

Maintenance and diagnostics

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Maintenance

What's in This Chapter

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Maintenance

Limitation of Warranty

The warranty does not apply if the product has been opened, except by Schneider Electric services.

Servicing

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.

The temperature of the products described in this manual may exceed 80 °C (176 °F) during operation.

WARNING

HOT SURFACES

- Ensure that any contact with hot surfaces is avoided.
- Do not allow flammable or heat-sensitive parts in the immediate vicinity of hot surfaces.
- Verify that the product has sufficiently cooled down before handling it.
- Verify that the heat dissipation is sufficient by performing a test run under maximum load conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

INSUFFICIENT MAINTENANCE

Verify that the maintenance activities described below are performed at the specified intervals.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Adherence to the environmental conditions must be ensured during operation of the drive. In addition, during maintenance, verify and, if appropriate, correct all factors that may have an impact on the environmental conditions.

Spares and Repairs

Serviceable product. Please contact your Customer Care Center on:
www.se.com/CCC.

Long Time Storage

If the drive was not connected to mains for an extended period of time, the capacitors must be restored to their full performance before the motor is started.

NOTICE

REDUCED CAPACITOR PERFORMANCE

- Apply mains voltage to the drive for one hour before starting the motor if the drive has not been connected to mains for the specified periods of time.(1)
- Verify that no Run command can be applied before the period of one hour has elapsed.
- Verify the date of manufacture if the drive is commissioned for the first time and run the specified procedure if the date of manufacture is more than 12 months in the past.

Failure to follow these instructions can result in equipment damage.

(1) Period of time:

- 12 months at a maximum storage temperature of +50°C (+122°F)
- 24 months at a maximum storage temperature of +45°C (+113°F)
- 36 months at a maximum storage temperature of +40°C (+104°F)

If the specified procedure cannot be performed without a Run command because of internal mains contactor control, perform this procedure with the power stage enabled, but the motor being at a standstill so that there is no appreciable mains current in the capacitors.

Fan Replacement

It is possible to order a new fan for the drive maintenance, see the catalog numbers on www.se.com.

Customer Care Center

For additional support, you can contact our Customer Care Center on:

www.se.com/CCC.

Diagnostics and Troubleshooting

What's in This Chapter

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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]	<i>n o R</i>	No warning stored
[Fallback Frequency]	<i>F r F</i>	Reaction on event: Fallback frequency
[Speed Maintained]	<i>r L S</i>	Reaction on event: Speed maintained
[Type of stop]	<i>S t t</i>	Reaction on event: Stop following [Type of stop] <i>S t t</i> without triggering an error
[Ref Frequency Warning]	<i>S r R</i>	Frequency reference reached
[PID error Warning]	<i>P E E</i>	PID error warning , page 334
[PID Feedback Warn]	<i>P F R</i>	PID feedback warning , page 326
[PID High Fdbck Warn]	<i>P F R H</i>	PID feedback high threshold reached , page 326
[PID Low Fdbck Warn]	<i>P F R L</i>	PID feedback low threshold reached , page 326
[Limit Switch Reached]	<i>L S R</i>	Limit switch reached , page 360
[Slack Rope Warning]	<i>r S d R</i>	Slack rope warning , page 268
[Dynamic Load Warning]	<i>d L d R</i>	Dynamic load warning , page 269
[AI3 Th Warning]	<i>t P 3 R</i>	AI3 Thermal warning , page 154
[AI4 Th Warning]	<i>t P 4 R</i>	AI4 Thermal warning , page 154
[AI5 Th Warning]	<i>t P 5 R</i>	AI5 Thermal warning , page 154
[AI1 4-20 Loss Warning]	<i>R P 1</i>	AI1 4-20 mA loss warning , page 489
[AI3 4-20 Loss Warning]	<i>R P 3</i>	AI3 4-20 mA loss warning , page 489
[AI4 4-20 Loss Warning]	<i>R P 4</i>	AI4 4-20 mA loss warning , page 489
[AI5 4-20 Loss Warning]	<i>R P 5</i>	AI5 4-20 mA loss warning , page 489
[Drive Thermal Warning]	<i>t H R</i>	Drive overheating warning
[IGBT Thermal Warning]	<i>t J R</i>	IGBT thermal state warning
[Fan Counter Warning]	<i>F t t R</i>	Fan counter speed warning , page 520
[Fan Feedback Warning]	<i>F F d R</i>	Fan feedback warning , page 520
[BR Thermal Warning]	<i>b o R</i>	Braking resistor thermal warning
[Ext. Error Warning]	<i>E F R</i>	External error warning , page 482
[Undervoltage Warning]	<i>u S R</i>	Undervoltage warning , page 499
[Preventive UnderV Active]	<i>u P R</i>	Controlled stop threshold is reached , page 499
[Mot Freq High Thd]	<i>F t R</i>	Motor frequency high threshold 1 reached , page 336
[Mot Freq Low Thd]	<i>F t R L</i>	Motor frequency low threshold 1 reached , page 336
[Pulse Warn Thd Reached]	<i>F q L R</i>	Pulse warning threshold reached , page 406
[Mot Freq Low Thd 2]	<i>F 2 R L</i>	Motor frequency low threshold 2 reached , page 336
[High Speed Reached]	<i>F L R</i>	High speed reached warning
[Ref Freq High Thd reached]	<i>r t R H</i>	Reference frequency high threshold reached , page 337
[Ref Freq Low Thd reached]	<i>r t R L</i>	Reference frequency low threshold reached , page 338
[2nd Freq Thd Reached]	<i>F 2 R</i>	Motor frequency high threshold 2 reached , page 337
[Current Thd Reached]	<i>C t R</i>	Motor current high threshold reached , page 336
[Low Current Reached]	<i>C t R L</i>	Motor current low threshold reached , page 336

Setting	Code	Description
[High Torque Warning]	<i>t t H R</i>	High torque threshold reached , page 338
[Low Torque Warning]	<i>t t L R</i>	Low torque threshold reached , page 338
[Process Undld Warn]	<i>u L R</i>	Process underload warning , page 398
[Process Overload Warning]	<i>o L R</i>	Overload warning , page 401
[Torque Limit Reached]	<i>S S R</i>	Torque limit reached , page 508
[Torque Control Warning]	<i>r t R</i>	Torque control warning , page 370
[Drv Therm Thd reached]	<i>t R d</i>	Drive thermal threshold reached
[Motor Therm Thd reached]	<i>t S R</i>	Motor thermal threshold reached , page 337
[Mot2 Therm Thd reached]	<i>t S 2</i>	Motor 2 thermal threshold reached , page 337
[Mot3 Therm Thd reached]	<i>t S 3</i>	Motor 3 thermal threshold reached , page 337
[Mot4 Therm Thd reached]	<i>t S 4</i>	Motor 4 thermal threshold reached , page 337
[Power High Threshold]	<i>P t H R</i>	Power high threshold reached
[Power Low Threshold]	<i>P t H L</i>	Power low threshold reached
[Cust Warning 1]	<i>C R S 1</i>	Customer warning 1 active , page 517
[Cust Warning 2]	<i>C R S 2</i>	Customer warning 2 active , page 518
[Cust Warning 3]	<i>C R S 3</i>	Customer warning 3 active
[Cust Warning 4]	<i>C R S 4</i>	Customer warning 4 active
[Cust Warning 5]	<i>C R S 5</i>	Customer warning 5 active
[Power Cons Warning]	<i>P o W d</i>	Power consumption warning
[Slipping warn]	<i>R n R</i>	Slipping warning , page 505
[Load Mvt Warn]	<i>b S R</i>	Load movement warning
[Brake Cont Warn]	<i>b C R</i>	Brake contact warning
[AI1 Th Warning]	<i>t P 1 R</i>	AI1 Thermal warning , page 154
[Current Reduc Warn]	<i>t L o W</i>	Current reduction warning
[M/S Device Warn]	<i>M S d R</i>	Master/Slave device warning , page 209
[Backlash Warn]	<i>b S 9 R</i>	Backlash warning , page 272
[Encoder Thermal Warn]	<i>t P E R</i>	Encoder module thermal warning , page 154
[Temp Sens AI1 Warn]	<i>t S 1 R</i>	Temperature sensor AI1 warning (open circuit)
[Temp Sens AI3 Warn]	<i>t S 3 R</i>	Temperature sensor AI3 warning (open circuit)
[Temp Sens AI4 Warn]	<i>t S 4 R</i>	Temperature sensor AI4 warning (open circuit)
[Temp Sens AI5 Warn]	<i>t S 5 R</i>	Temperature sensor AI5 warning (open circuit)
[DC Bus Ripple War]	<i>d C r W</i>	DC Bus Ripple Warning , page 189
[Fallback Channel]	<i>R F F L</i>	Automatic fallback behavior activated after a fieldbus communication interruption , page 498
[MonitorCircuit A Warn]	<i>i W R</i>	Monitoring circuit A warning
[MonitorCircuit B Warn]	<i>i W b</i>	Monitoring circuit B warning
[MonitorCircuit C Warn]	<i>i W C</i>	Monitoring circuit C warning
[MonitorCircuit D Warn]	<i>i W d</i>	Monitoring circuit D warning
[ON Lock Warning]	<i>L K o n</i>	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]** $r P$ parameter.
- Using the digital input or the control bit assigned to **[Prod Restart Assign]** $r P R$.
- Using the **[Auto Fault Reset]** $R E r$ - function.
- A digital input or control bit set to the **[Fault reset]** $r S E$ - function.
 - For **[Fault Reset Assign]** $r S F$ and **[Extended Fault Reset]** $H r C F$ refer to **[Fault reset]** $r S E$ - Menu, page 475.
- Pressing the **STOP/RESET** key on the Display Terminal depending on the setting of **[Stop Key Enable]** $P S E$.

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] $r P$ parameter. • Use the digital input or the control bit assigned to [Prod Restart Assign] $r P R$.	All detected error.
• As soon as its cause has been removed.	CFF, CF1, CF12, CF13, CF14, CSF, FWER, HCF, PGLF, PHF, USF
• Use the digital input or the control bit assigned to [Fault Reset Assign] $r S F$. • Pressing the RESET button on the HMI panel	ANF, ASF, BRf, BSQF, ECF, ENF, 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] <i>r 5 F</i>. - Pressing the RESET button on the HMI panel - Use the [Auto Fault Reset] <i>h 5 r</i> - function.	BOF, CNF, COF, DLF, EPF1, EPF2, ETHF, FCF2, FDR1, FDR2, IFA, IFB, IFC, IFD, IHF, INF9, INFB, LCF, LFF1, LFF3, LFF4, LFF5, LKON, MDLF, MSDF, OBF, OHF, OLC, OLF, OPF1, OPF2, OSF, RADF, SCF4, SCF5, SLF1, SLF2, SLF3, SRF, SSF, STF, T1CF, T3CF, T4CF, T5CF, TECF, TH1F, TH3F, TH4F, TH5F, THEF, TJF, TLOF, ULF
If [Fault Reset Assign] <i>h 5 F L</i> is set to <i>y 5 5</i>: - Use the digital input or the control bit assigned to [Fault Reset Assign] <i>r 5 F</i>, - Press the STOP/RESET key on the Display Terminal depending on the setting of [Stop Key Enable] <i>p 5 5</i>.	CRF1, INFD, SCF1

[Load slipping] A n F**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] S d d = [No] n o**.
 - Set both **[Positive deadband] d b P** and **[Negative deadband] d b n** 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] r 5 F** parameter after the cause has been removed.

[Angle error] A 5 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 5 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]** *r b r* and **[Brake release I Rev]** *r r d* settings.

**Clearing the Error Code**

This detected error requires a power reset.

[Brake Resistor overload] b o F**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]** *b r P* and **[Braking Resistor Value]** *b r V* parameters.

**Clearing the Error Code**

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

[Brake Feedback] b r F**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] b r L** and **[Brake Engage Time] BET** take into account the brake response time, **[Brake Fdbk Filter] F b C**, and **[Brake Rly Fdbk Filter] F b r i**.

**Clearing the Error Code**

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

[Backlash Error] b 5 9 F**Probable Cause**

The torque threshold used for backlash function can not be reached after **[BL Monit Delay] b 9 L**.

**Remedy**

- Verify the settings
- Verify the coupling

**Clearing the Error Code**

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

[DB unit sh. circuit] b_{uf} **Probable Cause**

- Short-circuit from braking circuit.
- 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] b_{ur} **Probable Cause**

- Open-circuit from braking circuit.
- Braking resistor not connected.

**Remedy**

- Verify the wiring of the braking resistor.
- Verify by measurement that the resistance of the braking resistor is not too high.
- Verify the parameter b_{r1} .

**Clearing the Error Code**

This detected error requires a power reset.

[Circuit Breaker Error] L b F**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]** L L E.

**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.

[Incorrect Configuration] L F F**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] [F ,**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] [F , 2**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] [F , 3]**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] [F , 4]**Probable Cause**

The selected configuration for the **[Multimotors config] $\Pi \Pi C$** - 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.

[Fieldbus Com Interrupt] $\mathcal{L} \cap F$ **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]** $\mathcal{H} \mathcal{L} \mathcal{r}$ or manually with the **[Fault Reset Assign]** $\mathcal{r} \mathcal{S} \mathcal{F}$ parameter after the cause has been removed.

[CANopen Com Interrupt] $\mathcal{L} \cap F$ **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]** $\mathcal{H} \mathcal{L} \mathcal{r}$ or manually with the **[Fault Reset Assign]** $\mathcal{r} \mathcal{S} \mathcal{F}$ parameter after the cause has been removed.

[Precharge Capacitor] C r F I **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 internal connections.
- Verify the voltage and the parameters of **[Undervoltage handling] u 5 b** .
- Contact your local Schneider Electric representative

**Clearing the Error Code**

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

[Channel Switch Error] C 5 F **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.

[DC Bus Ripple Error] *d L r E***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.

[Dynamic Load Error] *d L F***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]** *A L r* or manually with the **[Fault Reset Assign]** *r S F* parameter after the cause has been removed.

[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] 4 E 5**.

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 5** for maximum
- Verify the setting of **[Encoder Coupling Monit] E C C** parameter.
- Verify the setting of **[Encoder check time] E C E** 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 5 F** parameter after the cause has been removed.

[EEPROM Control] E E F I**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 5** or **[Sync Nominal Freq] F r 5 5**.

**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 5 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] *R E r*** or manually with the **[Fault Reset Assign] *r 5 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] *R E r*** or manually with the **[Fault Reset Assign] *r 5 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] H E r** or manually with the **[Fault Reset Assign] r 5 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] F L F 2**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[FDR 1 Error] F d r 1**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** 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 E r* or manually with the **[Fault Reset Assign]** *r 5 F* parameter after the cause has been removed.

[Firmware Update Error] *F W E r*



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] H L F**Probable Cause**

Hardware configuration error.

The **[Pairing password] P P** 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] P P** if the module was changed deliberately.

**Clearing the Error Code**

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

[MonitorCircuit A Error] F R**Probable Cause**

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

**Remedy**

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

**Clearing the Error Code**

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

[MonitorCircuit B Error] , F B**Probable Cause**

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

**Remedy**

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

**Clearing the Error Code**

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

[MonitorCircuit C Error] , F C**Probable Cause**

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

**Remedy**

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

**Clearing the Error Code**

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

[MonitorCircuit D Error] , F d**Probable Cause**

The digital input assigned to **[MonitorCircuit D Assign] , F R d** is active for longer than **[MonitorCircuit D Delay] , F d d**.

**Remedy**

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit D Assign] , F R d** parameter assignment.

**Clearing the Error Code**

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

[Input Overheating] , H F**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] R E r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[Internal Link Error] I L F**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] I n F 0**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] INF 1**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] INF 2**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] INF 3**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] INF 4**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] INF 6**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] INF 7**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] INF 8**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] INF 9**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]** *Pr 1* or manually with the **[Fault Reset Assign]** *Pr 5 F* parameter after the cause has been removed.

[Internal Error 10] *i n F R***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] *i n F b***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]** *R E r* or manually with the **[Fault Reset Assign]** *r 5 F* parameter after the cause has been removed.

[Internal Error 12] *InfC*



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] *Inf d*



Probable Cause

Differential current deviation.



Remedy

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] *INF E***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] *INF F***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] *INF G***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] *INF H***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] INF1**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] INF2**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] *INFK*



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] *INFL*



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] *INF Π***Probable Cause**

An error on the embedded Ethernet adapter has been detected.

**Remedy**

Verify the connection to the Ethernet port.

Contact your local Schneider Electric representative.

**Clearing the Error Code**

This detected error requires a power reset.

[Internal Error 25] *INF P***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] *LnFr***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.

[Input Contactor] *LcE***Probable Cause**

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

**Remedy**

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

**Clearing the Error Code**

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

[AI1 4-20mA loss] L F F I**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] L F L I** parameter.

**Clearing the Error Code**

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

[AI3 4-20mA loss] L F F 3**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] L F L 3** parameter.

**Clearing the Error Code**

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

[AI4 4-20mA loss] L F F 4**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] L F L 4** parameter.

**Clearing the Error Code**

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

[AI5 4-20mA loss] L F F 5**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] L F L 5** parameter.

**Clearing the Error Code**

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

[ON Lock Error] *L K 0 n***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] *R L r*** or manually with the **[Fault Reset Assign] *r 5 F*** parameter after the cause has been removed.

[Load Mvt Error] *n d C F***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] *r 5 F*** parameter after the cause has been removed.

[MultiDrive Link Error] $\Pi d L F$ **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] $\Pi E r$** or manually with the **[Fault Reset Assign] $r 5 F$** parameter after the cause has been removed.

[M/S Device Error] $\Pi 5 d F$ **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] $\Pi E r$** or manually with the **[Fault Reset Assign] $r 5 F$** parameter after the cause has been removed.

[DC Bus Overvoltage] $\square b F$ **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.]** $b r R$ 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]** $R E r$ or manually with the **[Fault Reset Assign]** $r 5 F$ parameter after the cause has been removed.

[Overcurrent] $\square L F$ **Probable Cause**

- Parameters in the **[Motor data]** $\Pi \square R$ - 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]** $L L r$.
- Increase the switching frequency.

**Clearing the Error Code**

This detected error requires a power reset.

[Drive Overheating] ▢ H F**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] H E r** or manually with the **[Fault Reset Assign] r S F** parameter after the cause has been removed.

[Process Overload] ▢ L L**Probable Cause**

Process overload.

**Remedy**

- Verify and remove the cause of the overload.
- Verify the parameters of the **[Process overload] ▢ L d** - function.

**Clearing the Error Code**

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

[Motor Overload] ▢ L F**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]** *1 L H*
 - **[Motor Thermal Mode]** *L H L*
 - **[Motor Therm Thd]** *L L d*
 - **[MotorTemp ErrorResp]** *▢ L L*

**Clearing the Error Code**

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

[Single Output Phase Loss] ▢ P F I**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]** *R L r* or manually with the **[Fault Reset Assign]** *r 5 F* parameter after the cause has been removed.

[Output Phase Loss] $\alpha P F 2$ **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] $\alpha P L$** to **[No Error Triggered] $\alpha R L$** .
- 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] $\alpha P L = [OPF Error Triggered] 4 E 5$** . Deactivate motor phase loss detection **[Output Phase Loss] $\alpha P L = [Function Inactive] n \alpha$** .
- Verify and optimize the following parameters: **[IR compensation] $\mu F r$** , **[Nom Motor Voltage] $\mu n 5$** and **[Rated mot. current] $n L r$** and perform **[Autotuning] $t \mu n$** .

**Clearing the Error Code**

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

[Supply Mains Overvoltage] $\alpha 5 F$ **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] $R E r$** or manually with the **[Fault Reset Assign] $r 5 F$** parameter after the cause has been removed.

[Program Loading Error] P G L F**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] P G r F**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] P H F**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] P L = [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 R 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] R E 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] S A V F**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] 5 L F 1**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] L L r**

**Clearing the Error Code**

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

[Ground Short Circuit] 5 L F 3**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] L L r**
- If you have long cables, verify the setting of **[Ground Fault Activation] G r F L**.

**Clearing the Error Code**

This detected error requires a power reset.

[IGBT Short Circuit] 5 L F 4



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 μ s.



Remedy

Verify the setting of **[Output Short Circuit Test] 5 L r L** parameter.

Contact your local Schneider Electric representative.



Clearing the Error Code

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

[Motor Short Circuit] 5 L F 5



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] R L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[Safety Config Error] 5 L 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] 5 L F I**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] F L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[PC Com Interruption] 5 L F 2**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[HMI Com Interruption] 5 L F 3**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[Safety IO Error] 5 1 0 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.

[Motor Overspeed] 5 0 F**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]** f_r) 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]** f_r and **[High Speed]** HSP . It is recommended to have at least **[Max frequency]** $f_r \geq 110\% * \text{[High Speed]} HSP$.

**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] 5 P F**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] E n C E**.
- 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] U E C V** value.

**Clearing the Error Code**

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

[Security Files Corrupt] 5 P F C**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] 5 r F**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] r t o**.

**Remedy**

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

**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.

[Torque Limitation Error] 5 S F**Probable Cause**

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

**Remedy**

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

**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.

[Motor Stall Error] 5 L F**Probable Cause**

The stall monitoring function has detected an error.

The **[Motor Stall Error] 5 L F** is triggered on the following conditions:

- The output frequency is smaller than the stalling frequency **[Stall Frequency] 5 L P 3**
- The output current is higher than the stalling current **[Stall Current] 5 L P 2**
- For a duration longer than the stalling time **S[tall Max Time] 5 L P 1**.

**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** parameter after the cause has been removed.

[AI1 Thermal Sensor Error] L I L F**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] R L r** or manually with the **[Fault Reset Assign] r 5 F** 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] R 3 E** parameter.

**Clearing the Error Code**

This detected error can be cleared with the **[Auto Fault Reset] R E r** or manually with the **[Fault Reset Assign] r 5 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] R 4 E** parameter

**Clearing the Error Code**

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

[AI5 Thermal Sensor Error] $\text{E } 5 \text{ L } F$



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]** $R \text{ } 5 \text{ L}$ parameter.



Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** $R \text{ } L \text{ } r$ or manually with the **[Fault Reset Assign]** $r \text{ } 5 \text{ F}$ parameter after the cause has been removed.

[Encoder Th Sensor Error] $\text{E } E \text{ L } F$



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]** $R \text{ } L \text{ } r$ or manually with the **[Fault Reset Assign]** $r \text{ } 5 \text{ F}$ parameter after the cause has been removed.

[AI1 Th Level Error] L H I F **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]** H L r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[AI3 Th Level Error] L H 3 F **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]** H L r or manually with the **[Fault Reset Assign]** r S F parameter after the cause has been removed.

[AI4 Th Level Error] *LEH4F***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] *ARE*** or manually with the **[Fault Reset Assign] *RSF*** parameter after the cause has been removed.

[AI5 Th Level Error] *LEH5F***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] *ARE*** or manually with the **[Fault Reset Assign] *RSF*** parameter after the cause has been removed.

[Encoder Th Detected Error] E H E F**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] H E r** or manually with the **[Fault Reset Assign] r S F** parameter after the cause has been removed.

[IGBT Overheating] E J F**Probable Cause**

Drive power stage overheating.

**Remedy**

- Verify the size of the load/motor/drive according to environment conditions.
- Reduce the switching frequency.
- Increase the ramp time.
- Decrease the current limitation.

**Clearing the Error Code**

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

[Drive Overload] E L O F**Probable Cause**

The **[Drive overload monitor] 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 Monitor] E L O L** parameter.

**Clearing the Error Code**

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

[Autotuning Error] E n F**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] n C r**.
- In case of error detected during a tune in rotation:
 - Verify the run order remain active all along the tune in rotation.
 - Increase **[Acceleration] R C C** and **[Deceleration] d E C**. They must not be set to value close to 0 s.
 - If **[Nb of Repetitions] E n b r** is different from 1, decrease **[2nd Id max current] i d H 2**.
 - If Nb of Repetitions E n b r is different from 1, increase **[2nd Id min current] i d L 2**.
 - If possible, remove the load of the motor.

- Set back **[Rotation Tune Freq]** ELFR to **[Nominal Motor Freq]** $\text{FRS} / 2$. If the error continues to be triggered, decrease **[Rotation Tune Freq]** ELFR .
- If possible, decrease **[Nb of Repetitions]** ENBR .



Clearing the Error Code

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

[Process Underload] $\mu L F$ **Probable Cause**

Process underload.

**Remedy**

- Verify and remove the cause of the underload.
- Verify the parameters of the **[Process underload] $\mu L d$** - function

**Clearing the Error Code**

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

[Supply Mains UnderV] $\mu 5 F$ **Probable Cause**

- Supply mains too low.
- Transient voltage dips.

**Remedy**

Verify the voltage and the parameters of **[Undervoltage handling] $\mu 5 b$** .

**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]** $\rightarrow$ **S E** in freewheel stop and **[Fast stop]** **F S E** 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]** **E C C** and **[2-wire type]** **E C E** parameters).

If the reference channel or command channel is assigned to a fieldbus, when the supply mains is connected, the drive displays **[Freewheel]** $\rightarrow$ **S E**. 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]** $\rightarrow$ **S E**, 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]** $\rightarrow$ **S F**,
- 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]** **C F F** 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]** **C F F** 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.**