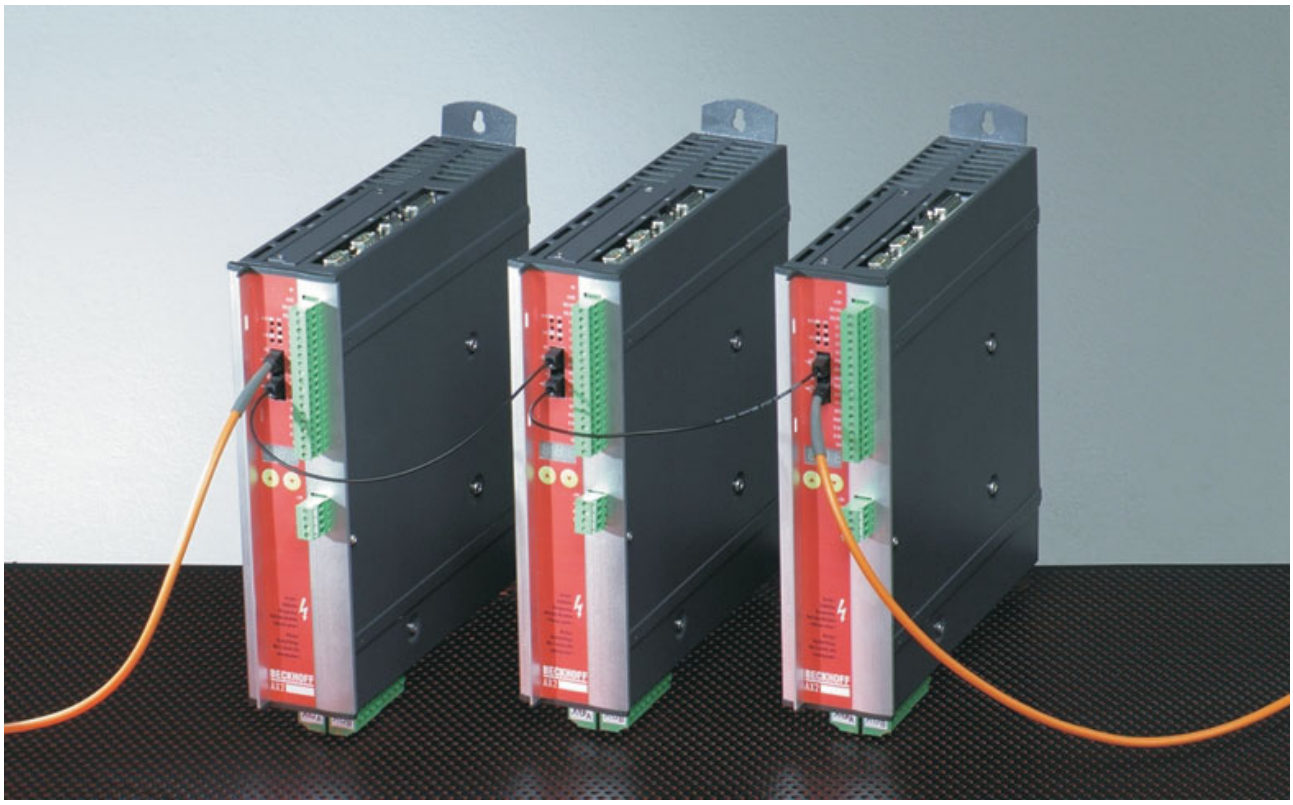
BECKHOFF

Digital Servo amplifier
AX 2000



Assembly, Installation, Setup

Keep all product manuals as a product component
during the life span of the servo amplifier.
Pass all product manuals to future
users / owners of the servo amplifier.

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Error messages

Errors which occur are shown in coded form by an error number in the LED display on the front panel. All error messages result in the BTB/RTO contact being opened, and the output stage of the amplifier being switched off (motor loses all torque). If a motor-holding brake is installed, it will be activated.

Number	Designation	Explanation
E / S / A / P	Status Messages	Status messages, no error, see p. 86
. . .	Status Message	Updating the startup configuration
-	Status Message	Programming mode
F01*	Heat sink temperature	Heat sink temperature too high limit is set by manufacturer to 80°
F02*	Overvoltage	Overvoltage in DC bus link limit depends on the electrical supply voltage
F03*	Following error	Message from the position controller
F04	Feedback	Cable break, short-circuit, short to ground
F05*	Undervoltage	Undervoltage in DC bus link limit is set by manufacturer to 100V
F06	Motor temperature	Motor temperature too high or temp. sensor defect limit is set by manufacturer to 145°C
F07	Internal voltage supply	Internal amplifier supply voltages are out of tolerance
F08*	Overspeed	Motor runs away, speed is too high
F09	EEPROM	Checksum error
F10	Flash-EPROM	Checksum error
F11	Brake	Cable break, short-circuit, short to ground
F12	Motor phase	Motor phase missing (cable break or similar)
F13*	Internal temperature	Internal temperature too high
F14	Output stage	Fault in the power output stage
F15	I^2t max.	I^2t maximum value exceeded
F16*	Supply BTB/RTO	2 or 3 phases missing in the mains supply feed
F17	A/D converter	Error in the analog-digital conversion, normally caused by extreme electromagnetic interferences.
F18	Regen	Regen circuit faulty or incorrect setting
F19*	Supply phase	A phase is missing in the mains supply power feed (can be switched off for 2-phase operation)
F20	Slot fault	Slot error (hardware fault on expansion card)
F21	Handling error	Software error on the expansion card
F22	Earth short circuit	For 40/70 amps type only
F23	CAN-bus off	Severe CAN bus communication error
F24	Warning	Warning is displayed as fault
F25	Commutation error	Commutation error
F26	Limit switch	Homing error (machine has driven onto hardware limit switch)
F27	AS	Operational error with -AS- , input for AS-Enable and ENABLE have been set at the same time
F28	External Trajectory	External position profile generator created a step, that exceeded the maximum value
F29	Slot Fault	depends on expansion card, see online help
F30	Emergency timeout	Timeout emergency stop
F31	Macro	Macro program error
F32	System Error	system software not responding correctly

* = These error messages can be cancelled by the ASCII command CLRFAULT, without executing a reset. If only these errors are present, and the RESET button or the I/O-function RESET is used, the CLRFAULT command is also all that is carried out.

More information to the messages can be found in the ASCII Object Reference (Online Help), see parameter ERRCODE. Hints for removal can be found in section "Trouble-Shooting" of the online help.

Warning messages

Faults which occur, but which do not cause a switch-off of the amplifier output stage (BTB/RTO contact remains closed), are indicated in the LED display on the front panel by a coded warning number.

Number	Designation	Explanation
E / S / A / P	Status Messages	Status messages, no error, see p. 86
. . .	Status Message	Updating the startup configuration
-	Status Message	Programming mode
n01	I²t	I²t threshold exceeded
n02	Regen power	Reached preset regen power limit
n03*	S_fault	Exceeded preset following error limit
n04*	Response monitoring	Response monitoring (fieldbus) has been activated
n05	Supply phase	Mains supply phase missing
n06*	SW limit switch 1	Underrun software limit switch 1
n07*	SW limit switch 2	Overrun software limit switch 2
n08	Motion task error	A faulty motion task was started
n09	No reference point	No reference point (Home) set at start of motion task
n10*	PSTOP	PSTOP limit-switch activated
n11*	NSTOP	NSTOP limit-switch activated
n12	Motor default values loaded	Only for ENDAT or HIPERFACE® : discrepancy between motor number saved in the encoder and the amplifier, motor default values loaded
n13*	Slot warning	24V supply of the I/O expansion board is missing
n14	SinCos feedback	SinCos commutation (wake & shake) not completed, will be canceled when amplifier is enabled and wake & shake carried out
n15	Table error	Fault according to speed/current table INXMODE 35
n16	Summarized warning	Summarized warning for n17 to n31
n17	Fielbus Synchronization	The mode synchronization SYNCSRC is selected but the drive isn't in synchronies cycle
n18	Multiturn overrun	Using Multiturn encoder feedback, an overrun over the maximum number of resolutions was detected
n19	Motion task ramps are limited	Range overflow on motion task data
n20	Wrong GMT data	Wrong "Graphical Motion Task" data
n21	PLC program error	For details see plc code
n22	max. motor temperatur reached	The user can shut down the process before the temperature eror will interrupt the process immediately
n23...n31	reserved	reserved
n32	firmware beta version	Firmware is an unreleased beta version

* = These warning messages lead to a controlled shut-down of the drive (braking with the emergency ramp)

More information to the messages can be found in the ASCII Object Reference (Online Help), see parameter STATCODE. Hints for removal can be found in section "Trouble-Shooting" of the online help.