

CROSS REFERENCE: Migration to MD60 AC Drives

| Attribute | MD60 | SP200 | SP120 | Comments |
|-------------------------------------|--------------------------------|---------------------------------------|---------------------------------|--|
| Drive Type | V/Hz | V/Hz | V/Hz | 40:1 operating range; ± 2% speed regulation with slip compensation |
| Agency Approvals | | | | |
| Listings | UL, cUL, CE, C-tick | UL, cUL, CE | UL, cUL, CE | C-tick for Australia on MD60 |
| Horsepower Rating | | | | |
| 120V AC, 1-Phase | 0.25 to 1HP | 0.5 to 1.5HP | 0.25 to 1HP | 120 V AC 1-Phase input, outputs 3-Phase 230 V AC to the motor |
| 230V AC, 1-Phase | 0.25 to 2HP | 0.5 to 2HP | 0.25 to 3HP | 230 V AC 1-Phase input, outputs 3-Phase 230 V AC to the motor |
| 230V AC, 3-Phase | 0.25 to 5HP | 0.5 to 2HP | 0.25 to 5HP | MD60 is rated at 240V +10% |
| 460V AC, 3-Phase | 0.5 to 5HP | 0.5 to 2HP | 0.5 to 5HP | MD60 is rated at 480V +10% |
| Enclosure Rating | | | | |
| IP 20 | Yes | Yes | Yes | Finger-safe, panel mounted design |
| Optional enclosures | IP30/Nema 1 | No | No | Nema 1 kit for MD60 allows stand-alone use & conduit connection |
| Zero Clearance Side Mounting (IP20) | Yes | No | No | Zero side clearance mounting allows for optimal use of panel space |
| Temp Rating(IP20) | -10°C to 50°C | 0°C to 50°C | -10°C to 40°C | MD60 has wider ambient capacity |
| DIN Rail | Yes | Yes | No | MD60 includes DIN rail mounting |
| Keypad feature | | | | |
| Integral Speed Pot | Yes | No | Yes | MD60 includes Integral speed pot |
| LED Display | Yes | Yes (Optional) | Yes | 4 digit, 7 segment LED displays |
| Input/Outputs | | | | |
| Configurable Inputs | Qty(2), 8 assignable functions | Qty(2) A Qty(1) B Qty (0) C | Qty(5), 14 assignable functions | Two selectable digital inputs allows for jog, preset speed selection, and second accel and decel rates |
| Nonconfigurable Digital Inputs | Qty(3) | Qty(3) | Qty(0) | Start, Stop, Fwd/Rev |
| Sink/Source Select | Yes | No | No | Inputs can be wired as sinking or sourcing via Dip switch setting |
| Digital Outputs | 0 | 0 | 2 | Future release w/ MD60 family |
| Analog Output | 0 | 0 | 1 | Future release w/ MD60 family |
| Analog Input | 0 to 10V or 4 to 20mA | 0 to 10V or 4 to 20mA (A or C models) | 0 to 10V or 4 to 20mA | 10-bit accuracy on the MD60 for precise frequency setting |
| Relay Output | 1(Form C) | 1(Form C) | 1(Form C) | The MD60 has 10 assignable functions for the relay output |

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|----------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|---|
| Braking | | | | |
| DC Braking | Yes | Yes | Yes | Stops motor from freewheeling |
| Dynamic Braking | Yes | No | External Only | MD60 braking terminals available for use with an external resistor |
| Internal Brake IGBT Circuitry | Yes | No | No | MD60 only requires an external resistor for braking operation |
| Functional Specifications | | | | |
| Accel/Decel Rates | 0.1 to 600 sec | 0 to 600 sec | 0.1 to 300 sec | Broad ramp time for flexibility |
| Start Mode | 2 wire or 3 wire | 2 wire or 3 wire | 2 wire or 3 wire | Default start control = OIM |
| Preset Speeds | 4 | 8 (B model) | 15 | MD60 has 4 preset speeds |
| Overload Capacity | 150% for 1 minute 200% for 3 sec | 150% for 1 minute 200% for 10 sec | 150% for 1 minute 220% for 10 sec | 200% OL at Start helps break-away hard to start loads |
| Frequency Range | 0 to 240Hz | 0 to 240Hz | 0.5 to 360Hz | Up to 4 times motor base RPM |
| Carrier Frequency | 2 to 16kHz | 2 to 8 kHz | 0.5 to 16kHz | Default 4kHz; Increase only to reduce audible noise at motor |
| Auto Restart | Yes (10 retries) | Yes (10 retries) | Yes (3 retries) | Requires manual fault reset after # of attempts |
| PID Control | No | Yes (C model) | Yes | Migrate customer to SP600 |
| S-Curve | Yes | No | Yes | Improves soft-start/stop operations |
| Protection Features | | | | |
| Undervoltage Trip | Yes | Yes | Yes | 480V MD60 trips below 275V AC; 100 msec ridethrough |
| Overvoltage Trip | Yes | Yes | Yes | 480V MD60 trips above 528 V AC |
| MOV protection (AC line input) | Yes | Yes | Yes | MD60 MOV's can be bypassed for ungrounded systems |
| Drive Overload Trip | Yes | Yes | Yes | Occurs when load exceeds 150% for one minute; I ² T function |
| Overtemp Trip | Yes | Yes | Yes | MD60 rated 50°C as IP20 encl. |
| Electronic Motor Overload Trip | Yes | Yes | Yes | Standard 150% for 1 minute rating, adjustable to motor rating |
| Phase to Phase Fault Detection | Yes | Yes | No | Output short circuit protection between the drive and motor |
| Phase to Ground Fault Detection | Yes | Yes | Yes | Output ground fault protection between the drive and motor |
| Wiring | | | | |
| Power Wiring | Saddle Clamp | Feed-through Top to Bottom | Bottom-feed | Standard inverter wiring through bottom connections on the MD60 |
| Control / Signal | Screw Type | Spring-Loaded | Screw Type | MD60 I/O, both digital and analog are isolated |