Soft starters Altistart 01

for asynchronous motors

Catalog

October 2014

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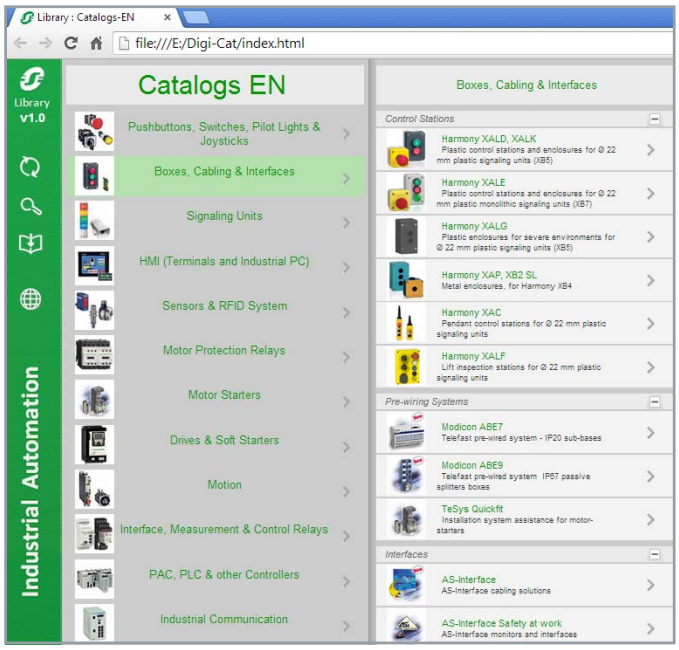

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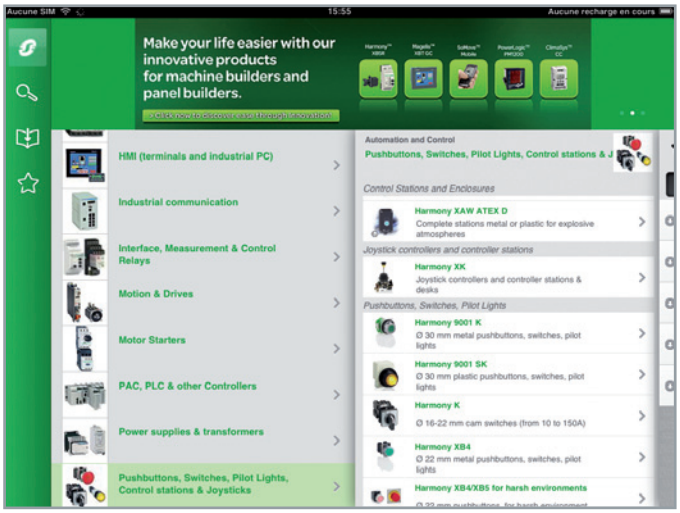

General contents

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1 - Altistart 01 soft starters

Soft starters for asynchronous motors

Applications		Starting simple machines	Controlled starting and deceleration of simple machines
			
Power range for 50…60 Hz line supply (kW/*HP*) (connection to the motor power supply line)		**0.37…11/*0.5...15***	**0.75…15/*1...20***
	Single-phase 110…230 V (kW)	0.37…2.2	–
	Three-phase 200…240 V (kW/*HP*)	–	0.75…7.5/*1...10*
	Three-phase 200…480 V (kW/*HP*)	0.37…11/*0.5...15*	–
	Three-phase 208…600 V (kW/*HP*)	–	
	Three-phase 208…690 V (kW/*HP*)	–	
	Three-phase 230…415 V (kW)	–	
	Three-phase 230…440 V (kW)	–	
	Three-phase 380…415 V (kW)	–	1.5…15
	Three-phase 440...480 V (*HP*)	–	*2...20*
Drive	Number of controlled phases	1	2
	Type of control	–	
	Operating cycle	–	
Functions		Integrated	
Bypass			
Number of I/Os	Analog inputs	–	
	Logic inputs	–	
	Analog outputs	–	
	Logic outputs	–	
	Relay outputs	–	
Communication	Integrated	–	
	Available as an option	–	
Standards and certifications		IEC/EN 60947-4-2 CE, UL, CSA, C-Tick, and CCC	
References		**ATS01N1●●●●**	**ATS01N2●●●●**
Pages		1/6	

Controlled starting and deceleration of simple and complex machines		
		
4…400/*3...500*	**3…900**	**3...900/*3...1,200***
–		
–		
–		
4…400/*3...500*	–	
–		3…900/*3...1,200*
–	3…630	–
4…355	–	
–		
3		
Configurable voltage ramp	TCS (Torque Control System)	
Standard	Standard and severe	
Integrated	Available as an option	
1 PTC probe		
3	4	
–	1	
–	2	
2 (CO)	3	
Modbus		
–	Fipio, PROFIBUS DP, DeviceNet, Modbus TCP	
IEC/EN 60947-4-2, EMC class A CE, UL, CSA, C-Tick, GOST, CCC	IEC/EN 60947-4-2, EMC class A and B CE, UL, CSA, DNV, C-Tick, GOST, CCC, NOM, SEPRO, and TCF	
ATS22●●●●	**ATS48●●●Q**	**ATS48●●●Y**
Please refer to the Altistart 22 catalog.	Please refer to the Altistart 48 catalog.	

Soft starters for asynchronous motors
Altistart 01

PF140052A

ATS01N1●●●

PF140051A

ATS01N2●●●

Presentation

The Altistart 01 soft starter operates either as a torque limiter on starting, or as a soft start/soft stop unit for asynchronous motors.
Using the Altistart 01 starter enhances the starting performance of asynchronous motors by allowing them to start gradually, smoothly, and in a controlled manner. It helps to prevent mechanical shocks, which cause wear and tear, and subsequent maintenance work and production downtime.
The Altistart U01 limits the starting torque and current peaks on starting on machines that do not require a high starting torque.
It is designed for the following simple applications:

- conveyors
- conveyor belts
- pumps
- fans
- compressors
- automatic doors and gates
- small cranes
- belt-driven machinery, etc.

The Altistart 01 is compact, easy to install, and can be mounted side-by-side. It complies with standards IEC/EN 60947-4-2, and carries UL, CSA, C-Tick, and CCC certifications, and CE marking.
The Altistart 01 soft start/soft stop unit offer comprises 3 ranges:

- **ATS01N1●●●** soft starters
  - These control one phase of the motor power supply (single-phase or three-phase) to limit the starting torque.
  - They feature an internal bypass relay.
  - Motor power ratings range from 0.37 kW to 11 kW.
  - Motor supply voltages range from 110 V to 480 V, 50/60 Hz. An external power supply is required for controlling the starter.

  A contactor is always required to shut off power to the motor.

- **ATS01N2●●●** soft start/soft stop units
  - These control two phases of the motor power supply to limit the starting current and for deceleration.
  - They feature an internal bypass relay.
  - Motor power ratings range from 0.75 kW to 15 kW.
  - The motor supply voltages are as follows: 230 V, 400 V, and 480 V, 50/60 Hz.

  The use of a line contactor is not necessary on machines where electrical isolation is not required.

- **ATSU01N2●●●** soft start/soft stop units

See page 2/2.

Description

- Altistart 01 soft starters (ATS01N1●●●) are equipped with:
  - a potentiometer **1** for setting the starting time
  - a potentiometer **2** for adjusting the starting voltage threshold according to the motor load
  - 2 inputs **3**:
    - 1 x 24 V ⎓ input or 1 x 110…240 V ∿ input for powering the control part that controls the motor

- Altistart 01 soft start/soft stop units (ATS01N2●●●) are equipped with:
  - a potentiometer **6** for setting the starting time
  - a potentiometer **8** for setting the deceleration time
  - a potentiometer **7** for adjusting the starting voltage threshold according to the motor load
  - 1 green LED **4** to indicate that the unit is powered up
  - 1 yellow LED **5** to indicate that the motor is powered at nominal voltage, if it is connected to the starter
  - a connector **9** for:
    - 2 logic inputs for Run/Stop commands
    - 1 logic input for the BOOST function
    - 1 logic output to indicate the end of starting
    - 1 relay output to indicate the motor has reached a standstill at the end of the deceleration stage

References:
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Combinations:
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Schneider Electric

Soft starters for asynchronous motors
Altistart 01

Description (continued)

Equivalence table for contact references

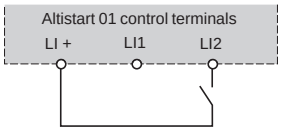
Functions	ATS01N2●●LU/QN/RT
Relay outputs	R1A
	R1C
External power supply 0 V	C0M
Stop command	LI1
Run command	LI2
Control section power supply	LI + (+ 24 V positive logic)
BOOST	BOOST
End of starting	LO1
115 V external power supply	–

Functions

■ 2-wire control

The run and stop commands are controlled by a single logic input. State 1 of logic input LI2 controls starting and state 0 controls stopping.

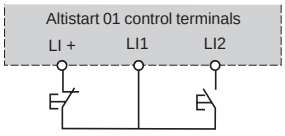
ATS01N2●●LU/QN/RT



Wiring diagram for 2-wire control

■ 3-wire control

The run and stop commands are controlled by 2 different logic inputs.
Stopping is achieved when logic input LI1 opens (state 0).
The pulse on input LI2 is stored until input LI1 opens.



Wiring diagram for 3-wire control

■ Starting time

Controlling the starting time means that the time of the voltage ramp applied to the motor can be adjusted to obtain a gradual starting time, dependent on the motor load.

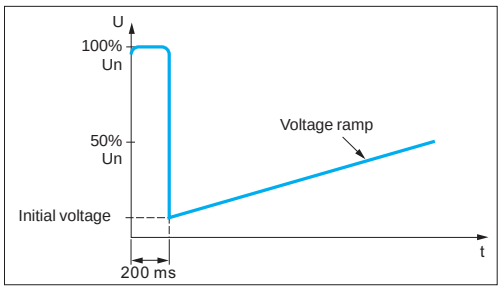
■ Voltage boost function via logic input

Activating the BOOST logic input enables the function for supplying a starting overtorque capable of overcoming any mechanical friction.
When the input is at state 1, the function is active (input connected to the + 24 V) and the starter applies a fixed voltage to the motor for a limited time before starting.

■ End of starting

□ Application function via logic output LO1

ATS01N206●● to ATS01N232●● soft start/soft stop units are equipped with an open collector logic output LO, which indicates the end of starting when the motor has reached nominal speed.



Application of a voltage boost equal to 100% of the nominal motor voltage

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Soft starters for asynchronous motors
Altistart 01

DF504014

ATS01N103FT

Soft starters for 0.37 to 11 kW motors

Motor						Starter			
Motor power *(1)*						Nominal current	Dimensions W x D x H	Reference *(2)*	Weight
Single-phase	Three-phase								
230 V	110 V	230 V	230 V	400 V	460 V				
kW	HP	kW	*HP*	kW	*HP*	A	mm/ *in.*		kg/ *lb*
Single-phase 110...230 V or three-phase 110…480 V supply voltage, 50/60 Hz									
0.37	–	0.37	*0.5*	1.1	*0.5*	3	22.5 x 100.4 x 100/ *0.89 x 3.95 x 3.94*	**ATS01N103FT**	0.160/ *0.353*
	–	0.55	–	–	*1.5*				
0.75	*0.5*	0.75	*1*	2.2	*2*	6	22.5 x 100.4 x 100/ *0.89 x 3.95 x 3.94*	**ATS01N106FT**	0.160/ *0.353*
	–	1.1	*1.5*	3	*3*				
1.1	*1*	1.5	*2*	4	*5*	9	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N109FT**	0.280/ *0.617*
1.5	*1.5*	2.2	*3*	5.5	*7.5*	12	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N112FT**	0.280/ *0.617*
2.2	*2*	3	*5*	7.5	*10*	25	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N125FT**	0.350/ *0.772*
	3	4	*7.5*	9	*15*				
		5.5		11					

Accessories

Description	For use with starter	Reference	Weight kg/ *lb*
Adapter for mounting on ⌙ DZ5 MB rail	ATS01N103FT, ATS01N106FT	**RHZ66**	0.005/ *0.011*

DF504015

ATS01N212QN

Soft start/soft stop units for 0.75 to 15 kW motors *(3)*

Motor		Starter			
Motor power *(1)*		Nominal current	Dimensions W x D x H	Reference *(2)*	Weight
kW	*HP*	A	mm/ *in.*		kg/ *lb*
Three-phase supply voltage: 200…240 V 50/60 Hz					
0.75/1.1	*1/1.5*	6	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N206LU**	0.420/ *0.926*
1.5	*2*	9	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N209LU**	0.420/ *0.926*
2.2/3	*3/–*	12	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N212LU**	0.420/ *0.926*
4/5.5	*5/7.5*	22	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N222LU**	0.560/ *1.235*
7.5	*10*	32	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N232LU**	0.560/ *1.235*
Three-phase supply voltage: 380…415 V 50/60 Hz					
1.5/2.2/3	–	6	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N206QN**	0.420/ *0.926*
4	–	9	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N209QN**	0.420/ *0.926*
5.5	–	12	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N212QN**	0.420/ *0.926*
7.5/11	–	22	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N222QN**	0.560/ *1.235*
15	–	32	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N232QN**	0.560/ *1.235*
Three-phase supply voltage: 440…480 V 50/60 Hz					
–	*2/3*	6	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N206RT**	0.420/ *0.926*
–	*5*	9	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N209RT**	0.420/ *0.926*
–	*7.5*	12	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATS01N212RT**	0.420/ *0.926*
–	*10/15*	22	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N222RT**	0.560/ *1.235*
–	*20*	32	45 x 130.7 x 154/ *1.77 x 5.15 x 6.06*	**ATS01N232RT**	0.560/ *1.235*

(1) Standard motor power ratings, HP power ratings indicated according to standard UL 508.

(2) For motor thermal protection, use a GV●ME thermal-magnetic motor circuit breaker (see combinations page 1/7).

(3) Control power supply built into the starter.

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Soft starters for asynchronous motors

Altistart 01

400 V power supply, type 1 coordination

Compatible components according to IEC 60947-4-1 and IEC 60947-4-2

Combine either circuit breaker (light green columns), contactor, and starter, or switch/fuse (dark green columns), contactor, and starter

Motor		Starter	Circuit breaker		Contactor	Switch or disconnect switch (base unit)	aM fuses		I^2t	Thermal overload relay
		Class 10		Rating			Reference	Rating		
kW	A			A				A	A^2 s	
M1		A1	Q1		KM1, KM2, KM3	Q2				F4
0.37	0.98	**ATS01N103FT**	**GV2ME05**	1	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA02**	2	265	**LR2K0306** **LRD05**
0.55	1.5	**ATS01N103FT**	**GV2ME06**	1.6	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA02**	2	265	**LR2K0307** **LRD06**
0.75	2	**ATS01N103FT**	**GV2ME07**	2.5	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA02**	2	265	**LR2K0308** **LRD07**
1.1	2.5	**ATS01N103FT**	**GV2ME08**	4	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA04**	4	265	**LR2K0308** **LRD08**
		ATS01N206QN	**GV2ME08**	4	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA04**	4	265	**LR2K0308** **LRD08**
1.5	3.5	**ATS01N106FT**	**GV2ME08**	4	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA06**	6	265	**LR2K0310** **LRD08**
		ATS01N206QN	**GV2ME08**	4	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA06**	6	265	**LR2K0310** **LRD08**
2.2	5	**ATS01N106FT**	**GV2ME10**	6.3	**LC1K06** or **LC1D09**	**LS1D2531**	**DF2CA08**	8	265	**LR2K0312** **LRD10**
		ATS01N206QN	**GV2ME10**	6.3	**LC1K09** or **LC1D09**	**LS1D2531**	**DF2CA08**	8	265	**LR2K0312** **LRD10**
3	6.5	**ATS01N106FT**	**GV2ME14**	9	**LC1K09** or **LC1D09**	**LS1D2531**	**DF2CA12**	12	265	**LR2K0314** **LRD12**
		ATS01N206QN	**GV2ME14**	9	**LC1K09** or **LC1D09**	**LS1D2531**	**DF2CA12**	12	265	**LR2K0314** **LRD12**
4	8.4	**ATS01N109FT**	**GV2ME14**	9	**LC1K09** or **LC1D09**	**LS1D2531**	**DF2CA12**	12	610	**LR2K0316** **LRD14**
		ATS01N209QN	**GV2ME14**	9	**LC1K09** or **LC1D09**	**LS1D2531**	**DF2CA12**	12	610	**LR2K0316** **LRD14**
5.5	11	**ATS01N112FT**	**GV2ME16**	13	**LC1K12** or **LC1D12**	**LS1D2531**	**DF2CA16**	16	610	**LR2K0321** **LRD16**
		ATS01N212QN	**GV2ME16**	13	**LC1K12** or **LC1D12**	**LS1D2531**	**DF2CA16**	16	610	**LR2K0321** **LRD16**
7.5	14.8	**ATS01N125FT**	**GV2ME20**	17	**LC1D18**	**LS1D2531**	**DF2CA20**	20	6050	**LRD21**
		ATS01N222QN	**GV2ME20**	17	**LC1D18**	**LS1D2531**	**DF2CA20**	20	6050	**LRD21**
9	18.1	**ATS01N125FT**	**GV2ME21**	21	**LC1D25**	**LS1D2531**	**DF2CA25**	25	6050	**LRD21**
		ATS01N222QN	**GV2ME21**	21	**LC1D25**	**LS1D2531**	**DF2CA25**	25	6050	**LRD21**
11	21	**ATS01N125FT**	**GV2ME22**	23	**LC1D25**	**LS1D2531**	**DF2CA25**	25	6050	**LRD22**
		ATS01N222QN	**GV2ME22**	23	**LC1D25**	**LS1D2531**	**DF2CA25**	25	6050	**LRD22**
15	28.5	**ATS01N232QN**	**GV2ME32**	32	**LC1D32**	**GK1EM**	**DF2EA40**	40	7200	**LRD3353**

Presentation:
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References:
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Contents

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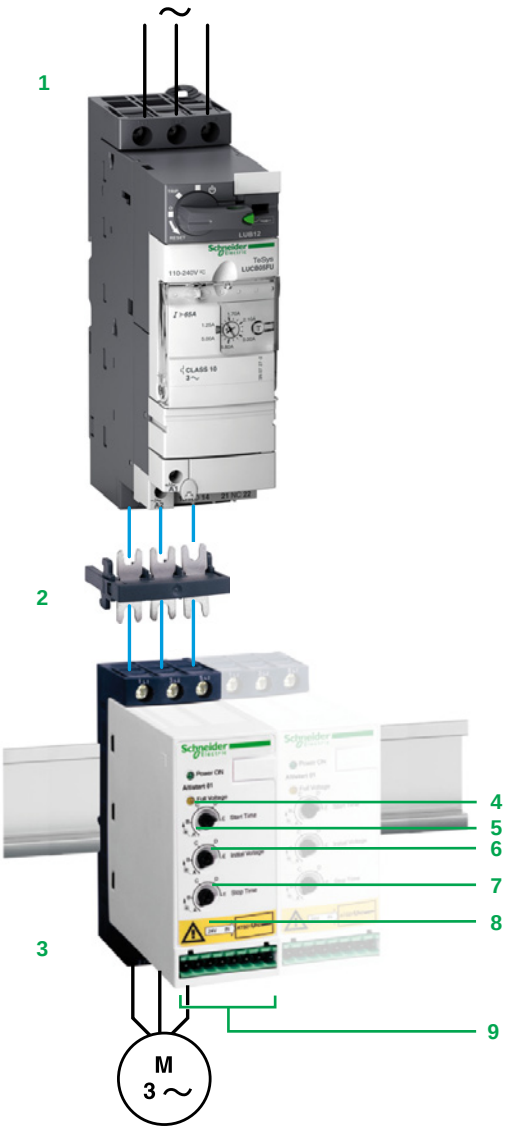
Soft starters for asynchronous motors
Altistart U01 and TeSys U

PF514367



Presentation

The Altistart U01 is a soft start/soft stop unit for asynchronous motors. It is designed primarily for combinations with **TeSys U** starter-controllers.

When used in combination with a **TeSys U** **1** controller by means of a connector **2**, the Altistart U01 **3** is a power option that provides the “soft start/soft stop” function. The result is a unique, innovative motor starter.

Using the Altistart U01 starter enhances the starting performance of asynchronous motors by allowing them to start gradually, smoothly, and in a controlled manner. It helps to prevent mechanical shocks, which cause wear and tear, and subsequently limits the amount of maintenance work and production downtime.
The Altistart U01 limits the starting torque and current peaks on starting on machines that do not require a high starting torque.

The Altistart U01 is designed for the following simple applications:
- conveyors
- conveyor belts
- pumps
- fans
- compressors
- automatic doors and gates
- small cranes
- belt-driven machinery

The Altistart U01 is compact and easy to install. It complies with standards IEC/EN 60947-4-2, and carries UL, CSA, C-Tick, and CCC certifications, and CE marking.

- **ATSU01N2●●LT soft start/soft stop units**
  - These control two phases of the motor power supply to limit the starting current and for deceleration.
  - They feature an internal bypass relay.
  - Motor power ratings range from 0.75 kW to 15 kW.
  - Motor supply voltages range from 200 V to 480 V, 50/60 Hz.

An external power supply is required for controlling the starter.

Description

- Altistart U01 soft start/soft stop units are equipped with:
  - a potentiometer for setting the starting time **6**
  - a potentiometer for setting the deceleration time **8**
  - a potentiometer for adjusting the starting voltage threshold according to the motor load **7**
  - 1 green LED **4** to indicate that the unit is powered up
  - 1 yellow LED **5** to indicate that the motor is powered at nominal voltage, if it is connected to the starter
  - a connector **9** for:
    - 2 logic inputs for Run/Stop commands
    - 1 logic input for the BOOST function
    - 1 logic output to indicate the end of starting
    - 1 relay output to indicate that an error has been detected on the starter power supply or that the motor has reached a standstill at the end of the deceleration stage

Combinations:
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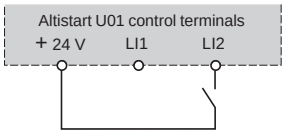
Description of a TeSys U starter-controller

Please refer to the “TeSys U starters - open version” catalog.

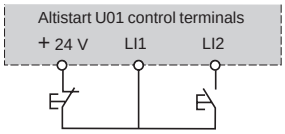
ATSU01N2●●LT soft start unit functions

■ 2-wire control
The run and stop commands are controlled by a single logic input. State 1 of logic input LI2 controls starting and state 0 controls stopping.



Wiring diagram for 2-wire control

■ 3-wire control
The run and stop commands are controlled by 2 different logic inputs.
Stopping is achieved when logic input LI1 opens (state 0).
The pulse on input LI2 is stored until input LI1 opens.

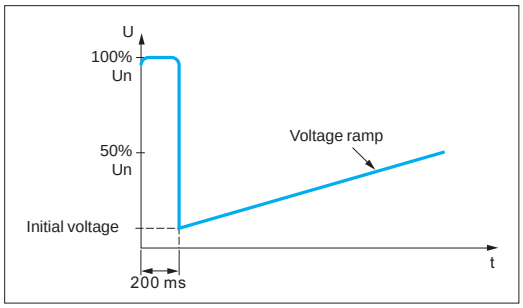


Wiring diagram for 3-wire control

■ Starting time:
Controlling the starting time means that the time of the voltage ramp applied to the motor can be adjusted to obtain a gradual starting time, dependent on the motor load.

■ Voltage boost function via logic input
Activating the BOOST logic input enables the function for supplying a starting overtorque capable of overcoming any mechanical friction.
When the input is at state 1, the function is active (input connected to the + 24 V) and the starter applies a fixed voltage to the motor for a limited time before starting.

■ End of starting
□ Application function for logic output LO1
ATSU01N2●●LT soft start/soft stop units are equipped with an open collector logic output LO, which indicates the end of starting when the motor has reached nominal speed.



Application of a voltage boost equal to 100% of the nominal motor voltage

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Soft starters for asynchronous motors
Altistart U01 and TeSys U

DF504015

ATSU01N222LT

Soft start/soft stop units for 0.75 to 15 kW motors (can be combined with TeSys U starter)

Motor				Starter			
Motor power *(1)*				Nominal current	Dimensions W x D x H	Reference	Weight
230 V	230 V	400 V	460 V				
kW	*HP*	kW	*HP*	A	mm/ *in.*		kg/ *lb*
Three-phase supply voltage: 200…480 V 50/60 Hz							
0.75 1.1	*1* *1.5*	1.5 2.2 3	*2* *3*	6	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATSU01N206LT**	0.340/ *0.750*
1.5 –	*2* –	– 4	*5* –	9	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATSU01N209LT**	0.340/ *0.750*
2.2 3	*3* –	5.5 –	*7.5* –	12	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATSU01N212LT**	0.340/ *0.750*
4 5.5	*5* *7.5*	7.5 11	*10* *15*	22	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATSU01N222LT**	0.490/ *1.080*
7.5	*10*	15	*20*	32	45 x 130.7 x 124/ *1.77 x 5.15 x 4.88*	**ATSU01N232LT**	0.490/ *1.080*

Accessory

Description	For use with starter	Reference	Weight kg/ *lb*
Power connector between ATSU01N2●●LT and TeSys U	ATSU01N2●●LT	**VW3G4104**	0.020/ *0.044*

(1) Standard motor power ratings, HP power ratings indicated according to standard UL508.

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Soft starters for asynchronous motors
Altistart U01 and TeSys U

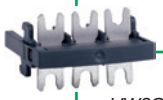
PF514368

1

2

LUB●2BL
LUCM●●BL

PF514371



3

VW3G4104

PF514370

4

ATSU●01N2●●●●

TeSys U starter and soft start unit combinations

Numerous possibilities for combinations and options are offered.
Please refer to the “TeSys U starters - open version” catalog.

Motor power			Soft start unit	TeSys U	
Voltage				Power base	Control unit *(1)*
230 V	400 V	460 V			
kW/*HP*	kW	*HP*			
0.75/*1*	1.5	*2*	ATSU01N206LT	LUB12	LUC●05BL
1.1/*1.5*	2.2/3	*3*	ATSU01N206LT	LUB12	LUC●12BL
1.5/*2*	–	–	ATSU01N209LT	LUB12	LUC●12BL
–	4	*5*	ATSU01N209LT	LUB12	LUC●12BL
2.2/*3*	–	–	ATSU01N212LT	LUB12	LUC●12BL
3/–	5.5	*7.5*	ATSU01N212LT	LUB32	LUC●18BL
4/*5*	7.5	*10*	ATSU01N222LT	LUB32	LUC●18BL
5.5/*7.5*	11	*15*	ATSU01N222LT	LUB32	LUC●32BL
7.5/*10*	15	*20*	ATSU01N232LT	LUB32	LUC●32BL

Example of combining a motor-starter with:
1 power base for non-reversing DOL starting (LUB●2BL)
2 control unit (LUCM●●BL)
3 power connector (VW3G4104)
4 Altistart U01 (ATSU01N2●●LT) soft start/soft stop unit

(1) Depending on the configuration required for the TeSys U starter, replace the ● with A for standard, B for advanced, and M for multifunction.

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Product reference index

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