


Soft starters for asynchronous motors

Altistart 01

Environment characteristics		
Type of starter		ATS 01N1●●FT, ATS 01N2●●LU, ATS 01N2●●QN, ATS 01N2●●RT
		ATS 01N2●●LY and ATS 01N2●●Q
Conforming to standards		Altistart 01 electronic starters have been developed to conform to the strictest international standards and the recommendations relating to electrical industrial control devices (IEC, EN), in particular standard IEC/EN 60947-4-2
Electromagnetic compatibility EMC	Conducted and radiated emissions	CISPR 11 level B, IEC 60947-4-2, level B
	Harmonics	IEC 1000-3-2, IEC 1000-3-4
	EMC immunity	EN 50082-2, EN 50082-1
	Electrostatic discharge	IEC 61000-4-2 level 3
	Immunity to radiated radio-electrical interference	IEC 61000-4-3 level 3
	Immunity to electrical transients	IEC 61000-4-4 level 4
	Voltage/current impulse	IEC 61000-4-5 level 3
	Immunity to conducted interference caused by radio-electrical fields	IEC 61000-4-6 level 3
	Micro-cuts and voltage fluctuation	IEC 61000-4-11
	Damped oscillating waves	IEC 61000-4-12 level 3
CE marking		Bear CE marking in accordance with the European low voltage directives IEC/EN 60947-4-2
Product certifications		UL, CSA, C-Tick and CCC B44.1-96/ASME A17.5 for starter wired to the motor delta terminal
Degree of protection		IP 20
Degree of pollution		3 conforming to IEC/EN 60947-4-2
Vibration resistance		1.5 mm peak to peak from 3 to 13 Hz, 1 gn from 13 to 150 Hz conforming to IEC/EN 60068-2-6
Shock resistance		15 gn for 11 ms conforming to IEC/EN 60068-2-27
Relative humidity		5...95% without condensation or dripping water, conforming to IEC/EN 60068-2-3
Ambient air temperature around the device	Storage	°C - 25...+ 70 conforming to IEC/EN 60947-4-2
	Operation	°C - 10...+ 40 without derating, up to 50°C with current derating of 2% per °C above 40°C
Maximum operating altitude	m	1000 without derating (above this, derate the current by 2.2% per additional 100 m)
Operating position		2000 without derating (above this, derate the current by 0.5% per additional 100 m)
Maximum permanent angle in relation to the normal vertical mounting position		

Electrical characteristics		
Type of starter	ATS	01N1●●FT
		01N2●●LU
		01N2●●QN
		01N2●●RT
		01N2●●LY
		01N2●●Q
Category of use	Conforming to IEC 60947-4-2	Ac-53b
Rated operating voltage	Three-phase voltage	V
		110 - 10% to 480 + 10%
		200 - 10% to 240 + 10%
		380 - 10% to 415 + 10%
		440 - 10% to 480 + 10%
		230 - 15% to 690 + 10%
		400 -15...+ 10%
Frequency		Hz
		50 - 5% to 60 + 5%
Output voltage		Maximum 3-phase voltage equal to line supply voltage.
Control power supply voltage		V
		~ 110...220 ± 10%
		~ 24 ± 10%
		Built into the starter
		~ 110 ± 10%
		Built into the starter
Rated operating current		A
		3...25
		6...32
		32...85
Adjustable starting time		s
		1...5
		1...10
Adjustable deceleration time		s
		—
		1...10
Starting torque		%
		30...80% of starting torque of motor connected directly on the line supply
Type of starter	ATS	01N1●●FT
		01N206●● to 01N222●●
		01N232●●
		01N2●●LY, 01N2●●Q
Use		s
Starting time		1 5
Maximum number of cycles per hour		100 20
		100 20 10
		50 10 5
		360 30

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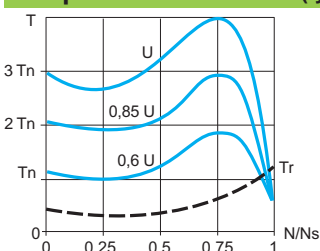
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Electrical characteristics (continued)							
Type of starter	ATS 01N1	03FT	06FT	09FT	12FT	25FT	
Control power supply consumption		~ 24 V, 25 mA, ~ 110 V, 30 mA, ~ 240 V, 65 mA		~ 24 V, 30 mA, ~ 110 V, 35 mA, ~ 240 V, 80 mA			
Power dissipated	At full load at end of starting	W	4	1	1	1	
	In transient state	W	19	31	46	61	126
Current at nominal load (1)	A	15	30	45	60	125	
Type of starter	ATS 01N2	06LU/QN/RT	09LU/QN/RT	12LU/QN/RT	22LU/QN/RT	32LU/QN/RT	
Power dissipated	At full load at end of starting	W	4	4	4	4.5	4.5
	In transient state	W	64	94	124	224.5	324.5
Current at nominal load (1)	A	30	45	60	110	160	
Type of starter	ATS 01N2	30LY/Q	44LY/Q	72LY/Q	85LY/Q		
Power dissipated	At full load at end of starting	W	22	22	23	23	
	In transient state	W	184	268	436	514	
Current at nominal load (1)	A	90	132	216	255		
Type of starter	ATS 01N2	●●LU/QN/RT	●●LY/Q				
Logic input power supply: For LI1, LI2 and BOOST only (electrically isolated between power and control) LI+, COM		24 V power supply Max. current available 10 mA. No short-circuit and overload protection			-		
Logic inputs LI1, LI2, BOOST (01, 02, 03 for ATS 01N2●●LY/Q) Stop, run and boost on start-up functions		Logic inputs with impedance 10 kΩ 24 V power supply (U max. 40 V) Max. current consumption 8 mA State 0 if U < 5 V and I < 0.2 mA State 1 if U > 13 V and I > 0.5 mA			Input with internal control relay, internal 24 V power supply Max. current 8 mA State 0 if I < 3 mA State 1 if I > 10 mA		
Logic output LO1 End of starting signal		Open collector logic output External 24 V power supply (min. 6 V, max. 30 V) Max. current 200 mA			-		
Relay outputs R1A R1C (04, 05 for ATS 01N2●●LY/Q)		Normally open (N/O) contact Minimum switching capacity: 10 mA for ~ 6 V Max. switching capacity on inductive load (cos φ = 0.5 and L/R = 20 ms): 2 A for ~ 250 V or ~ 30 V (AC-15) Max. operating voltage 440 V			Operating category AC-15: Ie 3 A, Ue 250 V, DC-13: Ie 2 A, Ue 24 V, Minimum switching capacity: 10 mA for ~ 17 V Maximum operating voltage 250 V		
LED signalling	Green LED	Starter powered up					
	Yellow LED	Nominal voltage reached					

(1) Acceleration current complying with the maximum conditions of use (see page 60541/2).

Connections (Maximum connection capacity and tightening torque)						
Type of starter	ATS	01N103FT, 01N106FT	01N109FT, 01N112FT, 01N125FT, 01N206●● to 01N232●●	01N2●●LY and 01N2●●Q		
Power circuit		Cage type connector	Connection via Ø 4 mm screw clamp			
Flexible wire without cable end	1 conductor	mm ²	2.5 14 AWG	1.5...10 8 AWG		6...25
	2 conductors	mm ²	1 17 AWG	1.5...6 10 AWG		6...25
Flexible wire with cable end	1 conductor	mm ²	2.5 14 AWG	1...6 10 AWG		4...25
	2 conductors	mm ²	0.75 18 AWG	1...6 10 AWG		4...16
Rigid wire	1 conductor	mm ²	2.5 14 AWG	1...10 8 AWG		6...35
	2 conductors	mm ²	1 17 AWG	1...6 10 AWG		6...25
Tightening torque		N.m	0.8	1.9...2.5		5
Control circuit			Cage type connector	Screw connector		
Flexible wire without cable end	1 conductor	mm ²	2.5 14 AWG	0.5...2.5 14 AWG		0.75...1.5
	2 conductors	mm ²	1 17 AWG	0.5...1.5 16 AWG		0.75...1.5
Flexible wire with cable end	1 conductor	mm ²	2.5 14 AWG	0.5...1.5 16 AWG		0.75...1.5
	2 conductors	mm ²	0.75 18 AWG	0.5...1.5 16 AWG		0.75...1.5
Rigid wire	1 conductor	mm ²	2.5 14 AWG	0.5...2.5 14 AWG		0.75...1.5
	2 conductors	mm ²	1 17 AWG	0.5...1 17 AWG		0.75...1.5
Earth connection			-	-		Tinned connector. Fixed using Ø 6 screws
Tightening torque		N.m	0.8	0.5		0.7

Torque characteristics (typical curves)



The diagram opposite shows the torque/speed characteristic of a cage motor in relation to the supply voltage.

The torque varies in line with the square of the voltage at a fixed frequency.

The gradual increase in the voltage prevents the instantaneous current peak on power-up.