

Specifications LC-030-XXX



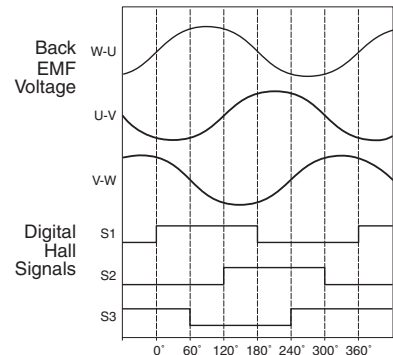
| Performance Parameters | Symbol | Units | LC-030-100 | | | LC-030-200 | | | LC-030-300 | | | LC-030-400 | | | LC-030-600 | | | LC-030-800 | | | | | | | | | | | | | | | | | | | | |
|--|-------------|--|--------------|------------|------------|--------------|------------|-------------|--------------|------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling Method | | | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | | | | | | | | | | | | | | | | | | |
| Continuous Force ¹ | F_{cTmax} | N (lbf) | 82 (18) | 102 (23) | 123 (28) | 164 (37) | 205 (46) | 246 (55) | 246 (55) | 307 (69) | 369 (83) | 328 (74) | 410 (92) | 492 (110) | 492 (110) | 614 (138) | 737 (166) | 655 (147) | 819 (184) | 983 (221) | | | | | | | | | | | | | | | | | | |
| Peak Force ² | F_p | N (lbf) | 188 (42) | 188 (42) | 188 (42) | 375 (84) | 375 (84) | 375 (84) | 563 (127) | 563 (127) | 563 (127) | 751 (169) | 751 (169) | 751 (169) | 1126 (253) | 1126 (253) | 1126 (253) | 1501 (337) | 1501 (337) | 1501 (337) | | | | | | | | | | | | | | | | | | |
| Motor Constant ¹ | K_M | N/√-W (lbf/√-W) | 11.7 (2.6) | 11.7 (2.6) | 11.7 (2.6) | 16.5 (3.7) | 16.5 (3.7) | 16.5 (3.7) | 20.3 (4.6) | 20.3 (4.6) | 20.3 (4.6) | 23.4 (5.3) | 23.4 (5.3) | 23.4 (5.3) | 28.6 (6.4) | 28.6 (6.4) | 28.6 (6.4) | 33.1 (7.4) | 33.1 (7.4) | 33.1 (7.4) | | | | | | | | | | | | | | | | | | |
| Thermal Resistance | R_{th} | °C/W | 2.24 | 1.43 | 1.00 | 1.12 | 0.72 | 0.50 | 0.75 | 0.48 | 0.33 | 0.56 | 0.36 | 0.25 | 0.37 | 0.24 | 0.17 | 0.28 | 0.18 | 0.12 | | | | | | | | | | | | | | | | | | |
| Max Power Dissipation | P_{cTmax} | W | 49 | 77 | 110 | 98 | 153 | 221 | 147 | 230 | 331 | 196 | 307 | 442 | 295 | 460 | 663 | 393 | 614 | 884 | | | | | | | | | | | | | | | | | | |
| Maximum Applied Bus Voltage ⁷ | V_{DC} | Volts | 650 | | | 650 | | | 650 | | | 650 | | | 650 | | | 650 | | | | | | | | | | | | | | | | | | | | |
| Electrical Cycle Length | E_c | mm | 50 | | | 50 | | | 50 | | | 50 | | | 50 | | | 50 | | | | | | | | | | | | | | | | | | | | |
| Electrical Time Constant | τ_e | msec | 10 | | | 10 | | | 10 | | | 10 | | | 10 | | | 10 | | | | | | | | | | | | | | | | | | | | |
| Maximum Coil Temperature | T_{max} | °C | 130 | | | 130 | | | 130 | | | 130 | | | 130 | | | 130 | | | | | | | | | | | | | | | | | | | | |
| Winding Type | | | D | | E | D | | E | D | | E | D | | E | D | | E | D | | E | | | | | | | | | | | | | | | | | | |
| Force Constant ^{1,6} | K_F | N/A _{pk} (lbf/A _{pk}) | 18.2 (4.1) | | N/A | 18.2 (4.1) | | 36.4 (8.2) | 18.2 (4.1) | | 54.6 (12.3) | 18.2 (4.1) | | 36.4 (8.2) | 18.2 (4.1) | | 36.4 (8.2) | 18.2 (4.1) | | 36.4 (8.2) | | | | | | | | | | | | | | | | | | |
| Back EMF Constant p-p ^{3,4,6} | K_e | V _p /m/s (V _p /in/s) | 21.5 (0.55) | | N/A | 21.5 (0.55) | | 43.0 (1.09) | 21.5 (0.55) | | 64.5 (1.64) | 21.5 (0.55) | | 43.0 (1.09) | 21.5 (0.55) | | 43.0 (1.09) | 21.5 (0.55) | | 43.0 (1.09) | | | | | | | | | | | | | | | | | | |
| Peak Current ⁴ | I_p | A _{pk} (A _{rms}) | 12.1 (8.6) | | N/A | 24.3 (17.1) | | 12.1 (8.6) | 36.4 (25.7) | | 12.1 (8.6) | 48.5 (34.3) | | 24.3 (17.1) | 72.8 (51.4) | | 36.4 (25.7) | 97.0 (68.6) | | 48.5 (34.3) | | | | | | | | | | | | | | | | | | |
| Cooling Type | | | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | NC | AC | WC | | | | | | | | | |
| Continuous Current ^{1,4} | I_{cTmax} | A _{pk} (A _{rms}) | 4.5 (3.18) | 5.6 (4.0) | 6.8 (4.8) | N/A | N/A | N/A | 9.0 (6.4) | 11.3 (8.0) | 13.5 (9.5) | 4.5 (3.2) | 5.6 (4.0) | 6.8 (4.8) | 13.5 (9.5) | 16.9 (11.9) | 20.3 (14.3) | 4.5 (3.2) | 5.6 (4.0) | 6.8 (4.8) | 18.0 (12.7) | 22.5 (15.9) | 27.0 (19.1) | 9.0 (6.4) | 11.3 (8.0) | 13.5 (9.5) | 27.0 (19.1) | 33.8 (23.9) | 40.5 (28.6) | 13.5 (9.5) | 16.9 (11.9) | 20.3 (14.3) | 36.0 (25.5) | 45.0 (31.8) | 54.0 (38.2) | 18.0 (12.7) | 22.5 (15.9) | 27.0 (19.1) |
| Resistance p-p ^{3,6} @20°C | R_{20} | ohm | 2.256 | | N/A | 1.128 | | 4.51 | 0.75 | | 6.77 | 0.56 | | 2.26 | 0.38 | | 1.50 | 0.28 | | 1.13 | | | | | | | | | | | | | | | | | | |
| Inductance p-p ³ | L | mH | 21.6 | | N/A | 10.8 | | 43.0 | 7.20 | | 65.0 | 5.0 | | 22.0 | 4 | | 14 | 3 | | 11 | | | | | | | | | | | | | | | | | | |
| Mechanical Parameters | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnetic Attraction ⁸ | F_a | N (lbf) | 393 (88) | | | 786 (177) | | | 1179 (265) | | | 1572 (353) | | | 2358 (530) | | | 3144 (707) | | | | | | | | | | | | | | | | | | | | |
| Coil Mass ⁵ | M_c | kg (lb _m) | 1.28 (2.8) | 1.40 (3.1) | 1.40 (3.1) | 2.23 (4.9) | 2.46 (5.4) | 2.46 (5.4) | 3.20 (7.0) | 3.54 (7.8) | 3.54 (7.8) | 4.17 (9.2) | 4.62 (10.2) | 4.62 (10.2) | 6.03 (13.3) | 6.66 (14.7) | 6.66 (14.7) | 7.94 (17.5) | 8.80 (19.4) | 8.80 (19.4) | | | | | | | | | | | | | | | | | | |
| Magnetic Track Mass | M_n | kg/m (lb/in) | 4.712 (0.26) | | | 4.712 (0.26) | | | 4.712 (0.26) | | | 4.712 (0.26) | | | 4.712 (0.26) | | | 4.712 (0.26) | | | | | | | | | | | | | | | | | | | | |

Notes: NC= No Cooling, AC= Air Cooling, WC = Water Cooling

Motor performance specifications are with sinusoidal commutation.

- Continuous forces, motor constant and current listed are with coils at maximum temperature 130°C, mounted to a 1" aluminum heat sink whose area is noted in the table, and at 20°C ambient.
- Max on time 1 sec. In certain applications, the motor may produce significantly higher peak forces. Please contact Anorad Applications Engineering for details.
- All winding parameters listed are measured line-to-line (phase-to-phase).
- All currents and voltages listed are measured 0-peak of the sine wave unless noted rms.
- AC and WC include mass of cooling plate. Consult Anorad for Flow and Pressure for air cooled and water cooled version.
- All specifications are ±10%. Phase-to-phase inductance is ±30%.
- Maximum cable length 10 meters. Please consult factory concerning applications requiring longer cables.
- All specifications are at the standard referenced air gap.

Motor Phasing Diagram



Note: Phasing direction is coil moving towards motor power cable.