Specifications





## variable speed drive, Altivar Process ATV600, ATV630, cabinet Integration, IP00, 90kW, 380 to 480V

ATV630D90N4Z

### Main

able speed drive				
able speed drive				
Process and utilities				
/630				
Standard version				
Asynchronous motors Synchronous motors				
grated with 50 m conforming to IEC 61800-3 category C3 n EMC plate option				
) conforming to IEC 61800-5-1 ) (at bottom terminals) conforming to IEC 60529				
480 V				
ced convection				
.60 Hz - 55 %				
480 V - 1510 %				
W (normal duty) W (heavy duty)				
hp normal duty hp heavy duty				
2 A at 380 V (normal duty) 8 A at 480 V (normal duty) 3 A at 380 V (heavy duty) 1 A at 480 V (heavy duty)				
A				
.9 kVA at 480 V (normal duty) 2 kVA at 480 V (heavy duty)				
A at 2.5 kHz for normal duty A at 2.5 kHz for heavy duty				
stant torque standard able torque standard imized torque mode				
nanent magnet motor chronous reluctance motor				
500 Hz				
kHz				
kHz 8 kHz with derating factor 8 kHz adjustable				

Discrete Input Logic	16 preset speeds			
Communication Port Protocol	Ethernet			
	Modbus serial			
	Modbus TCP			
Option Card	Slot A: communication module, Profibus DP V1			
	Slot A: communication module, PROFINET			
	Slot A: communication module, DeviceNet			
	Slot A: communication module, Modbus TCP/EtherNet/IP			
	Slot A: communication module, CANopen daisy chain RJ45			
	Slot A: communication module, CANopen SUB-D 9			
	Slot A: communication module, CANopen screw terminals			
	Slot A/slot B: digital and analog I/O extension module			
	Slot A/slot B: output relay extension module			
	Slot A: communication module, Ethernet IP/Modbus TCP/MD-Link			
	Communication module, BACnet MS/TP			
	Communication module, Ethernet Powerlink			

## Complementary

Mounting Mode	Cabinet mount					
Maximum Transient Current	190.3 A during 60 s (normal duty) 217.5 A during 60 s (heavy duty)					
Network Number Of Phases	3 phases					
Discrete Output Number	0					
Discrete Output Type	Relay outputs R1A, R1B, R1C 250 V AC 3000 mA Relay outputs R1A, R1B, R1C 30 V DC 3000 mA Relay outputs R2A, R2C 250 V AC 5000 mA Relay outputs R2A, R2C 30 V DC 5000 mA Relay outputs R3A, R3C 250 V AC 5000 mA Relay outputs R3A, R3C 30 V DC 5000 mA					
Output Voltage	<= power supply voltage					
Permissible Temporary Current Boost	1.1 x In during 60 s (normal duty) 1.5 x In during 60 s (heavy duty)					
Motor Slip Compensation	Adjustable Not available in permanent magnet motor law Automatic whatever the load Can be suppressed					
Acceleration And Deceleration Ramps	Linear adjustable separately from 0.019999 s					
Physical Interface	Ethernet 2-wire RS 485					
Braking To Standstill	By DC injection					
Protection Type	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					
Transmission Rate	10, 100 Mbits 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps					
Frequency Resolution	Display unit: 0.1 Hz Analog input: 0.012/50 Hz					
Transmission Frame	RTU					

Electrical Connection	Control: removable screw terminals 0.51.5 mm²/AWG 20AWG 16 Line side: screw terminal 120 mm²/AWG 4/0250 kcmil Motor: screw terminal 120 mm²/250 kcmil					
Connector Type	RJ45 (on the remote graphic terminal) for Ethernet/Modbus TCP RJ45 (on the remote graphic terminal) for Modbus serial					
Data Format	8 bits, configurable odd, even or no parity					
Type Of Polarization	No impedance					
Exchange Mode	Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP					
Number Of Addresses	1247 for Modbus serial					
Method Of Access	Slave Modbus TCP					
Supply	External supply for digital inputs: 24 V DC (1930 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 (2127 V), <200 mA, protection type: overload and short-circuit protection					
Local Signalling	<ul> <li>3 LEDs for local diagnostic</li> <li>3 LEDs (dual colour) for embedded communication status</li> <li>4 LEDs (dual colour) for communication module status</li> <li>1 LED (red) for presence of voltage</li> </ul>					
Width	265 mm					
Height	748 mm					
Depth	307 mm					
Net Weight	54.6 kg					
Analogue Input Number	3					
Analogue Input Type	Al1, Al2, Al3 software-configurable voltage: 010 V DC, impedance: 31.5 kOhm, resolution 12 bits Al1, Al2, Al3 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits Al2 voltage analog input: - 1010 V DC, impedance: 31.5 kOhm, resolution 12 bits					
Discrete Input Number	8					
Discrete Input Type	DI7, DI8 programmable as pulse input: 030 kHz, 24 V DC (<= 30 V)					
Input Compatibility	DI1DI6: discrete input level 1 PLC conforming to IEC 61131-2 DI5, DI6: discrete input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to IEC 61131-2					
Discrete Input Logic	Positive logic (source) (DI1DI8), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (DI1DI8), > 16 V (state 0), < 10 V (state 1)					
Analogue Output Number	2					
Analogue Output Type	Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 020 mA, resolution 10 bits Software-configurable current DQ-, DQ+: 30 V DC Software-configurable current DQ-, DQ+: 100 mA					
Sampling Duration	2 ms +/- 0.5 ms (DI1DI4) - discrete input 5 ms +/- 1 ms (DI5, DI6) - discrete input 5 ms +/- 0.1 ms (AI1, AI2, AI3) - analog input 10 ms +/- 1 ms (AO1) - analog output					
Accuracy	+/- 0.6 % Al1, Al2, Al3 for a temperature variation 60 °C analog input +/- 1 % AO1, AO2 for a temperature variation 60 °C analog output					
Linearity Error	AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input AO1, AO2: +/- 0.2 % for analog output					
Relay Output Number	3					
Relay Output Type	Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles					

Refresh Time	Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)					
Minimum Switching Current	Relay output R1, R2, R3: 5 mA at 24 V DC					
Maximum Switching Current	Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 250 V AC Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC					
Isolation	Between power and control terminals					
Maximum Output Frequency	500 kHz					
Maximum Input Current	156.2 A					
Variable Speed Drive Application Selection	Building - HVAC compressor centrifugal Food and beverage processing other application Mining mineral and metal fan Mining mineral and metal pump Oil and gas fan Water and waste water other application Building - HVAC screw compressor Food and beverage processing pump Food and beverage processing fan Food and beverage processing atomization Oil and gas electro submersible pump (ESP) Oil and gas vater injection pump Oil and gas iet fuel pump Oil and gas compressor for refinery Water and waste water centrifuge pump Water and waste water positive displacement pump Water and waste water screw pump Water and waste water screw pump Water and waste water screw pump Water and waste water compressor Water and waste water fan Water and waste water fan Water and waste water nixer					
Motor Power Range Ac-3	55100 kW at 380440 V 3 phases 55100 kW at 480500 V 3 phases					
Quantity Per Set	1					
Enclosure Mounting	With heat sink					

## Environment

Insulation Resistance	> 1 MOhm 500 V DC for 1 minute to earth					
Noise Level	62.4 dB conforming to 86/188/EEC					
Power Dissipation In W	Natural convection: 196 W at 380 V, switching frequency 2.5 kHz Forced convection: 1585 W at 380 V, switching frequency 2.5 kHz					
Volume Of Cooling Air	295 m3/h					
Operating Position	Vertical +/- 10 degree					
Maximum Thdi	<48 % from 80100 % of load conforming to IEC 61000-3-12					
Electromagnetic Compatibility	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 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6					
Pollution Degree	2 conforming to IEC 61800-5-1					
Vibration Resistance	1.5 mm peak to peak (f= 213 Hz) conforming to IEC 60068-2-6 1 gn (f= 13200 Hz) conforming to IEC 60068-2-6					
Shock Resistance	15 gn for 11 ms conforming to IEC 60068-2-27					
Relative Humidity	595 % without condensation conforming to IEC 60068-2-3					

Ambient Air Temperature For	-15…50 °C (without derating)					
Operation	5060 °C (with derating factor)					
Ambient Air Temperature For Storage	-4070 °C					
Operating Altitude	<= 1000 m without derating 10004800 m with current derating 1 % per 100 m					
Product Certifications	ATEX INERIS TÜV DNV-GL UL ATEX zone 2/22 CSA					
Marking	CE					
Standards	UL 508C IEC 61800-3 IEC 61800-3 environment 1 category C2 EN/IEC 61800-3 environment 2 category C3 IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1					
Assembly Style	With heat sink					
Overvoltage Category	111					
Regulation Loop	Adjustable PID regulator					
Noise Level	62.4 dB					
Pollution Degree	2					

## **Packing Units**

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	59.0 cm
Package 1 Width	43.5 cm
Package 1 Length	111.0 cm
Package 1 Weight	64.5 kg

## Sustainability Screen Premium

**Green Premium<sup>TM</sup> label** is Schneider Electric's commitment to delivering products with best-inclass 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 >



Transparency RoHS/REACh

### **Resource performance**

Upgraded Components Available

### Well-being performance

Mercury Free

Rohs Exemption Information

## **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				

Yes

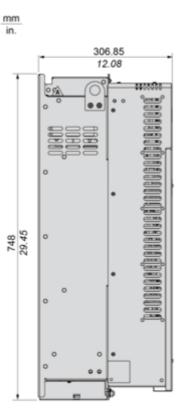
### **Dimensions Drawings**

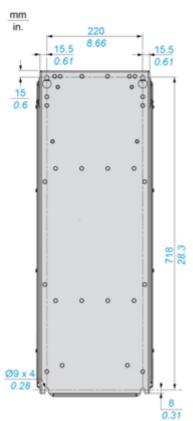
#### Dimensions

in.

# Front, Left and Rear Views



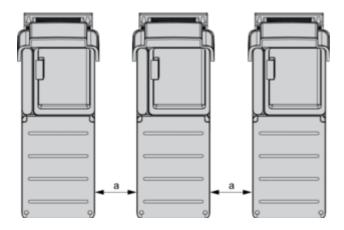




Mounting and Clearance

#### Mounting Types

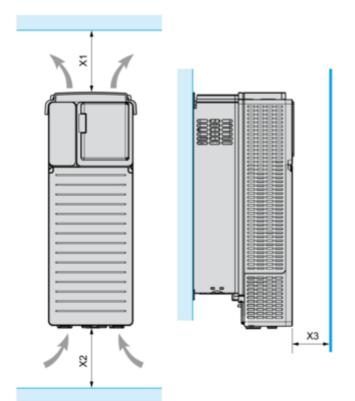
### Mounting Type A : Individual IP21 and IP55



Frame sizes 1, 2, 3, 3S and 5S:  $a \ge 100 \text{ mm} (3.9 \text{ in.})$ Frame sizes 4, 5 and 6:  $a \ge 110 \text{ mm} (4.33 \text{ in.})$ 

## ATV630D90N4Z

#### Clearance



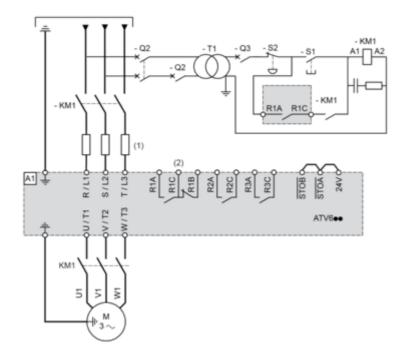
Frame Size	X1		X2		X3	
	mm	in.	mm	in.	mm	in.
15	≥ 100	≥ 3.94	≥ 100	≥ 3.94	≥ 10	≥ 0.39
6	≥ 250	≥ 10	≥ 250	≥ 10	≥ 100	≥ 3.94

### ATV630D90N4Z

### Connections and Schema

#### Three-Phase Power Supply with Upstream Breaking via Line Contactor

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



(1) Line choke if used

(2) Use relay R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive

KM1 : Line Contactor

Q2, Q3 : Circuit breakers

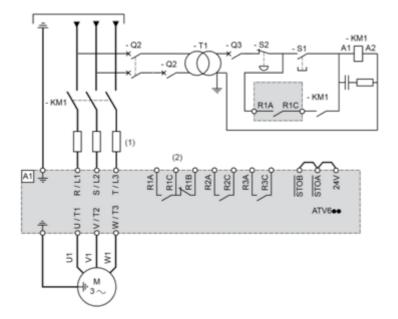
S1, S2 : Pushbuttons

T1 : Transformer for control part

### ATV630D90N4Z

#### Three-Phase Power Supply with Downstream Breaking via Contactor

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



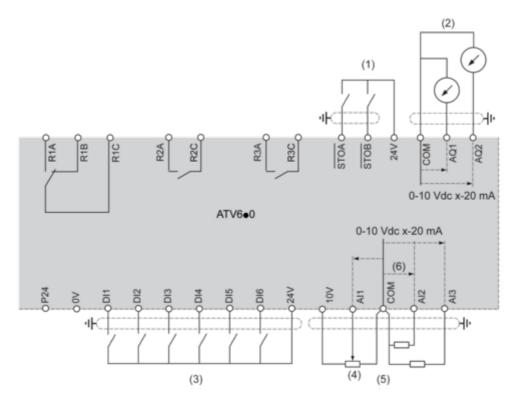
(1) Line choke if used

(2) Use relay R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive

KM1 : Contactor

#### **Control Block Wiring Diagram**



(1) Safe Torque Off

(2) Analog Output

(3) Digital Input

(4) Reference potentiometer

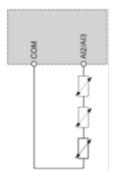
(5) Analog Input

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 Al2 or Al3.

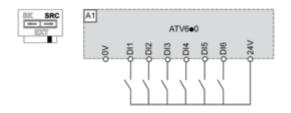


#### Sink / Source Switch Configuration

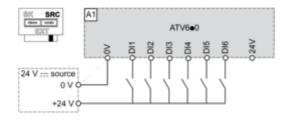
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

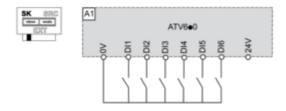
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



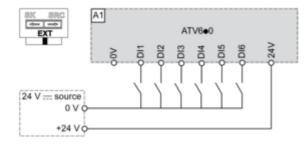
#### Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



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

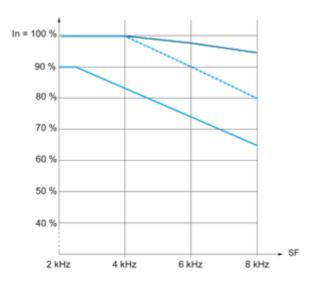


#### Switch Set to EXT Position Using an External Power Supply for the DIs



### 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