TECHNICAL-COMMERCIAL PRESENTATION

CONTROLAIR EMISSION ELECTRONICS:

An advanced electronic solution designed to monitor and control the efficiency of industrial filtration systems.

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CONTROLAIR
IPERJET
Emissioni 0.0 mg/m3
Preallarme Emissioni 6.0 mg/m3
Allarme Emissioni 9.0 mg/m3
CONTROLAIR
MENU
OK
ESC

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1. CONTROLAIR EMISSION ELECTRONICS

1.1 Introduction

CONTROLAIR EMISSION is an advanced electronic solution designed to monitor and control the efficiency of industrial filtration systems, specifically developed for applications on existing systems. This innovative device optimizes dust filtration performance from various industrial processes, without requiring complex or costly structural interventions on existing systems.

CONTROLAIR EMISSION's integrated technology provides precise monitoring of dust emissions, ensuring full compliance with environmental regulations and contributing to the creation of a safe and healthy working environment for operators.

The system is equipped with Wi-Fi connectivity, allowing immediate and intuitive remote control from any device, eliminating the need for direct manual intervention. Furthermore, RS485 network compatibility allows for simple and seamless integration with existing industrial filtration systems, ensuring rapid and seamless adoption in existing contexts.

The combination of these technologies enables centralized and optimized management, improving overall system efficiency, reducing operating costs and energy consumption, and maintaining full compliance with safety and environmental regulations.

CONTROLAIR EMISSION is therefore an ideal solution for improving the sustainability and performance of industrial filtration systems, without the need to replace or modify existing infrastructure.

1.2 Available Versions

1.2.1 Electrical Panel Door Mounting Version

This version is designed for direct installation on the electrical panel door, integrating a color LCD front panel for intuitive management.

Main technical features:

- Power supply: 24V DC
- Power consumption: 10 W in standby / up to 30 W at full power
- Operating temperature: -10°C to +50°C
- Terminal block: 2.5 mm² – 250 VAC / 12 A

This version is the ideal solution for applications requiring compact integration within the electrical panel.

1.2.2 Remote Version on External Box

The remote version is supplied in a practical external ABS box with an integrated color LCD panel, ideal for decentralized installations or environments where the electrical panel is not easily accessible.

Technical specifications:

- Power supply: IN 230 V AC – 110 V AC - 24 V DC.
- Power consumption: 10 W in standby / up to 30 W in operation
- Operating temperature: -10°C to +50°C
- Terminal block: 2.5 mm² – 250 VAC / 12 A
- Air connections for RILSAN tube 6x4
- Rilsan pneumatic connection 6 x 4
- IP65 ABS enclosure – impact resistant (IK07)
- Enclosure dimensions: 160 x 106 mm
- Transparent cover in smoked polycarbonate

Compliance with standards:

- EN 62208 – EN 61439-3
- EAN Code: 8025241175661

This solution is ideal for installations in harsher environments or where high levels of protection from external agents are required.

1.3 GRAPHIC CUSTOMIZATION

CUSTOMER LOGO AND WORDING: The CONTROLAIR EMISSION software offers the ability to fully customize the user interface with the customer's name and logo. This option allows companies to have a dust management system that reflects their visual identity, improving the user experience and brand consistency. This feature is particularly useful for companies seeking a uniform and professional look across all digital interfaces related to their industrial plants.

1.4 POWER SUPPLY CONTROL UNIT

The control unit can be powered by a variety of voltages to ensure universal compatibility with industrial systems: 230V AC, 110V AC, or 24V DC. This versatility allows the system to be integrated into a variety of environments, both in industrial settings with standard electrical grids and in systems requiring low voltage for safety and energy efficiency.

1.5 EMISSION CONTROL MONITORING

EMISSION CONTROL WITH TRIBO-CHECK PROBE: The CONTROLAIR EMISSION system uses a 4-20mA triboelectric probe (Tribo-Check) to monitor dust concentrations and airborne emissions in real time. This advanced technology allows the system to detect leaks in the filtration system, with particular attention to the precise identification of broken bags or cartridges, thanks to its ability to detect anomalies in the filter surfaces.

The system allows you to set alarm thresholds directly from the display, triggering timely alerts in the event of faults. This allows for rapid intervention to resolve issues and prevent the emission of harmful dust into the atmosphere. This feature significantly reduces environmental remediation costs and plant downtime, preventing damage to operations and ensuring environmental protection.
The integration of advanced electronic devices, such as the Tribo-Check probe, optimizes dust collection system management, increasing operational reliability and ensuring compliance with environmental regulations. The ability to specifically pinpoint the row of damaged sleeves or cartridges allows for targeted and efficient problem resolution, improving overall plant sustainability and efficiency.

1.6 VIEWING

The system is equipped with a color graphic LCD display, which offers a clear and intuitive user interface. This display allows you to view all operating information in real time, making system management easy and straightforward. The information is presented in a visual format that is easy to understand, allowing operators to accurately monitor system performance and status.

1.7 MULTILINGUAL MENU

To ensure global usability, the system features a multilingual interface that includes a selection of languages, including Italian, English, German, French, and Spanish. This makes the system easily usable in various international markets, simplifying programming and day-to-day management in multinational and diverse business environments.

1.8 ALARMS AND MONITORING

ALARM MENU INTERFACE

The CONTROLAIR EMISSION system features an intuitive and user-friendly interface that allows you to easily view active and historical alarms. Thanks to an advanced graphical layout, operators can quickly access critical information, improving real-time response to system issues. Alarm management is simple, ensuring immediate usability even for non-expert users, reducing intervention times and increasing system reliability.

ACTIVE ALARMS MENU

The real-time display of active alarms allows you to continuously monitor system status and respond promptly in the event of malfunctions. Alarms are highlighted and classified by type, providing detailed information on any issues, such as valve failures or differential pressure anomalies, facilitating rapid identification of the cause. Proactive alarm management helps reduce system downtime and optimize response times.

ALARM SIGNAL

dP Alarm Signal Output – 24 VDC
Device for monitoring the pressure difference (ΔP) in filtration systems. When the preset differential pressure threshold is exceeded, the system activates an alarm output via a 24 VDC electrical signal, ideal for connection to PLCs, supervision systems, or audible/visual alarm devices.
The output allows for timely management of filter clogging conditions, preventing system efficiency losses and maintaining optimal dust collection system performance.
Main Features:

- 24 VDC digital alarm output
- Automatic activation when the configurable ΔP threshold is exceeded

- Compatibility with industrial control systems
- Remote signaling for rapid and targeted interventions

Available upon request, with a relay option.

1.9 SETTING THE FIRST START-UP DATE

The system automatically detects the first start-up date after 4 hours of continuous operation. This feature allows you to precisely track the start of system operation, providing a useful reference for managing future maintenance and planning subsequent interventions.

SYSTEM OPERATION HOURS

Electronic counter that records the total system operating time. Useful for scheduling preventative maintenance, checking work cycles, and evaluating system performance.
Commercial benefits: Enables efficient management of the system's life cycle, optimizing maintenance costs and improving overall reliability.

2. CONTROLJET ELECTRONIC CONNECTIVITY

• BLUETOOTH: Bluetooth is a standardized technology widely used in consumer devices and industrial applications for wireless connection between devices.

• Wi-Fi: Wi-Fi is a wireless technology that enables wireless Internet connection and data transmission between devices. In an industrial context, it is used to connect devices, machinery, and sensors in real time, improving operational efficiency and data management. Thanks to its wide coverage and ease of implementation, Wi-Fi is a cost-effective and scalable solution for enterprise networks, also supporting high speeds and stable connections.

• GSM: GSM via router is a technology that uses the GSM (Global System for Mobile Communications) mobile network to provide Internet connectivity to devices in an industrial or business context. GSM routers allow a local area network (LAN) to be connected to the Internet via a mobile operator's SIM card. This type of solution is ideal for remote areas or where wired Internet infrastructure is unavailable, offering a reliable and scalable connection that enables remote management of industrial devices and systems in real time. The GSM router is used for IoT applications, remote monitoring and backup connections.

3. COMMUNICATION PROTOCOL

3.1 MQTT

MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol based on a client-server model, ideal for IoT applications and environments with limited connectivity. It uses a "publisher/subscriber" communication model, where devices (publishers) send messages to specific "topics" and other devices (subscribers) receive them. It is a highly efficient and scalable communication protocol, perfect for IoT applications. Thanks to its lightweight nature, it minimizes bandwidth and power consumption, enabling seamless data management even in complex environments. Ideal for sectors such as industrial automation, home automation, and smart cities, MQTT enables reliable and secure communication between devices, with customizable quality of service levels. Its flexible architecture and ease of implementation make it a strategic

choice for optimizing operational efficiency and rapidly scaling IoT solutions, ensuring a continuous and secure data flow.

3.2 MODBUS RS485

Modbus RS485 communication is a well-established standard for serial data transmission, particularly suitable for industrial and automation applications. Thanks to its ability to ensure reliability over long distances and in environments subject to electromagnetic interference, the RS485 protocol is ideal for stable and secure connections. This technology enables remote communication with PLCs, facilitating direct interaction with advanced CONTROLJET electronics.

Both communication protocols allow reading and writing of all field device variables.

4. MODEM ECO-SMBE CELLULAR ROUTER IR302-FQ58-W - GSM

This product is suitable for networking unattended devices and sites. It is equipped with watchdog and multi-layer link control mechanisms to ensure reliable and stable communications.

- Uninterrupted network access
- Supports fast LTE WAN networks for business continuity and WAN diversity.
- Strong security protection

  - Data transmission: IPsec VPN (IKEv1, IKEv2), L2TP, PPTP, OPEN VPN, GRE, and CA certificate.

  - Network protection: Supports SPI (Stateful Packet Inspection), SSH (Secure Shell), intrusion protection (forbidden ping), DDoS defense, attack defense, IP-MAC binding, etc., protecting the network from external attacks.

  - Device access: Supports hierarchical user authorization (CLI only), implementing secure access management by providing different roles and permissions.

- High reliability and stability

  - Link level detection: Continuous detection and automatic redialing in the event of a link interruption to maintain the connection.

  - Dual SIM failover: Automatically switches to the most stable carrier network.

  - PPP level detection: Maintains connection to the carrier network, preventing forced hibernation, maintaining smooth network communications.

  - VPN tunnel detection: Maintains a stable VPN tunnel connection, ensuring continuous transmission.

  - Automatic device recovery: Built-in hardware watchdog, automatic recovery from malfunctions, maintaining high device availability.

- Industrial-grade design

• Metal enclosure, IP30 protection. Level 2 EMC. Ethernet ports support 1.5KV isolation transformer protection. Wide operating temperature range: -20°C ~ 70°C.

5. UL / CSA CONFIGURATION - CERTIFICATION FOR THE USA AND CANADA MARKET

UL/CSA CERTIFICATION: Our product is fully compliant with UL (Underwriters Laboratories) and CSA (Canadian Standards Association) safety standards, ensuring its suitability for use in the US and Canadian markets. These certifications are essential to ensure the product meets the highest safety, reliability, and performance criteria required by American and Canadian regulations. UL certification signifies compliance with electrical safety standards and protection against fire, electric shock, and other hazards. The globally recognized CSA certification guarantees that the product meets the safety, performance, and environmental requirements for use in Canada. This commitment to UL and CSA compliance not only opens access to the North American markets but also ensures that the product offers optimal performance in industrial environments with maximum safety. It also helps reduce the risk of legal non-compliance by simplifying the sales and distribution processes in these regions. Choosing a UL/CSA certified product means guaranteeing quality, reliability, and safety, meeting the needs of a highly regulated and innovation-oriented market.

6. WHY CHOOSE CONTROLAIR EMISSION?

Main features

- Real-time emissions monitoring
  - Continuous monitoring via Tribo-Check probe
  - Detects bag/cartridge breaks and immediately reports any anomalies
- Simple installation, no structural modifications required
  - Easily integrates into existing systems, without invasive interventions
- Two versions available
  - Panel door mounting
  - Installation in an IP65 (IK07) external enclosure
- Color LCD display with multilingual menu
  - Clear and intuitive interface
  - Available languages: IT / EN / DE / FR / ES
- Intelligent alarms and proactive fault management
  - Reduces system downtime
  - Improves the effectiveness and timeliness of technical interventions
- Extensive connectivity for remote control
  - Wi-Fi
  - Bluetooth
  - GSM
  - MQTT
  - RS485 (Modbus)
  - Access from any device
- Customizable interface
  - Option to insert the customer's name and logo for complete branding
- Certifications UL / CSA (USA – Canada)
  - Complies with the most stringent international electrical and environmental standards

Ideal for:

- Filtration systems requiring precision, efficiency, sustainability, and environmental compliance.

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