

## Controller for Phase I Composting in Open and Closed Bunkers

### AKS



#### Description

AKS controller is used for phase I composting in open and closed bunkers. One AKS comes for 2 bunkers. In open bunkers AKS controller turns on and off the inlet fan depending on the compost temperature. In closed bunkers the controller controls the rates of inlet fan and air dampers position by complex analyze of compost temperature in four points, air temperature after inlet fan and oxygen concentration in the compost gas. The individual control algorithms are realized for each of composting subphases. The algorithms can operate in both manual and automatic modes.

AKS controls the entire process, from the moment of loading with new compost till the time of emptying. The controller can be connected to PC via RS485 communication interface. TechnologSoft Mushroom Edition Software enables to control environmental parameters and react all alarm situations from your PC. The remote control of AKS is also possible through Internet and TeamViewer Software.

#### Functions

- Compost temperature measurement in four points
- Calculation and indication of average compost temperature
- Air temperature measurement after inlet fan (option)
- Calculation of speed change of compost temperature
- Monitoring of oxygen concentration in the compost gas (option)
- Control of set parameters in manual or automatic mode
- Setting parameters, modes, ranges of control for actuators and duration of each fermentation subphase
- Setting inlet fan mode (manual or automatic)
- Setting air damper mode (manual or automatic)
- Diagnostics of probes and actuators
- Alarm signals on sensors' failure and temperature limits
- Remote PC control of the whole composting process through Technologsoft PC Software

#### Basic Specifications

Temperature Range	0 to 100°C
Temperature Accuracy	0.1°C
Interface Type	RS485
Supply Voltage	220 VAC ± 10%
Power Consumption	max 18 W
Protection Class	IP 54
Panel Board Dimensions (HxWxD)	500x420x130 mm

#### Inputs

Inputs	Q-ty
<b>Analog Inputs</b>	
Compost temperature probes	4x2
Air temperature probes after inlet fan	1x2
Reserved for temperature probes	3x2
Oxygen concentration probes (4-20 mA)	1x2
Feedback signals from air dampers (2-10 V)	2x2
Feedback signals from fan VFD (0-10 V)	1x2
<b>Dry Contact Inputs</b>	
Signals from fan motor relay	1x2
Power supply 380 V	1x2
Reserved	14x2

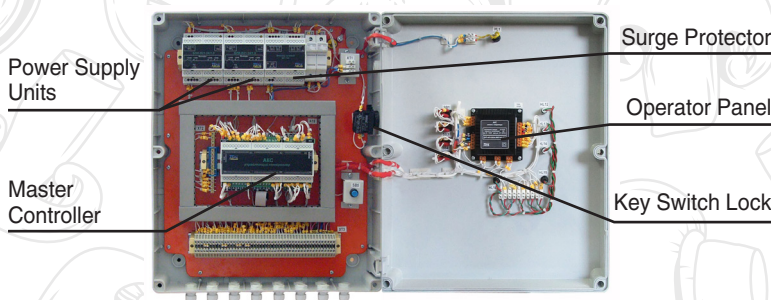
#### Inputs

Inputs	Q-ty
<b>Analog Outputs</b>	
Control of inlet fan VFD (0-10 V)	1x2
Control of air dampers (0-10 V)	2x2
Reserved	1x2
<b>Digital Outputs</b>	
Inlet fan ON/OFF	1x2
Light and sound alarm	2
Reserved	14
<b>Interface</b>	
RS485	1x2

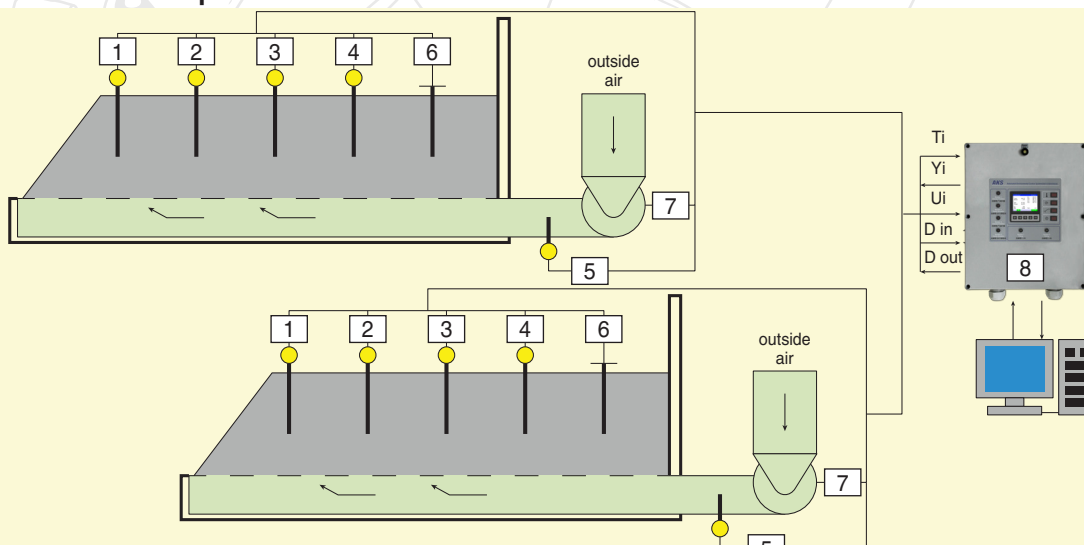


## Design

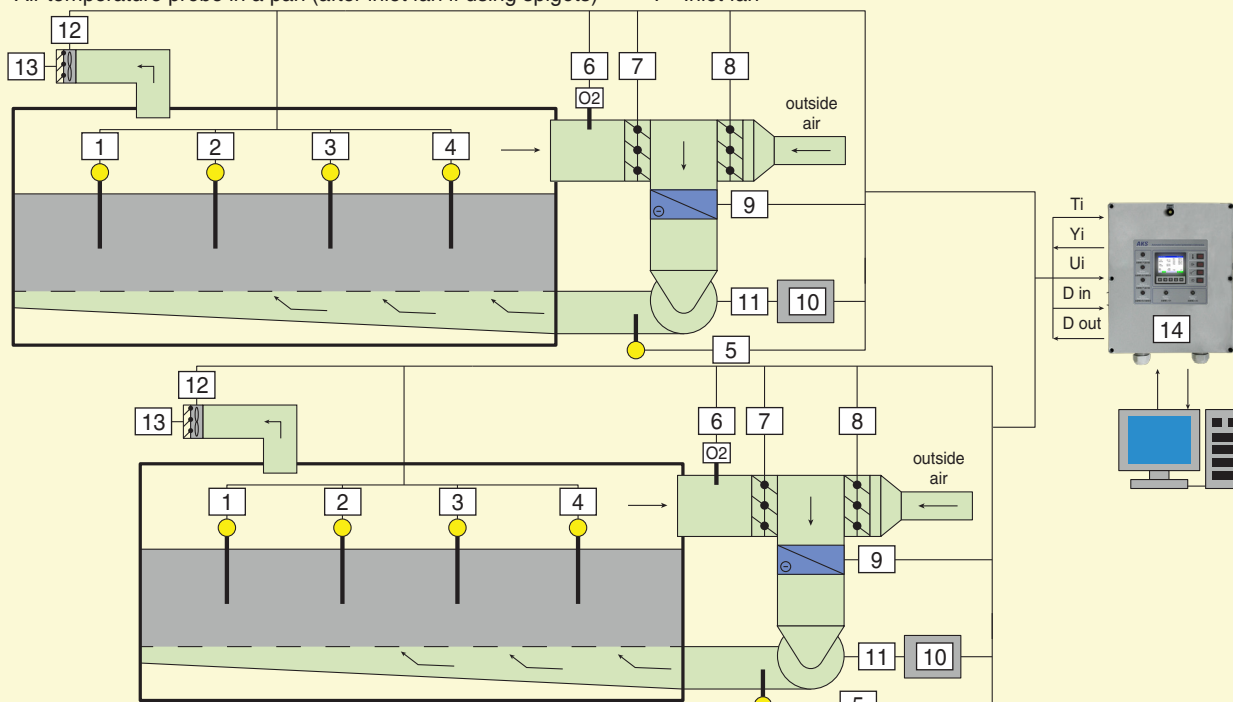
AKS Controller consists of the master controller on the DIN rail mounted inside of the plastic panel board and operator panel with TFT display on the front panel. It also includes two 24VDC power supply units for actuators, 12 VDC power supply unit for RH probe fan, surge protector, key switch lock and external switches for setting operating modes and alarm lamps. The controller has a significant reserve of inputs and outputs. It is also possible to commutate other nonstandard input and output types. AKS Controller can be supplied with TechnologSoft software for PC remote control. It all allows to choose individual configuration for customized applications and customer wishes.



### Environmental Control in Open and Closed Phase I Bunkers



- 1...4 - Compost temperature probes
- 5 - Air temperature probe in a pan (after inlet fan if using spigots)
- 6 - Suction pike of oxygen concentration probe
- 7 - Inlet fan
- 8 - AKS controller



- 1...4 - Compost temperature probes
- 5 - Air temperature probe after inlet fan
- 6 - Suction tube of oxygen concentration probe
- 7 - Circulation air damper (0-10 V)
- 8 - Outside air damper (0-10 V)
- 9 - Chilled water coil
- 10 - Inlet fan VFD
- 11 - Inlet fan
- 12 - Exhaust fan
- 13 - Over pressure damper
- 14 - AKS Controller

### Model

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