# EN1001 Series Controls

Constant Current/Multiple Sequence Controls

Date: April 2014 Supercedes: November 2012

## *SPECIFICATIONS*

### Constant Current Operation

Primary or Secondary Sensing with 2 Sensors available: Primary Coil or Secondary Coil
Secondary Coil Calibrated for full range of operations from 2kA to 100kA requires no setup or learning
Control achieves Compensation on Second weld cycle
Compensation algorithms permit 1% accuracy
Current readings available at end of weld; Percent phase shift reading available by the push of a button
Intelligent error reporting associates weight of error versus weld time when using Hi/Lo windows
Primary or Secondary Sensors permit users a choice for simple and accurate constant current operation
Control is programmable in Percent Phase shift or kAmps
Current Monitoring only mode, can monitor 1/2 cycle welds

**Absolute Count:** Push Button Data Entry with Display

| | |
|---|---|
| Squeeze Count: | 0 to 99 cycles, 50/60 Hz |
| Squeeze: Pressure/Force | 00 to 99psi/0000 to 9999 Lbs. |
| Trigger value | 00 to 99psi/0000 to 9999 Lbs. |
| Weld Count/Heat Count: | 0 to 99 cycles, 50/60 Hz |
| 5 Steppers each with 10 steps counting up to 9999 welds. | |
| Cool Count: | 0 to 99 cycles, 50/60 Hz |
| Hold Count: | 0 to 99 cycles, 50/60 Hz |
| Off Count: | 0 to 99 cycles, 50/60 Hz |
| Weld Impulse Counter: | 1 to 99 cycles, 50/60 Hz |
| Slope Control/Up and Down Slope: | 0 to 99 cycles, 50/60 Hz |

**Current Programmability** in KiloAmps/Percent up to 99.99kA/99% in 0.01kA/1% current steps.

### Standard RWMA/NEMA Programmable Functions

Up Slope and Down Slope
Quench and Temper
Pulsation Sequence
Multi-Schedule Select
Seam Weld (Continuous and Intermittent)
Retraction
Stepper
Forge Delay
Pre-Heat/Post Heat
End of sequence
Air over oil

### 5 Cycle Modes

| | |
|---|---|
| Non-Repeat: | Single Schedule upon initiation |
| Repeat: | Single Schedule repeated with pilot circuit held closed |
| Successive: | Upon each initiation, unique successive schedules are automatically selected |
| Chained: | Multiple schedules can be linked to operate sequentially upon a single initation |
| Paused Chain: | Valves remain active after HOLD until Re-initiation to next schedule in sequence |


### Additional Features

Error Code/Fault Outputs
87° First Half Cycle Delayed Firing, Anti-Saturation Circuit
Anti Tie Down
Temperature Limit Switch
Dynamic Automatic Power Factor Equalization
Dynamic Automatic Voltage Compensation, ±20% of Nominal Line
Current Offset
Emergency Stop Circuit
Interlocking Pressure Switch Circuit
Single Stage Pilot/2 Stage Pilot Beat/Non-Beat Operation
Operational Lights: Power On
Weld Voltage
Indicator lights for all functions on display panel
Valve Transformer: 150VA 230/460-115V, E, D & T Cabinets; 50VA 230/460-115V, S Cabinets
3 Valve Outputs standard, all controls except 1001B.

### Options:

Valve select 1 of 7
S49, External Binary Schedule Select
IPSC, Integrated Pressure Sense Control
MM2, Memory Module
RS485 with ENLINK or RS232
Water Flow Switch
Shunt Trip Disconnect
Ground Fault Detection

***Exclusive ENTRON two year warranty***

# EN1001 Series Controls

Constant Current/Multiple Sequence Controls

D Cabinet

E Cabinet

S Cabinet

**The EN1001 Series Constant Current Control** is ideal for programming schedules where changing conditions such as line voltage variation, size and shape of the secondary, or the introduction of ferrous material in the secondary are of concern and current compensation is desired.

- CONSTANT CURRENT with a 4 digit display in kAmps
- Store up to 50 UNIQUE SCHEDULES
- Schedules retained in memory with power off
- Three Valve Circuits, standard
- Single contactor Firing Circuit
- External Schedule Select allows remote binary selection of 4 schedules
- Five Programmable Steppers to extend tip life
- Current Offset allows quick manual current adjustments
- Control can be interfaced and intitiated using a PLC (Programmable Logic Controller)
- Meets or exceeds RWMA/NEMA standards
- Secondary coil requires No Setup; Only range selection for constant current
- Primary sensor requires No Transformer Ratios
- Current monitor with Hi/Lo current limit windows

**OPTIONS:**

- RS485 implemented with 2 wire ENBUS using non-proprietary protocol; Controls can be networked through remote terminals (RT4jr.) or use PC compatible ENLINK software to download, store or edit weld control data
- RS232 Single point communications
- IPS, IPC, IPSC, Integrated Pressure Sense, Control or Sense and Control Program 50 Unique Pressures, or Trigger Levels
- MM2, Memory Module provides backup for all data of EN1001 Series Controls
- S49, External Binary Select, allows remote binary selection of any of 50 schedules
- Valve Select 1 of 7
- Shunt Trip Breaker
- Ground Fault Detection

| CABINET STYLE & DIMENSIONS | | | | CONTACTOR STYLE & RATINGS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STYLE | H | W | D | AIR COOLED | WATER COOLED | | | | |
| FP | 279 mm • 11O | 279 mm • 11O | | PLEASE CONTACT FACTORY | | | | | |
| B | 222 mm • 8-3/4O | 222 mm • 8-3/4O | 296 mm • 11-3/4O | 150A | 300A | | | | |
| S | 222 mm • 8-3/4O | 222 mm • 8-3/4O | 419 mm • 16-1/2O | 150A | 300A | 1200A | | | |
| E | 533 mm • 21O | 222 mm • 8-3/4O | 419 mm • 16-1/2O | | 300A | 1200A | 1800A | 2200A | 3200A |
| C | 508 mm • 20O | 406 mm • 16O | 254 mm • 10O | | 300A | 1200A | | | |
| D or T | 610 mm • 24O | 645 mm • 25-3/8O | 254 mm • 10O | | | 1200A | 1800A | 2200A | 3200A |
| L | 914 mm • 36O | 797 mm • 31-3/8O | 254 mm • 10O | | | | | 2200A | 3200A |

All SCR contactors complete with temperature limit switch.

Consult factory for Circuit Breaker pricing. 100, 200 and 400 ampere Circuit Breakers are available in D & T cabinets with right-hand, flange mounted operator installed within the cabinet. Consult factory for availability of 600 and 800 ampere Circuit Breaker.

See COMPREHENSIVE PRICE LIST for a complete list of Options, Circuit Breakers, Accessories and Special Features.

Contact your ENTRON Controls Representative or Your Local Resistance Welding Equipment Source