

AC Drives Selection Guide for TRANE® ALTIVAR™ 66 Specifications

Input voltage	400 V ±15% and 460 V ±15% or 208 V ±10% and 230 V ±15%
Displacement power factor	Approximately 0.96
Input frequency	47.5 to 63 Hz
Output voltage	Maximum voltage equal to input line voltage
Frequency resolution	Drive controller: Input AI1: (High Speed/1,024) Hz ^[1] Input AI2: (High Speed/512) Hz ^[1] Keypad display: 0.1 Hz increments Processor: 0.015 Hz increments With Option Board: Option board analog inputs: (High Speed/4096) Hz ^[1] Serial link: 0.015 Hz increments
Frequency accuracy	±(0.0075 Hz + 0.00005 times High Speed)
Temperature drift ^[2]	Drive controller: Analog inputs: 3 x 10 ⁻⁴ times High Speed/°C typical Keypad display: 7 x 10 ⁻⁷ times High Speed/°C maximum With option board: Option board analog inputs: 2.5 x 10 ⁻⁵ times High Speed/ °C typical Serial link: 7 x 10 ⁻⁷ times High Speed/ °C maximum
Frequency range	ATV66U41N4 to C13N4: 0.1 to 400 Hz (constant torque configuration) ATV66C15N4 to C31N41: 0.1 to 200 Hz (constant torque configuration) ATV66U41N4 to C31N41: 0.1 to 60/72 Hz (variable torque configuration) ATV66U41M2 to D46M2: 0.1 to 400 Hz (constant torque configuration) ATV66U41M2 to D46M2: 0.1 to 75/90 Hz (variable torque configuration)
Torque/overtorque	See page 58.
Speed reference	AI1: 0-10 V AI2: 4-20 mA 0-5 V with switch on control board 0-20 mA, x-20 mA, 20-4 mA with keypad display
Speed regulation	V/f: determined by motor slip, typically 3% SLFV (sensorless flux vector): 1% (Optional tachometer: 0.5%)
Efficiency	Typically greater than 96%
Reference sample time	10 ms
Ramps	Acceleration: 0.1 to 999.9 seconds Deceleration: 0.1 to 999.9 seconds
Braking to standstill	By DC injection: Automatic for 0.5 s if frequency drops below 1 Hz Manual by external signal
Dynamic braking	By optional resistor (see Dynamic Braking User's Manual)
Drive controller protection	Against short circuits: • between output phases • between output phases and ground • on the outputs of internal supplies • on the logic and analog outputs Against input line supply under/overvoltage Against overheating: by thermal sensor
Motor protection	Incorporated electronic thermal protection (page 56)
Keypad display	• Self-diagnostics with full fault messages in seven languages • Also refer to Level 1 & 2 Configuration manual
^[1] Resolution limited to processor resolution. ^[2] Drive Controller at operating load and temperature.	
Communication	• Complete programming by DOS-compatible computer or keypad • Optional multidrop serial link
Temperature	Operation: +32 to +104 °F (0 to +40 °C) Storage: -13 to +158 °F (-25 to +70 °C)
Humidity	95% maximum without condensation or dripping water
Altitude	≤ 3,300ft (1,000 m); above this derate by 1.2% for every 300ft (100 m), max. 6,600ft (2,000 m)
Enclosure	NEMA Type 1 (IP30)
Pollution Degree	Pollution Degree 3 per NEMA ICS-1 and IEC 664-1.
Resistance to vibration	Conforming to IEC 68-2-6: • ATV66U41N4 to D46N4 and ATV66U41M2 to D33M2: 1 mm peak to peak from 5 to 22.3 Hz and 2 g peak from 22.3 to 150 Hz • ATV66D54N4 to C31N41 and ATV66D46M2: 0.15 mm peak to peak from 10 to 58 Hz and 1 g peak from 58 to 150 Hz
Resistance to shock	Conforming to IEC 68-2-27: • 15 g peak for 11 ms
Codes and standards	UL Listed per UL 508C under category NMMS as incorporating electronic overload protection CSA certified Conforms to applicable NEMA ICS, NFPA, IEC, and ISO 9001 standards



AC Drives Selection Guide for TRANE® ALTIVAR™ 66 Open Style Chassis Mount 400/460 Volt

The Altivar™ 66 adjustable frequency drive is a microprocessor based drive that will provide the exceptional reliability and performance necessary to meet your energy savings goals. The pulse width modulated (PWM) design utilizes Insulated Gate Bipolar Transistors (IGBT's). The randomly modulated switching frequency reduces single tone motor noise. The NOLD (No Load) function automatically optimizes the volts/hertz curve to maximize energy savings and further reduce motor noise.

Motor HP*	Rated Output Current	Type No.
2	3.4	ATV66U41N4
3	4.8	ATV66U41N4
5	7.6	ATV66U72N4
7.5	11	ATV66U90N4
10	14	ATV66D12N4
15	21	ATV66D16N4
20	27	ATV66D23N4
25/30	40	ATV66D33N4
40	52	ATV66D46N4
50	65	ATV66D54N4
60	77	ATV66D64N4
75	96	ATV66D79N4
100	124	ATV66C10N4
125	158	ATV66C10N4
150	180	ATV66C13N4
200	240	ATV66C15N4



* Motor HP is based on standard NEMA B 4 pole designs

Contact your local Square D Sales office for Pricing (see back cover for listing of offices)

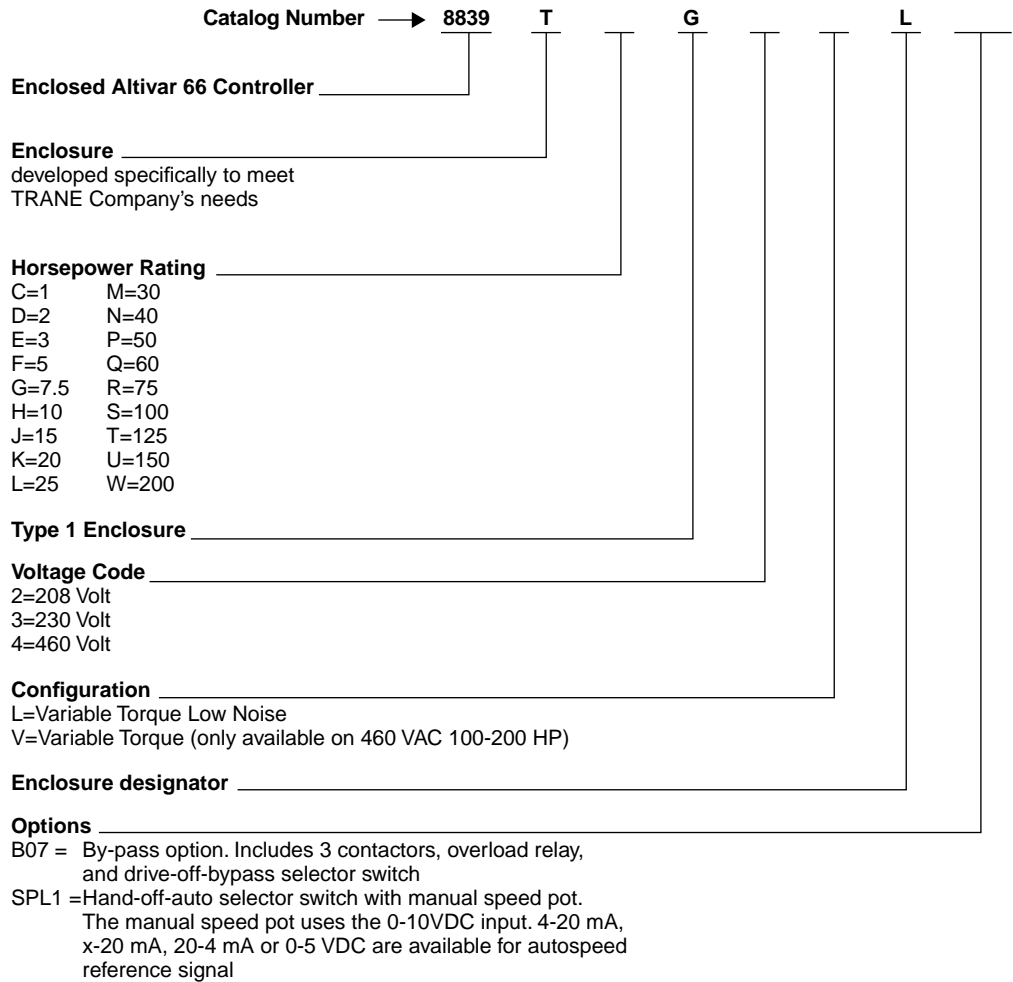
Features:

- User friendly graphical keypad
 - 6x21 alphanumeric character lines
 - Text lines, bar graphs, and user defined speed output
 - 7 languages
 - Configure and monitor drive parameters in full text words
 - Fault diagnostics in full text words
 - Start up assistance by prompts and questions
- NEMA 1 rated enclosure
- Separately adjustable linear or "S" curve (accel/decel)
- Selectable process follower inputs 0-10 V, 4-20 mA, x-20 mA, 20-4 mA, 0-5 V
- Skip frequencies - Qty. 3
- DC injection braking
- ISO 9001 manufacturing
- 10 kilohertz modulating switching frequency
- Volts/hertz curve optimization with NOLD (No Load)



AC Drives Selection Guide for TRANE® ALTIVAR™ 66 Enclosed and with Bypass Catalog Number Identification

Interpret the Altivar 66 enclosed catalog numbers as follows:



TRANE Modular Climate Changers with the Square D ALTIVAR 66 Variable Frequency Drive

The TRANE Company is now offering the Square D ALTIVAR 66 enclosed drive, mounted and wired and specifically configured for air handling applications. The drive package includes the following specifications.

- NEMA 1 enclosure with disconnect
 - Current limiting fuses: Class CC or Class T
 - Optional 3 contactor by-pass with Class 10 bi-metal overload relay
 - By-pass option includes "Drive Off By-pass" selector switch
 - Door mounted LED indicators for power on, thermal fault pending and fault
 - Door mounted 18 button keypad with back-lit LCD screen:
 - 6 lines each 21 characters or bar graphs for current, voltage, or frequency.
 - Terminal block connections for:
 - Drive fault contact, closes on fault
 - Drive run contact, closes when running
 - User start contact, close to start drive
 - User 0-10VDC speed reference signal
 - All control wires labeled for ease of circuit diagnostics.
 - Finger safe construction
 - Manufactured in ISO 9002 facility
 - Pulse width modulated drive output with IGBT type transistors
 - Self-diagnostic with plain text fault messages
 - Speed reference inputs of 0-10V, (0-20mA, 4-20mA or 20-4 mA optional)
 - Operational temperature of 0° to +40°C, -25° to +70°C storage
 - Maximum relative humidity of 95%, non-condensing
 - Altitude up to 3300 ft., above 3300, derate by 1.2% for every 300 ft.
 - NOLD (No Load) function automatically optimize volts/hertz to maximize energy savings and further reduce motor noise.
 - Codes and Standards: NEMA, UL, CSA, NEC, VDE, and IEC
 - Conforms to ISO 9001 standards
 - High switching frequency with random modulation to reduce motor noise
 - Auto restart with programmable time delay for up to 5 restarts
 - Synchronized restart to catch a spinning motor
 - Three user selectable skip frequency ranges
 - Single family of product 1HP to 200HP
 - 24 hour a day product support via telephone with factory trained personnel
 - Global on-site service available through Square D Technical Services Division
- Protection:**
- Protection against short circuits:
 - between output phases
 - between output phase and ground
 - on internal power supplies
 - on logic and analog outputs
 - Protection against input line supply under and over voltage
 - Thermal protection against overheating
 - Solid state I²t Class 10 motor thermal protection which is UL listed
 - Frequency foldback if motor is overloaded
 - Power loss ride through of 200 msec.

The optional three contactor by-pass provides line side and load side isolation to the adjustable frequency controller and allows for back-up across-the-line operation of the fan motor. A bi-metal, Class 10 overload relay is included.

Motor noise is reduced by using a high switching frequency and then randomly modulating the switching frequency to eliminate a single pitch noise usually associated with AC drives. The drive utilizes 10Khz through 50HP, 4Khz through 75HP and 2Khz through 200HP.

Standard parts warranty is 18 months from date of invoice of equipment. An extended warranty includes parts and labor, for 36 months from date of start-up is available if start-up is performed by a Square D authorized agent.

Line reactors and filters are not required on most projects. The amount of harmonic distortion at the point of common coupling (PCC) is a function of the distribution system characteristics (impedance of the distribution lines and available fault current,) and the power source size relative to the AC drive load. If line reactors or filters are required, they will need to be price separately and mounted in separate enclosures.

