

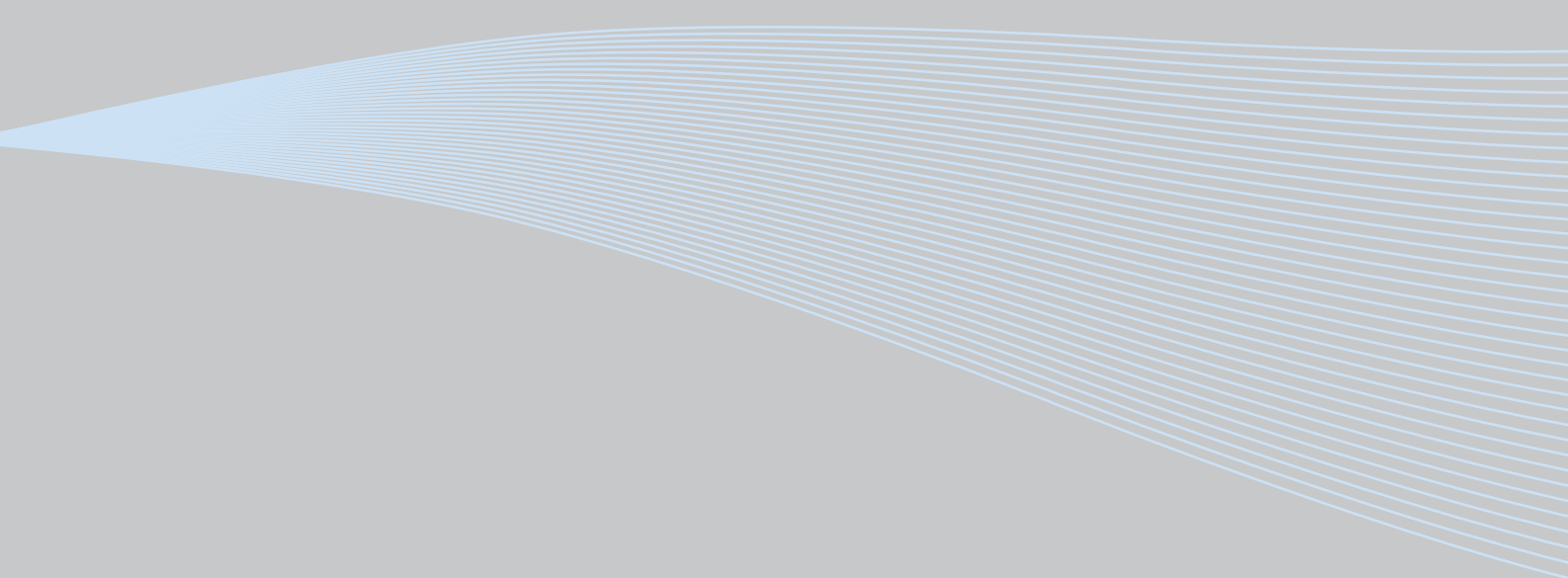


Air solutions / your success

VACON NXS

AC Drives

"All in one"
Applikationsmanual



10. FAULT TRACING

The fault codes, their causes and correcting actions are presented in the table below. The shadowed faults are A faults (warnings) only. The items written in white on black background present faults for which you can program different responses in the application. See parameter group Protections.

NOTE: When contacting distributor or factory because of a fault condition, always write down all texts and codes on the keypad display.

Table 130. Fault codes

Fault code	Fault	Possible cause	Correcting measures
1	Overcurrent	Frequency converter has detected too high a current ($>4 \cdot I_H$) in the motor cable: - sudden heavy load increase - short circuit in motor cables - unsuitable motor Subcode in T.14: S1 = Hardware trip S2 = Reserved S3 = Current controller supervision	Check loading. Check motor. Check cables. Make identification run.
2	Overvoltage	The DC-link voltage has exceeded the limits defined. - too short a deceleration time - high overvoltage spikes in supply Subcode in T.14: S1 = Hardware trip S2 = Overvoltage control supervision	Make deceleration time longer. Use brake chopper or brake resistor (available as options) Activate overvoltage controller. Check input voltage.
3	Earth fault	Current measurement has detected that the sum of motor phase current is not zero. - insulation failure in cables or motor	Check motor cables and motor.
5	Charging switch	The charging switch is open, when the START command has been given. - faulty operation - component failure	Reset the fault and restart. Should the fault re-occur, contact the distributor near to you.
6	Emergency stop	Stop signal has been given from the option board.	Check emergency stop circuit.
7	Saturation trip	Various causes: - defective component - brake resistor short-circuit or overload	Cannot be reset from the keypad. Switch off power. DO NOT RE-CONNECT POWER! Contact factory. If this fault appears simultaneously with Fault 1, check motor cables and motor

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Fault code	Fault	Possible cause	Correcting measures
8	System fault	- component failure - faulty operation Note exceptional fault data record. S1 = Reserved S2 = Reserved S3 = Reserved S4 = Reserved S5 = Reserved S6 = Reserved S7 = Charging switch S8 = No power to driver card S9 = Power unit communication (TX) S10 = Power unit communication (Trip) S11 = Power unit comm. (Measurement)	Reset the fault and restart. Should the fault re-occur, contact the distributor near to you.
9	Undervoltage	DC-link voltage is under the voltage limits defined. - most probable cause: too low a supply voltage - frequency converter internal fault - defect input fuse - external charge switch not closed Subcode in T.14: S1 = DC-link too low during run S2 = No data from power unit S3 = Undervoltage control supervision	In case of temporary supply voltage break reset the fault and restart the frequency converter. Check the supply voltage. If it is adequate, an internal failure has occurred. Contact the distributor near to you.
10	Input line supervision	Input line phase is missing.	Check supply voltage, fuses and cable.
11	Output phase supervision	Current measurement has detected that there is no current in one motor phase.	Check motor cable and motor.
12	Brake chopper supervision	- no brake resistor installed - brake resistor is broken - brake chopper failure	Check brake resistor and cabling. If these are ok, the chopper is faulty. Contact the distributor near to you.
13	Frequency converter undertemperature	Heatsink temperature is under -10°C	
14	Frequency converter overtemperature	Heatsink temperature is over 90°C (or 77°C , NX_6, FR6). Overtemperature warning is issued when the heatsink temperature exceeds 85°C (72°C).	Check the correct amount and flow of cooling air. Check the heatsink for dust. Check the ambient temperature. Make sure that the switching frequency is not too high in relation to ambient temperature and motor load.
15	Motor stalled	Motor stall protection has tripped.	Check motor and load.
16	Motor overtemperature	Motor overheating has been detected by frequency converter motor temperature model. Motor is overloaded.	Decrease motor load. If no motor overload exists, check the temperature model parameters.
17	Motor underload	Motor underload protection has tripped.	Check load.

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Fault code	Fault	Possible cause	Correcting measures
18	Unbalance	Unbalance between power modules in parallelled units. Subcode in T.14: S1 = Current unbalance S2 = DC voltage unbalance	Should the fault re-occur, contact the distributor near to you.
22	EEPROM check-sum fault	Parameter save fault - faulty operation - component failure	Should the fault re-occur, contact the distributor near to you.
24	Counter fault	Values displayed on counters are incorrect	
25	Microprocessor watchdog fault	- faulty operation - component failure	Reset the fault and restart. Should the fault re-occur, contact the distributor near to you.
26	Start-up prevented	Start-up of the drive has been prevented. Run request in ON when new application is loaded to the drive	Cancel prevention of start-up if this can be done safely. Remove Run request
29	Thermistor fault	The thermistor input of option board has detected increase of the motor temperature	Check motor cooling and loading Check thermistor connection (If thermistor input of the option board is not in use it has to be short circuited)
30	Safe disable	The input on OPTAF board has opened	Cancel Safe Disable if this can be done safely.
31	IGBT temperature (hardware)	IGBT Inverter Bridge overtemperature protection has detected too high a short term overload current	Check loading. Check motor size. Make identification run.
32	Fan cooling	Cooling fan of the frequency converter does not start, when ON command is given	Contact the distributor near to you.
34	CAN bus communication	Sent message not acknowledged.	Ensure that there is another device on the bus with the same configuration.
35	Application	Problem in application software.	Contact your distributor. If you are application programmer check the application program.
36	Control unit	NXS Control Unit can not control NXP Power Unit and vice versa	Change control unit
37	Device changed (same type)	Option board or control unit changed. Same type of board or same power rating of drive.	Reset. Device is ready for use. Old parameter settings will be used.
38	Device added (same type)	Option board or drive added.	Reset. Device is ready for use. Old board settings will be used.
39	Device removed	Option board removed.	Reset. Device no longer available.
40	Device unknown	Unknown option board or drive. Subcode in T.14: S1 = Unknown device S2 = Power1 not same type as Power2	Contact the distributor near to you.

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41	IGBT temperature	IGBT Inverter Bridge overtemperature protection has detected too high a short term overload current	Check loading. Check motor size. Make identification run.
42	Brake resistor overtemperature	Brake resistor overtemperature protection has detected too heavy braking	Set the deceleration time longer. Use external brake resistor.
43	Encoder fault	Problem detected in encoder signals. Subcode in T.14: 1 = Encoder 1 channel A is missing 2 = Encoder 1 channel B is missing 3 = Both encoder 1 channels are missing 4 = Encoder reversed 5 = Encoder board missing	Check encoder channel connections. Check the encoder board. Check encoder frequency in open loop.
44	Device changed (different type)	Option board or power unit changed. New device of different type or different power rating.	Reset Set the option board parameters again if option board was changed. Set converter parameters again if power unit was changed.
45	Device added (different type)	Option board of different type added.	Reset Set the option board parameters again.
49	Division by zero in application	Division by zero has occurred in application program.	Contact your distributor if the fault re-occurs while the converter is in run state. If you are application programmer check the application program.
50	Analogue input I_{in} < 4mA (sel. signal range 4 to 20 mA)	Current at the analogue input is < 4mA. control cable is broken or loose signal source has failed.	Check the current loop circuitry.
51	External fault	Digital input fault.	Remove fault situation on external device.
52	Keypad communication fault	The connection between the control keypad (or NCDrive) and the frequency converter is broken.	Check keypad connection and possible keypad cable.
53	Fieldbus fault	The data connection between the fieldbus Master and the fieldbus board is broken	Check installation. If installation is correct contact the nearest Vacon distributor.
54	Slot fault	Defective option board or slot	Check board and slot. Contact the nearest Vacon distributor.
56	PT100 board temp. fault	Temperature limit values set for the PT100 board parameters have been exceeded. More inputs are selected than actually connected. PT100 cable is broken.	Find the cause of temperature rise.
57	Identification	Identification run has failed.	Run command was removed before completion of identification run. Motor is not connected to frequency converter. There is load on motor shaft.

Table 130. Fault codes

Fault code	Fault	Possible cause	Correcting measures
58	Brake	Actual status of the brake is different from the control signal.	Check mechanical brake state and connections.
59	Follower communication	SystemBus or CAN communication is broken between Master and Follower	Check option board parameters. Check optical fibre cable or CAN cable.
60	Cooling	Coolant circulation on liquid-cooled drive has failed.	Check reason for the failure on external system.
61	Speed error	Motor speed is unequal to reference	Check encoder connection. PMS motor has exceeded the pull out torque.
62	Run disable	Run enable signal is low	Check reason for Run enable signal.
63	Emergency stop	Command for emergency stop received from digital input or fieldbus	New run command is accepted after reset.
64	Input switch open	Drive input switch is open	Check the main power switch of the drive.
65	PT100 board 2 temp fault	Temperature limit values set for the PT100 board parameters have been exceeded. More inputs are selected than actually connected. PT100 cable is broken.	Find the cause of temperature rise.
74	Follower fault	When using normal Master Follower function this fault code is given if one or more follower drives trip to fault.	

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