

Error code indications

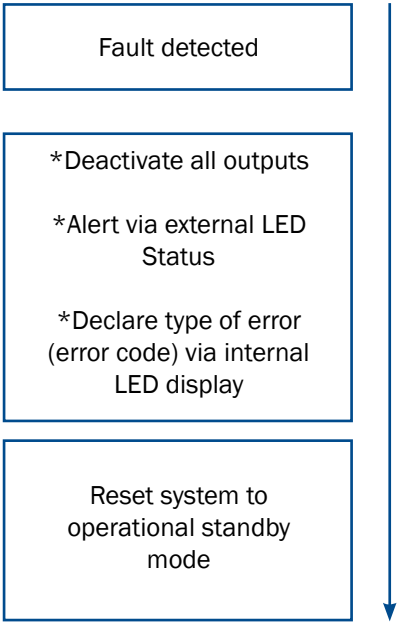
General description

Both the Portable Control Unit and the Central Unit are imbedded with constant fault monitoring, any errors noticed by the system will result in interruption of all operational commands.

Central Unit Error codes

All of the Central Units outputs are fault monitored for short circuits and/or overloads, in the event of an error is detected the Central Unit will alert that an error has occurred via the external LED Status and indicate the appropriate error code via the internal LED Display, the Central Unit will then reset to standby mode awaiting operator action.

Example flow chart on behaviour:



This fault sequence will take an approximately 6 seconds
The external LED STATUS will flash rapidly in red colour declaring that an error has been detected, for more detailed information; the LED display must be monitored (or error code log available from diagnostics menu).

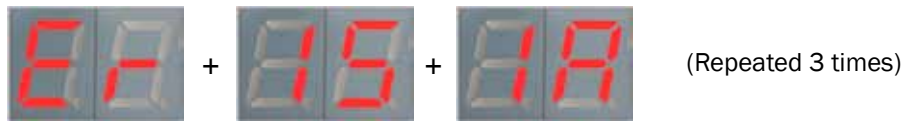
The internal LED display Error codes are displayed in up to 3 sequences, this allows the Central Unit to declare exactly which output that is related to the error (where applicable).

First sequence: Letters E:r is presented declaring an error code

Second sequence: Type of error code

Third sequence: Related output (where applicable)

In example:



The example would imply that there is an short circuit on output 1A

Error codes

2nd	3rd	Description	Cause	Action
01.	01	EEPROM failure.	Incorrect checksum on EEPROM, last stored data will be set.	Reset system, if persistent; Re-load application program.
01.	02	Flash memory failure.	Incorrect checksum on flash memory.	Reset system, if persistent; Re-load application program.
01.	03	Stack memory failure.	Incorrect sizes of data in CANopen protocol, incorrect dataflow or stack overflow.	System will self reset automatically. If persistent; Re-load application program.
01.	04	RAM memory failure.	Incorret RAM and/or hardware identification.	System will self reset automatically. If persistent; Re-load application program.
02.	01	Illegal voltage; DVoutput.	DV-output error; DV-output (DV+) externally supplied	System will self reset. Check DV-output connection. Remove terminal connector and reset system.
02.	02	Short circuit; DV-output.	DV-output error; DV output (DV+) short circuited or overloaded.	System will self reset. Check DV-output connection. Remove terminal connector and reset system.
02.	03	Safety switch error	Safety switch output read back error, incorrect voltage (High instead of Low)	System will self reset. Remove all terminal connectors and reset system.
02.	04	Safety switch error	Safety switch output read back error, incorrect voltage (Low instead of High)	System will self reset. Remove all terminal connectors and reset system.
02.	05	CAN Safety loop error	Incorrect status of CAN safety loop	System will self reset. Check CAN safety loop connection. Reset system.
03.	00	Illegal voltage; Digital output	Digital output (1-14) illegal voltage, expected low signal but read as high (Could be any of the available 14	System will self reset. Check digital output connections. Remove terminal connector and reset

2nd	3rd	Description	Outputs	system
04.	00	Short circuit; Digital output	Digital output (1-14) short circuited or overloaded (Could be any of the available 14 outputs)	System will self reset. Check digital output connections. Remove terminal connector and reset system.
05.	00	Error input triggered (Danfoss CU only).	Error signal for Danfoss valve triggered (Could be any of the available 8 inputs)	System will self reset. Check analogue output connections. Remove terminal connector and reset system.
06.	x	Illegal voltage analogue output	Wrong voltage on analogue output (3rd sequence declares related output; 1A,1B....).	System will self reset. Check analogue output connections. Remove terminal connector and reset system.
07.	x	Illegal voltage analogue output	Wrong current on analogue output (3rd sequence declares related output; 1A,1B....).	System will self reset. Check connections. Remove terminal connector and reset system.
08.	01	CAN Passive	CAN bus in passive mode.	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08.	02	CAN I/O Buffer overflow	CAN overrun; either the CAN input or CAN output buffer are full	System will self reset. Reset system, re-initiate via CAN controller.
08.	03	CAN physical layer error	Bad communication/transmission	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08.	04	CAN PDO length exceeded	PDO length is too long	System will self reset. Reset system, re-initiate via CAN controller.
08.	05	CAN PDO length error	PDO length is too short	System will self reset. Reset system, re-initiate via CAN controller.
08.	06	CAN Transmit COB-ID collision	To many collisions on CANbus	System will self reset. Check CAN connections. Check other nodes on bus and reset system, re-initiate via CAN controller.
10.	n/a	PCU failure; Emergency stop	Error transmitted from PCU: Illegal signal from PCU emergency stop switch	System will self reset. Check emergency stop switch on PCU
11.	n/a	PCU failure; Analogue input	Error transmitted from PCU: Analogue input active on start-up	System will self reset. Ensure all analogue inputs on PCU are at zero/neutral position. Restart PCU.
13.	n/a	PCU failure; Analogue input	Error transmitted from PCU: Signal redundancy test; illegal signal from analogue input.	System will self reset; Diagnose PCU via TEST MODE

14.	01	IDprogramming failure	ID-code and/or parameter settings not accepted.	System will self reset. Verify ID-programming procedure. Reset application program.
14.	02	Program failure	Programmable logic parameter error	System will self reset. Reset application program.
15.	x	PWM output failure	Analogue output short circuited or overloaded. (3rd sequence declares related output; 1A,1B....).	System will self reset. Check analogue output connections. Remove terminal connector and reset system.
16.	x	PWM output failure	Analogue output not connected (Programmable feature). (3rd sequence declares related output; 1A,1B....).	System will self reset. Check analogue output connections. Remove terminal connector and reset system.
17.	01	Low supply power	Low power supply (Below 8,5 VDC)	System will self reset. Check power supply and supply connections.
17.	02	High supply power	High power supply (Above 36,0 VDC)	System will self reset. Check power supply and supply connections.
98.	n/a	Undefined PCU error	Undefined error in PCU.	Diagnose PCU via TEST MODE
99.	n/a	Undefined CU error	Undefined error in CU.	System will self reset. Remove all terminal connectors Check power supply and supply connections. Reset system.

Portable Control Unit error codes

The Portable Control Unit monitors all analogue and digital inputs for faults and uses the LED POWER and BUZZER to indicate alarms.

Below available error codes:

Indications	Meaning
1	Analogue input 1 not at zero position during start-up
2	Analogue input 2 not at zero position during start-up
3	Analogue input 3 not at zero position during start-up
4	Analogue input 4 not at zero position during start-up
5	Analogue input 5 not at zero position during start-up
6	Analogue input 6 not at zero position during start-up
7	Analogue input 7 not at zero position during start-up
8	Analogue input 8 not at zero position during start-up