

Specifications and Features for E7C Drive Configured

The E7C Configured package provides an E7 drive in a NEMA 1 or NEMA 12 enclosure, with space for several commonly used options, such as reactors, RFI filters, circuit breakers, etc.

The E7 Drive is a variable torque AC drive, designed specifically for HVAC applications in building automation. A new benchmark for size, cost, performance, benefits, and quality, the E7 includes numerous built-in features such as network communications, H/O/A, PI control, and energy-savings functions.

The E7 has embedded communications for the popular building automation protocols, Johnson Controls Metasys N2 and Siemens APOGEE FLN, as well as Modbus. An optional LonWorks interface card is also available.

E7 Performance Features

- VT Ratings:
 - 1/2-150 HP, 208 VAC
 - 1/2-150 HP, 230/240 VAC
 - 1/2- 250 HP, 480 VAC
- Overload capacity: 110% for 60 sec (150% peak)
- Starting torque: 100% at 3 Hz
- DC injection braking: at start or stop, adjustable, current limited (anti-windmilling)
- Motor preheat function
- Adjustable accel/decel: 0.1 to 6000 sec.
- Controlled speed range: 40:1
- Critical frequency rejection: 3 selectable, adjustable bands
- Torque limiting: 30-180%
- Energy Saving control
- Torque boost: full range, auto
- Power loss ride-thru: 2 sec
- Inertia ride-thru
- Auto restart after power loss or resettable fault, selectable, programmable
- Feedback signal loss detection
- Serial communications loss detection
- "Up/Down" floating point control capability
- Stationary motor auto-tuning

E7 Design Features

- 32-bit microprocessor logic
- Flash upgradeable firmware
- Non-volatile memory, program retention
- Surface-mount devices
- Displacement power factor: 0.98
- Output frequency: 0.1 to 120 Hz
- Frequency resolution: 0.06 Hz
- Frequency regulation: 0.1%
- Control Terminal Board: Quick disconnect, removable
- Carrier frequency: selectable to 15 kHz
- 3%DC bus reactor: 30-150 HP, 208 VAC; 30-150 HP, 240 VAC; 40-500 HP, 480 VAC; optional on lower ratings
- Keypad Operator: Hand/Off/Auto, built-in copy feature, 7 languages
- LCD display: 5 lines, 16 characters each
- 24 VDC control logic
- Transmitter/Option power supply
- Output contacts: One form C and two programmable form A
- Input/output terminal status
- Input terminals: 5 programmable multifunction input terminals
- Fault input: Programmable

- Customizable monitor display
- Sleep function
- Run permissive input
- Ramp-to-stop or coast-to-stop selection
- Runtime changes in control and display
- Project-specific parameter reinitialization
- Diagnostic fault indication in selected language
- Timer function: Elapsed time, Delay on start,
- Delay on stop
- RS-422/485 port: Embedded Metasys N2, APOGEE FLN, and Modbus
- Volts/hertz ratio: Preset and programmable V/Hz patterns

E7 Protective Features

- Current limited stall prevention
- Heat sink over-temperature, speed fold-back
- Cooling fan operating hours recorded
- Bi-directional start into rotating motor at synchronized speed
- DC bus charge indicator
- Current limiting DC bus fuse
- Optically-Isolated controls
- Short circuit protection: Phase-phase and phase-neutral
- Ground fault protection
- Short circuit withstand rating: 65K RMS, 100K RMS with bus reactor
- Electronic motor overload: UL
- Current and torque limit
- Fault display: last 10 faults
- Fault circuit: OC, OV, OT
- Over torque and under torque protection
- Program security code
- "Hunting" prevention logic
- Reverse prohibit selectability
- Setpoint (PI) control with inverse or square root input, differential control via two feedback capability
- Feedback signal: low pass filter
- Speed command: bias and gain
- Analog outputs: Programmable, two, 0-10 VDC
- Meter Functions: Volt, amp, kilowatt, elapsed run time, speed command
- Output Current Transformers, qty 3
- NEMA 1 or NEMA 12 enclosure
- UL, cUL listed; CE marked; IEC 146
- MTBF: exceeds 28 years

E7 Service Conditions

- Ambient Temperature: -10°C to 40°C(40°F to 104°F) NEMA 1, -10°C to 45°C(40°F to 113°F) protected chassis
- Humidity: 95% RH, non-condensing
- Altitude: 3300 ft; higher by derate
- Input voltage: +10%/-15%
- Input frequency: 50/60 Hz ± 5%
- 3-phase, 3-wire, phase sequence insensitive

E7 Configured Options

- Circuit breaker / Motor circuit protector
- RFI/EMI filter
- Input fuses
- Input reactor
- Output reactor
- Engraved nameplates
- Speed potentiometer
- Pressure/electrical transducer
- Analog outputs: 2 programmable, 4-20 mA
- 200 VA Control Transformer (fused)
- Communication Interface:
LonWorks
- DriveWizard upload/download and monitoring/graphing software