WS40xx series welding controls

data sheet

typical systems

WS4000 combination

WS4010 combination

WS4002 cabinet on stand

Evolution from automation

The demanding environment of the automotive industry has brought about a wide range of innovations in resistance welding control. Many of the features found in the WS4Oxx series have evolved from high-level automation installations, and this has produced a control system which is flexible and versatile, lending itself to most resistance welding applications. The WS4Oxx series has an extensive range of welding features and a number of communication networks can be supported through options and accessory adapters. Programming is via a network system, pendant programmer or notebook computer, and flash memory technology allows easy firmware upgrades.

features	benefits
independent control of one or two welding guns	flexible
welding programs can be arranged as 1x192 or 2x64	versatile
three-interval welding sequence	suitable for coated materials
constant current or phase angle control modes	quality welding
compatible with BF ENTRON medium frequency inverter	reduced weld times, smaller transformers
24 electrode programs with stepping and counting + 8 tip dress programs	quality welding
network or local programming	for large or small installations
proportional valve control	can be calibrated in kN or lbf
hardwired/fieldbus I/O	compatible with your plant standard
extensive monitoring and diagnostics	pinpoint most welding problems

options

WS98-4000 PC software for programming and monitoring

Profibus FMS/DP, ControlNet, Ethernet, DeviceNet, Interbus network adapters

configurations

WS40xx, cabinet and SCR combinations are shown in document 91-10-00-00-16

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WS40xx series

All WS40xx controls have an RS232 communications port and hardwired inputs and outputs. WS401x controls do not have a built-in programming pendant.

the following features are plug-in upgrades unless stated otherwise

feature	WS40x0	WS40x2	WS40x4
proportional valve i/o	✓[2]	✓[2]	✓[1]
Profibus FMS adapter	✓		
Interbus S adapter	✓	✓[1]	
Profibus DP adapter	✓[2]	✓	✓
DeviceNet adapter	✓	✓	✓[1]
ControlNet adapter	✓	✓	✓
Ethernet adapter	✓	✓	✓[1]
Interbus PCP	✓	✓	✓

[1] standard

[2] build option

welding programs 1 x 192 (single gun) or 2 x 64 (dual gun)

3-interval weld sequence with phase angle/constant current control

spot/repeat and standard/extended weld sequences

enhanced gun/retract timing

slope control

inhibit function

load balancing

proportional valve control

current/force offsets

monitoring programs 1 x 192 (single gun) or 2 x 64 (dual gun)

low/pre/high limits for each weld interval

heat/force limit

fail counter

electrode programs 1 x 24 (single gun) or 2 x 8 (dual gun)

phase angle/constant current curves for each interval + force

secondary/primary feedback

SCR allocation

stepping, dressing and counting

proportional valve/toroid calibration

tip dressing programs 8

electrode/duration/force

status

40-program datalog, electrode status, body cycle log, i/o status

configuration program

hardwired/bus inputs and outputs

standard/medium frequency/multiweld operation

retract mode/gun control

end-of-sequence and contactor timing

network addressing

gun options

sequence blocking

environmental

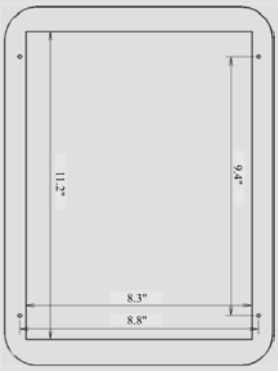
temperature	
- operating	32° to +140°F
- storage	-13° to +158°F
humidity	
- operating	up to 80% (relative)
- storage	10% to 90%

dimensions WS400x/WS401x

height	13”/12.5”
width	10”/8”
depth	1.5” or 2” expanded

mounting WS400x

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.

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