

# Product data sheet

Specifications



variable speed drive, Altivar HVAC  
ATH600, ATH630, 75kW, 100hp,  
380 to 480V, 3 phase, IP00

ATH630D75N4Z

Product availability: Stock - Normally stocked in distribution facility

## Main

|                                                |                                                                                                                |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Range of Product                               | Altivar HVAC ATH600                                                                                            |
| Product Specific Application                   | HVAC                                                                                                           |
| Product or Component Type                      | Variable speed drive                                                                                           |
| Variant                                        | Standard version                                                                                               |
| Device short name                              | ATH630                                                                                                         |
| Product destination                            | Asynchronous motors<br>Synchronous motors                                                                      |
| Mounting Mode                                  | Cabinet mount                                                                                                  |
| IP Degree of Protection                        | IP00                                                                                                           |
| Phase                                          | 3 phase                                                                                                        |
| [Us] rated supply voltage                      | 380...480 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                         | 145 A 380 V normal duty)<br>145 A 480 V normal duty)<br>106 A 380 V heavy duty)<br>106 A 480 V heavy duty)     |
| Maximum transient current                      | 159.5 A 60 s normal duty)<br>159.0 A 60 s heavy duty)                                                          |
| Motor power kW                                 | 75 kW normal duty<br>55 kW heavy duty                                                                          |
| Maximum Horse Power Rating                     | 100 hp normal duty<br>75 hp heavy duty                                                                         |
| Line current                                   | 131.3 A 380 V normal duty)<br>113 A 480 V normal duty)<br>98.9 A 380 V heavy duty)<br>86.9 A 480 V heavy duty) |
| EMC filter                                     | Class C3 EMC filter integrated                                                                                 |
| Safety Function                                | STO (safe torque off)                                                                                          |
| Safety level                                   | SIL 3 IEC 61508<br>PL = e ISO 13849-1                                                                          |
| Cybersecurity function                         | True                                                                                                           |
| Cybersecurity level and standard               | Security level (SL) 1 IEC 62443-4-2                                                                            |
| Communication port protocol                    | Modbus serial<br>BACnet MS/TP                                                                                  |

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

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

|             |                                                                                                                                                                                            |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Option card | Communication module BACnet IP<br>Communication module PROFINET<br>Communication module Ethernet IP/Modbus TCP<br>Digital and analog I/O extension module<br>Output relay extension module |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Complementary

|                           |                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrete input number     | 8                                                                                                                                                                                                                                                                                                              |
| Discrete input type       | STOA, STOB safety input, 24 V DC<br>DI1...DI6 digital input, 24 V DC4.4 kOhm<br>DI5, DI6 programmable as pulse input 0...30 kHz, 24 V DC                                                                                                                                                                       |
| Discrete input logic      | Positive logic (source) DI1...DI6), <= 5 V, >= 11 V<br>Positive logic (source) STOA, STOB), <= 5 V, >= 11 V<br>Negative logic (sink) DI1...DI6), > 16 V, < 10 V<br>Positive logic (source) DI5, DI6), < 0.6 V, > 2.5 V                                                                                         |
| Input compatibility       | DI1...DI6 discrete input level 1 PLC IEC 61131-2<br>DI5, DI6 pulse input level 1 PLC IEC 65A-68<br>STOA, STOB discrete input level 1 PLC IEC 61131-2                                                                                                                                                           |
| Supply                    | External supply for control circuit 24 V DC 19...30 V), <800 mA overload and short-circuit protection<br>Internal supply for digital inputs and STO 24 V DC 20.4...27 V), <200 mA overload and short-circuit protection<br>Internal supply for reference potentiometer 10.5 V DC +/- 5 %, <10 mA short-circuit |
| Analogue input number     | 3                                                                                                                                                                                                                                                                                                              |
| Analogue input type       | AI1 0...10 V DC 30 kOhm 12 bits<br>AI2 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration) 250 Ohm 12 bits<br>AI3 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration) 250 Ohm 12 bits<br>AI2, AI3 PTC/PT 100/PT 1000/KTY84 temperature probe                   |
| Analogue output number    | 2                                                                                                                                                                                                                                                                                                              |
| Analogue output type      | Software-configurable voltage AQ1, AQ2 0...10 V 470 Ohm 10 bits<br>Software-configurable current AQ1, AQ2 0...20 mA 10 bits                                                                                                                                                                                    |
| Accuracy                  | +/- 1.5 % AI1, AI2, AI3) for a temperature variation 60 °C<br>+/- 1 % AQ1, AQ2) for a temperature variation 60 °C                                                                                                                                                                                              |
| Linearity error           | AI1, AI2, AI3 +/- 0.15 % of maximum value analog input<br>AQ1, AQ2 +/- 0.2 % analog output                                                                                                                                                                                                                     |
| Relay output number       | 3                                                                                                                                                                                                                                                                                                              |
| Relay output type         | Relay outputs R1A, R1B, R1C 1 NO 1 NC 100000 cycles<br>Relay outputs R2A, R2C 1 NO 100000 cycles<br>Relay outputs R3A, R3C 1 NO 100000 cycles                                                                                                                                                                  |
| Sampling duration         | 2 ms + 0...0.5 ms DI1...DI6 digital input<br>5 ms + 0...1 ms DI5, DI6 pulse input<br>5 ms + 0...1 ms AI1, AI2, AI3<br>10 ms + 0...1 ms AQ1, AQ2<br>5 ms +/- 0.5 ms R1, R2, R3                                                                                                                                  |
| Maximum switching current | Relay output R1, R2, R3 resistive load 3 A 250 V AC<br>Relay output R1, R2, R3 resistive load 3 A 30 V DC<br>Relay output R1, R2, R3 inductive load, cos phi = 0.4 0.7 ms 2 A 250 V AC<br>Relay output R1, R2, R3 inductive load, cos phi = 0.4 0.7 ms 2 A 30 V DC                                             |
| Minimum switching current | Relay output R1, R2, R3 5 mA 24 V DC                                                                                                                                                                                                                                                                           |
| Physical interface        | 2-wire RS 485                                                                                                                                                                                                                                                                                                  |
| Connector Type            | RJ45 and open style terminals                                                                                                                                                                                                                                                                                  |
| Method of access          | Server Modbus RTU<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                   | 1...247<br>1...127                                                                                                                                                                                                                  |
| Data format                           | 8 bits, configurable odd, even or no parity<br>8 bits, no parity, 1 stop                                                                                                                                                            |
| Type of polarization                  | 120 ohm termination or no impedance                                                                                                                                                                                                 |
| Prospective line Isc                  | 50 kA                                                                                                                                                                                                                               |
| Output frequency                      | 0.5 kHz                                                                                                                                                                                                                             |
| output voltage                        | <= power supply voltage                                                                                                                                                                                                             |
| 4 quadrant operation possible         | False                                                                                                                                                                                                                               |
| Asynchronous motor control profile    | Voltage/frequency ratio, 5 points<br>Flux vector control with 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 |
| Synchronous motor control profile     | Vector control without sensor                                                                                                                                                                                                       |
| Acceleration and deceleration ramps   | Acceleration/deceleration ramp adaptation<br>Linear<br>S, U or customized                                                                                                                                                           |
| Motor slip compensation               | Adjustable<br>Automatic whatever the load<br>Can be suppressed<br>Not available with synchronous motors                                                                                                                             |
| Switching frequency                   | 2...8 kHz adjustable with derating factor                                                                                                                                                                                           |
| Nominal switching frequency           | 2.5 kHz                                                                                                                                                                                                                             |
| Braking to standstill                 | By DC injection                                                                                                                                                                                                                     |
| Brake chopper integrated              | False                                                                                                                                                                                                                               |
| Apparent power                        | 93.7 kVA normal duty)<br>72.7 kVA heavy duty)                                                                                                                                                                                       |
| power loss static current independent | 32 W                                                                                                                                                                                                                                |
| Power dissipation in W                | AF (air forced) 1601 W 2.5 kHz normal duty)<br>AN (air natural) 184 W 2.5 kHz normal duty)<br>AF (air forced) 987 W 2.5 kHz heavy duty)<br>AN (air natural) 156 W 2.5 kHz heavy duty)                                               |
| Standards                             | UL 61800-5-1<br>EN/IEC 61800-3<br>EN/IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1<br>RoHS                                                                                                             |
| Product certifications                | CE<br>UKCA<br>UL<br>CULus<br>EAC<br>RCM<br>KCC<br>ATEX                                                                                                                                                                              |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking                                    | CE<br>UKCA<br>CULus<br>EAC<br>RCM<br>ATEX<br>WEEE<br>ROHS<br>KCC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| With safety function Safe torque off (STO) | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Protection type                            | Thermal overload protection motor<br>Safe torque off motor<br>Motor phase loss motor<br>Against exceeding limit speed motor<br>Temperature protection drive<br>Overheating drive<br>Output overcurrent between motor phase and earth drive<br>Output overcurrent between motor phases drive<br>Short-circuit between motor phase and earth drive<br>Short-circuit between motor phases drive<br>DC Bus overvoltage drive<br>Line supply overvoltage drive<br>Line supply undervoltage drive<br>Input supply loss drive<br>Break on the control circuit drive |
| Width                                      | 10.4 in (265 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Height                                     | 29.4 in (748 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Depth                                      | 12.08 in (306.9 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Net Weight                                 | 119.3 lb(US) (54.1 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Function Available                         | Fire mode<br>Forced fire mode<br>Run permissive<br>PID controller<br>3 additional PID<br>Damper control<br>Underload detection for broken belt<br>Scroll compressor management<br>Skipped frequencies<br>Catch on the fly<br>Power monitoring<br>Cybersecure firmware update                                                                                                                                                                                                                                                                                 |

## Environment

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating altitude                                               | 3280.84 ft (1000 m) without derating<br>3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m                                                                                                                                                                                                                                                                                                                 |
| Operating position                                               | Vertical position                                                                                                                                                                                                                                                                                                                                                                                                                |
| 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 |
| Environmental class (during operation)                           | Class 3C3 according to IEC 60721-3-3<br>Class 3S3 according to IEC 60721-3-3<br>Class 3B1 according to IEC 60721-3-3                                                                                                                                                                                                                                                                                                             |
| Maximum acceleration under shock impact (during operation)       | 15 gn at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum acceleration under vibrational stress (during operation) | 1 gn at 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                              |
| Maximum deflection under vibratory load (during operation)       | 1.5 mm at 2...13 Hz                                                                                                                                                                                                                                                                                                                                                                                                              |
| Relative humidity                                                | 5...95 % without condensation IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                      |
| Volume of cooling air                                            | 77932.2 Gal/hr(US) (295 m3/h)                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                       |                                                                                             |
|---------------------------------------|---------------------------------------------------------------------------------------------|
| Noise level                           | 62.4 dB                                                                                     |
| Pollution degree                      | 2                                                                                           |
| Ambient air temperature for operation | 5...122 °F (-15...50 °C) without derating<br>122...140 °F (50...60 °C) with derating factor |
| Ambient Air Temperature for Storage   | -40...158 °F (-40...70 °C)                                                                  |

## Ordering and shipping details

|                   |               |
|-------------------|---------------|
| Category          | US1CP4D22201  |
| Discount Schedule | CP4D          |
| GTIN              | 3606487957942 |
| Returnability     | Yes           |
| Country of origin | IN            |

## Packing Units

|                        |                        |
|------------------------|------------------------|
| Unit Type of Package 1 | PCE                    |
| Nbr. of units in pkg.  | 1                      |
| Package 1 Height       | 23.6 in (60 cm)        |
| Package 1 Width        | 16.5 in (42 cm)        |
| Package 1 Length       | 43.7 in (111 cm)       |
| Package weight(Lbs)    | 142.2 lb(US) (64.5 kg) |

## 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                                                                          | 19 298 kg CO2 eq.                             |
| Carbon footprint of the manufacturing phase [A1 to A3]                                                    | 462 kg CO2 eq.                                |
| Carbon footprint of the distribution phase [A4]                                                           | 9 kg CO2 eq.                                  |
| Carbon footprint of the installation phase [A5]                                                           | 12 kg CO2 eq.                                 |
| Carbon footprint of the use phase [B2, B3, B4, B6]                                                        | 18 749 kg CO2 eq.                             |
| Carbon footprint of the end-of-life phase [C1 to C4]                                                      | 68 kg CO2 eq.                                 |
| Environmental Disclosure                                                                                  | <a href="#">Product Environmental Profile</a> |

Use Better

|  Materials and Substances |                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Average percentage of ASI certified metals                                                                  | 87 %                                                                                                                                                                                                                                                                                        |
| Packaging made with recycled cardboard                                                                      | Yes                                                                                                                                                                                                                                                                                         |
| Packaging without single use plastic                                                                        | No                                                                                                                                                                                                                                                                                          |
| SCIP Number                                                                                                 | 159ad237-61e5-4963-aa46-22ce976690f3                                                                                                                                                                                                                                                        |
| EU RoHS Directive                                                                                           | <a href="#">Compliant By Exemption</a>                                                                                                                                                                                                                                                      |
| REACH Regulation                                                                                            | <a href="#">Reference contains Substances of Very High Concern above the threshold</a>                                                                                                                                                                                                      |
| California proposition 65                                                                                   | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |

Use Longer

|  Lifetime extension |    |
|--------------------------------------------------------------------------------------------------------|----|
| Repair                                                                                                 | No |

Use Again

|  Repack and remanufacture |                                         |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Recyclability potential, in %                                                                                | 85                                      |
| Circularity Profile                                                                                          | <a href="#">End of Life Information</a> |
| Removable battery                                                                                            | Yes                                     |
| Take-back                                                                                                    | No                                      |

WEEE Label

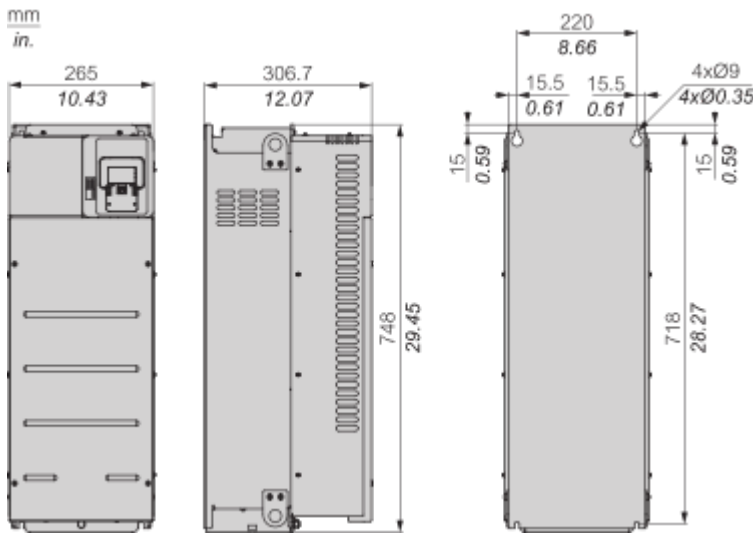


The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

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Dimensions Drawings

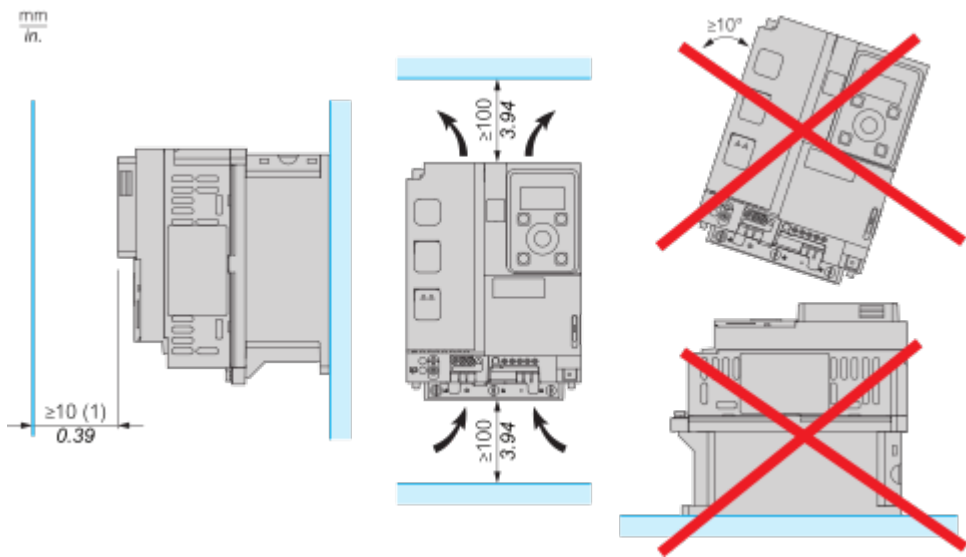
Dimensions



Mounting and Clearance

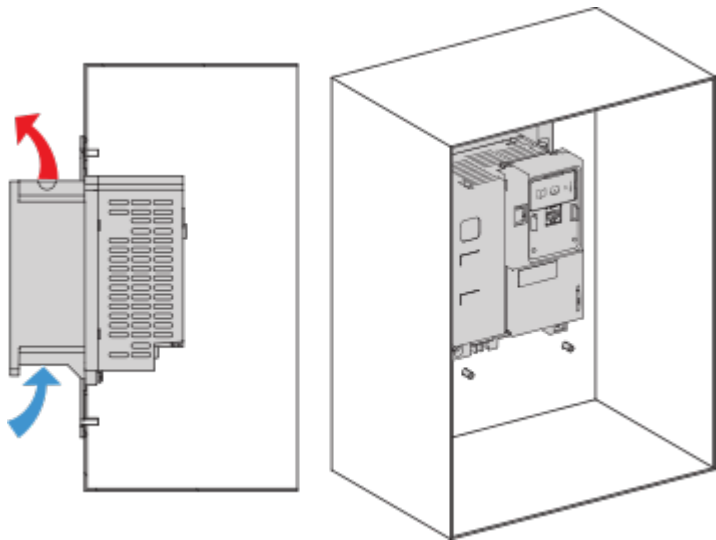
Mounting

Clearances and Mounting Position

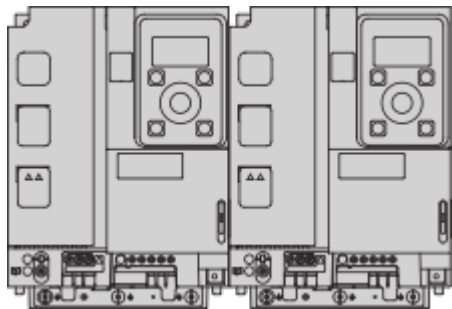


(1) : 50 mm (2 in.) for option module and display terminal

Enclosed with flange-mounting kit

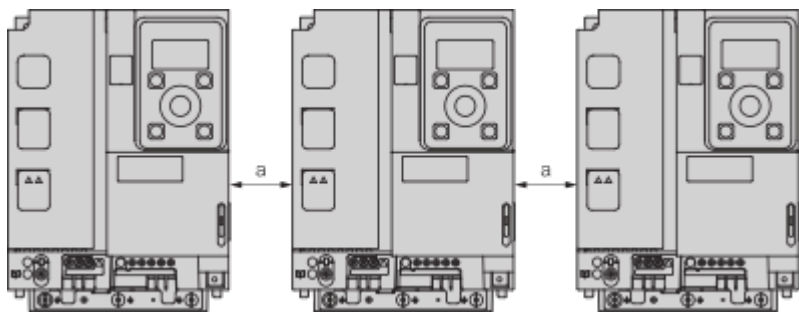


Mounting Type B - Side by Side



Possible, 2 drives only

Mounting Type C - Individual

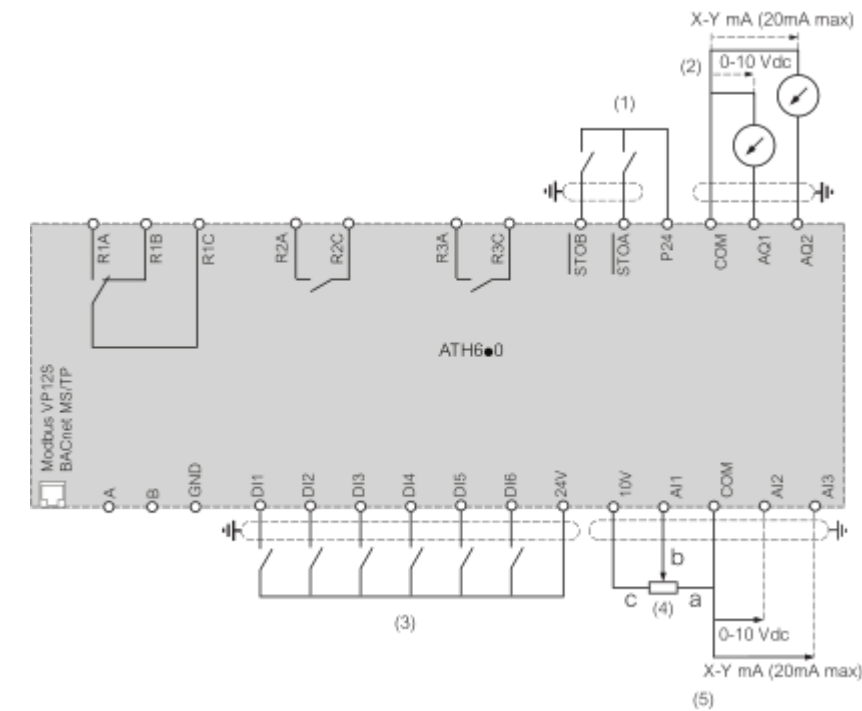


a ≥ 110 mm (4.33 in.)

Connections and Schema

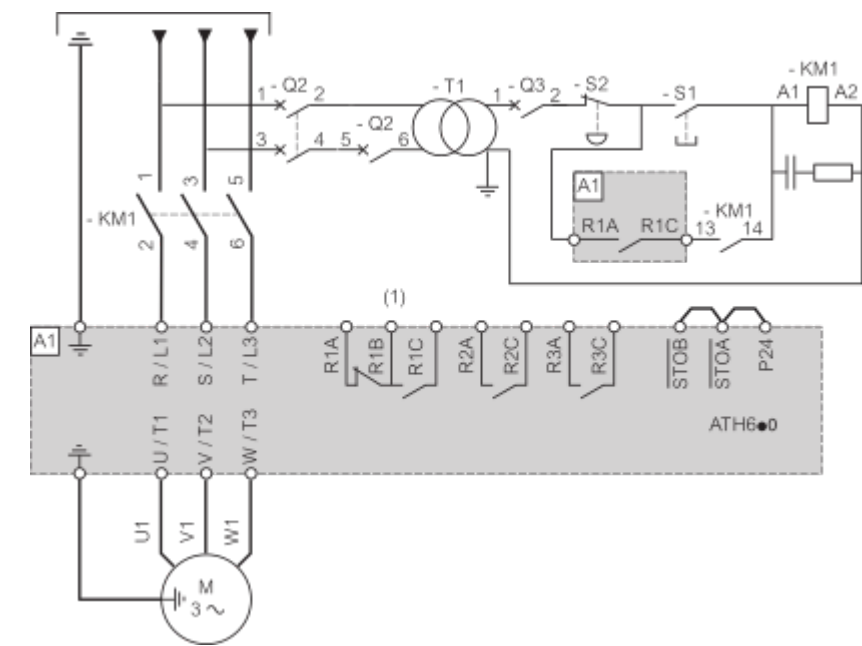
Wiring Diagrams

Control Block Wiring Diagram

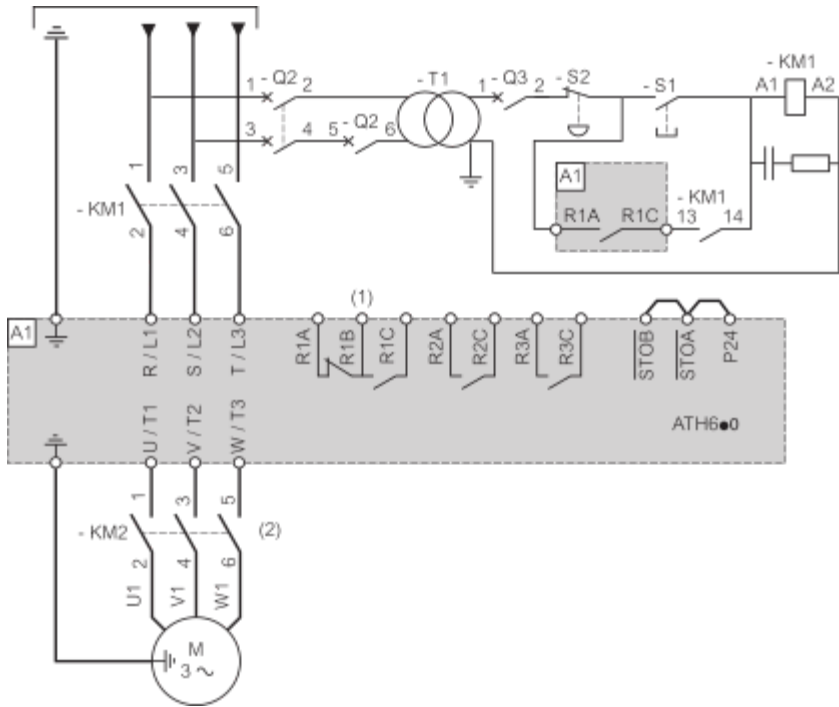


- (1) : STO Safe Torque Off
- (2) : Analog Output
- (3) : Digital Input
- (4) : Reference potentiometer (ex. SZ1RV1002)
- (5) : Analog Input

Three-phase Power Supply - Diagram With Line Contactor Without Safety Function STO



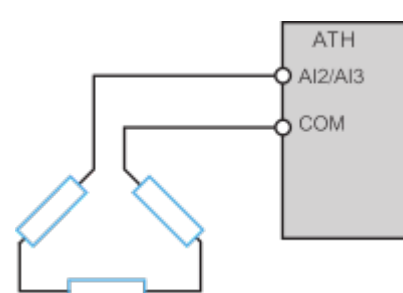
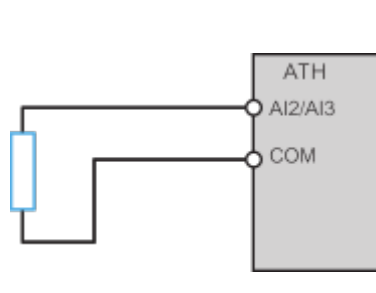
Three-phase Power Supply - Diagram With Downstream Contactor



- (1) : Use relay output R1 set to operating state Fault to switch Off the product once an error is detected
- (2) : Command of KM2 can be done by using the **[Output contactor cmd]** OCC function. For more information, refer to the Programming manual.

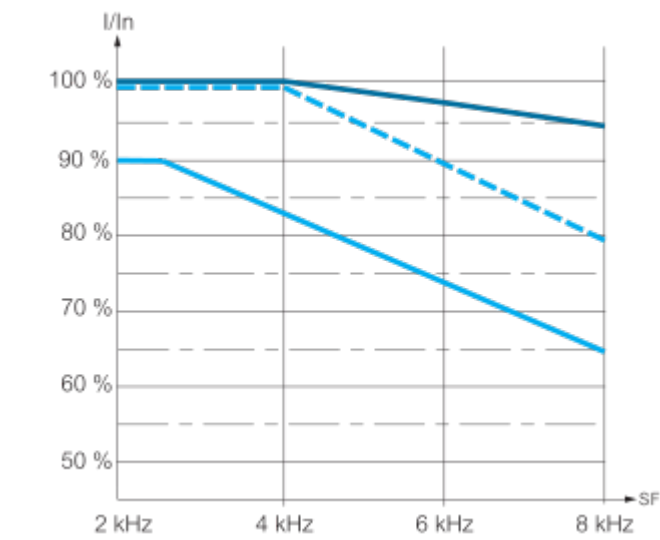
Sensor Connection

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

| 3 PTC sensors in series                                                             | PT100, PT1000 or KTY                                                                 |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

Performance Curves

Derating Curves



— 40 °C (104 °F) - Mounting type A, B and C  
- - - 50 °C (122 °F) - Mounting type A, B and C  
— 60 °C (140 °F) - Mounting type B and C  
**In** : Nominal Drive Current  
**SF** : Switching Frequency

Image of product / Alternate images

Alternative

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