Product data sheet
Characteristics

ATV71HD75N4
variable speed drive ATV71 - 75kW-100HP - 480V - EMC filter-graphic terminal

Green Premium™

To be discontinued

Commercial status

Discontinued: 01 January 2018

End-of-service: 01 January 2026

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	75 kW, 3 phases at 380...480 V
Motor power hp	100 hp, 3 phases at 380...480 V
Maximum motor cable length	100 m shielded cable 200 m unshielded cable
Power supply voltage	380...480 V - 15...10 %
Network number of phases	3 phases
Line current	137 A for 480 V 3 phases 75 kW / 100 hp 167 A for 380 V 3 phases 75 kW / 100 hp
EMC filter	Integrated
Assembly style	With heat sink
Apparent power	109.9 kVA at 380 V 3 phases 75 kW / 100 hp
Prospective line Isc	22 kA for 3 phases
Nominal output current	124 A at 2.5 kHz 460 V 3 phases 75 kW / 100 hp 160 A at 2.5 kHz 380 V 3 phases 75 kW / 100 hp
Maximum transient current	240 A for 60 s 3 phases 75 kW / 100 hp 264 A for 2 s 3 phases 75 kW / 100 hp
Output frequency	0.1…500 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	1...16 kHz adjustable 2.5...16 kHz with derating factor
Asynchronous motor control profile	ENA (Energy adaptation) system for unbalanced loads Voltage/frequency ratio (2 or 5 points) Flux vector control (FVC) with sensor (current vector) Sensorless flux vector control (SFVC) (voltage or current vector)
Type of polarization	No impedance for Modbus

Complementary

Product destination	Asynchronous motors Synchronous motors
Power supply voltage limits	323…528 V
Power supply frequency	50...60 Hz - 5...5 %
Power supply frequency limits	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	Suppressable Automatic whatever the load Adjustable Not available in voltage/frequency ratio (2 or 5 points)
Diagnostic	1 LED (red)drive voltage:
Output voltage	<= power supply voltage
Insulation	Electrical between power and control
Type of cable for mounting in an enclosure	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, AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) Terminal, clamping capacity: 150 mm² (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB)
Tightening torque	0.6 N.m (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 41 N.m, 360 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 type: overload and short-circuit protection Internal supply: 24 V DC (21…27 V), <200 mA, protection type: overload and short-circuit protection
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 bits
Input sampling time	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)
Absolute accuracy precision	+/- 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	630 mm
Depth	290 mm
Width	320 mm
Product weight	44 kg
Functionality	Full
Specific application	Other applications
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	63.7 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 3C1 EN 61800-3 environments 2 category C3 IEC 60721-3-3 class 3S2 EN/IEC 61800-3 EN/IEC 61800-5-1 UL Type 1 EN 61800-3 environments 1 category C3 EN 55011 class A group 2
Product certifications	NOM 117 UL CSA C-Tick GOST
Pollution degree	2 conforming to EN/IEC 61800-5-1 3 conforming to UL 840
IP degree of protection	IP20
Vibration resistance	1 gn (f= 13…200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f= 3…13 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/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)
Ambient air temperature for storage	-25…70 °C
Operating altitude	<= 1000 m without 1000...3000 m with current derating 1 % per 100 m

Offer Sustainability

Sustainable offer status	Green Premium product
REACh Regulation	REACh Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Contractual warranty

Warranty	18 months

ATV71HD75N4 may be replaced by any of the following products:

Drive Products ATV930D90N4

variable speed drive, ATV930, 90kW, 400/480V, with braking unit, IP21

Qty 1

Reason for Substitution: End of life | Substitution date: 01 April 2016

Drive Products ATV930D75N4

variable speed drive, ATV930, 75kW, 400/480V, with braking unit, IP21

Qty 1

Reason for Substitution: End of life | Substitution date: 01 April 2016

Variable speed drives ATV340D75N4E

variable speed drive - 75kW- 400V - 3 phases - ATV340 Ethernet

Qty 1

Reason for Substitution: End of life | Substitution date: 01 April 2016