

A board-level stepper drive for OEM applications

Parker's OEM230 Series represents a major advance in stepper drive technology. Specifically designed to meet the exacting demands of the original equipment manufacturer, this new range of drives offers significantly more power than similar earlier designs whilst dissipating far less heat. Reduced losses mean more power delivered to the motor, with additional high-speed torque resulting in wider usable speed range.

By using very low 'on' resistance MOSFETs in the power stage, the need for a heatsink has been eliminated. Add to this a totally-new translator design based on surface-mount technology, and the result is a complete drive package less than 35mm high.

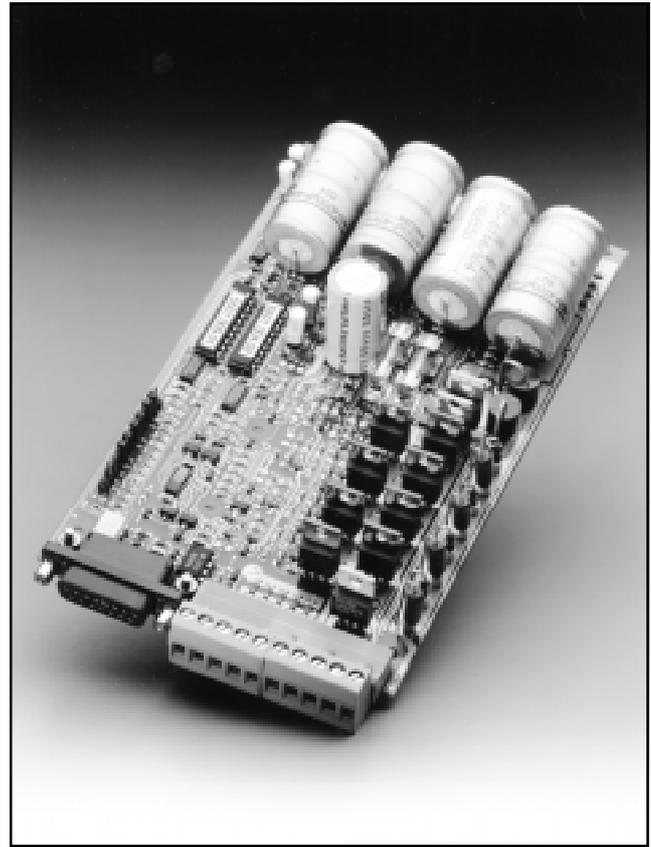
To simplify system design and installation, OEM230 Series drives are designed to operate directly from an isolating transformer. The elimination of external power supply components not only minimises the installed cost, it also places the power supply in the best possible position - close to the drive output stage. The drive may also be powered from single or dual-voltage DC supplies. Power and motor connections are made via two-part screw terminal connectors, with a 15-way D connector for control signals.

All worthwhile features have been included - features like simple current programming using jumper links, selectable automatic current reduction at standstill, full or half step modes, opto-isolation of main signal inputs and a dual-range onboard oscillator. Three models are available, delivering maximum motor currents of 2A, 3A and 5A. The 5A version can also be supplied with an integral power dump for application involving high-inertial loads.

OEM230 features

Performance

- Ultra-efficient output stage, requires no heatsinking
- Compatible with most user-supplied pulse sources
- Integral dual-range speed control
- Auto-standby reduces motor current and heating at rest
- Full/Half step modes provide 200/400 steps/rev resolution on industry standard 1.8 degree hybrid stepper motors
- AC input from small transformer provides inexpensive power supply for several drives
- Drives will operate from single 24 VDC power supply or dual motor supply 24-60 VDC and logic supply 24 VDC



Physical

- No-heatsink design reduces volume and weight
- Convenient two-part connectors for all power and signal connections
- On-board power supply components
- Open frame design reduces drive cost and improves cooling
- Panel mount with 4 screws and pillars
- Integral speed control oscillator can provide low-cost, stand-alone operation

Protection

- Phase-to-phase short circuit protection
- Surface mount technology for improved product reliability
- Fuses on board protect motor and logic power supplies
- Power dump option protects the drive against excessive regenerated power during deceleration

| <i>Parameter</i> | <i>Value</i> |
|--|--|
| Input Power | |
| Drive Supply Voltage | 18-0-18 to 44-0-44 VAC or 24 to 60 VDC |
| Logic Supply Voltage | 18-0-18 VAC or +24 VDC at 250 mA max |
| Amplifiers | |
| Type | Bipolar chopper |
| Resolution | 200/400 step/rev—user selectable |
| Protection | Short-circuit protected, phase-to-phase |
| Output Current | OEM230 0.7-2 A, OEM330 1-3A, OEM530 1.7-5A (adjustable) |
| Drive Supply Voltage | 24–60VDC (70 VDC abs. max.) |
| Standby Current Reduction | 50% of motor current |
| Nominal Chopping Frequency | 18kHz |
| Maximum Stepping Rate | 10kHz at 200 steps/rev (equivalent to 50 rps)* 20kHz at 400 steps/rev (equivalent to 50 rps)* |
| Command Interface | |
| Differential opto-isolated, TTL levels | |
| Input logic levels | High 2.5 - 5V Low 0 - 0.4V |
| Step Input | 10 microseconds minimum pulse width Maximum pulse rate is 20kHz |
| Internal Oscillator | |
| Speed Ranges | |
| Slow (not ramped) | 30-1,000 steps/sec |
| Fast (ramped) | 600-20,000 steps/sec |
| Preset Ramp Times (adjustable, only applicable to fast range) | Acceleration 60 ms Deceleration 30 ms |
| Input Logic Levels | |
| Low | 0 to 2V or short circuit to 0V |
| High | +10 to +12V or open circuit |
| Input Impedance | 4.7K pull-up to +12V |
| Environmental | |
| Operating Drive | 0°C to 50°C. |
| Storage | -40°C to 85°C |
| Humidity | 0 to 95% Non-condensing |
| Physical | |
| Drive Dimensions | 132 x 167 x 76mm |
| Weight | 1.93 kg |
| Motors | |
| Type | 2-phase hybrid; 4, 6 or 8 leads |
| Minimum Inductance | 1mH |
| Recommended induct. range | 1 - 10mH |
| Performance | |
| The OEM230, OEM330 and OEM530 are equivalent to the SD12, SD13 and SD15 respectively. Please refer to the torque speed data in the section on the SD series. | |

*This number represents the maximum pulse input rate, not necessarily the maximum attainable speed of the motor.