

# Product datasheet

Specifications



Variable speed drive, Altivar HVAC  
ATH200, ATH230, 22kW, 30hp, 380  
to 500V, 3 phase, IP20, with EMC  
filter

ATH230D22N4

EAN Code: 3606487882220

## Main

|                                                |                                                                   |
|------------------------------------------------|-------------------------------------------------------------------|
| Range of product                               | Altivar HVAC ATH200                                               |
| Product specific application                   | HVAC                                                              |
| Product or component type                      | Variable speed drive                                              |
| Variant                                        | Standard version                                                  |
| Device short name                              | ATH230                                                            |
| Product destination                            | Asynchronous motors<br>Synchronous motors                         |
| mounting mode                                  | Cabinet mount                                                     |
| IP degree of protection                        | IP20                                                              |
| Network number of phases                       | 3 phases                                                          |
| [Us] rated supply voltage                      | 380...500 V - 15...10 %                                           |
| Relative symmetric mains voltage tolerance     | 10 %                                                              |
| Supply frequency                               | 50...60 Hz - 5...5 %                                              |
| Relative symmetric network frequency tolerance | 5 %                                                               |
| nominal output current                         | 46.0 A                                                            |
| Maximum transient current                      | 50.6 A                                                            |
| Motor power kW                                 | 22 kW                                                             |
| Motor power hp                                 | 30 hp                                                             |
| Safety function                                | STO (safe torque off)                                             |
| Safety level                                   | SIL 3 conforming to IEC 61508<br>PL = e conforming to ISO 13849-1 |
| EMC filter                                     | Class C2 EMC filter integrated                                    |
| Communication port protocol                    | Modbus serial<br>BACnet MS/TP                                     |
| Option card                                    | Communication module for BACnet IP                                |

## Complementary

|                        |                                                                                                                                                            |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Apparent power         | 42.8 kVA at 500 V                                                                                                                                          |
| Power dissipation in W | 540 W                                                                                                                                                      |
| Discrete input number  | 7                                                                                                                                                          |
| Discrete input type    | STO safe torque off, 24 V DC, impedance: 1.5 kOhm<br>DI1...DI6 logic inputs, 24 V DC (30 V)<br>DI5 programmable as pulse input: 0...30 kHz, 24 V DC (30 V) |

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

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrete input logic          | Positive logic (source)<br>Negative logic (sink)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| [Us] rated supply voltage     | 24 V for DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Discrete output number        | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Discrete output type          | Open collector DQ+ 0...1 kHz 30 V DC 100 mA<br>Open collector DQ- 0...1 kHz 30 V DC 100 mA                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Analogue input number         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Analogue input type           | AI1 voltage: 0...10 V DC, impedance: 30 kOhm, resolution 10 bits<br>AI2 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits<br>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                                                                                                                                                                                                                             |
| Analogue output number        | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Analogue output type          | Software-configurable current AQ1: 0...20 mA impedance 800 Ohm, resolution 10 bits<br>Software-configurable voltage AQ1: 0...10 V DC impedance 470 Ohm, resolution 10 bits                                                                                                                                                                                                                                                                                                                                                |
| Relay output number           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Relay output type             | Configurable relay logic R1A 1 NO electrical durability 100000 cycles<br>Configurable relay logic R1B 1 NC electrical durability 100000 cycles<br>Configurable relay logic R1C<br>Configurable relay logic R2A 1 NO electrical durability 100000 cycles<br>Configurable relay logic R2C                                                                                                                                                                                                                                   |
| Maximum switching current     | Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC<br>Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC<br>Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC<br>Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC<br>Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC<br>Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC |
| Minimum switching current     | Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Physical interface            | 2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Connector type                | RJ45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Method of access              | Server Modbus serial<br>Subordinate BACnet MS/TP                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Transmission rate             | 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps<br>9.6, 19.2, 38.4, 76.8 kbit/s                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Transmission frame            | RTU<br>MS/TP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Number of addresses           | 0...247<br>0...127                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Data format                   | 8 bits, configurable odd, even or no parity 1or 2 stop                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Type of polarization          | No impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Line current                  | 64.6 A at 380 V<br>49.4 A at 500 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Prospective line Isc          | 22 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Output frequency              | 0.599 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| output voltage                | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Switching frequency           | 2...16 kHz adjustable<br>4...16 kHz with derating                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| nominal switching frequency   | 4 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4 quadrant operation possible | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                                   |                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Asynchronous motor control profile</b>         | Voltage/frequency ratio, 5 points<br>Flux vector control without sensor, standard<br>Voltage/frequency ratio - Energy Saving, quadratic U/f<br>Flux vector control without sensor - Energy Saving<br>Voltage/frequency ratio, 2 points                                                       |
| <b>Synchronous motor control profile</b>          | Vector control without sensor                                                                                                                                                                                                                                                                |
| <b>Acceleration and deceleration ramps</b>        | Linear<br>U<br>S<br>CUS<br>Ramp switching<br>Acceleration/deceleration ramp adaptation<br>Acceleration/deceleration automatic stop with DC injection                                                                                                                                         |
| <b>Motor slip compensation</b>                    | Automatic whatever the load<br>Adjustable 0...300 %<br>Not available in voltage/frequency ratio (2 or 5 points)                                                                                                                                                                              |
| <b>Braking to standstill</b>                      | By DC injection                                                                                                                                                                                                                                                                              |
| <b>Brake chopper integrated</b>                   | True                                                                                                                                                                                                                                                                                         |
| <b>Standards</b>                                  | IEC 61800-5-1<br>IEC 61800-3<br>UL 508C<br>IEC 61800-3 environment 1 category C2<br>IEC 61800-3 environments 2 category C3<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1                                                                                                                        |
| <b>Product certifications</b>                     | CULus<br>CE<br>UKCA<br>KC<br>EAC<br>ATEX<br>RCM                                                                                                                                                                                                                                              |
| <b>Marking</b>                                    | CULus<br>CE<br>UKCA<br>KC<br>EAC<br>ATEX<br>RCM                                                                                                                                                                                                                                              |
| <b>With safety function Safe torque off (STO)</b> | True                                                                                                                                                                                                                                                                                         |
| <b>Protection type</b>                            | Line supply phase loss: drive<br>Motor phase loss: motor<br>Line supply overvoltage and undervoltage: drive<br>Overheating protection: drive<br>Overload: motor<br>With PTC probes: motor<br>Short-circuit between motor phases: drive<br>Overcurrent between output phases and earth: drive |
| <b>Width</b>                                      | 180 mm                                                                                                                                                                                                                                                                                       |
| <b>Height</b>                                     | 390 mm                                                                                                                                                                                                                                                                                       |
| <b>Depth</b>                                      | 229 mm                                                                                                                                                                                                                                                                                       |
| <b>Product weight</b>                             | 9.5 kg                                                                                                                                                                                                                                                                                       |
| <b>Function available</b>                         | Fire mode<br>Run permissive<br>PID controller<br>Additional PID<br>Damper control<br>Underload detection for broken belt                                                                                                                                                                     |

## Environment

|                         |   |
|-------------------------|---|
| <b>Pollution degree</b> | 2 |
|-------------------------|---|

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating altitude                                               | <= 1000 m without derating<br>1000...3000 m with current derating 1 % per 100 m                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Operating position                                               | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Electromagnetic compatibility                                    | Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6<br>Voltage dips and interruptions immunity test conforming to IEC 61000-4-11 |
| Environmental class (during operation)                           | Class 3C3 according to IEC 60721-3-3<br>Class 3S2 according to IEC 60721-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Maximum acceleration under shock impact (during operation)       | 150 m/s² at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum acceleration under vibrational stress (during operation) | 10 m/s² at 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Relative humidity                                                | 5...95 % without condensation or dripping water conforming to EN/IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Volume of cooling air                                            | 156 m3/h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Overvoltage category                                             | III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Noise level                                                      | 64 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Ambient air transport temperature                                | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ambient air temperature for operation                            | -10...50 °C without derating<br>50...60 °C with derating factor                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Ambient air temperature for storage                              | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 31.000 cm |
| Package 1 Width              | 22.500 cm |
| Package 1 Length             | 50.000 cm |
| Package 1 Weight             | 11.723 kg |
| Unit Type of Package 2       | S06       |
| Number of Units in Package 2 | 3         |
| Package 2 Height             | 75.000 cm |
| Package 2 Width              | 60.000 cm |
| Package 2 Length             | 80.000 cm |
| Package 2 Weight             | 45.200 kg |

## Logistical informations

|                   |    |
|-------------------|----|
| Country of origin | ID |
|-------------------|----|

## Contractual warranty

|                      |    |
|----------------------|----|
| Warranty (in months) | 18 |
|----------------------|----|



## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)



### Environmental footprint

|                                                        |                                               |
|--------------------------------------------------------|-----------------------------------------------|
| Total lifecycle Carbon footprint                       | 6 768 kg CO2 eq.                              |
| Carbon footprint of the manufacturing phase [A1 to A3] | 154 kg CO2 eq.                                |
| Carbon footprint of the distribution phase [A4]        | 0.7 kg CO2 eq.                                |
| Carbon footprint of the installation phase [A5]        | 5 kg CO2 eq.                                  |
| Carbon footprint of the use phase [B2, B3, B4, B6]     | 6 593 kg CO2 eq.                              |
| Carbon footprint of the end-of-life phase [C1 to C4]   | 15 kg CO2 eq.                                 |
| Environmental Disclosure                               | <a href="#">Product Environmental Profile</a> |

## Use Better



### Materials and Substances

|                                        |                                                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------|
| Packaging made with recycled cardboard | Yes                                                                                    |
| Packaging without single use plastic   | Yes                                                                                    |
| SCIP Number                            | B09e853e-75e2-47ce-90f8-c86d980d6dd9                                                   |
| EU RoHS Directive                      | <a href="#">Compliant By Exemption</a>                                                 |
| REACH Regulation                       | <a href="#">Reference contains Substances of Very High Concern above the threshold</a> |

## Use Longer



### Lifetime extension

|        |    |
|--------|----|
| Repair | No |
|--------|----|

## Use Again

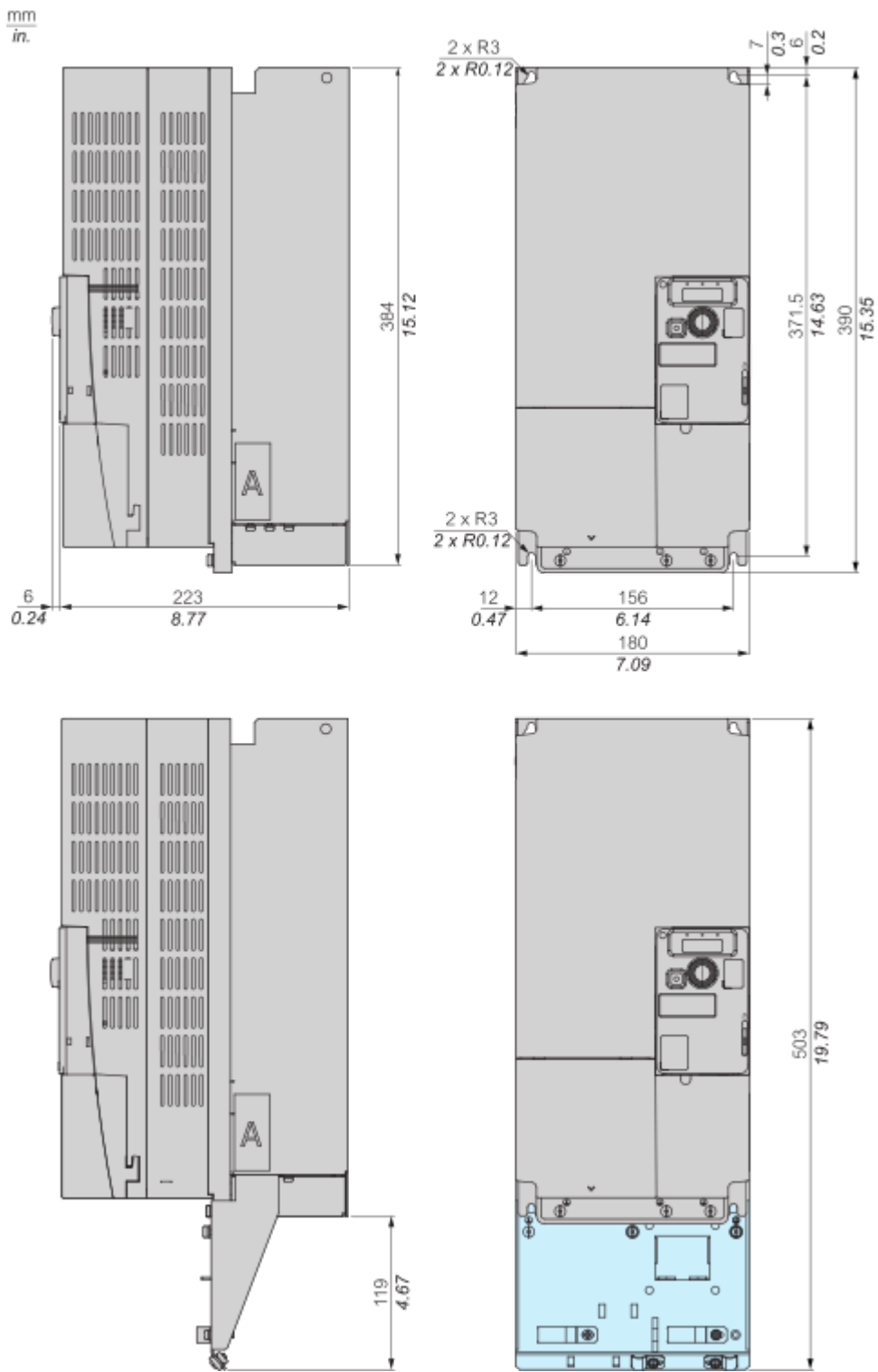


### Repack and remanufacture

|                                 |                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recyclability potential, in %   | 54                                                                                                                                                                                                              |
| End of life manual availability | <a href="#">End of Life Information</a>                                                                                                                                                                         |
| Take-back                       | No                                                                                                                                                                                                              |
| WEEE Label                      |  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

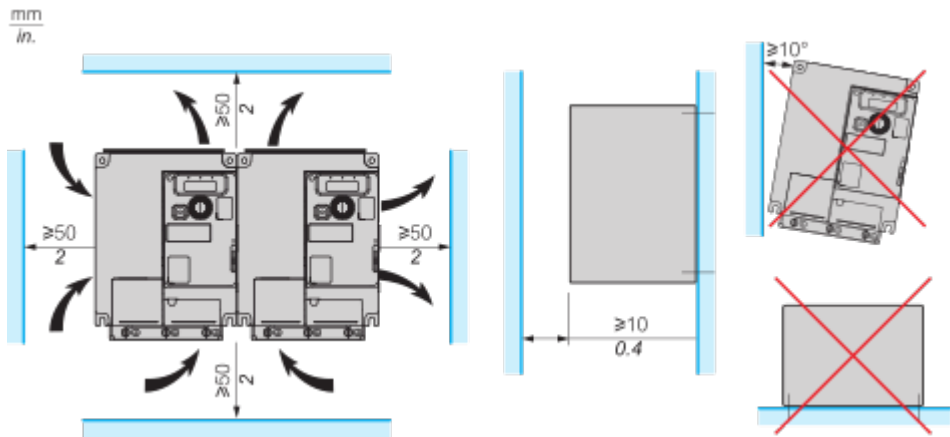
Dimensions Drawings

Dimensions

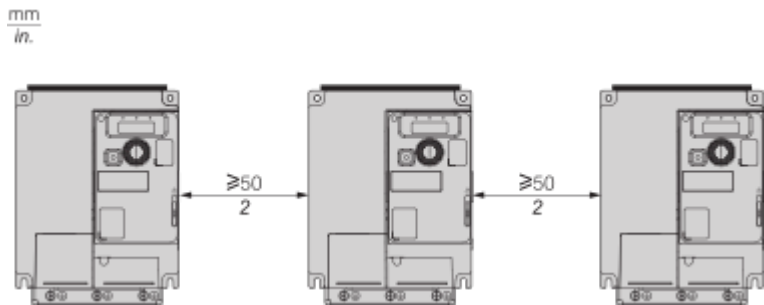


Mounting and Clearance

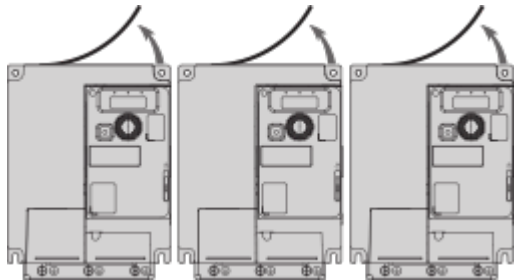
Clearances and Mounting Position



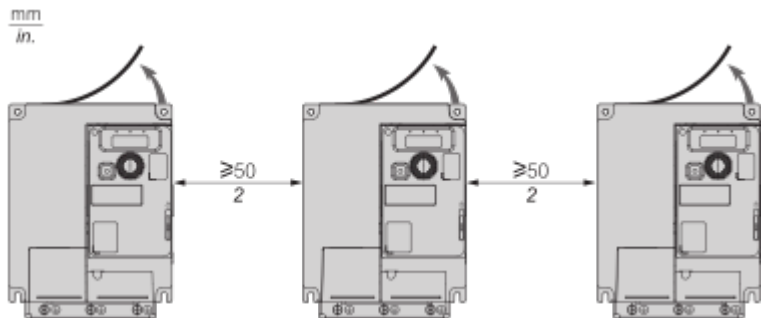
Mounting Type A: Individual with Ventilation Cover



Mounting Type B: Side by Side, Ventilation Cover Removed



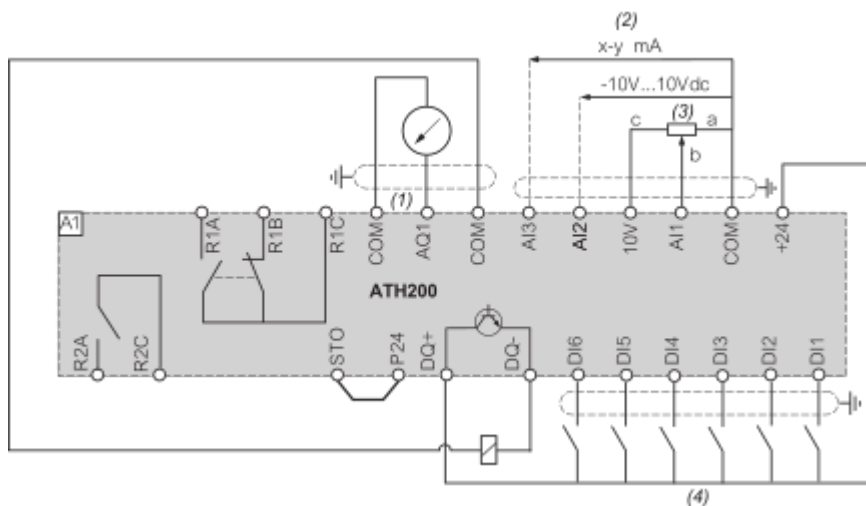
Mounting Type C: Individual, Ventilation Cover Removed





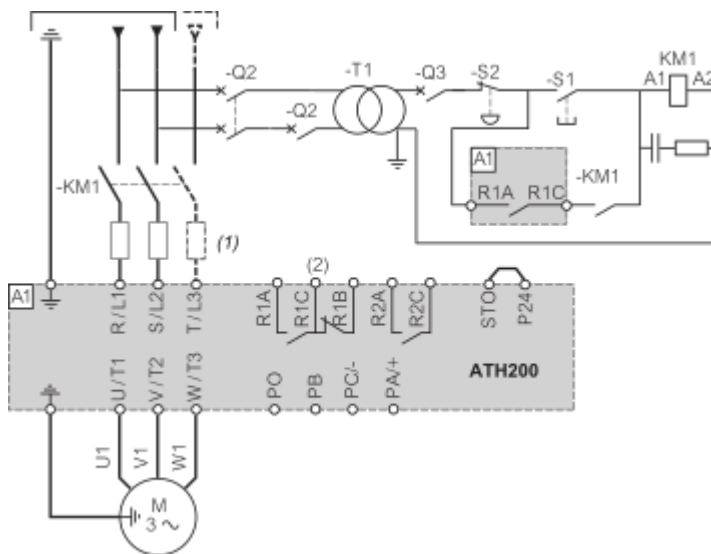
## Connections and Schema

### Control Block Wiring Diagram



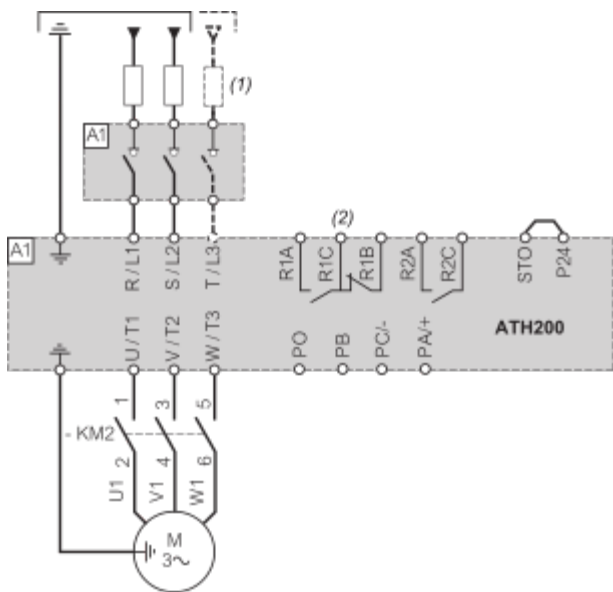
- (1) : Analog output  
(2) : Analog inputs  
(3) : Potentiometer SZ1RV1202 (2.2 kΩ) or similar (10 kΩ maximum)  
(4) : Digital Inputs

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



- (1) : Line choke (if used)  
(2) : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected

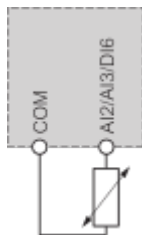
### Single or Three-phase Power Supply - Diagram With Downstream Contactor



- (1) : Line choke (if used)  
(2) : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected

Sensor Connection

It is possible to connect either 1 sensor on terminals AI2 or AI3 or DI6.



Performance Curves

Derating Curves

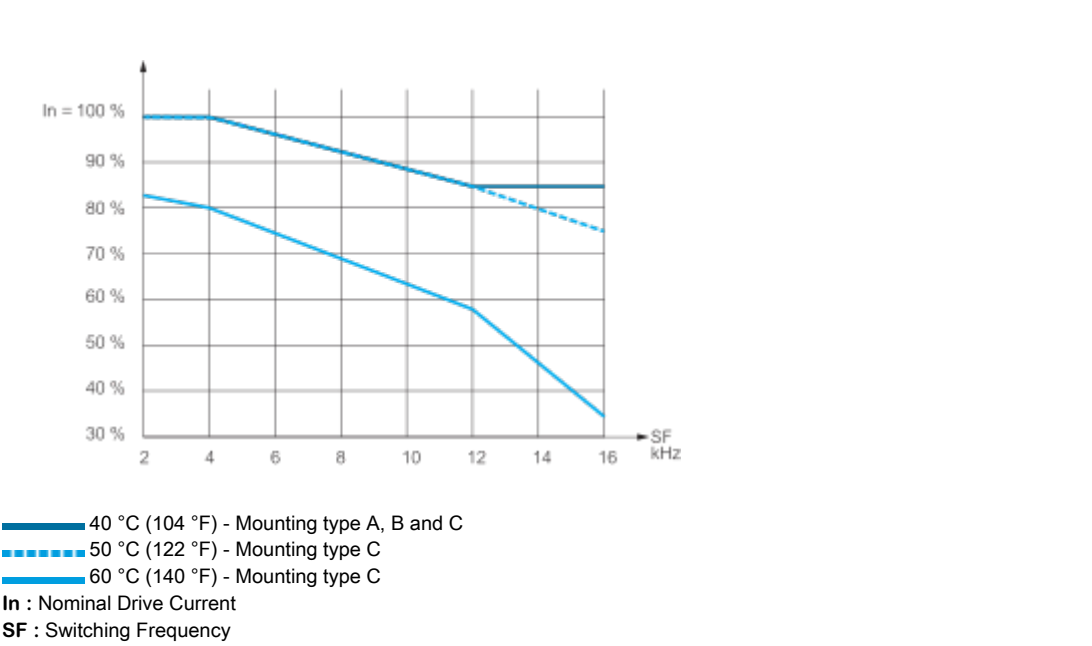


Image of product / Alternate images

Alternative

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