



Operating guide

Automatic control system for direct air heater KRON-1.0 TURBO-400 (based on SIEMENS S7-1200)

Content.

1. INTRODUCTION	3
2. FUNCTION	3
3. PARTS	3
4.HMI DESCRIPTION.	4
5. OPERATION.	15
6. SHUTDOWN.....	15
7. EMERGENCY SHUTDOWN	15
8. ADJUSTMENT	17
9. ACCESS LEVELS	20

1. Introduction

Automated control of the direct air heater KRON-1.0 TURBO-400 (hereinafter the air heater) is carried out by the programmable logic controller (PLC).

2. Function

Automatic control system provides:

- Automatic ignition of the burner of the air heater;
- Automatic shutdown and ventilation;
- Load controller with temperature or power setpoints;
- Continuous monitoring of pre-emergency and emergency settings.

The system provides display information about the mechanisms of the state and the input parameter values specified with the help of built-in HMI panel.

3. Parts

Automation consists of:

- PLC S7-1200 CPU1214C (14 digital inputs, 10 digital outputs);
- SIMATIC HMI-panel KTP400;
- Expansion module SM1232 (2 analog outputs);
- Expansion module analog inputs SM1231 (AI4 x RTD);
- Button "Start" for start of the air heater;
- Button "Stop" for stop of the air heater;
- Button "Emergency Stop" for emergency stop of the air heater.



4.HMI description.

4.3"-HMI panel with resolution 482x272 is used for air heater control. HMI panel installed on the door of the cabinet. Panel has four keys: F1, F2, F3, F4.

During panel initialization after power on LED is flashing. Then the start up display is appeared with information about the air heater.

To continue, you need to press the F4 key or a graphical button with the arrow, and then display Diagram loads.



Diagram

Diagram consists of two displays. The first one shows the air heater with sensors and actuators. At the first display user can set the temperature setpoint or set the power output (level of the burner modulation) of the burner. The second display shows the position of the burner actuators: gas damper, air damper and the burner fan speed.

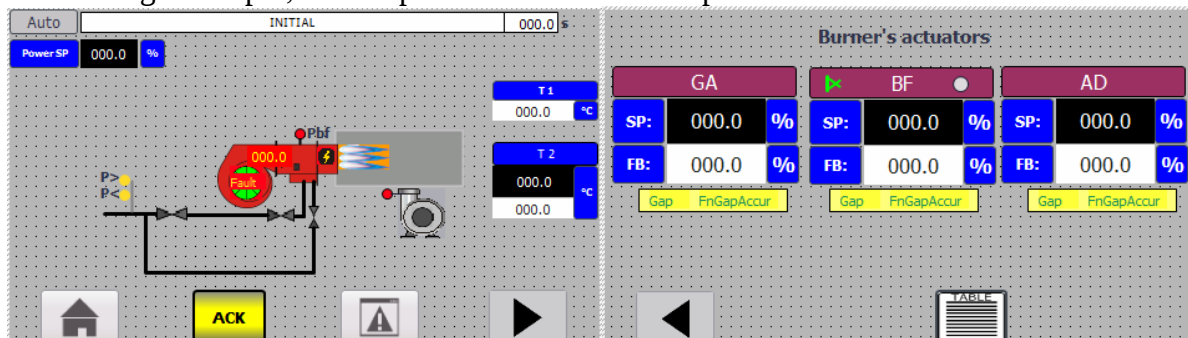


Fig.1. Diagram

Use arrow buttons to switch over the diagram displays.

The state of the automation system with timer are shown at the top of the first display. The timer counts the time slots of each step of the Sequence diagram (Appendix 1).

Input fields have black background with white numbers. Output fields have a white background with black lettering.

■ - normal switch state. Grey – disconnected state. Red – emergency state.

When flame detector watch fire of the burner, the figure  would appear on display.

Burner valves: