LEACH

INTERNATIONAL CORP

HYPERION-270

HYBRID CONTACTOR SPST/NO, 500 AMP, 270 VDC

Leach's Advanced Hybrid Technology

HIGHLIGHTS

- Hot Switch 270 VDC @ 500 A
- 8x Rupture (4,000 A) of rated current
- Galvanic Isolation
- Qualified IAW MIL-PRF-6106 as applicable
- Economizer Circuit

PRINCIPAL TECHNICAL CHARACTERISTICS

Main Contacts Rated	270 VDC, 400 A / 500 A
Weight	2.0 lbs (±5%)
Dimensions (inch)	4.87" x 2.96" MAX x 4.16"
Contact Arrangement	SPST / NO
Contact Voltage Drop (@ 500 A)	65 mV Initial, 130 mV EOL
Dielectric Withstanding Voltage (Main)	1,500 Vrms
Insulation Resistance	100 Mohm (500 VDC Sea Level)

*Special units available upon request, including at operating current 1,000 A

APPLICATIONS

- Generator Line Contactor (GLC)
- Main Line Contactor (MLC)
- Battery Contactor (BTC)
- Cross-Tie Contactor (XTIE)
- High Current Load Contactors

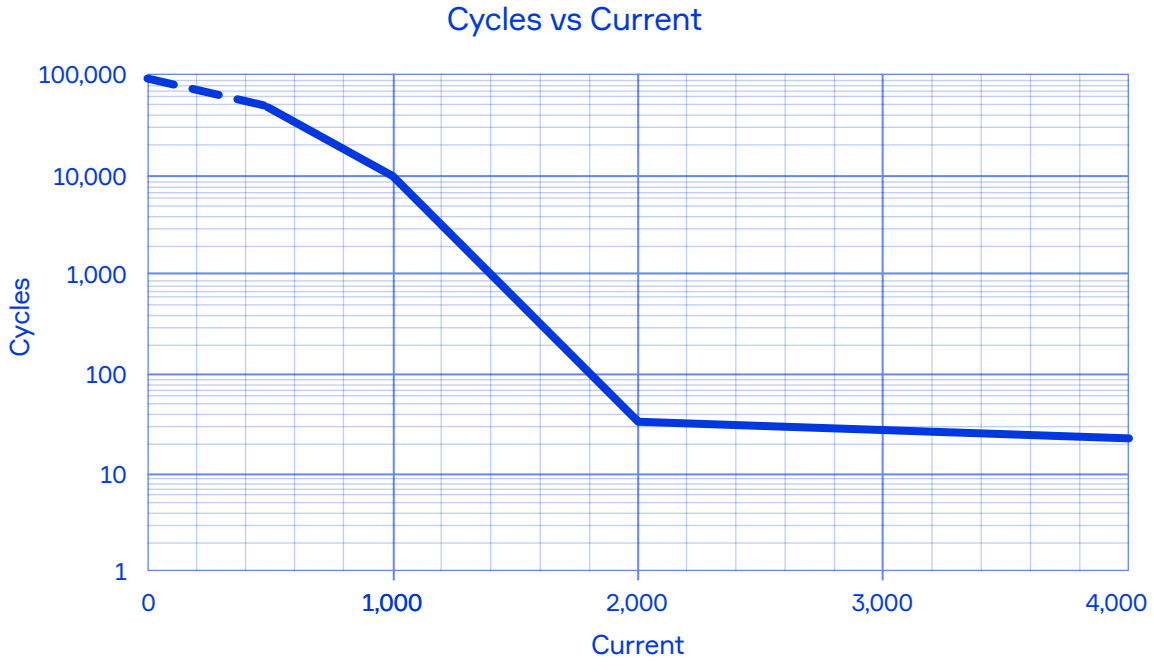
CONTACT ELECTRICAL CHARACTERISTICS

REQUIREMENT	CYCLES	POWER LOAD	
		CURRENT	VOLTAGE
RESISTIVE ELECTRICAL LIFE @ 400 A	50,000+ CYCLES [1]	400 A	270 VDC
RESISTIVE ELECTRICAL LIFE @ 500 A	50,000+ CYCLES [1]	500 A	270 VDC
OVERLOAD [3]	10,000+ CYCLES	1,000 A	270 VDC
RUPTURE [3]	20 CYCLES	2,000 A	120 VDC
RUPTURE [3]	25 CYCLES	4,000 A	28 VDC
MECHANICAL LIFE [2]	100,000 CYCLES	NO LOAD	

NOTES

1. Power-load as defined by MIL-PRF-6106P or equivalent.
2. Mechanical life with no load for 100,000 cycles is applicable to main contacts only.
3. The break operation under these conditions may leave irreversible degradation to the unit. Performance is not guaranteed and maintenance is recommended.

LOAD DERATION CURVE



COIL CHARACTERISTICS

OPERATING VOLTAGE [5] [6]	28 VDC NOMINAL
DIELECTRIC STRENGTH	500 Vrms (SEA LEVEL)
INSULATION RESISTANCE	100 MΩ MIN (500 VDC, SEA LEVEL)
HOLD VOLTAGE	12 VDC MINIMAL

OPERATING TEMPERATURE	10°C	25°C	71°C	85°C	-40°C
PICK-UP VOLTAGE (MAXIMUM) AT BEGINNING OF LIFE (BOL)	15 V	16 V	20 V	20 V	15 V
PICK-UP VOLTAGE (MAXIMUM) AT EOL (END OF LIFE)	18 V	18 V	22 V	23 V	18 V
DROP OUT VOLTAGE (VDC)	2<V<12	2<V<12	2<V<12	2<V<12	2<V<12
MAXIMUM PULL-IN CURRENT (28 VDC) [4]	5 A	4.5 A	4 A	4 A	5 A
MAXIMUM HOLD CURRENT (28 VDC)	0.55 A	0.45 A	0.42 A	0.40 A	0.55 A
MAXIMUM OPERATE TIME (28 VDC)	25 ms	25 ms	35 ms	40 ms	25 ms
MAXIMUM RELEASE TIME (28 VDC)	20 ms	15 ms	15 ms	15 ms	20 ms
COIL TRANSIENT VOLTAGE (MAXIMUM)	62 V	62 V	62 V	62 V	62 V

NOTES

4. Allow 10% (0.5 A) increase to max pull-in current at end of life (EOL)
5. Polarity reversal on coil is not allowed. Follow the schematic for coil polarity
6. Coil Data Measured IAW MIL-PRF-6106 or Equivalent

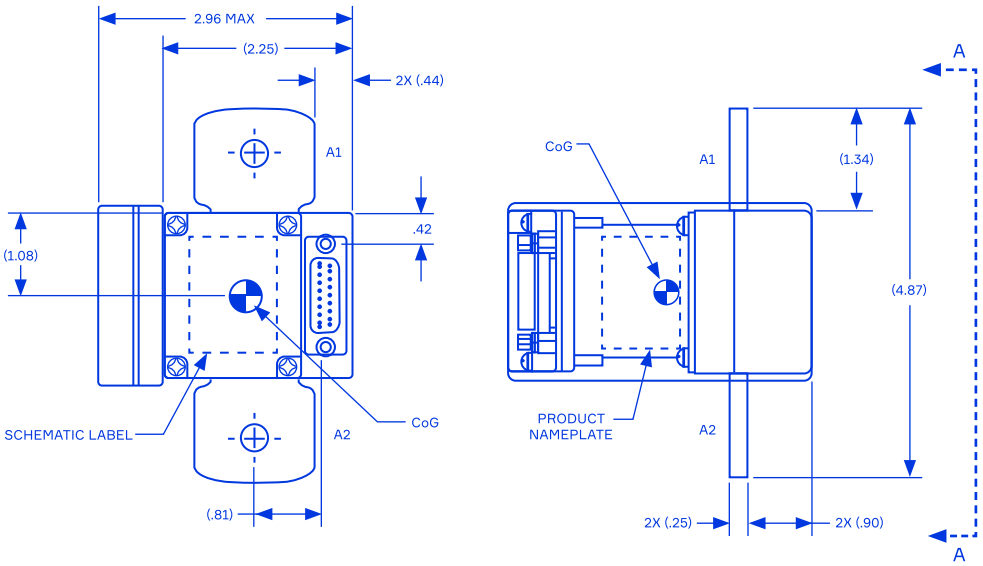
AUX CONTACT DATA

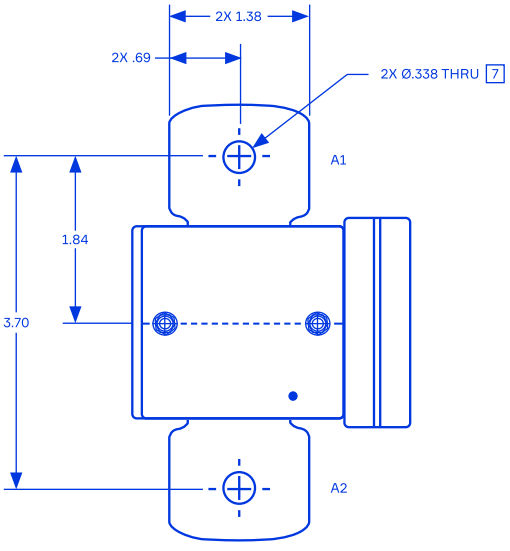
CONFIGURATION	FORM C (NO + NC)
VOLTAGE (NOMINAL)	28 VDC
HIGH CURRENT APPLICATION	5 A MAX RESISTIVE; 2 A MAX INDUCTIVE
LOW CURRENT APPLICATION [13]	10 mA MIN
VOLTAGE DROP (28 VDC, 5 A)	200 mV Initial, 400 mV EOL

GENERAL CHARACTERISTICS

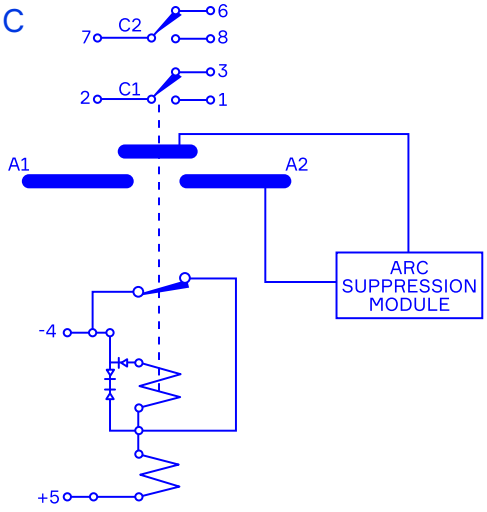
OPERATING TEMPERATURE	-40°C TO +71°C AS DESCRIBED BY CLASS 2 EQUIPMENT IN MIL-HDBK-5400 (CURVE A) +85°C INTERMITTENT OPERATION
STORAGE TEMPERATURE	-55°C TO +125°C (NOT EXPECTED TO OPERATE)
TEMPERATURE	10°C TO +71°C (SEA LEVEL)(CHASSIS AMBIENT TEMPERATURE) AS DESCRIBED BY CLASS 2 EQUIPMENT IN MIL-HDBK-5400 (CURVE A) +85°C INTERMITTENT OPERATION
NON-OPERATING TEMPERATURE	-55°C TO +125°C (NOT EXPECTED TO OPERATE)
ALTITUDE [9]	0 TO 70,000 FT MSL
TEMPERATURE/ ALTITUDE	MIL-HDBK 5400, CLASS 2, FIGURE 2, CURVE A
DECOMPRESSION	70,000 FT OPERATIONAL REQUIREMENT
OVERPRESSURE	RTCA DO-160G SECTION 4 CATEGORY 2
TEMPERATURE VARIATION	-40°C to +71°C NOMINAL
HUMIDITY	MIL-STD-810F, METHOD 507.4
OPERATIONAL SHOCK	MIL-STD-810F, METHOD 516.5, PROCEDURE 1, Table 516.5-I Flight Equipment. 20G FOR 11 ms
VIBRATION RANDOM, ENDURANCE OPERATIONAL	MIL-STD-810F, Method 514.5, Cat 12, Wo = 0.04 g^2 / Hz, Procedure I, Figure 514.8D-1 (Overall 7.3 Grms)
VIBRATION RANDOM, ENDURANCE LEVEL	MIL-STD-810H, Method 514.8, Category 12, Procedure I, Figure 514.8D-1, at W_0 = 0.1 g^2 / Hz (Overall 11.5 Grms)
EXPLOSIVE ATMOSPHERE	MIL-STD-810F, METHOD 511.4
FLUID SUSCEPTIBILITY	RTCA DO-160G SECTION 11
FUNGUS RESISTANCE	RTCA DO-160G SECTION 13, CATEGORY F
MAGNETIC EFFECT	RTCA DO-160G SECTION 15, CATEGORY A
POWER INPUT (COIL)	MIL-STD-704F METHOD LDC101, Load Measurements METHOD LDC102, Steady State Limits For Voltage METHOD LDC103, Voltage Distortion Spectrum METHOD LDC104, Total Ripple METHOD LDC105, Normal Voltage Transient METHOD LDC201, Power Interrupt METHOD LDC301, Steady State Limits For Voltage METHOD LDC302, Abnormal Voltage Transients METHOD LDC401, Steady State Limits For Voltage METHOD LDC501, Starting Voltage Transients
VOLTAGE SPIKE (COIL)	600 V
EMI	MIL-STD 461G - CS114 conducted susceptibility, bulk cable injection MIL-STD 461G - RE102 radiated emissions, electric field MIL-STD 461G - CS115 conducted susceptibility, bulk cable injection, impulse excitation MIL-STD 461G - RS103, radiated susceptibility, electric field MIL-STD 461G - CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads
FIRE AND FLAMMABILITY	RTCA DO-16G, SECTION 26 CATEGORY C
SALT FOG	RTCA DO-160G, SECTION 14, CATEGORY S
SAND AND DUST	RTCA DO-160G, SECTION 12, CATEGORY D

CONFIGURATION STYLE





SCHEMATIC



NOTES

7. Recommended lug MS20659-157 or equivalent lug with hole size 5 / 16”
8. This hybrid contactor uses Leach’s patented design (US patent no. 11081297), an electronic arc suppressor to quickly quench the arc, and prolong the life of the contactor
9. 0-50,000 Ft Nominal. 70,000 Ft maximum with some thermal derated performance
10. Mechanical - electrical interface
    A. Maximum allowable connection resistance: 3µΩ per connection
    B. Minimum connection area recommended for 400 A rating is 0.062 in^2
    C. Recommended electrical connection fastener 17-4PH 5 / 16-24 UNF, IAW AMS 5604 or equivalent
11. Recommended electrical power cable for busbar: 4 / 0 awg
12. Connector M24308 / 24-2f or commercial equivalent
13. Low current application will be lost once >100 mA current is switched by AUX contact. The NO or NC AUX of each Form C shall be used on the same current application. Either High current (>100 mA) or Low Current (<100 mA) Only.

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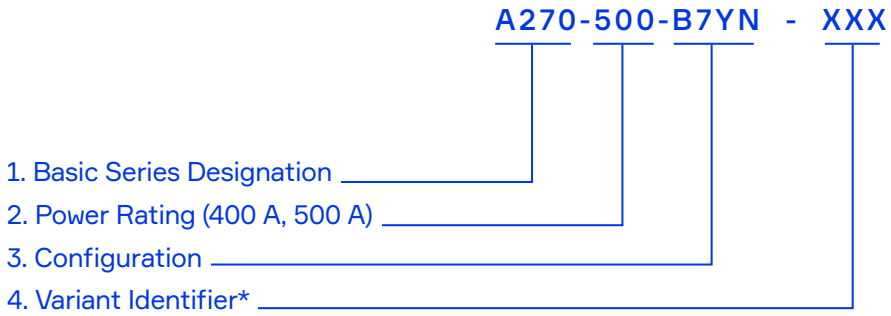
PART NUMBER CONFIGURATION



* -XXX denotes customer or application-specific requirements.

Part number example: A270-400-B7YN-011 (400A)
A270-500-B7YN-014 (500A) indicating a COTS product

Leach International Corporation designs and manufactures relays, electronic control devices, and power systems primarily for the aerospace and defense industries. Since 1919, Leach has been known for design excellence and commitment to quality and reliability.

Our 100-year legacy includes the invention of the electrical relay for aircraft systems. Worldwide, our equipment and components are used in the most severe conditions where reliability and high performance are critical, in thousands of aerospace, military, rail and high-end industrial applications.

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