

6.6 LED INDICATION

Table 6.3 LED Status Indications (Green)

LED Name	Conditions
MP	SERVOPACK main circuit voltage (200 VDC or more) is proper.
P	SERVOPACK control circuit voltage (+5V) is proper.
IN	Speed reference (approx 60 mV or more) is input.

Table 6.4 LED Trouble Indications (7-segment, Red)

Indication	Detection	Output Signals
	Base current not interrupted (normal operation).	—
	Base current is interrupted in SERVOPACK power circuit.	—
1.	Overcurrent	Servo alarm output
2.	Circuit protector tripped	
3.	Regeneration trouble	
4.	Overvoltage	
5.	Overspeed	
6.	Voltage drop	
7.	Overload	
A.	Heat sink overheat	
b.	A/D error	
F.	Open phase	
C.	Overrun prevention	
	CPU error	

6.7 PRECAUTIONS FOR APPLICATION

6.7.1 Overhanging Loads

The motor is rotated by the load; it is impossible to apply brake (regenerative brake) against this rotation and achieve continuous running.

Example: Driving a motor to lower objects (with no counterweight)

Since SERVOPACK has the regenerative brake capability of short time (corresponding to the motor stopping time), for application to a overhanging load, contact your YASKAWA representative.

6.7.2 Load Inertia (J_L)

The allowable load moment of inertia J_L converted to the motor shaft must be within five times the inertia of the applicable AC SERVOMOTOR. If the allowable inertia is exceeded, an overvoltage alarm may be given during deceleration. If this occurs, take the following actions :

- Reduce the current limit.
- Slow down the deceleration curve.
- Decrease the maximum speed.

For details, contact your YASKAWA representative.

6.7.3 High Voltage Line

If the supply voltage is 400/440V, the voltage must be dropped three-phase, 400/440V to 200V using a power transformer. Table 6.6 shows the transformer selection. Connection should be made so that the power is supplied and cut through the primary side of the transformer. Single-phase 100V class power supply should not be used.

6.8 PRECAUTIONS OF OPERATION

6.8.1 Noise Control

SERVOPACK uses a power transistor in the main circuit. When these transistors are switched, the effect of $\frac{di}{dt}$ or $\frac{dv}{dt}$ (switching noise) may sometimes occur depending on the wiring or grounding method.

The SERVOPACK incorporates a CPU. This requires wiring and provision to prevent noise interference. To reduce switching noise as much as possible, the recommended method of wiring and grounding is shown in Fig. 6.13.

(1) Grounding method (Fig. 6.13.)

- Motor frame grounding

When the motor is at the machine side and grounded through the frame, Cf $\frac{dv}{dt}$ current flows from the PWM power through the stress capacitance of the motor. To prevent this effect of current, motor ground terminal FG (motor frame) should be connected to terminal \ominus of SERVOPACK (Terminal \ominus of SERVOPACK should be directly grounded.)

- SERVOPACK SG 0V

Noise may remain in the input signal line, so make sure to ground SG 0V. When motor wiring is contained in metal conduits, the conduits and boxes must be grounded. The above grounding uses one-point grounding.