

FSS3-B

	FSS3-B Interface Card	FSS3-B Triac assy
Control Circuit	18mA @ 1.5Vdc (typ)	-
Voltage	240Vac max	110 - 240Vac
Switching Current	-	15A max
Heat Dissipation	1W (typ)	1.25W per amp load current (23W max)

Warning

Before use read DICAM CONTROL COMPONENTS ESSENTIAL INFORMATION.

The FSS3-B is a solid state switch and does not provide electrical isolation between supply and load.

All circuits must be provided with proper means of isolation.

Information

The FSS3-B is a solid state switch for regulation of single phase mains loads by Dicam master units.

The FSS3-B is wired between the mains supply (with suitable backup fuse) and the load to be controlled. Typical loads are fans or heaters.

Under software control, the FSS3-B switches mains on or off to the load. Since switching is very rapid (approx 100uS) the module can switch on for just a portion of each mains cycle, so it can be used for dimming and phase angle speed control, as well as on-off or cycling switching.

Module operation is determined by software control. Before connecting the module, make sure the software is correctly configured for the use. Incorrect software setup could result in equipment damage.

The module consists of two parts - interface circuit card and triac module, requiring interconnection in the control panel. The parts must only be used in the combination as supplied.

How it works

When a low voltage control current (approx 20ma) is provided to the control input by the Dicam master unit, the interface card is switched on (optically isolated).

The interface card switches on the large mains rated triac (mounted on a heat sink for heat dissipation).

Switch on is extremely rapid (approx 100uS) so the FSS3-B can be used for both on-off switching and

phase angle switching (e.g. lamp dimming or fan speed control, with suitable fan motors).

For correct operation, the appropriate Output Type must be selected in the Dicam unit, and the Output Type Phase must be set to the same phase as the circuit being controlled.

Heat Dissipation

The FSS3 produces heat during operation, because when it is switched on it has a voltage drop of approximately 1.25Vac.

The heat produced is approximately 1.25W per amp of current plus 1W of interface current.

The triac is mounted on a heatsink to transfer this heat to the surrounding air. DO NOT operate the FSS3 without the triac

Enclosures must be chosen to allow for heat dissipation. In most cases, a "footprint" of 30 sq inches (200 sq cm) is sufficient, but you may need to carry out temperature/load trials. Within the enclosure, modules must be positioned to allow free air flow to both heatsink and interface module for cooling.

Ventilated enclosures may permit a smaller space allowance, but must not be used in livestock or similar applications.

Overload Protection

The FSS3-B contains NO OVERLOAD PROTECTION. For maximum safety, the lowest suitable value of backup fuse or circuit breaker should be chosen, according to the circuit being controlled.

If several load devices are used (e.g. several lamps or heaters), individual fuses or circuit breakers should be wired between the FSS3-B and the load device.

Circuit breakers are recommended for maximum overload discrimination.

Installations must be protected against over voltage conditions by means of VDRs or other devices.

Interference

Electrical interference - whether radiated by radio waves, or conducted through the electricity supply - can cause equipment to malfunction, or even cause equipment damage.

All electrical equipment can generate interference, but the degree depends greatly on the load, supply and installation conditions.

The FSS3-B itself produces very little interference, but load inrush and harmonics may produce significant interference, depending on circumstances.

Interference suppression components may be required. In typical use, the most significant interference likely to be generated is interference conducted into the mains.

If needed, the most effective method is usually a choke type filter (with Delta capacitors) between incoming mains and the FSS3-B. For most effective suppression, make sure both Live and Neutral currents pass through the choke to the load.

Circuits most likely to generate interference are those using phase control (lamp dimming or motor speed control).

For minimum risk of interference, use "On-Off" or "Simmer" switching where possible, and use speed control ("Fan" or "Lamp") only when essential.

Always make sure the Dicam output is configured to the correct PHASE.

Route power cables away from sensitive equipment and low voltage cables. (Min 300mm.)

If sensitive equipment such as office PCs or similar equipment is wired from the same supply, use a different mains phase if possible. Additional filter circuits may be required at the mains input of the sensitive equipment.

Replacing Parts

Provided the FSS3-B is correctly installed to allow heat dissipation and protected by suitable current overloads, module damage is unlikely even in the event of circuit overload.

However, the module may be damaged in the event of prolonged overcurrent or over voltage. This could result in the module not switching on, or being fully or partly switched on all the time, even when the control input is off.

If the module becomes damaged or faulty DO NOT attempt repair.

Replace BOTH the interface card and main triac module. Do not replace only one or other component separately.

DO NOT use any parts other than those supplied by Farmex for this purpose.

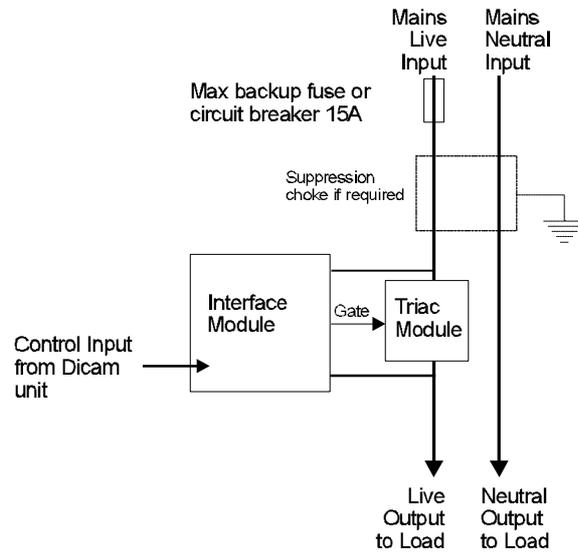
Application	Output Type Setup	
Fan Speed Control	FAN2WR, FAN3WR or FAN-HIPF	Check PHASE Calibrate Fan Speed
Lamp Dimming	LAMP	Check PHASE Adjust Slew Rate if required
Electric Heater	ON-OFF or SIMMER	Check PHASE
Other loads	ON-OFF (others may be suitable, check with Farmex if not sure)	Check PHASE

To Check Phase of a connected mains circuit

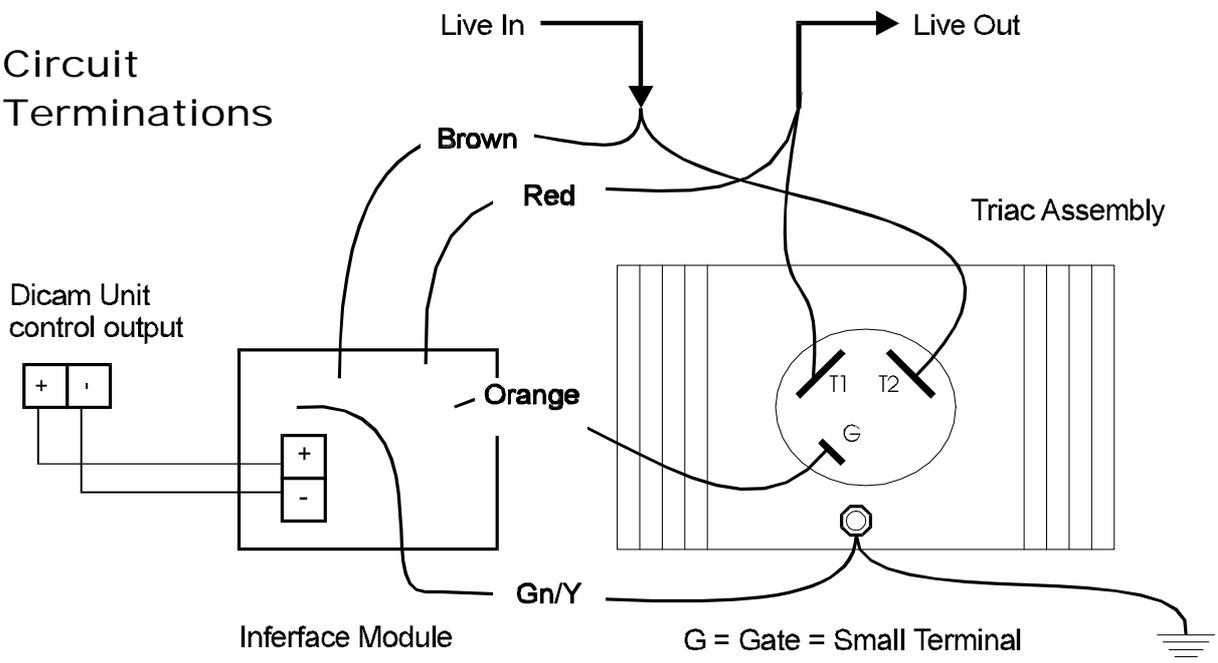
To ensure speed control/dimming and/or zero voltage switching if using On-Off/Simmer

1	Connect a 240V light bulb rated 60W or more to FSS3 in place of load
2	Configure Output Type to LAMP and leave PHASE set to 0
3	Restart controller and use TEST : Outputs to set that output to 25%
4	If the light bulb is now dim, the correct phase setting is 0. Go to Step 5. If the light bulb is not dim, go back to Step 2, but this time set PHASE to 1 and repeat. If light bulb is now dim, correct PHASE setting is 1. If the light bulb is not dim, go back to Step 2, but this time set PHASE to 2 and repeat. If light bulb is now dim, correct PHASE setting is 2.
5	Set the Output Type to the required type and set PHASE to 0, 1 or 2 as established in step 4.
6	Adjust any other parameters such as speed calibration, simmer cycle etc. in Output Setup.

Circuit Schematic



Circuit Terminations



Mounting Dimensions

