

3.5 Service Mode Zent 3 Version Electronics

3.5.1 Service Mode

To activate the service mode:

Press Cursor Up key

Press Enter three times, holding down the key the third time until the Service Mode appears in the time display = 'Ser'

The program and speed fields display the following parameters:

program	speed	description
0	ver	software version and centrifuge type
1	sen	sensor status
2	imbal	imbalance calibration
3	error	error table
4	eep--	erase EEPROM or Door Lockout Timer
5	imbw	static imbalance
6	imbf	dynamic imbalance
7	led888	LED test
8	zeit	accumulated run time
9	zykl	cycle mode
10	temp	temperature offset

Select the program using the ↑ and ↓ keys.

To exit any service program press STOP.

0 Software Version and Centrifuge Type

Press ENTER to activate.

The time and speed fields display the following parameters:

time = Software Version

speed = Centrifuge Type

1 Sensor Status

Press ENTER to activate.

The program, time and speed fields display the following parameters:

ACC/DEC =

digit 1, i.e. left = 1 inverter bus charged, 0 inverter bus discharged

digit 2, = 1 inverter enabled, 0 inverter not enabled

TIME =

digit 1, i.e. left = 1 door closed, 0 door not closed

digit 2 = n/a

digit 3 = 1 chamber overtemperature (O/T), 0 no chamber O/T

SPEED =

digit 1, i.e. left = 1 no inverter O/T, 0 inverter O/T

digit 2 = 1 imbalance, 0 no imbalance

digit 3 = 1/0 rotor ID sensor output

digit 4 = 1/0 tach sensor output

digit 5 = 1 rotor turning, 0 rotor stopped at least 2 seconds

2 Dynamic Imbalance N/A

3 Error Table

Press ENTER to activate.

The 14 most recent errors are stored in the error table. Pressing the ↑ and ↓ keys scrolls through the list of errors. Pressing RPM deletes the error from the list.

The time and speed fields display the following parameters:

time = sequence number

speed = error number

4 Erase EEPROM or Door Lockout Timer

Press ENTER to activate.

The speed field displays 'ERASE'. Two options are available by pressing the following keys:

ENTER = deletes the error table; exits Service Mode

not effected: elapsed run time, cycle counter, temperature offset, imbalance thresholds

RPM = deletes error table, run time, temperature offset, imbalance thresholds

not effected: elapsed run time, cycle counter; exits Service Mode

The accumulated run time and cycle counter values can be deleted in programs 8 and 9, respectively. The temperature offset and imbalance thresholds revert to their default values.

5 Static Imbalance N/A

6 Imbalance Cutoff N/A

7 LED test

Press ENTER to activate.

Every discrete LED and seven segment LED digit is turned ON.

8 Accumulated Run Time

Press ENTER to activate.

The speed and time fields display the following parameters:

speed = time =
 hhh & hh-mm

A maximum of 99999 hours and 59 minutes can be displayed, about 11 years.

Pressing RPM clears the stored elapsed time in the EEPROM.

Pressing STOP or ENTER exits the program.

9 Cycle Mode

Press ENTER to activate.

The centrifuge can be programmed to cycle automatically. The time and speed fields display the following parameters:

time = wait time (minutes)
speed = cycle counter

The following keys are used to program the cycle mode parameters:

↑ and ↓ = wait time (1 minute increments)
RPM = clear the cycle counter
START = begin cycling and start the centrifuge
FSTOP = end cycling and stop the centrifuge
STOP or ENTER = exit the program

10 Temperature Offset Mode

Press ENTER to activate.

A temperature offset can be programmed to be added or subtracted from the temperature display to match the temperature measured with a dunk test.

The speed, time, and temp fields display the following parameters:

speed = temperature including offset
time = temperature offset
temp = temperature without offset
↑ and ↓ = offset (+/- 0.1C increments)
STOP or ENTER = exit the program