps to follow if intervention on the drive system is required:

Step	Action
1	Disconnect all power, including external control power that may be present.
2	Lock all power disconnects in the open position.
3	Wait 15 minutes to allow the DC bus capacitors to discharge (the drive LEDs are not indicators of the absence of DC bus voltage).
4	Measure the voltage of the DC bus between the PA/+ and PC/- terminals to ensure that the voltage is less than 42 Vdc.
5	If the DC bus capacitors do not discharge completely, contact your local Schneider Electric representative. Do not repair or operate the drive.
6	Find and correct the cause of the detected error.
7	Restore power to the drive to confirm that the detected error has been rectified.

After the cause has been removed, the detected error can be cleared by:

- Switching off the drive.
- Using the **[Product Restart]** rP parameter.
- Using the digital input or the control bit assigned to **[Prod Restart Assign]** rPA.
- Using the **[Auto Fault Reset]** AtrP function.
- A digital input or control bit set to the **[Fault reset]** rSt function.
  - For **[Fault Reset Assign]** rSF and **[Extended Fault Reset]** HrCF refer to **[Fault reset]** rSt - Menu, page 522.
- Pressing the **STOP/RESET** key on the Graphic Display Terminal depending on the setting of **[Stop Key Enable]** PSt.

How To Clear the Error Code?

The following table summarizes the possibilities to clear a detected error after the cause has been removed:

How to clear the error code after the cause has been removed	List of the cleared error
• Switch off the drive. • Use the **[Product Restart]** rP parameter. • Use the digital input or the control bit assigned to **[Prod Restart Assign]** rPA.	All detected error.
• As soon as its cause has been removed.	CFF, CFI, CFI2, CFI3, CFI4, CSF, FWER, HCF, PGLF, PHF, URF, USF
• Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF. • Pressing the **RESET** button on the HMI panel	ACF1, ACF2, ACF3, ANF, ASF, BRF, BSQF, ECF, ENF, MDF, MFF, SOF, SPF, TNF

How to clear the error code after the cause has been removed	List of the cleared error
• Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF. • Pressing the **RESET** button on the HMI panel • Use the **[Auto Fault Reset]** AtrP function.	BOF, BUHF, CFA, CFB, CFC, CHF, CNF, COF, COPF, DLF, EPF1, EPF2, ETHF, FCF2, FDR1, FDR2, FFDF, IDLF, IFA, IFB, IFC, IFD, IHF, INF9, INFB, INFV, LCF, LFF1, LFF3, LFF4, LFF5, LKON, MDLF, MOF, MSDF, OBF, OBF2, OHF, OLC, OLF, OPF1, OPF2, OSF, P24C, PCPF, PFMF, SCF4, SCF5, SLF1, SLF2, SLF3, SRF, SSF, STF, T1CF, T3CF, T4CF, T5CF, TECF, TFA, TFB, TFC, TFD, TH1F, TH3F, TH4F, TH5F, THEF, TJF, TJF2, TLOF, ULF
If **[Fault Reset Assign]** HrFC is set to YES: • Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF, • Press the **STOP/RESET** key on the Graphic Display Terminal depending on the setting of **[Stop Key Enable]** PSt.	CRF1, INFD, SCF1

[AFE DC-Caps Error] ACF 1

Probable Cause

AFE DC-capacitors error: DC-capacitors overcurrent.

- Low mains voltage for too long.
- Mains voltage is on a low limit, the modulation rate of the AFE increases to help protect the DC link capacitors the **[AFE Modulation Rate Error]** ACF 1 is triggered.

Remedy

- Verify mains voltage.
- Verify parameter setting for mains voltage.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE Current Control Error] ACF 2

Probable Cause

Mains voltage interruption.

Remedy

- Verify mains voltage.
- Reduce number of voltage drop-downs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE Line Filter Error] ACF3

Probable Cause

Mains voltage drops during generator operation.

Remedy

Verify mains voltage.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Load slipping] AnF

Probable Cause

Not following the ramp. The difference between the output frequency and the speed feedback is not correct.

Remedy

- Confirm the drive rating according to the application (motor, load, and so on.)
- Verify the motor, gain, and stability parameters.
- Add a braking resistor.
- Verify the mechanical coupling and wiring of the encoder.
- If the torque control function is used and if the encoder is assigned to speed feedback,
  - Set **[Load slip detection]** Sdd = **[No]** no.
  - Set both **[Positive deadband]** dbP and **[Negative deadband]** dbn to a value less than 10% of the nominal motor frequency.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Angle error] A S F

Probable Cause

This error is triggered during the phase-shift angle measurement if the motor phase is disconnected or if the motor inductance is too high.

Remedy

- Verify the motor phases and the maximum current allowed by the drive.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Brake Control] b L F

Probable Cause

- Brake release current not reached.
- The torque set point is not reached.
- The fluxing current is not stable.

Remedy

- Verify the drive/motor connection.
- Verify the motor windings.
- Verify the **[Brk Release Current]** I b r and **[Brake release I Rev]** I r d settings.

Clearing the Error Code

This detected error requires a power reset.

[Brake Resistor ovid] bOF

Probable Cause

The braking resistor is overloaded

Remedy

- Wait for the braking resistor to cool down.
- Verify the nominal power of the braking resistor.
- Verify the **[Braking Resistor Power]** brP and **[Braking Resistor Value]** brV parameters.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Brake Feedback] brF

Probable Cause

- The status of the brake feedback contact or the status of the brake relay feedback is not correct compared to the brake logic control.
- The brake does not stop the motor quickly enough (detected by measuring the speed on the "Pulse input" input).

Remedy

- Verify the brake feedback circuit.
- Verify the brake logic control circuit.
- Verify the brake behavior.
- Verify that the setting of **[Brake Release Time]** brt and **[Brake Engage Time]** BET take into account the brake response time, **[Brake Fdbk Filter]** FbC1 and **[Brake Rly Fdbk Filter]** Fbr1.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Backlash Error] bS9F

Probable Cause

The torque threshold used for backlash function can not be reached after **[BL Monit Delay]** b9t .

Remedy

- Verify the settings
- Verify the coupling

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[DB unit sh. circuit] bUF

Probable Cause

- Short-circuit from braking unit.
- Braking unit not connected. (not applicable for drive system braking unit option).

Remedy

- Verify the wiring of the braking unit.
- Verify that the braking unit value is not too low.

Clearing the Error Code

This detected error requires a power reset.

[DB unit op. circuit] bUFo

Probable Cause

- Open-circuit from braking unit and/or braking resistor.
- Low current from braking unit and/or braking resistor.
- Braking unit not connected and/or braking resistor.

Remedy

- Verify the wiring of the braking unit and braking resistor.
- Verify that the total resistance value of the braking resistor is not too high.

Clearing the Error Code

This detected error requires a power reset.

[BUO Overheat error] bUHF

Probable Cause

The cabinet thermal switch of the braking unit option is at active state, the fan cabinet has been switched on but there is no fan feedback.

The digital inputs DI50 and DI51 of supply units equipped with Cabinet IO are configured as cabinet temperature monitoring. If the enclose thermo switch opens in case of over temperature, the **[BUO Overheat Error]** bUHF is triggered. Or the braking unit option internal temperature is too high.

Remedy

- Verify the braking unit option cabinet fan and its wiring.
- Verify the temperature in the braking unit option enclosure is not too high.
- Verify the setting of the thermo switch of the BUO (must be 60 °C (140 °F)).
- Verify the BUO load, the ventilation, and the ambient temperature. Wait for the supply unit to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[BUO Overcurrent error] bUoC

Probable Cause

- Parameters in the **[Braking Resistor monit]** brP- menu are not correct.
- Braking load too high.

Remedy

- Verify the braking unit parameters.
- Check the braking resistor.

Clearing the Error Code

This detected error requires a power reset.

[Circuit Breaker Error] CbF

Probable Cause

The DC bus voltage level is not correct compared to the circuit breaker logic control (start or stop pulse) after the configured timeout **[Mains V. time out]** LCt.

Remedy

- Verify the circuit breaker logic control (pulse time for start and stop).
- Verify the mechanical state of the circuit breaker.

Clearing the Error Code

This detected error requires a power reset.

[CabinetCircuit A Error] CFA

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit A Assign]** CFAA is active when the detected error duration is longer than **[CabinetCircuit A Delay]** FdA.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit A Assign]** CFAA parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[CabinetCircuit B Error] CFb

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit B Assign]** CFAb is active when the detected error duration is longer than **[CabinetCircuit B Delay]** Fdb.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit B Assign]** CFAb parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[CabinetCircuit C Error] CFC

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit C Assign]** CFAC is active when the detected error duration is longer than **[CabinetCircuit C Delay]** FdC.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit C Assign]** CFAC parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Incorrect Configuration] CFF

Probable Cause

- Option module changed or removed.
- Control block replaced by a control block configured on a drive with a different rating.
- The current configuration is inconsistent.

Remedy

- Verify that there is no detected error on the option module.
- In the event of the control block being changed deliberately, see the remarks below.
- Return to factory settings or retrieve the backup configuration if it is valid.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Invalid Configuration] CF ,

Probable Cause

Invalid configuration. The configuration loaded in the drive via the commissioning tool or fieldbus is inconsistent.

Remedy

- Verify the loaded configuration.
- Load a valid configuration.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Conf Transfer Error] CF 12

Probable Cause

- The configuration transfer to the drive was not successful or interrupted.
- The configuration loaded is not compatible with the drive.

Remedy

- Verify the configuration loaded previously.
- Load a compatible configuration.
- Use PC software commissioning tool to transfer a compatible configuration
- Perform a factory setting

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Pre-settings Transfer Error] CF 13

Probable Cause

The configuration transfer to the drive was not successful or interrupted.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Empty Configuration] CF ,4

Probable Cause

The selected configuration for the **[Multimotors config]** MMC - function has not been created previously.

Remedy

- Verify the configurations saved.
- Switch to a compatible configuration.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Cabinet Overheat Error] CHF

Probable Cause

The cabinet thermal switch is at active state, the cabinet fan(s) has been switched on but there is no fan feedback.

The digital inputs DI50 and DI51 of drives equipped with Cabinet IO are configured as cabinet temperature monitoring. If the enclose thermo switch opens in case of over temperature, the **[Cabinet Overheat Error]** CHF is triggered.

This error can be triggered only in RUN state. On other state, the **[Cabinet Overheat Warn]** CHA is active.

Remedy

- Verify cabinet fan(s) and its wiring.
- Verify the temperature in the enclosure is not too high.
- Verify the setting of the thermoswitch (must be 60°C (140°F))

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Fieldbus Com Interrupt] CnF

Probable Cause

Communication interruption on fieldbus module.

This error is triggered when the communication between the fieldbus module and the master (PLC) is interrupted.

Remedy

- Verify the environment (electromagnetic compatibility).
- Verify the wiring.
- Verify the timeout.
- Replace the option module.
- Contact your local Schneider Electric representative

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrorA manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[CANopen Com Interrupt] CoF

Probable Cause

Communication interruption on the CANopen® fieldbus

Remedy

- Verify the communication fieldbus.
- Verify the timeout.
- Refer to the CANopen® user manual.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrorA manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Cooling Pump Error] CoPF

Probable Cause

Cooling pump is not working.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Precharge Capacitor] CrF1

Probable Cause

- Charging circuit control detected error or charging resistor damaged.
- Supply mains too low.

Remedy

- Turn off the drive and then turn on again.
- Verify the setting of **[DC Bus Source Type]** dCbS
- Verify the internal connections.
- Verify the voltage and the parameters of **[Undervoltage handling]** usb.
- Contact your local Schneider Electric representative

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter enabled after the cause has been removed.

[AFE contactor fdbk error] CrF3

Probable Cause

- The mains contactor feedback is inactive during DC Bus charging phase.
- The mains contactor feedback becomes inactive without mains phase loss detection while the drive is in operation (Ready or Run state).

Remedy

- Verify the feedback circuit.
- Verify the mechanical state of the mains contactor.

Clearing the Error Code

This detected error requires a power reset.

[Channel Switch Error] C5F

Probable Cause

Switch to an invalid channel.

Remedy

Verify the function parameters.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Dynamic Load Error] dLF

Probable Cause

Load variation out of range.

Remedy

Verify for a mechanical cause of load instability.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[DC Bus Ripple Error] dCrE

Probable Cause

Persistent ripple observed on the DC bus or DC bus capacitors damaged.

Remedy

- Turn off the drive and then turn on again.
- Verify correct behavior of the input filter.
- Verify the mains wirings.
- Verify the internal connections.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Encoder Coupling] E C F

Probable Cause

The mechanical coupling of the encoder is broken.

The detection is active when **[Encoder Coupling Monit]** E C C parameter is set to **[Yes]** Y E S.

It triggers the error when the speed feedback is 0 and the drive is in torque or current limitation.

The limits for speed feedback are:

- 5 Hz for minimum
- 10% of **[Nominal Motor Freq]** F r S for maximum
- Verify the setting of **[Encoder Coupling Monit]** E C C parameter.
- Verify the setting of **[Encoder check time]** E C t parameter.

The monitoring is not compatible with torque or current limitation functions.

Remedy

Verify the mechanical coupling of the encoder.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[EEPROM Control] E E F 1

Probable Cause

An error of the internal memory of the control block has been detected.

Remedy

- Verify the environment (electromagnetic compatibility).
- Switch off the product.
- Return to factory settings.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[EEPROM Power] E E F 2

Probable Cause

An error of the internal memory of the power board has been detected.

Remedy

- Verify the environment (electromagnetic compatibility).
- Switch off the product.
- Return to factory settings.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Encoder] E n F

Probable Cause

Encoder feedback error.

The difference between the measured and estimated speed is greater than 4% of **[Nominal Motor Freq]** F r S or **[Sync Nominal Freq]** F r S S.

Remedy

- Verify the configuration parameters for the encoder used.
- Verify the mechanical and electrical operation of the encoder.
- Verify the consistency between the encoder signals and the direction of rotation of the motor.
- If necessary, reverse the direction of rotation of the motor (**[Output Ph rotation]** P H r parameter)
- Verify the encoder module.
- Verify the encoder type and supply voltage.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[External Error] E P F 1

Probable Cause

- Event triggered by an external device, depending on user.
- An external error has been triggered via Embedded Ethernet.
- The error is caused by an external circuit.
- Ethernet configuration file is corrupted.

Remedy

- Remove the cause of the external error.
- Perform a factory setting of the Ethernet configuration or modify the **IP Mode**

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Fieldbus Error] E P F 2

Probable Cause

Event triggered by an external device, depending on user.

Remedy

Remove the cause of the external error.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Embd Eth Com Interrupt] E E H F

Probable Cause

Communication interruption on the Ethernet IP ModbusTCP bus.

Remedy

- Verify the communication bus.
- Refer to the Ethernet user manual.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A E r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Out Contact Closed Error] F C F I

Probable Cause

The output contactor remains closed although the opening conditions have been met.

Remedy

- Verify the output contactor and its wiring.
- Verify the contactor feedback wiring.

Clearing the Error Code

This detected error requires a power reset.

[Out Contact Opened Error] FCF2

Probable Cause

The output contactor remains opened although the closing conditions have been met.

Remedy

Verify the output contactor and its wiring. Verify the contactor feedback wiring.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[FDR 1 Error] Fdr1

Probable Cause

- Embedded Ethernet FDR error
- Communication interruption between the drive and the PLC
- Configuration file incompatible, empty or invalid
- Drive rating not consistent with the configuration file

Remedy

- Verify the drive and PLC connection
- Verify the communication workload
- Restart the transfer of configuration file from drive to PLC

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[FDR 2 Error] F d r 2

Probable Cause

- Ethernet fieldbus module FDR error
- Communication interruption between the drive and the PLC
- Configuration file incompatible, empty or corrupted
- Drive rating not consistent with the configuration file

Remedy

- Verify the drive and PLC connection
- Verify the communication workload
- Restart the transfer of configuration file from drive to PLC

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Fan Feedback Error] F F d F

Probable Cause

Fan speed too low.

[Fan Feedback Warning] F F d A warning has been active for a time longer than 10 minutes.

Remedy

Replace the fan.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Firmware Update Error] FWEr

Probable Cause

Firmware update function has detected an error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Boards Compatibility] HCF

Probable Cause

Hardware configuration error.

The **[Pairing password]** PP ı parameter has been enabled and an option module has been changed.

Remedy

- Refit the original option module.
- Confirm the configuration by entering the **[Pairing password]** PP ı if the module was changed deliberately.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Egy Saving Exit Error] ,dLF

Probable Cause

The drive is not turned on even though **[Egy Saving Timeout]** ,dLt has elapsed.

Remedy

- Verify the Supply Mains/contactor/drive wiring.
- Verify the timeout.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MonitorCircuit A Error] ,FA

Probable Cause

The digital input assigned to **[MonitorCircuit A Assign]** ,FAA is active for longer than **[MonitorCircuit A Delay]** ,FdA.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit A Assign]** ,FAA parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MonitorCircuit B Error] ,Fb

Probable Cause

The digital input assigned to **[MonitorCircuit B Assign]** ,FAb is active for longer than **[MonitorCircuit B Delay]** ,Fdb.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit B Assign]** ,FAb parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MonitorCircuit C Error] ,FC

Probable Cause

The digital input assigned to **[MonitorCircuit C Assign]** ,FAC is active for longer than **[MonitorCircuit C Delay]** ,FdC.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit C Assign]** ,FAC parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MonitorCircuit D Error] ıFd

Probable Cause

The digital input assigned to **[MonitorCircuit D Assign]** ıFAd is active for longer than **[MonitorCircuit D Delay]** ıFdd.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit D Assign]** ıFAd parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Input Overheating] ıHF

Probable Cause

The AFE brick temperature is too high.

Remedy

Verify the drive ventilation and the ambient temperature. Wait for the drive to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Internal Link Error] ılF

Probable Cause

Communication interruption between option module and the drive.

Remedy

- Verify the environment (electromagnetic compatibility).
- Verify the connections.
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 0] ılnF0

Probable Cause

- Communication interruption between microprocessors of the control board.
- The power board rating is not valid.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 1] inF1

Probable Cause

The power board rating is not valid.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 2] inF2

Probable Cause

The power board is incompatible with the control block software.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 3] inF3

Probable Cause

Internal communication detected error.

Remedy

- Verify the wiring on drive control terminals (internal 10V supply for analog inputs overloaded).
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 4] inF4

Probable Cause

Internal data inconsistent.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 6] inF6

Probable Cause

- The option module installed in the drive is not recognized.
- The removable control terminal modules (if existing) are not present or not recognized.
- The embedded Ethernet adapter is not recognized.

Remedy

- Verify the catalog number and compatibility of the option module.
- Plug the removable control terminal modules after the drive has been switched off.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 7] inF7

Probable Cause

Communication interruption with CPLD component of Control board.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 8] inF8

Probable Cause

The internal power switching supply is not correct.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 9] inF9

Probable Cause

An error on the current circuit measurement has been detected.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** r5F parameter after the cause has been removed.

[Internal Error 10] inFA

Probable Cause

The input stage is not operating correctly.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 11] inFb

Probable Cause

The internal drive thermal sensor is not operating correctly.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Internal Error 12] ınFC

Probable Cause

Internal current supply error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 13] ınFd

Probable Cause

Differential current deviation.

Remedy

Verify connection of DigiLink cable (GG45).

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter enabled after the cause has been removed.

[Internal Error 14] ınFE

Probable Cause

Internal microprocessor detected error.

Remedy

- Verify that the error code can be cleared.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 15] ınFF

Probable Cause

Serial memory flash format error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 16] inFG

Probable Cause

Communication interruption or internal error of output relays option module

Remedy

- Verify that the option module is correctly connected to the slot
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 17] inFH

Probable Cause

Communication interruption with the Extension module of digital & analog I/O or internal error of the Extension module of digital & analog I/O.

Remedy

- Verify that the option module is correctly connected to the slot
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 18] ıոFı

Probable Cause

Safety Module Internal Error

- Communication interruption with Safety function module.
- Internal error of the Safety function module.

Remedy

- Verify the Safety Module errors for additional information.
- Verify that the option module is correctly inserted into the slot.
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 19] ıոFJ

Probable Cause

An error on the encoder module has been detected.

Remedy

- Verify if the encoder option module is connected correctly to the slot.
- Verify the compatibility of the encoder.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 20] ınFK

Probable Cause

Option module interface board error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 21] ınFL

Probable Cause

Internal Real Time Clock error. It could be a communication error between the keypad and the drive or a clock oscillator start error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 22] inF11

Probable Cause

An error on the embedded Ethernet adapter has been detected.

Unstability of external 24 Vdc supply.

Remedy

Verify the connection to the Ethernet port.

Verify the 24 Vdc stability.

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 23] inF12

Probable Cause

A communication interruption between the control block and AFE or BU bricks has been detected.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 25] ınFP

Probable Cause

Incompatibility between Control Board hardware version and firmware version.

Remedy

- Update the firmware package.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 27] ınFr

Probable Cause

Diagnostics in CPLD have detected an error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 28] inF5

Probable Cause

An error on the AFE brick has been detected.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 29] inF6

Probable Cause

An error on the power unit / inverter brick has been detected.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 30] inFb

Probable Cause

An error on the rectifier brick has been detected or an **[Input phase loss]** PHF error has been triggered when the DC bus is charged.

Remedy

Turn off the drive and then turn on again.

If **[Input phase loss]** PHF error code replaces **[Internal Error 30]** inFb, refer to the instructions of **[Input phase loss]** PHF error , page 682 otherwise contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 31] inFV

Probable Cause

An error on the brick architecture has been detected (brick unavailable).

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Internal Error 32] inFW

Probable Cause

Firmware update function has detected an error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Input Contactor] LCF

Probable Cause

The drive is not switched on even though **[Mains V. time out]** LCt timeout has elapsed.

Remedy

- Verify the input contactor and its wiring.
- Verify the **[Mains V. time out]** LCt timeout.
- Verify the supply mains/contactor/drive wiring.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI1 4-20mA loss] LFFI

Probable Cause

Loss of the 4-20 mA on analog input AI1.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI1 4-20mA loss]** LFLI parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrF or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI3 4-20mA loss] LFF3

Probable Cause

Loss of the 4-20 mA on analog input AI3.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI3 4-20mA loss]** LFL3 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrF or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI4 4-20mA loss] LFF4

Probable Cause

Loss of the 4-20 mA on analog input AI4.

This error is triggered when the measured current is below 2mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI4 4-20mA loss]** LFL4 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI5 4-20mA loss] LFF5

Probable Cause

Loss of the 4-20 mA on analog input AI5.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI5 4-20mA loss]** LFL5 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[ON Lock Error] LKon

Probable Cause

External device not ready.

Remedy

Verify external device assigned to ON lock input.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** r5F parameter after the cause has been removed.

[AFE Bus Ref Error] ndF

Probable Cause

Communication interruption or disturbance of the DC bus reference link between the Supply Unit AFE and the drives during operation.

- If the DC bus reference is shared using PTI/PTO, the error is triggered if the PTI signal is less than 10 kHz.
- If the DC bus reference is shared using Modbus Serial line, the error is triggered if the drive does not receive a new value within the **[Modbus Timeout]** Etо value.

Remedy

If DC bus reference is shared using PTI/PTO:

- Verify the values of PTI and PTO signals.
- Verify PTI parameters configuration on drive side.
- Verify PTO parameters configuration on Supply Unit AFE side.
- Verify that only 4 drives maximum are connected on PTO signal (PTO max current is 20 mA and PTI consumption is 5 mA)

If DC bus reference is shared using Modbus Serial:

- Verify the Modbus serial communication line.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** r5F parameter after the cause has been removed.

[Load Mvt Error] ndCF

Probable Cause

Load movement for which no command has been given.

Remedy

Verify the brake command circuit. Verify the brake.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MultiDrive Link Error] ndLF

Probable Cause

- The communication has been interrupted while running.
- The function has detected an inconsistency in the system configuration.

Remedy

- Check the communication network.
- Check the configuration of the multi-drive link function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Mains Freq Out Of Range] ΠFF

Probable Cause

[Mains Frequency] FRC on the AFE brick is out of range.

Remedy

Verify the mains frequency.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Module Overheat] ΠoF

Probable Cause

Cabinet temperature too high.

[Module Overheat] ΠoA warning has been active for a time longer than 10 minutes.

Remedy

Verify the cooling of the cabinet.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[M/S Device Error] nSdF

Probable Cause

- For a master, one or more slaves are not present or not ready.
- For a slave, the master is not present.

Remedy

- Verify the drive status.
- Verify the settings of the master/slave architecture.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[DC Bus Overvoltage] obF

Probable Cause

- Deceleration time too short or driving load too high.
- Supply mains voltage too high.

Remedy

- Increase the deceleration time.
- Configure the **[Dec ramp adapt.]** brA function if it is compatible with the application.
- Verify the supply mains voltage.
- Verify the braking circuit capability if present.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE Bus unbalancing] o b F 2

Probable Cause

- AFE DC bus unbalancing.
- Supply mains voltage too high.
- Total generative power too high

Remedy

- Verify the supply mains voltage.
- Contact your local Schneider Electric representative

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Overcurrent] o C F

Probable Cause

- Parameters in the **[Motor data]** M o A - menu are not correct.
- Inertia or load too high.
- Mechanical locking.

Remedy

- Verify the motor parameters.
- Verify the size of the motor/drive/load.
- Verify the state of the mechanism.
- Decrease **[Current limitation]** C L ,.
- Increase the switching frequency.

Clearing the Error Code

This detected error requires a power reset.

[Drive Overheating] oHF

Probable Cause

Drive temperature too high.

Remedy

Verify the motor load, the drive ventilation, and the ambient temperature. Wait for the drive to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Process Overload] oLC

Probable Cause

Process overload.

Remedy

- Verify and remove the cause of the overload.
- Verify the parameters of the **[Process overload]** oLd- function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Motor Overload] oLF

Probable Cause

Triggered by excessive motor current.

Remedy

- Verify the setting of the motor thermal monitoring
- Verify the motor load. Wait for the motor to cool down before restarting
- Verify the setting of the following parameters:
  - **[Motor Th Current]** ItH
  - **[Motor Thermal Mode]** tHt
  - **[Motor Therm Thd]** ttd
  - **[MotorTemp ErrorResp]** oLL

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Single Output Phase Loss] oPF1

Probable Cause

Loss of one phase at drive output.

Remedy

Verify the wiring from the drive to the motor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Output Phase Loss] oPF2

Probable Cause

- Motor not connected or motor power too low.
- Output contactor opened.
- Instantaneous instability in the motor current.

Remedy

- Verify the wiring from the drive to the motor.
- If an output contactor is being used, set **[OutPhaseLoss Assign]** oPL to **[No Error Triggered]** oAC.
- If the drive is connected to a low-power motor or not connected to a motor: In factory settings mode, motor phase loss detection is active **[Output Phase Loss]** oPL = **[OPF Error Triggered]** YES. Deactivate motor phase loss detection **[Output Phase Loss]** oPL = **[Function Inactive]** nO.
- Verify and optimize the following parameters: **[IR compensation]** UFr, **[Nom Motor Voltage]** UnS and **[Rated mot. current]** nCr and perform **[Autotuning]** tUn.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Supply Mains Overvoltage] oSF

Probable Cause

- Supply mains voltage too high.
- Disturbed supply mains.

Remedy

Verify the supply mains voltage.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Cab I/O 24V Error] P 2 4 C

Probable Cause

The input DI58 is used to monitor the 24V on input terminal. If it breaks down, all inputs are suppressed to avoid unintended error messages (from software version V1.3).

- DI58 cabinet I/O input is not wired to the internal terminal X231.
- DI58 is used by another cabinet I/O function.

Remedy

- Verify if the terminal X231 is wired to the cabinet I/O input DI58.
- If the DI58 is used by another cabinet function, it is needed to change the function to another free cabinet I/O input on the X220 terminals. Additionally, it is needed to adapt the parameter setting of the new selected input.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r 5 F parameter after the cause has been removed.

[PumpCycle Start Error] P C P F

Probable Cause

The Pumpcycle monitoring function has exceeded the maximum number of start sequences allowed in the time window.

Remedy

- Search for a possible cause of repetitive start of system.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r 5 F parameter after the cause has been removed.

[PID Feedback Error] PFMF

Probable Cause

The PID feedback error was out of the allowed range around the set point during the time window.

Remedy

- Check for mechanical breakdown of pipes.
- Check for water leakage.
- Check for open discharge valve.
- Check for fire hydrant opened.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Program Loading Error] PGLF

Probable Cause

Verify that the error code can be cleared.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Program Running Error] PGrF

Probable Cause

Verify that the error code can be cleared.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Input phase loss] PHF

Probable Cause

- Drive incorrectly supplied or a tripped fused.
- One phase is unavailable.
- 3-phase Drive used on a single-phase supply mains.
- Unbalanced load.

Remedy

- Verify the power connection and the fuses.
- Use a 3-phase supply mains.
- Disable the detected error by **[Input phase loss]** iPL = **[No]** nO if single phase supply mains or DC bus supply is used.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Rotation Angle Monit] r A d F

Probable Cause

The monitoring of the rotation angle has detected a too high deviation.

Remedy

- Check for mechanical problems in the system.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Safety Function Error] S A F F

Probable Cause

- Debounce time exceeded.
- Internal hardware error.
- STOA and STOB have a different status (high/low) for more than 1 second.

Remedy

- Verify the wiring of the digital inputs STOA and STOB.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Safety Violation] SAVF

Probable Cause

- Safety Module Violation Error.
- Safety Module has detected a violation of defined limits.

Remedy

- Verify the Safety Module errors for additional information.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Motor short circuit] SCF I

Probable Cause

Short-circuit or grounding at the drive output.

Remedy

- Verify the cables connecting the drive to the motor, and the motor insulation.
- Adjust the switching frequency.
- Connect chokes in series with the motor.
- Verify the adjustment of speed loop and brake.
- Increase the **[Time to restart]** tAr

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** rFC parameter enabled after the cause has been removed.

[Ground Short Circuit] SCF3

Probable Cause

Significant ground leakage current at the drive output if several motors are connected in parallel.

Remedy

- Verify the cables connecting the drive to the motor, and the motor insulation.
- Adjust the switching frequency.
- Connect chokes in series with the motor.
- Verify the adjustment of speed loop and brake.
- Increase the **[Time to restart]** ttr
- If you have long cables, verify the setting of **[Ground Fault Activation]** GrFL.

Clearing the Error Code

This detected error requires a power reset.

[IGBT Short Circuit] SCF4

Probable Cause

Power component detected error.

At product power-on, the IGBTs are tested for short circuit. Thereby an error (short circuit or interruption) has been detected on at least one IGBT. The time to check each transistor is between 1 and 10 µs.

Remedy

Verify the setting of **[Output Short Circuit Test]** SErt parameter.

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Motor Short Circuit] SCF5

Probable Cause

Short-circuit at drive output.

Remedy

- Verify the cables connecting the drive to the motor, and the motor's insulation.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE ShortCircuit error] SCF6

Probable Cause

AFE rectifier IGBT short-circuit.

AFE over current due to power factor correction systems in the grid. Each switch of the capacitor produces over voltage in the mains which can lead an over current in the AFE.

Remedy

- Verify the mains voltage when the power factor correction system is changing the capacitive load. Install only power factor correction systems with integrated reactors
- Verify the cables connecting the AFE brick to the mains.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Safety IO Error] 5 , o F

Probable Cause

- Safety Module IO Error.
- Error on input / output of the Safety Module.
- Error on encoder signal.

Remedy

- Verify the Safety Module errors for additional information.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Safety Config Error] 5 C F F

Probable Cause

- Safety Module Configuration Error.
- Incorrect configuration linked to the Safety Module has been detected.

Remedy

- Verify the Safety Module errors for additional information.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Modbus Com Interruption] SLF1

Probable Cause

Communication interruption on the Modbus port.

Remedy

- Verify the communication bus.
- Verify the timeout.
- Refer to the Modbus user manual.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[PC Com Interruption] SLF2

Probable Cause

Communication interruption with the commissioning software.

Remedy

- Verify the commissioning software connecting cable.
- Verify the timeout.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[HMI Com Interruption] SLF3

Probable Cause

Communication interruption with the Graphic display terminal.

This error is triggered when the command or reference value are given using the Graphic Display Terminal and if the communication is interrupted during more than 2 seconds.

Remedy

- Verify the Graphic display terminal connection.
- Verify the timeout.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Motor Overspeed] SoF

Probable Cause

- Instability or driving load too high.
- If a downstream contactor is used, the contacts between the motor and the drive have not been closed before applying a Run command.
- The overspeed threshold (corresponding to 110 % of **[Max frequency]** tFr) has been reached.

Remedy

- Verify the motor parameter settings.
- Verify the size of the motor/drive/load.
- Verify and close the contacts between the motor and the drive before applying a Run command.
- Verify the consistency between **[Max frequency]** tFr and **[High Speed]** HSP. It is recommended to have at least **[Max frequency]** tFr ≥ 110% * **[High Speed]** HSP.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Encoder Feedback Loss] SPF

Probable Cause

- Encoder feedback signal missing.
- No top Z signal after two rotations has been done.
- No signal on the pulse input, if the input is used for speed measurement.
- Noise on the encoder feedback signal.
- Encoder consumption exceeds power supply maximum current.

Remedy

- Verify the error code value **[Encoder Fdbck Error]** EnCE.
- Verify the wiring between the encoder and the drive.
- Verify the encoder.
- Verify the encoder settings.
- Verify the wiring of the pulse input and the sensor used.
- Use a shielded cable and ground both ends.
- Verify the encoder power supply. Reduce **[Encoder Supply Voltage]** uECV value.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Security Files Corrupt] SPFC

Probable Cause

Security files corrupted or missing.

Remedy

Switch off the product. Upon next switch-on, the security file will be created again and the information related to cybersecurity (such as channel policy and password) will be reset to its default value.

Clearing the Error Code

This detected error requires a power reset.

[Torque timeout] SrF

Probable Cause

The torque control function is not able to regulate the torque within the configured dead band. The drive has switched to speed control for longer than **[Torque ctrl time out]** rtO.

Remedy

- Verify the settings of the **[Torque control]** tOr - function.
- Verify that there are no mechanical constraints.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Torque Limitation Error] SSF

Probable Cause

The drive was in torque limitation or current limitation state during **[Trq/I Limit Timeout]** StO.

Remedy

- Verify the settings of the **[Torque limitation]** tOL - function.
- Verify that there are no mechanical constraints.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Motor Stall Error] SLF

Probable Cause

The stall monitoring function has detected an error.

The **[Motor Stall Error]** SLF is triggered on the following conditions:

- The output frequency is smaller than the stalling frequency **[Stall Frequency]** SLP3
- The output current is higher than the stalling current **[Stall Current]** SLP2
- For a duration longer than the stalling time S**[tall Max Time]** SLP1.

Remedy

- Search for a mechanical blocking of the motor.
- Search for a possible cause of motor overload.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** ARr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI1 Thermal Sensor Error] LICF

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI1:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** ARr or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI3 Thermal Sensor Error] E 3 C F

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI3:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of**[AI3 Type]** A I 3 t parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[AI4 Thermal Sensor Error] E 4 C F

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI4:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of **[AI4 Type]** A I 4 t parameter

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[AI5 Thermal Sensor Error] $E5CF$

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI5:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of **[AI5 Type]** $A15E$ parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** $AtrF$ or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Encoder Th Sensor Error] $EECF$

Probable Cause

The thermal sensor monitoring function has detected a thermal sensor on the encoder module analog input:

- Open circuit, or
- Short circuit.

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** $AtrF$ or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MotorWinding A Error] ᴇ F A

Probable Cause

The digital input assigned to **[MotorWinding A Assign]** ᴇ F A A is active for longer than **[MotorWinding A Delay]** ᴇ F d A.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A ᴇ r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[MotorWinding B Error] ᴇ F b

Probable Cause

The digital input assigned to **[MotorWinding B Assign]** ᴇ F A b is active for longer than **[MotorWinding B Delay]** ᴇ F d b.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A ᴇ r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[MotorBearing A Error] EFC

Probable Cause

The digital input assigned to **[MotorBearing A Assign]** EFAC is active for longer than **[MotorBearing A Delay]** EFdC.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[MotorBearing B Error] EFd

Probable Cause

The digital input assigned to **[MotorBearing B Assign]** EFAd is active for longer than **[MotorBearing B Delay]** EFdd.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI1 Th Level Error] tHIF

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI1.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI3 Th Level Error] tH3F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI3.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI4 Th Level Error] tH4F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI4.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI5 Th Level Error] tH5F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI5.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Encoder Th Detected Error] ELHEF

Probable Cause

The thermal sensor monitoring function has detected a high temperature on encoder module analog input.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[IGBT Overheating] EJF

Probable Cause

Drive power stage overheating.

On AFE drives: the thermal model of the AFE IGBT thermal monitoring has detected an overheat.

Remedy

- Verify the size of the load/motor/drive according to environment conditions.
- Reduce the switching frequency.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE IGBT over-heat error] E J F 2

Probable Cause

Rectifier IGBT power stage overheating.

Remedy

- Verify the size of the load/motor/drive according to environment conditions.
- Verify and clean, if necessary, the cooling channel.
- Clean or replace the filter mats on IP54 products.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Drive Overload] t L o F

Probable Cause

The **[Drive overload monit]** o b r - function has detected an error.

Remedy

- Verify the size of the load/motor/drive according to environment conditions.
- Verify the settings of the **[Drive Overload Monit]** t L o L parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[Autotuning Error] tnF

Probable Cause

An error has been detected during a (standstill) motor tune or a tune in rotation.

- Special motor or motor whose power is not suitable for the drive.
- Motor not connected to the drive.
- Motor not stopped.
- For a tune in rotation, the motor has been stopped prematurely.
- The configuration of the drive (including the configuration of the tune in rotation) does not fit the use of tune in rotation with your application.
- The motor cannot operate correctly during a tune in rotation.

Remedy

- Verify that the motor/drive are compatible.
- Verify that the motor is connected to the drive during autotuning.
- If an output contactor is being used, verify that it is closed during autotuning.
- Verify that the motor is present and stopped during autotuning.
- In case of reluctance motor, reduce **[PSI Align Curr Max]** nCr.
- In case of error detected during a tune in rotation:
  - Verify the run order remain active all along the tune in rotation.
  - Increase **[Acceleration]** ACC and **[Deceleration]** dEC. They must not be set to value close to 0 s.
  - If **[Nb of Repetitions]** tnbr is different from 1, decrease **[2nd Id max current]** id H2.
  - If Nb of Repetitions tnbr is different from 1, increase **[2nd Id min current]** id L2.
  - If possible, remove the load of the motor.
  - Set back **[Rotation Tune Freq]** tLFr to **[Nominal Motor Freq]** Fr S / 2. If the error continues to be triggered, decrease **[Rotation Tune Freq]** tLFr.
  - If possible, decrease **[Nb of Repetitions]** tnbr.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[Process Underload] ULF

Probable Cause

Process underload.

Remedy

- Verify and remove the cause of the underload.
- Verify the parameters of the **[Process underload]** ULd - function

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AFE Mains Undervoltage] UrF

Probable Cause

- Too low DC-Bus voltage due to mains undervoltage.
- AFE overload.

Remedy

- Verify mains voltage.
- Verify the size of the load/motor/drive according to environment conditions.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Supply Mains UnderV] u 5 F

Probable Cause

- Supply mains too low.
- Transient voltage dips.

Remedy

Verify the voltage and the parameters of **[Undervoltage handling]** u 5 b.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

FAQ

FAQ

Introduction

If the display does not light up, verify the supply mains to the drive.

The assignment of the fast stop or freewheel functions help to prevent the drive starting if the corresponding digital inputs are not switched on. The drive then displays **[Freewheel]** nSt in freewheel stop and **[Fast stop]** FSt in fast stop. This is a normal behavior since these functions are active at zero so that the drive is stopped if there is a wire break.

Verify that the run command input is activated in accordance with the selected control mode (**[2/3-wire control]** tCC and **[2-wire type]** tCt parameters).

If the reference channel or command channel is assigned to a fieldbus, when the supply mains is connected, the drive displays **[Freewheel]** nSt. It remains in stop mode until the fieldbus gives a command.

Drive lock in blocking state

The drive is locked in a blocking state and displays **[Freewheel Stop]** nSt, if a Run command such as Run forward, Run reverse, DC injection is still active during:

- A product reset to the factory settings,
- A manual "Fault Reset" using **[Fault Reset Assign]** rSF,
- A manual "Fault reset" by applying a product switched off and on again,
- A stop command given by a channel that is not the active channel command (such as Stop key of the display terminal in 2/3 wires control),

It will be necessary to deactivate all active Run commands prior to authorizing a new Run command.

Option Module Changed or Removed

When an option module is removed or replaced by another, the drive locks in **[Incorrect configuration]** CFF error mode at power-on. If the option module has been deliberately changed or removed, the detected error can be cleared by pressing the **OK** key twice, which causes the factory settings to be restored for the parameter groups affected by the option module.

Control Block Changed

When a control block is replaced by a control block configured on a drive with a different rating, the drive locks in **[Incorrect configuration]** CFF error mode at power-on. If the control block has been deliberately changed, the detected error can be cleared by pressing the **OK** key twice, which **causes all the factory settings to be restored.**