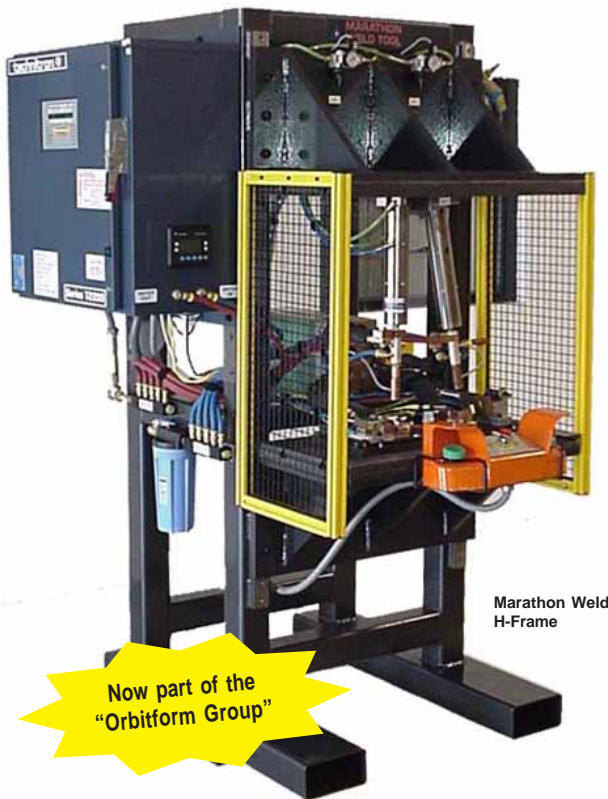




Welding Automation Integration Specialists

We're with you for the long run!



Marathon Weld H-Frame

Now part of the "Orbitform Group"

www.marathonweld.com

Marathon Weld designs and builds automated welding systems. We are experienced in flexible and dedicated welding - and to meet your needs have skilled mechanical/electrical/welding engineers and machine builders.

Custom Systems Integration

Vertical and horizontal lathe welders, twin tables and fixed table cells are just a few of the options available. Production cells range from single torch arc to fully automated multi-robot systems with positioners and custom designed tooling. Resistance spot welding cells range from single point to multi-gun to transguns mounted on six axis robots.

We can provide your company with:

- ▲ Plant Production Evaluation
- ▲ Robotic Cells / Fixed Automation
- ▲ Samples and Short-Run Production Welding
- ▲ Plant Management / Data Acquisition Software
- ▲ SolidWorks Tooling Design and Build
- ▲ Support, Service and Training.



Marathon Weld Robotic Cell



Our engineering team can evaluate your needs to develop the most efficient tooling and welding system for you. By looking at the overall process (welding volume, annual production, etc.), a unique system concept is generated and a cost-effective quotation provided.

Complete source for robotic integration, dedicated welding cells and custom designed tooling.

MARATHON WELD

Arc Process Analysis System (APAS)

APAS is a real-time production management tool. The host machine houses signal processing to measure and transmit arc current/voltage, gas flow rate, wire feed speed and motor load current to the server via ethernet.

Each APAS unit is capable of collecting and transmitting data from two arc welding systems and possesses basic arc monitoring features.

The server stores all the welding data and can produce user specified web pages based on request. A standard web browser can view the plant welding operations from two main pages:



Operational

For overall plant welding operation status and individual cell operation status including:

- ▶ Last weld arc current
- ▶ Last weld wire speed
- ▶ Total welds
- ▶ Total gas used
- ▶ Last weld arc voltage
- ▶ Last weld gas flow
- ▶ Total wire used
- ▶ Weld schedule/process information

Analysis

For historical data from each cell based on desired time frame including:

- ▶ Number of welds
- ▶ Total down time
- ▶ Total gas used
- ▶ Total arc-on time
- ▶ Total wire used

Comparison between cells including

- ▶ Arc on time
- ▶ Down time
- ▶ Wire use
- ▶ Gas use



ARC CURRENT SENSOR
0-500 AMPS
Non-contact hall effect transducer used to measure arc current and arc-on time.



WIRE FEED SENSOR
10-1000 IPM
Uses an optical encoder to accurately measure wire feed speed and wire usage.



GAS FLOW SENSOR
5-100 SCFH
Provides precise, accurate mass flow measurement and gas usage.

The APAS control center is a proprietary software utility used to configure the APAS system. Configuration includes database management, server configuration and APAS hardware setup.

The configuration utility provides error logging capabilities to aid in server troubleshooting. This utility can be installed on the APAS server or a remote computer with ethernet connection.



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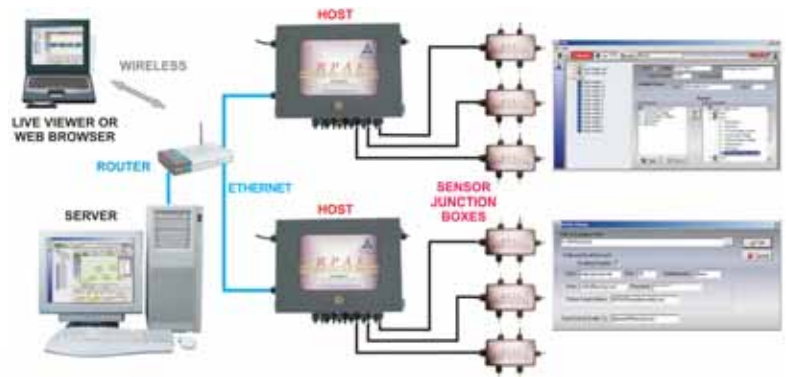
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MARATHON WELD

Resistance Process Analysis System (RPAS)

RPAS is an ethernet-based data acquisition system created specifically for resistance welding applications. This a quality control and diagnostic tool which is installed onto your existing production equipment. Each time a weld is produced data is presented in graphical format (data can be viewed also), summarized and stored for trending graphs.



Features include:

- ▶ Process monitoring
- ▶ Faults and alerts
- ▶ Low-cost networked solution
- ▶ Independent from weld controllers
- ▶ Exchanges data with MS Office apps
- ▶ Data acquisition
- ▶ Process optimization
- ▶ Web-accessible
- ▶ History of parameters and faults
- ▶ Graphical representation of last weld produced, trending and alarm points
- ▶ Event logging
- ▶ Process diagnostics
- ▶ PLC interface
- ▶ Data independent from weld controller

Sensors measure:

- ▶ Secondary current
- ▶ Primary current
- ▶ Secondary voltage
- ▶ Primary voltage
- ▶ Distance traveled
- ▶ Force
- ▶ Process water temperature
- ▶ Air pressure
- ▶ Hydraulic pressure

** Most any 0-10vdc sensor with high sampling rate may be used with RPAS.*

Static and dynamic windows are used to create faults and alarms. Static windows are fixed (user-defined) limits for upper and lower threshold values for faults. Dynamic windows are tighter windows that vary with trending (based on average of preset # of welds +/- user defined percentage), which allows for process variation but is an alarm for process stability. All alarms and faults are stored and also emailed to a specific person or group. Each cell may have its own list of recipients.

RPAS can be connect to most any analog sensor with 0-10vdc or 4-20mA proportional signal. This may be connected to color sensors, linear transducers, ultrasonic proximity, laser displacement, pressure transducers, temperature sensors, or a variety of sensors available on the market. Any type of sensor may be associated with a UNIT or multiple UNITS. A UNIT is any "singular-instantaneous event," which may be a single gun or series of guns which are all triggered simultaneously.

Up to five sensors may be connected to each junction box. Up to 12 junction boxes may be connected to each HOST for a total of 60 sensors per host. Any sensor from any location may be configured to any user-defined UNIT in the server.



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