



Multiple Output Distribution Systems

MacGregor Welding Systems Ltd. has provided innovative solutions for high quality manufacturing for more than 30 years. One of the most noted of these systems is the Resistance Welding Distribution Unit. A distribution unit allows the user to isolate welding circuits so that a number of heads can be closed in a single operation and the welds accomplished using a single welding power supply. The system controls the switching, timing, and voltage sensing (feedback) switching. The profile information allows the welding head number to be selected in the profile to ensure when triggered, it will select the correct weld head.

In order to maintain the precise control, repeatability, and accuracy that MacGregor Welding Systems equipment provides the system ensures that each weld is controlled and monitored at the weld tips so that any influence from the distribution unit is automatically compensated for. The welds are accomplished in sequence allowing for each weld to select only the appropriate circuit and feedback channel. This means that the accuracy of the weld is the same as if a single head is used and each station is programmed with it's own profile. The units can be used with random triggering or used in a controlled environment where a PLC or other control system controls the trigger signals and timing.

Features:

- Shared capital resources
- Closed loop precision and repeatability
- SPC data collection capabilities
- Thyristor switches provide near instantaneous switching

Distribution units provide 3 primary advantages to customers who need to make a number of welds in a local area. The first of these is a significant reduction in the cost of the equipment required. The cost of a single welding power supply and 4-Output distribution unit can be as little as 1/3 the cost of 4 individual welding power supplies.

The second advantage is in the utilization factor of the equipment. A welding power supply is limited in current depending on the model selected. This will limit current settings. The duty cycle of the unit indicates how frequently the unit can weld under maximum load conditions. The standard m3 and DC series offer 5% duty to customers. This means that the power supply is capable of full power output for 50ms / second. Most welds are between 5-25 ms and are not made at the maximum output meaning the duty cycle at the actual load is more than 5%. The use of distribution unit allows the user to design the system to fully utilise the welding power supply capability to the maximum extent.

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The third primary advantage is the reduction of space required in the assembly system. Using a single welding power supply and a compact distribution unit reduces the space required to house the system.

The distribution units are available in several model types. The number of outputs, the current level (1000, 2000, or 4000 Amps) and the switch configuration defines the basic types. The units can be configured for Common Cathode ((-) pole switched), Common Anode ((+) pole switched), or Double Pole ((+) and (-) poles switched). The use of a double pole unit ensures that no current can flow through any other common electrodes and should be used when more than one electrode is set down on the same assembly. Full details on each model of distribution unit are available upon request. Selection of the most suitable unit can be reviewed by MWS to ensure maximum performance and value.

Welding System Diagram (Buss Bar Mounted Switches) -Not to Scale

