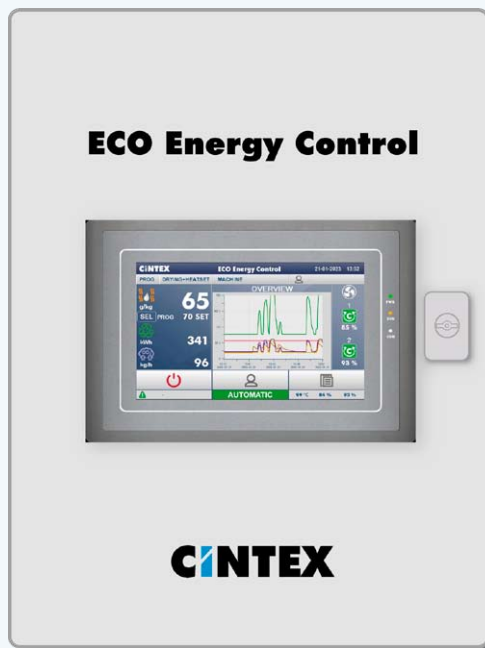


Energy Saving Carbon Reduction

in the textile drying process

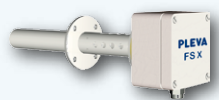
ECO Energy Control EEC



Energy Saving



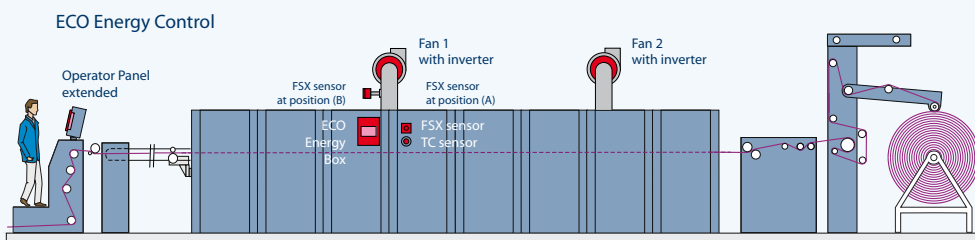
Auto Control Mode



Air humidity
FSX



Air temperature
TC



FEATURES OF PRODUCT

- Reliable measurement in the dryer at high temperatures
- Wide measuring range
- Requires no maintenance
- Robust and proven sensor with longest life time



BENEFIT FOR CUSTOMER

- Significant energy saving
- Considerable carbon reduction
- Measuring and calculation of energy consumption and carbon emission
- Retrofit package for new and existing drying machines

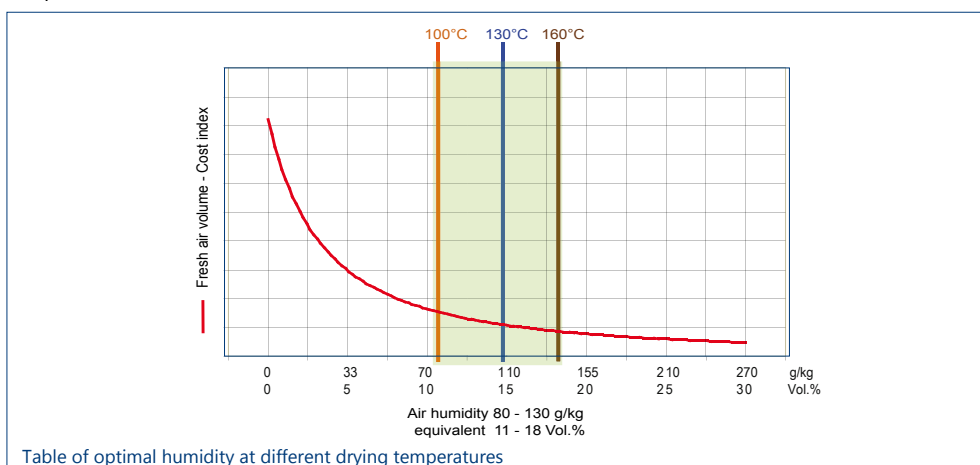
Application dryer

Drying is a highly energy intensive process. A high percentage of the cost of a dryer is spent on energy. Today, minimization of energy consumption and reduction of energy cost must be given the highest priority in every production plant. At the same time, reducing of carbon emissions is an important aspect of climate pollution.

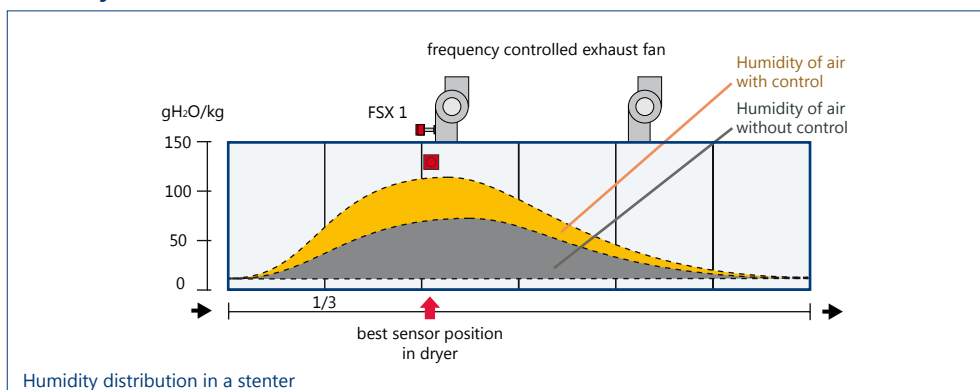
An advantage of the ECO Energy Control system is the integrated calculation of the energy consumption and the carbon load during the drying process in the machine.

Optimum and best drying conditions in the dryer

Circulation air loaded with humidity is a perfect energy transfer medium. The most efficient humidity range in the dryer is between 80..130 g/kg water per kg air, corresponding to 11..18 Vol % for drying temperatures between 130 °C and 160 °C.



Humidity distribution in stenter



Areas of Application

- Stenter frame (textile, carpet)
- Dryer for tubular fabric
- Printing machine
- Sizing machine with energy saving dryer
- Heat-setting for carpet yarns
- Drying hood for paper-making machine
- Flat surface dryer (building slabs, cardboard, wooden boards)
- Dryer for webs of endless fabric (leather fibre, foamed material)
- Backing oven
- Conditioning with high humidity



ECO Energy Control

ECO Energy Control

With the new ECO Energy Control, the heating energy used is adapted to the actual demand by measuring the moisture content of the exhaust air in the dryer and regulating it via the fan speed. In this way, the exhaust air volume is optimally adapted to the drying process.

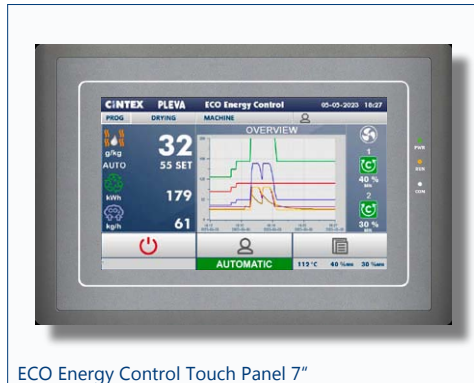
In auto setting control mode, the setpoint for the drying and heating process is automatically calculated from the current dryer temperature.

In addition, setpoints can be specified in programs or manually by the master.

An additional advantage is the integrated calculation of the energy consumption and the carbon load during the drying process.

By maximizing the humidity in the dryer from 60 to 100 g/kg, 30% savings in energy consumption will be achieved with 6% lower production costs.

(Values for example: fabric weight 150g/m², fabric width 1.6m, incoming fabric moisture 70%, residual moisture 5%, fresh air 25°C, exhaust air 160°C, fabric speed 100m/min)



ECO Energy Control Touch Panel 7"

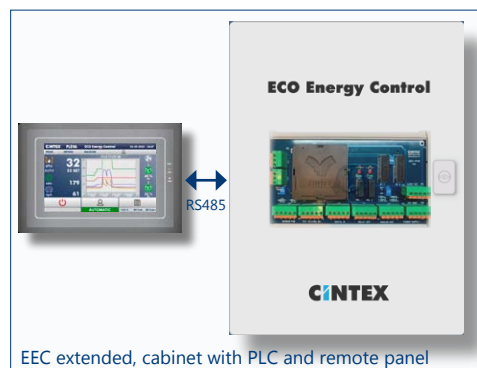
Version EEC compact



EEC compact, cabinet with PLC and integrated panel

- ECO Energy Control with touch panel 7" integrated in protective cabinet

Version EEC extended (build-in)



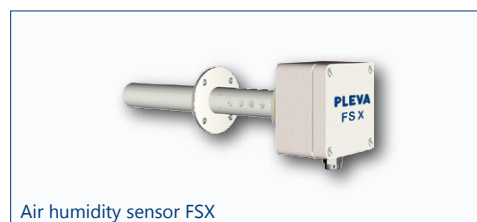
EEC extended, cabinet with PLC and remote panel

- ECO Energy Control with remote operator touch panel 7" to build in customer control bridge.

Air humidity sensor FSX

The proven air humidity sensor PLEVA FSX is used to minimise the energy consumption of drying processes in dryers and stenter.

The maintenance free exhaust humidity sensors type FSX measures the humidity of the process air in the dryer to control the exhaust air rate for an economic efficiency on drying process.



Air humidity sensor FSX

Air temperature sensor TC

An additional temperature sensor for the dryer circulating air is used to calculate the energy consumption and the carbon load.



Air temperature sensor TC



Continuous Dryer

Solution

Type ECO Energy Control

FEATURES OF PRODUCT

- New features on energy calculation
- Latest state of processor technology and control
- Latest technology with reliable sensors
- Auto Control Mode for Drying and Heatsetting process



Auto Control Mode

BENEFIT FOR CUSTOMER

- Significant energy savings
- Considerable carbon reduction
- Measuring and calculation of energy consumption and carbon emission
- Retrofit package for new and existing drying machines
- Easy installation

ECO Energy Control

ECO Energy Control

Type EEC compact
Type EEC extended

Air humidity sensor

Type FSX ST
Type FSX HT

Air temperature sensor

Type TC

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PLEVA

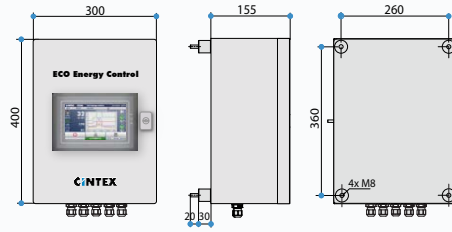
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Technical Data

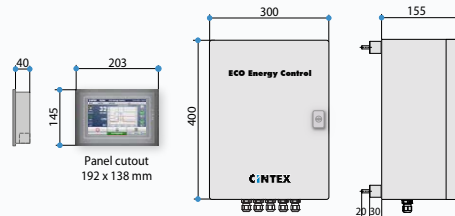
EEC compact



ECO Energy Control compact

Panel HMI: 7" Touch Screen coloured integrated in cabinet EEC
max. 55 °C
Ambient temperature: max. 55 °C
Power supply multi-range: 100 .. 240 AC
Power consumption: 60 VA, max. 80 VA
Current: max. 1.8 Amps
Communication: RS232 / RS485 serial
Protocols: MODBUS
Analogue outputs isolated: 2 signals 0/2 .. 10V (for inverters)
Weight approx.: 6.5 kg

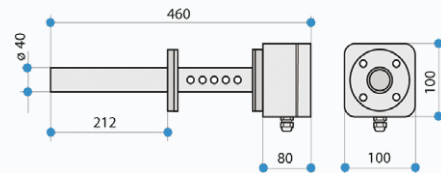
EEC extended



ECO Energy Control extended (build-in)

Panel HMI remote: 7" Touch Screen coloured mounting in control bridge
Ambient temperature: max. 55 °C
Power supply multi-range: 100 .. 240 AC
Power consumption: 60 VA, max. 80 VA
Current: max. 1.8 Amps
Communication panel: RS485 serial
Protocols: MODBUS
Analogue outputs isolated: 2 signals 0/2 .. 10V (for inverters)
Weight approx.: 6.5 kg

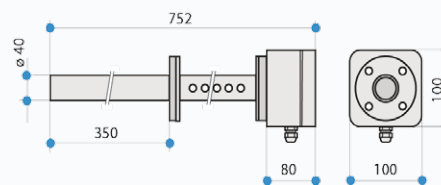
FSX ST



Sensor FSX

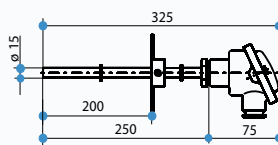
Process air temperature: Type FSX ST: max. 250 °C
Type FSX HT: max. 600 °C
Temperature of sensor: > 700 °C
Heating-up time for sensor: approx. 15 min
Measuring range sensor: FSX ST: 0 .. 1000 g/kg
FSX HT: 0 .. 90 °C DP
selectable on FS Box: free scaling

FSX HT



Ambient temperature for instrument preamplifier: max. 70 °C
Power supply: 24 V DC (+/- 10 %)
Power consumption: max. 24 VA, max. 1.0 Amps
Weight sensor FSX ST: approx. 2.6 kg
Weight sensor FSX HT: approx. 3.8 kg

TC



Sensor TC

Sensor: Thermo element
Type: 1x Ni-CrNi „K“
Ambient temperature: max. 600 °C
Protective tube: Steel 1.4749
Weight sensor: approx. 1.2 kg

Accessories optional

- **Special filter** for silicon in air circulation
- **Frequency inverter** for exhaust air blower

Representative