

Technical data sheet - ACX

Autoclaves for sterilizing canned goods



Industrial autoclaves

Id185-ACX-TD-23EN English

Horizontal autoclaves for sterilizing canned goods
Steam spray back pressure autoclaves with direct steam heating and direct cooling

Id185 ACX 1200 Diameter 1200mm
Id186 ACX 1400 Diameter 1400mm

Designation:

Horizontal autoclaves for sterilization canned goods with one Capacity from two to four autoclave cages.
Steam spray back pressure autoclave with direct steam heating and direct cooling.

**Application:**

The lying one Autoclave is mainly used to sterilize rigid containers (cans, jars).

Description:

With the lid open, the autoclave cages with rigid containers are loaded into the empty autoclave. The autoclave cages are loaded into the autoclave manually or using an automatic loading device (available separately). The lid is closed manually and the Bayonet lock is automatically rotated by a pneumatic cylinder at the push of a button.

Sterilization is carried out in accordance with the sterilization process of the product to be treated. The stored programs are called up using the touchscreen of the control panel, started and then run automatically controlled by the PLC.

The parameters of the sterilization process are controlled fully automatically by the mounted devices and the respective valves. The hinged lid of the autoclave is opened manually and the autoclave cages are removed and placed on the base frames.

Technical specifications:**1. Material:**

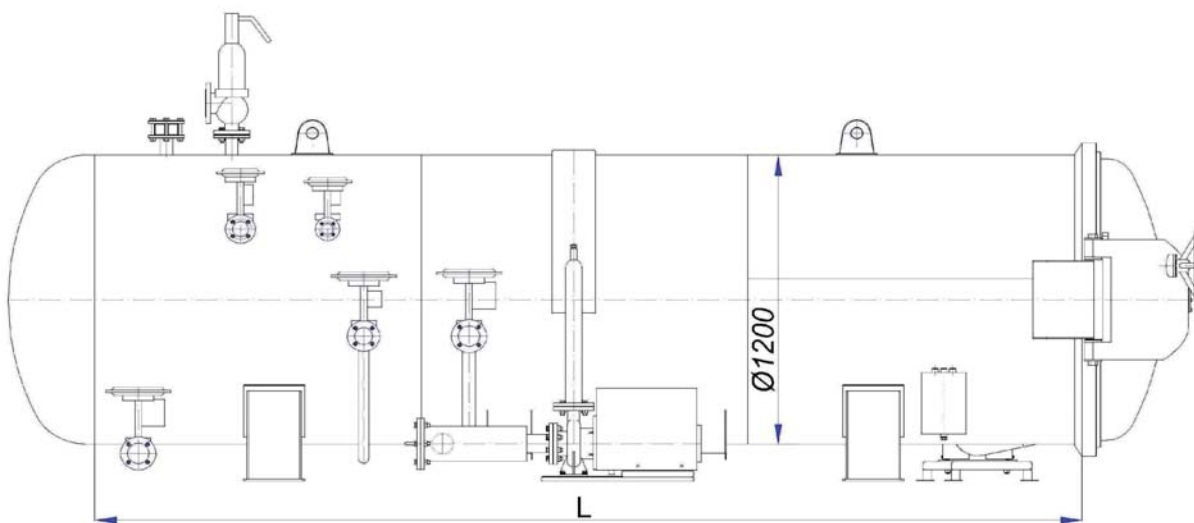
- Pressure vessel, Bayonet fitting, Strut construction, sheet metal coating, Pipes, control boxes, etc. made of stainless steel (1.4301) and materials suitable for the food industry

2. Execution:

- The horizontal autoclave for sterilization consisting of a horizontal cylindrical container, electrical system with a control cabinet, a control panel, controllable valves, etc. is constructed as a compact and self-supporting stainless steel construction.
- Automatic loading device (sold separately) - The automatic loading device ensures that the autoclave cages are loaded and unloaded into the autoclave
- Installation type - lying down
- bottom shape - Elliptical Form
- Lid shape - elliptical shape as a hinged lid with a bayonet lock. The hinged lid is opened after unscrewing the bayonet lock. The bayonet lock is automatically rotated by a pneumatic cylinder at the push of a button. A manual Unscrew or close the bayonet lock using one Handwheel is also available.
- Bayonet lock, hinged on the left
- Mechanical safety prevents the closure from opening under pressure
- Self-sealing gasket with long service life

3. Product space - ACX1200:

- **Full size container space:**
 - Two autoclave cages: D=1200 mm; L=2000 mm
 - Three autoclave cages: D=1200 mm; L=3000 mm
 - Four autoclave cages: D=1200 mm; L=4000 mm
- Autoclave cages with dimensions:
L=820mm; B=800mm; H=720mm
- Permissible operating pressure - 4 bar
- Permissible operating temperature 140°C

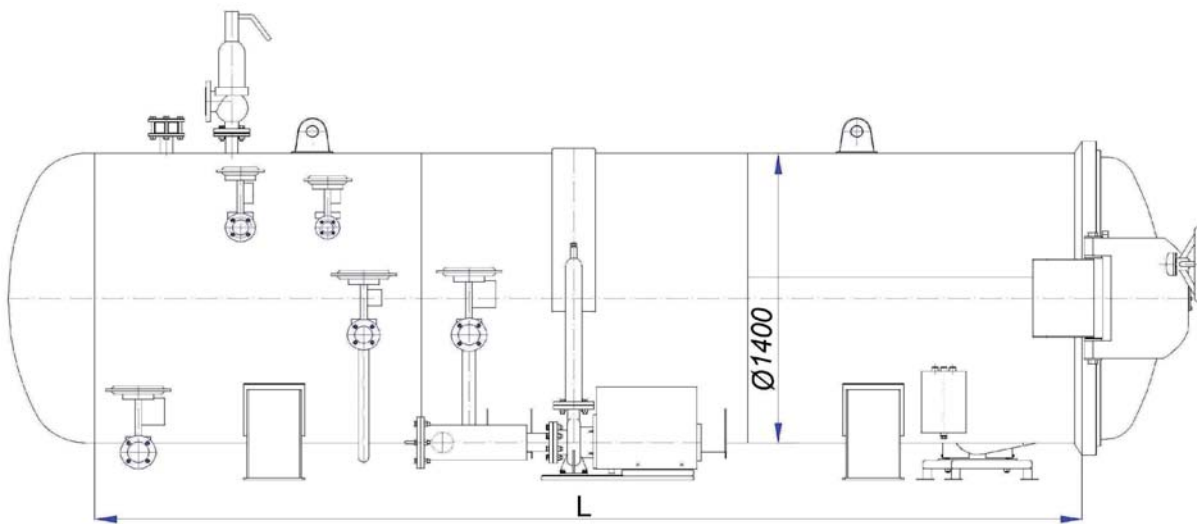


4. Supply data, consumption data - ACX1200:

- **El. connection** – 400V, 50Hz
- **Saturated steam:**
 - Two autoclave cages: P_{min} = 5-6 bar; 200 kg/h; 150 kg/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 350 kg/h; 250 kg/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 350 kg/h; 300 kg/Charge
- **Cooling water:**
 - Two autoclave cages: P_{min} = 5-6 bar; 5 m³/h; 2 m³/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 6 m³/h; 2,5 m³/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 6 m³/h; 2,5 m³/Charge
- **Compressed air (system pressure):**
 - Two autoclave cages: P_{min} = 5-6 bar; 1,5 m³/min; minimal/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 2 m³/min; minimal/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 2 m³/min, minimal/Charge
- **Compressed air (valves)** – P_{min} = 4 bar
- **Four** – A constant water supply at the bottom of the autoclave from:
 - Two autoclave cages: that. 400 Liter
 - Three autoclave cages: that. 600 Liter
 - Four autoclave cages: that. 800 Liter
- **Total performance:**
 - Two autoclave cages: 3 kW
 - Three autoclave cages: 5 kW
 - Four autoclave cages: 5 kW

5. Product space - ACX1400:

- **Full size container space:**
 - Two autoclave cages: D=1400 mm; L=2500 mm
 - Three autoclave cages: D=1400 mm; L=3500 mm
 - Four autoclave cages: D=1400 mm; L=4500 mm
 - Five autoclave cages: D=1400 mm; L=5500 mm
- Autoclave cages with dimensions:
L=972mm; B=950mm; H=888mm
- Permissible operating pressure - 4 bar
- Permissible operating temperature 140°C



6. Supply data, consumption data - ACX1400:

- **El. connection** – 400V, 50Hz
- **Saturated steam:**
 - Two autoclave cages: P_{min} = 5-6 bar; 250 kg/h; 200 kg/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 400 kg/h; 300 kg/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 450 kg/h; 350 kg/Charge
 - Five autoclave cages: P_{min} = 5-6 bar; 500 kg/h; 400 kg/Charge
- **Cooling water:**
 - Two autoclave cages: P_{min} = 5-6 bar; 5 m³/h; 2,5 m³/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 8 m³/h; 3 m³/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 9 m³/h; 3 m³/Charge
 - Five autoclave cages: P_{min} = 5-6 bar; 10 m³/h; 3,5 m³/Charge
- **Compressed air (system pressure):**
 - Two autoclave cages: P_{min} = 5-6 bar; 1,5 m³/min; minimal/Charge
 - Three autoclave cages: P_{min} = 5-6 bar; 2,5 m³/min; minimal/Charge
 - Four autoclave cages: P_{min} = 5-6 bar; 3 m³/min; minimal/Charge
 - Five autoclave cages: P_{min} = 5-6 bar; 3,5 m³/min; minimal/Charge
- **Compressed air (valves)** – P_{min} = 4 bar
- **Four** – A constant water supply at the bottom of the autoclave from:
 - Two autoclave cages: that. 450 Liter
 - Three autoclave cages: that. 650 Liter
 - Four autoclave cages: that. 850 Liter
 - Five autoclave cages: that. 1000 Liter
- **Total performance:**
 - Two autoclave cages: 6 kW
 - Three autoclave cages: 8 kW
 - Four autoclave cages: 8 kW
 - Five autoclave cages: 10 kW

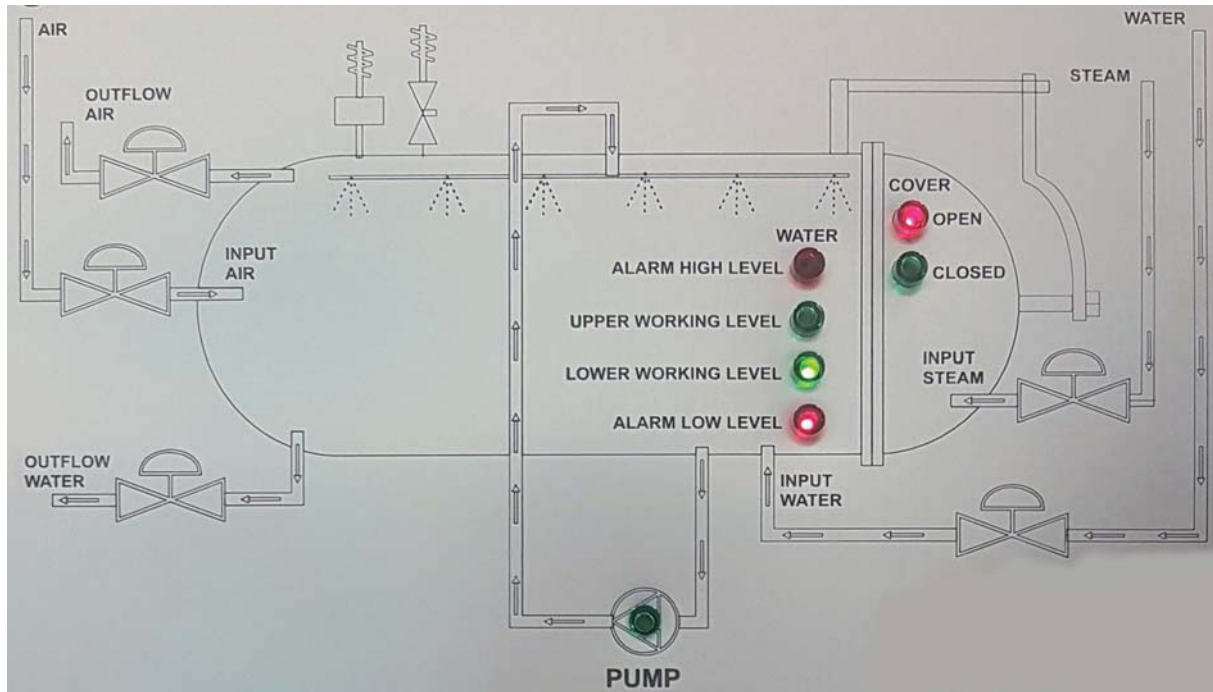
7. Operating conditions:

- Temperature control task - heating
- Heating source – steam (The steam is supplied directly into the container space of the autoclave)
- Temperature control medium – hot water, steam
- Cooling medium – water
- Insulation (The container is insulated with mineral wool around the cylinder and bottom base and covered with stainless steel mirror sheet metal.)
- Installation location - indoors
- The chemical composition of the process water is of great importance for the good functioning and long service life of the machine. For damage to the autoclave or to the heat-treated containers in it, caused by unsuitable or incorrectly conditioned process water, we cannot accept any liability. The saturated steam fed in for heating should be free of harmful substances, such as those that can be carried from steam generators that are too small and/or overloaded.
- In order to avoid stress corrosion cracking, the chloride content of steam and cooling water must be kept low when operating autoclaves made of stainless steel.
- We recommend carrying out a full water analysis and consulting recognized specialist companies for questions regarding water treatment.

8. Sockets, valves and fittings:

- Water inlet flange
- Compressed air supply flange (system pressure)
- Water drain flange
- vent flange
- Steam outlet connection (safety valve)
- Steam supply flange
- Compressed air supply connectors (valves)
- The control valves with the pneumatic actuator (conflow) are operated with compressed air. They close automatically using spring force. The housings of the control valves (conflow), stainless steel.
- Handventile
- Check valves
- Safety pressure relief valve (HEROSE), brass
- Manometer (Language)
- A plug-in temperature sensor from the inside of the container is designed with a flexible silicone line for insertion into a canning socket.
- Temperature and pressure sensors (Jumo, ifm)
- Circulation pump (EBARA), stainless steel - a powerful circulation pump ensures intensive circulation of the process water
- Filter in the circulation line
- Spraying takes place using several spray lines with nozzles
- Level regulation of the water supply
- Entry rail with 2 wheel guides for centering and locking the base frames

9. Flowchart:



The autoclave tub is automatically filled with water; two level sensors automatically regulate the water level throughout the entire process.

The entire process with water control, steam supply, water inlet, water outlet, compressed air supply and ventilation runs automatically.

- **Heating phase:**
During the heating phase, the steam is supplied to the water basins. The circulation pump ensures the constant circulation of heated water from the tub, by the water through the shower system. As a result, an even temperature distribution and gentle heating of the canned food is achieved.
- **Holding phase:**
During the holding phase, the steam continues to be fed into the water basin. The circulation pump ensures the constant circulation of hot water from the tub, by the water through the shower system brought becomes. As a result, an even temperature distribution of the canned food is achieved.
- **Cooling phase:**
During the cooling phase the Steam supply stopped and cold water supplied to the water basins. The circulation pump ensures the constant circulation of water from the tub, by the water through the shower system. As a result, the canned food cooks evenly.

10. Dimension - ACX1200:

- Autoclave LxWxH (closed lid) with:
 - Two autoclave cages: ca. 3200x1770x1750 mm
 - Three autoclave cages: ca. 3800x1770x1750 mm
 - Four autoclave cages: ca. 4800x1770x1750 mm
- Inner container diameter – 1200 mm

11. Dimension - ACX1400:

- Autoclave LxWxH (closed lid) with:
 - Two autoclave cages: ca. 3500x1800x2000 mm
 - Three autoclave cages: ca. 4500x1800x2000 mm
 - Four autoclave cages: ca. 5500x1800x2000 mm
 - Five autoclave cages: ca. 6500x1800x2000 mm
- Inner container diameter – 1400 mm

12. Autoclave cages, base frames:

- A set of autoclave cages with base frames of the respective length is included in the scope of delivery of the system.

**ACX1200**

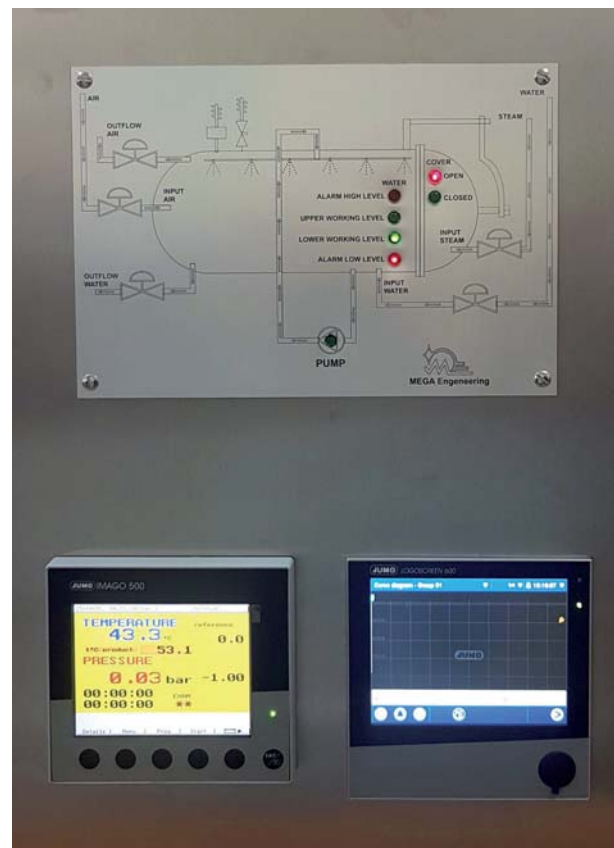
- Dimensions of autoclave cages: LxWxH - 820x800x720
- Filling with canned food as an example:
Ø99x103 (720 gr.) = 460 cans/cage

ACX1400

- Dimensions of autoclave cages: LxWxH - 972x950x888
- Filling with canned food as an example:
Ø99x103 (720 gr.) = 600 cans/cage

13. Control box and control:

- A stainless steel electrical box with associated electrical equipment.
- EI connection - 400V, 50Hz
- Two air coolers for constant temperature control of the case.
- Signal light
- Power on and off switch
- The control is carried out using a process and program controller installed in the control box **INCLUDING 500 IMAGO**.
- The process documentation is done using **Including Logoscreen 600** with redundant temperature measurement and immutable Data format implemented.



Control box with JUMO IMAGO 500 and JUMO LOGOSCREEN 600

14. Operate, visualize, register:



JUMO IMAGO 500 und JUMO LOGOSCREEN 600

The process and Program rules **INCLUDING 500 IMAGO** is used to control the system and the paperless recorder **Including Logoscreen 600** used for process data acquisition.

INCLUDING IMAGO 500:

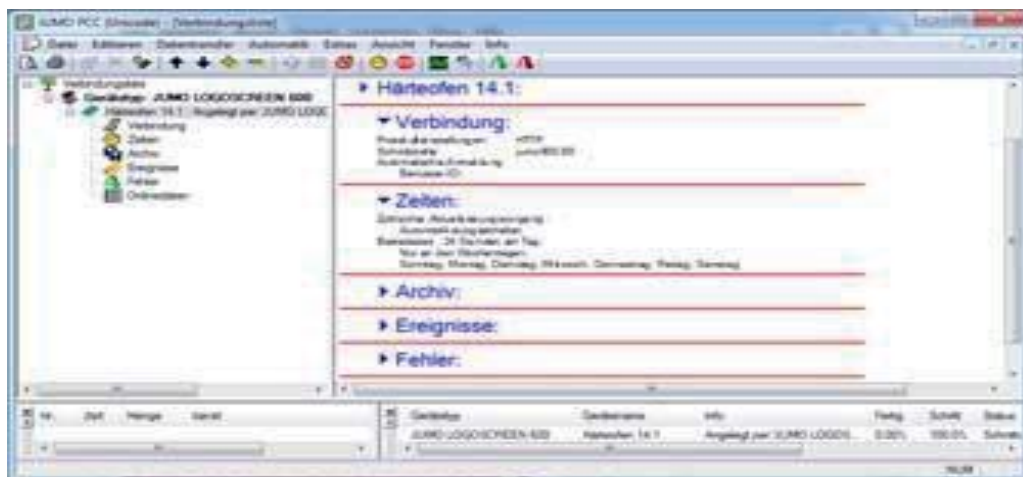
- As a human-machine interface, it enables optimal and orderly insight into the process states and system parameters
- Brilliant 5"-**TFT-Display** with 27 colors (320 × 420 pixels) and LED backlighting, protection class on the front **IP65**
- Operating languages: **German** and **English**
- number of **Savable Programme** – maximal **50 Programme** with up to 100 sections each
- **Automatic process flow** - The saved programs are called up, started and then run automatically controlled by the PLC.
- Control of the system **F value** or **Temperature**
- **Automatic regulation of the** temperature, the pressure and the **Water** levels during the entire process flow.
- Temperature, pressure and expiry time are displayed directly on the screen.
- Display (in real time) and operation of rule picture, Process image etc.

INCLUDING LOGOSCREEN 600:

- As a human-machine interface, it enables optimal and orderly insight into the process states and system parameters
- Data can be displayed in the JUMO LOGOSCREEN 600, such as: E.g. curve diagram (vertical or horizontal), bar graph, text image (numeric) or digital Diagram. A special batch record is available for batch-related processes, which enables the storage of additional information.
- The JUMO LOGOSCREEN 600 paperless recorder is equipped with a resistive 5.7" **TFT-Touchscreen** (640x480) and is characterized by its ease of use thanks to its intuitive, symbol-based operating and visualization concept.
- Operating languages: **German**, English, Russian and many other languages possible
- The **USB host interface** for connecting a Memory stick is provided with a cover so that the device has the protection class on the front **IP65** complies.
- **Data transfer** to the PC - The data is transferred from the paperless recorder to a PC via the **USB memory stick** or via one **Ethernet interface** .
- **Internal memory** (Flash) - Whenever a memory block in RAM is full, it is copied to internal memory. The internal memory has a capacity of maximal **1 GB**. Every write process is monitored so that errors when saving data are detected immediately.
- **Ethernet** - The paperless recorder is equipped with an Ethernet interface that supports the following functions:
 - Communication with a PC (setup program, web server, data archiving with PCC/PCA3000)
 - Email sending via SMTP server
 - Time synchronization through SNTP server
 - Communication my Modbus Master/Slave
- **Tamper detection** - The device has secure tamper detection. Based on a digital device certificate, it can be proven that the registration data in the device and during transfer to the data archive were not manipulated.

15. Software packet:

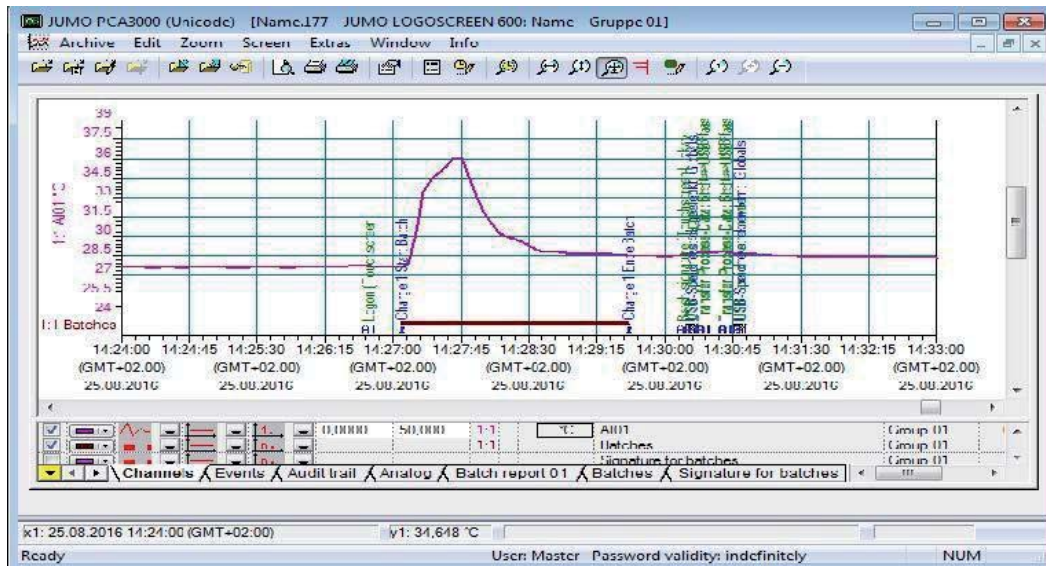
Access from PC:
Communication software PCC (optional)



- The PCA communication software PCC is a PC program for Windows operating systems
- The PCC communication software, which is optimally tailored to the PCA3000, enables convenient reading of data via the Ethernet interface.
 - Data storage: Backup and archiving of all process data in a manageable and simple manner in one data file
 - Teleservice function (display of process data)

Evaluate:

PC evaluation software PCA3000 (optional)



- The PC evaluation software PCA3000 is a PC program for Windows operating systems
- Professional evaluation software for managing, archiving, visualizing and evaluating process data (measurement data, batch data, messages, ...)
- The process data can be read in via USB memory stick or the PCA communication software PCC.
 - Data storage: Backup and archiving of all process data in a manageable and simple manner in one data file
 - Data backup: Archive data can be read and displayed directly from CD/DVD
 - Data export: Data export at HTML level or ASCII text file (for evaluation in Excel) or customer-specific forms

Mobile access:
JUMO Device App



With the JUMO Device App, the user always has mobile access to his process data. All current process values as well as the alarm and event list can be viewed in text format via Ethernet.

- Mobile access to JUMO LOGOSCREEN 600
- Display of current process values
- App for Android and iOS systems
 - <https://play.google.com/store/apps/details?id=net.jumo.jumodevice&hl=de>
 - <https://apps.apple.com/us/app/jumo-device/id1023671933>



Haskovo, Bulgaria
Хасково, България

