

150-C3NBR

| Standard Features | | | | | | | | |
|--|---|--|----------------------------------|--------------------------|---------------------------------------|---------------|-------|----|
| Selectable Start Times | 2, 5, 10, 15, 20, 25, or 30 s | | | | | | | |
| Selectable Initial Torque | 0%, 25%, 35%, and 65% of locked rotor torque | | | | | | | |
| Selectable Current Limit | 150%, 250%, 350%, and 450% of full load current | | | | | | | |
| Selectable Kick Start — 450% FLA | 0, 0.5, 1.0, or 1.5 s | | | | | | | |
| Selectable Soft Stop | Off, 100%, 200%, or 300% of the start time setting when wired | | | | | | | |
| Electrical Ratings | | | | | | | | |
| | UL/CSA/NEMA | | | IEC | | | | |
| Power Circuit | Rated Operation Voltage | 200...480V AC 200...600V AC | | | 200...480V~ — 400V~ | | | |
| | Rated Insulation Voltage | 600V AC | | | 500V~ — 500V~ | | | |
| | Dielectric Withstand | 2200V AC | | | 500V~ | | | |
| | Repetitive Peak | 200...480V AC: 1400V 200...600V AC: 1600V | | | 2500V~ | | | |
| | Operating Frequency | 50/60 Hz | | | 200...480V~: 1400V | | | |
| | | 1...37 A | — | | 500V~: 1600V | | | |
| | | 43...60 A | — | | 50/60 Hz | | | |
| | Utilization Category | 85 A | — | | AC-53b: 3.5-15:3585 | | | |
| | | 108 A | — | | AC-53b: 4.5-30:1770 | | | |
| | | 135 A | — | | AC-53b: 4.5-30:3570 | | | |
| 201...251 A | | — | | AC-53b: 3.5-30: 1770 | | | | |
| | 317...480 A | — | | AC-53b: 3.5-30: 1770 | | | | |
| Number of Poles | Equipment designed for 3-phase only | | | | | | | |
| Rated Impulse Voltage | 6 kV | | | | | | | |
| DV/DT Protection | 1000V/μs | | | | | | | |
| Overvoltage Category | III | | | | | | | |
| | Type 1 | | | | | | | |
| SCPD Performance | Non-Time Delay | | Thermal Magnetic Circuit Breaker | | High Capacity Time Delay Class CC/J/L | | | |
| SCPD List† | Max. Standard Available Fault | Max. Standard Fuse (A)* | Max. Standard Available Fault | Max. Circuit Breaker (A) | Max. Standard Available Fault | Max. Fuse (A) | | |
| Line Device Operational Current Rating (A) | 3 | 5 kA | 12 | 5 kA | 12 | 70 kA | 6 | |
| | 9 | 5 kA | 30 | 5 kA | 30 | 70 kA | 15 | |
| | 16 | 5 kA | 60 | 5 kA | 60 | 42 kA | 30 | |
| | 19 | 5 kA | 70 | 5 kA | 70 | 42 kA | 40 | |
| | 25 | 5 kA | 100 | 5 kA | 100 | 42 kA | 50 | |
| | 30 | 5 kA | 110 | 5 kA | 110 | 42 kA | 60 | |
| | 37 | 5 kA | 125 | 5 kA | 125 | 42 kA | 60 | |
| | 43 | 10 kA | 150 | 10 kA | 150 | 70 kA | 90 | |
| | 60 | 10 kA | 225 | 10 kA | 225 | 70 kA | 125 | |
| | 85 | 10 kA | 300 | 10 kA | 300 | 70 kA | 175 | |
| | 108 | 18 kA | 400 | 18 kA | 300 | 70 kA | 200 | |
| | 135 | 18 kA | 500 | 18 kA | 400 | 70 kA | 225 | |
| | 201 | 18 kA | 600 | 18 kA | 600 | 70 kA | 350 | |
| | 251 | 30 kA | 700 | 30 kA | 700 | 70 kA | 400 | |
| | 317 | 30 kA | 800 | 30 kA | 800 | 69 kA | 500 | |
| | 361 | 42 kA | 1000 | 30 kA | 1000 | 69 kA | 600 | |
| | 480 | 42 kA | 1200 | 30 kA | 1200 | 69 kA | 800 | |
| | Delta Device Operational Current Rating (A) | 5.1 | 5 kA | 12 | 5 kA | 12 | 70 kA | 6 |
| | | 16 | 5 kA | 30 | 5 kA | 30 | 70 kA | 15 |
| | | 27.6 | 5 kA | 60 | 5 kA | 60 | 42 kA | 30 |
| 32.8 | | 5 kA | 70 | 5 kA | 70 | 42 kA | 40 | |
| 43 | | 5 kA | 100 | 5 kA | 100 | 42 kA | 50 | |
| 52 | | 5 kA | 110 | 5 kA | 110 | 42 kA | 60 | |
| 64 | | 5 kA | 125 | 5 kA | 125 | 42 kA | 60 | |
| 74 | | 10 kA | 250 | 10 kA | 250 | 70 kA | 150 | |
| 104 | | 10 kA | 400 | 10 kA | 300 | 70 kA | 200 | |
| 147 | | 10 kA | 400 | 10 kA | 400 | 70 kA | 200 | |
| 187 | | 18 kA | 600 | 18 kA | 500 | 70 kA | 300 | |
| 234 | | 18 kA | 700 | 18 kA | 700 | 70 kA | 400 | |
| 348 | | 18 kA | 1000 | 18 kA | 1000 | 70 kA | 600 | |
| 435 | | 30 kA | 1200 | 30 kA | 1200 | 69 kA | 800 | |
| 549 | | 30 kA | 1600 | 30 kA | 1600 | 69 kA | 1000 | |
| 625 | | 42 kA | 1600 | 30 kA | 1600 | 69 kA | 1200 | |
| 831 | 42 kA | 1600 | 30 kA | 1600 | 69 kA | 1600 | | |

* Non-time delay fuses (K5).

† Consult local codes for proper sizing of short circuit protection.

Bulletin 150
Smart Motor Controllers — SMC™-3
 Specifications, Continued

| Electrical Ratings | | | | |
|--|--------------------------------------|--|----------------------------|---|
| | | UL/CSA/NEMA | IEC | |
| Rated Operational Voltage (+10%, -15%) | | 100...240V AC, 24V AC/DC | 100...240V~, 24V AC/DC | |
| Rated Insulation Voltage | | 250V | 250V~ | |
| Rated Impulse Voltage | | — | 4 kV | |
| Dielectric Withstand | | 1500V AC | 2000V~ | |
| Overvoltage Category | | — | III* | |
| Operating Frequency | | 50/60 Hz | 50/60 Hz | |
| Input onstate voltage minimum, during start (IN1, IN2) | | 85V AC, 19.2V DC / 19.2V AC | | |
| Input onstate current (IN1, IN2) | | 9.8 mA @ 120V AC / 19.6 mA @ 240V AC, 7.3 mA @ 24V AC/DC | | |
| Input offstate voltage maximum (IN1, IN2) | | 40V AC, 17V DC / 12V AC | | |
| Input offstate current @ input offstate voltage (IN1, IN2) | | <10 mA, <12 mA | | |
| Control Circuit | 3...37 A | 215 mA @ 120V AC / 180 mA @ 240V AC, 800 mA @ 24V DC / 660 mA @ 24V AC | | |
| | 43...85 A | 200 mA @ 120V AC / 100 mA @ 240V AC, 700 mA @ 24V AC/DC | | |
| | Control Power with Fan, during start | | Fan Power | Control Power |
| | | 108...135 A | 20 VA | 200 mA @ 120V AC / 120 mA @ 240V AC, 600 mA @ 24V AC/DC |
| | | 201...251 A | 40 VA | |
| 317...480 A | 60 VA | | | |
| Control Power without Fan, during start | 3...37 A | 205 mA @ 120V AC / 145 mA @ 240V AC, 705 mA @ 24V DC / 580 mA @ 24V AC | | |
| Steady State Heat Dissipation and Overload Current Range | Controller Rating (A) | Steady State Heat Dissipation (W) | Overload Current Range (A) | |
| | 3 | 11 | 1...3 | |
| | 9 | 12 | 3...9 | |
| | 16 | 14 | 5.3...16 | |
| | 19 | 15 | 6.3...19 | |
| | 25 | 17 | 9.2...27.7 | |
| | 30 | 19 | 10...30 | |
| | 37 | 24 | 12.3...37 | |
| | 43 | 34 | 14.3...43 | |
| | 60 | 50 | 20...60 | |
| | 85 | 82 | 28.3...85 | |
| | 108 | 62 | 27...108 | |
| | 135 | 75 | 34...135 | |
| | 201 | 129 | 67...201 | |
| | 251 | 147 | 84...251 | |
| 317 | 174 | 106...317 | | |
| 361 | 194 | 120...361 | | |
| 480 | 239 | 160...480 | | |

| Auxiliary Contacts | | | |
|------------------------------------|---------------------------------------|---------------------------------|--------------|
| | | UL/CSA/NEMA | IEC |
| Rated Operational Voltage | | 250V AC/30V DC | 250V~/30V DC |
| Rated Insulation Voltage | | 250V | 250V~ |
| Rated Impulse Voltage | | — | 4 kV |
| Dielectric Withstand | | 1500V AC | 2000V~ |
| Overvoltage Category | | — | III* |
| Operating Frequency | | 50/60 Hz | 50/60 Hz |
| Utilization Category | | D300/D300 | AC-15/DC |
| TB-97, -98 (OVLD/Fault) | Type of Control Circuit | Electromagnetic relay | |
| | Number of Contacts | 1 | |
| | Type of Contacts | Normally Open (N.O.) | |
| | Type of Current | AC/DC | |
| | Rated Operational Current (max.) | 0.6 A @ 120V~ and 0.3 A @ 240V~ | |
| | Conventional Thermal Current I_{th} | 1 A | |
| | Make/Break VA | 432/72 | |
| TB-13, -14 (Normal/Up-to-Speed) | Type of Control Circuit | Electromagnetic relay | |
| | Number of Contacts | 1 | |
| | Type of Contacts | Normally Open (N.O.) | |
| | Type of Current | AC/DC | |
| | Rated Operational Current (max.) | 0.6 A @ 120V~ and 0.3 A @ 240V~ | |
| | Conventional Thermal Current I_{th} | 1 A | |
| | Make/Break VA | 432/72 | |

*Overvoltage category II, when either control or auxiliary circuit is wired to a SELV or PELV circuit.

| Electrical Ratings | | |
|--|---------------------------------------|---|
| Side-Mount Auxiliary Contacts | | |
| | UL/CSA/NEMA | IEC |
| Rated Operational Voltage | 250V AC/30V DC | 250V AC/30V DC |
| Rated Insulation Voltage | 250V | 250V AC |
| Rated Impulse Voltage | — | 4 kV |
| Dielectric Withstand | 1500V AC | 2000V AC |
| Overvoltage Category | — | III* |
| Operating Frequency | 50/60 Hz | 50/60 Hz |
| | C300/R150 | AC-15/DC-13 |
| TB-23, -24 (Normal/Up-to-Speed) TB-33, -34 (Normal/Up-to-Speed) | Utilization Category | Electromagnetic relay |
| | Type of Control Circuit | 1 |
| | Number of Contacts | Normally Open (N.O.) |
| | Type of Contacts | AC/DC |
| | Type of Current | 1.5 A @ 120V AC, 0.75A @ 240V AC, 1.17 A @ 24V DC |
| | Rated Operational Current (max.) | 2.5 A |
| | Conventional Thermal Current I_{th} | 1800/180V AC, 28V DC (resistive) |
| | Make/Break VA | B300/R300 |
| TB-11, -12 (Normal/Up-to-Speed) | Type of Control Circuit | Electromagnetic relay |
| | Type of Control Circuit | 1 |
| | Number of Contacts | Normally Open (N.O.) |
| | Type of Contacts | AC/DC |
| | Type of Current | 3 A @ 120V AC, 1.5A @ 240V AC, 1.17 A @ 24V DC |
| | Rated Operational Current (max.) | 5 A |
| | Conventional Thermal Current I_{th} | 3600/360 V AC, 28V DC (resistive) |
| | Make/Break VA | |

*Overvoltage category II, when either control or auxiliary circuit is wired to a SELV or PELV circuit.

| Environmental | |
|--|--|
| Operating Temperature Range | -5...50 °C (23...122 °F) (open) -5...40 °C (23...104 °F) (enclosed) |
| Storage and Transportation Temperature Range | -25...85 °C (-13...185 °F) |
| Altitude | 2000 m (6560 ft) |
| Humidity | 5...95% (non-condensing) |
| Pollution Degree | 2 |
| Type of Protection | IP2X |

| Mechanical Ratings | | |
|-------------------------|---------------------------------------|--|
| Resistance to Vibration | Operational | 1.0 G Peak, 0.15 mm (0.006 in.) displacement |
| | Non-Operational | 2.5 G Peak, 0.38 mm (0.015 in.) displacement |
| Resistance to Shock | Operational | 15 G |
| | Non-Operational | 30 G |
| Line Power Terminals | Cable Size Tightening Torque | 3...37 A 2.5...25 mm ² (14...4 AWG) 2.3...2.8 N•m (20...25 in-lbs) |
| | | 43...85 A 2.5...95 mm ² (14...3/0 AWG) 11.3...12.4 N•m (100...110 in-lbs) |
| | | 108...135 A 23 N•m (200 in-lbs) |
| | | 201...251 A Two M10 x 1.5 diameter holes per power pole |
| | | 317...480 A Two M12 x 1.75 diameter holes per power pole |
| Load Power Terminals | Cable Size Tightening Torque | 3...37 A 2.5...16 mm ² (14...6 AWG) 2.3...2.5 N•m (20...22.5 in-lbs) |
| | | 43...85 A 2.5...50 mm ² (14...1 AWG) 11.3...12.4 N•m (100...110 in-lbs) |
| | | 108...135 A 23 N•m (200 in-lbs) |
| | | 201...251 A Two M10 x 1.5 diameter holes per power pole |
| | | 317...480 A Two M12 x 1.75 diameter holes per power pole |
| Control Terminals | Cable Size Tightening Torque | All 0.2...2.5 mm ² (24...14 AWG) 0.5...0.9 N•m (4.4...8.0 in-lbs) |
| Other | | |
| EMC Emission Levels | Conducted Radio Frequency Emissions | — |
| | Radiated Emissions | — |
| EMC Immunity Levels | Electrostatic Discharge | 4 kV Contact and 8 kV Air Discharge |
| | Radio Frequency Electromagnetic Field | — |
| | Fast Transient | — |
| | Surge Transient | — |