

Integro offers several variations of a welding preheat system, a one-outlet 12kW, four-outlet 48kW, and six-outlet 72kW system. Each system consists of several basic components: the Controller with input lead, Power Streamers, and Strip Heaters themselves. There may also be four wire extension cords that extend the reach of the power streamers.

All of these systems are intended for use with four-wire three-phase supply at a nominal 460Volts. Integro offers several sizes (both physical size and power rating) of strip heaters, and the preheat system is designed to utilize a maximum 2000W heater on each lead. **Warning: Connection of any heaters with ratings greater than 2000W at 460V is not recommended, and may lead to overloading of one or more parts of the system.**

General Cautions

The Integro Preheat system is intended to be used only by qualified operators. When in use there will be high temperatures present that can cause severe injury. Do not handle heaters while they are powered, or while they are still hot after use. The system also operates at voltages that can be hazardous; make sure all connections are securely made, and do not mate or disconnect any components or connectors while under load. These instructions are meant as general instructions as to the set-up and operation of the system, and are not a substitute for good safety practice in the field.

System Set-up and Operation

During set-up of the system, the controller should be switched off (disconnection from the power source can be used as an additional safe step). Before operating the system, the heaters should be staged in the approximate positions they will be used, and their leads should be connected to the Power Streamer drops. Ensure that all connectors mated fully and securely. The power streamers should then be connected to the outlets on the controller. This will allow the operator to manage the cables involved to keep them out of the way and reduce the possibility of tangles and the like.

The heaters themselves should then be secured to the workpiece with attachment studs or other suitable means. It is important to maintain good thermal contact between the heaters and the workpiece, because although the heaters and shoes are capable of withstanding temperatures well in excess of 600°F, unattached heaters are also capable of producing temperatures that may damage themselves or their aluminum shoes (on types with the shoes). **Do not power strip heaters that are not attached to a heat sink.** The heaters may also be covered by an insulating blanket, but any such material used must be able to withstand the high temperatures and other conditions present during all phases of the welding operation.

If the controller input cable has been left unconnected, once the system is set up as described above it may be connected to the power source.

Check the power indicator lights to make sure the system is getting power in all three phases. Turn the system on using the on/off switch and turn the percentage timer to 100%; this will power the heaters in a "constant on" condition. When the workpiece gets to the desired temperature set the percentage timer to 50%, adjusting this setting as needed so that the desired temperature is maintained.

The percentage timer in the controller operates on a 60 second cycle. Because it is impossible to determine beforehand what the ambient conditions will be for any given project it will be necessary to determine an adequate means of measuring the temperature of the workpiece. As conditions change, the timer may need to be adjusted accordingly.

The percentage timer may also be used to slowly ramp the workpiece temperature up or down over some period of time. This may be useful in post-weld stress relief or other applications.

Power Down

When the job is complete simply shut down the system with the power switch before disconnecting either the heaters and power streamers or the main input cable. *To avoid the chance of injury, allow all strip heaters to cool fully before handling them.*

Notes

Each outlet on the controller utilizes all three phases of the power supply, so there is no requirement to use all of the outlets to maintain a balanced load. Each power streamer likewise utilizes all phases, but they are wired so that adjacent outlets are wired to the same phase; the first two are connected to one phase, the second two to another, and the third two to a third phase. This is true for Power Streamers with six drops, and for those with three drops and a 'Y' junction on each drop. This should be kept in mind in cases when load balancing is important.

Each outlet has a set of three fuse indicators above it on the controller face. When a phase on that outlet overloads and the fuse blows, the lamp in the fuse holder lights. Fuses can be replaced from the outside by twisting off the cover. *Shut down the entire unit before changing or replacing fuses.*