

ENGINEERING PUBLICATION
MOTION CONTROL DIVISION

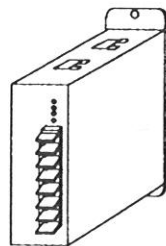
PRODUCT: LEGEND SGDG
CATEGORY: APPLICATION NOTES
ENGINEER: Bill Leang

SUBJECT: EXTERNAL REGEN
DISTRIBUTION: All

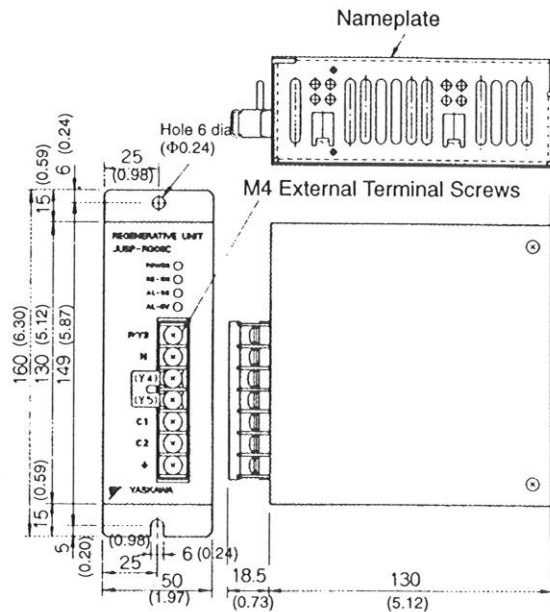
Summary: The Legend SGDG-01GT and SGDG-04GT needs special attention when external regen resistor is required in the application. The JUSP-RG08D external regen unit should be used with SGDG-01GT. The SGDG-04GT must be used with two RH500N25_ohmK external resistors. The JUSP-RG08D can also be used with the standard SGDG-04GT.

The SGDG-01GT does not have the regen transistor built-in even though there are terminals for connecting an external regen resistor. Therefore, for external regen requirement, the JUSP-RG08D external regen unit must be used. This is the regen unit designed for SGDA amplifiers. This unit connects directly across the DC bus. It is a self-contained unit consisting of bus sensing circuitry, switching IGBT, 50 ohm power resistor, and alarm relay contacts. The regen capacity of this unit is 60W before derating. The convection cool capacity is 12W. Capacity increases to 30W with forced-air cooling. The following is the dimension and specifications of the JUSP-RG08D:

• Dimensional Drawings



Approx. Mass: 1 kg (2.20 lb)



• Regenerative Unit Specifications

Type	JUSP-RG08 JUSP-RG08D	Remarks
Applicable Servopack	SGDA Servopack	
Regenerative Working Voltage	380Vdc	
Regenerative Processing Current	8A _{dc}	Regenerative Resistance: 50 Ω, 60 W
Error Detection Function	Regenerative resistance disconnection, regenerative transistor fault, overvoltage	
Alarm Output	Normally closed contact (open when protective function operates)	200 V operation OK
Dimensions in mm (inches)	55W × 160H × 130D (2.17W × 6.30H × 5.31D)	

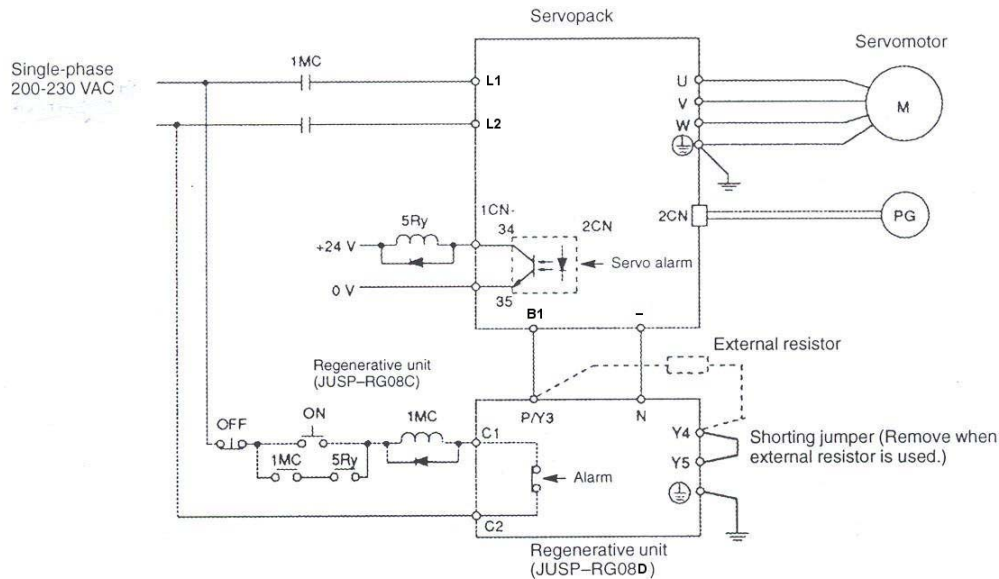
The SGD-04GT has terminals for connecting an external regen resistor of higher capacity. However, the SGD-04GT does not automatically recognize this external regen resistor and activate the regen IGBT. Thus, when an external resistor is connected, the regen energy is still processed by internal regen capacity and alarm #4 (over voltage) will occur if the regen energy is too high. To add external regen capability to the SGD-04GT, the following method may be used:

1. Use external regen unit JUSP-RG08D. Refer to the information above for more details. When this external regen unit is used, SW1-5 in the SGD-01GT should be turned OFF to avoid erroneous alarms.

Or

2. Use SGD-04GTY22P for external regen application only. If the customer knows that his application requires extra regen capacity, he must order this Y-mod unit. With Y22P-mod, two (2) external regen resistors, RH500N25_ohmK, wired in series must be connected to the SGD-04GT at all times. These resistors should be connected across terminals B1 and B2. The convection cool capacity of these two resistors in series is 120W. The capacity increases to 300W with forced-air cooling

Connecting the JUSP-RG08D to the SGDG-01GT/SGDG-04GT:



- a) A regenerative unit has the following fault detection functions:
 - Detecting disconnection in a regenerative resistor
 - Detecting faults in a regenerative transistor
 - Detecting overvoltage
- b) When one of these fault detection functions operates, the internal alarm relay is actuated. Then, the circuit between output terminals C1 and C2 is opened.
- c) When an external resistor is used, remove the shorting jumper between Y4 and Y5. Then, connect the resistor between P/Y3 and Y4.
- d) The resistance value of the external resistor should be 50Ω min.