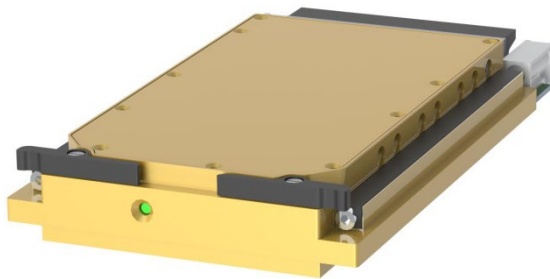


M4071 SERIES

3-PHASE AC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

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



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

100 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}

No damage (may shut down) if exposed to normal/abnormal transients IAW MIL-STD-704A/F & DO-160G

VS1 capable of 1150 W @ 71 °C

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.

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 +105 ± 5 °C.
Automatic recovery upon cooldown to below +90 ± 5 °C.

Environmental Conditions

Designed to meet MIL-STD-810G

Temperature

Operating: -40 °C to +85 °C
(at plug-in card edge, IAW VITA 62 CC3)
Storage: -55 °C to +105 °C

Altitude

Method 500.5, Procedure II
(Operational)

Salt Fog

Method 509.5

Humidity

Method 507.5
Up to RH 95%

Vibration

Method 514.6
Procedure I
Category 24 - General minimum integrity exposure

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.**

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.

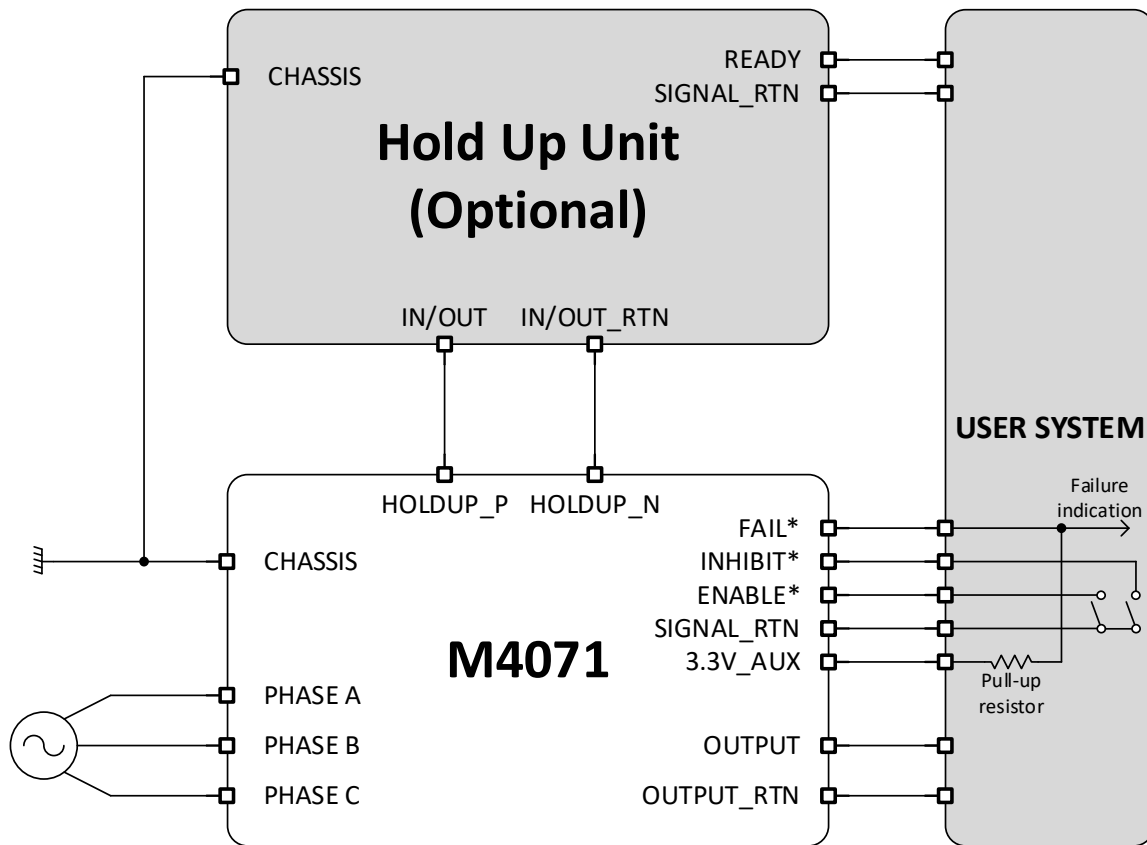
FAIL* (pin C3)

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)

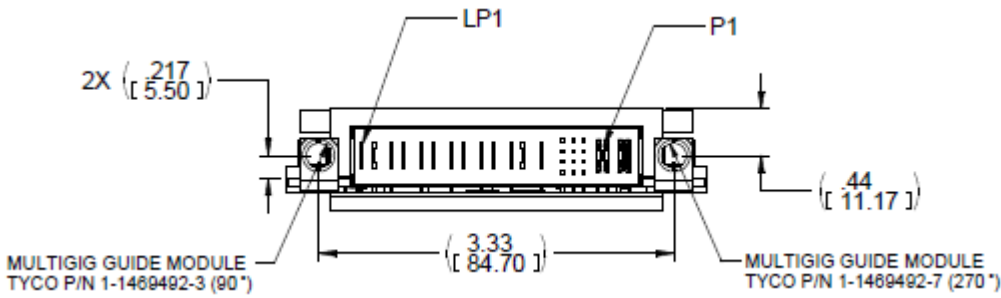
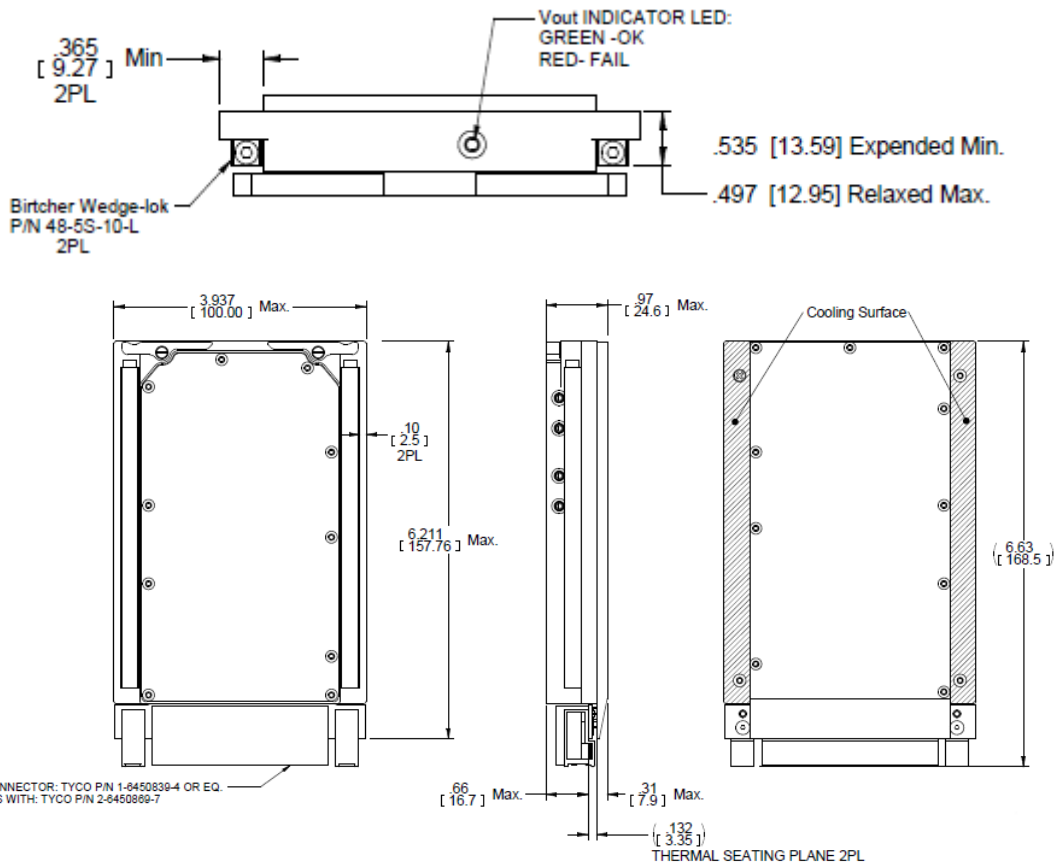
HOLDUP P/HOLDUP N (pin LP11/LP13)

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 M4081 Series Energy Storage Module to add a holdup feature to the converter to provide a transparent ride-through during power interrupt events, IAW MIL-STD-461A-F.

Typical Connection Diagram



Outline Drawing



Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
 - .XX ± 0.01 in
 - .XXX ± 0.005 in
3. Weight: 0.664kg

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

Standard Configurations

Part number	Input		VS1		3.3V_Aux	
	Voltage range	Frequency	Voltage	Current	Voltage	Current
M4071-100	3-phase, 100 to 125 V _{AC}	400 Hz	28 V _{DC}	30 A	3.3 V _{DC}	0.4 A
M4071-800	3-phase, 100 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.