Product data sheet
Characteristics

ATV71HU40N4Z
Variable speed drive, ATV71, 4kW, 5HP, 380 to 480V, 54.5dB, EMC filter, without graphic terminal, CANopen, Modbus, wear part



⚠ End of Commercialisation

Commercial status
End of Commercialisation :

Main

Range of product	Altivar 71
Product or component type	Variable speed drive
Product specific application	Complex, high-power machines
Component name	ATV71
Motor power kW	4 KW, 3 phases at 380...480 V
Motor power hp	5 Hp, 3 phases at 380...480 V
Maximum motor cable length	50 M shielded cable 100 M unshielded cable
[Us] rated supply voltage	380...480 V - 15...10 %
Network number of phases	3 phases
Line current	11.5 A for 480 V 3 phases 4 kW / 5 hp 14.1 A for 380 V 3 phases 4 kW / 5 hp
EMC filter	Integrated
Assembly style	With heat sink
Variant	Without remote graphic terminal
Apparent power	9.3 KVA at 380 V 3 phases 4 kW / 5 hp
Prospective line Isc	5 KA for 3 phases
Nominal output current	10.5 A at 4 kHz 380 V 3 phases 4 kW / 5 hp 7.6 A at 4 kHz 460 V 3 phases 4 kW / 5 hp
Maximum transient current	15.8 A for 60 s 3 phases 4 kW / 5 hp 17.3 A for 2 s 3 phases 4 kW / 5 hp
Output frequency	0.1…599 Hz
Nominal switching frequency	4 kHz
Switching frequency	1...16 kHz adjustable 4...16 kHz with derating factor
Asynchronous motor control profile	Voltage/Frequency ratio (2 or 5 points) Sensorless flux vector control (SFVC) (voltage or current vector) ENA (Energy adaptation) system for unbalanced loads Flux vector control (FVC) with sensor (current vector)
Type of polarization	No impedance for Modbus

Complementary

Product destination	Asynchronous motors Synchronous motors
Supply voltage limits	323…528 V
Supply frequency	50...60 Hz - 5...5 %
Network frequency	47.5...63 Hz
Speed range	1…100 for asynchronous motor in open-loop mode, without speed feedback 1…1000 for asynchronous motor in closed-loop mode with encoder feedback 1…50 for synchronous motor in open-loop mode, without speed feedback
Speed accuracy	+/- 0.01 % of nominal speed in closed-loop mode with encoder feedback 0.2 Tn to Tn +/- 10 % of nominal slip without speed feedback 0.2 Tn to Tn
Torque accuracy	+/- 15 % in open-loop mode, without speed feedback +/- 5 % in closed-loop mode with encoder feedback
Transient overtorque	170 % of nominal motor torque +/- 10 % for 60 s every 10 minutes 220 % of nominal motor torque +/- 10 % for 2 s
Braking torque	<= 150 % with braking or hoist resistor 30 % without braking resistor
Synchronous motor control profile	Vector control without speed feedback
Regulation loop	Adjustable PI regulator
Motor slip compensation	Adjustable Suppressable Not available in voltage/frequency ratio (2 or 5 points) Automatic whatever the load
Local signalling	1 LED (red) for drive voltage
Output voltage	<= power supply voltage
Insulation	Electrical between power and control
Type of cable	With a NEMA Type1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC With an IP21 or an IP31 kit: 3 wire(s)IEC cable at 40 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 90 °C / XLPE/EPR
Electrical connection	Terminal, clamping capacity: 2.5 mm², 14 AWG (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, Terminal, clamping capacity: 4 mm², 10 AWG (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/
Tightening torque	0.6 N.M (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 1.4 N.M, 12.3 lb.in (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB)
Supply	Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection Internal supply: 24 V DC (21…27 V), <200 mA, protection type: overload and short-circuit protecti
Analogue input number	2
Analogue input type	AI1-/AI1+ bipolar differential voltage: +/- 10 V DC 24 V max, resolution 11 bits + sign AI2 software-configurable current: 0...20 mA, impedance: 242 Ohm, resolution 11 bits AI2 software-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 b
Sampling duration	2 Ms +/- 0.5 ms (AI1-/AI1+) - analog input(s) 2 Ms +/- 0.5 ms (AI2) - analog input(s) 2 Ms +/- 0.5 ms (LI1...LI5) - discrete input(s) 2 Ms +/- 0.5 ms (LI6)if configured as logic input - discrete input(s)
Response time	<= 100 ms in STO (Safe Torque Off) AO1 2 ms, tolerance +/- 0.5 ms for analog output(s) R1A, R1B, R1C 7 ms, tolerance +/- 0.5 ms for discrete output(s) R2A, R2B 7 ms, tolerance +/- 0.5 ms for discrete output(s)
Accuracy	+/- 0.6 % (AI1-/AI1+) for a temperature variation 60 °C +/- 0.6 % (AI2) for a temperature variation 60 °C +/- 1 % (AO1) for a temperature variation 60 °C
Linearity error	+/- 0.15 % of maximum value (AI1-/AI1+, AI2) +/- 0.2 % (AO1)
Analogue output number	1
Analogue output type	AO1 software-configurable logic output 10 V 20 mA AO1 software-configurable current 0...20 mA, impedance: 500 Ohm, resolution 10 bits AO1 software-configurable voltage 0...10 V DC, impedance: 470 Ohm, resolution 10 bits
Discrete output number	2
Discrete output type	Configurable relay logic: (R1A, R1B, R1C) NO/NC - 100000 cycles Configurable relay logic: (R2A, R2B) NO - 100000 cycles
Minimum switching current	3 MA at 24 V DC for configurable relay logic
Maximum switching current	R1, R2: 2 A at 250 V AC inductive load, cos phi = 0.4 R1, R2: 2 A at 30 V DC inductive load, cos phi = 0.4 R1, R2: 5 A at 250 V AC resistive load, cos phi = 1 R1, R2: 5 A at 30 V DC resistive load, cos phi = 1

Discrete input number	7
Discrete input type	LI1...LI5: programmable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable PTC probe 0…6, impedance: 1500 Ohm PWR: safety input 24 V DC, impedance: 1500 Ohm conforming to ISO 13849-1 level d
Discrete input logic	Negative logic (sink) (LI1...LI5), > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI1...LI5), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (LI6)if configured as logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI6)if configured as logic input, < 5 V (state 0), > 11 V (state 1)
Acceleration and deceleration ramps	Linear adjustable separately from 0.01 to 9000 s S, U or customized Automatic adaptation of ramp if braking capacity exceeded, by using resistor
Braking to standstill	By DC injection
Protection type	Against exceeding limit speed: drive Against input phase loss: drive Break on the control circuit: drive Input phase breaks: drive Line supply overvoltage: drive Line supply undervoltage: drive Overcurrent between output phases and earth: drive Overheating protection: drive Overvoltages on the DC bus: drive Short-circuit between motor phases: drive Thermal protection: drive Motor phase break: motor Power removal: motor Thermal protection: motor
Insulation resistance	> 1 mOhm 500 V DC for 1 minute to earth
Frequency resolution	Analog input: 0.024/50 Hz Display unit: 0.1 Hz
Communication port protocol	CANopen Modbus
Connector type	1 RJ45 (on front face) for Modbus 1 RJ45 (on terminal) for Modbus Male SUB-D 9 on RJ45 for CANopen
Physical interface	2-wire RS 485 for Modbus
Transmission frame	RTU for Modbus
Transmission rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 9600 bps, 19200 bps for Modbus on front face 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps for CANopen
Data format	8 bits, 1 stop, even parity for Modbus on front face 8 bits, odd even or no configurable parity for Modbus on terminal
Number of addresses	1…127 for CANopen 1…247 for Modbus
Method of access	Slave CANopen
Marking	CE
Operating position	Vertical +/- 10 degree
Height	260 Mm
Depth	187 Mm
Width	155 Mm
Net weight	4 Kg
Option card	Communication card for CC-Link Controller inside programmable card Communication card for DeviceNet Communication card for EtherNet/IP Communication card for Fipio I/O extension card Communication card for Interbus-S Interface card for encoder Communication card for Modbus Plus Communication card for Modbus TCP Communication card for Modbus/Uni-Telway Overhead crane card Communication card for Profibus DP Communication card for Profibus DP V1

Environment

Noise level	54.5 DB conforming to 86/188/EEC
Dielectric strength	3535 V DC between earth and power terminals 5092 V DC between control and power terminals
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Standards	IEC 60721-3-3 class 3S2 IEC 61800-3 IEC 60721-3-3 class 3C1 IEC 61800-5-1 IEC 61800-3 environments 2 category C2 EN 55011 class A group 1 UL Type 1 IEC 61800-3 environments 1 category C2
Product certifications	C-Tick[RETURN]UL[RETURN]CSA[RETURN]NOM 117[RETURN]GOST
Pollution degree	2 conforming to IEC 61800-5-1
IP degree of protection	IP20 on upper part without blanking plate on cover conforming to IEC 60529 IP20 on upper part without blanking plate on cover conforming to IEC 61800-5-1 IP21 conforming to IEC 60529 IP21 conforming to IEC 61800-5-1 IP41 on upper part conforming to IEC 60529 IP41 on upper part conforming to IEC 61800-5-1 IP54 on lower part conforming to IEC 60529 IP54 on lower part conforming to IEC 61800-5-1
Vibration resistance	1 gn (f= 13…200 Hz) conforming to IEC 60068-2-6 1.5 mm peak to peak (f= 3…13 Hz) conforming to IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27
Relative humidity	5…95 % without condensation conforming to IEC 60068-2-3 5…95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for operation	-10…50 °C (without derating)
Ambient air temperature for storage	-25…70 °C
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	30.0 Cm
Package 1 Width	31.0 Cm
Package 1 Length	38.0 Cm
Package 1 Weight	5.75 Kg
Unit Type of Package 2	S06
Number of Units in Package 2	8
Package 2 Height	73.5 Cm
Package 2 Width	60.0 Cm
Package 2 Length	80.0 Cm
Package 2 Weight	59.0 Kg

Offer Sustainability

Mercury free	Yes
Sustainable packaging	No
EU RoHS Directive	Compliant
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which
WEEE Label	The product must be disposed on European Union markets following specific waste collection and

Contractual warranty

Warranty (in months)	18

Product Life Status : Post commercialisation

ATV71HU40N4Z may be replaced by any of the following products:



ATV930U55N4

variable speed drive, Altivar Process ATV900, ATV930, 5.5kW, 400 to 480V, with braking unit, IP21

Qty 1

Substitution date: |



ATV340U40N4

variable speed drive, Altivar Machine ATV340, 4kW, heavy duty, 400V, 3 phases

Qty 1

Substitution date: |



ATV930U55N4Z

variable speed drive, Altivar Process ATV900, ATV930, 5.5kW, 380 to 480V, cabinet Integration, IP20

Qty 1

Substitution date: |