ZENTRIFUGEN

4.   Error messages

4.1   Brief description

- Error messages in: ROTINA 35
                            ROTINA 35 R

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CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

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CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

4.2 Description and elimination of errors

TACHO - ERROR 01

EC   During centrifugation the speedometer pulses are interrupted.

ES   The rotor slows down until it stops.
      After the rotor stops, there is a DC braking for 30 sec.
      An MR during slowing-down causes a DC braking for 3 min.
      After the DC braking, the "open the lid" release takes place.
      Further cooling to NOMINAL temperature.

ER   • Speed sensor (speedometer) defective or loose contact on plug.
        Measure speedometer pulses on plug X4 / SB (pin 4 - pin 2).
      • CC to CP, or CC to FC is defective.
      • SB or CP or FC is defective.

M   Also see at SB-X4 and CP-X1 (PIN 14) and FC S501 (PIN 8)

ECR   Open the lid. Turn the rotor by hand and perform an MR while the rotor
      is turning.

TACHO - ERROR 02

EC   There are no speedometer pulses on the CP after startup.

ES   The rotor slows down until it stops.
      After the rotor stops, there is a DC braking for 30 sec.
      An MR during slowing-down causes a DC braking for 3 min.
      After the DC braking, the "open the lid" release takes place.
      Further cooling to NOMINAL temperature.

ER   • Startup took place without the rotor.
      • Motor not connected.
      • Motor is defective.
      • Speed sensor (speedometer) defective, or loose contact on plug.
        Measure speedometer pulses on plug X4 / SB (pin 4 - pin 2).
      • CC to CP, or CC to FC is defective.
      • No release signal to FC.
      • SB or CP or FC is defective.

M   Also see at SB-X4 and CP-X1 (PIN 14) and FC S501 (PIN 8)

ECR   Open the lid. Turn the rotor by hand and perform an MR while the rotor
      is turning.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

IMBALANCE

EC	Imbalance on motor axle.
ES	The centrifuge slows down until the "open the lid" release occurs. Further cooling until NOMINAL temperature is reached.
ER	• Weight difference in rotor components.
	• Supporting lugs not lubricated.
	• False IMBALANCE MODE is set (see chapter "Imbalance Mode").
	• Imbalance switch not connencted.
	• Imbalance switch is defective.
	• Loose contact in cable or plug.
	• CC to CP is defective.
	• CP or SB is defective.
M	Also see at SB-X3 and CP-X1 (PIN 12)
ECR	Perform an MR.

CONTROL - ERROR 04

EC	LL is open during centrifugation.
ES	Slowing down until the "open the lid" release occurs. Further cooling until NOMINAL temperature is reached.
ER	• LL is defective and can be opened during centrifugation.
	• Loose contact in cable or in plug.
	• CC to CP is defective.
	• CP or SB is defective.
M	Also see at SB-X5 (PIN 2 and PIN 6) and CP-X1 (PIN 5)
ECR	Perform an MR.

N > MAX 05

EC	Excess speed. The speed recognized by the speed sensor (speedometer) is 250 RPM greater than the n-max speed of the rotor.
ES	The centrifuge slows down until the "open the lid" release occurs. Further cooling until NOMINAL temperature is reached.
ER	• Insulation of speed sensor (speedometer) cable is defective.
	• Loose contact on speed sensor (speedometer) cable.
	• Speed sensor (speedometer) is defective.
	• CC to CP is defective.
	• CP or FC or SB is defective.
ECR	Perform an MR.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper, BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

ROTORCODE 10

EC   An invalid rotor code was read during startup.

ES   The centrifuge slows down until the "open the lid" release occurs.
     Further cooling until NOMINAL temperature is reached.

ER   • Magnetic coding on rotor is defective.
     • Speedometer system is defective.
     • Loose contact on speed sensor (speedometer) plug
     • The rotation of the rotor (direction) is incorrect.

M   Also see section 10.

ECR Open the lid or perform an MR.

MAINS INTERRUPT

EC   Interruption of mains supply during centrifugation.

ES   The centrifuge slows down until the "open the lid" release occurs.
     – Switching on at the mains during centrifugation causes
       slowing-down until the "open the lid" release occurs.
     – Switching on at the mains when the rotor has stopped brings
       about the "open the lid" release.

ER   • Power supply has failed.
     • Loose contact in electrical connections.
     • CC to CP is defective.

ECR Open the lid and press the ⟨START⟩ key.

⚠	This error **cannot** be reset by an MR

VERSION - ERROR 12

EC   Differences in the initialization from CP (EPROM) or FC.

ES   No further user operation is possible.

ER   • An incorrect EPROM has been plugged into CP.

M   Also see initialization section 5.2

ECR Perform an MR.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

N < MIN 13

EC	Insufficient speed; the slippage of the motor is too great. The centrifuge regulation can adjust the speed by 5% max (the limit of adjustment). The error is indicated if the ACTUAL speed is lower than the NOMINAL speed minus 5%.
ES	The centrifuge slows down until the "open the lid" release occurs. Further cooling until NOMINAL temperature is reached
ER	• Motor is labouring (damage to bearings). • Motor has a short-circuited coil (coil is defective). • Loose contact in the electrical connections. • FC is defective. Release signal to FC was interrupted during centrifugation.
ECR	Open the LL. Perform an MR.

CONTROL - ERROR 21 - 26

EC	Internal error in CP.
ES	The centrifuge slows down until the "open the lid" release occurs.
ER	• CP is defective.
ECR	Perform an MR.

N > ROTOR MAX

EC	Error in the entered program
ES	Further operation is not possible.
ER	SET speed or SET RCF is higher than the permissible rotor speed or permissible rotor RCF.
ECR	Open the lid. Reduce the speed or RCF in the entered program to the permissible rotor speed or permissible rotor RCF.

SER I/O - ERROR 30 and ERROR 31

EC	CP has no connection to the component FC via serial interface.
ES	The centrifuge slows down until the "open the lid" release occurs.
ER	• CC to FC is defective. • There is no voltage on FC. • F2 overtemperature switch on brake resistor has opened or is not connected. • CP or FC is defective. • Cable on plug S102 is not or wrong plugged
ECR	Perform an MR.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

SER I/O - ERROR 33

    EC   CP is not receiving correct data from FC.

    ES   The centrifuge slows down until the "open the lid" release occurs.

    ER   • CC to FC is defective.
              • CP or FC is defective.

    ECR   Perform an MR.

SER I/O - ERROR 34

    EC   CP is not receiving correct data from FC.

    ES   The centrifuge slows down until the "open the lid" release occurs.
            Further cooling until NOMINAL temperature is reached.

    ER   • CC to FC is defective.
              • CP or FC is defective.

    ECR   Perform an MR.

SER I/O - ERROR 36

    EC   FC sends signal NAK to the CP after receiving an unknown command.
            NAK (not acknowledged).

    ES   The centrifuge slows down until the "open the lid" release occurs.
            Further cooling until NOMINAL temperature is reached.

    ER   • CC to FC is defective.
              • FC is defective.
              • CP is defective.

    ECR   Perform an MR.

°C / * - NO COOLING

    EC   No cooling in centrifuge chamber. Overtemperature at condenser,
            temperature > 60°C.

    ES   Cooling switches off.
            Continuance of centrifugation until temperature switch in the centrifuge
            chamber triggers and "ERROR 52" appears.
            The centrifuge slows down until the "open the lid" release occurs.

    ER   • Condenser soiled.
              • Loose contact in plug.
              • SB is defective.
              • Fan is defective.
              • Sensor cable B2 is defective.

    M   Also see at CB-X2

    ECR   Perform an MR.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

°C / * - ERROR 52

EC   Overtemperature in centrifuge chamber.

ES   The centrifuge slows down until the "open the lid" release occurs.

ER   • Sensor cable B1 is defective.
     • Loose contact in plug.
     • CP is defective.
     • CB is defective.

M   Also see at CB-X3 (PIN 1 and PIN 2) and CP-X101 (PIN 4)

ECR Perform an MR.

°C / * - ERROR 53

EC   Temperature sensor in centrifuge chamber has a short circuit or a discontinuity.

ES   The centrifuge slows down until the "open the lid" release occurs. Cooling switches off.

ER   • Temperature sensor is defective.
     • Sensor cable B1 is defective.
     • Loose contact in plug.
     • CP is defective.
     • CB is defective.

M   Also see at CB-X3 (PIN 5 and PIN 4), CP-X101 (PIN 8)

ECR Perform an MR.

FU / CCI - ERROR 60

EC   The release signal was not correctly transmitted to FC.
     The evaluation of the release signal only occurs once after MR.

ES   No further user operation is possible.

ER   • CC to FC is defective.
     • CC to CP is defective.
     • SB is defective.

M   Also see at CP-X1 (PIN 4) and FC-S501 (PIN 7).

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper, BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

General Notice for FU / CCI - ERROR 61 to FU / CCI - ERROR 69

⚠	ES	• FC switches independently. • The rotor freewheels, coasting. • No further user operation is possible. • Cooling continues until nominal value is attained
	ECR	• Mains switch is OFF. • Switch mains switch to ON after 1 min.
	M	• Also see at FC-S501 (PIN 4) and CP-X1 (PIN 13).

FU / CCI - ERROR 61

EC   Error in computing section.

ER   • CC is defective.
        • FC is defective.

FU / CCI - ERROR 62

EC   Undervoltage. Mains voltage less than 20% as nominal voltage.

ER   • Supply voltage too low, see chapter "Short the mains choke coil".
        • CC is defective.
        • FC is defective.

M   Also see at FC, U_{DC}.

FU / CCI - ERROR 63

EC   Overcurrent.

ER   • Short circuit in motor.
        • Motor impedance is too low.
        • CC is defective.
        • FC is defective.

FU / CCI - ERROR 64

EC   Voltage in intermediate circuit:
          >410 V DC at 230 V
          >205 V DC at 115 V
    This error normally only occurs when the drive is being braked.

ER   • BR is defective.
        • CC is defective.
        • FC is defective.

M   Also see at FC, U_{DC}.

CP : control panel, FC : frequency converter, SB : supply board, CB : cooling board, CC : control cable, LL : lid locking, BC : braking chopper,
BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset

FU / CCI - ERROR 67

EC   Only centrifuges with 115 V.
Overtemperature in the motor. The cable "overtemperature" in the motor has high impedance.

ER
- Overtemperature switch opens because of overtemperature in the motor
- CC is defective.
- FC is defective.
- Motor is defective

M   Also see at FC, remove plug S2 and measure at the plug
Switch closed: $\approx 0\ \Omega$
-    opened: $\infty\ \Omega$

FU / CCI - ERROR 68

EC   Overtemperature in FC.

ER
- Insufficient heat abduction from FC to centrifuge housing. There is no, or not enough, heat-conducting paste between FC and housing.
- Full-load operation and an ambient temperature > 45°C.
- CC is defective.
- FC is defective.

FU / CCI - ERROR 69

EC   EEPROM in FC is defective.

ER
- CC is defective.
- FC is defective

FU / CCI - ERROR 84

EC   FC recognizes excess speed.

During rotation the speedometer pulses (6 per revolution) are controlled by the FC.
The FC switches the centrifuge off, when the maximum speed of the rotor is exeeded more than 500 rpm.

ER
- CCis defective.
- FC is defective.

M   Also see at SB-X4 and FC S501 (PIN 8).

FU / CCI - ERROR 85

EC   "Watchdog" in FC

Discrepancy in program procedure

ER
- CC is defective.
- FC is defective.

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BR : brake resistor, MR : mains reset, EC : error cause, ES : error consequence, ER : error remedy, M : measurements, ECR : error-code reset