



# DC1013/613-T

## SMART Series

### Linear 1000 Amp DC Resistance Spot Welding Power Supplies

The DC1013-T and DC613-T are high performance 1000 Amp precision Linear DC spot welding power supplies that combine touch panel integrated database process control and monitoring with a high accuracy, zero ripple linear transistor output stage that delivers ultra fast 10 $\mu$ s dynamic process response rates, with absolute closed loop 1amp incremental accuracy and repeatability.

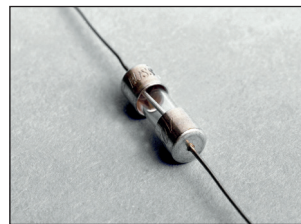
Typically used in aerospace, medical and electronic resistance spot welding assembly applications, these units also incorporate SPC data collection and reporting capability via ethernet.

#### KEY FEATURES

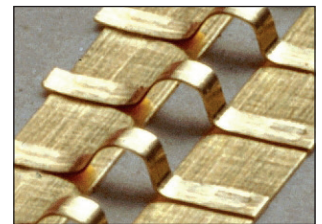
- High speed, ultra low ripple closed loop output control for consistent welding process definition and control.
- Constant Current, Voltage and Power modes with programmable multi-pulse combinations 1 amp steps to 1000A.
- Programmable part & weld checking coupled with optional displacement and force limit checking.
- Three phase 5% duty (DC1013-T) and single phase (DC613-T) operational variants.
- Full TCP/IP Ethernet interfacing to internal and external SPC database systems.
- Associate and view PDF and text format work instructions and process manuals with weld schedules.
- Associate and view JPEG and BMP files with weld schedules for QC and process checking.
- 3 USB ports : USB memory stick transfer, mouse, keyboard, servo head drives, wireless etc.
- SMART weld head force control within weld schedules.
- High speed automation and communication ports with full remote control capability.

2A to	1000A	1A steps	1% accuracy
10mV to	10V	10mV steps	1% accuracy
10W to	4KW	1W steps	1% accuracy

#### TYPICAL APPLICATIONS



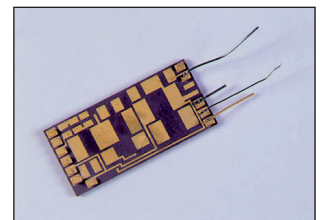
*Butt welding fuses*



*Gold Ribbon bonding*



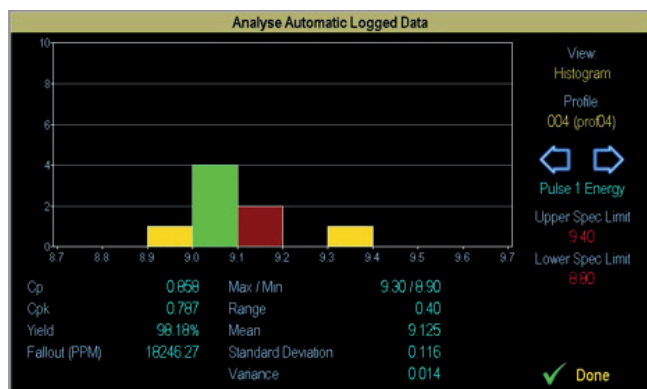
*Welding components to leadframe*



*Welding fine wire to pad*

## ADVANCED USER CONTROLS AND FEATURES

- **Built in PDF viewer** : Link data files, work instructions, maintenance procedures, calibration data etc. Standard zoom, scroll and page functions via touch panel or mouse.
- **Built in media viewing** : Link photos to weld schedules to enhance operator clarity. USB & TCP/IP ports provide capacity for live camera input for visual pre and post weld inspection criteria.
- **Built in SPC & data logging** : Finger tip configurable statistical process analysis with local and networked database storage capability. Off line trend data and analysis to USB stick or via TCP/IP networks.



(Figure 1) Logging and analysis functions are easily setup and adjusted with the crystal clear intuitive graphical menu system

## ADVANCED WELDING CONFIGURATIONS

- **Built in automatic part conditioning** : Single and double pulse arrangements are easily set and viewed. An enhanced window tolerancing capability allows tight process limits to be applied anywhere within the weld cycle. The optional integral displacement monitor provides windowing and auto shutoff.
- **Built in distribution monitor** : Automation and multi head applications can benefit from the unique MWS electrical distribution systems which allow multiple heads to share one power source. Logical relationships between process limits, welding schedules, multimedia are maintained throughout.
- **Built in weld head force control** : Welding force is readily associated with each weld schedule and is available as a servo weld head command as a communications packet via the various communications channels. Double tap action for zoom and single/double pulse views.

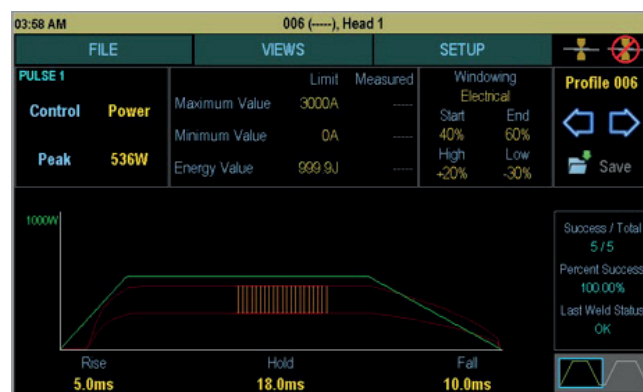


Figure 2. Advanced part conditioning, single pulse, double pulses setups are easily viewed and adjusted.

## DC1013/613T CONFIGURATIONS & OPTIONS

All DCxx13-T units feature the following items :

- 7 inch WVGA Full 262K colour Touch Panel LCD
- 1 x TCP/IP Ethernet RJ45 port
- 2 x Front and one rear panel USB ports
- 1 x 37 way optically isolated PLC interfacing port
- 1 x 15 way standard weld head control port
- 1 x 25 way optically isolated RS232 port

## OPTIONS

- Optically isolated analogue electrical channel monitoring
- Versions available with 1,3 or 6 channel weld displacement monitoring built in and combining dynamic weld cutoff

## TECHNICAL SPECIFICATIONS

Model	DC1013-T	DC613-T
Maximum Output Current (A)	1000 Amps DC	1000 Amps DC
Output Voltage at Full Load	4V DC	4V DC
Maximum Output Power	4KW	4KW
Full Output Duty Cycle	5% @ 1000A	4% @ 1000A
Control Modes	Current/Voltage/Power	Current/Voltage/Power
Output Accuracy of setting	±1% at Maximum Current	±1% at Maximum Current

Programmed Timing Values		
Squeeze Time	0.1 – 999.9 ms	0.1 – 999.9 ms
Upslope Time Pulse 1	0.1 – 999.9 ms	0.1 – 999.9 ms
Peak Time Pulse 1	0.1 – 999.9 ms	0.1 – 999.9 ms
Downslope Time Pulse 1	0.1 – 999.9 ms	0.1 – 999.9 ms
Delay Time Between Pulses	0.1 – 999.9 ms	0.1 – 999.9 ms
Upslope Time Pulse 2	0.1 – 999.9 ms	0.1 – 999.9 ms
Peak Time Pulse 2	0.1 – 999.9 ms	0.1 – 999.9 ms
Downslope Time Pulse 2	0.1 – 999.9 ms	0.1 – 999.9 ms
Hold Time	0.1 – 999.9 ms	0.1 – 999.9 ms

Process Monitor Limits	Current/Voltage	Current/Voltage
No of waveforms averaged	User defined	User defined
Waveform Window limiting range	0 - 100%	0 - 100%
Waveform Window tolerances	0 - 100%	0 - 100%

Optional displacement monitoring	LVDT or Encoder Up to 6 channels of real time weld displacement monitoring	LVDT or Encoder Up to 6 channels of real time weld displacement monitoring
Force	0 - 500N	0 - 500N

Input Requirements	3 phase	1 phase
Input Voltage	380 - 480VAC	95 - 265VAC
Control I/O	Opto isolated	Opto isolated
Serial Communications	Ethernet via TCP/IP, USB 2.0, RS232	Ethernet via TCP/IP, USB 2.0, RS232

## WEIGHT &amp; DIMENSIONS

Width	190mm (Vertical) 400mm (Horizontal)	190mm (Vertical) 400mm (Horizontal)
Height	400mm (Vertical) 190mm (Horizontal)	400mm (Vertical) 190mm (Horizontal)
Depth	400mm (Vertical) 400mm (Horizontal)	400mm (Vertical) 400mm (Horizontal)



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