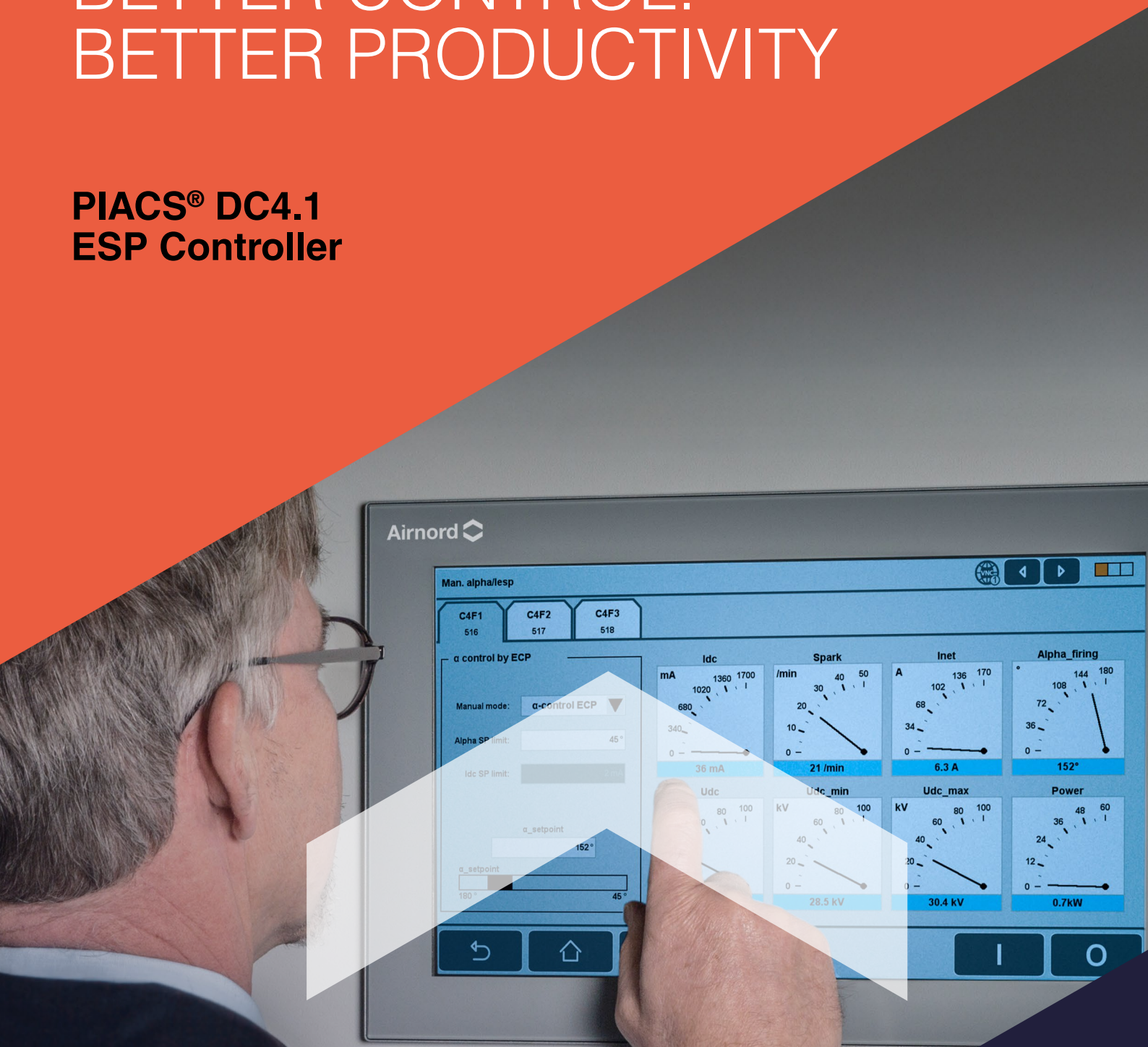
BETTER CONTROL.
BETTER PRODUCTIVITY

PIACS® DC4.1
ESP Controller



Airnord

Lowest emissions
Highest ambitions

THE PROVEN BENCHMARK IN ESP CONTROLLERS

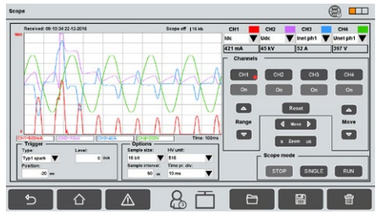
By continuously evolving PIACS® technology and improving the user experience, we have developed an enhanced ESP control unit that secures your production: PIACS DC4.1.

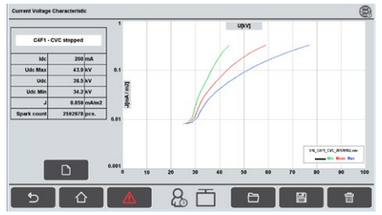
- **User friendly, easy to monitor and troubleshoot**
- **Meet environmental regulations while saving time and money**

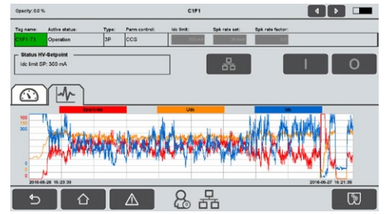
The PIACS control system is used in over 3,000 ESP installations worldwide. Continuously improved and updated over more than four decades, the latest PIACS DC4.1 solution includes state-of-the-art features that ensure it remains the leading ESP control system on the market today. Compatible with all ESP applications, its fast and powerful microprocessor delivers a best-in-class control experience:

- Reacts quickly to process fluctuations and back corona
- Ensures the most efficient use of installed power
- Delivers optimised ESP performance

FOR THE MOST EFFICIENT USE OF INSTALLED POWER







Unmatched user experience
A professional interface, distinct visual layers, and seamles motion help the user intuitively understand and interact with the system. Touch and discoverability heighten the user experience and enable access to functionality and additional content without losing context. Transitions provide a sense of depth as operators navigate through content.

From the main menu, operators can easily view the status of the ESP and control all key parameters, simply by tapping on the relevant icons:

- High voltage
- Rapping gears
- Heating
- Purge-air systems
- Dust transport

The latest PIACS® DC4.1 system features an updated touch panel with more powerful and responsive processor, larger storage capacity for enhanced trend logging, higher-resolution display, and improved hardware supply security. The new display is backward-compatible with all existing PIACS DC4 systems.

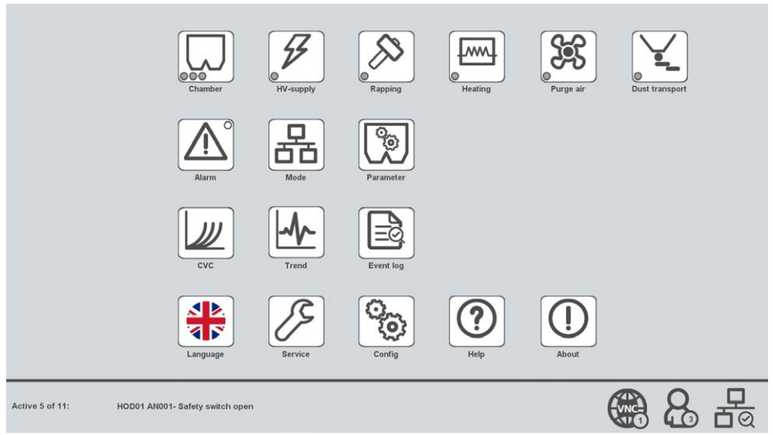
Meet the most stringent limits
Improved ESP voltage and current measurements are achieved via an internal measuring board in the terminal box of the high-voltage rectifier. This improves spark detection (detecting sparks that otherwise might not have been detected) and provides the ability to react to real sparks, improving ESP efficiency. The benefits are faster, more efficient utilisation of installed power and, ultimately, even lower dust emission.

Remote service and support
With the latest PIACS DC4.1 controller, there is no need for an external computer or specialist software. It is instead possible to access the ESP control interface through a built-in ethernet connection. This allows plant maintenance staff to service the equipment remotely, increasing ESP reliability.

We also offer various service packages, including support via remote access from our central Copenhagen or local customer service offices. With client permission, our expert engineers can remotely access and control the PIACS DC4.1 system to provide urgent troubleshooting and assistance – particularly useful for clients in remote areas.

FORWARD-LOOKING FUNCTIONALITY

The PIACS® DC4.1 includes a number of advanced features that further improve ESP control operations.



Dust transport
The new PIACS DC4.1 system can control up to 25 dust transport units including VFD speed control. Various graphical layouts of dust transportation systems are also supported. When a specific process layout is not supported, the PIACS DC4.1 panel
can be configured to show dust transport in list form.

CVC trace
This innovative feature addresses limitations to traditional CVC measurements by allowing real-time monitoring of high-voltage electrical field behaviour during hot operations. Real-time voltage and current are displayed on the user interface, indicating whether the ESP is functioning normally or if there is an issue, such as a mechanical malfunction, dust build-up, or a problem with the flow/pressure.

Scope function
Downloading scope data has been significantly improved. The appearance of the scope page has also been updated.

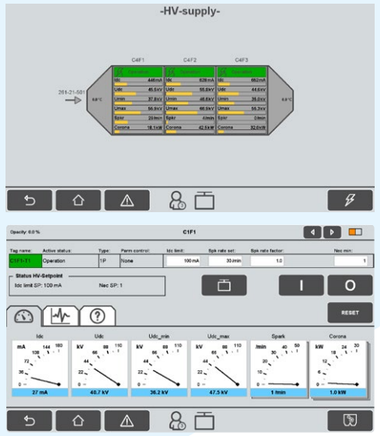
Multi-operation mode
The PIACS DC4.1 system lets users define a set of multiple high-voltage operating modes to reflect different plant operating scenarios.

Scheduled events
Certain rapping events – such as reduced-power rapping, power-off rapping, or additional rapping events – can be scheduled to occur at specific times.

Schedule maintenance
Users can now schedule maintenance service intervals for high-voltage, rapping, and heating units. A warning flag can also be set to indicate when there is less than 30 days left before
a unit is up for servicing.

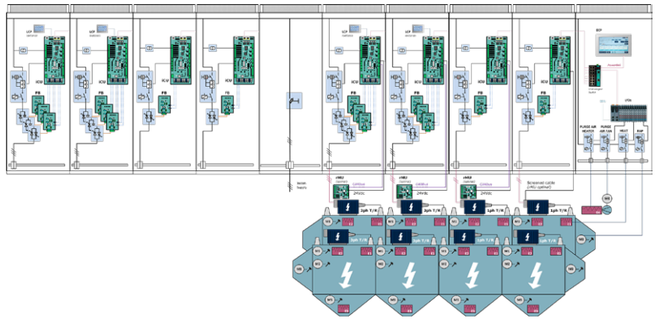
Coromax® visualisation
The new PIACS DC4.1 system offers visualisation of the Coromax Mark4 via direct data interface. It can also be set-up to allow the PIACS DC4.1 user to manage and manipulate a minor set of Coromax parameters.

MODULAR FLEXIBILITY



Previous generations of PIACS® controllers were built for each section of the ESP. With the PIACS DC4 controller – and continued in the latest DC4.1 update – we introduced an expandable I/O system. It means you are no longer limited to only three rapping and heating feeders. You can expand by up to 90 rapping gears, 90 heaters, two purge-air, and 25 dust transport units – offering an almost limitless modular system.

Shared parts
Almost all parts can be used in both single and three-phase T/R systems, meaning you save on spare parts, have to keep track of fewer parts, and only require one order number. And, if necessary, it is easy to transition between single and three-phase T/R systems.



Modular system features
One common interface to control and visualise the complete ESP system operation.

- High-voltage self-control in case any field or all fields lose communication with DC4.1 panel (offline mode)
- An optional local control panel for T/R control can be provided for each field
- Cost-efficient spare parts with common parts for one and three phase systems
- Increased electrical separation between SCR driver board and control board, using fibre-optic separation

A 15.6” panel with capacitive touch screen featuring a common controller for one chamber with built-in ESP manager for remote support, and high-speed data communication with slave nodes using Ethernet Powerlink.

A 4.3” individual TFT touch panel for one T/R, with data communication with each iCU controller using Modbus, programmable via a USB memory key.

INSTALLATION OPTIONS

In addition to new panel installations, the PIACS® DC4.1 panel is available as a retrofit to existing units.

New control panel
Complete new panels are delivered pre-cabled, pre-tested, and CE certified, based on single-phase or three-phase high-voltage systems. Panels are completely customisable to match specific requirements:

- Single or individual incomers
- Mains breaker with door handle
- Up to 690V mains voltage
- Up to 100kA short circuit current
- Bottom or top cables entries
- Optional EMC filter, power socket, light, and key interlocking system
- Parallel or serial interface with CCS (Profibus, Profinet, Modbus, Ethernet, DeviceNet, etc.)

As an option, pre-cabled and pre-tested back panels can be delivered and installed in the existing cubicles.

Built-in retrofit
PIACS DC4.1 systems are fully retrofittable to all previous PIACS control versions and with other brands of ESP controllers. Each retrofit kit comes with all the components needed to upgrade an existing control panel to either single-phase or three-phase thyristor control.

The existing primary electrical equipment in the panel, such as T/R sets, rapping motor feeders, and heating system supplies, remain in place. Only the essential components required for installation of the new PIACS DC4.1 controller and associated I/O modules are replaced or added.

Our electrical specialists ensure seamless integration of the new control system into your existing ESP control panels. The retrofit can be executed either during scheduled maintenance outages or progressively during operation, field by field, minimising downtime and ensuring continuous plant availability.

USED AND TRUSTED WORLDWIDE

More than 500 PIACS® units are hard at work worldwide, helping to optimise the performance of around 1,700 ESP fields.

"The new controllers are user friendly and make it easy to monitor operation and troubleshoot. They save us time and money, while meeting environmental regulations."

– Kenny Van Loo, Technicus

Pulp and paper

CMPC Santa Fe, Chile

Four ESPs in one of the recovery boilers were upgraded. This included new control panels and three-phase transformers for 12 ESP fields.

Steel

ArcelorMittal Gent, Belgium

We installed eight new control panels for all ESPs in two sinter plants, two blast furnaces, and the steel shop, with new control panels, reusing existing T/R sets.

Cement

Aalborg Portland, Denmark

Five new control panels for various kilns and coolers ESPs were provided, with new control panels reusing existing T/R sets.

Power

Avedøre power plant, Denmark

Existing control panels were upgraded for the ten ESP fields.

If you're committed to achieving the lowest emissions while realising the highest productivity goals, then Airnord is here to help. For almost 100 years we've been ensuring pulp and paper, power generation, non-ferrous metals, iron and steel, cement and other plants meet the most stringent emission limits.

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Highest ambitions

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