AirSupply Smart

Intelligent air supply unit

The intelligent air supply unit **AirSupply Smart** (iASU) is able to supply demand-driven compressed air according to the required situation. As a fully integrated system, it combines intelligent control with monitoring of operating conditions. In addition, the system is optimized in space, weight and lifecycle costs. Key functions allow the reduction of noise emission and energy consumption.

Customer benefits

- Integrated Pantograph mode (battery start-up)
- Integrated Boost mode (for fast fill-up)
- Integrated Silent mode / Night mode
- Integrated full system condition monitoring
- Anytime extendable functions
- Automatic mode - to adjust the volume flow to the real demand
- Improved energy efficiency
- Easy system integration
- Reduced LCC
- Reduced weight
- Downsizing potential

Applications

- High-speed trains
- Locomotives
- Metros
- Passenger coaches
- Regional & commuter trains

System integration

AirSupply Smart provides the possibility to be integrated in all common installation situations with less effort

- Under floor installation
- Inside installation in car body
- Roof mount installation

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Optimized operation & control

The main idea of AirSupply Smart is the full system approach of air supply, utilizing an inverter to not only control the motor speed, but also to link all system components intelligently:

- Boost mode: Increase the volumetric air flow of the compressor over its normal limits for a short period of time. This reduces the reservoir fill-up time always when it is needed or enables to downsize the compressor.
- Automatic mode: Automatically adjustment of air delivery to the real demand.

Noise emission management

AirSupply Smart was specially developed to adjust to specific situations, so it is possible to reduce or even avoid noise when it is most relevant e.g. at the station or at night. Supporting functions are:

- Silent mode: The compressor will be actively set to a lower rotation speed and reduces the noise emission whenever no high air demand is required, e.g. at night. Compared to Boost mode the sourced energy emission is reduced by AirSupply Smart.

Improved energy management

Eco-friendlyness is becoming more and more important. Several functions enable AirSupply Smart to improve energy consumption:

- Soft start functionality: Avoids inrush current.
- Power converter: It enables AirSupply Smart to be supplied, appard from to the standard AC voltage, now also by stabilized DC voltage, this allows to reduce the size and the weight of the auxiliary power unit and enables the usage of a more energy efficient DC voltage backbone.
- Intelligent regeneration control: Adaptive air dryer control reduces regeneration air demand.

Flexible & lightweight design

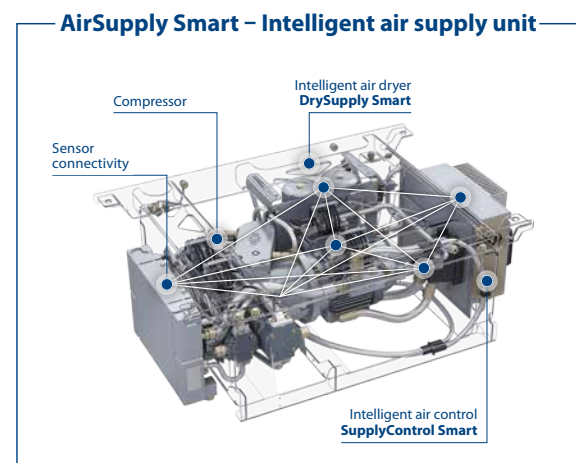Product and system modularity lead to space and weight saving:

- No auxiliary compressor: The ability to supply the main compressor temporarily from the car battery eliminates the need for a separate auxiliary air supply system.
- Downsizing potential: By using the Boost mode it is possible to cover temporary demand peaks with a smaller or less compressors.

Digital communication

AirSupply Smart combines hardware with software from one source. The system interfaces features several options for communication and control. With its integrated monitoring network it collects crucial information of components and provides health status information.

- Anytime extendable functions: Gives the possibility to extend and update the functions installed on AirSupply Smart by an easy software update which enables the customer to benefit also from later developments / releases.
- Integrated condition monitoring: By combination of sensor data and inverter information, analysed and interpreted by inbedded software and algorythems, the iCM profides a full system health status monitoring.

AirSupply Smart – Intelligent air supply unit

Sensor connectivity

Compressor

Intelligent air dryer **DrySupply Smart**

Intelligent air control **SupplyControl Smart**

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