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 relays.
- Use wherever a reliable, industrial source of low-voltage dc is required.
- 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.

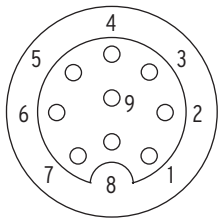
Step 1. Mount the SEL-PSM Power Supply Module to a flat surface.

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.

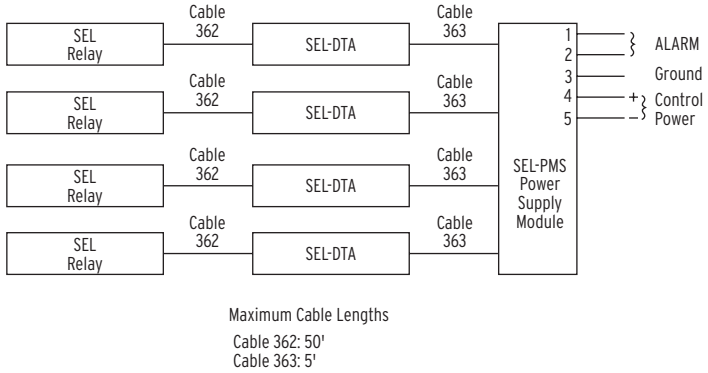
Step 5. Connect loads to one or more of the output ports. See *Figure 1* for the output connector pinouts.



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.



DWG: No. A7-0427
Date: 10-21-88
Rev. 12-07-88

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

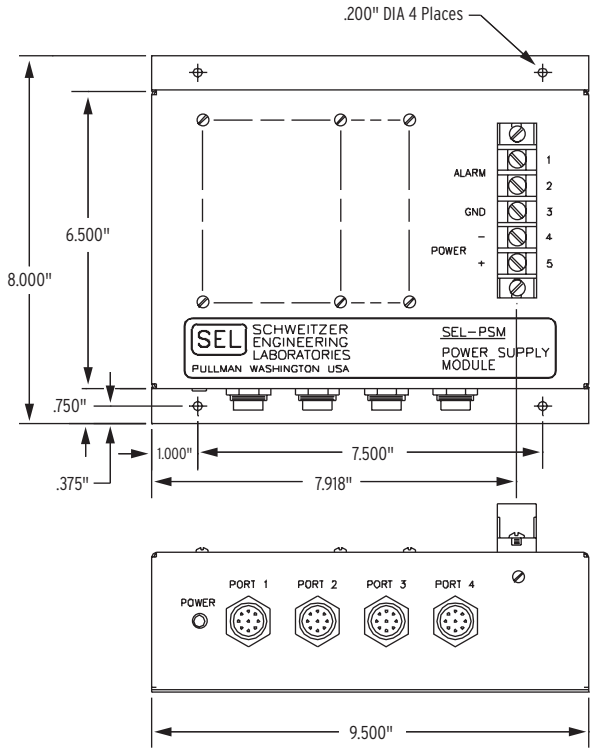


Figure 3 SEL-PSM Top and Side Views

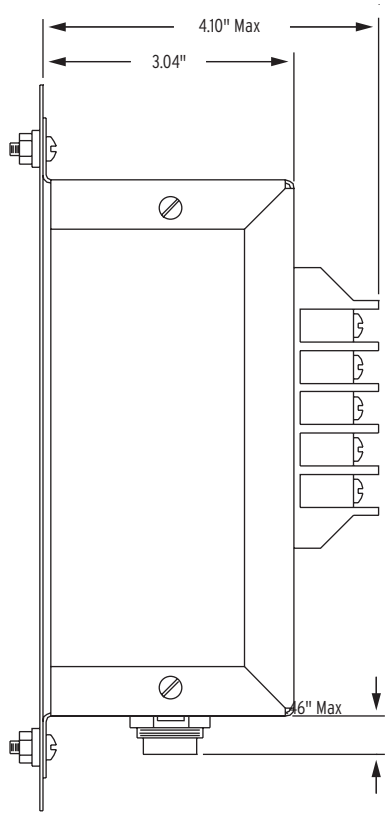


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Figure 4 Mounting Diagram

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)

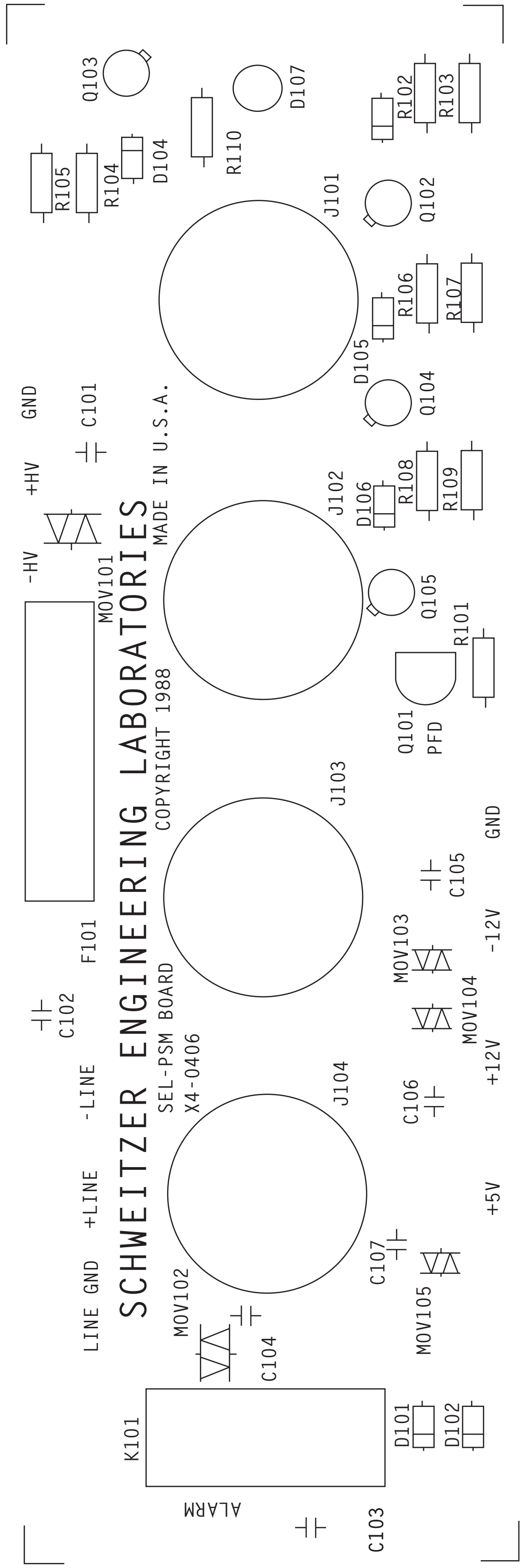

Figure 5 SEL-PSM Parts Placement Diagram

Table 2 SEL-PSM Board Component List

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 V through 3.3 kΩ
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° to + 55°C
Storage:	–55° to +85°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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