



Technical Info - Service Note

COMBIVERT F6

Error messages for F6 COMPACT

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Impressum

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1 Preface

The Service Notes provide advice and skills for maintenance, service and repair.

The use of our devices in the target products is beyond of our control and therefore exclusively the responsibility of the machine manufacturer, system integrator or customer.

This document is not legally part of the certified device documentation. The functions described in the current KEB documentation must always be given priority. The enclosed documents correspond to conditions valid at printing. Misprint, mistakes and technical changes reserved.

2 Validity

The listed error lists are valid for the following Config-IIds:

Group	Type	Config-Id
F6	F6-K V x.x.x.x	9243, 9245, 9247, 9255, 9261, 9267, 9275, 9284, 9293, 9302, 9317, 9851, 9939, 9986

3 Error list ru01

Value	Error message	Description	Cause/Remedy
0	no error	There is no error. Drive Controller does not modulate.	Release via the control word is missing (co00).
1	ERROR chain	The error chain looped through the devices is interrupted and the signal is set to 0.	Check wiring.
2	ERROR supply	Precharging not completed. An error is only generated if the drive modulates.	Check whether the pre-charging contactor has tightened. Check wiring.
3	ERROR overcurrent PU	Overcurrent detection in the power unit has triggered	Check wiring at inverter / motor for short circuit / star / delta and ground fault. EMC interference on the motor cable / inverter. Motor cable too long. Acceleration time too short, extend time. Disconnect motor cable from inverter, - If the error is still present with the disconnected motor, the device is defective and must be sent to the KEB Service. - measure the power semiconductors according to the manual.
4	ERROR overcurrent analog	Overcurrent level on the control card exceeded (e.g. incorrect setting of the controller or the torque limit characteristic curve)	Check wiring at inverter / motor for short circuit. Check the drive for sluggishness. Brake not released. Acceleration time too short. Extend time.
5	ERROR overpotential	Voltage in the DC link has exceeded the triggering level.	Switch-in threshold of the braking transistor set too high (pn32/de36). Braking transistor is not activated (is30). Deceleration ramp set too short. Extend time. Braking resistor defective (high-resistance). Braking transistor defective (high-resistance). Input voltage too high, poor controller calibration, resulting in strongly fluctuating speed of the drive, check controller parameters. Check the insulation of the connected motor (step-up controller).
6	ERROR undervoltage DC link	Voltage in the DC link (de32) too low.	Are all mains phases available at terminals L1 / L2 (N) / L3. Braking resistor connected to DC link instead of braking transistor. If the error only occurs with short acceleration ramps, then check motor / inverter design. Avoid a 1:1 design for closed-loop drives.

Value	Error message	Description	Cause/Remedy
7	ERROR overload	Long-term average power utilization is above 100%.	Check for mechanical sluggishness of the drive. Acceleration time too short. Extend time. Brake not released? Motor design: Inverter does not fit
8	reset E. overload	Overload counter (ru29) has reached a value < 50% of the warning level.	Error! Module overload (I2t) can be reset now.
9	ERROR overload 2	Fast overload protection - defined by standstill continuous current and short-time limit current - has responded	Check for mechanical sluggishness of the drive. Acceleration time too short. Extend time. Brake not released.
10	ERROR overheat pmod.	Overheat of the power semiconductors (heat sink)	Check heat sink fan. Clean or replace fan if necessary. F6 size 7 – 9: External 24V supply for the heat sink fans available (24V/10A)? Fuses on internal fan board defective/ check. For liquid cooling: switches the solenoid valve for the coolant? Sufficient coolant in the system? System vented?
11	reset E. overheat pmod.	Temperature of the power semiconductors at the heat sink has decayed to 5° below the overheat threshold.	Error overheat heat sink can be reset now.
12	ERROR overheat internal	Internal temperature of the device has exceeded the triggering level.	Internal fan dirty/ defective. Mounting position/ distances not observed. Control cabinet fan dirty/defective. Keep control cabinet door closed nevertheless.
13	reset E. overheat internal	Overtemperature in the internal of the inverter has dropped below the permissible level again.	Error can be reset now.
14	ERROR motorprotection	Electronic (software) motor protection function has triggered.	Check star/delta wiring of the motor. Check/correct motor data in inverter (dr03/dr34). Brake not released.
15	reset E. motorprotection	The internal overload counter has returned to a value of <98%.	Error can be reset now.
16	ERROR drive overheat	Temperature input (e.g. T1, T2) has triggered.	Check terminals at the inverter (e.g. T1, T2) Temperature sensor in the motor (e.g. PTC or KTY) has triggered. If no sensor is connected, the terminals must be bridged when the function is activated. Check connection at the motor. Possible cable breakage

Value	Error message	Description	Cause/Remedy
			Setting whether the correct temperature sensor (dr33) is set. Check setting of parameter pn14. Is the brake switched on?
17	reset E. drive over-heat	Conditions at the temperature input of the inverter back in the normal range.	Error can be reset now..
18	ERROR overspeed	Speed > pn26 x rated speed	Are the encoder increments per revolution (encoder1 or encoder2) (ec29) set correctly? Is the encoder cable laid correctly (EMC)?
19	ERROR frequency	Mains output frequency of the Active Infeed Controller outside the permissible tolerance.	
20	ERROR drive data	Error in the specification of the motor data.	Normalization of the motor data. Check the set motor data, Check star / delta wiring. Brake not released.
21	ERROR motordata not stored	Motor data have not yet been confirmed with parameter dr99.	Confirm parameter dr99.
22	ERROR ident	An error has occurred during identification. Information on the type of error in dr57.	dr57 for more information. Is the brake released?
23	ERROR diff speed	Speed difference between set speed and actual speed directly before the speed controller > set level within a parameterized time (pn38/39).	Adjust controller. Change values in pn38/39. Check connection encoder/motor shaft. Check of set and actual speed (ru08/09). Is the brake released?
24	ERROR fieldbus memory	Incorrect software configuration of the drive controller.	Contact KEB Service.
25	WARNING overpotential	Voltage in the DC link has exceeded the set warning level. The behavior of the drive can be parameterized.	Switch-in threshold of the braking transistor set too high (pn32/de36). Braking transistor is not activated (is30). Deceleration ramp set too short. Extend time. Braking resistor defective (high-resistance). Braking transistor defective (high-resistance). Input voltage too high, poor controller calibration, resulting in strongly fluctuating speed of the drive, check controller parameters. Check the insulation of the connected motor (step-up controller). Check/set the triggering level.

Value	Error message	Description	Cause/Remedy
26	WARNING! underpotential	Voltage in the DC link (de32) too low. The behavior of the drive can be parameterized.	Are all mains phases available at terminals L1 / L2 (N) / L3. Braking resistor connected to DC link instead of braking transistor. If the error only occurs with short acceleration ramps, then check motor / inverter design. Avoid a 1:1 design for closed-loop drives.
27	WARNING overload	Overload ru29 (I2t -function) > pn03 OL warning level. The behavior of the drive can be parameterized.	Check for mechanical sluggishness of the drive. Acceleration time too short. Extend time. Brake not released? Dimensioning motor: inverter does not fit
28	reset W. overload	Overload counter (ru29) has fallen below the warning level pn03 again.	Warning! Module overload (I2t) can be reset now.
29	WARNING overload 2	Fast overload protection (ru27), defined by standstill continuous current and short-time current limit, > Overload2 warning level (pn05).	Check for mechanical sluggishness of the drive. Acceleration time too short. Extend time. Brake not released.
30	WARNING overhear powmod.	Temperature of the power semiconductors (heat sink) ru25 > pn07. The behavior of the drive can be parameterized.	Check heat sink fan. Clean or replace fan if necessary. F6 size 7 – 9: External 24V supply for the heat sink fans available (24V/10A)? Fuses on internal fan board defective/ check. For liquid cooling: switches the solenoid valve for the coolant? Sufficient coolant in the system? System vented?
31	reset W. overhear pmod.	Temperature of the power semiconductors at the heat sink has decayed to 5° below the overtemperature threshold.	Warning overtemperature heat sink can be reset now.
32	WARNING overhear intern.	The internal temperature of the device (ru26) has exceeded the triggering level (pn09). The behavior of the drive can be parameterized.	Internal fan dirty/ defective. Mounting position/ distances not observed. Control cabinet fan dirty/defective. Keep control cabinet door closed nevertheless.
33	reset W. overhear intern	Overtemperature in the internal of the inverter has dropped below the permissible level again.	Warning can be reset now.
34	WARNING motorprotection	Counter of the electronic motor protection function (ru32) > pn15.	Check star/delta wiring of the motor. Check/correct motor data in inverter (dr03/dr34). Brake not released.

Value	Error message	Description	Cause/Remedy
35	reset W. motorprotection	The internal overload counter (ru32) has returned to a value < pn15.	Error can be reset now.
36	WARNING drive overheat	Temperature input (e.g. T1, T2) has triggered. If "Warning" is programmed as error response in pn12, ru03 changes into status error after the delay time pn13 has elapsed	Check terminals at the inverter (e.g. T1, T2) Temperature sensor in the motor (e.g. PTC or KTY) has triggered. If no sensor is connected, the terminals must be bridged when the function is activated. Check connection at the motor. Possible cable breakage Setting whether the correct temperature sensor (dr33) is set. Check setting of parameter pn14. Is the brake switched on?
37	reset W. drive overheat	Conditions at the temperature input of the inverter back in the normal range.	Error can be reset now.
38	ERROR memory size	Incorrect software configuration of the drive controller.	Contact KEB service.
39	ERROR power unit software version	Invalid checksum of the parameter range (de115).	Contact KEB service.
40	ERROR FPGA conf.		Contact KEB service.
41	ERROR safety mod. SACB comm.	No communication via the SACB bus with the safety module.	Contact KEB service.
42	ERROR power unit SACB comm.	No communication via the SACB bus with the power unit.	Contact KEB service.
43	ERROR enc. intf. SACB comm.	No communication via the SACB bus with the encoder.	Contact KEB service.
44	ERROR invalid power unit data	Incorrect power unit data in de26/de27.	Contact KEB service.
45	ERROR power unit reset	Power unit in reset state.	Contact KEB service.
46	ERROR power unit Vref	Reference voltage for temperature measurement invalid.	Contact KEB service.
47	ERROR power unit flash	The plausibility check of the flash memory of the power unit CPU has reported an error.	Contact KEB service.
48	ERROR power unit CPU	Internal error of the power unit CPU.	Contact KEB service.
49	ERROR licence invalid		Contact KEB service.

Value	Error message	Description	Cause/Remedy
51	ERROR heartbeat	CAN heartbeat signal failed.	Check heartbeat settings. Check Pn23 and address 0x1016, 0x1017.
52	ERROR undervoltage phase	Phase failure at mains input (L1, L2, L3).	Measure input voltage at terminals L1...L3. Possibly defective back-up fuse, PKZ has triggered. Ripple of DC link voltage too large due to application (acceleration / braking).
53	ERROR rot.detect. curr.		
54	ERROR rot.detect. enc.		
55	ERROR safety module	The safety module has reported an error.	Contact KEB service or machine builder.
56	ERROR software switch left	Software limit switch has triggered.	Check programming of the software limit switch.
57	ERROR software switch right	Software limit switch has caused an error.	Check programming of the software limit switch.
58	ERROR fieldbus watchdog	Fieldbus watchdog has responded.	Check RJ45 connector. Check for cable breakage. EMC disturbances.
59	ERROR prg. input	Error via programmable input.	If no intentional action: Check cabling, programming of digital inputs.
60	ERROR safety module changed	The safety module was replaced without authorization.	Contact KEB service.
61	ERROR safety module changed	The safety module has been changed.	Contact KEB service.
62	ERROR power unit changed	The power unit has been changed.	Contact KEB service.
63	ERROR enc. intf. changed	The encoder interface has been changed.	Contact KEB service.
64	ERROR power unit type changed	The power unit type has been changed.	Contact KEB service.
65	ERROR enc. intf. version	Invalid version of the encoder interface.	Contact KEB service.
66	ERROR Overcurrent PU		Contact KEB service.
67	ERROR max acc/dec	Maximum acceleration/ deceleration setting exceeded (monitoring particularly necessary for cyclic synchronous operating modes).	Checking the setpoint setting and the ramp settings.
68	ERROR Overcurrent brake	Overcurrent on the brake output.	Check the brake output for short circuit. Remove the plug from the control board. (F6/S6 X1C Pin 1/2) (H6 X1B B+/B- // X1BA BA+/BA- // X1BB BB+/BB-) (P6 X1B Pin B+/B- // HB+/HB-)

Value	Error message	Description	Cause/Remedy
69	ERROR power unit	General power unit error (E.PU).	Contact KEB service.
81	ERROR rot.det. five step		
82	ERROR rot.det. Ld=Lq		
83	ERROR limit for.		
84	ERROR limit rev.		
85	ERROR limit switch for. maximum limit overrun		
86	ERROR limit switch rev. maximum limit overrun	Positive (hardware) limit switch overrun by hm19.	Check stopping process in application limit switch (control, ramp profile).
87	ERROR limit	Either both (hardware) limit switches are triggered or one (hardware) limit switch is triggered and only the actual direction of rotation corresponds to the limit switch direction.	Checking the limit switches, wiring / position / possibly the limit switches are interchanged.
88	ERROR end power off		Check power off function setting (cu 32 subindex 7 ... status power off function).
89	ERROR at enc.type change	Incompatible encoder interface and drive software versions.	Contact KEB service.
90	ERROR enc.intf.fast comm.	Communication error control board encoder interface.	Contact KEB service.
91	init encoder interface	Encoder interface in initialization routine.	Contact KEB service.
92	ERROR encoder A	Hardware defect or incorrect setting of the encoder parameters (type, increments per revolution, etc.).	Check encoder cable. Is the encoder correctly connected to the motor shaft.
93	ERROR encoder B	Hardware defect or incorrect setting of the encoder parameters (type, increments per revolution, etc.).	Encoder A –X3A / encoder B –X3B (F6/S6).
94	init encoder A	Initialization encoder A is running.	Check encoder cabling. Check the setting of ec16.
95	init encoder B	Initialization encoder B is running.	Check encoder cabling. Check the setting of ec16.
96	ERROR encoder missing	If a mode requires an encoder, no encoder type is selected in ec16.	Control setting of ec16.
97	ERROR overspeed (EMF)	pn72 overspeed level (EMF) has been exceeded.	Checking setpoint speed, overshoot speed control. Malfunction actual encoder value.

Value	Error message	Description	Cause/Remedy
98	ERROR encoder A changed	Serial number read from the encoder does not correspond to the stored serial number (ec48 != ec49).	Enter the correct serial number of the encoder in parameters: - ec48 = encoder 1 (A) - ec49 = encoder 2 (B).
99	ERROR encoder B changed	Serial number read from the encoder does not correspond to the stored serial number (ec48 != ec49).	Enter the correct serial number of the encoder in parameters: - ec48 = encoder 1 (A) - ec49 = encoder 2 (B).
100	ERROR overcurrent out1	Overcurrent at digital output 1.	Check whether there is an overload/short circuit at digital output 1 of the control board. F6 / S6 devices: A card X2A Pin 11 (100mA) K card X2A Pin 17 (100mA) P card X2A Pin 10 (100mA).
101	ERROR overcurrent out2	Overstom at digital output 2.	Check if there is overload/short circuit at digital output 2 of the control board. F6 / S6 devices: A card X2A Pin 12 (100mA) K card X2A Pin 19 (100mA) P card X2A Pin 12 (100mA).
102	ERROR overcurrent out3	Overstom at digital output 3.	Check if there is overload/short circuit at digital output 3 of the control board. F6 / S6 devices K card X2B Pin 5 (100mA).
103	ERROR overcurrent out4	Overcurrent at digital output 4.	Check if there is overload/short circuit at digital output 4 of the control board. F6 / S6 devices K card X2B Pin 6 (100mA).
104	ERROR overcurrent fan		Check if a fan is blocked or if there is another defect. Detach the fan from the plug contact, replace the defective fan.
105	ERROR overcurrent encoder	Overcurrent at the encoder interface.	Check data sheet from encoder. Check permissible total current.
106	ERROR overcurrent 24V	Overcurrent at the 24V outputs of the control terminal block.	Check permissible load at the output. F6 / S6 devices.
107	ERROR over frequency	The maximum output frequency de120 has been exceeded. (599Hz).	Decrease setpoint (associated frequency must have safety distance to de120). Check control performance. Check system position for synchronous machine (in case of uncontrolled acceleration)
108	reset E. reset E. overheat CB	Overtemperature in the internal of the inverter has dropped below the permissible level again.	Error message can be reset now.
109	ERROR overheat internal CB	Measured temperature in the interior exceeds 45°C.	Check temperature in the control cabinet. Check/clean control cabinet fan.
110	reset W. overheat CB		

Value	Error message	Description	Cause/Remedy
110	ERROR ramp over-heat	Maximum time between the occurrence of an overtemperature error and modulation shut-down has been exceeded.	Deceleration ramp exceeds 2s time limit.
111	ERROR ramp over-temperature intern.	Maximum time between the occurrence of an overtemperature error in the interior and the modulation shutdown has been exceeded.	Deceleration ramp exceeds 2s time limit.
111	WARNING overheat intern.		
112	ERROR 24V supply low	24V supply has dropped to a value < 18V.	Check external voltage supply. Compare permissible output current with actual output current. Is there an overload?
113	ERROR peaks at		Is only checked for the safety modules.
113	ERROR STO signals	Delay in switching of ST=1 and STO2.	Is only checked for the safety modules.
114	ERROR ext 24V low	External 24V output of the control board below tolerance.	Measure external 24V voltage at the control board. Compare permissible output current with actual output current. Is there an overload?
115	ERROR GTR7 always OFF	Braking transistor can no longer be switched on.	Check braking resistor. Deactivation in is30 if no braking resistor is connected.
116	ERROR GTR7 OC	The current at the output terminals for the braking resistor > permissible levels.	Braking resistor causes a short circuit or ground fault. Check/disconnect braking resistor.
117	ERROR GTR7 always ON	Braking transistor can no longer be switched off.	Braking transistor defective. Checking the braking resistor. Caution - fire risk. Disconnect device from mains. Deactivation in is30 if no braking resistor is connected.
118	OC at 5V Diag	Short circuit of the 5V output	Contact KEB service.
119	ERROR extreme overpotential	Very high overvoltage in the DC link. Can lead to the defect of the DC link capacitors.	Defective filter cabling Incorrect parameterization of the filter. Uncontrolled ramp-up of a synchronous motor. Device defective. Contact KEB service.
120	ERROR DC capacitor damaged	DC capacitors have been damaged by too long / high voltage in the DC link circuit.	Contact KEB service. Device must be sent to KEB for inspection / repair.
121	ERROR runtime	Program runtime exceeded.	Activation of too many functions. Contact KEB service.

Value	Error message	Description	Cause/Remedy
122	ERRORunderpoten- tial 2	Error is triggered when the transition of the status machine to "switched on" is requested and the status "run" in ru04 is not yet reached after the delay time.	Mains voltage missing. Check the timing of mains connection and control.
123	ERROR LT ready	Error is triggered if the ready signal of the power unit is missing during activated modulation.	Check mains voltage supply at power unit. EMC interferences. Change cable routing of motor and/or control cables.
124	ERROR General Fieldbus Error	The fieldbus has signaled a general error.	Further problem analysis via fb91.
125	ERROR fieldbus type changed	The selected fieldbus type in fb68 has been changed. The new fieldbus type cannot be used yet.	Perform power-on reset so that the new fieldbus type is taken over.
126	ERROR overheat 2 powmod.	Cooling capacity at the heat sink too low.	Check fan. Ambient temperature or coolant inlet temperature too high. Load of the device too high.
127	reset E. overheat 2 pmod.	Overheating (2) in the power unit subsided again.	Error can be reset now.
128	ERROR overheat 3 powmod.	Cooling capacity at the heat sink too low.	Check fan. Ambient temperature or coolant inlet temperature too high. Load of the device too high.
129	reset E. overheat 3 pmod.	Overheating (3) in the power unit subsided again.	Error can be reset now.
130	ERROR overheat 2 internal	Overtemperature in the interior.	Check fan. Check overload of the device. Ambient temperature too high? Parameterization of the fan function.
131	reset E. overheat 2 intern	Overtemperature in the internal of the inverter has dropped below the permissible level again.	Error can be reset now.
132	ERROR overheat 3 internal	Overtemperature in the interior.	Check fan. Check overload of the device. Ambient temperature too high? Parameterization of the fan function.
133	reset E. overheat 3 intern	Overtemperature in the internal of the inverter has dropped below the permissible level again.	Error can be reset now.

Value	Error message	Description	Cause/Remedy
134	ERROR safety stop	Error SS1 or SS2 is generated by the safety module.	Can be activated with pn80.
135	ERROR file code	Invalid file code.	Contact KEB service.
136	ERROR blockade	Setpoint at ramp output is higher than actual value.	Determine why the drive cannot follow the setpoint. Input or output blocked. Drive sluggish.
136	ERROR PQ controller reverse speed		
137	WARNING blockade	Setpoint at ramp output is higher than actual value. "Warning" was parameterized as reaction.	Determine why the drive cannot follow the setpoint. Input or output blocked. Drive sluggish.
138	WARNING LT ready	Power unit is not ready.	Check voltage supply of the power unit.
139	ERROR STO	Error is generated by the safety module.	Check application where the safety chain is interrupted. Check parameterization of the safety module. Check cabling of control release.
140	ERROR fail-safe	Error is generated by the safety module.	Check parameterization of safety module or application.

4 Error list ec01

Value	Message	Cause	Remedy
0	no error		
6	fast comm: overrun err	Fast, internal communication for encoder evaluation.	EMC problems or device defective.
7	fast comm: sync err	Fast, internal communication for encoder evaluation.	EMC problems or device defective.
8	fast comm: BCC err	Fast, internal communication for encoder evaluation.	EMC problems or device defective.
9	fast comm: inv. data	Fast, internal communication for encoder evaluation.	EMC problems or device defective.
25	5V supply too low	Error during power-on of the voltage supply, e.g. short circuit or voltage too low.	Check encoder cable, hardware defect possible.
25	activating enc.supply during init	Error during power-on of the voltage supply, e.g. short circuit or voltage too low.	Check encoder cable, hardware defect possible.
25	short circuit of the 5V supply	Short circuit or supply voltage too low.	Check encoder cable, hardware defect possible.
25	8V supply too low	Error during power-on of the voltage supply, e.g. short circuit or voltage too low.	Check encoder cable, hardware defect possible.
25	short circuit of the 8V supply	Short circuit or supply voltage too low.	Check encoder cable, hardware defect possible.
29	wrong enc type combination	Endat+1Vss on one channel and Endat digital on the other channel cannot be evaluated together.	Set the same endat encoder type on both channels.
30	read motor temp. via encoder	Error when reading the motor temperature via the encoder	Encoder does not support temperature sensors.
41	slow comm: overrun err	Slow, internal communication for encoder evaluation	EMC problems or device defective
42	slow comm: frame err	Slow, internal communication for encoder evaluation.	EMC problems or device defective
43	slow comm: parity err	Slow, internal communication for encoder evaluation.	EMC problems or device defective
47	slow comm: BCC err	Slow, internal communication for encoder evaluation.	EMC problems or device defective

Value	Message	Cause	Remedy
51	EnDat: no comm.	No communication to the encoder could be established during initialization	Hardware defect, check shield on motor, encoder cable or EMC interferences.
52	EnDat: 1Vpp missing	An Endat encoder was detected during initialization, but no 1Vpp signals could be detected.	Hardware defect, no 1Vpp support of the encoder, check shield at motor, encoder cable or EMC interferences.
55	EnDat: unsupported type	Unknown encoder type, encoder is not supported.	Contact KEB service.
57	EnDat: un_supp. version	The encoder has a different EnDat version than 2.x which is not supported.	Contact KEB service.
62	EnDat: encoder sends battery warning		
68	EnDat: write data error	Data could not be stored in the encoder.	Defective non-volatile memory in the encoder.
74	EnDat: timeout when reading additional information	Communication was interrupted during reading of the additional information, e.g. due to breakage of a wire in the encoder cable.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
81	EnDat: error bit 1		
82	EnDat: error bit 2		
83	EnDat: CRC error position	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
84	EnDat: CRC error add.info 1	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
85	EnDat: CRC error add.info 2	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
86	EnDat: encoder error type 1	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
87	EnDat: watchdog error	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
88	EnDat: comm. not started	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
89	EnDat: comm. time out	EnDat communication has become faulty during operation.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
91	dig. pos. corr.diff. err	Position difference between incremental and absolute position too large.	The number of increments per revolution in ec29 is wrong. One or more signal pairs are connected twisted or reversed. The course of the 1Vpp absolute signals does not match the position of the zero signal. Hardware defect, check shield on motor, encoder cable or EMC interferences.

Value	Message	Cause	Remedy
92	dig. pos. corr.rot. err	Difference between counted revolutions and revolutions of the (multiturn) encoder has occurred.	The number of increments per revolution in ec29 is wrong. One or more signal pairs are connected twisted or reversed. The course of the 1Vpp absolute signals does not match the position of the zero signal. Hardware defect, check shield on motor, encoder cable or EMC interferences.
96	Sin/Cos pos. corr.diff. err	Error position correction at SinCos encoder with incremental, absolute position.	The number of increments per revolution in ec29 is wrong. One or more signal pairs are connected twisted or reversed. The course of the 1Vpp absolute signals does not match the position of the zero signal. Hardware defect, check shield on motor, encoder cable or EMC interferences.
101	1Vpp-inc.: signal err	Error 1Vpp incremental signals	One or both signals are too small, deformed or missing. Which of the signals is faulty. Check shielding on motor, encoder cable or EMC interferences.
103	1Vpp-abs.: signal err	Error 1Vss absolute signals with SinCos encoder	One or both signals are too small, deformed or missing. Which of the signals is faulty. Hardware defect, check shield on motor, encoder cable or EMC interferences.
105	Sin/Cos+SSI: no signals detected in init	Not all encoder signals were detected during initialization.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
107	Sin/Cos+SSI: SSI comm. error	No data from the encoder. No edges detected on the data signal.	Clock or data signals are too small. Hardware defect, check shield on motor, encoder cable or EMC interferences.
108	Sin/Cos+SSI: parity error	The parity bit from the encoder is set. Is only active if the check of the bit in ec42 is activated.	Encoder does not send a parity bit. Singleturn or multiturn resolution in ec40 or ec41 are wrong. Check shielding on motor, encoder cable or EMC interferences.
109	Sin/Cos+SSI: encoder error bit	The error bit from the encoder is set. Is only active if the check of the bit in ec42 is activated.	Voltage supply to encoder is faulty. Singleturn or multiturn resolution in ec40 or ec41 are wrong. Check shielding on motor, encoder cable or EMC interferences.
113	Sin/Cos: no reference	The reference signal was not detected.	The hardware is defective. The increments per revolution in ec29 was entered incorrectly.
114	Sin/Cos: inc/rev min err	The set number of increments per revolution is too small (compared to the distance between two reference signals).	The increments per revolution in ec29 was entered incorrectly.
115	Sin/Cos: inc/ref max err	The set number of increments per revolution in ec29 is too large (compared to the distance between two reference signals).	The increments per revolution in ec29 was entered incorrectly.
116	Sin/Cos: init err	Not all encoder signals were recognized during initialization (recognized encoder signals are visible in ec17).	The hardware is defective.
117	Sin/Cos: reference err	Reference signal has become faulty during operation.	The hardware is defective.

Value	Message	Cause	Remedy
121	TTL: trace A error	Track A is defective or missing	The hardware is defective.
122	TTL: trace B error	Track B is defective or missing	The hardware is defective.
123	TTL: trace A or B error	Tracks A and B are defective or missing	The hardware is defective.
125	TTL: no reference	The reference signal was not detected.	The hardware is defective. The increments per revolution in ec29 was entered incorrectly.
126	TTL: inc/rev min err	The set number of increments per revolution is too small (compared to the distance between two reference signals).	The increments per revolution in ec29 was entered incorrectly.
127	TTL: inc/rev max err	The set number of increments per revolution is too large (compared to the distance between two reference signals).	The increments per revolution in ec29 was entered incorrectly.
128	TTL: init err	Not all encoder signals were recognized during initialization (recognized encoder signals are visible in ec17).	The hardware is defective.
129	TTL: reference err	Reference signal has become faulty during operation.	The hardware is defective.
131	BISS: comm init err	No encoder connected. Switching level at encoder input invalid or encoder does not respond.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
132	BISS: enc init err	No encoder connected. Switching level at encoder input invalid or encoder does not respond.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
133	BISS: unsupp. protocol	Communication not possible. Protocol is not supported. Unknown BISS-B encoder connected.	Use encoder type with KEB specifications.
134	BISS: enc comm init err	Encoder is connected. In the initialization, the communication could not be established without errors. The settings in ec40, ec41, ec42 are not correct.	If ec17 = 0: "no encoder detected" and ec02 = 20: "BISS: encoder communication", a BiSS-C unidirectional (without el. nameplate) has been detected. If ec17 = 84: "BiSS Mode C, EDS containing inconsistent data" and ec02 = 31: "BISS Mode C: EDS data invalid", a BiSS-C encoder with el. nameplate has been detected. This one could not be initialized. An initialization to a unidirectional encoder Biss-C has failed.

Value	Message	Cause	Remedy
137	BISS: un supp. enc ID	Encoder type is not supported or unknown.	Use encoder type with KEB specifications.
138	BISS: read para timeout	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
139	BISS: read pos. timeout	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
140	BISS: enc comm err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
141	BISS: comm watchdog err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
142	BISS comm: pos. CRC err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
143	BISS comm: para CRC err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
144	BISS: pos. read err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
145	BISS: pos. invalid	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
146	BISS: enc err bit	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
147	BISS: CPU watchdog err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
151	Resolver: signal err	One or both signals incorrect.	Encoder does not comply with KEB specifications. Hardware defect, check shield on motor, encoder cable or EMC interferences.
161	Hiperface: enc init err	Not all encoder signals were recognized during initialization (recognized encoder signals are visible in ec17).	Adjust supply voltage ec14 to 8V. Hardware defect, check shield on motor, encoder cable or EMC interferences.
163	Hiperface: name plate access err	Access errors to the extended nameplate 0xFF in the encoder.	Encoder is not supported. Nameplate does not comply with Hiperface specification. Hardware defect, check shield on motor, encoder cable or EMC interferences.
164	Hiperface: enc memory read err		
168	Hiperface: enc comm BCC err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
171	Hiperface: enc comm parity err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
172	Hiperface: enc comm overrun err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
173	Hiperface: enc comm overrun/parity	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
174	Hiperface: enc comm frame err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
175	Hiperface: enc comm frame/parity err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
176	Hiperface: enc comm frame/overflow err	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
177	Hiperface: enc comm frm/ovrrn/prty	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.

Value	Message	Cause	Remedy
178	Hiperface: enc comm trm time out	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
179	Hiperface: enc comm time out	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
180	Hiperface: enc comm red time out	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
181	Hiperface: enc reset error	Communication to the encoder.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
191	SSI: no trace detected in init	Not all encoder signals were recognized during initialization (recognized encoder signals are visible in ec17).	Hardware defect, check shield on motor, encoder cable or EMC interferences.
192	SSI: data line signal level error	Error SSI communication: invalid signal levels at the data inputs.	Clock or data signal too small, deformed or missing. Hardware defect, check shield on motor, encoder cable or EMC interferences.
193	SSI: no reaction or position from enc	Error SSI communication. No reaction, no position value from the encoder or no edges on the data signal.	Set data word length in ec40 and ec41 smaller than the actual data word length of the encoder. Hardware defect, check shield on motor, encoder cable or EMC interferences.
194	SSI: parity error	The parity bit of the encoder is set. Only if the bit check in ec42 is activated.	Encoder does not send a parity bit. Singleturn or multiturn resolution in ec40 or ec41 are wrong. If the error does not occur directly after switching on, the motor cable, encoder cable or the EMC must be checked.
195	SSI: error bit sent by encoder	The error bit of the encoder is set. Only if the bit check in ec42 is activated.	Voltage supply to encoder is faulty. Singleturn or multiturn resolution in ec40 or ec41 are wrong. If the error does not occur directly after switching on, the motor cable, encoder cable or the EMC must be checked.
202	TTL output: frequency too high	Maximum frequency of the output signals has been exceeded (500 kHz).	Speed of channel A too high. Number of increments per revolution in ec29 of channel B too high.

5 Error list ec02

Value	Message	Cause	Remedy
0	no warning		
1	fast communication	Fast, internal communication for encoder evaluation. ONLY H6	EMC problems or device defective.
2	slow communication	Slow, internal communication for encoder evaluation.	EMC problems or device defective.
3	EEPROM access not possible	EEPROM reading and writing not possible	EMC problems or device defective.
4	EEPROM write access not possible	EEPROM writing not possible, reading ok	EMC problems or device defective.
5	EEPROM read: error corrected	EEPROM reading error found and corrected.	EMC problems or device defective.
6	Encoder supply outside the specification	The voltage supply of the encoder is outside the permissible tolerance.	Check voltage source. Check encoder cable.
10	EnDat: communication	EnDat: communication	Hardware defect, check shield on motor, encoder cable or EMC interferences.
11	EnDat: comm add. info	Endat communication (embedded additional communication).	Hardware defect, check shield on motor, encoder cable or EMC interferences.
12	pos diff occurred	Position difference between incremental and absolute position (digital position or reference signal) occurred.	Wrong number of increments per revolution in Ec29. One or more signal pairs are connected twisted or reversed, e.g. SSI data, incremental signals or analog absolute signals. The hardware is defective. Check shielding on motor, encoder cable or EMC interferences.
13	pos diff corrected	Position difference between incremental and absolute position (digital position or reference signal) occurred and corrected.	Wrong number of increments per revolution in Ec29. One or more signal pairs are connected twisted or reversed, e.g. SSI data, incremental signals or analog absolute signals. The hardware is defective. Check shielding on motor, encoder cable or EMC interferences.
14	1Vpp-inc.: amplitude or form	1Vpp incremental signals incorrect	One or both signals are too small, deformed or missing. Which of the signals is faulty. Check shielding at motor, encoder cable or EMC interferences.
15	1Vpp-abs.: amplitude or form	1Vpp incremental signals incorrect	One or both signals are too small, deformed or missing. Which of the signals is faulty. Check shielding on motor, encoder cable or EMC interferences.
16	TTL track A / Sin. amplitude	TTL - track A / amplitude sine faulty.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
16	TTL track A / Cos. amplitude	TTL - track A / amplitude cosine faulty.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
16	TTL trace A / Cos. amplitude	TTL trace A defective or missing.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
17	TTL track B / Cos. amplitude	TTL - track B / amplitude cosine faulty.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
17	TTL trace B / Sin. error	TTL - track B / amplitude sine faulty.	Hardware defect, check shield on motor, encoder cable or EMC interferences.

Value	Message	Cause	Remedy
17	TTL trace B / Sin. amplitude	TTL trace B defective or missing	Hardware defect, check shield on motor, encoder cable or EMC interferences.
18	pos diff to 1Vpp-abs. occurred	Position deviation to 1Vpp absolute track occurred.	The number of increments per revolution in ec29 is wrong. One or more signal pairs are connected twisted or reversed. The course of the 1Vpp absolute signals does not match the position of the zero signal. Hardware defect, check shield on motor, encoder cable or EMC interferences.
19	pos diff to 1Vpp-abs. corrected	Position deviation to 1Vpp absolute track occurred and corrected.	The number of increments per revolution in ec29 is wrong. One or more signal pairs are connected twisted or reversed. The course of the 1Vpp absolute signals does not match the position of the zero signal. Hardware defect, check shield on motor, encoder cable or EMC interferences.
20	BiSS: encoder communication	BiSS communication disturbed.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
21	encoder error		
22	SSI communication error	SSI communication faulty.	
23	BiSS Mode C: enc mem access	BiSS Mode C - encoder memory access.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
24	encoder data reading error	Error when reading encoder data.	Memory in encoder defective. Encoder rejects memory access.
25	encoder data writing error	Error when writing encoder data.	Memory in encoder defective. Encoder rejects memory access.
26	internal encoder EEPROM error	Encoder has detected internal EEPROM error.	The encoder must be replaced.
27	no reference detected by encoder	Reference signal not detected by the encoder	The hardware is defective. The increments per revolution in ec29 was entered incorrectly.
28	Hiperface: communication	Hiperface communication disturbed.	Hardware defect, check shield on motor, encoder cable or EMC interferences.
29	Invalid data in encoder memory	Memory in encoder does not contain usable data.	Save data in the encoder
30	TTL output: sync warning	Encoder emulation: Not all signals could be output during the last cycle and will be output during the next cycle.	Only internal warning, no remedy possible.
31	BiSS Mode C: EDS data invalid		
32	EnDat: incremental track has reached the functional limit		
33	EnDat: absolute track has reached the functional limit		
34	EnDat: pos. calculation has reached the functional limit		
35	enc. sync. comm. is longer than sync cycle		



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