

## automation system packages

The control modules we manufacture, can be divided into two types:

- Standard modules;
- Special modules.

The modules of the second type require development of technical solutions to control sophisticated ventilation systems, monitoring and distributed control. Customized control cabinets are assembled according to definite and rather complicated configurations of ventilation equipment. There are additional elements of power control of equipment, which constitutes a ventilation system. Those are motors of supply and exhaust fans, heating coils, additional energy consuming units. Besides, the tailor-made cabinets are used to control distributed ventilation systems with centralized control based on LonWorks technology. The same relates to the cases when it is necessary to assemble a control cabinet in accordance with a circuit diagram. But a big amount of ventilation system control tasks is solved using standard control modules ACM (Air Control Module).

### The ACM control modules fall into

Object of control:

- Supply, supply/exhaust ventilation systems

Method of shutoff air damper control:

- 2- and 3-step control with supply and control voltage 24VAC or 220VAC.

Fan control:

- Speed control by supply voltage variation (motors with external rotor)
- Speed control by supply voltage frequency variation (induction motors)
- Without speed control.

Applied regulator type:

- Pulse-width modulation control as Pulser, TTC (electrical heating), AQUALINE analogue regulator (water or electrical heating, heat recovery and cooling), programmable DDC-controllers CORRIGO (all types of heat exchanging units), without control (for exhaust systems).

Method of temperature control:

- Temperature control of supply air, room temperature control, cascade regulation, temperature control with min/max temperature limitation;
- Without temperature control (for exhaust systems).

The quantity and types of heat exchanging units of a ventilation system can be different. Among control cabinets we propose, control modules for direct-flow and combined.

Supply/exhaust ventilation systems are widely presented. The layouts can include systems with one heater (electrical or water type), with a heater and a cooler, where both water coolers and direct evaporation cooling units can be used. Within the range there are also control modules for ventilation systems with more than three heat exchanging units.

### Our control modules provide:

- reception and preliminary processing of data from sensors;
- adjustment of real-time algorithms to control temperature, humidity and pressure;
- selection of control method;
- performance control of supply and exhaust fans and executive elements;
- heat exchanger state supervision (heating elements overheating, water heater defrosting, cooling units alarm state, etc.);
- air filter clogging supervision;
- local activation of air conditioning systems and operation mode indication;
- instantaneous cutoff in emergency;
- fire alarm cutoff;
- automatic or manual summer/winter switch;
- on/off programming for supply and exhaust fans;
- current system values indication;
- preset values input;
- local control self-diagnostics.

