

If there was a low-cost resistance welding control that:

- ✓ stored up to 75 schedules,
- ✓ had every RWMA function as a standard feature,
- ✓ had an easy to use keypad with a full display...

...would you buy it? You bet you would!

# The UNITROL SOLUTION<sup>®</sup> Welding Control

helps you solve *all* of your welding problems

- 1Ø • 3Ø Frequency Converters • 3Ø DC
- Temperature Feedback Resistance Brazing



Available with remote console or built in cabinet. See back page for options.

An affordable, full-featured resistance welding control that will take you virtually anywhere you want to go...

*Comes with everything you need already built-in.*

Automatic Voltage Compensation

75 Schedule Memory

Electronic Weld or Parts Counter

Dual Schedule

Keyboard Keylock

Heat Stepper

Tip Force Calculator

Water Saver

Pulsation

Repeat Mode

Retract

Squeeze

Weld

Hold

Preheat

Delay After Preheat

Upslope

Downslope

Postheat

Quench and Temper

# UNITROL

RWMA<sup>®</sup>

# The UNITROL SOLUTION<sup>®</sup>

helps solve 4 big welding problems:

## 1 REPEATABILITY

The **UNITROL SOLUTION<sup>®</sup>** uses advanced digital electronics – your guarantee of absolute timing accuracy and consistent heat control. It lets you set your machine and be confident of an accurate weld without the worry of constant adjusting, tweaking and fiddling associated with older type controls. Uniform, predictable, consistent welds repeated over and over again – that's what the **UNITROL SOLUTION<sup>®</sup>** is all about.

## 2 FLEXIBILITY

The **UNITROL SOLUTION<sup>®</sup>** lets you say goodbye to inaccurate hard-to-understand, out-dated controls that put limitations on your existing equipment. It's accurate, simple, and gives you the ability to do more with your equipment than any other control in the market! It also includes all RWMA functions in each individual program (slope, pulsation, forge delay, etc.) – at no extra charge.

## 3 RELIABILITY

The **UNITROL SOLUTION<sup>®</sup>** is designed and built for continuous trouble-free production. Every unit is tested on a production welder before shipment to guarantee effectiveness of the high quality components utilized in each control. All functions have built-in trouble shooting indicators that save you valuable time and hours of guesswork.

## 4 SERVICEABILITY

Other controls, old and new, are made with far too many components which increase the likelihood of breakdown. The **UNITROL SOLUTION<sup>®</sup>**'s concise and uncomplicated design assures continuous production from your welder. Should a problem ever occur, the **SOLUTION<sup>®</sup>**'s self-diagnosing feature, together with only two circuit boards, lets your plant personnel bring the welder back on line in minutes. No wiring to deal with – just plug in and start welding.

# The UNITROL SOLUTION<sup>®</sup>

offers unique options:

## SOFT TOUCH SAFETY SYSTEM

Protects welder operators from electrode pinch-point injury. Cannot be defeated or bypassed.

## TIP FORCE MONITORING

Welding force is monitored using a solid state differential pressure transducer or load cell. Every weld automatically starts at the same precise point to eliminate the need for SQUEEZE TIME. This option also checks the TIP FORCE at the end of each weld to be sure it has remained within the customer set window.

## CONSTANT WELD CURRENT

Totally closed loop feedback system maintains welding current. This option allows setting of weld programs in actual AMPS to eliminate trial-and-error setups. Also includes a current monitor function to reject out of range welds.

## ELECTRONIC PRESSURE REGULATOR

Automatically sets air pressure to match required electrode force. Eliminates manual settings and adjustments.

## PRINTER/COMMUNICATION PORT

RS-232 or RS-485 serial port to capture weld current, electrode force, line voltage, and fault indicators. Can be supplied for connection to an outside printer or PC.

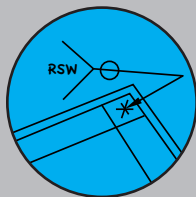
# The UNITROL SOLUTION<sup>®</sup>

has something for everyone

## Welding Engineer

The sky's the limit. The **UNITROL SOLUTION<sup>®</sup>** lifts all restrictions. Now you can easily weld difficult jobs you previously stayed away from – galvanized, projections, aluminum, coated, stainless, cross wire, HSLA, exotics – as well as common metals with complete reliability.

Every **UNITROL SOLUTION<sup>®</sup>** welding control is shipped with all the welding functions you'll ever need. Functions you'd pay extra for on other controls are included in the **UNITROL SOLUTION<sup>®</sup>** at no extra cost.



## Setup Operator

Now you can have what you've been long waiting for. An easy to use weld control that drastically reduces setup time, calculates required pressure regulator setting and electronically counts welds or completed parts for consistent quality. Keeps up to 75 complete instantly available welding schedules for easy job changes.



## Plant Management

At last, a welding control that will expedite parts more smoothly through your welding department enabling other departments to coordinate more efficiently. No more being held up by lack of welded components or re-weld problems.

The **UNITROL SOLUTION<sup>®</sup>** helps your plant's welding department flow more smoothly, supports JIT (just in time) programs, gives you more usable parts per shift, and helps increase your operating profit.



# The UNITROL SOLUTION<sup>®</sup> comes with everything you need

# The UNITROL SOLUTION<sup>®</sup> is equipped with **SOFT TOUCH** Pinch Point Safety Function\*



**16 or 32 Digit Alpha-Numeric Read-Out**  
Shows instructions in simple full word form. Just answer questions displayed. No special codes or sequences to learn.

**Keylock Switch**  
Restricts access to programs so no unauthorized changes can be made.

**Hinged Polycarbonate Cover**  
Keeps dirt and sparks away from keypad. (on controls with remote consoles)



**LED Indicators**  
Keeps operator aware of mode selected, single, no-weld, or repeat, and indicates solenoid operation.

**Tactile Keypad**  
Familiar telephone style layout provides fast and uncomplicated setup.

**Cast Steel Console Case**  
Provides the durability needed for shop floor environment. Can be easily mounted anywhere on your welder.

**Other Cabinet Styles**  
Various one piece control cabinet styles are available. See back cover for descriptions.

\* Requires purchase of Soft Touch hardware

## OPERATING FEATURES

**Soft Touch Safety System** protects operators against pinch point injuries.\*

**Microcomputer Control System** offers ultimate flexibility with minimum components.

**Factory Programmed Software** to handle all welding functions – now and in the future.

**75 Weld Schedule Memory** with all RWMA complete functions in each program.

**Consistent Welder Output** is assured with the Automatic Voltage Compensation (AVC). This maintains welder output at  $\pm 1\%$  with an input line voltage variation of  $\pm 10\%$ .

**Electronic Counter** automatically displays welds made or completed parts welded.

**Water Saver Circuit** to drive 115 volt solenoid valve, conserve water and protect operator during tip replacement.

**Tip Pressure Calculation** automatically calculates required pressure regulator setting for desired tip force.

**Dual Level Initiation:** Level A closes tips, Level B starts weld.

**Anti-Tie Down** for double hand button use. Automatic detection for foot or hand switch operation.

**Dual Schedule:** Assign any two of the 75 welding programs to two different initiation inputs.

**Positive or Negative First Half Cycle Firing,** keypad selectable.

**Half or Full Cycle Count,** keypad selectable.

**Electronic Memory,** no battery required. Retains all data for an unlimited time. Returns to last used program after power is turned on.

**Intensifier Valve Control** for air-over-oil or intensifier cylinders.

## STANDARD HARDWARE FEATURES

**NEMA Output Safety Relays** provide double operator protection.

**Automatic Power Factor** requires no field calibration.

**Six Foot Interconnect Cable:** remote console models can be mounted in any convenient location (other cable lengths available).

**Power Supply Cabinet** NEMA 1 for series M, NEMA 4 for remote console series, series L, series D.

**Universal Mounting Bracket System** supplied for easy mounting.

**Voltage Selectable:** remote console series = 208 through 600 volts. Series M/L/D = 115 through 600 volts. 60 Hz or 50 Hz.

**Solenoid Driver** 115 VAC, 1 amp. continuous, fuse protected, photo-optically isolated. 24VDC available.

**PLC compatible.**

**Utility Supply** 115 VAC 0.5 amp., fuse protected.

**Photo-Optically Isolated Inputs:** Initiation A (two stage) Initiation B (two stage), External no weld, Transformer overtemperature N.O. or N.C., Limit Switch/Retract N.O., Pressure Switch N.O., Emergency Stop N.O.

## AVAILABLE OPTIONS

• Soft Touch Hardware Kit • Seam Weld/Roll Spot • Constant Current • Solid State Pressure Transducer • Temperature Feedback Resistance Brazing • Printer/Communication Port • Electronic Pressure Regulator

## SERVICE FEATURES

**Complete Diagnostic Test** during each start-up.

**Fault Displays and Disabler:** SCR overtemperature, transformer overtemperature, emergency stop, limit switch or pressure switch open, current error, electrode force error.

**Troubleshooting Diagnostic LED Indicators** for all input and output functions, as well and all voltage supply levels.

**Troubleshooting Test Points** for all voltages and output functions.

**Circuit Boards** utilize heavy duty quick disconnects for easy field replacement – no hard wiring of any kind required.

**Console and Power Supply** utilize a total of only two plug-in printed circuit boards. No separate terminal strips or remotely mounted components.

**Simple Design** utilizes only 2 circuit boards.

**Terminal Plugs** for all external wiring allows quick service replacement without tedious wire removal.

# Specifying and ordering the **UNITROL SOLUTION®** Welding Control is as easy as using it.

Just follow these easy steps to select a **SOLUTION®** that matches your welder:

1. Find the **primary voltage** of your welder in the **red** area of the chart below.
2. Move **downward** from this **primary voltage** to the **blue** box that includes the KVA as shown on the nameplate of your welder.
3. From this point, move to the **right** for the **SOLUTION®** Model Number in the column that lists the desired **circuit protection** and **cabinet style** (see photos at right). Note that circuit breakers are recommended for most production welding systems.  
**EXAMPLE:** The correct **single phase SOLUTION®** controls with **circuit breaker** protection for a **50 KVA** spot welder working at **460 volts** are: **#9180-810, 9180L-810, or 9180D-810** (depending on desired cabinet style).
4. Order this model number from your authorized **UNITROL** representative or distributor who will recommend control options.

## SINGLE PHASE CONTROL SIZING CHART

WELDER PRIMARY VOLTAGE					MODEL NUMBERS		CABINET SIZE		
208 Volts	230 Volts	380 Volts	460 Volts	575 Volts	With Circuit Breaker	Without Protection	A	B	C
1-15 KVA	1-15 KVA	1-25 KVA	1-30 KVA	1-40 KVA	9180-990 — 9180L-990 9180D-990	9180-900 9180M-900 9180L-900 9180D-900	20 — 20 20	20 — 20 20	9 8 9 9
16-30 KVA	16-35 KVA	26-50 KVA	31-65 KVA	41-80 KVA	9180-810 — 9180L-810 9180D-810	9180-800 9180M-800 9180L-800 9180D-800	20 — 20 20	20 — 20 20	9 8 9 9
31-75 KVA	36-80 KVA	51-130 KVA	66-170 KVA	81-200 KVA	9180-620 — 9180L-620 9180D-620	9180-600 9180M-600 9180L-600 9180D-600	20 — 20 20	20 — 20 20	9 14 9 9
76-120 KVA	81-130 KVA	131-200 KVA	171-250 KVA	201-325 KVA	9180-630 9180L-630 9180D-630	↑ same as above ↑	24 24 24	24 24 24	9 9 9
121-200 KVA	131-250 KVA	201-450 KVA	251-500 KVA	326-600 KVA	9180-440 9180L-440 9180D-440 — — —	— — — 9180-400 9180L-400 9180D-400	30 30 30 20 20 20	30 30 30 20 20 20	13 13 13 9 9 9

## COMPLETE 1Ø RETROFIT SYSTEMS WITHOUT POWER CABINETS

For use with existing SCR Contactors..... 9180-SCO, 9180M-S00, 9180-S00

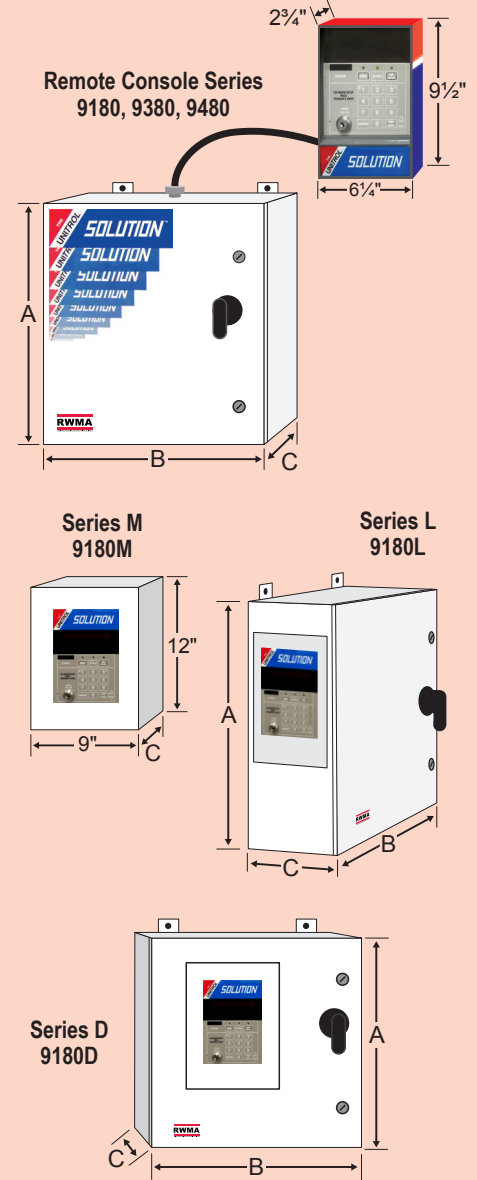
## THREE PHASE CONTROL SIZING CHART

WELDER PRIMARY VOLTAGE				MODEL NUMBERS				CABINET SIZE		
208 & 230 Volts	380 Volts	460 Volts	575 Volts	FREQUENCY CONVERTER		D.C. SECONDARY		A	B	C
				With Circuit Breaker	Without Protection	With Circuit Breaker	Without Protection			
—	to 50 KVA	to 65 KVA	to 80 KVA	9380-610 —	— 9380-600	9480-610 —	— 9480-600	30 24	30 24	13 13
to 75 KVA	51-130 KVA	66-170 KVA	81-200 KVA	9380-620 —	— 9380-600	9480-620 —	— 9480-600	30 24	30 24	13 13
76-150 KVA	131-200 KVA	171-250 KVA	201-325 KVA	9380-430 —	— 9380-400	9480-430 —	— 9480-400	36 30	30 30	13 13
151-200 KVA	201-450 KVA	251-500 KVA	326-600 KVA	9380-440 —	— 9380-400	9480-440 —	— 9480-400	36 30	36 30	13 13

## COMPLETE 3Ø RETROFIT SYSTEMS WITHOUT POWER CABINETS

Frequency Converter Control for use with existing SCR Contactors.....9380-S00  
 3Ø D.C. Secondary Control for use with existing SCR Contactors .....9480-S00

## CABINET STYLES



## 5 Year Warranty

Your investment is protected by the exclusive **UNITROL 5 Year Limited Warranty**. Factory labor and parts (excluding fuses) are fully covered for the first year. This warranty is extended for an additional 4 years on a Pro Rata basis (exclusive of fuses, SCR, circuit breaker and transducers).

Parts and labor are FOB our factory. Warranty included with each system gives full details of this limited warranty along with all other conditions of coverage.

Distributed By:

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