

# Product datasheet

Specifications



## floor standing drive, ATV950, 132kW, 400/440V, w/o braking unit, IP54

Local distributor code:  
408900207

ATV950C13N4F

EAN Code: 3606480884085

## Main

Range Of Product	Altivar Process ATV900
Device Application	Industrial application
Product Or Component Type	Variable speed drive
Product Destination	Asynchronous motors Synchronous motors
Product Specific Application	Process for industrial
Variant	With load break switch Without braking chopper
Network Number Of Phases	3 phases
Mounting Mode	Floor-standing
Communication Port Protocol	Modbus TCP EtherNet/IP Modbus serial
[Us] Rated Supply Voltage	380...440 V - 15...10 %
Motor Power Kw	132.0 kW for normal duty 110.0 kW for heavy duty
Continuous Output Current	250 A at 2.5 kHz for normal duty 211 A at 2.5 kHz for heavy duty
Emc Filter	Integrated With EMC plate option
Ip Degree Of Protection	IP54
Option Module	Slot A: communication module for Profibus DP V1 Slot A: communication module for PROFINET Slot A: communication module for DeviceNet Slot A: communication module for EtherCAT Slot A: communication module for CANopen daisy chain RJ45 Slot A: communication module for CANopen SUB-D 9 Slot A: communication module for CANopen screw terminals Slot A/slot B/slot C: digital and analog I/O extension module Slot A/slot B/slot C: output relay extension module Slot B: 5/12 V digital encoder interface module Slot B: analog encoder interface module Slot B: resolver encoder interface module communication module for Ethernet Powerlink
Discrete Input Logic	16 preset speeds
Asynchronous Motor Control Profile	Optimized torque mode Constant torque standard Variable torque standard
Synchronous Motor Control Profile	Permanent magnet motor Synchronous reluctance motor
Maximum Output Frequency	599 Hz

<b>Switching Frequency</b>	2.5..8 kHz with derating factor 2..8 kHz adjustable
<b>Nominal Switching Frequency</b>	2.5 kHz
<b>Line Current</b>	244.0 A at 380 V (normal duty) 207.0 A at 380 V (heavy duty) 210.0 A at 440 V (normal duty) 179.0 A at 440 V (heavy duty)
<b>Apparent Power</b>	161 kVA at 400 V (normal duty) 136 kVA at 400 V (heavy duty)
<b>Maximum Transient Current</b>	300 A during 60 s (normal duty) 317 A during 60 s (heavy duty)
<b>Network Frequency</b>	50..60 Hz
<b>Prospective Line Isc</b>	50 kA

## Complementary

<b>Discrete Input Number</b>	10
<b>Discrete Input Type</b>	DI1...DI8 programmable, 24 V DC ( $\leq 30$ V), impedance: 3.5 kOhm DI7, DI8 programmable as pulse input: 0...30 kHz, 24 V DC ( $\leq 30$ V) STOA, STOB safe torque off, 24 V DC ( $\leq 30$ V), impedance: $> 2.2$ kOhm
<b>Discrete Output Number</b>	2
<b>Discrete Output Type</b>	Logic output DQ+ 0...1 kHz $\leq 30$ V DC 100 mA Programmable as pulse output DQ+ 0...30 kHz $\leq 30$ V DC 20 mA Logic output DQ- 0...1 kHz $\leq 30$ V DC 100 mA
<b>Analogue Input Number</b>	3
<b>Analogue Input Type</b>	AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 30 kOhm, resolution 12 bits AI1, AI2, AI3 software-configurable current: 0...20 mA/4...20 mA, impedance: 250 Ohm, resolution 12 bits
<b>Analogue Output Number</b>	2
<b>Analogue Output Type</b>	Software-configurable voltage AQ1, AQ2: 0...10 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 0...20 mA impedance 500 Ohm, resolution 10 bits
<b>Relay Output Number</b>	3
<b>Relay Output Type</b>	Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 1000000 cycles Configurable relay logic R3: sequence relay NO electrical durability 1000000 cycles
<b>Maximum Switching Current</b>	Relay output R1 on resistive load, $\cos \phi = 1$ : 3 A at 250 V AC Relay output R1 on resistive load, $\cos \phi = 1$ : 3 A at 30 V DC Relay output R1 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 250 V AC Relay output R1 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 30 V DC Relay output R2, R3 on resistive load, $\cos \phi = 1$ : 5 A at 250 V AC Relay output R2, R3 on resistive load, $\cos \phi = 1$ : 5 A at 30 V DC Relay output R2, R3 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 250 V AC Relay output R2, R3 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 30 V DC
<b>Minimum Switching Current</b>	Relay output R1, R2, R3: 5 mA at 24 V DC
<b>Physical Interface</b>	Ethernet 2-wire RS 485
<b>Connector Type</b>	2 RJ45 1 RJ45
<b>Method Of Access</b>	Slave Modbus TCP
<b>Transmission Rate</b>	10, 100 Mbits 4.8 kbps 9600 bit/s 19200 bit/s

<b>Transmission Frame</b>	RTU
<b>Number Of Addresses</b>	1...247
<b>Data Format</b>	8 bits, configurable odd, even or no parity
<b>Type Of Polarization</b>	No impedance
<b>4 Quadrant Operation Possible</b>	False
<b>Acceleration And Deceleration Ramps</b>	Linear adjustable separately from 0.01...9999 s
<b>Motor Slip Compensation</b>	Not available in permanent magnet motor law Automatic whatever the load Can be suppressed Adjustable
<b>Braking To Standstill</b>	By DC injection
<b>Brake Chopper Integrated</b>	False
<b>Maximum Input Current</b>	244.0 A
<b>Maximum Output Voltage</b>	440.0 V
<b>Relative Symmetric Network Frequency Tolerance</b>	5 %
<b>Base Load Current At High Overload</b>	211.0 A
<b>Base Load Current At Low Overload</b>	250.0 A
<b>Power Dissipation In W</b>	3150 W, switching frequency 2.5 kHz (normal duty) 2520 W, switching frequency 2.5 kHz (heavy duty)
<b>With Safety Function Safely Limited Speed (Sls)</b>	True
<b>With Safety Function Safe Brake Management (Sbc/Sbt)</b>	True
<b>With Safety Function Safe Operating Stop (Sos)</b>	False
<b>With Safety Function Safe Position (Sp)</b>	False
<b>With Safety Function Safe Programmable Logic</b>	False
<b>With Safety Function Safe Speed Monitor (Ssm)</b>	False
<b>With Safety Function Safe Stop 1 (Ss1)</b>	True
<b>With Sft Fct Safe Stop 2 (Ss2)</b>	False
<b>With Safety Function Safe Torque Off (Sto)</b>	True
<b>With Safety Function Safely Limited Position (Slp)</b>	False
<b>With Safety Function Safe Direction (Sdi)</b>	False
<b>Protection Type</b>	Thermal protection: motor Safe torque off: motor Motor phase break: motor Thermal protection: drive Safe torque off: drive Overheating: drive Overcurrent between output phases and earth: drive Overload of output voltage: drive Short-circuit protection: drive Motor phase break: drive Overvoltages on the DC bus: drive Line supply overvoltage: drive Line supply undervoltage: drive Line supply phase loss: drive Overspeed: drive Break on the control circuit: drive
<b>Quantity Per Set</b>	1
<b>Width</b>	400 mm

<b>Height</b>	2350 mm
<b>Depth</b>	669 mm
<b>Net Weight</b>	310 kg
<b>Electrical Connection</b>	Control: removable screw terminals 0.5...1.5 mm <sup>2</sup> Line side: M12 bar Motor: M12 bar
<b>Transmission Rate</b>	10/100 Mbit/s for Ethernet IP/Modbus TCP 4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial
<b>Exchange Mode</b>	Half duplex, full duplex, autonegotiation Ethernet IP/Modbus TCP
<b>Data Format</b>	8 bits, configurable odd, even or no parity for Modbus serial
<b>Type Of Polarization</b>	No impedance for Modbus serial
<b>Number Of Addresses</b>	1...247 for Modbus serial
<b>Supply</b>	External supply for digital inputs: 24 V DC (19...30 V), <1.25 mA, protection type: overload and short-circuit protection 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 for digital inputs and STO: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection
<b>Local Signalling</b>	Local diagnostic: 3 LED (mono/dual colour) Embedded communication status: 5 LED (dual colour) Communication module status: 2 LED (dual colour) Presence of voltage: 1 LED (red)
<b>Input Compatibility</b>	DI1...DI8: discrete input level 1 PLC conforming to IEC 61131-2 DI7, DI8: pulse input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to IEC 61131-2
<b>Discrete Input Logic</b>	Positive logic (source) (DI1...DI8), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (DI1...DI8), > 16 V (state 0), < 10 V (state 1) Positive logic (source) (DI7, DI8), < 0.6 V (state 0), > 2.5 V (state 1) Positive logic (source) (STOA, STOB), < 5 V (state 0), > 11 V (state 1)
<b>Sampling Duration</b>	2 ms +/- 0.5 ms (DI1...DI8) - discrete input 5 ms +/- 1 ms (DI7, DI8) - pulse input 1 ms +/- 1 ms (AI1, AI2, AI3) - analog input 5 ms +/- 1 ms (AQ1, AQ2) - analog output
<b>Accuracy</b>	+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output
<b>Linearity Error</b>	AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output
<b>Refresh Time</b>	Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)
<b>Isolation</b>	Between power and control terminals

## Environment

<b>Operating Altitude</b>	<= 1000 m without derating 1000...4800 m with current derating 1 % per 100 m
<b>Operating Position</b>	Vertical +/- 10 degree
<b>Product Certifications</b>	ATEX EAC C-Tick
<b>Marking</b>	CE
<b>Standards</b>	IEC 60204-1 IEC 61800-2 IEC 61800-3 IEC 61800-5-1
<b>Maximum Thdi</b>	<48 % full load conforming to IEC 61000-3-12
<b>Assembly Style</b>	In floor-standing enclosure

<b>Electromagnetic Compatibility</b>	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 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 $\mu$ s - 8/20 $\mu$ s surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6
<b>Environmental Class (During Operation)</b>	Class 3C3 according to IEC 60721-3-3 Class 3S3 according to IEC 60721-3-3
<b>Maximum Acceleration Under Shock Impact (During Operation)</b>	150 m/s <sup>2</sup> at 11 ms
<b>Maximum Acceleration Under Vibrational Stress (During Operation)</b>	10 m/s <sup>2</sup> at 13...200 Hz
<b>Maximum Deflection Under Vibratory Load (During Operation)</b>	1.5 mm at 2...13 Hz
<b>Permitted Relative Humidity (During Operation)</b>	Class 3K5 according to EN 60721-3
<b>Volume Of Cooling Air</b>	720 m <sup>3</sup> /h
<b>Overvoltage Category</b>	III
<b>Regulation Loop</b>	Adjustable PID regulator
<b>Insulation Resistance</b>	> 1 MOhm 500 V DC for 1 minute to earth
<b>Noise Level</b>	69 dB conforming to 86/188/EEC
<b>Vibration Resistance</b>	1.5 mm peak to peak (f= 2... 13 Hz) conforming to IEC 60068-2-6 1 gn (f= 13...200 Hz) conforming to IEC 60068-2-6
<b>Shock Resistance</b>	15 gn for 11 ms conforming to IEC 60068-2-27
<b>Environmental Characteristic</b>	Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to IEC 60721-3-3
<b>Relative Humidity</b>	5...95 % without condensation conforming to IEC 60068-2-3
<b>Ambient Air Temperature For Operation</b>	-15...40 °C (without derating) 40...50 °C (with derating factor)
<b>Noise Level</b>	69 dB
<b>Pollution Degree</b>	2
<b>Ambient Air Transport Temperature</b>	-40...70 °C
<b>Ambient Air Temperature For Storage</b>	-40...70 °C

## Packing Units

<b>Unit Type Of Package 1</b>	PCE
<b>Number Of Units In Package 1</b>	1
<b>Package 1 Height</b>	238.5 cm
<b>Package 1 Width</b>	120.0 cm
<b>Package 1 Length</b>	110.0 cm
<b>Package 1 Weight</b>	400.0 kg

## Contractual warranty

<b>Warranty</b>	18 months
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## Sustainability

**Green Premium™ label** is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product's sustainability >](#)





Take-back   Transparency   RoHS/REACH

## Resource performance

 Take-Back Program Available

## Well-being performance

 Mercury Free

 Rohs Exemption Information   [Yes](#)

## Certifications & Standards

Reach Regulation

[REACH Declaration](#)

Eu Rohs Directive

Pro-active compliance (Product out of EU RoHS legal scope)

China Rohs Regulation

[China RoHS declaration](#)

Environmental Disclosure

[Product Environmental Profile](#)

Weee

The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Circularity Profile

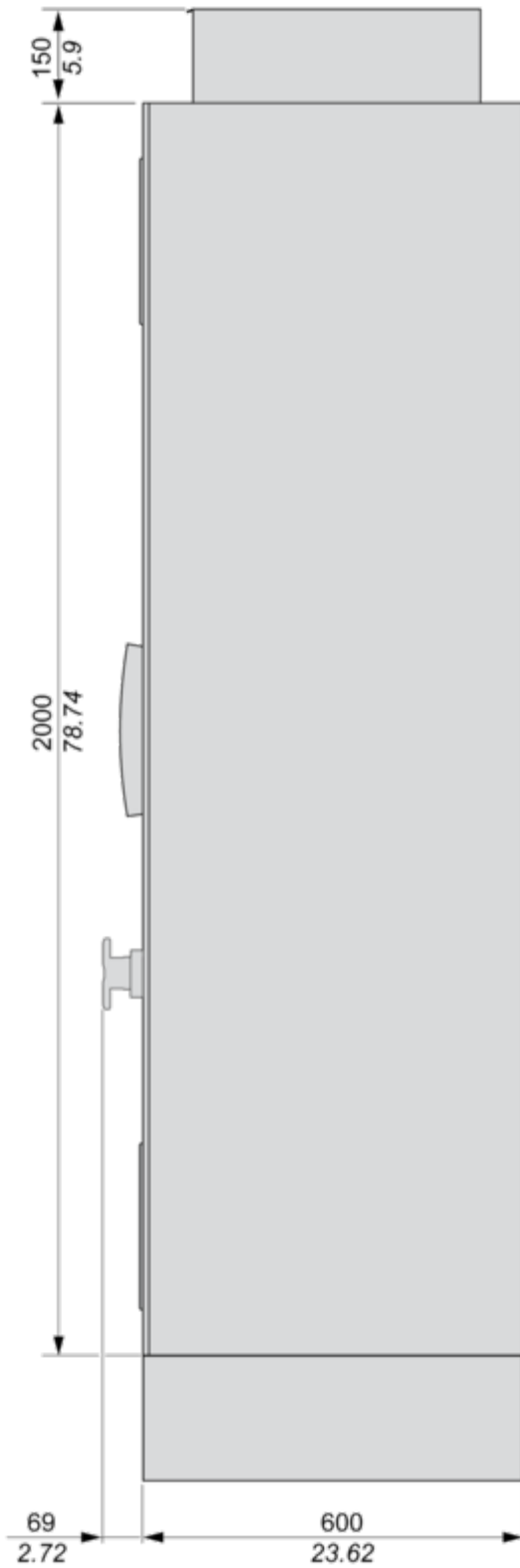
[End of Life Information](#)

### Dimensions

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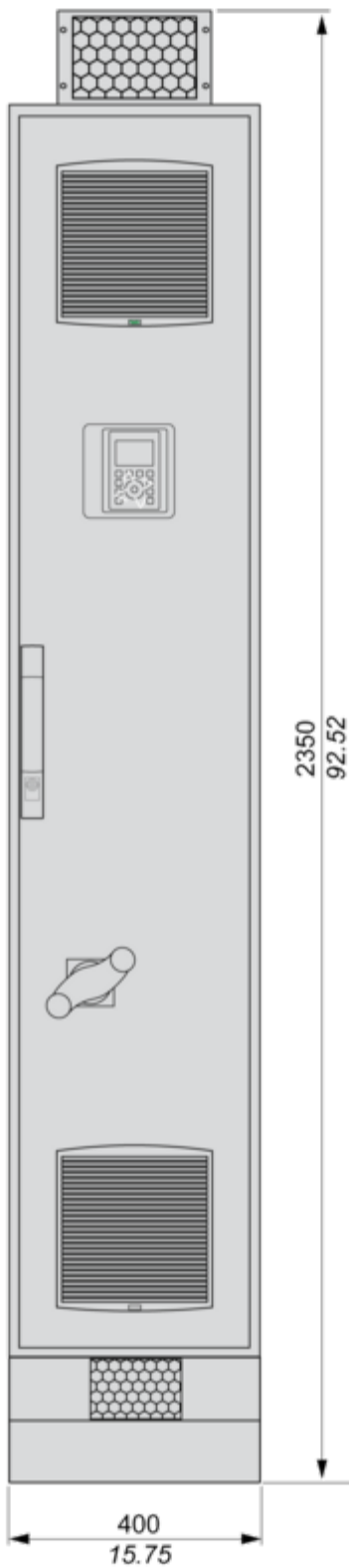
Right and Front View

mm  
in.



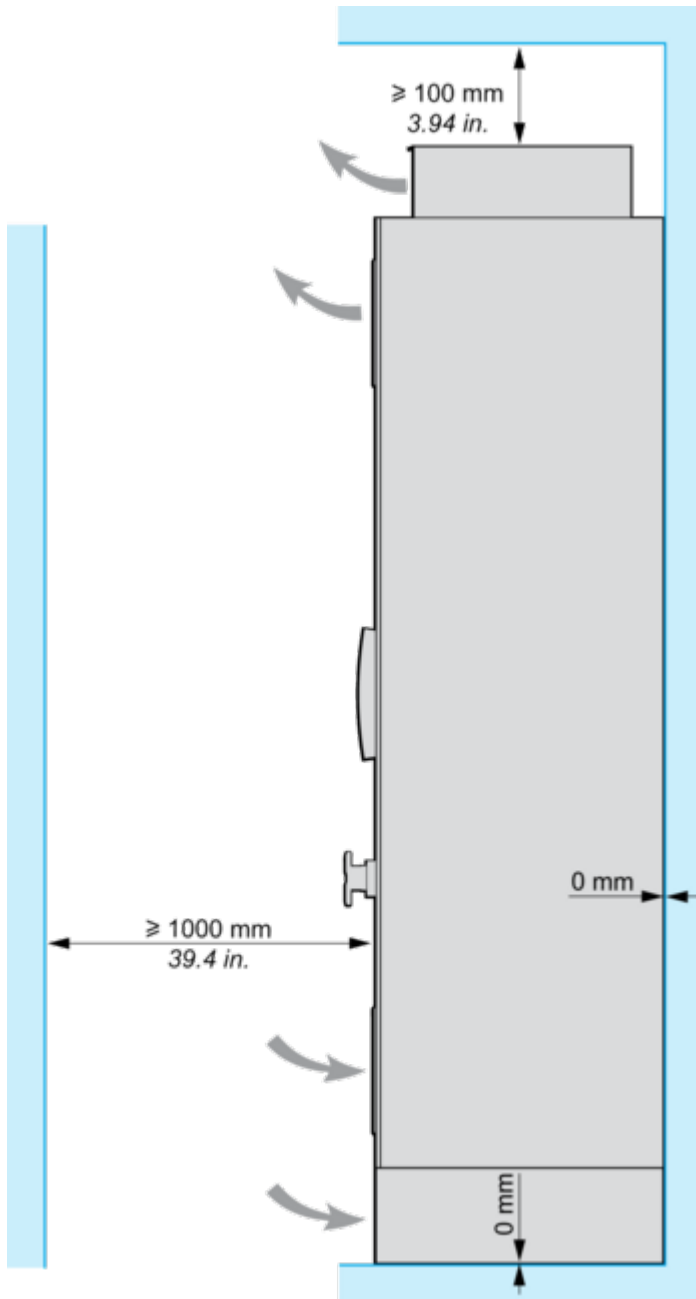


mm  
in.

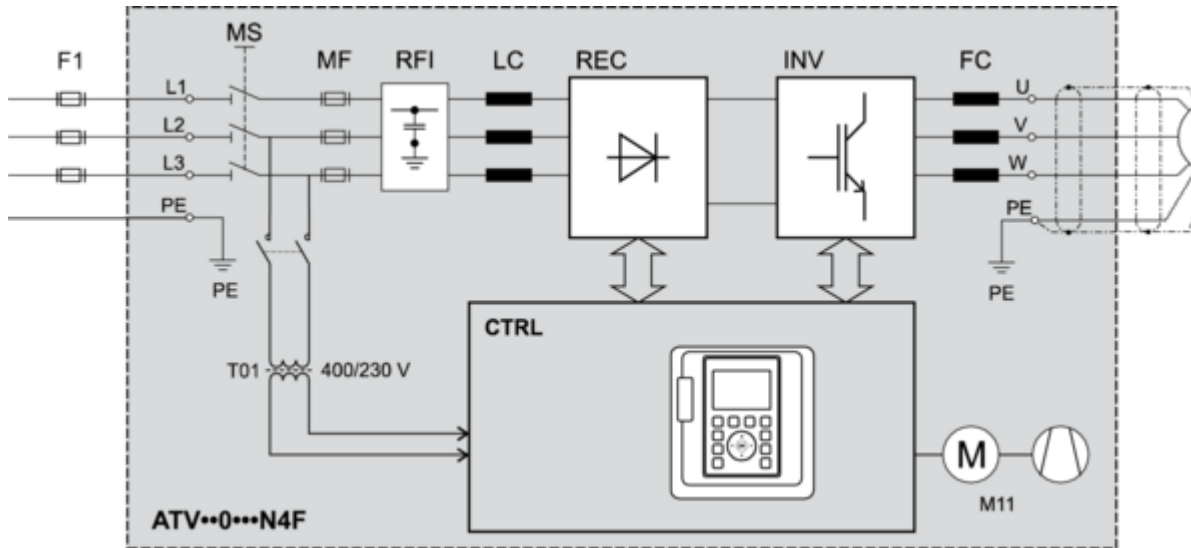


Clearances

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Floor Standing Drive Circuit Diagram



F1 External pre-fuse or circuit breaker

MS Built-in main switch (only available on IP54 drives)

T01 Control transformer 400 / 230 V AC

MF aR fuses

RFI Built-in RFI filter

LC Line reactor choke

REC Rectifier module

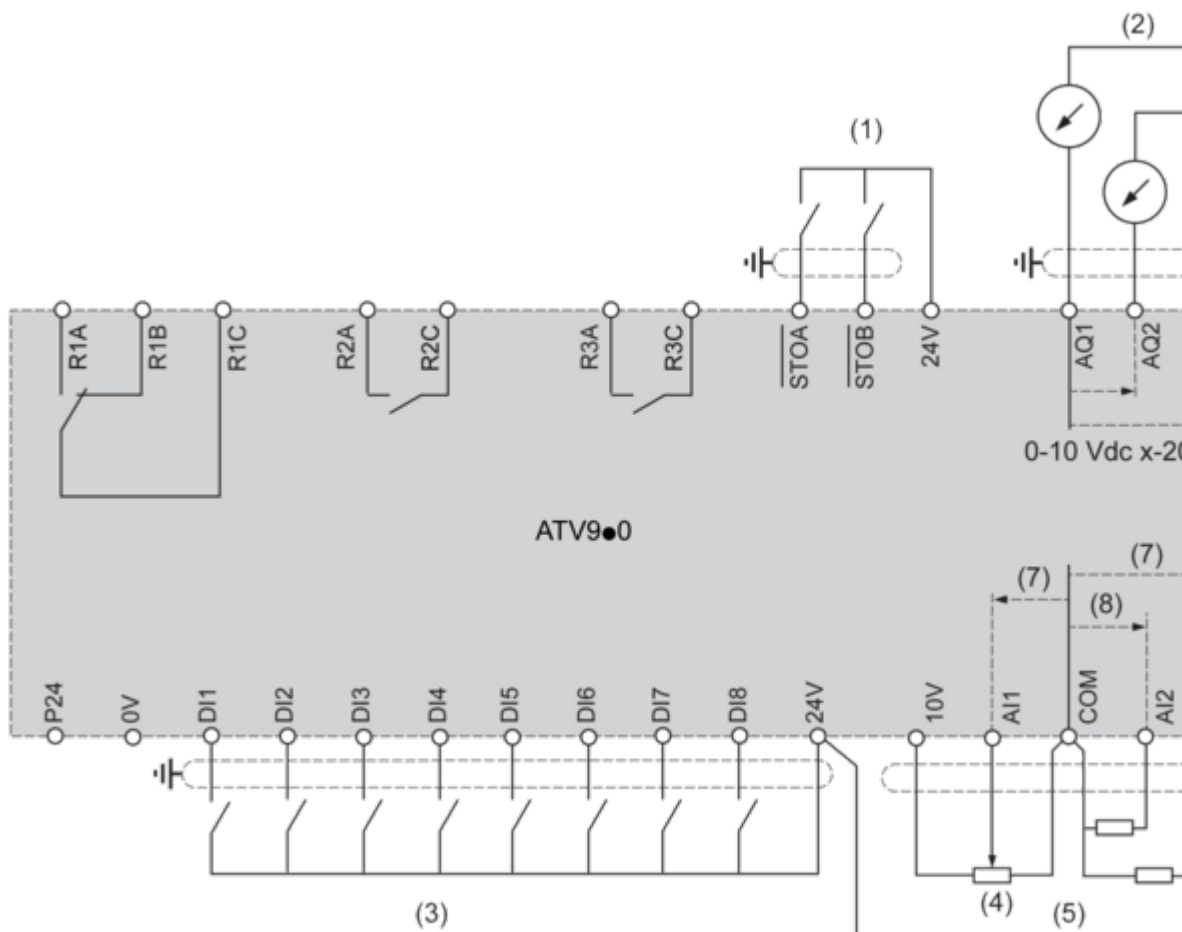
INV Inverter module

FC dv/dt filter (from 355 kW the dv/dt filter choke 150 m is built-in as standard)

CTRL Control panel

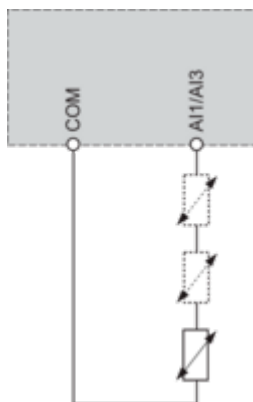
M11 Fan in enclosure door

Control Block Wiring Diagram



- (1) Safe Torque Off
  - (2) Analog Output
  - (3) Digital Input
  - (4) Reference potentiometer
  - (5) Analog Input
  - (6) Digital Output
  - (7) 0-10 Vdc, x-20 mA
  - (8) 0-10 Vdc, -10 Vdc...+10 Vdc
- R1A, R1B, R1C : Fault relay  
 R2A, R2C : Sequence relay  
 R3A, R3C : Sequence relay

Sensor Connection



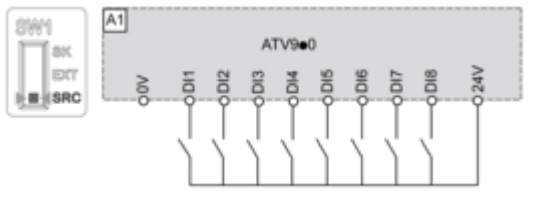
It is possible to connect either 1 or 3 sensors on terminals AI1 or AI3

**Sink / Source Switch Configuration**

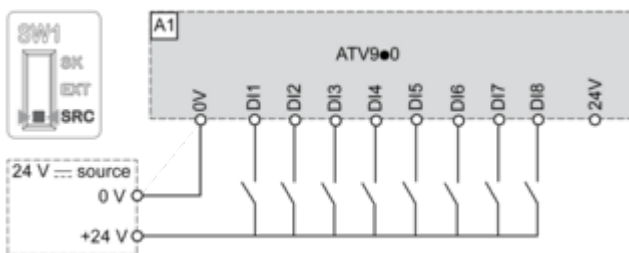
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- Set the switch to Source (factory setting) if using PLC outputs with PNP transistors.
- Set the switch to Ext if using PLC outputs with NPN transistors.

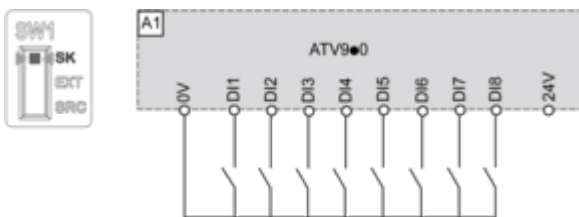
**Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs**



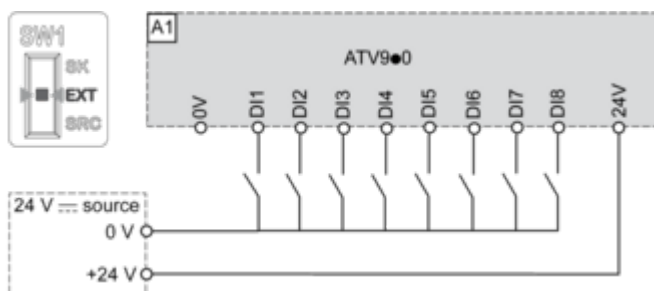
**Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs**



**Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs**

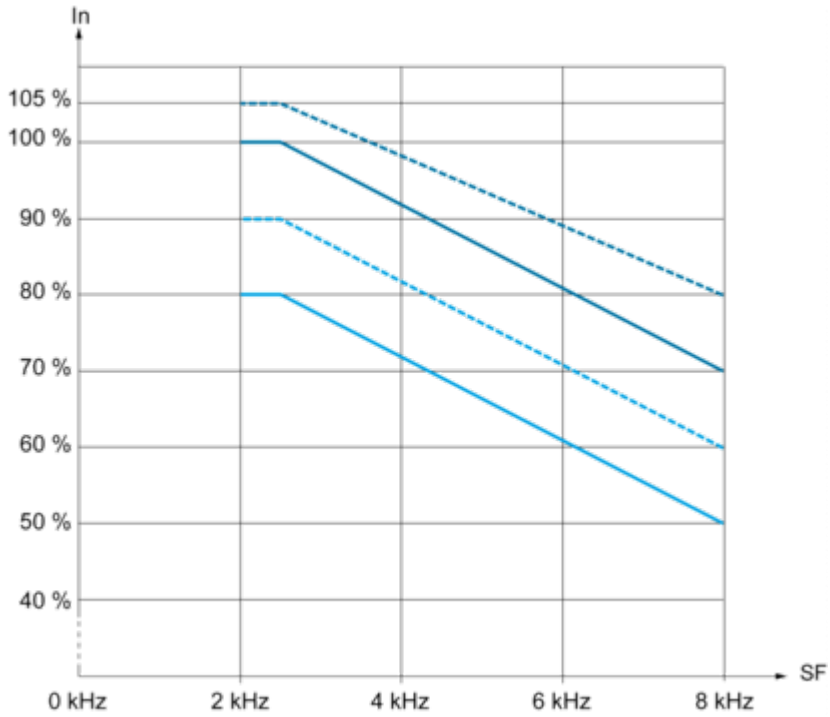


**Switch Set to EXT Position Using an External Power Supply for the DIs**



Derating Curves

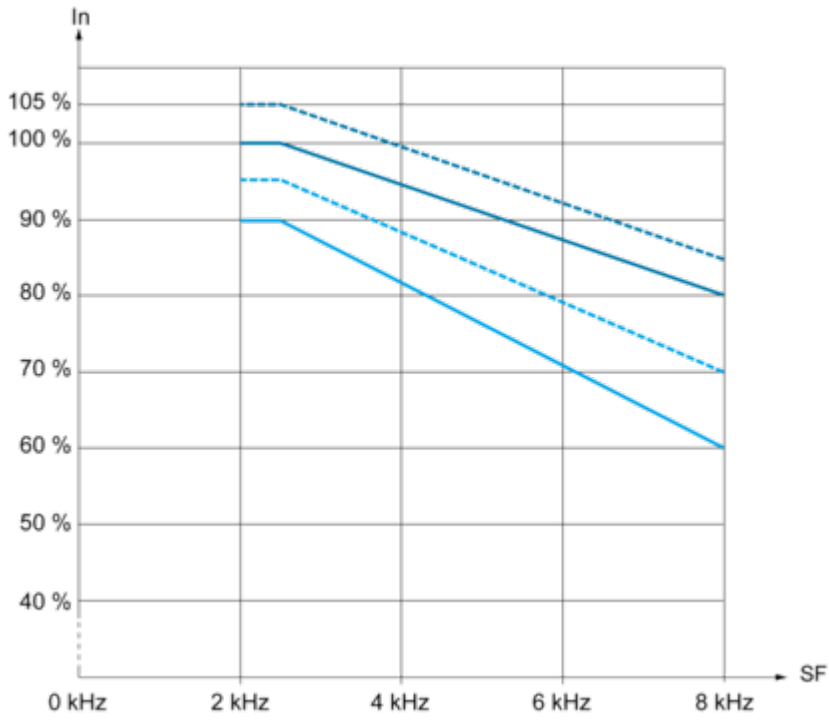
Normal Duty



- 30 °C (86 °F)
  - 40 °C (104 °F)
  - 45 °C (122 °F)
  - 50 °C (140 °F)
- In : Nominal Drive Current  
 SF : Switching Frequency

Derating Curves

Heavy Duty



- 30 °C (86 °F)
  - 40 °C (104 °F)
  - 45 °C (122 °F)
  - 50 °C (140 °F)
- In : Nominal Drive Current  
 SF : Switching Frequency