

Product data sheet

Specifications



variable speed drive ATV32 - 11 kW - 400 V - 3 phase - with heat sink

ATV32HD11N4

⚠ Discontinued on: Jan 23, 2021

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Main

Range of Product	Altivar 32
Product or Component Type	Variable speed drive
product destination	Synchronous motors Asynchronous motors
Product Specific Application	Complex machines
Function Available	-
Assembly style	With heat sink
Component name	ATV32
EMC filter	Class C2 EMC filter integrated
Phase	3 phase
[Us] rated supply voltage	380...500 V - 15...10 %
Supply voltage limits	323...550 V
Supply frequency	50...60 Hz - 5...5 %
Network Frequency	47.5...63 Hz
Motor power kW	11 kW 380...480 V
Maximum Horse Power Rating	15 hp 380...480 V

Complementary

Line current	25.6 A 500 V 3 phase 11 kW / 15 hp 36.6 A 380 V 3 phase 11 kW / 15 hp
Apparent power	31.7 kVA 500 V 3 phase 15 kW / 20 hp
Prospective line I _{sc}	22 kA 3 phase
Nominal output current	27.7 A 4 kHz 500 V 11 kW / 15 hp
Maximum transient current	41.6 A 60 s 11 kW / 15 hp
Output frequency	0.0005...0.599 kHz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable
Speed range	1...100 asynchronous motor in open-loop mode
Speed accuracy	+/- 10 % of nominal slip 0.2 T _n to T _n
Torque accuracy	+/- 15 %
Transient overtorque	170...200 %

Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Braking torque	<= 170 % with braking resistor
Asynchronous motor control profile	Flux vector control without sensor, standard Voltage/frequency ratio, 5 points Voltage/frequency ratio, 2 points Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving, NoLoad law
Synchronous motor control profile	Vector control without sensor
Regulation loop	Adjustable PID regulator
Motor slip compensation	Adjustable 0...300 % Automatic whatever the load Not available in voltage/frequency ratio (2 or 5 points)
Local signalling	1 LED red drive voltage 1 LED green CANopen run 1 LED red CANopen error 1 LED red drive fault
Output voltage	<= power supply voltage
Noise level	43 dB 86/188/EEC
Insulation	Electrical between power and control
Electrical connection	Screw terminal 0.5...1.5 mm ² , AWG 18...AWG 14 control) Removable screw terminals 6...16 mm ² , AWG 8...AWG 6 motor/braking resistor) Screw terminal 10...16 mm ² , AWG 8...AWG 6 power supply)
Tightening torque	4.4 lbf.in (0.5 N.m), 4.4 lb/ft control) 10.6 lbf.in (1.2 N.m), 10.6 lb/ft motor/braking resistor) 10.6 lbf.in (1.2 N.m), 10.6 lb/ft power supply)
Supply	Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection
Analogue input number	3
Analogue input type	AI1 voltage 0...10 V DC 30000 Ohm 10 bits AI2 bipolar differential voltage +/- 10 V DC 30000 Ohm 10 bits AI3 current 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration) 250 Ohm 10 bits
Sampling duration	2 ms AI1, AI2, AI3) - analog 2 ms AO1) - analog
Response time	LI1...LI6 8 ms +/- 0.7 ms logic R1A, R1B, R1C 2 ms relay R2A, R2C 2 ms relay
Accuracy	+/- 0.2 % AI1, AI2, AI3) for a temperature of -10...60 °C +/- 0.5 % AI1, AI2, AI3) for a temperature of 25 °C +/- 1 % AO1) for a temperature of 25 °C +/- 2 % AO1) for a temperature of -10...60 °C
Linearity error	+/- 0.2...0.5 % of maximum value AI1, AI2, AI3) +/- 0.3 % AO1)
Analogue output number	1
Analogue output type	AO1 software-configurable current 0...20 mA 800 Ohm 10 bits AO1 software-configurable voltage 0...10 V 470 Ohm 10 bits
Discrete output number	3
Discrete output type	Configurable relay logic R1A, R1B, R1C) NO/NC - 100000 cycles Configurable relay logic R2A, R2B) NO - 100000 cycles Logic LO)
Minimum switching current	5 mA 24 V DC configurable relay logic
Maximum switching current	R1 3 A 250 V AC resistive, cos phi = 1 R1 4 A 30 V DC resistive, cos phi = 1 R1, R2 2 A 250 V AC inductive, cos phi = 0.4 R1, R2 2 A 30 V DC inductive, cos phi = 0.4 R2 5 A 250 V AC resistive, cos phi = 1 R2 5 A 30 V DC resistive, cos phi = 1

Discrete input number	7
Discrete input type	Programmable (sink/source) LI1...LI4)24...30 V DC level 1 PLC Programmable as pulse input 20 kpps LI5)24...30 V DC level 1 PLC Switch-configurable PTC probe LI6)24...30 V DC Safe torque off STO)24...30 V DC - 1500 Ohm
Discrete input logic	Negative logic (sink) LI1...LI6), > 19 V, < 13 V Positive logic (source) LI1...LI6), < 5 V, > 11 V
Acceleration and deceleration ramps	CUS Deceleration ramp adaptation Linear Deceleration ramp automatic stop DC injection S Ramp switching U
Braking to standstill	By DC injection
Protection type	Input phase breaks drive Overcurrent between output phases and earth drive Overheating protection drive Short-circuit between motor phases drive Thermal protection drive
Communication Port Protocol	CANopen Modbus
Connector type	1 RJ45 on front face)Modbus/CANopen
Physical interface	2-wire RS 485 Modbus
Transmission frame	RTU Modbus
Type of polarization	No impedance Modbus
Number of addresses	1...127 CANopen 1...247 Modbus
Method of access	Slave CANopen
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test, level 3 IEC 61000-4-5 Conducted radio-frequency immunity test, level 3 IEC 61000-4-6 Electrical fast transient/burst immunity test, level 4 IEC 61000-4-4 Electrostatic discharge immunity test, level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test, level 3 IEC 61000-4-3 Voltage dips and interruptions immunity test IEC 61000-4-11
Width	7.09 in (180 mm)
Height	15.9 in (404 mm)
Depth	9.1 in (232 mm)
Net Weight	19.2 lb(US) (8.7 kg)
Option card	Communication card CANopen daisy chain Communication card CANopen open style Communication card DeviceNet Communication card EtherNet/IP Communication card Profibus DP V1
Functionality	Mid
Specific application	Other applications

Environment

Standards	EN/IEC 61800-3 EN/IEC 61800-5-1 EN 55011 class A group 1 EN 61800-3 environments 1 category C2 EN 61800-3 environments 2 category C2
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Product Certifications	CSA GOST UL C-tick NOM 117
Marking	CE
Pollution degree	2 EN/IEC 61800-5-1
IP degree of protection	IP20 EN/IEC 61800-5-1
Vibration resistance	1 gn 13...200 Hz) EN/IEC 60068-2-6 1.5 mm peak to peak 3...13 Hz) EN/IEC 60068-2-6
Shock resistance	15 gn 11 msEN/IEC 60068-2-27
Relative humidity	5...95 % without condensation IEC 60068-2-3 5...95 % without dripping water IEC 60068-2-3
Ambient air temperature for operation	14...122 °F (-10...50 °C) without derating 122...140 °F (50...60 °C) with derating factor
Ambient Air Temperature for Storage	-13...158 °F (-25...70 °C)
Operating altitude	<= 3280.84 ft (1000 m) without derating 3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m
Operating position	Vertical +/- 10 degree

Ordering and shipping details

Category	22153-ATV320/ATV312/ATV32 (10 THRU 30HP)
Discount Schedule	CP4B
GTIN	00785901675518
Returnability	No
Country of origin	ID

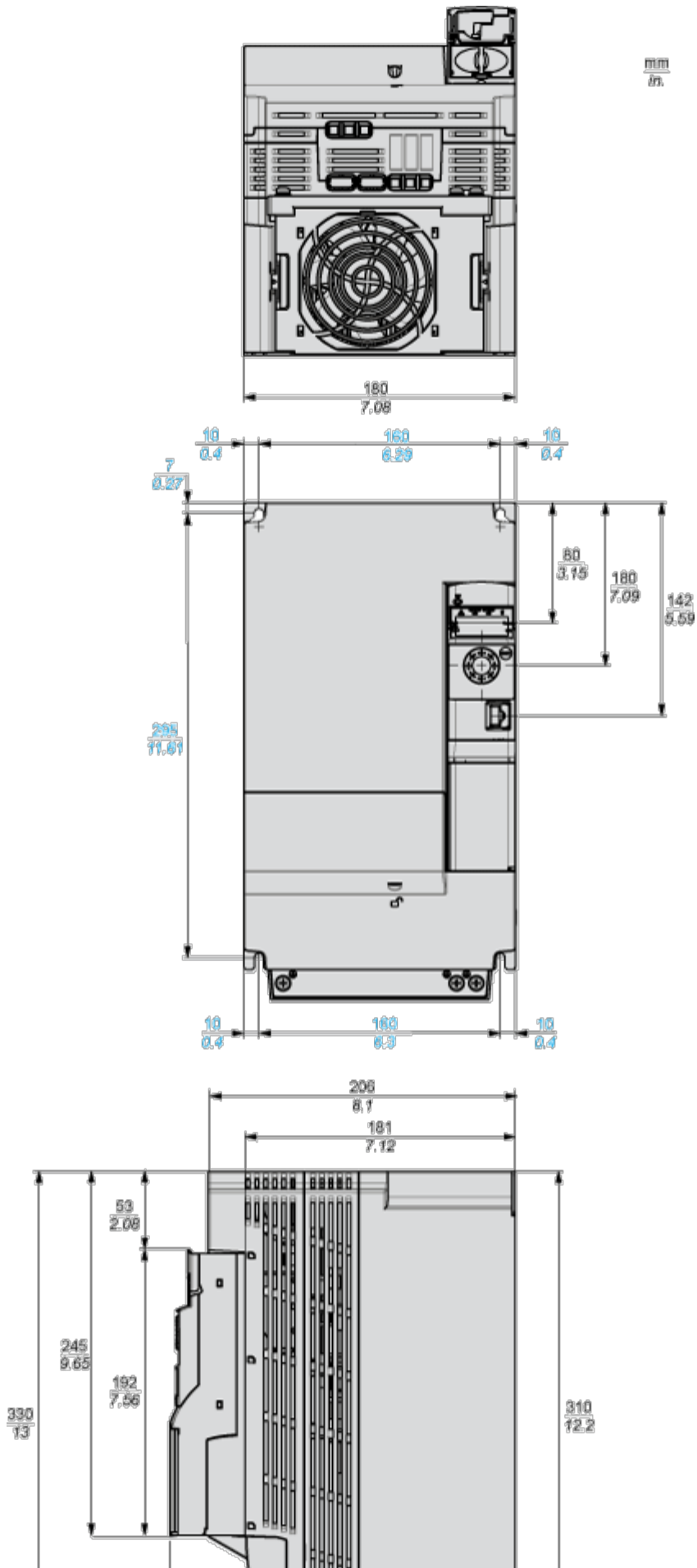
Contractual warranty

Warranty	18 months
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Dimensions Drawings

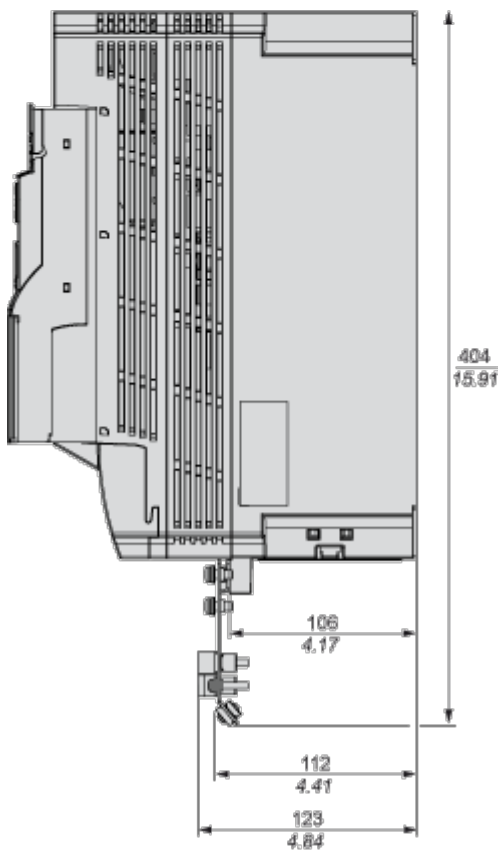
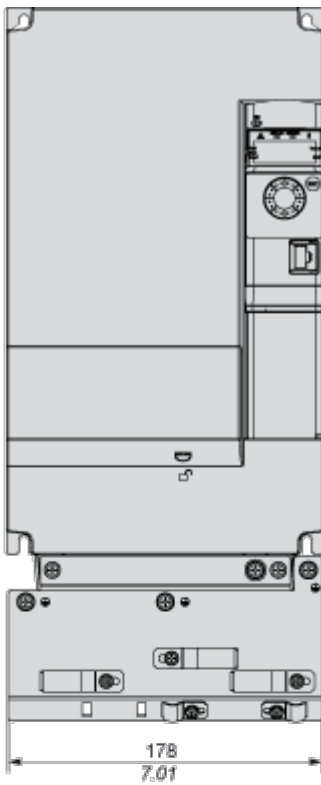
Size D

Dimensions



Size D - with EMC plate

Dimensions



Mounting and Clearance

Mounting and Clearance



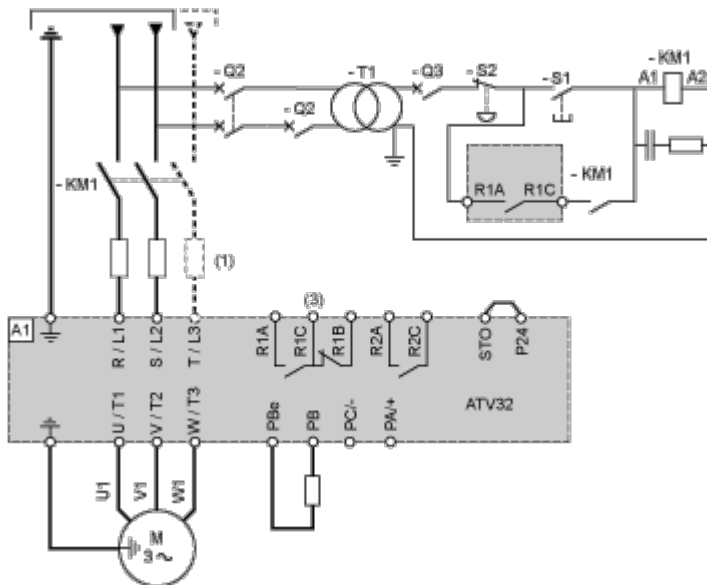
(1) Minimum value corresponding to thermal constraints.

Connections and Schema

Connection Diagrams

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

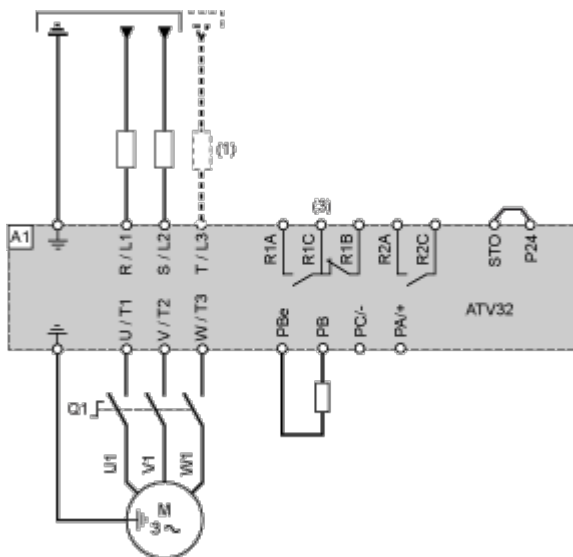
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



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

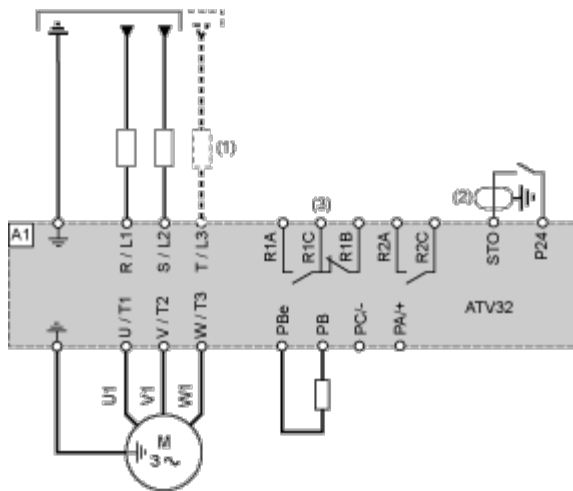
Single or Three-phase Power Supply - Diagram with Switch Disconnect

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

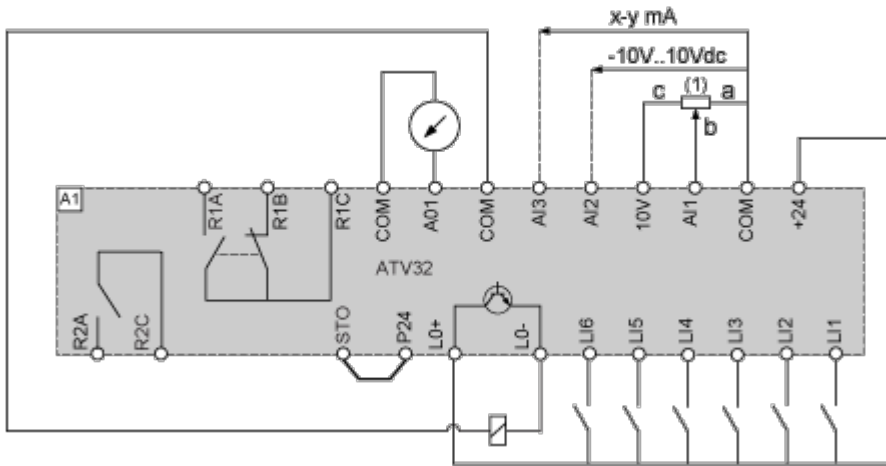
Diagram with Preventa Safety Module (Safe Torque Off Function)



- (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

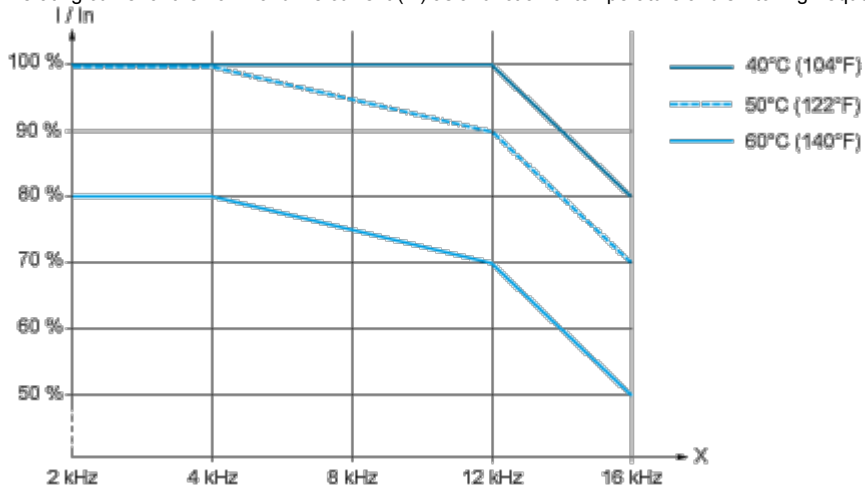


(1) Reference potentiometer SZ1RV1202 (2.2 kΩ) or similar (10 kΩ maximum)

Performance Curves

Derating Curves

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



X Switching frequency

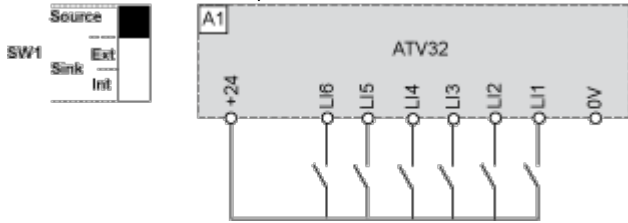
Above 4 kHz, the drive will reduce the switching frequency automatically in the event of an excessive temperature rise.

Technical Description

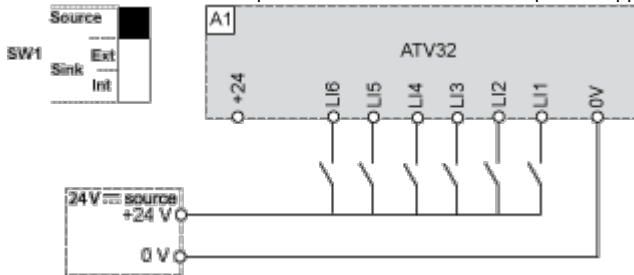
Sink / Source Switch Configuration (SW1)

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

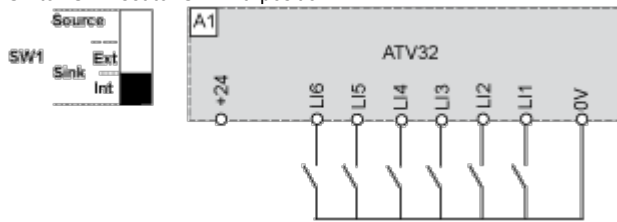
Switch SW1 set to "Source" position



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

