

Air Control Unit



The ABB Air Control Unit (ACU) is a high performance, cost-efficient air flow controller for paint applications that is easy to integrate into new and existing installations. This extremely accurate and reliable unit controls air flow to paint atomizers with an incredibly fast response time – even at a lower working pressure than existing solutions. When taken together, the ACU’s features add up to less wasted paint, faster throughput, and significant operational cost savings.

Superior control and consistency

Accurately controlling paint droplet size is key to consistent results on a paint line. The ACU can regulate the air pressure used for shaping spray patterns as well as the atomizer turbine speed with millisecond response time – making it one of the most accurate air regulation units on the market. If multiple brush changes and paint volumes are required for a painted object, a slow response time can impact overall production as the robots wait for the bell speed and paint dosing to reach each new set point.

The ACU’s incredibly fast millisecond response time allows spray patterns and volumes to be varied without impact on

the speed of production. The end result is a consistent droplet size and high quality finish even when accommodating varying spray patterns and paint volumes on the same object.

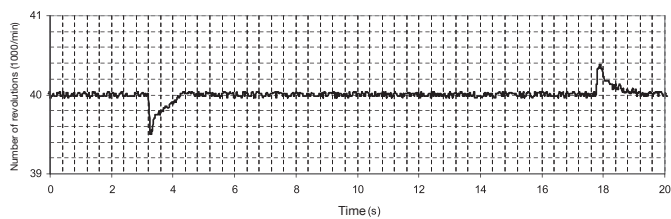
Thoughtful design

The ACU is designed to be plug-and-play out of the box with pre-calibrated settings, yet still allow for easy fine tuning and customization. It is also lightweight and compact enough to be fully integrated on the upper arm of a paint robot such as the IRB 5500, IRB 5400 or IRB 580—meaning it can be placed into new and existing systems with ease. The ACU is also optimized to work with ABB atomizers for an even better total solution.

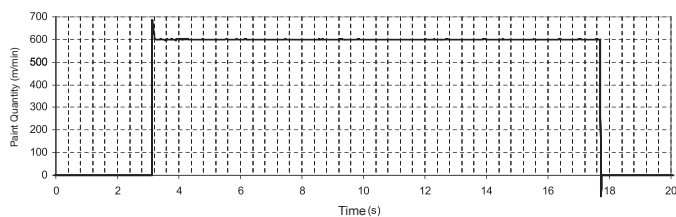
The essence of the ACU design can be summed up by its position within ABB's Integrated Process System (IPS). In this ecosystem the ACU is a node that runs IPS software, controlling air flow with the use of precision actuators as well as combining a pressure sensor and air flow sensors to achieve closed loop air control.

Reliable

The compact and efficient nature of the ACU reduces much of the complexity of existing solutions for air regulation. Using ABB's Integrated Process System (IPS) to handle input data and convert pressure, the ACU provides fast and stable regulation. IPS with closed loop regulation enables the ACU to constantly monitor air flow to the atomizer and correct for any deviations. IPS also allows the operator to set alarms if the process parameters change outside of defined limits.



2K Clear coat. 40 mm Bell cup. Shape air inner 650 NI/min. Shape air outer 650 NI/min. Supply pressure 5,5 bar.



Speed reduction with paint at (600 ml/min) less than 500 1/min (< 1%). Speed drop approximately 1 sec.

General data

Ambient temperature	0 – 55 °C	
Enclosure material	Aluminium / stainless steel	
Protection	IP65	
Storage temperature	-40 to 70°C	
Weight	3.5 kg	
External dimensions	Housing	160x60x135 (WxHxD)
	Total (w/flow tubes and grid)	160x125x200 (WxHxD)

Pneumatic data

Supply pressure	5 to 10.3 bar
Pressure bursts	12 bar
Supply hoses line inputs	Ø12 x Ø9 recommended (Condition: minimum 6 bar at ACU inlet)
Supply hoses output	Ø12 outer (imposed) and recommended Ø9 inner diameter

For more information please contact:

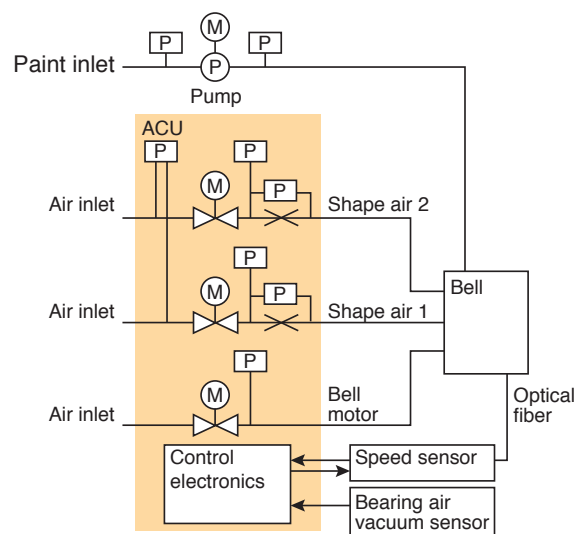
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Cost savings

The efficient ACU requires a scant 6 bar of air pressure to operate, which means substantial power savings for customers when compared to existing solutions. The high accuracy of the ACU will help save paint and its millisecond response times mean less time wasted waiting for changeover between parts to be painted. Low pressures, high accuracy and speedy efficiency all add up to significant cost savings.

Key benefits

- Lightweight and compact, can be installed on the arm of a paint robot
- Low air pressure requirements mean significant energy savings
- Significant cost savings and faster production
- Extremely accurate and stable overall performance
- Modular plug-and-play design is easy to integrate



Performance data

Output range	0 to 9 bar
Flow sensor range	0 to 1000 NI/min
Flow-sensor accuracy	+/- 2%

Electrical data

Input power	24 VDC
Max current	700 mA