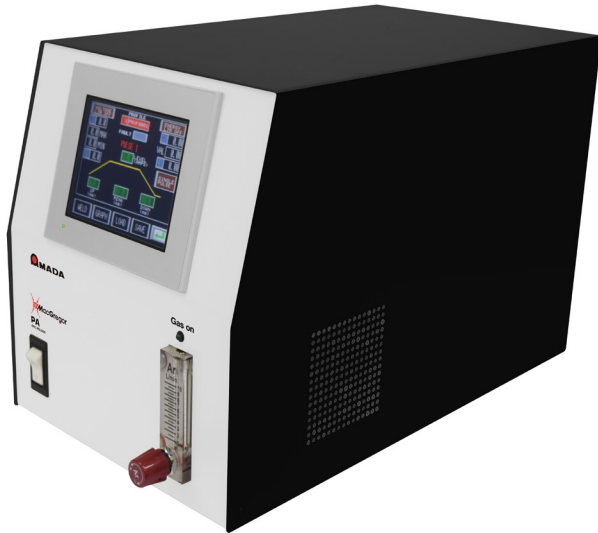


# PAXxP

## Programmable Pulsed Arc Power Supplies



The PAXxP range of programmable pulsed arc power supplies are linear DC precision arc-welding units extensively used in contactless, high speed solder free coil and wire termination industries. Available for single output laboratory use or multi output high speed automation applications alike, these units employ state of the art closed loop electronic arc control circuitry to deliver output accuracies and repeatability better than 1% with currents up to 200 amps.

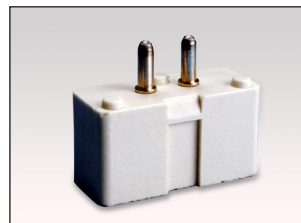
Welding currents and profiles are fully programmable with real time graphical oscilloscope feedback that provides process monitoring and quality assurance Pass/Fail criteria as standard.

### KEY FEATURES

All PAXxP series products feature:

- Colour Touch Screen with graphical weld tracing
- Constant Current Arc control to within 1% accuracy
- Single or Double Pulse outputs
- Simple to use, intuitive touch key menu.
- Compact, high performance and low cost
- Single phase 115VAC or 230VAC operation (PA-20P, PA-40P, PA-60P)
- The 100 Amp unit is three phase 380 / 460VAC (PA-100P, PA-200P)
- One, two or four output variants with 20 to 200 amp outputs + options for gas control

### TYPICAL APPLICATIONS



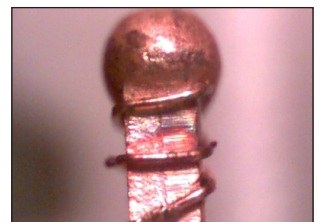
*Connector pin termination*



*Micro wire pin connections*



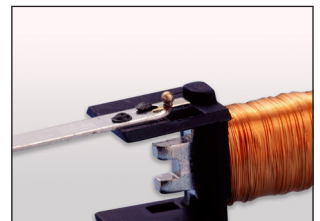
*Micro wire pin termination*



*TIG ball & wire combination*



*Wire to component pin*



*Zero contact coil termination*

## PAXXP PRODUCT FEATURES

- Intuitive Colour Touch Screen
- Isolated RS232 port for PC or PLC programming
- Isolated I/O port (37 way D type) Including trigger faults Automation Interface
- One, Two and Four output options for automatic multiple welding
- I/O, Configuration and Calibration screens
- 99 memory locations for either single or double pulse weld profiles
- Weld Voltage high and low limit checking
- Weld Energy high and low limit checking
- Built in weld counter
- Single or Double pulse option
- Graph of Voltage for last weld
- Graph of energy trend against time
- Fully programmable, Upslope, peak and downslope
- Output ripple less than 1%
- Output current accuracy within 1%

## PRODUCT FEATURE SET

The PAXXP range are available as single, double or four output units.

Single output variants are commonly supplied for laboratory use or single torch volume manufacture in 20, 40, 60, 100 or 200 Amp output configuration. These units also provide options for programmable gas shield control.

Multi-output variants are commonly used in multi weld high speed automation applications such as multiple coil terminations and lamp manufacture. These variants provide an offline single profile setup mode along with a multiple output run mode screen, showing up to four concurrent outputs.

SWM Smart Weld Monitors deliver highly cost effective real time quality control measures and facilities to mature production line equipment. Touch panel PC setup and monitoring provides intuitive multi channel process window capture and checking together with built in SPC and trend analysis features.



Programming screens provide 99 stored profiles, each graphically programmable via the colour touch screen.



Energy trend plots indicate process performance and electrode life over time



Automation interfacing is simplified with an intuitive programmable timing interface.



A graphical input/output monitor provides simple setup vof diagnosis of automation connections.

## PROGRAMMABLE PULSED ARC - APPLICATIONS

Pulsed arc welding is commonly used for zero contact, high speed solder free coil and wire termination applications. It may also be used in common wire joining applications such as thermocouple wire joining or where there is a requirement to consolidate component leads or stranded wire through melting. The entire process is electronically controlled and as such, provides a very high speed method of melting and joining wires and wire leads and therefore is well suited to high speed mass manufacturing processes.

Typically process times are less than 100ms and require no flux or pre-treatment. The process is initiated with a high voltage arc setup up between the welding torch and the component. This ionises the gap between the two allowing current to pass.

The instant current begins flowing, voltage is reduced and current flow becomes servo controlled in accordance with a programmable weld profile. The weld profile provides ramp up, peak and ramp down functions which provide control over the heating effect during welding.

## WIRE TO PIN TERMINATIONS

Insulated wire is wrapped around a terminal pin. As welding begins, the pin heats and begins to burn back, forming a ball which melts, joins and encapsulates the wire against the pin. The process is effective to rated insulation.



*Insulated wire wrapped around a terminal pin*

## STRANDED WIRE CONSOLIDATION

In some applications it is useful to consolidate wire strands in order to form a solid mass. Typically additional processes such as DC resistance welding are then used to weld the consolidated material to other materials or components forming highly reliable solder free joints.

Wire balling techniques such as this maybe used for ultra small micro joints with wire sizes down to 30µm.



*Stranded wire consolidation*

## OTHER APPLICATIONS

Other pulsed micro arc welding applications include wire to wire and wire to component joining. Typical examples include thermocouple wire to wire joining and lamp manufacture, joining wires and contact areas.

Pulsed micro arc welding finds application in many diverse industries. With solder free legislation in place, manufacturers are commonly turning to welding techniques to solve their joining problems, often discovering additional benefits through reduced pre and post processing, higher integrity joints and faster process times.

MacGregor Welding Systems have been designing and supplying micro arc products for over 40 years and are always pleased to discuss potential applications.

## TECHNICAL SPECIFICATIONS

Model	PA-20P	PA-40P	PA-60P	PA-100P	PA-200P
Maximum Output Current	20 Amps DC	40 Amps DC	60 Amps DC	100 Amps DC	200 Amps DC
Duty Cycle	5% @ 20A	5% @ 40A	5% @ 60A	5% @ 100A	5% @ 100A
Open circuit voltage	80VDC	60VDC	60VDC	45VDC	45VDC
Options	1,2 or 4 outputs	1 or 2 outputs	1 output Multi output on request	1 output Multi output on request	1 output
Mains Supply 50/60Hz	110V/230VAC +/-15%	110V/230VAC +/-15%	110V/230VAC +/-15%	380 / 415 / 460VAC 3 phase	380 / 415 / 460VAC 3 phase
Up Slope Time (0.1 ms steps)	0.1 - 99.9 ms	0.1 - 99.9 ms	0.1 - 99.9 ms	0.1 - 99.9 ms	0.1 - 99.9 ms
Peak Weld Time (0.1ms steps)	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms
Down Slope Time (0.1ms steps)	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms	0.1 - 999.9 ms
2nd Pulse Weld Delay Time	1 - 999 ms	1 - 999 ms	1 - 999 ms	1 - 999 ms	1 - 999 ms
Cooling (overheat protected)	Fan	Fan	Fan	Fan	Fan
Max Gas Pressure	1 Bar - Single Output	1 Bar - Single Output	1 Bar - Single Output	1 Bar - Single Output	1 Bar - Single Output
Gas pre/purge timing	Programmable	Programmable	Programmable	Programmable	Programmable

## WEIGHT & DIMENSIONS

Model	PA-20P	PA-40P	PA-60P	PA-100P	PA-200P
Dimensions (D x W x H)	490 x 270 x 300mm	490 x 270 x 300mm	490 x 270 x 300mm	445 x 560 x 220mm	445 x 560 x 220mm



Model PA-100P & PA-200P



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