ATV71H037M3
variable speed drive ATV71 - 0.37kW-0.5HP - 240V - EMC filter-graphic terminal

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 0.37 kW, 3 phases at 200...240 V
Motor power hp 0.5 hp, 3 phases at 200...240 V
Maximum motor cable length 50 m shielded cable
100 m unshielded cable
Power supply voltage 200...240 V - 15...10 %
Network number of phases 3 phases
Line current 3.1 A for 240 V 3 phases 0.37 kW / 0.5 hp
3.5 A for 200 V 3 phases 0.37 kW / 0.5 hp
EMC filter Integrated
Assembly style With heat sink
Apparent power 1.3 kVA at 240 V 3 phases 0.37 kW / 0.5 hp
Prospective line Isc 5 kA for 3 phases
Nominal output current 3 A at 4 kHz 230 V 3 phases 0.37 kW / 0.5 hp
Maximum transient current 4.5 A for 60 s 3 phases 0.37 kW / 0.5 hp
4.9 A for 2 s 3 phases 0.37 kW / 0.5 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 ENA (Energy adaptation) system for unbalanced loads
Sensorless flux vector control (SFVC) (voltage or current vector)
Voltage/frequency ratio (2 or 5 points)
Flux vector control (FVC) with sensor (current vector)
Type of polarization No impedance for Modbus
## Complementary

### Product destination
- Synchronous motors
- Asynchronous motors

### Power supply voltage limits
- 170…264 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
- Not available in voltage/frequency ratio (2 or 5 points)
- Suppressable
- Adjustable
- Automatic whatever the load

### 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, L1...L16, PWR)
- Terminal, clamping capacity: 4 mm², AWG 10 (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, L11...L16, 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 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 (L11...L15) - discrete input(s)
- 2 ms +/- 0.5 ms (L16) 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
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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| Discrete output type            | Configurable relay logic: (R1A, R1B, R1C) NO/NC - 100000 cycles  
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 |
| 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 | S, U or customized  
Linear adjustable separately from 0.01 to 9000 s  
Automatic adaptation separately from 0.01 to 9000 s, 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                          | 230 mm |
| Depth                           | 175 mm |
| Width                           | 130 mm |
| Net weight                      | 3 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 |
Environment

Noise level 43 dB conforming to 86/188/EEC

Dielectric strength 2830 V DC between earth and power terminals
4230 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
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
EN 61800-3 environments 1 category C2
EN/IEC 61800-5-1
EN 55011 class A group 1
EN/IEC 61800-3
IEC 60721-3-3 class 3S2
EN 61800-3 environments 2 category C2
IEC 60721-3-3 class 3C1
UL Type 1

Product certifications
GOST
UL
NOM 117
C-Tick
CSA

Pollution degree 2 conforming to EN/IEC 61800-5-1

IP degree of protection
IP20 on upper part without blanking plate on cover conforming to EN/IEC 60529
IP20 on upper part without blanking plate on cover conforming to EN/IEC 61800-5-1
IP21 conforming to EN/IEC 60529
IP21 conforming to EN/IEC 61800-5-1
IP41 on upper part conforming to EN/IEC 60529
IP41 on upper part conforming to EN/IEC 61800-5-1
IP54 on lower part conforming to EN/IEC 60529
IP54 on lower part conforming to EN/IEC 61800-5-1

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

ATV71H037M3 is replaced by:

Drive Products ATV930U07M3
variable speed drive, ATV930, 0.75kW, 200/240V, with braking unit, IP21
Qty 1
Reason for Substitution: End of life | Substitution date: 03 February 2016