ATV310HU30N4S

Schneider Electric · Easy Altivar 310

Variable speed drive for three-phase synchronous motors (SPM and IPM), rated at 3 kW (4 HP) heavy duty (4 kW / 5 HP normal duty), with a 380...460 V three-phase supply and no integrated EMC filter.

Hardware

Product type: Variable speed drive (AC frequency inverter)
Motor compatibility: Three-phase synchronous motors (SPM and IPM)
Control mode: 2-point V/f (standard) and sensorless vector control with internal speed loop (performance), plus U2/f pump law for variable-torque fan/pump; N4S models add synchronous motor control (per user manual EAV94277 p.69)
Rated motor power: 3 kW (4 HP) heavy duty; 4 kW (5 HP) normal duty
Frame size: 3
Integrated HMI: 4-digit keypad with navigation button and RUN/STOP buttons
Integrated EMC filter: None (no integrated EMC filter; an external EMC filter is required to meet IEC/EN 61800-3)
Protection functions: motor thermal protection by I^2t calculation (trip above 118%); drive overtemperature with automatic switching-frequency reduction; output phase loss; output short-circuit; IGBT short-circuit; underload detection
Power terminal tightening torque: 0.8-1.0 N·m (frames 037-U22); 1.2-1.4 N·m (U30-U55); 2.2-2.4 N·m (U75-D18); 4.5-5.0 N·m (HD22); control terminals 0.5-0.6 N·m
Cooling: fan cooled; fan is the only wearing part, tool-free replacement

I/O Specifications

Analog inputs: 1 analog input (AI1), software-configurable voltage (0...5 V or 0...10 V, 30 kΩ impedance) or current (0...20 mA programmable, 250 Ω impedance); 10-bit resolution; ±1% accuracy at 25 °C; can also be used as a logic input LIU
Analog outputs: 1 analog output (AO1), software-configurable voltage (0...10 V, minimum load 470 Ω) or current (0...20 mA, maximum load 800 Ω); 8-bit resolution; ±1% accuracy at 25 °C
Digital inputs: 4 logic inputs (LI1-LI4), 24 V, source or sink configurable by software, IEC/EN 61131-2 PLC level, 3.5 kΩ impedance, sampling time <20 ms
Digital outputs: 1 logic output (LO1), 24 V open collector (source or sink), 100 mA maximum (80 mA if the internal 24 V also supplies logic inputs), IEC/EN 61131-2
Relay outputs: 1 relay output (R1) with 1 NO and 1 NC contact; 30 ms response; 3 A maximum at 250 VAC resistive ($\cos \varphi = 1$), 4 A maximum at 30 VDC; minimum 5 mA at 24 V

Communication

Built-in ports: 1 RJ45 connector on the underside of the drive (2-wire RS-485)
Protocols: Modbus RTU (Modbus serial link)
Communication expansion: None (no communication-module slot; ATV310 has no plug-in fieldbus option)

Electrical

Supply voltage: 380...460 V AC, 50/60 Hz, three-phase
Maximum input current: 11.1 A maximum at 380 V, 9.2 A maximum at 460 V (heavy duty)
Apparent power: 7.3 kVA at 460 V
Prospective short-circuit current (SCCR): maximum 5 kA for drives up to 4 kW; 22 kA heavy duty / 5 kA normal duty above 4 kW (per order catalog footnote) (SCCR per official catalog by power segment)
Maximum continuous output current (In): 7.1 A at 380 V (heavy duty), 8.9 A at 380 V (normal duty), at nominal 4 kHz switching frequency (per official catalog p.11 N4S rating table; continuous current values are identical to the N4E asynchronous ratings for the same frame)
Maximum transient current (60 s): 10.7 A at 380 V (heavy duty); 9.8 A (normal duty)
Power dissipated at In: 90.8 W at 380 V (heavy duty); 120.4 W (normal duty)

Switching frequency: 2...12 kHz adjustable; 4 kHz nominal (factory default); derate nominal current 10% for continuous 8 kHz and 20% for 12 kHz
Starting torque: 150% of rated motor torque at 3 Hz
Braking: integrated braking chopper terminals (PA/+ and PB); braking torque >70% of rated motor torque without an external braking resistor, 150% with an external braking resistor
Output frequency: 0.5...400 Hz (nameplate; frequency reference range -400...+400 Hz)
Maximum motor cable length: 25 m shielded / 50 m unshielded at 4 kHz switching frequency without output choke; up to 100 m shielded / 200 m unshielded with motor choke (per catalog DIA2ED2140701EN)
Input current harmonics: external line choke (VW3A455p) recommended to reduce harmonic distortion; no THDi numerical value published in the official catalog

Environmental

Operating temperature: -10...+55 °C without derating (Type B/C heavy duty); up to +60 °C with derating
Storage temperature: -25...+70 °C
Relative humidity: 5...95% without dripping water and without condensation, conforming to IEC 60068-2-3
Protection rating: IP20 (IP4X / IP40 on the top of the product, with top vent cover)
Pollution degree: 2, according to IEC/EN 61800-5-1
Altitude: up to 1000 m without derating; 1000...3000 m with current derating of 1% (maximum) per additional 100 m
Mounting: types A/B/C per user manual EAV94277 p.21 - Type A = free space ≥10 mm each side with vent cover (IP20, IP4X top); Type B = side-by-side with vent covers removed; Type C = free space ≥10 mm each side without vent cover; no vertical tilt angle specified
Chemical/mechanical class: 3C3 / 3S2 according to IEC/EN 60721
Certifications: conforms to IEC/EN 61800-5-1 and IEC/EN 61800-3, RoHS/REACH/WEEE; no CE/UL/CSA certification table published in this catalog — nameplate certification mark code R-R-I0C- (per user manual EAV94277)

Physical

Dimensions (H×W×D): 184 × 140 × 151 mm (per official catalog DIA2ED2140701EN dimension table, drive with heatsink)
Weight: 1.8 kg (3.97 lb), without packaging (per official catalog p.11 N4S synchronous-motor table; weight identical to same-frame N4E)

Lifecycle

Current: Easy Altivar 310 product line, official product pages active as of 2026-10 (Last verified: 2026-10)