SOFT STARTERS

Lovato electric

ENERGY AND AUTOMATION

ADXL Series

SIMPLE, EFFICIENT AND SAFE
MOTOR CONTROL

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Simplicity |

The new ADXL series of soft starters is equipped with a **backlit LCD icon display** and **NFC connectivity** for quick and easy configuration, even from smartphones and tablets. ADXL soft starters are ideal for simple **"plug and play"** applications thanks to their installation wizard and also for applications that demand **high-performance** in terms of control and protection during motor startup and operation.



Efficiency |

Two-phase control during motor starting and stopping combined with torque control during operation **reduce thermal power dissipation**.
After startup, the soft starter's internal by-pass contacts close to **minimise energy consumption**.

Safety |

ADXL soft starters have integrated functions to protect the motor and the starter itself. They are also able to **monitor motor temperature** and their own internal temperature, in order to protect their SCR devices against overtemperature.
Motor overtemperature protection can also be provided through an external PTC temperature sensor.

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1 FUNCTIONALITY

TORQUE CONTROL

Soft starters in the new two-phase control range include a torque control function. This solution permits gradual acceleration and deceleration, with a significant reduction in wear and failures in power transmission devices.

KICK START

This function allows motors to be started when initial torque is insufficient to overcome friction. The function delivers high torque only during the very first moments of the startup.

EMERGENCY START

In conditions where motor operation has priority over motor or starter failure, a starter input can be provided to override all the protections/alarm that would otherwise prevent motor startup.

DEFAULT SETUP FOR FIRE FIGHTING PUMPS

A "fire fighting pump" application can be selected from the setup wizard. This parameter setup is optimised for starting fire fighting pumps and overrides alarms and protections. In fire fighting applications, the main priority is to get the pump running, without considering the possible consequences for starter and motor.

PROTECTIONS

- motor: thermal protection, PTC protection, locked rotor, current asymmetry, startup time-out, minimum torque and motor not connected
- auxiliary power supply; voltage too low or transient power-outages longer than permitted limit
- power supply: no power supply, phase missing, wrong phase sequence and frequency out of range
- soft starter: overtemperature, overcurrent, SCR fault, bypass relay fault, temperature sensor fault and fan fault.

MAINTENANCE COUNTERS

ADXL soft starters have two separate counters for counting the number of startups and the hours of motor operation. A threshold can be set for hours of operation and a dedicated service alarm triggered when this threshold is exceeded.

THERMOSTAT FAN

Thermostat fans are available as accessories for sizes from 30 to 115A and are built-in on larger sizes. The fan is only activated when necessary in order to increase its working life.
ADXL soft starters can also monitor fan operating conditions and signal blockages or faults through two specific alarms.

DISPLAYED MEASUREMENTS

Maximum current, L1 current, L2 current, L3 current, torque, average line voltage, total active power, total PF, motor temperature, starter temperature, energy, motor hour counter, startup counter, input/output state.

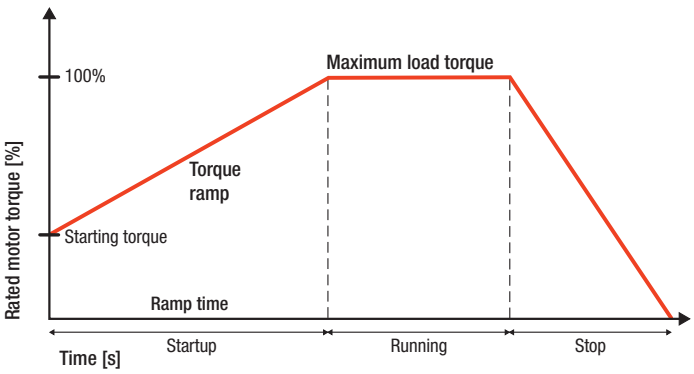
INPUTS, OUTPUTS AND PROGRAMMABLE LIMITS

Input and output functions are preconfigured with the most frequently used settings.
Users can nevertheless easily modify default configurations to adapt the soft starter to the requirements of their own application.
All inputs and outputs can be configured.
On all sizes available it is also possible to define programmable limit thresholds and connect them to a relay or alarm.

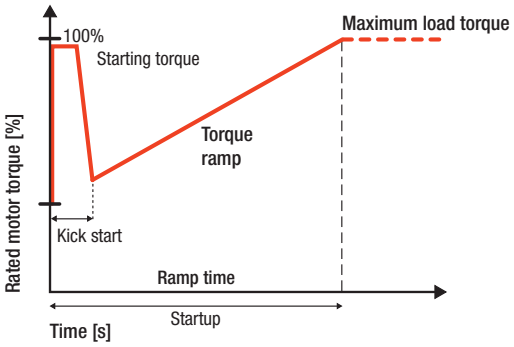
DIN RAIL MOUNTING

The EXP80 03 accessory is available for sizes from 30 to 115A to mount the soft starter on a 35mm DIN rail.

Torque control



Kick start



2 USER INTERFACE

AUTO SETUP

On power-up, the soft starter launches a wizard to simplify setup. Users can configure the soft starter in 4 simple steps:

- **language:** users can choose their preferred language for text display. Available languages are: English, Italian, French, Spanish, Portuguese and German;
- **motor current size:** nominal motor current can be set between 50 and 100% of the soft starter size;
- **application type:** default configurations are provided for most common applications: centrifugal pump, fire fighting pump, conveyor belt, fan, mixer and generic. If users select a default configuration, the soft starter automatically updates its parameter settings to suit the chosen application;
- **starter duty:** depending on motor load, the same application can be standard or heavy duty. ADXL soft starters automatically adapt to motor starts and stops at 3 duty levels (standard, heavy and light) and adjust the relevant parameters according to user choices.

Expert users can also customise settings using the complete parameter menu.

USER INTERFACE

A specially designed backlit icon display presents data to the user in a clear and immediate way:

- alarm messages in 6 languages (ENG-ITA-FRA-SPA-POR-DEU);
- 6 icons for default setups: centrifugal pump, fire fighting pump, conveyor, fan, mixer and generic;
- two graphic bars show motor temperature and soft starter thyristor temperature;
- two alphanumeric sections display messages and measurements;
- a status bar shows soft starter status: start, bypass, stop, alarm, etc..

PASSWORD

Access to soft starter parameters can be protected by user customisable passwords. There are two access levels: basic and advanced.
Serial communication can also be locked using a remote control password.

RS485 COMMUNICATIONS AND REMOTE KEYPAD

All ADXL series soft starters are equipped with a slot for an EXC 1042 MiniCard expansion for RS485 communications.
The RS485 port can be used to connect the EXC RDU1 remote keypad and to display measurements on a control panel door.

Remote keypad (IP54)

Communication card RS485

Soft starters

3 AUTO SETUP

ADXL FROM POWER-U TO START-UP IN 4

1 Language

2 Rated motor current

P

EASY STEPS

3
Type of application

4
Duty of startup

PROGRAMMING

ADXL series soft starters are equipped with NFC technology to simplify the parameter setting procedure. Using a compatible smartphone or tablet and the LOVATO NFC App, users can download, save and edit parameters even with the soft starter switched off. The front of the soft starter incorporates an optical port compatible with CX01 dongles, for connection to a PC via Xpress software, or with CX02 dongles for Wi-Fi connection to a PC or Sam1 App.

NFC

APP for smartphone and tablet

Using LOVATO's NFC App users can program parameters and save settings into their smartphones or tablets. Available only for Android devices.

Sam1

APP for smartphone and tablet

The Sam1 App allows users to configure their soft starters, view alarms, send commands, read measurements, download events and send collected data via e-mail. Connection to the CX 02 dongle is by Wi-Fi from a smartphone or tablet. The App is compatible with iOS and Android.

MONITORING AND REMOTE CONTROL

Thanks to the optional EXC 1042 RS485 communication module, compatibility with supervision and energy management Synergy software and Xpress configuration and remote control software, users can keep all soft starter values under constant control and edit setup parameters too.

Xpress software allows the soft starter to be configured rapidly from a PC, avoiding possible parameter programming errors.

The parameter settings of ADXL soft starters can also be saved to PC and quickly uploaded to another device that needs the same settings.

The following operations are possible:

– graphic and numerical display of soft starter measurements and states
– access to all set-up parameters
– saving / uploading of parameters
– highlighting of changed values
– resetting to default values.

Synergy software allows soft starters to be remotely controlled and monitored.

The software's organisation and functions are based on SQL relational databases, and data can be consulted using most popular browsers.

The system is highly versatile and simultaneously accessible to a large number of users via an intranet, VPN or the Internet.

CHARACTERISTICS

General characteristics

- backlit LCD display
- texts available in 6 languages (ENG-ITA-FR-ES-POR-DE)
- IEC rated starter current Ie from 30 to 320A
- IEC rated motor power 18.5...200kW (500VAC)
- torque and voltage ramp startup
- kick start
- maximum starting current
- free wheel or controlled stop
- sequential startup of up to 4 motors
- built-in bypass relay
- optical port for programming, data downloads and diagnostics through Xpress software and Sam1 Apps
- NFC technology for parameter programming through NFC App
- RS485 communications with optional card (EXC 1042)
- Modbus-ASCII and Modbus-RTU communication protocols
- Synergy supervision and remote control software.

Operational characteristics

- two phase control
- input voltage: 208...600VAC ±10%
- network frequency: 50/60 Hz ±10% self-configurable
- 100...240VAC auxiliary power supply
- signalling LED: power supply within limits, signalling of startup or bypass phase, alarm
- three programmable outputs 1 changeover contact, 2 normally open contacts
- two programmable digital inputs
- one programmable digital input, that can also be used as a PTC input (optional).

Certification and conformity

Certifications pending:
cULus; EAC.
Compliant with standards:
IEC/EN 60947-1, IEC/EN 60947-4-2,
UL508, CSA C22.2 n° 14.

ORDER CODES

SOFT STARTERS

ADXL 0030 600 ... ADXL 0060 600

ADXL 0075 600 ... ADXL 0115 600

ADXL 0135 600 ... ADXL 0162 600

ADXL 0190 600 ... ADXL 0320 600

Rated operational voltage Ue, 208...600VAC ± 10%.
Rated control supply voltage Us, 100...240VAC.

Order code	Rated starter current Ie	IEC rated motor power			FLA	UL508 rated motor power				
		230 VAC	400 VAC	500 VAC		208 VAC	220/240 VAC	380/415 VAC	440/480 VAC	550/600 VAC
	[A]	[kW]	[kW]	[kW]	[A]	[HP]	[HP]	[HP]	[HP]	[HP]
For standard and heavy-duty applications. With built-in bypass relay. 100...240VAC auxiliary power supply. Start control from dry contact.										
ADXL 0030 600	30	7.5	15	18.5	28	10	10	15	20	25
ADXL 0045 600	45	11	22	30	44	10	15	25	30	40
ADXL 0060 600	60	15	30	37	60	20	20	30	40	50
ADXL 0075 600	75	22	37	45	75	25	25	40	50	60
ADXL 0085 600	85	22	45	55	83	25	30	50	60	75
ADXL 0115 600	115	37	55	75	114	40	40	60	75	100
ADXL 0135 600	135	37	75	90	130	40	50	75	100	125
ADXL 0162 600	162	45	90	110	156	50	60	75	125	150
ADXL 0195 600	195	55	110	132	196	60	60	100	150	150
ADXL 0250 600	250	75	132	160	248	75	100	150	200	250
ADXL 0320 600	320	90	160	200	320	100	125	200	250	300

ACCESSORIES

CX 01

CX 02

EXC RDU1

EXC 1042

EXC CON 01

EXC M3G 01

EXP80 03

Order code	Description
CX 01	USB connection dongle PC ↔ ADXL for programming, data download, diagnostics and firmware update
CX 02	Wi-Fi connection dongle PC ↔ ADXL for programming, data download, diagnostics and configuration cloning
EXC RDU1	Remote keypad, LCD display with touchscreen, 128x112 pixels, IP54 protection rating
EXC 1042	RS485 communication card
EXC CON 01	RS485/Ethernet converter, 12...48VDC, including DIN mounting guide kit
EXC M3G 01	RS485 gateway/3G modem, 9.5...27VAC/9.5...35VDC, including antenna and programming cable
EXP80 03	DIN guide mount kit for ADXL 0030...ADXL 0115
EXP80 04	Fan for ADXL 0030...ADXL 0115 (codes ADXL 0075...ADXL 0115 max. of two EXP80 04 fans)

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