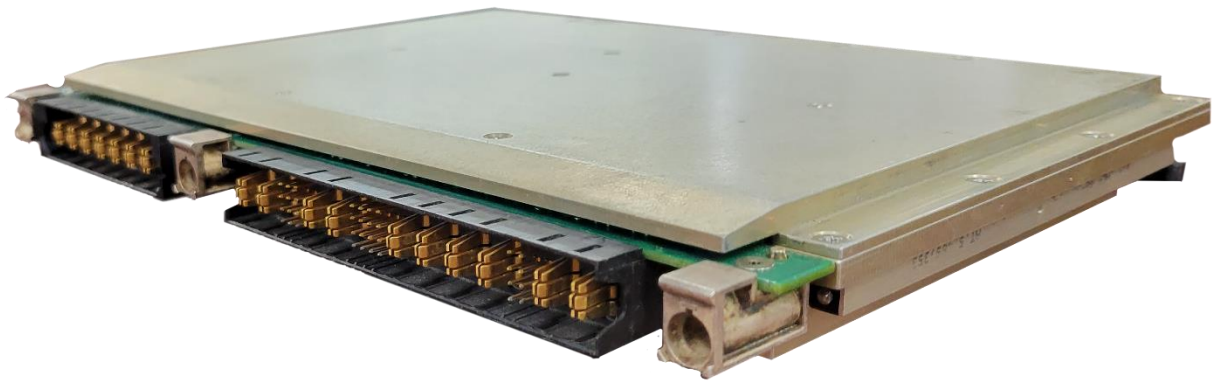


# IND-4066-01 SERIES

6U VPX, MINIATURE, HIGH DENSITY, SIX  
OUTPUTS, AC/DC CONVERTERS, (UP TO  
500W)



**APPLICATIONS**

Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial

**SPECIAL FEATURES**

- VITA 62 mechanical outline
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- Holdup capability
- External On/Off Inhibit
- External On/Off enable
- Fixed switching frequency (250 KHz)
- EMI/RFI filters included
- I2C communication
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery
- Reverse battery protection

**ELECTRICAL SPECIFICATIONS**

**AC Input:**

AC Input range: 103-127Vac,  
400 Hz, triple phase  
Protected against all input voltage transient per MILL-STD-704D

**Line/Load regulation:**

Less than  $\pm 1.5\%$  (no load to full load,  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ).

**Ripple and Noise:**

Less than 50mVp-p, typical (max. 1%), measured across 0.1 $\mu\text{F}$  and 10 $\mu\text{F}$  on load

**DC Output:**

Output #1 +15V/12A – with sense  
Output #2 -15V/5A  
Output #3 +8V/10.5A – with sense  
Output #4 -8V/0.75A  
Output #5 +5V/30A – with sense  
Output #6 -5V/1.5A  
Output voltages can be modified

**Load Transient Overshoot and undershoot**

Output dynamic response up to 5% at step load of 60%-90%.  
Output return to steady stated within 300-500 $\mu\text{Sec}$

**Isolation:**

200V between Input and Output  
200V between Input and Case  
100V between Output and Case

**EMI/RFI:**

Design to meet MIL-STD-461E:  
(At system level)  
CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103.

**Efficiency :**

>86% - Typical (full load, room temperature)

**I2C**

I2C communication for temperature and signals (GAX, SCL, SDA).

**PROTECTIONS\***

(\* Thresholds and protections can be modified / removed – please consult factory).

**Input**

- **Inrush Current Limiter** – peak value of 5 x I<sub>in</sub> for less than 50µSec.
- **Under voltage protection** – unit protects itself (no damage).
- **Over voltage protection** – unit protects itself (no damage)

**Output**

- **Passive tranzorb on outputs** – 20% above nominal voltage.
- **Current limiting** – Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

**General**

- **Over temperature protection:** Shutdown temperature of +105°C (±5°C) Automatic recovery at temperature lower than +85°C (±5°C) at Unit edge.

**ENVIRONMENTAL**

Design to Meet MIL-STD-810F

**Temperature:**

Operating: –55°C to +85°C (at plug-in card edge, IAW VITA 62 CC4) (base plate) – consult factory

Storage: –55°C to +125°C

**Humidity:**

Method 507.4 - Up to 95%.

**Altitude:**

Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft. Operational

**Vibration and Shock:**

Shock - Saw-tooth, 20g peak, 11mS.  
Vibration - Figure 514.5C-17.  
General minimum integrity exposure. (1 hour per axis)

**Salt Fog:**

Method 509-4

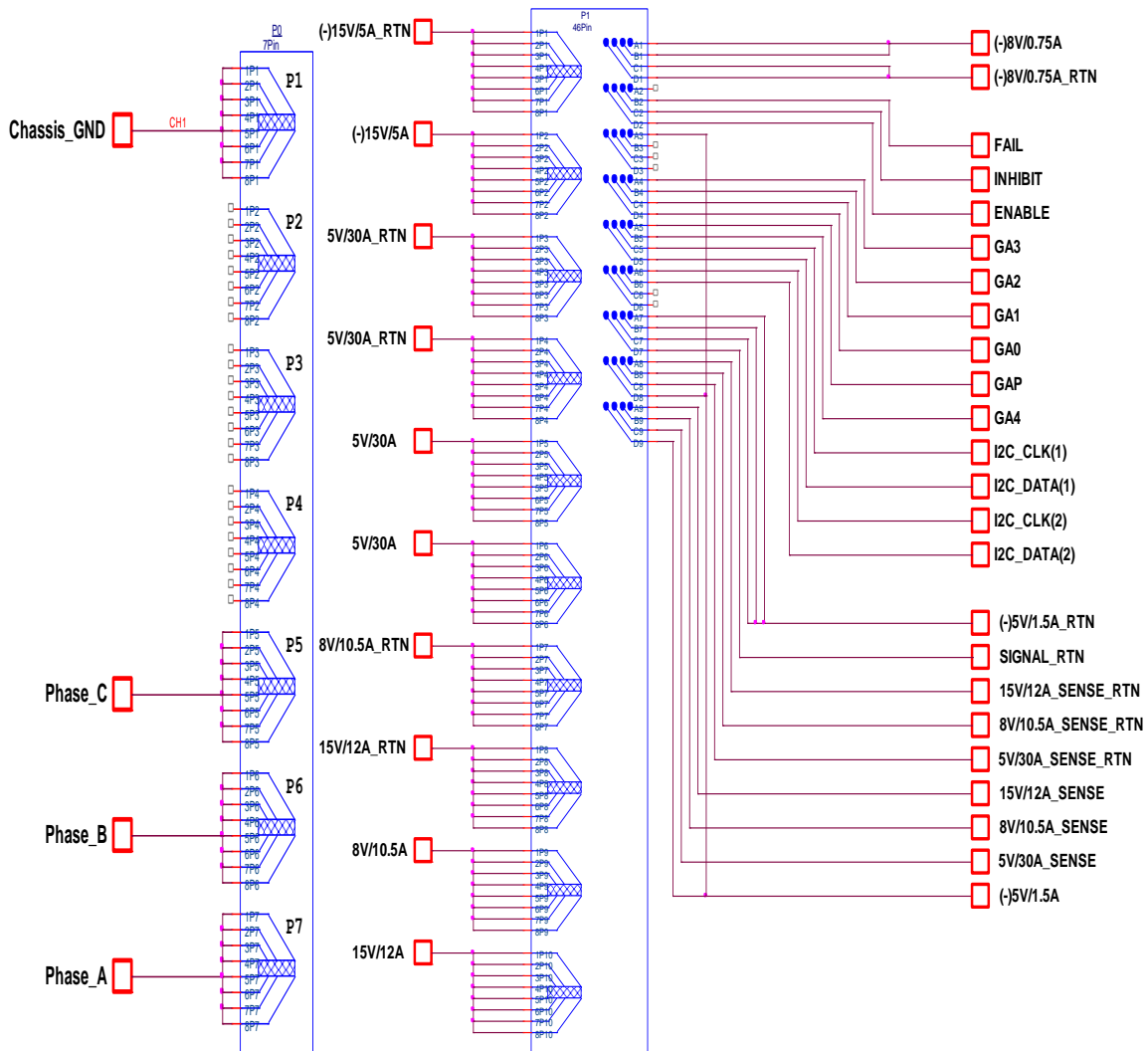
**Reliability**

220,000 hours, calculated per MIL-STD-217F at +85°C base plate, Ground fixed

**ENVIRONMENTAL STRESS SCREENING (ESS)**

Including random vibration and thermal cycles is also available. Please consult factory for details

REVISED PIN DETAILS



## **PIN ASSIGNMENT**

### **(6U) Power Supply Connector P0**

<b>Pin Number</b>	<b>Signal Name</b>
P7	115V, 400 Hz PH_A
P6	115V, 400 Hz PH_B
P5	115V, 400 Hz PH_C
P4	NC
P3	NC
P2	NC
P1	CHASSIS_GND

(6U) Power Supply Connector P1

Pin Number	Signal Name
P10	+15V
P9	+8V
A9	+15V_SENSE
B9	+8V_SENSE
C9	+5V_SENSE
D9	-5V
A8	+15V_SENSE RET
B8	+8V_SENSE RET
C8	+5V_SENSE RET
D8	-5V
A7	-5VRET
B7	-5V RET
C7	-5V RET
D7	SIG_RTN
P8	+15V RET
P7	+8V RET
A6	SM2 (I2C_Clock for Bus 2)
B6	SM3 (I2C_Data for Bus 2)
C6	RESERVED
D6	NC
A5	#GAP
B5	#GA4
C5	SM0 (I2C_Clock for Bus 1)
D5	SM1 (I2C_Data for Bus 1)
A4	#GA3
B4	#GA2
C4	#GA1
D4	#GA0
A3	-5V
B3	RESERVED
C3	RESERVED
D3	RESERVED
P6	+5V
P5	+5V
P4	+5V RTN
P3	+5V RTN
A2	NC
B2	#FAIL
C2	#INHIBIT
D2	#ENABLE
A1	-8V
B1	-8V
C1	-8V RET
D1	-8V RET
P2	-15V
P1	-15V RET

## DESCRIPTION OF THE PARTICULAR SIGNALS DETAILS

SL No	Signal Name	Type	Description
1	#FAIL	Output	To indicate to other modules in the system a failure has occurred in the module.
2	#INHIBIT	Input	It controls power supply outputs. Connecting this signal to <b>SIG_RTN</b> shall turn off the output power.
3	#ENABLE	Input	It controls the input power to the power supply. This signal shall in conjunction with <b>#INHIBIT</b> can cause turn off & on the output power. Please refer to Table 1 for combination of <b>#INHIBIT &amp; #ENABLE</b> .
4	(#GA0- #GA4) & #GAP	Input	It is used for geographical addressing. GA4 is the most significant bit and GA0 is the least significant bit. GAP indicates the parity.
5	SM0 & SM1	Bi directional	It represents the I2C bus 1 Clock and Data respectively. Through this I2C bus The temperature of power supply module could be shared.
6	SM2 & SM3	Bi directional	It represents the I2C bus 2 Clock and Data respectively.

**Table 1**

#INHIBIT	Low	Low	High	High
#ENABLE	Low	High	Low	High
Power Status	"OFF"	"OFF"	"ON"	"OFF"

**NOTE:**

1. All Signals indicated with # represents "active low signal".

**INHIBIT signal**

The INHIBIT signal is used to turn the power supply ON and OFF.

**Fail signal**

Outputs good signal.

**Enable signal**

The Enable signal is used to turn the outputs ON and OFF.

**VOUT SENSE**

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).

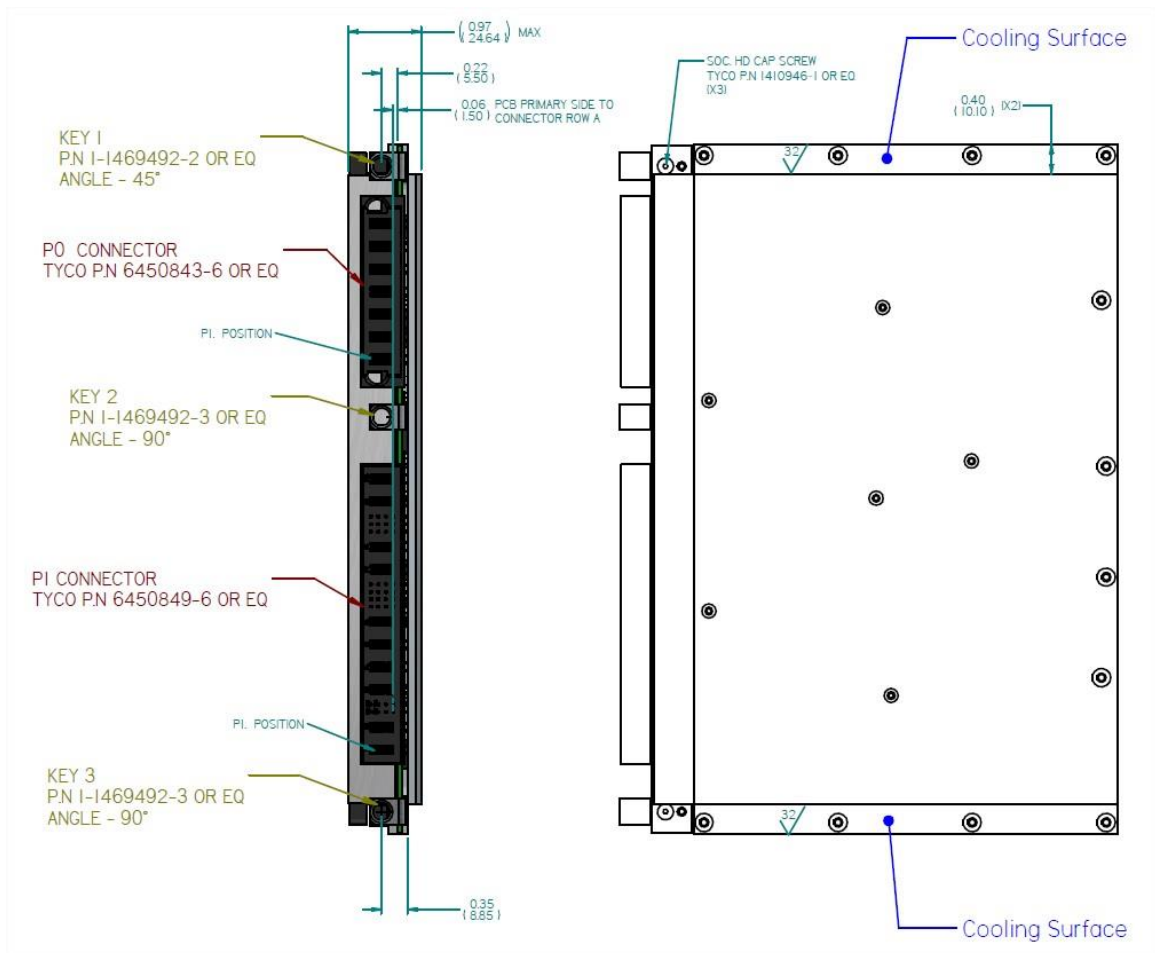
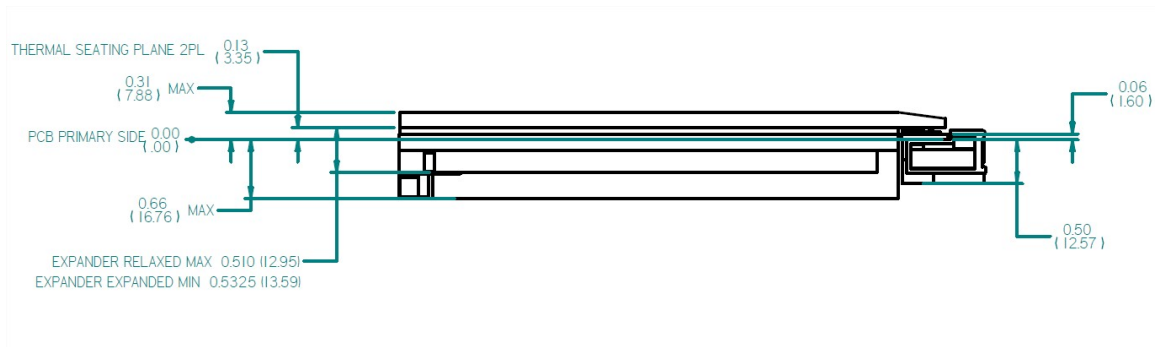
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output.

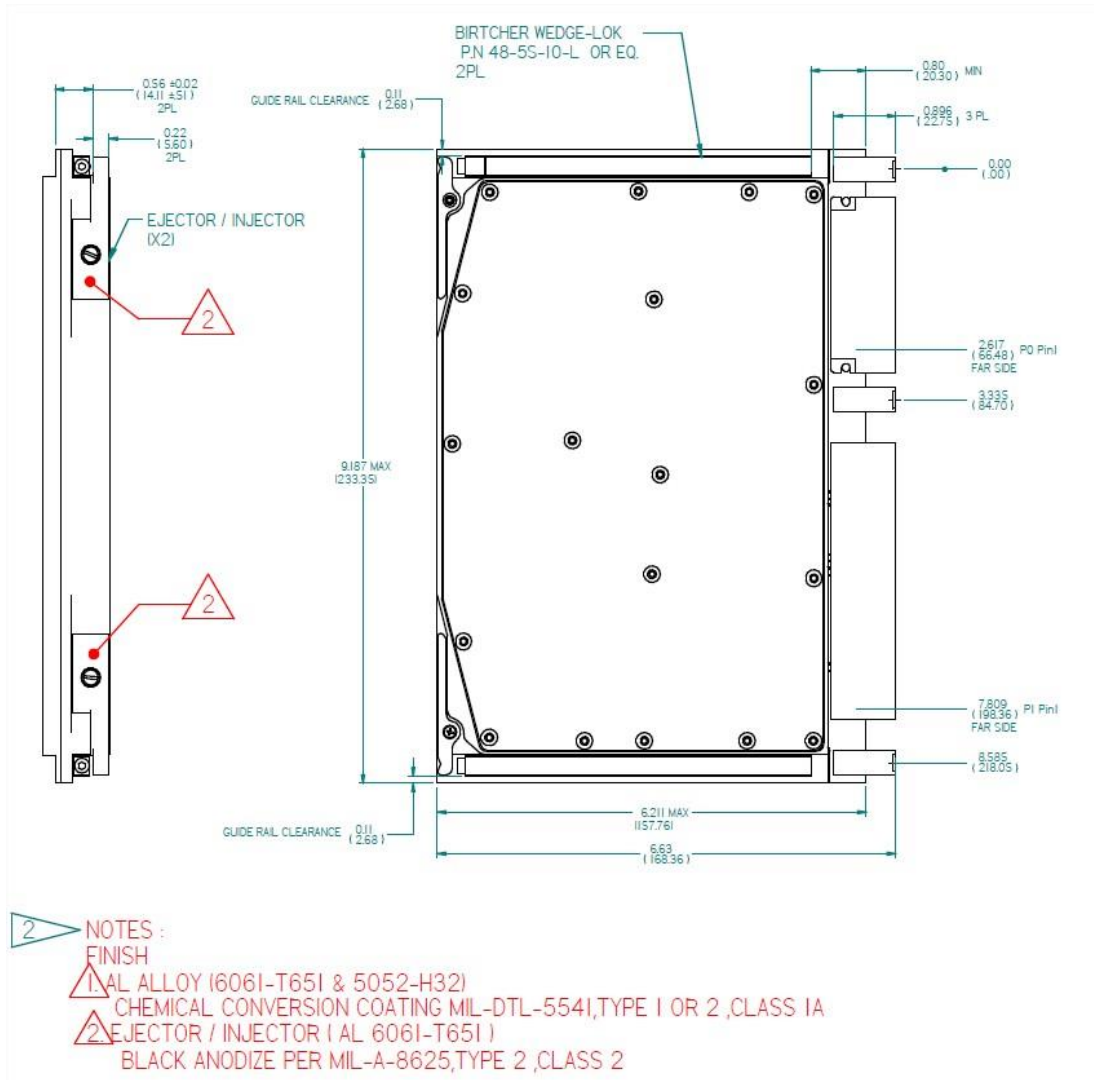
**SYSRESET**

Customer Define – consult factory.



**OUTLINE DRAWING**





UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCH (MM).  
TOLERANCES ARE:

DECIMALS	ANGLES
.XX ± 0.01	± 5°
.XXX ± 0.05	

DO NOT SCALE DRAWING