



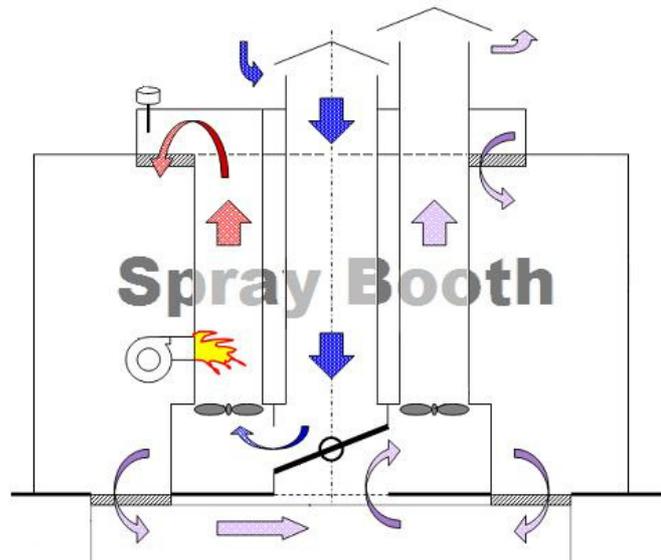
Application note



Painting spray booths

Ascon Tecnologic's PAC (Programmable Automation Controller) has solved the control of sophisticated painting spray booths for the automotive industry. The system assures enhanced tasks such as:

- Additional air flow, to achieve the required temperature and to avoid dust
- Heat energy optimization
- Static electricity Neutralization or reduction
- Eco function to adjust airflow and reduce cycle times.
- Remote monitoring and control functions



The application

The required basic functions are programmable set point temperature control and operation sequences, these are essential to obtain the right finishing quality and safety.

The air flowing into the booth is controlled by means of a heater, fans and damper and by using external ambient air. Temperature profile must be controlled during the paint passivation and drying stages to obtain the best finishing according to the paint characteristics. Recirculation of the heated air, allows reduction of energy consumption during passivation and drying.

The system shall also provide interlocks on access door to avoid that the operator enters into the booth when air is hot and not clean.

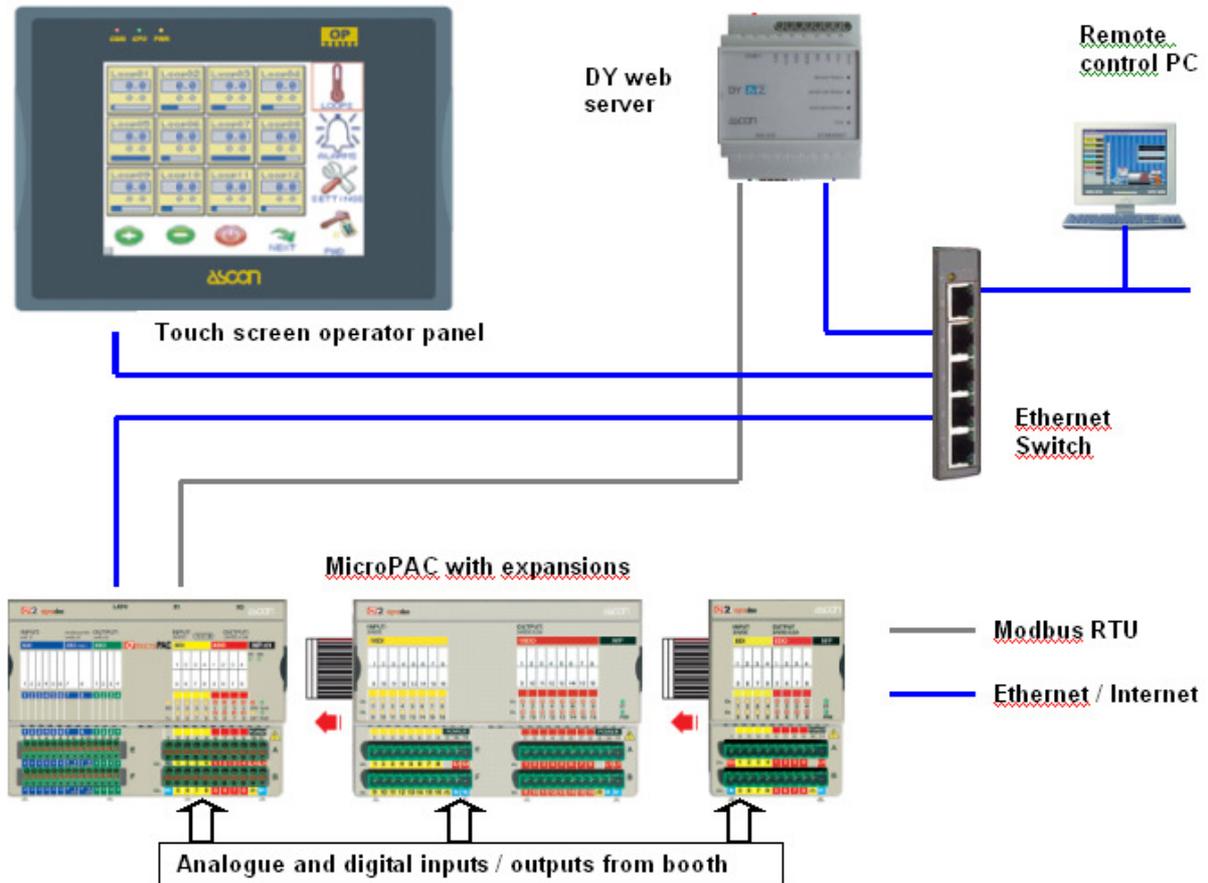
Some booths include pneumatic door operation. An auto balancing function controls pressure inside the booth; this eliminates micro switches on the doors, saves time waiting for the booth to balance and eliminates the problem of balance during transitions such as from spray to bake.

Enhanced functions include:

- Additional air flow management, to ensure that the recommended temperature is achieved quickly and to avoid disturbance of dust and therefore contamination,
 - Optimization of heat energy to get faster cure times and better through hardness,
 - Neutralization of static electricity prior to painting and its reduction throughout the spraying and baking process.
 - Eco function that adjusts airflow to match the process demands and further reduces cycle times.
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The Ascon Tecnologic solution

The solution can be found by using controllers of **microPAC series**, Touch screen of **OP-MT Series** and **DY web server** to add the remote monitoring and control function.



The PAC (Programmable Automation Controller) has been selected as most suitable device to control the most important functions including the management of:

- Temperature, pressure and other analogue variables
- Process status and safety devices
- Control signals to burner and inverters, interlocks commands and alarms.

I/Os are then processed by the CPU, which includes PID and auto tune algorithms, profiles generation, mathematics, sequences and logics to execute typical functions such as normal or eco operation, pre clean, spray, wait, purge, bake, cool down and cleaning. All programmed by standard using an IEC 61131-3 compliant software environment

The **DY web server** grants quick assistance in case of maintenance allowing, by an internet connection, to upload, microPAC and OP programs, to do changes and to receive e-mails signalling booth or burner fault conditions.

The **OP-MT** Touch screen has been designed keeping the operator in mind with icons and images to represent actions and functions, on-line help and all the necessary information are always available.

RTD temperature sensor completes the system by offering accurate temperature acquisition.

The selected products

The system uses the following Ascon Tecnologic products

Model	Description
MP-01-22010M0	MicroPAC Programmable Automation Controller with on board I/Os
MP-D1/8-8/M0	Expansion module for MicroPAC, 8 digital inputs and 8 digital outputs
DY-5121	Web server
OP MT8104	Touch Screen Operator Panel
ZTR-22D/1P	RTD temperature sensor

The advantages

- Accurate temperature control in accordance to the defined profiles
- Process time reduction
- Compact controller with on board I/O, saves space and wiring work
- Easy management of sequences and logics
- Complete information available on operator panel
- Remote connectivity

ASCON TECNOLOGIC and its network of distributors and system integrators are fully available to discuss with you the best solution for your applications. [More on applications..](#)

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