



RIEILE

Operating Instructions

Incubator *T 12* **Incubator *T 16***

Documentation Version 8.2014

SYMBOLS

The packaging material, the type plate on the instrument, and the manual may contain the following symbols or abbreviations:



Manufactured by:



This product is marked with the CE certification mark which is obligatory in European Economic Area.



Caution (refer to accompanying documents)!
Please refer to safety-related notes in the manual accompanying this device.



Please consult instructions for use



Biohazard
Samples containing material of human origin must be treated as potentially infectious. The relevant laboratory guidelines on safe use must be observed.

IP XO No special protection against penetrating moisture (IP = International Protection)

REF Order number

SN Serial number

SAFETY INSTRUCTION

This device was examined and left the factory in perfect technical condition. To preserve this and protect safe and faultless operation, the user has to follow the orders and remarks of this operating manual.

PROTECTIVE GRADE

The **Incubator T12 / T16** complies with the safety rules according to DIN EN 61010-1.

The device fulfils the EMC immunity requirements for laboratory use equipment according to the EMC standard EN 61326.

WASTE MANAGEMENT NOTE

At the end of the life or utilization time the device and the accessories can be given back with costs to the manufacturer to an environmentally just waste management. The previous professional decontamination has to be proved with a certificate.

Address of the manufacturer:



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Kurfuerstenstrasse 75-79
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Germany

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QUALITY MANAGEMENT SYSTEM

ROBERT RIELE GmbH & Co KG maintains a quality management system according to ISO 9001 as well as ISO 13485, certified by TÜV Rheinland.

1 INTRODUCTION TO INCUBATOR *T12 / T 16*

To make laboratory work more efficient carrying out kinetic tests it is necessary to pre-incubate samples before measuring. Beside this also the reagents must be held at the incubation-temperature during a series of measuring.

For this purpose a small and handy dry-incubator was designed as a stand-alone system in addition to RIELE Photometers *4040* and *5010*. The features in detail are:

- Temperature unit for 37 °C with an accuracy ± 0.2 °C
- **Incubator *T12***: 12 positions for normal standard cuvettes
- **Incubator *T16***: 16 positions for tubes 12 mm X 55 mm or 12 mm X 75 mm
- Indication of temperature control by LEDs
- Warming up in 5 min per cuvette or tube filled with 1000 μ l
- Power supply: 12 V_{DC} / 15 VA
- AC-Adapter 100 V - 240 V 50/60 Hz

2 INSTALLATION

2.1 Delivery

After carefully unpacking the device, check whether it is in perfect condition. Check whether it is complete according to the delivery note. The box contains the following items:

- Incubator *T12 / T16*
- AC-Adapter
- Manual



Store the packaging carefully for the case of a perhaps necessary return. If there were defects, inform your dealer immediately.

2.2 PREPARATION FOR INSTALLATION



At delivery the plug of the AC-adapter is correctly combined: The **plus terminal** is located at the head of the plug.



The plug has to be put into the corresponding jack in the back plate of the device.

2.3 INSTALLATION

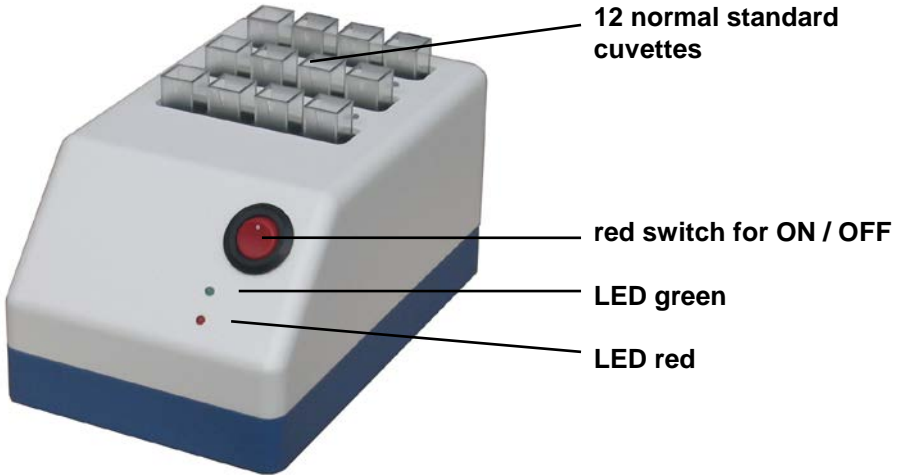
Connect the AC-adapter to the mains.
The operating voltage is 100 V_{AC} up to 240 V_{AC} at 50/60 Hz.

Switch on the **Incubator T12 / T16** by the red switch at the front of the device.

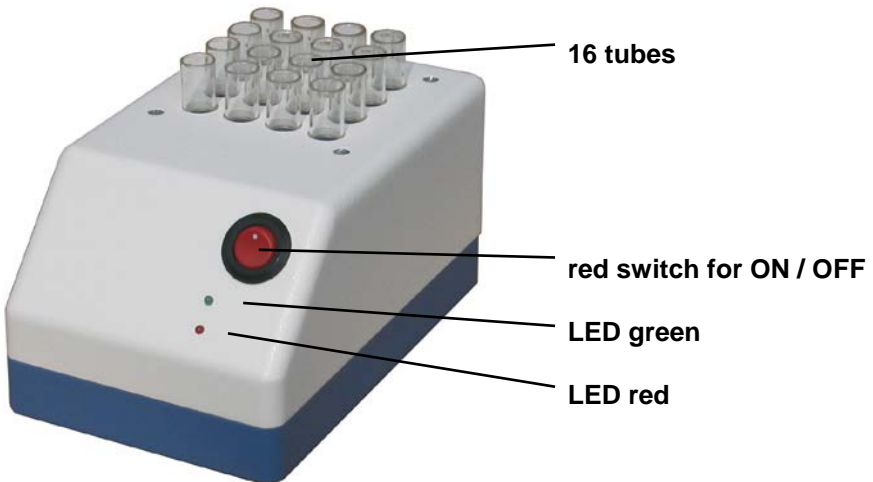
After some seconds the green LED is flashing. The red LED shows a continuous light.

3 OPERATING ELEMENTS

3.1 FRONT INCUBATOR T12



3.2 FRONT INCUBATOR T16



3.3 BACK



connector cable

3.4 AC-Adapter

REF 500-003



4 OPERATING

After switching ON the device the **Incubator T12 / T16** heats up to a temperature of 37 °C.

The device needs about 20 minutes for warming up.

After the warming up time the **GREEN LED** shows a continuous light. At this state the system is ready for use.

The status of the device is shown by two LEDs (Light Emitting Diode):

GREEN LED (used for stability control)

- | | |
|-------------------------------------|------------------------------------|
| • The LED is flashing: | The temperature is not stabilized. |
| • The LED shows a continuous light: | The temperature is stabilized. |

RED LED (used for heating power)

- | | |
|-------------------------------------|---|
| • The LED is flashing: | The heating is switched on and off. |
| • The LED shows a continuous light: | The heating is switched on during heating up. |

5 ADJUSTMENT of TEMPERATURE

The **Incubator T12 / T16** is calibrated to a temperature of 37.0 °C. The adjusting of the temperature is carried out with a DIP-Switch inside the device.

The DIP-Switch permits an adjustment of the temperature in 0.05 °C steps with increasing (positive) or decreasing (negative) results. The switch block consists of eight wiper switches with the name DIP 1 up to DIP 8. Every switch can be in a position ON or OFF. The following meaning is assigned to the DIP-switches:

DIP-Switch	OFF	ON
1	0	1
2	0	2
3	0	4
4	0	8
5	0	16
6	0	32
7	0	64
8	positive	negative

The arithmetical sum of the DIP-switches 1 to 7 is described as correction value.

The temperature can be insignificantly altered by an expert after opening the device. By an example the process of adjustment is described. The adjustment varies from device to device. Therefore the status quo should be documented before adjustment.

Status quo of the calibrating for 37.0 °C:

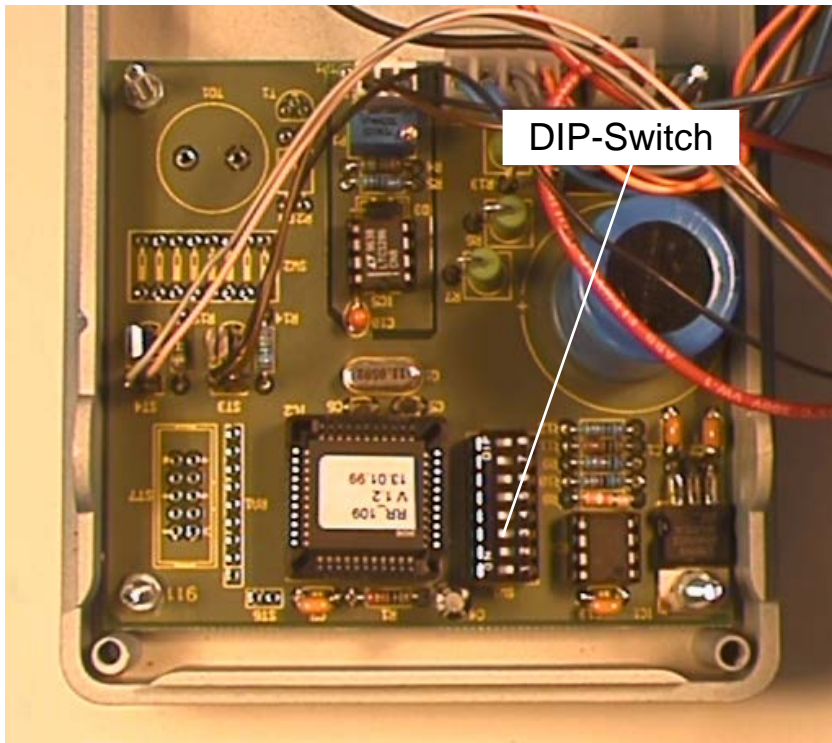
The correction value has the value 78.

DIP-Switch	OFF/ON	VALUE
1	OFF	0
2	ON	2
3	ON	4
4	ON	8
5	OFF	0
6	OFF	0
7	ON	64
8	OFF	positive

The temperature of the **Incubator T12 / T16** shall be increased to 37.5 C. The 0.5 °C temperature difference is reached by a raise of the correction value by 10 steps of 0.05 °C. Therefore the new correction value is 88.

Change of the calibrating for 37.5 °C:

DIP-Switch	OFF/ON	VALUE
1	OFF	0
2	OFF	0
3	OFF	0
4	ON	8
5	ON	16
6	OFF	0
7	ON	64
8	OFF	positive



6 MAINTENANCE

This chapter provides necessary information concerning general maintenance by the user.



If any faults should occur which cannot be remedied, then service should be contacted. Repairs at the device may be carried out only by authorized specialist staff. Through improper repairs the warranty extinguishes, and the user can be heavily jeopardized.

6.1 CLEANING INSTRUCTION



Liquid waste is potentially biologically hazardous. Always wear gloves if handling those materials. Do not touch parts of the device other than those specified. Consult the laboratory protocol for handling biohazardous materials.



Take care that no liquid enters the device! There is no protection against penetrating of liquids (Code IP X0).

For device cleaning and surface decontamination purposes use commercial decontaminating solution which are usually available in clinical chemistry laboratories like Mikrozyd[®] AF Liquid, Bacillo[®] plus, 3 % Kohrsolin[®] or similar solutions. Switch off the device and disconnect it from the mains voltage. Then clean the device with soft cloth and decontaminating solution.

6.2 CALIBRATING MEASURING SYSTEM

The temperature of **Incubator T12 / T16** can be calibrated. For further information see chapter 5 - ADJUSTMENT of TEMPERATURE.

7 TECHNICAL DATA

7.1 ENVIRONMENTAL CONDITIONS

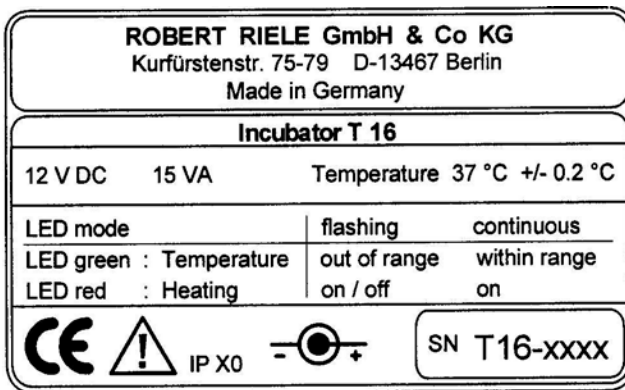
Climatic conditions for storage and transport of the packed device:

- Temperature: -25 °C to +70 °C
- Relative humidity: 20 % to 85 %

The device must be used in an environment that meets the following conditions:

- Temperature: +15 °C to +35 °C
- Relative humidity: 20 % to 85 %
- Not exposition to direct sunlight or other source of direct thermal radiation
- Well-ventilated area
- Free from excessive dust
- Free from combustible gasses
- Free from vibrations
- Free from electromagnetic wave interference
- Well-distanced from a machine generating a high frequency voltage (e.g. a centrifuge)

7.2 TYPE PLATE



7.3 SHORT SPECIFICATION

MEASURING SYSTEM

- Microcontroller based temperature unit
- Temperature: 37 °C with an accuracy ± 0.2 °C

POWER SUPPLY

- Supply voltage: 12 VDC
- Supply current maximal: 1.2 ADC
- Power consumption: < 15 VA
- External mains adapter
Output: 12 V_{DC}
Input: 100 V_{AC} up to 240 V_{AC}
50/60 Hz 0.25 A max.
- Driving with 12 V_{DC} (car-)battery is possible

DIMENSIONS **Incubator**

- Dimension (L/W/H): 100 mm / 85 mm / 160 mm
- Incubator *T12*: Weight 850 g
- Incubator *T16*: Weight 815 g

DIMENSIONS **AC-Adapter**

- Dimension (L/W/H): 80 mm / 30 mm / 95 mm
- Weight: 120 g

CONTAINER

- **Incubator *T12***: 12 position for normal standard cuvettes
- **Incubator *T16***: 16 positions for tubes 12 mm x 55 mm or 12 mm x 75 mm

EC Declaration of Conformity

Manufacturer: ROBERT RIELE GmbH & Co KG

Address: ROBERT RIELE GmbH & Co KG
Kurfuerstenstrasse 75-79
13467 BERLIN
GERMANY

ROBERT RIELE GmbH & Co KG declares under sole responsibility that the product:

Product name: **Incubator T12 /Incubator T16**

to which this declaration relates is in conformity with the following standards or other normative documents:

EN 61326-1

EN 61010

following the provisions of **Directive 2004/108/EU (EMC)** and **2006/95/EU**

This declaration describes an incubator for laboratory use.

Berlin, July 2011

ROBERT RIELE GmbH & Co KG



W. Riele