ATV71H075M3Z
variable speed drive ATV71 - 0.75kW-1HP - 240V
- EMC filter-w/o 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, single phase at 200…240 V
0.75 kW, 3 phases at 200…240 V
Motor power hp 1 hp, 3 phases at 200…240 V
0.5 hp, single phase 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 Single phase
3 phases
Line current 5.3 A for 240 V 3 phases 0.75 kW / 1 hp
5.8 A for 240 V single phase 0.37 kW / 0.5 hp
6.1 A for 200 V 3 phases 0.75 kW / 1 hp
6.9 A for 200 V single phase 0.37 kW / 0.5 hp
EMC filter Integrated
Assembly style With heat sink
Variant Without remote graphic terminal
Apparent power 1.4 kVA at 240 V single phase 0.37 kW / 0.5 hp
2.2 kVA at 240 V 3 phases 0.75 kW / 1 hp
Prospective line Isc 5 kA for 3 phases
5 kA for single phase
Nominal output current 3 A at 4 kHz 230 V single phase 0.37 kW / 0.5 hp
4.8 A at 4 kHz 230 V 3 phases 0.75 kW / 1 hp
Maximum transient current 4.5 A for 60 s single phase 0.37 kW / 0.5 hp
4.9 A for 2 s single phase 0.37 kW / 0.5 hp
7.2 A for 60 s 3 phases 0.75 kW / 1 hp
7.9 A for 2 s 3 phases 0.75 kW / 1 hp
Output frequency 0.1…599 Hz
Nominal switching frequency 4 kHz

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
### 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

<table>
<thead>
<tr>
<th>Product destination</th>
<th>Synchronous motors</th>
<th>Asynchronous motors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltage limits</td>
<td>170...264 V</td>
<td></td>
</tr>
<tr>
<td>Power supply frequency</td>
<td>50...60 Hz - 5...5 %</td>
<td></td>
</tr>
<tr>
<td>Power supply frequency limits</td>
<td>47.5...63 Hz</td>
<td></td>
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</tbody>
</table>

### 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

### 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
- Automatic whatever the load
- Adjustable
- Suppressable
- 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

### Electrical connection
- Terminal, clamping capacity: 2.5 mm², AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, L1...L6, 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, L1...L6, 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...L5) - discrete input(s)
- 2 ms +/- 0.5 ms (L6) 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)
### Analogue output

<table>
<thead>
<tr>
<th>Analogue output number</th>
<th>1</th>
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</table>
| 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

<table>
<thead>
<tr>
<th>Discrete output number</th>
<th>2</th>
</tr>
</thead>
</table>
| 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

<table>
<thead>
<tr>
<th>Discrete input number</th>
<th>7</th>
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</thead>
</table>
| Discrete input type   | L11...L15: programmable 24 V DC with level 1 PLC, impedance: 3500 Ohm  
 L16: switch-configurable 24 V DC with level 1 PLC, impedance: 3500 Ohm  
 L16: 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) (L11...L15), > 16 V (state 0), < 10 V (state 1)  
 Positive logic (source) (L11...L15), < 5 V (state 0), > 11 V (state 1)  
 Negative logic (sink) (L16) if configured as logic input, > 16 V (state 0), < 10 V (state 1)  
 Positive logic (source) (L16) 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 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

- Modbus  
- CANopen

### 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  
- Slave Modbus

### Marking

- CE

### Operating position

- Vertical +/- 10 degree

### Height

- 230 mm

### Depth

- 175 mm

### Width

- 130 mm
<table>
<thead>
<tr>
<th>Net weight</th>
<th>3 kg</th>
</tr>
</thead>
</table>
| 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 Profinet  
Communication card for Profinet V1 |

**Environment**

<table>
<thead>
<tr>
<th>Noise level</th>
<th>43 dB conforming to 86/188/EEC</th>
</tr>
</thead>
</table>
| 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  
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 | UL Type 1  
EN/IEC 61800-5-1  
EN/IEC 61800-3  
EN 61800-3 environments 2 category C2  
IEC 60721-3-3 class 3C1  
IEC 60721-3-3 class 3S2  
EN 55011 class A group 1  
EN 61800-3 environments 1 category C2 |
| Product certifications | NOM 117  
C-Tick  
GOST  
CSA  
UL |
| 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**

<table>
<thead>
<tr>
<th>Sustainable offer status</th>
<th>Green Premium product</th>
</tr>
</thead>
<tbody>
<tr>
<td>REACh Regulation</td>
<td>REACh Declaration</td>
</tr>
</tbody>
</table>
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope)  
EU RoHS Declaration |
| Mercury free | Yes |
| RoHS exemption information | Yes |
Contractual warranty

Warranty 18 months

ATV71H075M3Z is replaced by:

Drive Products ATV930U15M3
variable speed drive, ATV930, 1.5kW, 200/240V, with braking unit, IP21
Qty 1
Reason for Substitution: End of life | Substitution date: 21 October 2016