Amphenol
MILITARY HIGH SPEED

M7525 SERIES
DC/DC POWER SUPPLY

DESCRIPTION

The M7525 military power supply is a rugged DC to DC converter which accepts an 18 - 48VDC input voltage range and provides a single DC output from 3.3 to 50V at up to 800W. Custom outputs available upon request and the unit is Designed to meet military standards, MIL-STD-704, MIL-STD-1275, MIL-STD-810, MIL-STD-461.

FEATURES

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense compensation
- Remote inhibit (ON/OFF)
- Fixed switching freq. (250 kHz)
- External sync. capability
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage clamp with auto-recovery
- Over temperature shutdown with auto-recovery

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HOW TO ORDER

Part Number	Input	Output		Special Features
	Volatage Range	Voltage	Current	
CF-02EM7525-1	18 to 48 VDC	5VDC	50A	
CF-02EM7525-2	18 to 48 VDC	12VDC	50A	
CF-02EM7525-3	18 to 48 VDC	15VDC	50A	
CF-02EM7525-4	18 to 48 VDC	24VDC	33A	
CF-02EM7525-5	18 to 48 VDC	28VDC	28A	
CF-02EM7525-6	18 to 48 VDC	48VDC	16A	
CF-02EM7525-7	18 to 48 VDC	28VDC	28A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
CF-02EM7525-8	18 to 48 VDC	48VDC	16A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
CF-02EM7525-9	18 to 48 VDC	24VDC	33A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
CF-02EM7525-10	18 to 48 VDC	5VDC	50A	
CF-02EM7525-11	18 to 48 VDC	12VDC	50A	
CF-02EM7525-12	18 to 48 VDC	15VDC	50A	
CF-02EM7525-13	18 to 48 VDC	24VDC	33A	
CF-02EM7525-14	18 to 48 VDC	28VDC	28A	
CF-02EM7525-15	18 to 48 VDC	48VDC	16A	
CF-02EM7525-16	18 to 48 VDC	28VDC	28A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
CF-02EM7525-17	18 to 48 VDC	48VDC	16A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
CF-02EM7525-18	18 to 48 VDC	24VDC	33A	Parallel operation via output voltage droop. Voltage regulation is ±2%.

ELECTRICAL SPECIFICATIONS

DC Input: Voltage range: 18 to 48VDC Transient protection: No damage due to surges IAW MIL-STD-1275A (100V for 50ms) MIL-STD-704A (80V for 0.1s)	**DC Output:** Voltage range: 3.3V to 50VDC Current range: up to 50A Power range: 800W Peak power (short periodup to 4 seconds): 1kW	**Isolation:** Input to Output: 200VDC Input to Case: 200VDC Output to Case: 100VDC
Output Voltage Regulation: Up to ±1% (no load to full load, –55°C to +85°C and over input voltage range).	**Efficiency:** Typical 87% (28VDC output, nominal input voltage, full load, room temperature)	**EMC:** Designed to meets* MILSTD-461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103.
Ripple and Noise: Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.	**Transient Over- and Undershoot:** Output resistance at load change of 50%-100% is 30-120mΩ (depending on output voltage). Output back to steady stated within 500-800µs.	**Turn on Transient:** No Voltage over shoot during power on.

PROTECTIONS

Input: **Under Voltage Lock:** Out Unit shuts down when input voltage falls below 16.5VDC ±1VDC	**Output:** **Active Over-Voltage Protection:** The converter will clamp the output if it exceeds 110% ±5% of the nominal voltage. The converter restarts after a preset period of time if output voltage decreases back to normal value.	**General:** **Over Temperature Protection:** The converter shuts down if baseplate temperature exceeds +105°C ±5°C. The converter automatically recovers when its baseplate temperature falls back below +95°C ±5°C.
Over Voltage Lock Out: Unit shuts down when input voltage rises above 52VDC ±2VDC	**Passive Over-Voltage Protection:** Load protected by a transorb rated 120% ±10% above nominal output voltage	
Input Reverse Polarity: Protection for unlimited time	**Overload Protection (Hiccup):** Continuous protection (20% ±10% above maximum current) for unlimited time.	

ENVIRONMENTAL

Temperature: Operating: –55°C to +85°C (base plate) Storage: –55°C to +125°C	**Altitude:** Method 500.4 Procedure I & II, Up to 70,000 ft. operational	**Salt Fog:** Method 509-4
Humidity: Method 507.4 Procedure I Up to 95% RH	**Vibration (random):** Method 514.5 Category 4 - General minimum integrity exposure IAW Figure 514.5C-17 1 hour per axis.	**Shock:** Method 516.5 Procedure I 30g, 11ms terminal peak saw tooth.

PIN ASSIGNMENT

Input connector - J1

Connector type: M24308/24-39F or eq.
Mates with: M24308/2-3F or eq.

Pin No.	Function	P
1	INPUT	+
2	INPUT	+
3	INPUT	+
4	INPUT	+
5	INPUT	+
6	N.C.	
7	INPUT RTN	–
8	INPUT RTN	–
9	INPUT RTN	–

Pin No.	Function	P
10	INPUT RTN	–
11	CHASSIS	
12	INHIBIT	+
13	SIGNAL RTN	–
14	INPUT	+
15	INPUT	+
16	INPUT	+
17	INPUT	+
18	N.C.	

Pin No.	Function	P
19	INPUT RTN	–
20	INPUT RTN	–
21	INPUT RTN	–
22	INPUT RTN	–
23	INPUT RTN	–
24	N.C.	
25	SYNC	+

Input connector - J2
Connector type: M24308/23-39F or eq.
Mates with: M24308/4-3F or eq.

Pin No.	Function	P	Pin No.	Function	P	Pin No.	Function	P
1	SENSE	+	10	OUTPUT RTN	–	19	N.C.	
2	OUTPUT	+	11	OUTPUT RTN	–	20	N.C.	
3	OUTPUT	+	12	OUTPUT RTN	–	21	OUTPUT RTN	–
4	OUTPUT	+	13	SENSE RTN	–	22	OUTPUT RTN	–
5	OUTPUT	+	14	OUTPUT	+	23	OUTPUT RTN	–
6	OUTPUT	+	15	OUTPUT	+	24	OUTPUT RTN	–
7	N.C.		16	OUTPUT	+	25	OUTPUT RTN	–
8	OUTPUT RTN	–	17	OUTPUT	+			
9	OUTPUT RTN	–	18	OUTPUT	+			

NOTE: All pins with identical function/designation should be connected together for best performance.

FUNCTIONS AND SIGNALS

INHIBIT
Description: Inhibits output.
Use: Apply short circuit or TTL “LOW” to turn off the power supply.
Leave open or apply TTL “HIGH” to turn on the power supply.
Referenced to: SIGNAL RTN

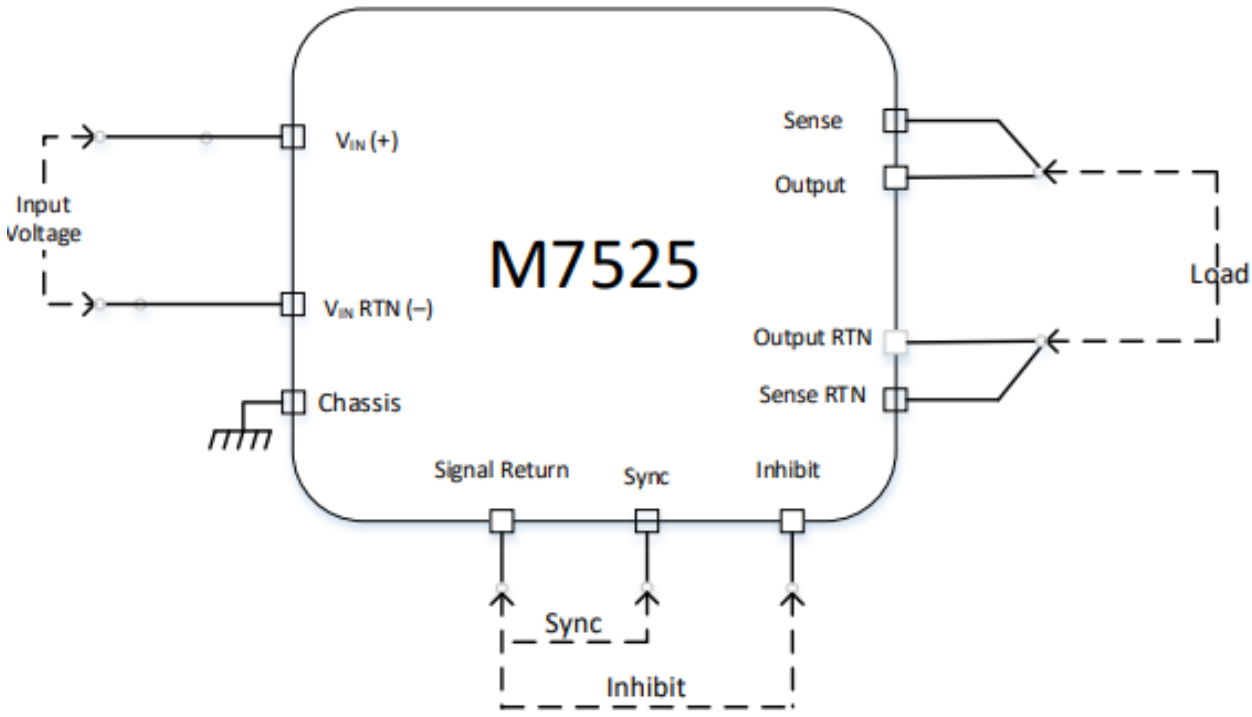
SYNC
Description: Synchronizes internal switching
frequency to system clock. Use: Apply TTL level,
250 kHz ± 10 kHz, 50% duty-cycle clock.
Leave open if unused. In this case, the switching frequency will be set by the internal clock (250 kHz)
Referenced to: SIGNAL RTN

SIGNAL RTN
Description: Signals return reference.
Referenced to: Connected by a 100 Ω resistor to INPUT RTN

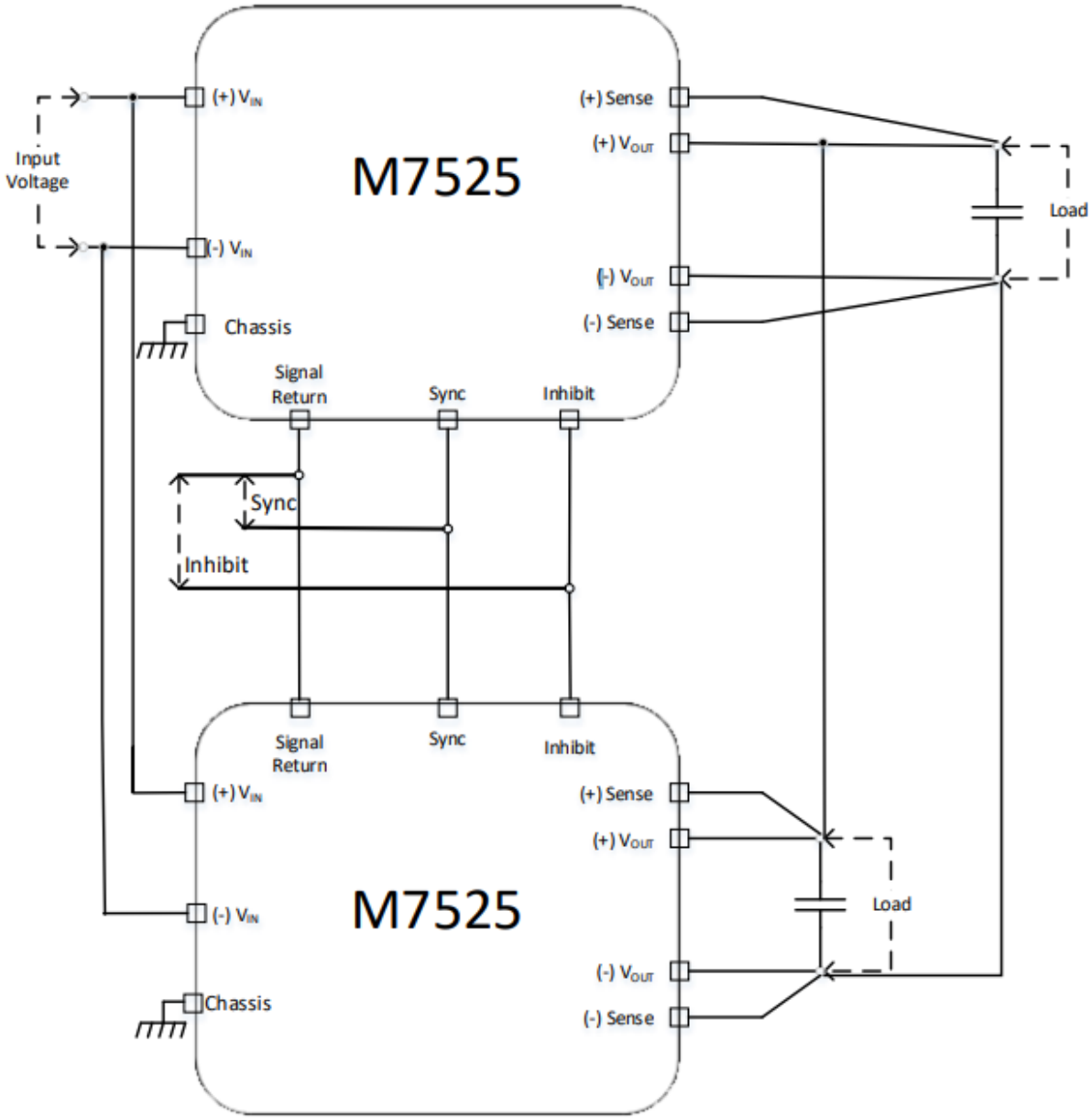
SENSE
Description: Used to achieve accurate voltage regulation at load terminals, to compensate for voltage drop across the leads connecting the converter to the load, 0.25 V ± 0.1 V
Use: Connect SENSE line directly to the load's positive terminal, and SENSE RTN directly to the load's negative terminal.
If not used, connect SENSE to OUTPUT and SENSE RTN to OUTPUT RTN. Do not leave open!

POR (Protection Override) - Optional
Description: The POR signal disables the input under voltage lockout, input over voltage lockout, over temperature protection and peak load duration limiter.
Please consult factory for details.

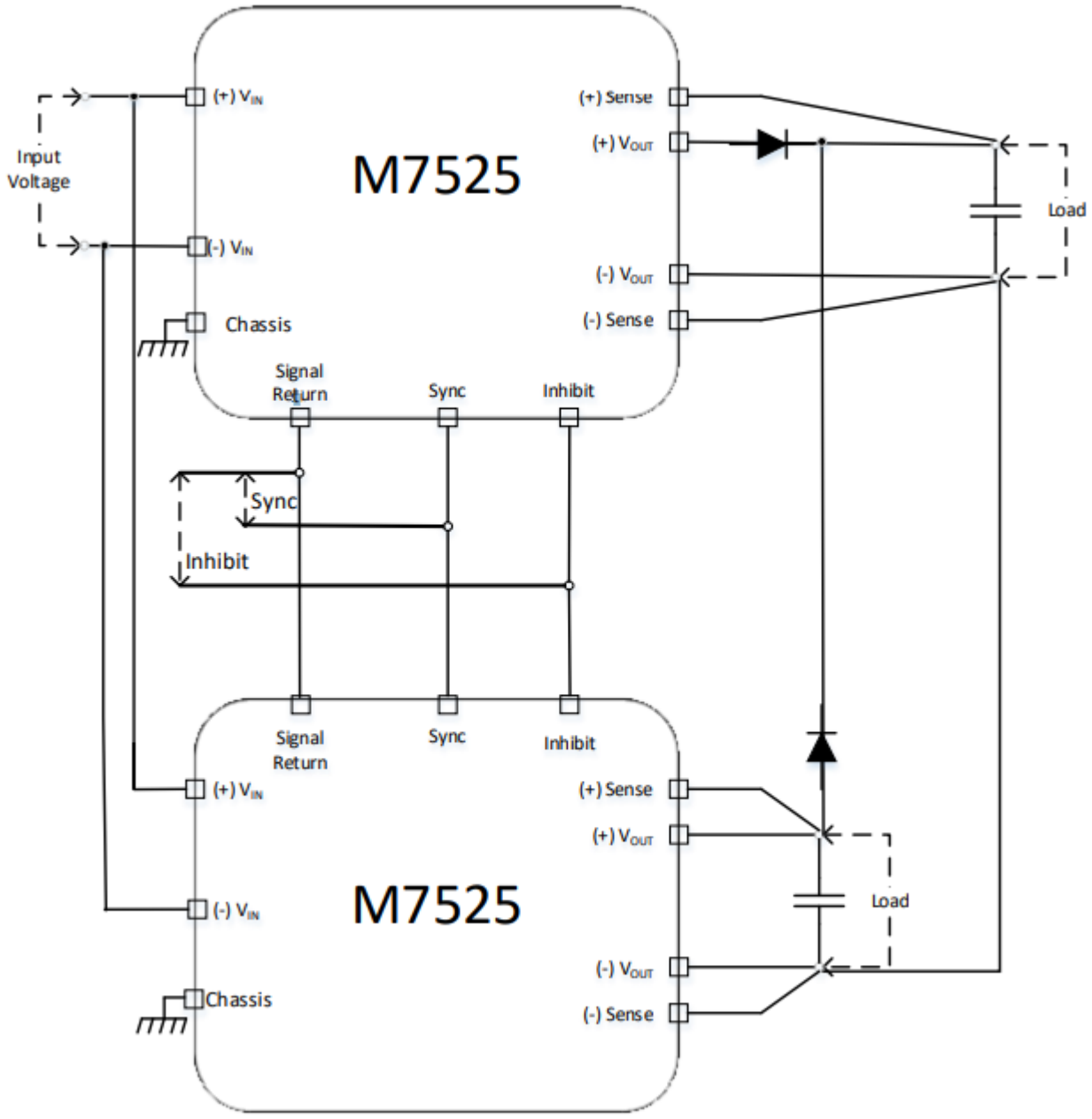
TYPICAL CONNECTION



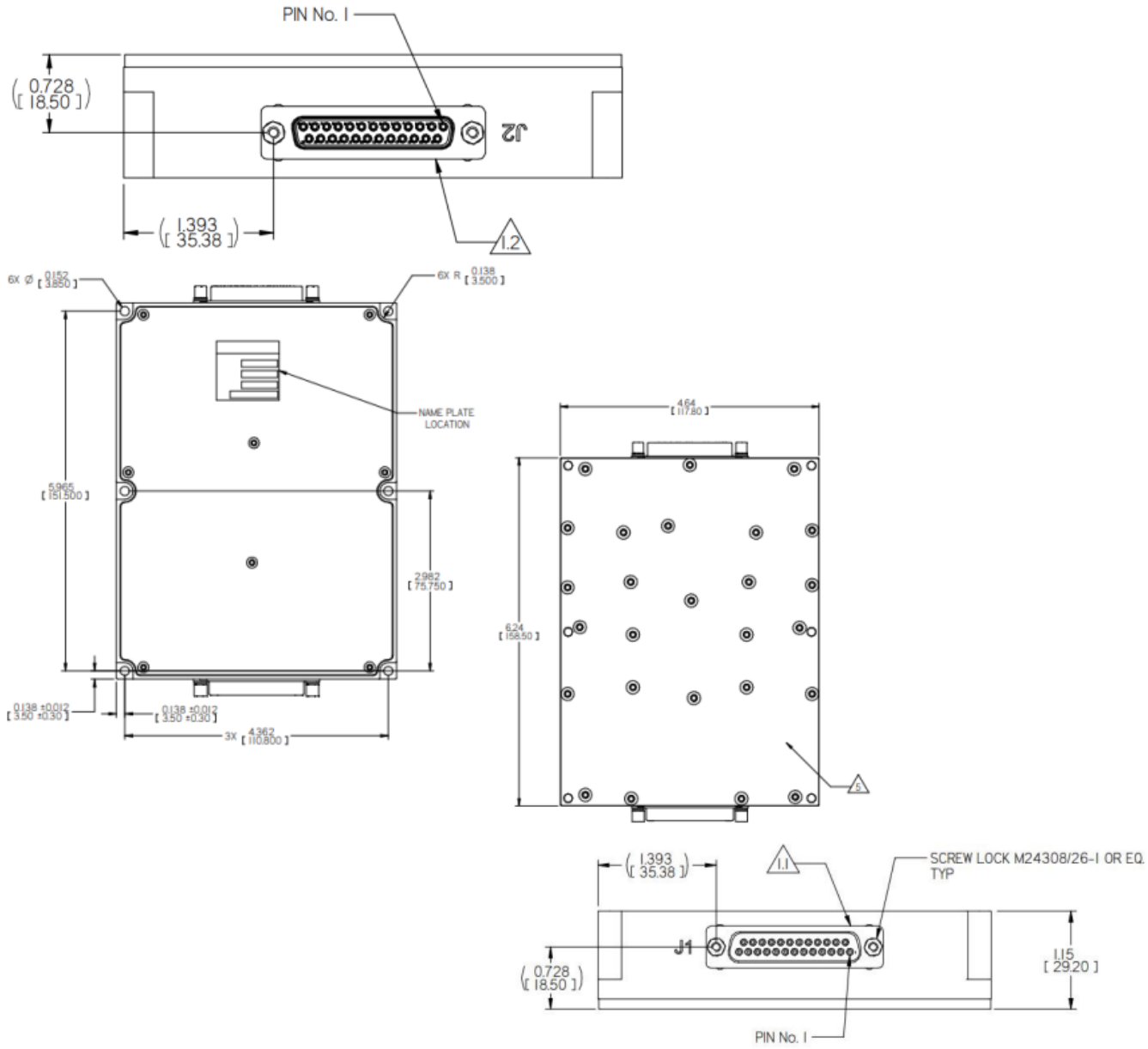
PARALLEL CONNECTION DIAGRAM



REDUNDANT CONNECTION DIAGRAM



OUTLINE DRAWING



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