

## Laboratory Deep Freeze Storage Cabinet

**TC 1017-ex**

*Static cooling / Internally spark resistant*



**External Dimensions:**            B = 600 mm  
                                              D = 630 mm  
                                              H = 2000 mm

**Internal Dimensions:**            B = 451 mm  
                                              D = 430 mm  
                                              H = 1598 mm

**Capacity:**                            328 l

**Temperaturerange:**                -15°C to -30°C

### **Housing**

galvanized sheet steel with white coating.

### **Interior space**

of high quality plastic. Cleaning friendly by rounded corners, slippery surface in the interior, meets highest hygiene requirements

### **Isolation**

Polyurethane, free of CFCs

### **Door**

Solid door, supplied as standard with right hand hinge, also available with left hand hinge at no extra cost.. Grease resistant magnetic seal.

**Optional:** with door lock

### **Interior fittings**

- With nine permanently mounted contact evaporator plates

8 shelf spaces : W=451 mm, D=430 mm, H=156 mm

1 drawer : W=451 mm, D=430 mm, H=210 mm (at the bottom)

### **Technical indication:**

This refrigerator is classified as “**internally spark resistant**” and have no electrical components in the interior, reducing the risk of fire or explosion. (The class of explosion protection provided by this equipment meets Federal German safety regulations for laboratory equipment DGUV Information 213-850. The appropriate regulations must be observed in other countries).

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Control system located above the door

## Touchscreen temperature controller, TC 2015



**Working range from -15°C to -30°C**

Temperature accuracy +/- 2,5°C after stabilising (with 50% filling)

Language in German / English adjustable

- **Touchscreen Display, size 12,5 cm (5“)**
- **PT1000 temperature sensor for better temperature control accuracy**
- **Digital temperature setting and display with an accuracy of 0.1 ° C**
- **Power supply of 100-240V, 50-60Hz**
- **Password protected to prevent manipulations**
- **Data import/export via USB or Ethernet**
  
- **Alarm**
  - Noticeable optical alarm signaling by red / blue flashing screen
  - Audible alarm
  - Mute the audible alarms, with continuous warning indication on the display and automatic return after 3 minutes when the alarm situation still exists
  - Alarm acknowledgment with password protection
  
- **Acoustic and optical alarm indication when**
  - High and low temperature (variably adjustable)
  - Door open - alarm, (adjustable)
  - Power failure
  - Temperature sensor failure
  - Defrost-time transgression (variable adjustable)
  - Optional: cooling machine monitoring with overheat protection
  
- **Alarm memory** (not deleted) for the last 100 alarm conditions, with the possibility of review on the display and archiving the data via USB or Ethernet. Memory can not be deleted.
  
- **Event memory**

In the event log all the operations of the controller are saved, such as:

  - Doorways
  - Parameter changes
  - Cooling equipment function, etc

- Storage for approximately 4 weeks, with the possibility of review on the display and archiving the data via USB or Ethernet.
  
- **Graphical display of the temperature profile in the display**

Illustration of the actual value and if requested of the product sensor on the display and archiving via USB or Ethernet. View period freely selectable.

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- **Network Connection**  
2 Ethernet ports 10/100 Mbps available. This interface can be accessed directly on the log data of the controller to import in the software.
- **NO/NC contact**  
Alarm signal time delayed (adjustable)
- **Language:** English / German, other languages on request
- **Maintenance message:** Notification that maintenance should be carried out.
- **Test facilities** for Alarm limits and battery charge status
- In the housing of the temperature regulator there are all relevant components for using the cabinet. Plug-in connectors of the electrical supply pipes enables a **service friendly exchange**.
- **Optional**
  - **Battery Module**  
In case of power failure self-contained supply of the temperature controller with a powerful battery. All control functions are saved for about 72 hours.
  - 0..20 mA Output
  - WLAN-Module
  - Interface, RS 485 (galvanically isolated)
  - **Software**  
This software enables you to check at a glance several cooling units. It was designed to be user friendly and enables you to process your data in an intuitive manner.
  - **Alarm system**
    - Independent product sensor for reference measurement
    - Product protection against low temperatures. By dropping below the setpoint value, the cooling machine will switched off
    - Battery module as a standard feature

**Security barrier (EN 50014 and EN 50020) for temperature sensor** (according to ATEX directive)

### Refrigerating unit

fully hermetically sealed, forced ventilation, fitted on vibration - absorbing mounts (ambient temperature max. 25°C), low noise, energy saving compressor with high quality vaporisation system.

Refrigerant: R 404 a

### Defrost

manually

### Electrical Data

Power supply	230 V/50 Hz /single phase	<b>Optional: 60Hz</b>
Fuse	16 A	
Power cable:	1,5 m with schuko plug	

### Packing details (palletized)

Dimensions:	approx. 65x65x230 cm
Net weight:	68 kg
Gross weight:	74 kg
<b>Country of Origin:</b>	<b>European Community</b>
Customs clearance code:	8418 4080

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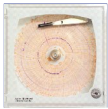
*Static cooling / Internally spark resistant*

### Special Equipment and Accessories:



#### **GSM Modul**

Connecting to the potential-free output. In case of an alarm either a message or a call will be sent automatically. Archiving of 1000 phone numbers is possible. The GSM module is equipped with a rechargeable battery. Automatic alert via SMS when the credit has been used on the SIM card. 6 units can be connected per module. The SIM card is not included



#### **Round Chart recorder**

to record temperature, permanently installed in control panel. Comes as standard with battery back-up power supply for continuous operation (mains independent). The replaceable recording discs are suitable for 24 hours or 7 day periods. The actual temperature is plotted with a black felt tip pen on the chart. Internal temperature measurement. Measurement range: -10°C to 40°C  
The unit comes with 100 round charts (day or week)



#### **Door lock** including 2 keys

Optional: electronic door lock, via temperature controller TC 2015



#### **Cable port with cover**

**PT 100 temperature sensor spark resistant** (acc.to ATEX- guidelines)

Transmitter: progr. 4..20mA  
MB 0.. 100 C  
Output 4 .. 20mH  
Temperature linear

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## Wireless data logger, complete

consisting of:

### Wireless data logger, SPY RF U1-ex

1-channel for Pt100, 4-20mA / 0-1V / contact on-off, with display

Measurement accuracy at 23°C: +/- 0,3°C

Resolution: 0,1°C

Battery: Lithium Battery

Recording interval: 1 sec. to 90 minutes

Internal memory: 10.000 measurements

Usable range: 1km LOS

Communication: via radio 868 Mhz

Power: 25 mW

incl. 1 pcs. Sensor Cable Resistance sensor **with ATEX Exi certification**

Pt100 class A, 3-wire circuit with the cable connected TFD T L 4 4x0, 22 mm<sup>2</sup>

Protective tube D 4mm x 30 mm length, 1.4571

Measurement area: -200°C...+200°C

**Length:** 3 meter **Optional: 8 meter**

Delivery contents: wall mounting holder and plug protection

### Software - Basic Version for single user

- Maintenance of multiple Wireless data logger
- collect the recorded data of the Wireless data logger
- Back up data (tamper-proof)
- Prepare the data in terms of graphics or charts
- Excel exportable
- Maintenance of alarms via potential free contact at the Modem or Alarmsystem (SMS, phone call, blinking light, buzzer)

### SPY RF USB-Modem for data transfer to the PC via USB-connector

- Communication with infinite numbers of Wireless data logger
- Remote alarm via integrated potential contact
- including wall mounting holder

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### **Optional:**

#### **Cable Resistance Sensor with ATEX Exi certification**

Pt100 class A, 3-wire circuit with the cable connected TFD L 4 4x0, 22 mm<sup>2</sup>

Protective tube D 4mm x 30 mm length, 1.4571

Measurement area: -200°C...+200°C

**Length: 8 Meter**

#### **SPY RF Relay (Repeater)**

- Allows the data transfer of the data logger about bigger distances
- Can transfer dates of one or several SPY RF data logger
- Electricity supply about power supply unit and battery in case of power failure
- with 2 output ranges: 25mW to communicate with the data logger and 500mW to communicate with the modem.
- Delivered with wall mounting fixture
- Ambient temperature: from -10°C to +70°C

#### **SPY RF Alarm - realtime alerting**

- i.e. by limit exceeded or power failure
- Local warning
- Integrated acoustical and optical Alarm
- Power supply via external power adapter and spare battery in case of power failure
- Button for local alarm quitt
- Relais output for remote alarm (GSM-Modem, telephone dialer)
- including wall mounting holder

#### **SPY RF Telephone dialer**

- In the speech modus it called up to 6 different subscriber and informed them about the kind of failure
- This ergonomically linguistic aid provides high operational ease.
- requires an analogue phone line
- Individual adjustment of identification, alarms and alarm quitt
- requires an external power supply (included)

#### **GSM-Modem I for switch contact**

**For use with:**

**Software - Basic Version and SPY RF USB-Modem, or SPY RF Alarm**

- Enables to send SMS messages
- Modem registered also power failure and send SMS immediately.

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## Qualifications

### DQ (Design Qualification)

*Definition: Documented proof that the quality-related, GMP-related requirements has been adequately addressed in the design of equipment, including buildings, premises and auxiliary equipment*

The user-requirement profiles (specifications) are documented and confirmed by us. On request, a specification can be created by us.

### IQ (Installation Qualification)

*Definition: Documented proof that critical equipment and systems have been delivered and installed in accordance with the set requirements and government regulations.*

The IQ documentation is worked out by us especially for the delivered machine and is made available to you. The IQ documentation has to be carried out by the customer itself.

### OQ (Operational Qualification)

*Definition: Documented proof that critical equipment and systems in accordance with the set requirements in the whole operating range are working as intended in accordance with predetermined limits.*

The OQ documentation is worked out by us especially for the delivered machine and is made available to you. The OQ documentation has to be carried out by the customer itself.

### CQ (Calibration Qualification)

*Definition: Documented proof that critical measuring equipment in the intended range in accordance with predetermined tolerances operate reliably under current operating conditions*

#### Checking the temperature in the cabinet

**1 Temperature on 3 different measuring points** (measured with calibrated PT 100 sensor) evenly located on the shelves. Inspection time 6 hours, open door after that of 30 seconds. The inside temperature of the cabinet must have been stabilized itself within 1 hour on the set point temperature.

The measurements are carried out in the empty state.

The temperature measures are carried out in our company, represented graphically and provided to you.

The values may not dropping below or above the tolerances given by us.

(Additional measuring points on request)

### PQ (Performance-Qualification)

*Definition: Documented proof that critical equipment and systems in accordance with the set requirements in the whole workspace under current working conditions (with product) provide the requested services*

The calibration described above is carried out under real conditions on site.

The values may not dropping below or above the tolerances given by us.