



www.bfentron.co.uk

typical applications

aircraft component welding



machine interface

touch-screen PC with WS98 programming and monitoring software



WS4000A welding control

data sheet



Specialised welding for aircraft components

The WS4000A is intended for aircraft-standard applications requiring quality welding and monitoring. This timer has a flexible sequence specifically for welding aircraft alloys with up to 16 spots per program. Sophisticated pressure control is provided using both analog and digital circuits. Programming is via a PC or the built-in LCD and keypad can be used. The timer can be supplied in a combination cabinet with circuit breaker and SCR to suit all machine kVA sizes.

features	benefits
flexible and versatile weld sequence	suitable for most aluminium and titanium alloys
phase angle or constant current control	quality welds
analog and digital pressure control	fast and accurate
multi-language display	international
128 user-defined programs 3-phase dc or MF operation	store settings for different components can be used with inverters
weld current/pressure monitoring	quality control
cycle log	records current and force for every cycle of every weld
extensive diagnostic capabilities	pinpoint most welding problems

options

WS98-4000A PC software for programming and monitoring

configurations

WS4000A cabinets are shown in document 91-10-00-00-16

WS4000A welding control

data sheet

program parameters x 128

type	single/repeat/seam/roll-spot
presqueeze	0..999 cycles
squeeze	1..999 cycles
upslope	0..999 cycles
upheat	0..99.9%
welds	1..16
for each weld	
weld	0..999 cycles
cool	0..999 cycles
pulses	1..99
mode	PHA/CCR
heat	0..99.9%
current	0..99.9 kA
low limit	0..99.9 kA
high limit	0..99.9 kA
hold	0..999 cycles
off	0..999 cycles
force limit	0..99%
output events	8
for each event	
interval	idle..off
delay	0..999 cycles
channel	digital/analog
output	on/off/0..100%

configuration

mode	3-phase dc/MF dc
frequency	50/60 Hz
language	english/german
default program	0..128/external select
mains voltage	200..500V
mains tolerance	0..25%
toroid sensitivity	100.250 mV/kA
symmetry	-5..+5%
2 nd stage	on/off
hi-lift	on/off
events	on/off

cycle log

current/force	6000 ½ cycles per sequence
---------------	----------------------------

weld log

average current/force for each weld in the sequence

environmental

temperature	
- operating	0° to +60°C
- storage	-25° to +70°C
humidity	
- operating	20% to 80% (relative)
- storage	10% to 90%

dimensions

height	330 mm
width	250 mm
depth	56 mm

mounting

aperture and fixing centres

power/synchronisation requirements

maximum input current	1A @ 24 V dc ±20%
line frequency	50/60 Hz ±1Hz

I/o ratings

2 outputs	500 mA @ 24 V dc each
6 outputs	100 mA @ 24 V dc each
12 inputs	10 mA @ 24 V dc each (max)

Information in the document is subject to change without notice.

91-10-00-00-10 rev. 2 © 2003 BF ENTRON Ltd.