

# TS-100C, Thermo-Shaker with cooling for microtubes and PCR plates



## DESCRIPTION

Thermo–Shaker TS-100C provides intensive mixing and temperature control of samples in microtest tubes or PCR plate. This model of Thermo–Shaker differs from TS-100 with a possibility of cooling samples down to  $+4^{\circ}$ C. Features of TS-100C meet the highest expectations of users according to many parameters:

- 1. Fast reaching of specified mixing speed and maintenance of equal amplitude of rotation throughout the Thermo–Shaker block;
- 2. Stability of maintaining the preset temperature in a wide range throughout the Thermo–Shaker's block surface;
- 3. LCD display indicates preset and current values of temperature, speed and time of operation;
- 4. Quiet motor operation, compact size, prolonged service life.

Functions of heating and mixing can be performed both simultaneously and independently.

There are five heating and cooling blocks available, including a block with a plastic lid for the PCR-plates. All blocks are mutually interchangeable and can be easily installed on Thermo–Shaker.

The instrument is applicable in:

- Genetic analysis in extraction of DNA, RNA and further sample preparation;
- Biochemical study of enzymatic reactions and processes;
- Extraction of metabolites from cellular material.

#### Temperature Calibration Function

With the help of the temperature calibration function the user can calibrate the unit approx.  $\pm 6\%$  of the selected temperature to compensate differences in the thermal behaviour of tubes from different manufacturers.



### CAT. NUMBER

Without thermoblock	Without thermoblock	
BS-010143-AAI	230VAC 50/60Hz Euro plug	
BS-010143-AAQ	230VAC 50/60Hz UK plug	
BS-010143-AA4	230VAC 50/60Hz AU plug	
BS-010143-AAJ	100VAC 50/60Hz US plug, 120VAC 60Hz US plug	
BS-010143-HK	IQ OQ document	
BS-010143-IK	PQ document	

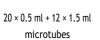
## SPECIFICATIONS

Temperature control range15°C below ambient +10Temperature setting resolution0.Temperature stability±0.Temperature stability±0.Temperature accuracy at +37°C±0.Average heating speed from +25°C to +100°C5°C/Average cooling speed from +25°C to +100°C5°C/Average cooling speed from +25°C to +4°C1.8°C/Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +100°C±0.Temperature calibration coefficient range0.9361.063 (± 0.Speed control range250.1400 mDigital time setting1 min-96 hrs / non-stop (incrementer of the stop)Timer sound signal1Orbit2DisplayLCD, 16 x 2 stop)Maximum continuous operation time140Overall dimensions (W+D+H)220x240x90Weight3.Input current/power consumption12 V, 49 A / 4Input AC 100-240 V; 50/60 Hz; out		
Temperature setting resolution0.Temperature stability±0.Temperature accuracy at +37°C±0.Average heating speed from +25°C to +100°C5°C/Average cooling speed from +25°C to +25°C5°C/Average cooling speed from +25°C to +4°C1.8°C/Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +100°C±0.Temperature uniformity over the block at +100°C±0.Temperature uniformity over the block at +100°C±0.Temperature calibration coefficient range0.9361.063 (± 0.Speed control range250-1400 mDigital time setting1 min-96 hrs / non-stop (increment or the setting of the setting or the setting of the setting of the setting of the setting of the setting or the setting of th	Temperature setting range	+4°C +100°C
Temperature stability±0.Temperature accuracy at +37°C±0.Average heating speed from +25°C to +100°C5°C/Average cooling speed from +100°C to +25°C5°C/Average cooling speed from +100°C to +25°C5°C/Average cooling speed from +25°C to +4°C1.8°C/Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +37°C±0.Temperature uniformity over the block at +100°C±0.Temperature calibration coefficient range0.9361.063 (± 0.Speed control range250-1400 mDigital time setting1 min-96 hrs / non-stop (increment of the stress)Timer sound signal1Orbit2DisplayLCD, 16 x 2 stressMicroprocessor controlled temperature, mixing speed and operation time16Overall dimensions (W×D×H)220x240x90Weight3.Input current/power consumption12 V, 4.9 A / 6Input AC 100-240 V; 50/60 Hz; outInput AC 100-240 V; 50/60 Hz; out	Temperature control range	$15^{\circ}\text{C}$ below ambient +100 $^{\circ}\text{C}$
Temperature accuracy at +37°C±0.Average heating speed from +25°C to +100°C5°C/Average cooling speed from +25°C to +100°C5°C/Average cooling speed from +25°C to +4°C1.8°C/Temperature uniformity over the block at +4°C±0.Temperature uniformity over the block at +37°C±0.Temperature uniformity over the block at +37°C±0.Temperature uniformity over the block at +30°C±0.Temperature uniformity over the block at +100°C±0.Temperature calibration coefficient range0.9361.063 (± 0.Speed control range250-1400 frDigital time setting1 min-96 hrs / non-stop (increment orTimer sound signal1Orbit2DisplayLCD, 16 x 2 stMicroprocessor controlled temperature, mixing speed and operation time140Overall dimensions (W×D×H)220x240x90Weight3.Input current/power consumption12 V, 4.9 A / 0Input AC 100-240 V; 50/60 Hz; out100-240 V; 50/60 Hz; out	Temperature setting resolution	0.1°C
Average heating speed from +25°C to +100°C       5°C/         Average cooling speed from +100°C to +25°C       5°C/         Average cooling speed from +100°C to +25°C       5°C/         Average cooling speed from +25°C to +4°C       1.8°C/         Temperature uniformity over the block at +4°C       ±0.         Temperature uniformity over the block at +37°C       ±0.         Temperature uniformity over the block at +100°C       ±0.         Temperature uniformity over the block at +100°C       ±0.         Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 from -500 (incrementer of the perature of the p	Temperature stability	±0.1°C
Average cooling speed from +100°C to +25°C       5°C/         Average cooling speed from +25°C to +4°C       1.8°C/         Temperature uniformity over the block at +4°C       ±0.         Temperature uniformity over the block at +37°C       ±0.         Temperature uniformity over the block at +100°C       ±0.         Temperature uniformity over the block at +100°C       ±0.         Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 f         Digital time setting       1 min-96 hrs / non-stop (increment of the structure of	Temperature accuracy at +37°C	±0.5°C
Average cooling speed from +25°C to +4°C       1.8°C/         Temperature uniformity over the block at +4°C       ±0.1         Temperature uniformity over the block at +37°C       ±0.1         Temperature uniformity over the block at +37°C       ±0.1         Temperature uniformity over the block at +100°C       ±0.1         Temperature calibration coefficient range       0.9361.063 (± 0.10000 (± 0.10000 (± 0.1000 (± 0.1000 (± 0.1000 (± 0.1000 (± 0.1000 (	Average heating speed from +25 $^\circ\text{C}$ to +100 $^\circ\text{C}$	5°C/min
Temperature uniformity over the block at +4°C       ±0.         Temperature uniformity over the block at +37°C       ±0.         Temperature uniformity over the block at +100°C       ±0.         Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 fr         Digital time setting       1 min-96 hrs / non-stop (increment of the setting of the setti	Average cooling speed from +100 $^\circ\text{C}$ to +25 $^\circ\text{C}$	5°C/min
Temperature uniformity over the block at +37° C       ±0.         Temperature uniformity over the block at +100° C       ±0.         Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 f         Digital time setting       1 min-96 hrs / non-stop (increment r         Timer sound signal       0         Orbit       2         Display       LCD, 16 x 2 s         Microprocessor controlled temperature, mixing speed and operation time       1 e         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out       1	Average cooling speed from +25 $^\circ\text{C}$ to +4 $^\circ\text{C}$	1.8°C/min
Temperature uniformity over the block at +100°C       ±0.         Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 (± 0.)         Digital time setting       1 min-96 hrs / non-stop (increment r         Timer sound signal       0         Orbit       2         Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out       10	Temperature uniformity over the block at $\rm +4^\circ C$	±0.6°C
Temperature calibration coefficient range       0.9361.063 (± 0.         Speed control range       250-1400 f         Digital time setting       1 min-96 hrs / non-stop (increment r         Timer sound signal       2         Orbit       2         Display       LCD, 16 x 2 s         Microprocessor controlled temperature, mixing speed and operation time       1         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 0         Input AC 100-240 V; 50/60 Hz; Out       1	Temperature uniformity over the block at +37 $^\circ\mathrm{C}$	±0.1°C
Speed control range       250-1400         Digital time setting       1 min-96 hrs / non-stop (increment r         Timer sound signal       7         Orbit       2         Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       1         Maximum continuous operation time       1         Veright       3.         Input current/power consumption       12 V, 4.9 A / 0         Input AC 100-240 V; 50/60 Hz; Out	Temperature uniformity over the block at +100 $^\circ\text{C}$	±0.3°C
Digital time setting       1 min-96 hrs / non-stop (increment r         Timer sound signal       2         Orbit       2         Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       16         Maximum continuous operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out	Temperature calibration coefficient range	0.9361.063 (± 0.063)
Digital time setting       r         Timer sound signal       2         Orbit       2         Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       16         Maximum continuous operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out	Speed control range	250-1400 rpm
Orbit       2         Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       16         Maximum continuous operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 0         Input AC 100-240 V; 50/60 Hz; Out	Digital time setting	1 min–96 hrs / non–stop (increment 1 min)
Display       LCD, 16 x 2 st         Microprocessor controlled temperature, mixing speed and operation time       16         Maximum continuous operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out	Timer sound signal	+
Microprocessor controlled temperature, mixing speed and operation time       16         Maximum continuous operation time       16         Overall dimensions (W×D×H)       220x240x90         Weight       3.         Input current/power consumption       12 V, 4.9 A / 6         Input AC 100-240 V; 50/60 Hz; Out	Orbit	2 mm
operation time Maximum continuous operation time Neverall dimensions (W×D×H) 220x240x90 Weight 3. Input current/power consumption 12 V, 4.9 A / 0 Input AC 100-240 V; 50/60 Hz; Out	Display	LCD, 16 x 2 signs
Overall dimensions (W×D×H)     220x240x90       Weight     3.       Input current/power consumption     12 V, 4.9 A / d       Input AC 100-240 V; 50/60 Hz; Out		+
Weight     3.       Input current/power consumption     12 V, 4.9 A / d       Input AC 100-240 V; 50/60 Hz; Out     Input AC 100-240 V; 50/60 Hz; Out	Maximum continuous operation time	168 h
Input current/power consumption 12 V, 4.9 A / 0 Input AC 100-240 V; 50/60 Hz; Out	Overall dimensions (W×D×H)	220x240x90 mm
Input AC 100-240 V; 50/60 Hz; Out	Weight	3.7 kg
Letternal power supply	Input current/power consumption	12 V, 4.9 A / 60 W
	Aternal power supply	Input AC 100-240 V; 50/60 Hz; Output DC 12 V

## ACCESSORIES



SC-18C BS-010143-AK block





SC-18/02C BS-010143-CK

20  $\times$  0.2 ml microtubes + 12  $\times$ 1.5 ml microtubes

block



SC-24NC BS-010143-GK block

24 x 1.5 ml microtubes



SC-24C BS-010143-EK block





SC-96AC BS-010143-FK block

96-well unskirted or semiskirted microplate (0.2 ml) for PCR or 12 × 8 - 0.2ml strips or 96 tubes of 0.2 ml.