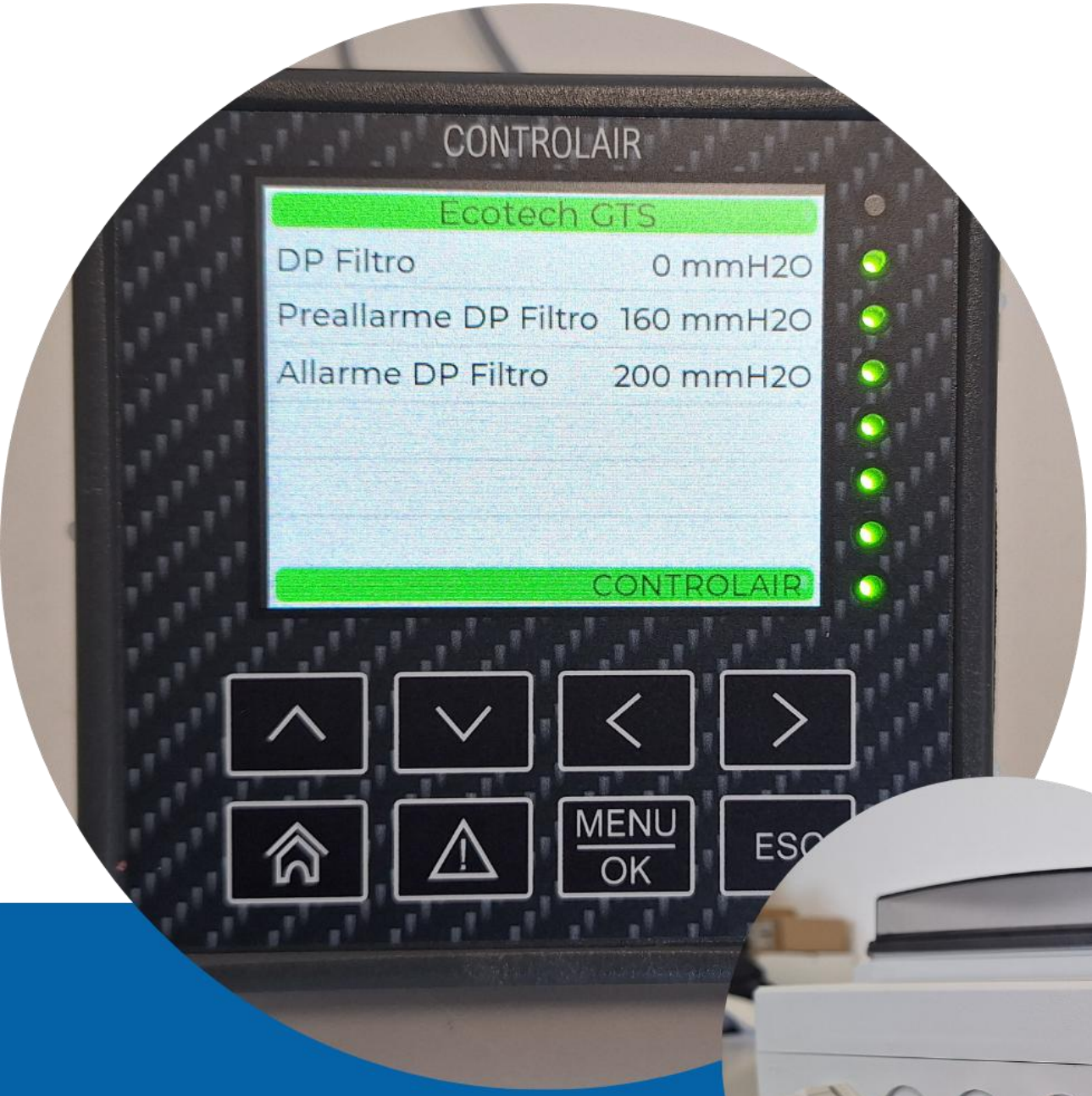
TECHNICAL-COMMERCIAL PRESENTATION

CONTROLAIR DP:

Precision and efficiency in filtration control

Rev. 3 - 05.08.2025


CONTROLAIR
Ecotech GTS
DP Filtro 0 mmH2O
Preallarme DP Filtro 160 mmH2O
Allarme DP Filtro 200 mmH2O
CONTROLAIR
MENU
OK

Sommario

1. CONTROLAIR DP ELECTRONICS

1.1 Introduction

CONTROLAIR DP is an advanced electronic solution designed to monitor and control the efficiency of industrial filtration systems, specifically developed for applications on existing plants. This innovative device allows you to optimize the filtration performance of dust from various industrial processes, without requiring complex or expensive structural interventions on pre-existing plants.

Thanks to its cutting-edge technology, CONTROLAIR DP allows you to monitor the efficiency of the filters in real time, ensuring that the plant always operates at its maximum capacity. This continuous control allows you to promptly identify any drops in performance, optimizing energy consumption and preventing costly failures, thus increasing the reliability and life of the plant.

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

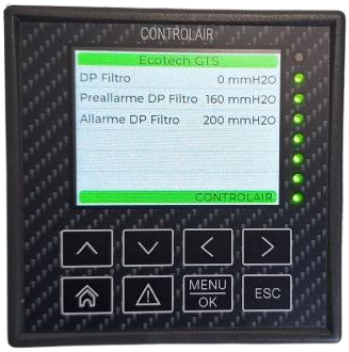
The combination of these technologies allows for centralized and optimized management, improving the overall efficiency of the system, reducing operating costs and energy consumption, and keeping the system fully compliant with safety and environmental regulations.

CONTROLAIR DP therefore represents an ideal solution for improving the sustainability and performance of industrial filtration systems, without the need to replace or modify the 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:

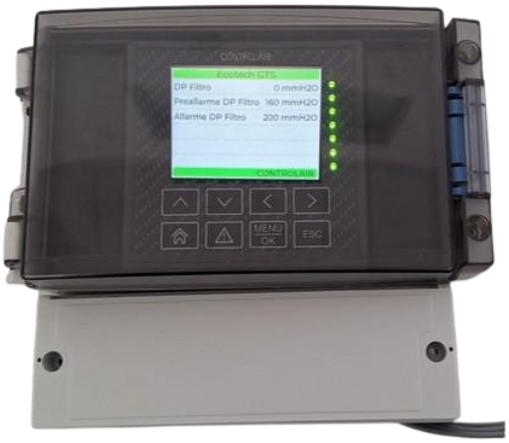
- Power supply: 24V DC
- Power consumption: 10 W in standby / up to 30 W at full power
- Operating temperature: -10°C to +50°C
- Terminal block: 2.5 mm² – 250 VAC / 12 A

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 WRITING: CONTROLAIR DP software offers the possibility 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 that want a uniform and professional look in all digital interfaces related to their industrial plants.

1.4 POWER SUPPLY CONTROL UNIT

The control unit can be powered with different voltages to ensure universal compatibility with industrial systems: 230V AC, 110V AC or 24V DC. This versatility allows the system to be integrated into different environments, both in industrial contexts with standard electrical networks and in systems that require low voltage for safety and energy efficiency.

1.5 FILTER DIFFERENTIAL PRESSURE CONTROL

The system features advanced analog differential pressure control, which uses an internal transducer to continuously monitor the filter clogging status. This feature optimizes filter cleaning in real time, minimizing energy consumption and improving the life of filter components. Precise differential pressure control ensures

the system is always operating at maximum capacity, reducing the risk of malfunctions and improving air quality.

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 operational information in real time, making system management easy and immediate. The information is presented in a visual format that is easy to understand, allowing operators to monitor the performance and status of the system precisely.

1.7 MULTILINGUAL MENU

To ensure global usability, the system is equipped with a multilingual interface that includes a selection of languages, such as Italian, English, German, French and Spanish. This makes the system easily usable in different international markets, simplifying programming and daily management in multinational and diversified business contexts.

1.8 ALARMS AND MONITORING

ALARM MENU INTERFACE

The CONTROLAIR DP 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. CONTROLAIR DP 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 business 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 you to connect a local area network (LAN) to the Internet via a SIM card from a mobile operator. This type of solution is ideal for remote areas or where wired Internet infrastructure is not available, offering a reliable and scalable connection, which allows 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

Data communication protocol via MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol, based on a client-server model, ideal for IoT applications and environments with limited connections. 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 lightness, it minimizes bandwidth and power consumption, allowing smooth data management even in complex environments. Ideal for sectors such as industrial automation, home automation and smart cities, MQTT allows reliable and secure communication between devices, with customizable quality of service levels. Its flexible architecture and ease

of implementation make it a strategic choice to optimize operational efficiency and rapidly scale IoT solutions, ensuring a continuous and secure data flow.

3.2 MODBUS RS485

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

Both communication protocols allow reading and writing of all the variables of the devices in the field.

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

This product is suitable for unattended device and site networking. It is embedded with watchdog and multi-layer link control mechanisms to ensure reliable and stable communication.

- 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 user hierarchical authorization (CLI only), implementing secure access management by providing different roles and different permissions.
- High reliability and stability
    - Link level detection: Continuously detect and automatically redial when the link is broken to maintain the link connection.
    - Dual SIM failover: Automatically switch to the most stable carrier network.
    - PPP level detection: Maintains connection to the carrier network, preventing forced hibernation, keeping network communication smooth.
    - VPN tunnel detection: Maintains the VPN tunnel connection stable, ensuring continuous transmission.
    - Device automatic recovery: Built-in hardware watchdog, automatic recovery from malfunctions, maintaining high availability of the device.
- Industrial grade design
- Metal body, IP30 protection. Level 2 on EMC. Ethernet ports support 1.5KV isolation transformer protection. Wide operating temperature: - 20 °C ~ 70 °C.

5. ATEX CONFIGURATION

CONTROLAIR DP ATEX: can be applied in environments classified as potentially explosive. Thanks to its compliance with ATEX (Atmosphères Explosibles) regulations, CONTROLAIR dP guarantees a high level of safety and reliability in sensitive industrial areas.

6. 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 market. These certifications are essential to ensure that the product meets the highest safety, reliability and performance criteria required by American and Canadian regulations. UL certification is synonymous with compliance with electrical safety standards and protection against fire, electric shock and other hazards. The globally recognized CSA certification is the guarantee that the product meets the safety, performance and environmental compatibility requirements for use in Canada. This commitment to compliance with UL and CSA regulations 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, responding to the needs of a highly regulated and innovation-oriented market.

7. ELECTRONICS TECHNICAL DATA

- Power supply: IN 230 V AC – 110 V AC - 24V DC.
- Power consumption 10 W (Stand-by) - 30 W Max ev ON
- Operating temperature - 10 °C ÷ + 50 °C
- Pneumatic connection Rilsan 6 x 4
- Terminal block 2.5 mm² - 250 VAC / 12 A
- BOX CONTROLPAN DIMENSIONS 150 X 110 X 70 SMOOTH SIDES

8. WHY CHOOSE CONTROLAIR DP?

Key benefits

- Compatible with existing systems
  - No structural modifications required
  - Easy and immediate integration
- Filter differential pressure control
  - Continuous real-time monitoring
  - Optimized cleaning and longer filter life
- Advanced remote management
  - Connections: Wi-Fi, Bluetooth, GSM
  - Full access from any device
- Color graphic LCD display with multilingual menu
  - Clear and intuitive interface
  - Usable in IT / EN / DE / FR / ES
- Intelligent alarm system
  - Immediate display of anomalies
  - Reduction of system downtime and faster interventions
- Complete industrial connectivity
  - MQTT protocol for IoT
  - Modbus RS485 interface for integration with automation systems
- Certified safety
  - ATEX configuration for potentially explosive environments
  - UL/CSA certifications for the USA and Canada
- Energy efficiency and cost reduction
  - Optimization of Consumption
  - Increased operational reliability
- Customizable interface
  - Display of customer logo and name
  - Consistent and professional branding

Ideal for:

- Industrial filtration systems requiring efficiency, smart control, and sustainability.
    - Quick installation
    - Remote management
    - Immediate impact

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