




Variable speed drives for asynchronous motors

Type of machine		Simple machines		Pumps and fans (Building HVAC) (1)	
					
					
Power range for 50...60 Hz (kW) supply		0.18...2.2	0.18...15	0.75...75	
Single phase 100...120 V (kW)		0.18...0.75	–	–	
Single phase 200...240 V (kW)		0.18...2.2	0.18...2.2	–	
Three phase 200...230 V (kW)		0.18...2.2	–	–	
Three phase 200...240 V (kW)		–	0.18...15	0.75...30	
Three phase 380...480 V (kW)		–	–	0.75...75	
Three phase 380...500 V (kW)		–	0.37...15	–	
Three phase 525...600 V (kW)		–	0.75...15	–	
Drive	Output frequency	0.5...200 Hz	0.5...500 Hz	0.5...200 Hz	
	Type of control	Sensorless flux vector control		Sensorless flux vector control, voltage/frequency ratio (2 points), energy saving ratio	
	Asynchronous motor	–		–	
	Synchronous motor	150...170% of the nominal motor torque		180% of the nominal motor torque for 2 seconds	
	Transient overtorque	–		110% of the nominal motor torque	
Functions					
Number of functions		26	50	50	
Number of preset speeds		4	16	7	
Number of I/O	Analog inputs	1	3	2	
	Logic inputs	4	6	3	
	Analog outputs	–	1	1	
	Logic outputs	1	–	–	
	Relay outputs	1	2	2	
Communication	Embedded	–	Modbus and CANopen	Modbus	
	Available as an option	–	Ethernet TCP/IP, DeviceNet, Fipio, Profibus DP	LONWORKS, METASYS N2, APOGEE FLN, BACnet	
Cards (available as an option)		–	–	–	
Standards and certifications		IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2)		EN 55011: Group 1, class A and class B with option card, CE, UL, CSA, C-Tick, N998	
		EN 55011: Group 1, class A and class B	EN 55011: Group 1, class A and class B with option card, CE, UL, CSA, C-Tick, N998	EN 55011: Group 1, class A and class B with option card, CE, UL, CSA, C-Tick, NOM 117	
References		ATV 11	ATV 31	ATV 21	
Pages		60252/2 to 60252/5	60262/2 to 60262/5	60313/2 and 60313/3	

(1) Heating Ventilation Air Conditioning

**Pumps and fans
(Industry)**



Complex machines



0.37...630
–
0.37...5.5
–
0.75...90
0.75...630
–
–

0.37...500
–
0.37...5.5
–
0.37...75
0.75...500
–
–

0,5...1000 Hz up to 37 kW, 0,5...500 Hz from 45 to 630 kW
 Sensorless flux vector control,
 voltage/frequency ratio (2 or 5 points),
 energy saving ratio

–

120...130% of the nominal motor torque for 60 seconds

1...1600 Hz up to 37 kW, 1...500 Hz from 45 to 500 kW
 Flux vector control with or without sensor,
 voltage/frequency ratio (2 or 5 points),
 ENA System

Vector control without speed feedback

220% of the nominal motor torque for 2 seconds
 170% for 60 seconds

> 100
8
2...4
6...20
1...3
0...8
2...4

> 150
16
2...4
6...20
1...3
0...8
2...4

Modbus and CANopen
 Ethernet TCP/IP, Fipio, Modbus Plus, INTERBUS, Profibus DP,
 Modbus/Uni-Telway, DeviceNet, LonWORKS, METASYS N2,
 APOGEE FLN, BACnet

Ethernet TCP/IP, Fipio, Modbus Plus, INTERBUS, Profibus DP, Modbus/Uni-Telway, DeviceNet

I/O extension cards,
 "Controller Inside" programmable card, multi-pump cards

Encoder interface cards, I/O extension cards,
 "Controller Inside" programmable card

IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, C1 to C3), EN 55011, IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11
 CE, UL, CSA, DNV, C-Tick, NOM 117, GOST

ATV 61

ATV 71

60663/2 to 60663/5

60282/2 to 60282/5