

# SEL-PSM Power Supply Module Instruction Manual



# **General Features**

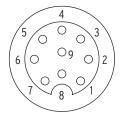
The SEL-PSM provides the following features:

- ➤ Converts station battery control power to electronic power levels.
- ➤ Powers up to four SEL-DTA Display/Transducer Adaptors located remotely from SEL protective
- ➤ Use wherever a reliable, industrial source of low-voltage dc is required.
- $\blacktriangleright$  Triple outputs: +5 V, +12 V, -12 V or +5 V, +15 V, -15 V models available.
- ➤ Four output ports ease connection to multiple loads.
- Two wide input voltage ranges available: 30–60 Vdc; 85–280 Vdc/85–265 Vac.
- Alarm contact closes for loss of +5 V output.
- Power input and alarm connections are standard 10-32 screw terminals.
- ➤ Power fail detect signals at each output port indicate loss of dc to loads.
- Red LED indicates power-on condition.
- ➤ Designed for mounting inside switchboards; does not require panel space.

# **Installation Instructions**

Refer to *Figure 3* for dimensions, mounting hole locations, terminals, and connectors. Refer to Figu for more details on the output port connections.

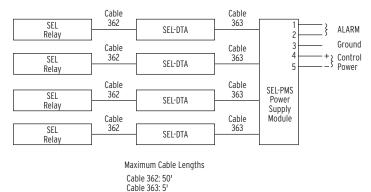
- Step 1. Mount the SEL-PSM Power Supply Module to a flat surface.
- Step 2. Connect Terminal 3 of the terminal block to frame ground.
- Step 3. Connect Terminals 4 and 5 to the input power. Observe polarity for the 48 V rated supplies. Polarity is unimportant for the 125 V rated supplies.
- Step 4. If desired, connect Terminals 1 and 2 to an annunciator to signal loss of power. The alarm contacts are closed when no power is applied. Under normal operating conditions the alarm contacts are held open.
- Step 5. Connect loads to one or more of the output ports. See *Figure 1* for the output connector pinouts.



- 1. Ground and Common
- 2. Power Fail Detect Output
- 3, 4, 5. No Connections
- 6. +5 V Output
- 7. +12/+15 V Output
- 8. -12/-15 V Output
- 9. Ground and Common

Figure 1 Female Chassis Connector, Exterior View

Refer to Figure 2 for connection of the SEL-PSM to power an SEL-DTA.



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Figure 2 Connection of SEL-PSM to Power an SEL-DTA

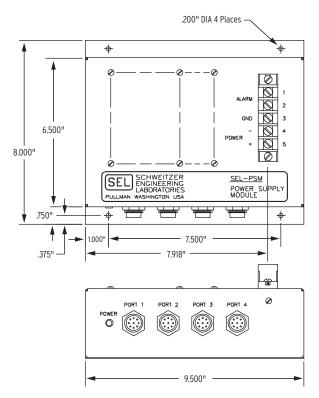
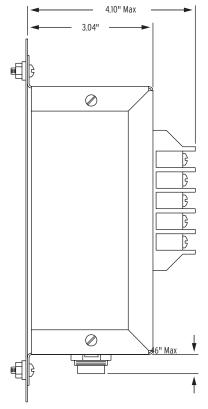


Figure 3 SEL-PSM Top and Side Views



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Figure 4 Mounting Diagram

Table 1 SEL-PSM Assembly List

Quantity	Description		SEL Part Number	
1	Circuit board		B530	
1	Chassis		190-1590	
1	Bottom cover		190-1600	
4	Male connectors		090-0310	
2	SEL-PSM instruction manuals		PMPSM-01	
1	25 W power supply			
	48 Vdc	+5, +15/–15 V	230-0201 (500-1230)	
	48 Vdc	+5, +12/–12 V	230-0401 (500-1210)	
	125/250 Vdc	+5, +15/–15 V	230-0301 (500-1220)	
	125/250 Vdc	+5, +12/–12 V	230-0501 (500-1200)	

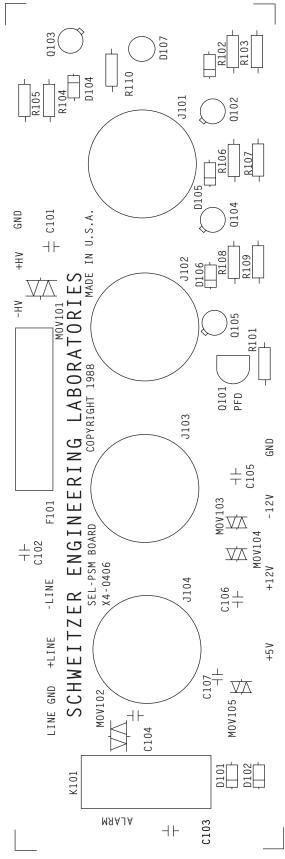


Figure 5 SEL-PSM Parts Placement Diagram

Table 2 SEL-PSM Board Component List

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Identifier	Description	Manufacturer	Part	SEL Part No.		
	Circuit board	SEL	X4-0406	070-1620		
C101, C102, C103, C104	0.0047 MF 3000 Vdc ceramic	Sprague Maida	30GAD47 D6225U472M3kV	040-0550		
C105, C106, C107	0.1 MF 50 V	Centralab	C43C104ZNP	090-0800		
R101, R102, R103, R104, R105, R106, R107, R108, R109	3.3 k 1/4 W 5% resistor, carbon	Allen Bradley	RC07GF332J	260-0440		
R110	300 1/4 W 5% resistor	Allen Bradley	RC07GF331J	260-0390		
D101, D102, D103, D104, D105, D106	Diode, 1 amp, 1000 PVR	Motorola	IN4007	100-0200		
D107	Red LED	Panasonic	LN21RPHL	100-0900		
MOV101, MOV102	250 V varistor	GE	V250LA40	200-0150		
MOV103, MOV104, MOV105	18 V varistor	GE	V18ZA1	200-0050		
J101, J102, J103, J104	Connector, 9-pin female	Con-X-All	4281-9SG-300	090-0307		
J105	Connector, 18 pin for power supply	Molex	26-03-3181	090-0630		
Q101	PNP transistor	Motorola	2N3906	325-0200		
Q102, Q103, Q104, Q105	NPN transistor	Motorola	2N2222A	325-0050		
F101	Fuse clip (2 each)	Littelfuse	120-071	120-0710		
Fuse	1 amp fuse	Littelfuse	LF313001	120-0100		
K101	Relay, 5 volt coil	P&B Schrack Fujitsu	RK11Z-4.5W RP820-005 FBR621ND005	250-0050		

# **Specifications**

## Input Voltage Ranges

48 V: 30–60 Vdc 125 V: 85–280 Vdc 85–265 Vac

#### **Outputs**

+5 V: 3 A max current +12/+15 V: 0.3 A max current -12/-15 V: 0.3 A max current

Ripple: 20 mV peak-to-peak maximum

Switching noise: 2 MHz at 20 kHz repetition rate; 1% or

100 mV peak-to-peak maximum,

whichever is less

Short circuit protection limits current; automatic resets upon removal of overload.

Output tolerance: +5/-5%

#### Power Fail Detect Output

One signal per output port

Normal level:  $+5 \text{ V through } 3.3 \text{ k}\Omega$ 

Power failure level: less than 1 V when sinking up to 50 mA

(maximum)

#### Isolation

Input power and alarm circuits are routine tested at 3000 Vdc. Power and power-fail detect outputs are ground-referenced.

## **Temperature Ranges**

Operating:  $-20^{\circ}$  to  $+55^{\circ}$ C Storage:  $-55^{\circ}$  to  $+85^{\circ}$ C

#### **Standards**

ANSI/IEEE C37.90-1978 "IEEE Standard Relay and Relay Systems Associated with Electrical Power Apparatus" applies to power input and alarm output.

### **Protection**

Internal fuse is easily accessible by removing cover.

MOV and surge capacitors protect power input.

MOV and surge capacitors protect alarm contact outputs.

Capacitors and low-voltage MOVs protect power outputs.

Back diodes protect power-fail output transistors.

## **Dimensions**

4.1" H x 8.0" W x 9.5" D

# Weight

Unit: 2.6 lbs (1.2 kb)
Shipped: 4.0 lbs (1.8 kg)

# **Factory Assistance**

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

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Fax: +1.509.332.7990 Internet: www.selinc.com Email: info@selinc.com

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