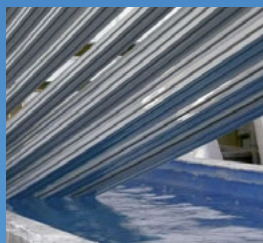




Power Supplies and Controllers for ANODIZING and Aluminium colouring processes



NAR
NORTH AMERICAN
RECTIFIERS


plating electronic
we care for power



pe Anodizing-Colour Universal multi functioning power supply system

The new energy saving technology combined with the easy to operate colouring controller manufactured by plating electronic GmbH ensures uniform colouring results for the following processes:

- Electrolytic colouring of aluminium using the two-steps process: AC or DC/AC method
- Modification of pore structure for interference colouring of aluminium
- Anodizing in DC mode, e.g. in laboratories

The universal AC-sinusoidal frequency and amplitude function of the pe8705 process control increases plant throughput and process safety.

The switch mode Power Supply technology in combination with the digital control guarantee the following advantages when colouring aluminium:

- Specific colouring time due to amplitude and sinusoidal frequency modification*
- Excellent reproducibility of the colouring process*
- Automatic adjustment for batch surface*
- Integrated colouring and re-colouring function*
- Integration in automated control system via PROFIBUS*
- Mains voltage fluctuations do not affect the colouring result*
- Three phase mains supply used, so no unbalanced mains load as with normal two phase circuits*
- Space saving due to compact technology*
- Reduces colouring time C-35*
- Significant extension of colouring time by 1 - 2 minutes for light colours*
- Integration in existing systems, data exchange, batch logging*



pe8705
The complete solution for Anodizing-Colour

We can blacken faster ...

What defines the colouring process in your works? With our new universal Power Supply and Control System pe Anodizing-Colour you define the colouring times. Whether EURAS C-31 or C-35 black, you define the process times and not your process. Thanks to our switch mode Power Supply technology and special, newly developed microprocessor technology, we are able to achieve an improved variable sinusoidal current waveform for the colouring process.



Noco Gionta
plating electronic GmbH

As a result, we can significantly lengthen the short colouring times for light colours.

You have the advantage of better reproducibility, in particular for light colours. The part/time diagram in the plant controller can be optimised.

In the case of dark colours, the anodizing capacity can be increased due to the shorter colouring times. For you this means an increase of up to twice the load throughput with lower energy usage.

Product specification: Process control pe8705 Anodizing-Colour

- Large, clearly laid out LC Display for easy operation with acid resistant membrane keyboard*
- 99 voltage/time colouring programs can be programmed by the user as required*
- Manual and automatic operation*
- Ampere-hours (preset-) counter for bath dosing*
- Process control with indication of the program steps and the time for „end of colouring“*
- Automatic adjustment for batch surface*
- Measurement of the bath temperature for temperature monitoring*
- Bath short circuit monitoring, overload protection, function check and signaling*
- Integration in automated control system via PROFIBUS (others on request)*
- Corrosion-resistant polycarbonate (ABS) housing*
- Mains voltage: 230 V AC/1 Ph /50-60 Hz*
- Max. ambient temperature: 40°C/104°F*
- Protection rating: IP54*

Colouring process AC- or DC/AC method / pe Anodizing-Colour

You define the colour and the process time!

e.g. EURAS black (with normal concentration/metallic salt) in approx. 8 min

Light colours:

Significantly lengthen short colouring times

→ higher process reliability

Dark colours:

Shorten long colouring times

→ Energy saving, productivity increase



EURAS colours
Standard colours

We have proven AC pulse technology:

pe87 Colour in the latest switch mode Power Supply technology with water cooling is the ideal compact power supply for the anodizing area, as well as for electrolytically colouring aluminium using the two-steps process: AC or DC/AC method. It is possible to increase the power output by parallel connection such that the pe87 Colour series can cover a wide range of applications.

The combination pe87 Colour and our easy to use controller pe8705 offers you ease of operation for your processes. Auto/Manual for instance the individually adjustable setpoint ramps, the universal AC sinusoidal frequency and amplitude function, ensure high plant availability and optimised energy management. With the usage of this combination you can control the processes and therefore define the colouring time and colour shades.



Andreas Reichenbach
PULSE Specialist
plating electronic GmbH

„Top quality Deep Black in less than 8 minutes!“

„During the construction of our Anodizing Plant we decided to use four Anodizing Power Supplies and a Colour Unit from plating electronic GmbH.

I have never regretted the decision in the slightest. The dependable and competent on-site service, from installation to the start of series production, as well as the compact and reliable technology in this plant have totally impressed me and my staff.

- Significantly increase colouring times for light colours
- Significantly shorten colouring times for dark colours

In my many years of practical experience I have never obtained such good colouring results! Deep Black in less than 8 minutes, that is great! Due to the reduction in the colouring time by 30% - 40% for C-35 we save on our electricity energy costs, increase the load throughput and therefore significantly reduce our process costs."

Customer reference Germany



pe87 Colour
3400 A

Product specification:

pe87 Colour:

Effective output currents from 50 ... 10,000 A

DC and AC operation

Microprocessor controlled

Regulation error $\pm 1\%$ in relation to nominal DC value

Efficiency > 87 %

Three phase mains supply used, so no unbalanced mains load as with normal two phase circuits

Water cooling and completely enclosed housing / IP54

Permanently short-circuit and open-circuit proof

Max. ambient temperature: 40°C/104°F

Permanent operation at nominal load 24/7

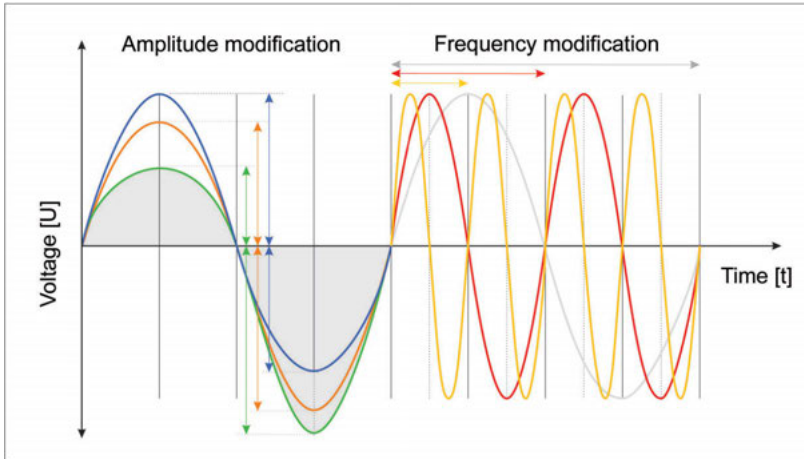
Precise, electronically generated sinusoidal colouring voltage (independent of mains interference)

Maintenance-free, since no mechanical actuators



pe Anodizing-Colour / pe Anodizing

Universal AC sinusoidal frequency and amplitude modification



You define the colours and colouring times with the aid of amplitude and frequency modification

Amplitude modification:

Positive and negative sinusoidal AC voltage can be adjusted as required.

Frequency modification:

Individual adjustment of the frequency within the range of 5 up to 100 Hz.

Selection of the amplitude and the frequency as necessary can be used to influence the colouring time

Extension of the colouring times for light colours and shortening of the colouring times for dark colours

The process-oriented software ensures and optimizes the handling

pe Anodizing

Programmable controllers pe280 for anodizing, hard anodizing and titanium anodizing

Product specification: pe280 anodizing / hard anodizing

Product specification: pe280 standard

Large, clearly laid out LC Display for easy operation with acid resistant membrane keyboard

Compact design for use in an anodizing environment

Integration in automated control system via either Profibus, RS485, TCP/IP

Manual and automatic operation

Software update using PC (RS232 flash system)

Mains voltage: 24V C / 230V 1~/ 50-60Hz, other voltages on request

Max. ambient temperature: 40°C/104°F

Protection rating: IP54

Weight approx. 2kg / 4lbs

Starting edge

Indication of the process time and the remaining anodizing time

Pro automatic comparison of batch surface

Ampere-hours counter for automatic dosing

Current and voltage pre-selection can be continuously adjusted

Additional specification pe280 anodizing

3 separate automatic current density programs

Temperature monitoring and automatic conductance correction in case of temperature fluctuations

Additional specification pe280 hard anodizing

Setpoint curves / timer function up to 14 DC steps

4 memories for individual programs



pe280 anodizing / hard anodizing

Your advantages: Compact, robust design / acid-resistant membrane keyboard / easy operation



DC power supplies for anodizing applications

Latest switch mode technology

Due to the use of high-frequency technology, switch power supply technology offers many advantages over conventional rectifiers based on motorised adjustment or thyristor technology. As a consequence of the proven, reliable, compact technology, switch mode systems are excellently suited to the demanding anodizing area.



pe5910-W 20 V / 10,000 A
pe5910-W 25 V / 8,000 A

- Your advantages**
- water cooling, IP54
 - compact size
 - high efficiency



pe4203-W
e.g. 20 V / 1000 A



pe4206-W
e.g. 20 V / 2000 A

Product specification, water-cooled DC Power Supplies

Higher power by connecting several units in parallel

pe5910-W max. 200 kW, max. 10000 A, max. 1000 V
Dimensions: 800 x 2200 x 600 (W x H x D in mm)

pe5410-W max. 100 kW, max. 500 A, max. 1000 V
Dimensions: 400 x 2200 x 600 (W x H x D mm)

pe4206-W, max. 40 kW, max. 2000 A, max. 1000 V
Dimensions: 483 x 260 x 520 (W x H x D mm)

pe4203-W, max. 20 kW, max. 1000 A, max. 1000 V
Dimensions: 483 x 130 x 520 (W x H x D mm)

Regulation error < 1%

Ripple < 1% (related to rated DC value)

Efficiency typical 94 % (AFE technology)

Digital regulation

Constant current or voltage regulation

Permanently short-circuit and open-circuit proof

Optionally available: POWER STATION pe5910-AFE

Sinusoidal current consumption from the AC supply network, that means same phase relation of current and voltage

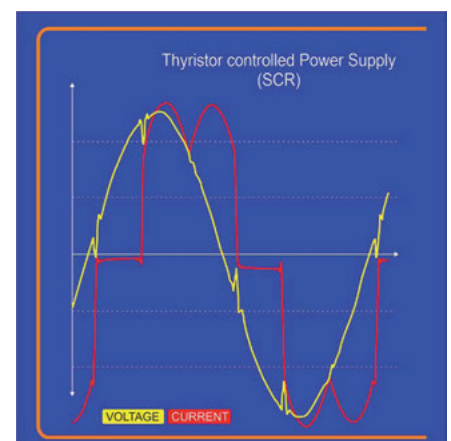
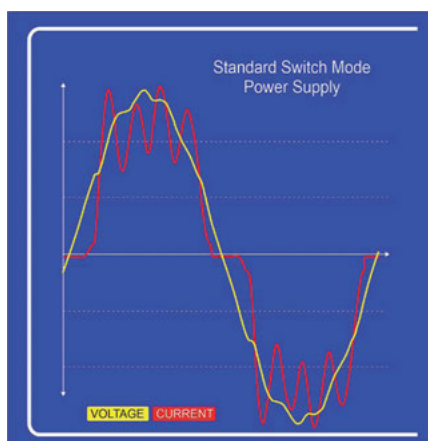
Increased efficiency

Power factor up to 1.00

Reduced phase current

Significant reduction of harmonic oscillations: THDI < 3 %

No active mains filter or compensation systems for AFE rectifier operation required



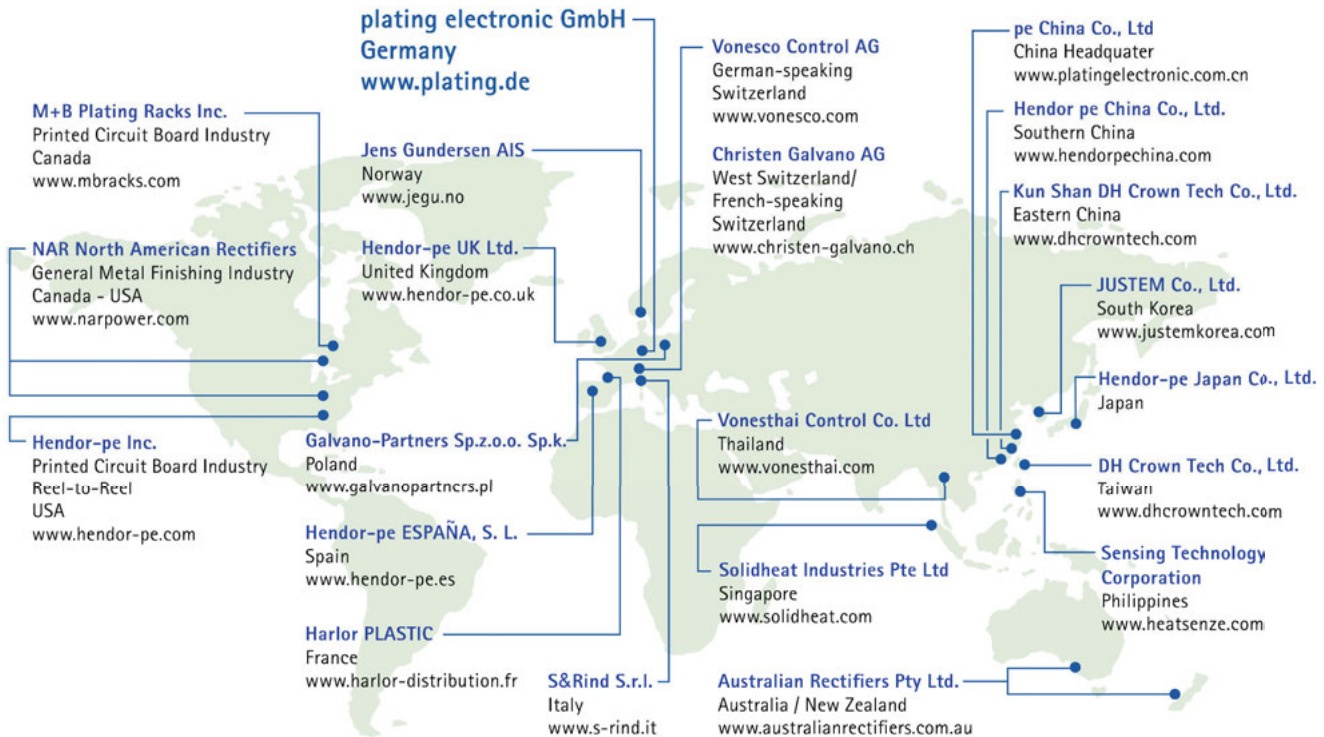
Rectifier with integrated AFE technology reduce harmonic oscillations: THDI < 3 %.
Pictures: typical curve progression (depending on mains network)

Electroplating and PULSE-REVERSE Power Supplies

plating electronic – Your specialist for Power Supplies and Control Units for anodizing and aluminium colouring processes

Since 1986 plating electronic has been one of the leading developers and manufacturers of compact and highly specialised DC and Pulse power supplies. Our power supplies and control systems, which are exactly tailored to the specific application profiles, are in use worldwide. Global service and on-site customer support are provided by our international subsidiaries and partners.

As a medium-sized enterprise, our focus is on the fast realisation of projects and maximum customer satisfaction. Whether compact standard unit in bench-top design, plug-in, as cabinet units or specially planned solutions for a specific customer need – every power supply is suitable for the highest day-to-day requirements and continues, of course, to be **MADE IN GERMANY**.



For detailed information about our partners please visit: www.plating.de

*You are interested in our range of Plating Rectifiers/DC Power Supplies, Pulse-Reverse Power Supplies or High-Current Power Supplies?
Please contact us for detailed brochures about our manufacturing programme or visit: www.plating.de.*

North American Rectifiers

519.352.9789 | NARpower.com | info@NARpower.com



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