

# ATV32H055M2

variable speed drive ATV32 - 0,55 kw - 200 V -  
1 phase - with heat sink



## Main

|                                    |                                                                                                                                                                                                                                                    |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                   | Altivar 32                                                                                                                                                                                                                                         |
| Product or component type          | Variable speed drive                                                                                                                                                                                                                               |
| Product specific application       | Complex machines                                                                                                                                                                                                                                   |
| Assembly style                     | With heat sink                                                                                                                                                                                                                                     |
| Component name                     | ATV32                                                                                                                                                                                                                                              |
| EMC filter                         | Class C2 EMC filter integrated                                                                                                                                                                                                                     |
| Network number of phases           | 1 phase                                                                                                                                                                                                                                            |
| [Us] rated supply voltage          | 200...240 V (- 15...10 %)                                                                                                                                                                                                                          |
| Motor power kW                     | 0.55 kW at 200...240 V 1 phase                                                                                                                                                                                                                     |
| Motor power hp                     | 0.75 hp at 200...240 V 1 phase                                                                                                                                                                                                                     |
| Line current                       | 7.9 A for 200 V 1 phase 0.55 kW / 0.75 hp<br>6.7 A for 240 V 1 phase 0.55 kW / 0.75 hp                                                                                                                                                             |
| Apparent power                     | 1.6 kVA at 240 V 1 phase 0.55 kW / 0.75 hp                                                                                                                                                                                                         |
| Prospective line Isc               | <= 1 kA, 1 phase                                                                                                                                                                                                                                   |
| Nominal output current             | 3.7 A at 4 kHz 240 V 1 phase 0.55 kW / 0.75 hp                                                                                                                                                                                                     |
| Maximum transient current          | 5.6 A for 60 s 1 phase 0.55 kW / 0.75 hp                                                                                                                                                                                                           |
| Speed drive output frequency       | 0.5...599 Hz                                                                                                                                                                                                                                       |
| Nominal switching frequency        | 4 kHz                                                                                                                                                                                                                                              |
| Switching frequency                | 2...16 kHz adjustable                                                                                                                                                                                                                              |
| Asynchronous motor control profile | Voltage/Frequency ratio, 2 points<br>Voltage/Frequency ratio, 5 points<br>Flux vector control without sensor - Energy Saving, NoLoad law<br>Flux vector control without sensor, standard<br>Voltage/Frequency ratio - Energy Saving, quadratic U/f |
| Type of polarization               | No impedance for Modbus                                                                                                                                                                                                                            |

## Complementary

|                                   |                                                                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Product destination               | Asynchronous motors<br>Synchronous motors                                                                       |
| Supply voltage limits             | 170...264 V                                                                                                     |
| Supply frequency                  | 50...60 Hz (- 5...5 %)                                                                                          |
| Network frequency limits          | 47.5...63 Hz                                                                                                    |
| Speed range                       | 1...100 for asynchronous motor in open-loop mode                                                                |
| Speed accuracy                    | +/- 10 % of nominal slip for 0.2 Tn to Tn torque variation                                                      |
| Torque accuracy                   | +/- 15 %                                                                                                        |
| Transient overtorque              | 170...200 % of nominal motor torque                                                                             |
| Braking torque                    | < 170 % with braking resistor                                                                                   |
| Synchronous motor control profile | Vector control without sensor                                                                                   |
| Regulation loop                   | Adjustable PID regulator                                                                                        |
| Motor slip compensation           | Automatic whatever the load<br>Not available in voltage/frequency ratio (2 or 5 points)<br>Adjustable 0...300 % |

|                                     |                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local signalling                    | 1 LED red presence of drive fault<br>1 LED red presence of CANopen error<br>1 LED green presence of CANopen run<br>1 LED blue presence of bluetooth<br>1 LED red presence of drive voltage                                                                                                                                                      |
| Output voltage                      | $\leq$ power supply voltage                                                                                                                                                                                                                                                                                                                     |
| Insulation                          | Electrical between power and control                                                                                                                                                                                                                                                                                                            |
| Electrical connection               | Power supply screw terminal 1.5...4 mm <sup>2</sup> / AWG14...AWG10<br>Motor/Braking resistor removable screw terminals 1.5...2.5 mm <sup>2</sup> / AWG14...AWG12<br>Control screw terminal 0.5...1.5 mm <sup>2</sup> / AWG18...AWG14                                                                                                           |
| Tightening torque                   | Power supply 0.6 N.m / 5.3 lb/ft<br>Motor/Braking resistor 0.7 N.m / 7.1 lb/ft<br>Control 0.5 N.m / 4.4 lb/ft                                                                                                                                                                                                                                   |
| Supply                              | Internal supply for reference potentiometer (1 to 10 kOhm), 10.5 V DC $\pm$ 5 %, $\leq$ 10 mA for overload and short-circuit protection                                                                                                                                                                                                         |
| Analogue input number               | 3                                                                                                                                                                                                                                                                                                                                               |
| Analogue input type                 | AI3 current 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration), impedance 250 Ohm, resolution 10 bits<br>AI2 bipolar differential voltage $\pm$ 10 V DC, impedance 30000 Ohm, resolution 10 bits<br>AI1 voltage 0...10 V DC, impedance 30000 Ohm, resolution 10 bits                                                   |
| Sampling duration                   | AO1 2 ms for analog input(s)<br>AI1, AI2, AI3 2 ms for analog input(s)                                                                                                                                                                                                                                                                          |
| Response time                       | R2A, R2C 2 ms for relay output(s)<br>R1A, R1B, R1C 2 ms for relay output(s)<br>LI1...LI6 8 ms, tolerance $\pm$ 0.7 ms for logic output(s)                                                                                                                                                                                                       |
| Accuracy                            | AO1 $\pm$ 2 % for a temperature of -10...60 °C<br>AO1 $\pm$ 1 % for a temperature of 25 °C<br>AI1, AI2, AI3 $\pm$ 0.5 % for a temperature of 25 °C<br>AI1, AI2, AI3 $\pm$ 0.2 % for a temperature of -10...60 °C                                                                                                                                |
| Linearity error                     | AO1 $\pm$ 0.3 %<br>AI1, AI2, AI3 $\pm$ 0.2...0.5 % of maximum value                                                                                                                                                                                                                                                                             |
| Analogue output number              | 1                                                                                                                                                                                                                                                                                                                                               |
| Analogue output type                | AO1 software-configurable voltage 0...10 V, impedance 470 Ohm, resolution 10 bits<br>AO1 software-configurable current 0...20 mA, impedance 800 Ohm, resolution 10 bits                                                                                                                                                                         |
| Discrete output number              | 3                                                                                                                                                                                                                                                                                                                                               |
| Discrete output type                | LO logic<br>R2A, R2B configurable relay logic NO, electrical durability 100000 cycles<br>R1A, R1B, R1C configurable relay logic NO/NC, electrical durability 100000 cycles                                                                                                                                                                      |
| Minimum switching current           | Configurable relay logic 5 mA at 24 V DC                                                                                                                                                                                                                                                                                                        |
| Maximum switching current           | R2 on resistive load, 5 A at 30 V DC, cos phi = 1,<br>R2 on resistive load, 5 A at 250 V AC, cos phi = 1,<br>R1, R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4,<br>R1, R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4,<br>R1 on resistive load, 4 A at 30 V DC, cos phi = 1,<br>R1 on resistive load, 3 A at 250 V AC, cos phi = 1, |
| Discrete input number               | 7                                                                                                                                                                                                                                                                                                                                               |
| Discrete input type                 | STO safe torque off 24...30 V DC, impedance 1500 Ohm<br>LI6 switch-configurable PTC probe 24...30 V DC<br>LI5 programmable as pulse input 20 kpps 24...30 V DC, with level 1 PLC<br>LI1...LI4 programmable (sink/source) 24...30 V DC, with level 1 PLC                                                                                         |
| Discrete input logic                | LI1...LI6 positive logic (source), $<$ 5 V (state 0), $>$ 11 V (state 0)<br>LI1...LI6 negative logic (sink), $>$ 19 V (state 0), $<$ 13 V (state 0)                                                                                                                                                                                             |
| Acceleration and deceleration ramps | S<br>U<br>CUS<br>Deceleration ramp automatic stop DC injection<br>Deceleration ramp adaptation<br>Linear<br>Ramp switching                                                                                                                                                                                                                      |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                 |
| Protection type                     | Thermal protection drive<br>Short-circuit between motor phases drive<br>Overheating protection drive<br>Overcurrent between output phases and earth drive<br>Input phase breaks drive                                                                                                                                                           |

|                             |                                                                                                                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication port protocol | CANopen<br>Modbus                                                                                                                                                                      |
| Type of connector           | 1 RJ45 for Modbus/CANopen on front face                                                                                                                                                |
| Physical interface          | 2-wire RS 485 for Modbus                                                                                                                                                               |
| Transmission frame          | RTU for Modbus                                                                                                                                                                         |
| Number of addresses         | 1...247 for Modbus<br>1...127 for CANopen                                                                                                                                              |
| Method of access            | Slave for CANopen                                                                                                                                                                      |
| Marking                     | CE                                                                                                                                                                                     |
| Operating position          | Vertical +/- 10 degree                                                                                                                                                                 |
| Width                       | 45 mm                                                                                                                                                                                  |
| Height                      | 325 mm                                                                                                                                                                                 |
| Depth                       | 245 mm                                                                                                                                                                                 |
| Product weight              | 2.4 kg                                                                                                                                                                                 |
| Option card                 | Communication card Profibus DP V1<br>Communication card Ethernet/IP<br>Communication card DeviceNet<br>Communication card CANopen open style<br>Communication card CANopen daisy chain |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise level                           | 43 dB conforming to 86/188/EEC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Electromagnetic compatibility         | Voltage dips and interruptions immunity test conforming to IEC 61000-4-11<br>Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3<br>Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3<br>Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4<br>Conducted radio-frequency immunity test conforming to IEC 61000-4-6 level 3<br>1.2/50 µs - 8/20 µs surge immunity test conforming to IEC 61000-4-5 level 3 |
| Standards                             | EN 55011 class A group 1<br>EN 61800-3 environments 1 category C2<br>EN 61800-3 environments 2 category C2<br>EN/IEC 61800-3<br>EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                              |
| Product certifications                | CSA<br>C-Tick<br>GOST<br>NOM 117<br>UL                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Pollution degree                      | 2 conforming to EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IP degree of protection               | IP20 conforming to EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Vibration resistance                  | 1.5 mm peak to peak (f = 3...13 Hz) conforming to EN/IEC 60068-2-6<br>1 gn (f = 13...200 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 dripping water conforming to IEC 60068-2-3<br>5...95 % without condensation conforming to IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                      |
| Ambient air temperature for operation | 50...60 °C with derating factor<br>-10...50 °C without derating                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Ambient air temperature for storage   | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Operating altitude                    | 1000...2000 m with current derating 1 % per 100 m<br>≤ 1000 m without derating                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Offer Sustainability

|                                  |                                                                                       |
|----------------------------------|---------------------------------------------------------------------------------------|
| Sustainable offer status         | Not Green Premium product                                                             |
| RoHS                             | Compliant - since 1007 - <a href="#">Schneider Electric declaration of conformity</a> |
| Product environmental profile    | Available <a href="#">Download Product Environmental</a>                              |
| Product end of life instructions | Available <a href="#">Download End Of Life Manual</a>                                 |



## Mounting and Clearance



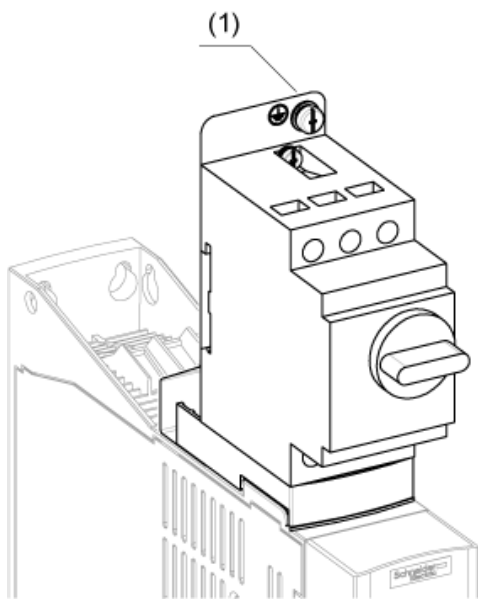
- (1) Minimum value corresponding to thermal constraints. A 150 mm clearance may help to connect the ground.
- (2) Optional GV2 circuit-breaker

## Option: Protection Device, GV2 circuit-breaker

The drive is prepared to be equipped with an optional GV2 circuit-breaker.

The GV2 circuit-breaker is directly mounted on the drive. Mechanical and electrical link are made using the optional adapter. The options are supplied with detailed mounting instruction sheet.

NOTE: The product overall dimension, including GV2 adapter and EMC plate mounted, becomes 424 mm (16.7 in.)

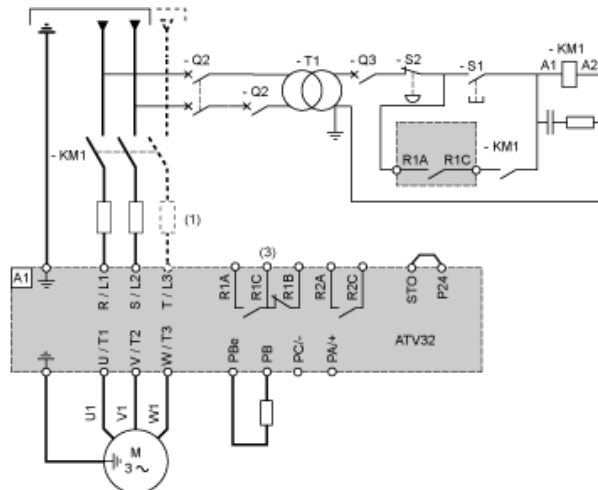


- (1) Ground screw (HS type 2 - 5x12)

## Connection Diagrams

### Single or Three-phase Power Supply - Diagram with Line Contactor

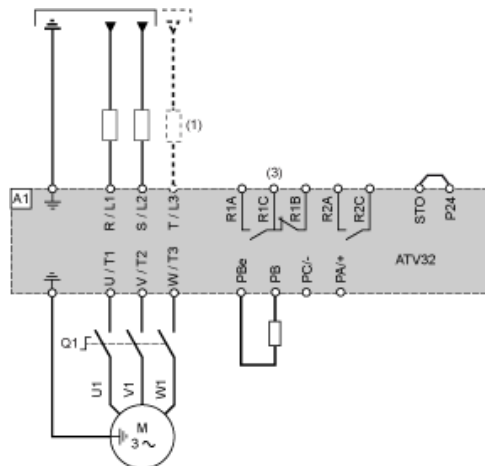
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



- (1) Line choke (if used)
- (3) Fault relay contacts, for remote signaling of drive status

### Single or Three-phase Power Supply - Diagram with Switch Disconnect

Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



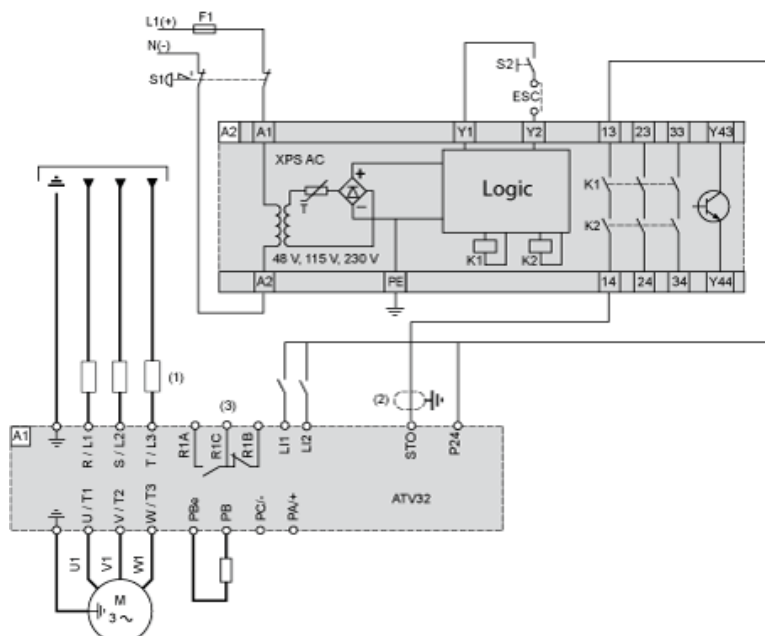
- (1) Line choke (if used)
- (3) Fault relay contacts, for remote signaling of drive status

### Diagram with Preventa Safety Module (Safe Torque Off Function)

Connection diagrams conforming to standards EN 954-1 category 3 and IEC/EN 61508 capacity SIL2, stopping category 0 in accordance with standard IEC/EN 60204-1.

When the emergency stop is activated, the drive power supply is cut immediately and the motor stops in freewheel, according to category 0 of standard IEC/EN 60204-1.

A contact on the Preventa XPS AC module must be inserted in the brake control circuit to engage it safely when the STO (Safe Torque Off) safety function is activated.



- (1) Line choke (if used)
- (2) It is essential to connect the shielding to the ground.
- (3) Fault relay contacts, for remote signaling of drive status

The STO safety function integrated into the product can be used to implement an "EMERGENCY STOP" (IEC 60204-1) for category 0 stops. With an additional, approved EMERGENCY STOP module, it is also possible to implement category 1 stops.

#### STO function

The STO safety function is triggered via 2 redundant inputs. The circuits of the two inputs must be separate so that there are always two channels. The switching process must be simultaneous for both inputs (offset < 1 s).

The power stage is disabled and an error message is generated. The motor can no longer generate torque and coasts down without braking. A restart is possible after resetting the error message with a "Fault Reset".

The power stage is disabled and an error message is generated if only one of the two inputs is switched off or if the time offset is too great. This error message can only be reset by switching off the product.

#### Diagram without Preventa Safety Module

Connection diagrams conforming to standards EN 954-1 category 2 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.

The connection diagram below is suitable for use with machines with a short freewheel stop time (machines with low inertia or high resistive torque).

When the emergency stop is activated, the drive power supply is cut immediately and the motor stops in freewheel, according to category 0 of standard IEC/EN 60204-1.



- (1) Line choke (if used)
- (2) It is essential to connect the shielding to the ground.
- (3) Fault relay contacts, for remote signaling of drive status

The STO safety function integrated into the product can be used to implement an "EMERGENCY STOP" (IEC 60204-1) for category 0 stops.

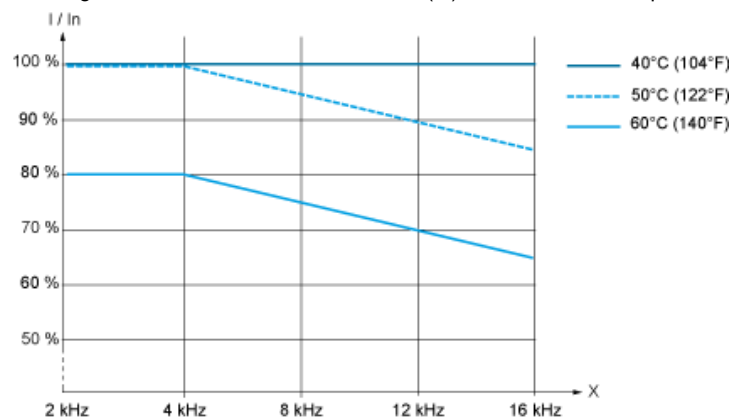
#### Control Connection Diagram in Source Mode



(1) Reference potentiometer SZ1RV1202 (2.2 k $\Omega$ ) or similar (10 k $\Omega$  maximum)

## Derating Curves

Derating curve for the nominal drive current ( $I_n$ ) as a function of temperature and switching frequency.



X Switching frequency

Above 4 kHz, the drive will reduce the switching frequency automatically in the event of an excessive temperature rise.

## Sink / Source Switch Configuration (SW1)

The logic input switch (SW1) is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

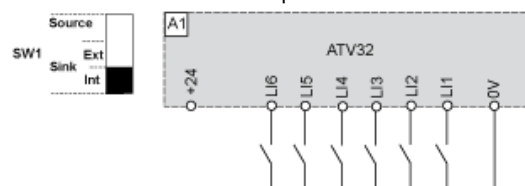
Switch SW1 set to "Source" position



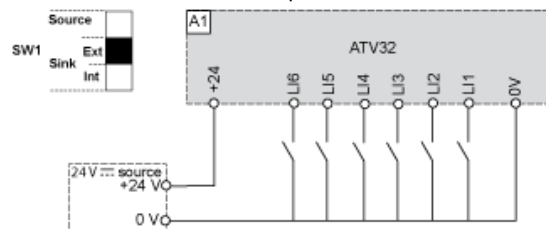
Switch SW1 set to "Source" position and use of an external power supply for the LIs



Switch SW1 set to "Sink Int" position



Switch SW1 set to "Sink Ext" position



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Schneider Electric:](#)

[ATV32H055M2](#)