

GB1 Installation Notes for AC controlled relays and contactors

GB1 versions meant for use with AC controlled contractors or mercury relays have an internal AC solid-state relay capable of handling up to 1 Amp, 20--260 volts AC. By special order, some GB1s can handle up to 3 amps.

This internal relay is optimized for reliable control of contactors, relays, and solenoids; it completely isolates the external voltage from the rest of the GB1 circuitry. Because the control voltage is AC, there is no difference between the two top terminals --- they are symmetric. You should not think of one of them as "in" and the other as "out". (Ignore the + and - markings on the PC board; these are for the version of the GB1 which controls solid state relay power relays only and do not apply to the AC control version of the GB1.)

It should be noted that in order to provide the utmost flexibility, the control voltage is not supplied by the GB1 but must be provided as part of the installation. The control terminals do not supply any power or voltage; they are only a switch. This means you can use, say, a 24 volt, a 36 volt, a 120 volt, or a 240 volt relay without having to make any changes whatsoever to the GB1. Whether 24, 120, or 240 Volts, etc, is used depends on the requirements of the relay or solenoid and is not determined by the GB1 itself. It is up to the installer to provide the appropriate voltage. The most frequent problem in installing a GB1 is to assume that it supplies ac power directly to the relay,

We repeat:

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We cannot stress this too strongly: it is the cause of much confusion during installation.

The minimum load necessary to actuate the output relay is about 10 milliamps. Note that a typical two-pole mercury contactor draws around 100--300 milliamps, which is very comfortably within the range of the GB1's specifications.

It is essential to have a switch or circuit breaker in the circuit of the main heating element of the oven. This allows the independent shutdown of the oven in case of a malfunction or stuck contactor. The GB1 output channel is fused internally. To check or replace this fuse, you must remove the front cover of the GB1.