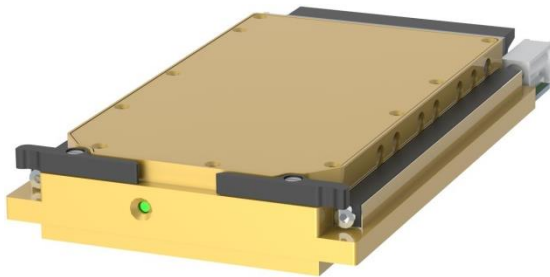


M4071 SERIES

3-PHASE AC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- 1.0 PITCH, 3U VPX FORM FACTOR
- HIGH POWER OUTPUT + AUX OUTPUT
- UP TO 800W

M4071 Series– AC/DC Power Supply

Applications

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

Special Features

- 1.0 Pitch, 3U IAW VITA 62
- High efficiency
- Input / Output isolation
- EMI filters included
- Fixed switching frequency
- Remote Inhibit
- Remote Enable
- Non-latching protections:
 - Short-circuit/overload
 - Output over-voltage
 - Over temperature

Electrical Specifications

AC Input

103 to 125 V_{phase-Neutral}
400 Hz
Three-Phase

DC Outputs (standard version)

| | | |
|----------|---------------------|-------|
| VS1 | 28 V _{DC} | 30 A |
| 3.3V_Aux | 3.3 V _{DC} | 0.4 A |

Isolation

Input to Output: 1000 V_{DC}
Input to Case: 1000 V_{DC}
Output to Case: 200 V_{DC}

Optional: 80Vac and 180Vac transients IAW MIL-STD-704F. **Please consult factory.**

Optional: VS1 peak power of 1000 W for short time. **Please consult factory.**

Output voltage regulation

±1% or better (no load to full load, low line to high line, –40 °C to +71 °C at card edges).

Efficiency

Typical 90% (Nominal line, nominal load, room temperature)

EMC

Internal EMI filter included.
Compliance with MIL-STD-461F CE102, CS101, CS114, CS115 & CS116 possible with external filter.

Ripple and Noise

Less than 100 mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

Output Under-and-overshoot

Output impedance at load step of 50%-100% is 30 to 120 mΩ (depending on output voltage). Output resumes steady-state within 300-500 μs.

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

Input

- **Inrush Current Limiter**
- **Under Voltage Lock-Out**
Unit shuts down when input voltage is below 90 V_{ac}.

Output

- **Active Over-Voltage**
Threshold set at 110% ± 5% of nominal voltage.
- **Passive Over-Voltage**
Threshold selected at 120% ± 10% of nominal voltage.
- **Overload / Short-Circuit**
Protected against indefinite short circuit by a hiccup mechanism (periodical off/on until short is removed).
Threshold set at 120% ± 10% of maximum current.

General

- **Over-Temperature Protection:**
Shutdown if temperature exceeds +95 ± 5 °C.
Automatic recovery upon cooldown to below +85 ± 5 °C.

Environmental Conditions

Designed to meet MIL-STD-810G

Temperature

Operating: –40 °C to +71 °C
(at plug-in card edge, IAW VITA 62 CC3)

Storage: –55 °C to +105 °C

Humidity

Method 507.5
Up to RH 95%

Altitude

Method 500.5, Procedure II
(Operational)

Vibration

Method 514.6
Procedure I
Category 24 - General minimum integrity exposure

Salt Fog

Method 509.5

Shock

Method 516.6
Procedure I
Saw-tooth, 20g peak, 11ms.

Reliability

At least 100,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85°C at wedge lock edge, Ground Fix condition.

Environmental Stress Screening (ESS)

100% of units are tested at minimum and maximum operational temperature, in addition to an ATP in room ambient. Random vibration and thermal cycles can be added if required. **Please contact factory for details and a quote.**

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Pin Assignment

Connector P0

Connector type: TYCO 1-6450839-4 or eq.

Mating connector type: TYCO 2-6450869-7 or eq.

| Pin Number | Signal Name | Function |
|------------|-------------|--|
| LP1 | PHASE A | Input voltage phase A |
| LP3 | PHASE B | Input voltage phase B |
| LP5 | PHASE C | Input voltage phase C |
| LP7 | NEUTRAL | N/C |
| LP9 | HOLDUP_P | Positive output/input to/from holdup module |
| LP11 | HOLDUP_N | Negative output/input to/from holdup module |
| LP13 | CHASSIS | Chassis |
| A1 | GA0* | N/C |
| A2 | GA1* | N/C |
| A3 | SYS_RESET* | N/C |
| B1 | SM0 | N/C |
| B2 | SM1 | N/C |
| B3 | UD0 | N/C |
| C1 | UD1 | N/C |
| C2 | INHIBIT* | Output disable signal |
| C3 | FAIL* | Failure indication signal |
| D1 | SIGNAL_RTN | Return line for signals and 3.3V_AUX |
| D2 | ENABLE* | Input enable signal |
| D3 | 3.3V_AUX | Auxiliary voltage, isolated from the main output |
| P1 | OUTPUT | |
| P2 | OUTPUT_RTN | |

| PART NUMBER | ROWS | POWER | | | | | | | | | | | | | SIGNAL | | | POWER | |
|-------------|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|--------|---|---|-------|----|
| | | LP1 | LP2 | LP3 | LP4 | LP5 | LP6 | LP7 | LP8 | LP9 | LP10 | LP11 | LP12 | LP13 | 1 | 2 | 3 | P1 | P2 |
| 1-6450839-4 | D | | | | | | | | | | | | | | J | J | J | | |
| | C | LM | - | LM | - | LM | - | LM | - | LM | - | LM | - | LM | K | K | K | TM | TM |
| | B | | | | | | | | | | | | | N | N | N | | | |
| | A | | | | | | | | | | | | | S | S | S | | | |

13LP+12S+2P

Functions and Signals

ENABLE* (pin D2)

This signal is used to enable the input power of the converter.
Connect this pin to **SIGNAL_RTN** (pin D1) to enable input power.
Leave open to disable input power.

INHIBIT* (pin C2)

This signal is used to disable the main output of the converter.
Connect this pin to **SIGNAL_RTN** (pin D1) to disable the main output power.
Leave open to enable the main output power.

FAIL* (pin C3)

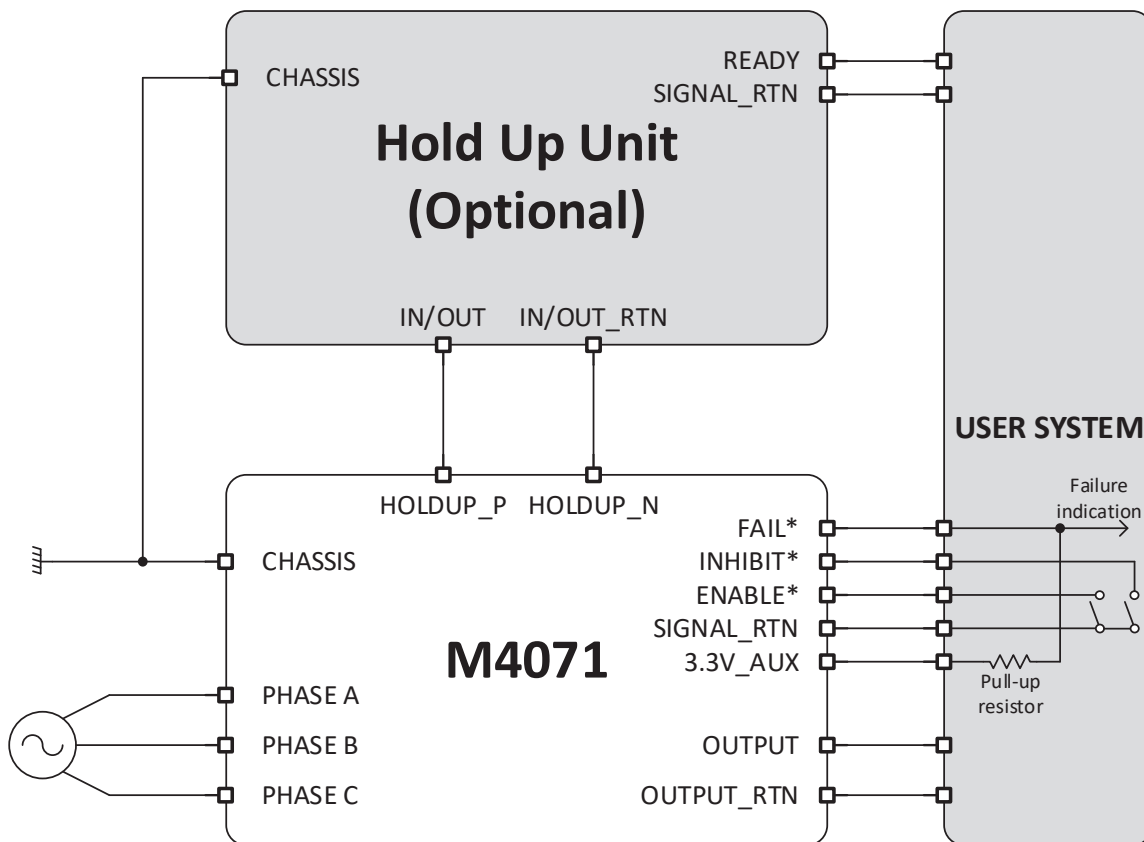
This signal indicates the status of the outputs.
If the any of the output voltages drop below $85\% \pm 5\%$ the signal will go 'high'.
In case any of the output voltages rise above $90\% \pm 5\%$, the signal will be 'low'.
Typical hysteresis for main output (example is 28 V) is 2%.
Typical hysteresis for 3.3V_AUX is 0.5%.
Signal type: Open-drain (connect an external pull-up resistor to 3.3V_AUX for voltage indication).
This signal is referenced to **SIGNAL_RTN** (pins D1)

HOLDUP P/HOLDUP N (pin LP9/LP11)

These pins are connected to the internal DC bus of the converter (the rectified input voltage).
Connect these pins to the appropriate pins of the Hold up Module to add a holdup feature to the converter to provide a transparent ride-through during power interrupt events, IAW MIL-STD-704A-F.

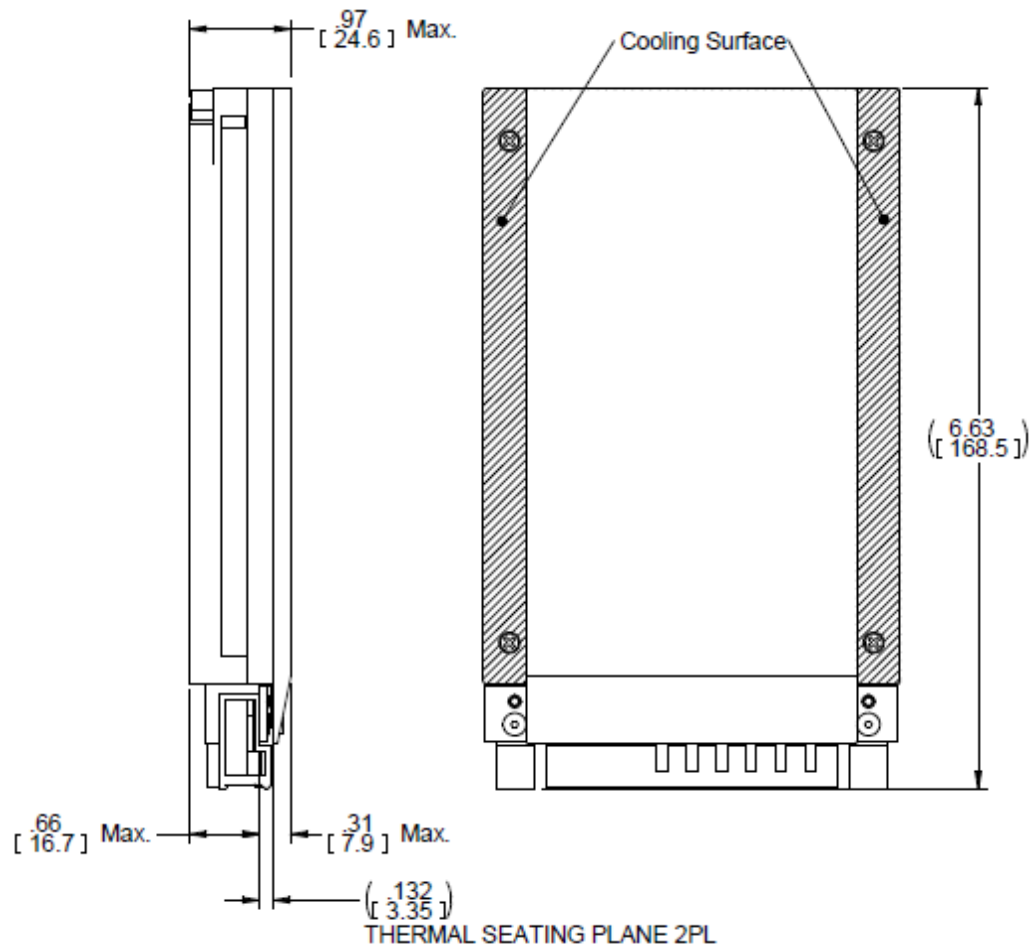
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Typical Connection Diagram

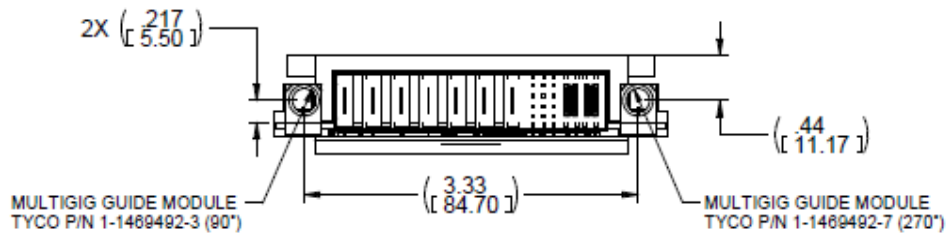
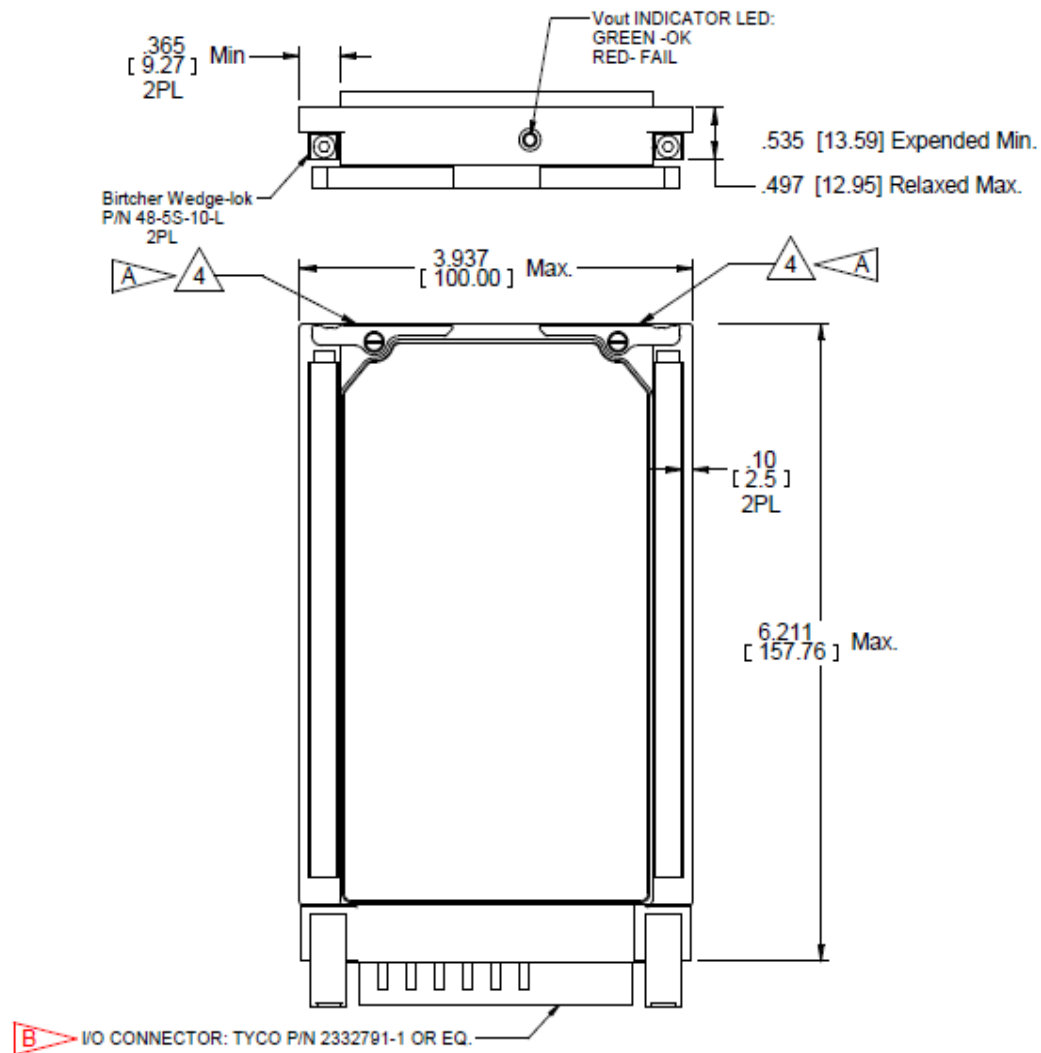


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Outline Drawing



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NOTES :

1. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9
2. DRILL, TAP & COUNTERSINK PER MS 33537
3. MAIN BODY AND COVERS
 - 3.1 MTL. ALUMINIUM ALLOY 6061-T651& AL 5052-H32
 - 3.2 FINISH: CONVERSION COATING PER MIL -C-5541 TYPE 1, CL 1A
4. EJECTOR/INJECTOR
 - 4.1 MTL. ALUMINIUM ALLOY 6061-T651
 - 4.2 FINISH: BLACK ANODIZE PER MIL-A-8625. TYP II. CLASS 2

M4071 Series– AC/DC Power Supply

Standard Configurations

| Part number | Input | | VS1 | | 3.3V_Aux | |
|-------------|-------------------------------------|-----------|--------------------|---------|---------------------|---------|
| | Voltage range | Frequency | Voltage | Current | Voltage | Current |
| M4071100 | 3-phase, 103 to 125 V _{AC} | 400 Hz | 28 V _{DC} | 30 A | 3.3 V _{DC} | 0.4 A |
| M4071800 | 3-phase, 103 to 125 V _{AC} | 400 Hz | 28 V _{DC} | 30 A | 3.3 V _{DC} | 0.4 A |

Special Features

- **M4071-800:** this variant is REACH Compliant
- **M4071-800:** The aluminum parts comprising this variant are chromate conversion coated per MIL-DTL-5541F, Type II CLASS 1A or eq.

Note: Specifications are subject to change without prior notice by the manufacturer.