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**1 YEAR**  
WARRANTY

# **Ω OMEGA®** **User's Guide**

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OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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# SOLID STATE SWITCHES INTERCHANGEABLE MODULES AC AND DC

## INTRODUCTION

The OMEGA<sup>®</sup> Solid State Switches are available with four types of modules: 1) an ac output module (Model AC05-B); 2) an ac input module (Model ACI5-B); 3) a dc output module (Model DC05-B); and 4) a dc input module (Model DCI5-B).

The output modules switch low level signals (TTL) from the computer to high level ac or dc circuits; the input modules switch high level ac or dc signals to low level signals for communication to the computer.

## FEATURES

- 4000 Volt isolation
- Logic levels switch high level ac and dc circuits
- High level ac and dc signals switch logic circuits

## BACKPLANES

OMEGA offers a complete series of versatile backplanes to mount 4, 8, 16, or 24 Solid State Switches. The backplanes include LED indicators to indicate signal status, pull-up resistors to avoid undefined states, and power fuses for overload protection on each channel.

**SSS-PC4-B:** Four channel backplane with screw terminal connections. Logic power and ground are common on the signal side.

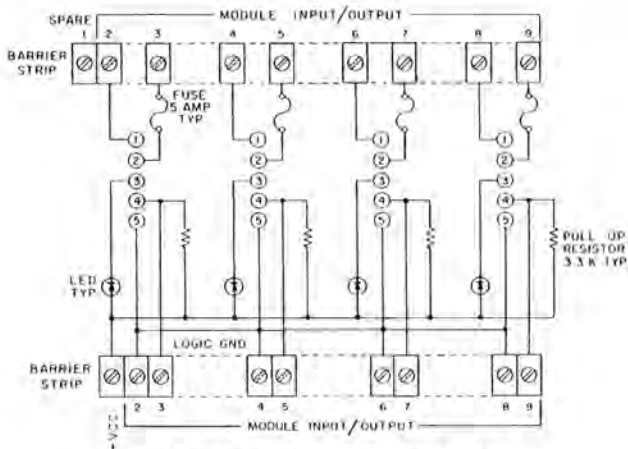
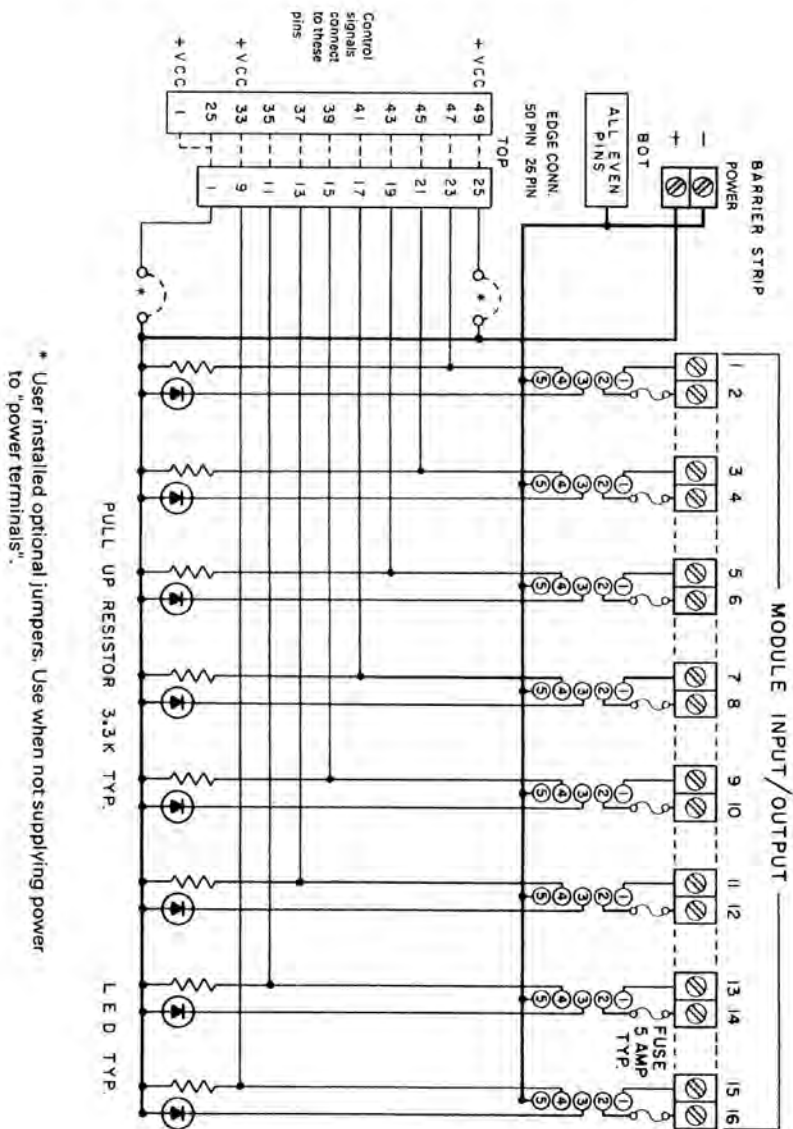


Figure 1. SSS-PC4-B Wiring Diagram

SSS-PC8-B: 8 channel backplane with channel signals, power and ground busses terminating in card edge fingers. Connection is made with either 26 or 50 pin connectors (0.10" centers).



\* User installed optional jumpers. Use when not supplying power to "power terminals".

Figure 2. SSS-PC8-B Wiring Diagram

SSS-PC16-B; The 16 channel backplane is similar to the SSS-PC8-B, except that it is available with only 50 pin card edge connectors.

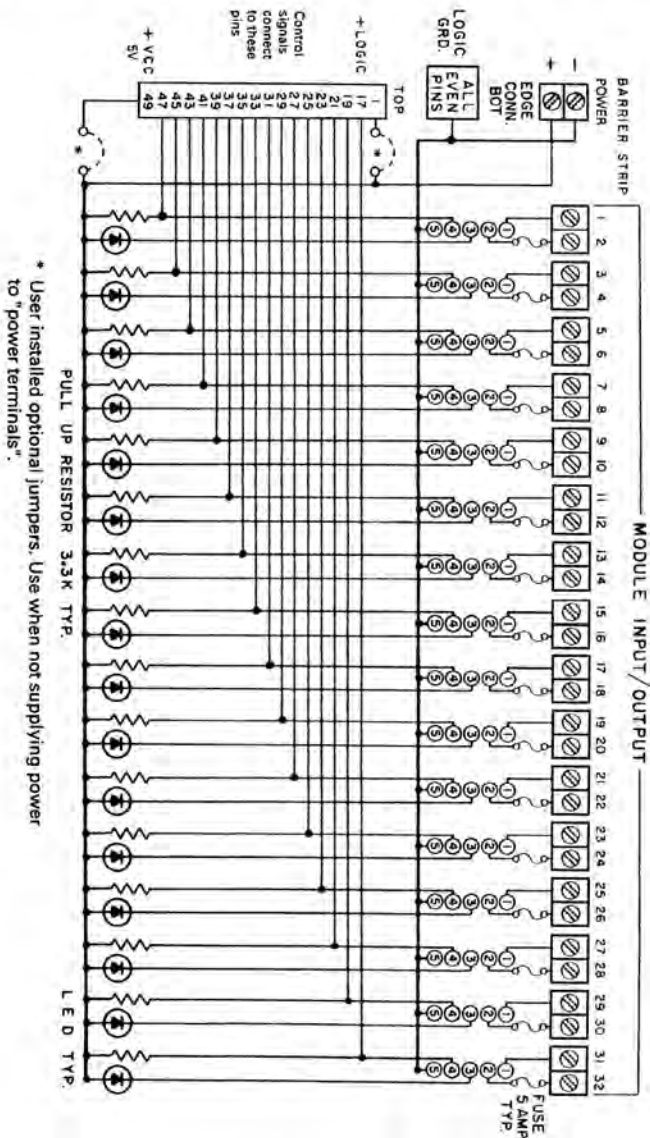
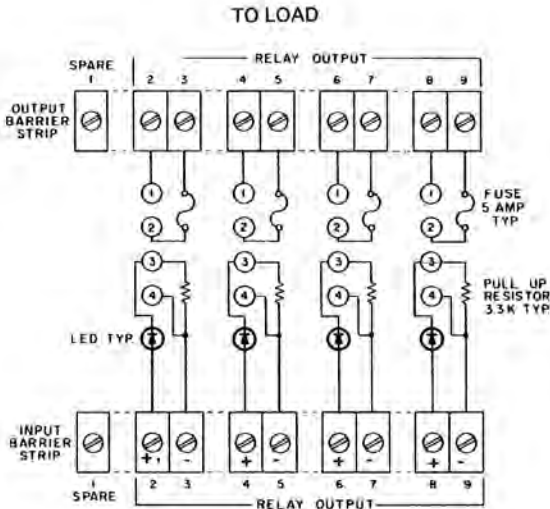


Figure 3. SSS-PC16-B Wiring Diagram

SSS-PC24-B: The 24 channel blackplane is similar to the SSS-PC8-B and the SSS-PC16-B. The SSS-PC24-B can be used for signal connections. All edge connections are gold plated over nickel plating for maximum corrosion resistance.

SSS-PC41-B: Same as SSS-PC4-B except that all channels are isolated from each other. Without the common signal ground, only output modules may be used.



**NOTE**  
Connect your control voltage (2.5V to 5Vmax) to the "+" and "-" of the module inputs.

Figure 4. SSS-PC41-B: Module Input from Control Circuit

## ACCESSORIES

PART NUMBER	DESCRIPTION
OMX-1804	Solder eye type 50 pin connector
SSS/CA2	2 ft ribbon cable with 50 pin connector
SSS-CA6	6 ft ribbon cable assembly
SSS-CA10	10 ft ribbon cable assembly
SSS-F1	1 amp optional logic power fuse
SSS-F5	5 amp spare channel power



## AC OUTPUT MODULE— ACO5-B

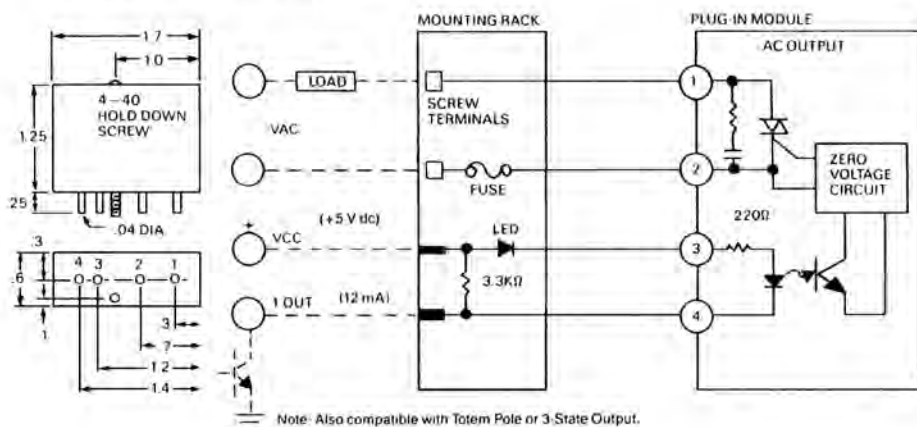


Figure 5. Wiring Diagram for the ACO5-B

## SPECIFICATIONS— ACO5-B

LINE VOLTAGE:	24 to 240 Vac
CURRENT RATING:	3 amps (operating ambient $-30^{\circ}$ to $+70^{\circ}\text{C}$ . 2 amps at $70^{\circ}\text{C}$ )
ONE CYCLE SURGE:	80 amps peak
SIGNAL INPUT RESISTANCE:	250 $\Omega$
SIGNAL PICKUP VOLTS DC:	2.5 V, 8 V max.
SIGNAL DROPOUT VOLTS DC:	1 V
PEAK REPETITIVE VOLTAGE:	600V
MAXIMUM CONTACT DROP:	1.6 V
OFF STATE LEAKAGE:	6mA RMS
MINIMUM LOAD CURRENT:	20 mA
ISOLATION INPUT TO OUTPUT:	4000 V RMS
CAPACITANCE INPUT TO OUTPUT:	8 pf
STATIC DV/DT:	200 V/microsecond min.
COMMUTATING DV/DT:	0.5 power factor loads (built-in snubber)
OPERATING TEMPERATURE:	$-30^{\circ}$ to $+80^{\circ}\text{C}$
STORAGE TEMPERATURE:	$-40^{\circ}$ to $+100^{\circ}\text{C}$

## AC INPUT MODULE -ACI5-B

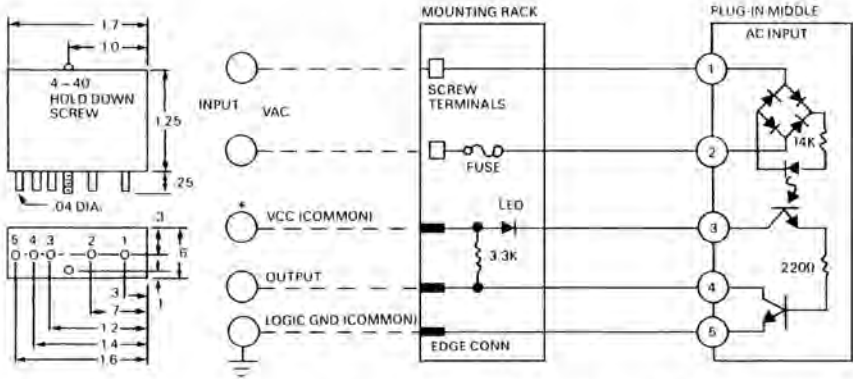


Figure 6. Wiring Diagram for the ACI5

### SPECIFICATIONS -ACI5-B

AC INPUT LINE VOLTAGE:	90 to 140 V ac
INPUT CURRENT AT MAX. LINE:	10 mA
ISOLATION INPUT TO OUTPUT:	4000 V RMS
INPUT ALLOWED FOR NO OUTPUT:	40V(rms)
TURN ON TIME:	20 ms max.
TURN OFF TIME:	30 ms max.
OUTPUT TRANSISTOR:	30 V breakdown
OUTPUT CURRENT:	50 mA
OUTPUT LEAKAGE 30 V DC NO INPUT:	100 $\mu$ A max.
OUTPUT VOLTAGE DROP:	0.4 V at 50 mA load
LOGIC SUPPLY VOLTAGE DC:	4.5 to 6 V
LOGIC SUPPLY CURRENT:	16 mA
OPERATING AMBIENT:	-30° to +70°C
STORAGE TEMPERATURE:	-40° to +100°C

## DC OUTPUT MODULE – DCO5-B

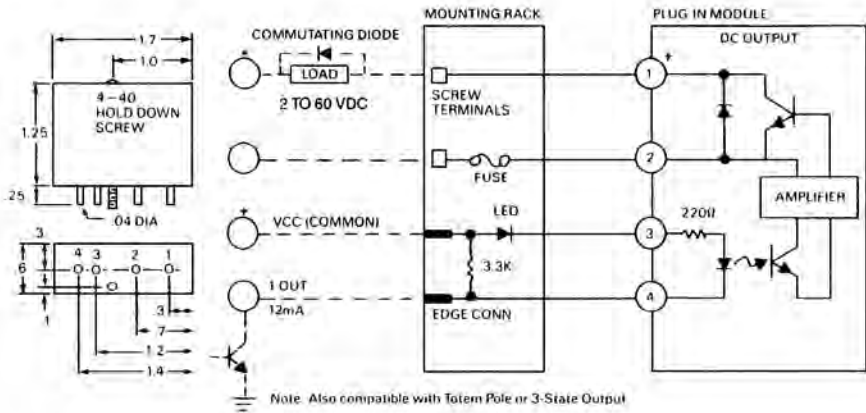


Figure 7. Wiring Diagram for the DCO5-B

## SPECIFICATIONS – DCO5-B

LOAD VOLTAGE RATING:	60 V dc
OUTPUT CURRENT RATING:	3 amps (operating ambient - 30° to +70°C. 3 amps at 45°C, 2 amps at 70°C)
OFF STATE LEAKAGE:	1 mA max.
ISOLATION INPUT TO OUTPUT:	4000 V RMS
SIGNAL PICKUP VOLTAGE:	2.5 V; 8 V max.
SIGNAL DROPOUT VOLTAGE:	1 V
SIGNAL INPUT RESISTANCE:	220 Ω
ONE SECOND SURGE:	5 amps
TURN ON TIME:	100 μs
TURN OFF TIME:	0.75 ms
MAXIMUM CONTACT DROP:	1.6 V
OPERATING TEMPERATURE:	-30° to +70° C
STORAGE TEMPERATURE:	-40° to +100° C

## DC INPUT MODULE – DCI5-B

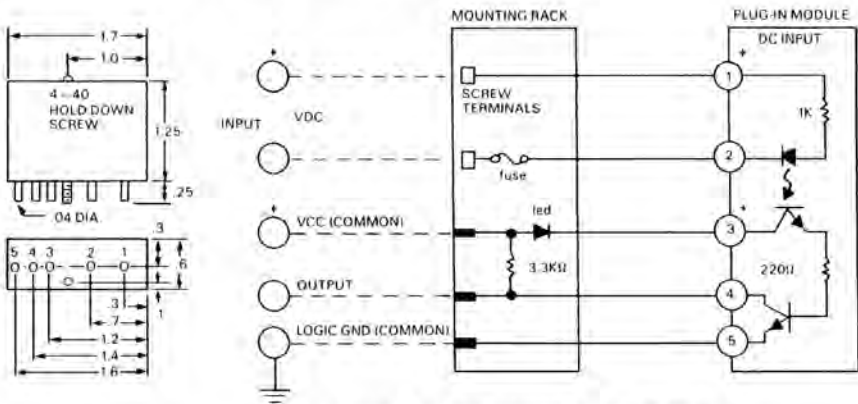


Figure 8. Wiring Diagram for the DCI5-B

## SPECIFICATIONS – DCI5-B

INPUT LINE VOLTAGE:	10 to 32 V dc
INPUT CURRENT:	32 mA at 32 V
ISOLATION INPUT TO OUTPUT:	4000 V RMS
CAPACITANCE INPUT TO OUTPUT:	8 pf
INPUT ALLOWED FOR NO OUTPUT:	2 mA or 3 V
TURN ON TIME:	5 ms max.
TURN OFF TIME:	5 ms max.
OUTPUT TRANSISTOR:	30 V breakdown
OUTPUT CURRENT:	50 mA
OUTPUT LEAKAGE 30 V dc NO INPUT:	100 $\mu$ A max.
OUTPUT VOLTAGE DROP:	0.4 V at 50 mA
LOGIC SUPPLY VOLTAGE:	4.5 to 6 V; 12 to 18 V
LOGIC SUPPLY CURRENT:	12 mA; 15 mA
OPERATING AMBIENT:	-30° to +70°C