GP
ADXL

95.0%
TORQUE

POWER RUN ALARM

PREV
MENU
STOP
RESET
START
+
NEXT

NFC

- Sizes from 6 to 640A
- For standard and severe duty
- Versions with 2 or 3 phase control
- Versions with advanced functions for the control of the motor
- Startup with torque control, voltage ramp with current limit
- Protection functions for the motor and the soft starter
- Digital control and adjustment
- NFC connectivity for a simple, fast and intuitive programming with smartphone and App
- Versions with optional communication port for control and supervision

Pag. 5-6

ADXN…
- Two phase control
- For standard duty
- IEC rated soft starter current Ie 6...45A
- IEC rated motor power 2.2...22kW (400VAC)
- Rated operational voltage 208...600VAC
- Version with auxiliary supply voltage 24VAC/DC or 100...240VAC
- Built-in bypass relay
- Starting with voltage ramp
- Basic version with parameter setting with potentiometers on front
- Version with NFC connectivity for the programming with smartphone and App
- Advanced version with potentiometers and NFC connectivity, optical port, integrated motor thermal protection and optional RS485 module, Modbus-RTU protocol
- Integrated protections for the motor and soft starter
- LEDs for status signaling and diagnostics
- Compact housing, 45mm width
- Screw fixing or 35mm DIN rail mounting
- cULus certification.

Pag. 5-8

ADXL…
- Two phase control
- For standard and severe duty
- IEC rated soft starter current Ie 18....320A
- IEC rated motor power 7.5...160kW (400VAC)
- Rated operational voltage 208...600VAC
- Auxiliary supply voltage 100...240VAC
- Built-in bypass relay
- Starting with voltage ramp or torque control
- Maximum starting current limitation
- Integrated protections for the motor and soft starter
- Backlit LCD icon display
- LEDs for status signaling and diagnostics
- Optical port for programming, data download and diagnostics from PC
- NFC connectivity for the programming with smartphone and App
- Optional RS485 communication card, Modbus-RTU protocol
- cULus certification.

Pag. 5-10

ADXT…
- Three phase control
- For standard and severe duty
- IEC rated soft starter current Ie 34...554A
- IEC rated motor power 18.5...315kW (400VAC)
- Rated operational voltage 380...690VAC
- Versions with auxiliary supply voltage 110...120VAC and 220...240VAC, or version 24VAC/DC
- Built-in bypass contactor
- In-line or inside delta connection
- Starting with constant current, current ramp, voltage ramp or adaptive control
- Maximum starting current limitation
- Integrated protections for the motor and soft starter
- Backlit LCD graphic display
- LEDs for status signaling and diagnostics
- Optional RS485 (Modbus-RTU protocol) or Ethernet (Modbus-TCP protocol) communication cards
- cULus certification.

Pag. 5-10

51ADX…
- Three phase control
- For severe duty
- IEC rated soft starter current Ie 17...640A
- IEC rated motor power 7.5...355kW (400VAC)
- Rated operational voltage 208...500VAC (51ADX...B), 208...415VAC (51ADX...)
- Auxiliary supply voltage 208...240VAC
- Built-in bypass contactor up to 245A. Predisposed for external bypass contactor for the upper sizes
- Starting with voltage ramp or torque control
- Maximum starting current limitation
- Backlit LCD icon display
- LEDs for status signaling and diagnostics
- Built-in RS232 port for remote control from PC, Modbus-RTU and property ASCII protocols
- Built-in RS485 port for the connection of the optional remote keypad.

Guide for selecting

	ADXN	ADXL	ADXT	51ADX
Number of controlled phases	2	2	3	3
Built-in bypass	●	●	●	● (up to 245A)
Built-in display and keypad	—	●	●	●
Languages	—	6	8	4
View measurements	—	●	●	●
Torque control	—	●	●	●
Adjustable current limit	● (ADXNP)	●	●	●
Dynamic braking	—	—	●	●
Kick start function	—	●	●	●
Electronic motor thermal protection	● (ADXNP)	●	●	●
Motor protection thermistor input	—	●	●	●
Inside delta connection	—	—	●	—
Protection against phase loss	●	●	●	●
Protection against phase inversion	●	●	●	●
Protection against locked rotor	● (ADXNP)	●	●	●
Protection against thyristor overtemperature	●	●	●	●
Protection against low load	● (ADXNP)	●	●	●
Programmable alarm functions	● (ADXNF, ADXNP)	●	●	●
Digital inputs	● (start)	●	●	●
Analog input	—	—	—	●
Digital outputs	●	●	●	●
Analog output	—	—	●	●
Communication port	○ (ADXNP, RS485)	○ (RS485)	○ (RS485, Ethernet)	● (RS232)
Optical port for programming	● (ADXNP)	●	—	—
USB port for programming	—	—	●	—
Event log	—	●	●	●
Motor hour counter	—	●	●	●
Motor startup counter	—	●	●	●
Clock calendar	—	—	●	●
Remote external keypad	○ (ADXNP)	○	○	○
cULus certification	●	●	●	—

● Standard
○ With optional module or card
— Not available

Lovato electric

ADXN series: Simple, Compact and Functional

The soft starters ADXN series are the ideal solution for those who need a **simple, compact and fast to configure** product for the gradual control of the starting and stopping of the motors.
Their **versatility** makes them suitable for several applications such as the control of pumps, fans, conveyor belts, compressors and they are available with **rated currents from 6 to 45A**.

● VERSIONS
The soft starters ADXN series are available in three versions.

Basic version (ADXNB)

Ideal solution for those who need a soft starter with basic functions and extremely simple to configure, with only the need to control the gradual starting and the stopping of the motor. The configuration requires the settings of only 3 parameters (starting voltage, acceleration ramp and deceleration ramp) adjusted with 3 **potentiometers** present on the front of the soft starter.

NFC version (ADXNF)

Version provided with **NFC** (Near Field Communication) connectivity for the programming via smartphone and LOVATO **NFC** App. The default settings make it ready to use for the control of scroll compressors, typically used in conditioning systems, refrigerators and heating pumps without need for any programming. Thanks to the NFC antenna integrated on the front, it is however, possible to modify the parameters of the soft starter via smartphone for the control of loads different from compressors, like pumps, fans, conveyors, etc, solution which makes ADXNF extremely flexible for any kind of application.
The setting of parameters in digital format guarantees accuracy and repeatability, with possibility to set the programming on the smartphone to be immediately transferred to other ADXNF devices. It is also possible to configure a password for the locking of the settings to protect the soft starter against tampering of the parameters by unauthorized personnel.

Advanced version (ADXNP)

CX01

CX02

CX04

Version which provides the **electronic thermal protection** of the motor, obtained thanks to the presence of integrated current transformers, which allow the protection of the motor against overload and the management of starting ramps with current limiting, which are automatically adapted to follow the load variations. The soft starter ADXNP can also be equipped with an **optional RS485 communication module (CX04)** in order to be integrated in a remote control and supervision system. It is provided with both **potentiometers** on front for the setting of the basic parameters (starting voltage, acceleration ramp and deceleration ramp) and **NFC connectivity** for the programming of the advanced parameters through the LOVATO **NFC** App, such as the rated motor current, the tripping thermal class, protection thresholds, password, communication parameters, the function of the relay outputs and alarm properties. The **frontal optical port** allows the programming, data download and diagnostics from PC and App with the optional USB (CX01) and Wi-Fi (CX02) devices.

● COMPACT DIMENSIONS
The soft starters ADXN series are characterized by two phase control and are realized in an extremely compact enclosure **only 45mm wide** for the entire range up to 45A (divided in 2 mechanical sizes that differ in height and depth).

6...18A

25...45A

45mm   45mm
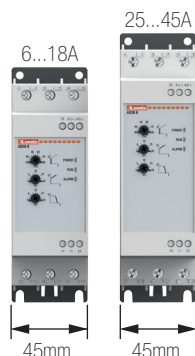
● SIMPLICITY
They are extremely **simple and quick to configure**. The control of the motor requires only the setting of **few and intuitive parameters**, such as the ramp times and the starting voltage, which can be configured according to the version with potentiometers on front or via smartphone with NFC connectivity and LOVATO **NFC** App, available for free for iOS and Android smart devices.

● WIDE OPERATIONAL VOLTAGE RANGE
They are characterized by a wide rated line voltage range, which extends **from 208 to 600VAC**; this makes them suitable for every market, every market, including North America, without needs to manage different codes according to the supply voltage available in the system.

● AUXILIARY POWER SUPPLY
All the three versions of ADXN are available with 2 auxiliary supply voltages: **24VAC/DC**, typical voltage available in the automation control panels, or **100-240VAC**, typical voltage available for example in the panels for pumps control.

● INTEGRATED PROTECTION FUNCTIONS
They integrate several functions for the protection of the motor and the soft starter, such as:
– soft starter thermal protection made by a built-in temperature probe
– controls on the line voltage: voltage and frequency out of limits, phase loss, wrong phase sequence
– electronic thermal protection of the motor (ADXNP version only).
The protection thresholds and tripping delays are configurable on the versions provided with NFC connectivity (ADXNF and ADXNP) and can be individually enabled or disabled.

● **NFC CONNECTIVITY**
The ADXNF and ADXNP versions are provided with NFC connectivity integrated on the front, which allows the modification of the parameters in a **fast, simple and intuitive** way directly from the **smartphone** with **LOVATO NFC App.**
The programming can be saved on the smartphone to be copied to other soft starters of the same model series extremely quickly, even with the device powered off, a solution ideal for those who make programming in series. It is also possible to set a password to protect the parameters against tampering by unauthorized personnel.
The LOVATO NFC App is available for **Android and iOS** smart devices and it is freely downloadable from Google Play Store and App Store.

● **ELECTRONIC MOTOR THERMAL PROTECTION (ADXNP version only)**
The advanced version ADXNP integrates current transformers for the measure of the current flowing in the motor phases, allowing the soft starter to thermally protect the motor commanding it to stop when the current exceeds the rated value for an extended time, without the need to install an external thermal overload relay, resulting in cost, space, wiring and installation time savings. The thermal protection is electronic type and it is possible to set a double protection class: one for the starting and one for the running, and choice between class 10, 15, 20 and 25 according to the duty level of the application.

● **OPTICAL PORT FOR COMMUNICATION (ADXNP version only)**
The advanced version ADXNP is provided with optical port on front for the connection of the optional USB (CX01) or Wi-Fi (CX02) devices, by which the soft starter can be connected to a PC with software Xpress, smartphone and tablet with LOVATO Sam1 App programming and diagnostic in simple and safe way, by operating directly from the front of the soft starter without the need to disconnect the electrical power supply.

Xpress

Sam1

CX01 CX02

● **RS485 COMMUNICATION PORT (ADXNP version only)**
The advanced version ADXNP can be equipped with the optional RS485 Modbus-RTU communication module CX04. This enables the integration in a supervision and monitoring system or to communicate with a Modbus master like a PLC, an HMI or the remote display unit EXCRDU2, display unit EXCRDU2, through which it is possible to control and monitor up to 32 starters connected in RS485. The module is supplied 24VAC/DC and it connects in simple and fast way to the optical port of the soft starter with screw fixing. Compatible with Synergy supervision and energy management software.

CX04

EXCRDU2

● **BUILT-IN BYPASS**
All the versions integrate a **bypass** relay which automatically deactivates the thyristors circuit once the acceleration ramp is completed and the motor reaches its rated speed, reducing the heat and the power dissipation, which consequently results in **energy saving**. The presence of the bypass also increases the reliability of the soft starter, by protecting the internal thyristors against unpredictable phenomena on the network during the motor running, such as short circuits, overcurrents or overvoltages.

● **2 RELAY OUTPUTS INTEGRATED**
The soft starters ADXN have 2 built-in relay outputs with NO contact for signaling functions or for the command of external devices. The function of the outputs is fixed on the basic version ADXNB, while it is programmable on the versions ADXNF and ADXNP and choice between line contactor control, TOR (Top Of Ramp), alarm and maximum torque.

● **PASSWORD FOR THE PROTECTION OF THE SETTINGS**
The access to the parameters of the soft starters ADXNF and ADXNP can be locked with a password configurable with the LOVATO NFC App to protect the settings against tampering by unauthorized personnel.

● **FRONTAL LEDS**
All the three versions have 3 LEDs on the front for the signalling of the presence of auxiliary power supply, run status and alarm. In case of active alarm the alarm LED is flashing and the type of alarm in progress can be identified by the number of flashes.
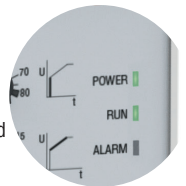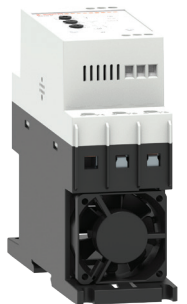

● **MOUNTING**
The soft starters ADXN can be fixed with screws on the rear panel or on 35mm DIN rail (IEC/EN/BS 60715). For the screw fixing there are 4 holes on the base of the soft starter, while for the DIN rail fixing there is a rubber pad insert which prevents the soft starter from sliding on the DIN rail.
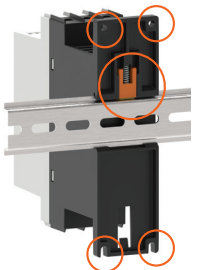
● **FAN**
It is possible to install on the soft starter ADXN up to 30A an optional fan **40x40mm** (already built-in on the sizes 38A and 45A) to improve the heating dissipation performances and increase the number of starts per hour. The fan is supplied directly by the soft starter through a pre-wired cable which is completely hidden inside the soft starter enclosure. The presence of the fan doesn't affect the dimensions of the soft starter ensuring the maintenance of compact dimensions.

● **RIGID CONNCECTION FOR THE DIRECT MOUNTING TO A MOTOR PROTECTION CIRCUIT BREAKER (MPCB)**
The rigid connection SM1X3150R allows the direct mounting of the ADXN to a motor protection circuit breaker type SM1R (rotary knob type) up to size 38A, creating a compact starter and reducing installation time. SM1X3150R includes an accessory for the support of the weight of the soft starter when hooked to the MPCB, to be fixed with screws to the panel and compatibile with both high and low DIN rail.

ADXL SERIES: SIMPLE, EFFICIENT AND SAFE MOTOR CONTROL

SIMPLE
The ADXL soft starter series is equipped with a backlit LCD display with icons and NFC connectivity, for a simple configuration via smartphones and tablets. They are ideal for "plug and play" applications, thanks to the installation AUTO SET wizard, and for high-performance applications, with control and protection during the motor startup and operation.

EFFICIENCY
The two phase control during the start and stop of the motor allows a reduction of the power consumption and the heat dissipation. Once the starting ramp is completed, the soft starter closes the internal bypass contacts and reduces the energy consumption.

SAFETY
ADXL integrated functions allow to protect the motor and the soft starter; it's capable of monitoring the motor thermal status, to manage the thermal protection, and its internal temperature, in order to protect the thyristors from overtemperature. Furthermore, a motor overtemperature protection can be enabled through an external PTC temperature sensor.

● AUTO SET
Upon startup, the soft starter launches a user wizard to simplify the setup. The user can set the device through 4 simple parameters:
– **language:** it is possible to choose the text view by selecting the preferred language, at choice between: English, Italian, French, Spanish, Portuguese, German;
– **rated motor current:** the motor nominal current can be set between 50% and 100% of the rated soft starter current;
– **application type:** it includes predefined setups for the most common applications: centrifugal pump, fire fighting pump, conveyor belt, fan, mixer and general purpose. By selecting one type, the soft starter automatically updates the parameter programming to adapt to the requested application.
– **soft starter duty level:** the same application, based on the load connected to the motor, can be more or less heavy-duty. ADXL is capable of automatically adapting to standard or heavy-duty startups by adjusting the maximum starting current limit based on the user selection.
Expert users can customize the settings through the complete parameter menu.
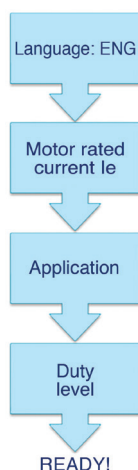
● EASY SETUP
The ADXL series soft starters are equipped with NFC connectivity to simplify the parameter setting procedure. Using a compatible smartphone or tablet, the user, can download, save and edit the parameters using the LOVATO NFC App even with the soft starter powered off. On the front it has a built-in optical port compatible with the CX01 device, to connect the ADXL via USB to a PC with Xpress software, and the CX02 device, for Wi-Fi connection to a PC with Xpress software or to smartphone and tablet with LOVATO Sam1 App.

LOVATO NFC App and LOVATO Sam1 App freely downloadable from Google Play Store and App Store.

ANDROID APP ON Google play

Available on the App Store

ADXL: from start-up to operation in 4 steps

Language: ENG

Motor rated current Ie

Application

Duty level

READY!

TORQUE CONTROL

The torque control function allows to perform gradual accelerations and decelerations of the motor, with significant reduction of mechanical faults and wear of the transmission devices.
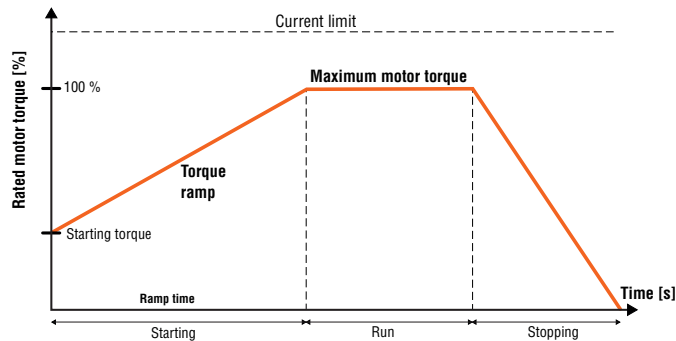
KICK START

This function allows to start the motor when the initial torque is not sufficient to overcome friction forces typical of high inertia loads, by providing a high torque during the very first moments of the startup.
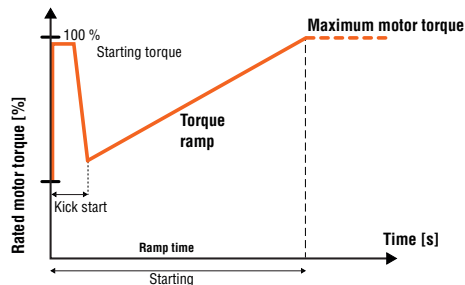
● **EMERGENCY START**

In situations where the motor operation is absolutely prioritized over the possibility of motor or soft starter failure, it is possible to program a digital input to inhibit the activation of all protections and alarms that prevent the motor start-up.

● **FIRE FIGHTING PUMP PRESET SETUP** Ⓕ

In the AUTO SET wizard it is possible to select the fire fighting pump application. This setting is optimized to start fire fighting pumps overriding all alarms and protections. In this situation, the main priority is the pump start-up, without considering the possible consequences for the pump starter and motor.

● **INPUTS, OUTPUTS, LIMITS AND REMOTE VARIABLES**

The input and output functions are preset with the most common settings; however, the user can easily edit the preset configuration to adapt the soft starter to the application needs. All inputs and outputs can be edited. There are three types of programmable internal variables:
– limit thresholds
– remote variables
– user alarms.

● **MAINTENANCE COUNTERS**

ADXLs have two maintenance counters dedicated for the counting of the number of motor starts and the motor working hours, on which it is possible to set a threshold, that when exceeded, an alarm is triggered.

● **COOLING FAN**

It is possible to equip the ADXL soft starters from 18 to 115A with an optional fan (built-in as standard for the higher sizes) to improve the heating dissipation performance and increase the number of permissible starts per hour. The fan is supplied directly by the soft starter that controls its activation and it monitors its status, by signaling anomalies with dedicated alarms.

● **DIN RAIL MOUNTING**

For sizes from 18 to 115A, the EXP8003 accessory is available to mount the soft starter on a 35mm DIN rail.

● **USER INTERFACE**

A backlit icon display shows the data to the user in a clear and immediate way.
• Alarm texts available in 6 languages (ENG-ITA-FR-ES-POR-DE)
• 6 icons indicate the default setup in use: centrifugal pump, fire fighting pump, conveyor belt, fan, mixer and general purpose
• Two graphic bars show the motor and thyristors thermal status
• An alphanumeric display shows texts and measures
• A status bar shows the soft starter status: start, bypass, run, stop.
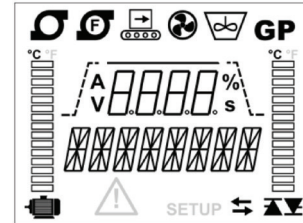
● **PASSWORD**

Access to the soft starter parameters can be protected by user customizable passwords. There are two access levels, user and advanced. Furthermore, it's possible to block the serial communication using the remote control password.

● **RS485 COMMUNICATION AND REMOTE DISPLAY UNIT**

ADXL soft starters are equipped with a slot for the optional RS485 card with Modbus-RTU protocol EXC1042. RS485 communication can be used to connect the soft starter to a supervision software (e.g. Synergy) or for the connection to the EXCRDU2 remote display unit, for the monitoring of the measures, the command of motor start and stop, and the setup from the panel door.
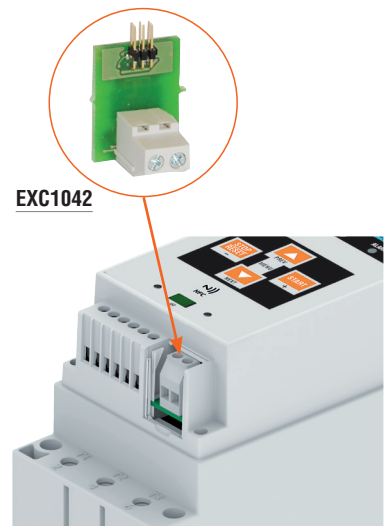
EXC1042

EXCRDU2

● **MONITORING AND REMOTE CONTROL**

Through the optional EXC1042 communication card and compatibility with the supervision and energy management software **Synergy**, setup and remote control software **Xpress**, it's possible to constantly monitor all the measures available on the soft starter, the soft starter status, see live trends and edit the parameters.
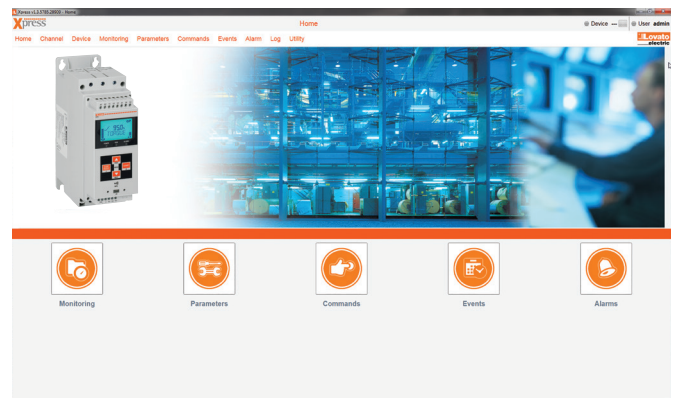
ADXT SERIES:
HIGH PERFORMANCE, GREAT FUNCTIONALITIES

ADXT is the ideal soft starter for applications that require high performance, great reliability and robustness. Provided with advanced features and integrated protections, it provides an accurate control of the motor starting and stopping and allows to reduce the energy consumption for constant speed applications.

THREE PHASE CONTROL
The three phase control allows the soft starter to provide a higher torque in the very first instants of the starting ramp compared to a soft starter with two controlled phases at the same current. This characteristic makes it particularly suitable for the control of heavy-duty applications, characterized by high inertia, such as crushers, fans, vertical or inclined conveyors, screw compressors, centrifuges, propellers, mills, band or circular saws, shredders.

WIDE OPERATING VOLTAGE RANGE UP TO 690VAC
ADXT can be installed in systems with rated voltage from 380 to 690VAC, a selling point that makes it extremely versatile for every market, including North America.
Two versions are available, which differ in the auxiliary supply voltage: version with supply 110...120VAC and 220...240VAC and version with supply 24VAC/DC.

INTEGRATED BYPASS
The entire range integrates the bypass contactor, that disables the thyristors once the motor starting is completed, reducing the energy consumption, the heating generated and the power dissipation.

MULTI-LANGUAGE GRAPHICAL DISPLAY
The backlit LCD graphic display provides a clear and complete visualization of the status of the soft starter and electrical measurements, with extended texts, feedback messages, and a real-time performance graph. It supports 8 languages (English, Italian, French, Spanish, Portuguese, German, Chinese, Russian), and allows the customization of the display screens with the desired parameters.

● IN-LINE OR INSIDE DELTA CONNECTION
The ADXT soft starters can be installed either with the traditional in-line connection or with the inside delta connection (six-wire connection), with thyristors connected in series to each motor winding, a configuration common in the United States and many other countries. In this configuration, which requires special six-wire motors, the soft starter is only crossed by the phase current, significantly lower than the line current. This allows the use of a smaller starter, resulting in cost savings, and simplifies the replacement of star-delta starters since the existing wiring is retained.

In-line connection
L1 L2 L3

Inside delta connection
L1 L2 L3

● QUICK SETUP AND SIMULATION
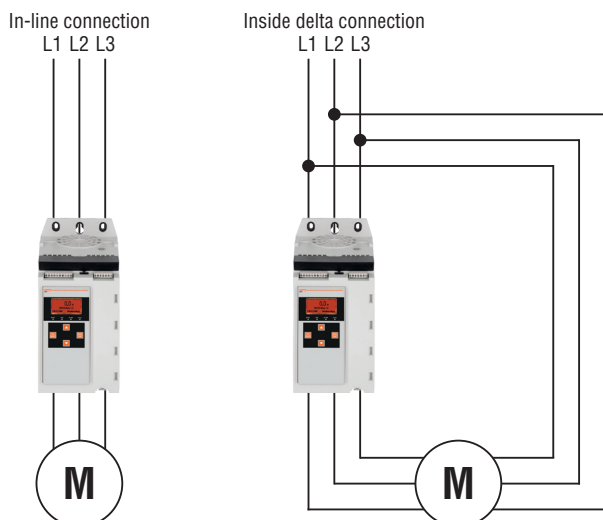A quick setup menu is available for the fast configuration of the soft starter, which guides the user during the configuration by suggesting typical settings for the most common applications. Additionally, with the simulation mode, it's possible to simulate the start-up, operation, and shutdown of the motor to verify the correct functioning of the soft starter and the associated equipment.

5

● STANDARD OR HEAVY DUTY SERVICE

They are suitable for controlling both standard loads, with typical starting currents between 3 and 4 times the rated current of the motor, and heavy loads with higher starting currents such as 5 times the rated current. Depending on the starting current and the ramp-up time, the soft starter is capable of providing a more or less high continuous output current. The tables present in the catalog offer a guide for the proper selection of the code according to the duty level of the load.

● INTEGRATED PROTECTIONS

Several integrated functions are available for the protection of the motor, system, and the soft starter, including: motor thermal protection against overload, overcurrent, phase loss, incorrect phase sequence, load too low (protection against dry running), overvoltage, undervoltage, excessive starting time, current asymmetry, overtemperature, motor protection with thermistor, and many others.

● MOTOR CONTROL MODES

The ADXT soft starters integrate several modes for controlling the motor start and stop, making them extremely versatile for any type of application: starting with constant current, current ramp, voltage ramp, adaptive control, kick start, starting with current limitation, pump cleaning cycles, controlled or coasting stop, DC injection braking, gradual braking with braking contactor control, contactor control for reverse direction, jog function, and scheduled starts.
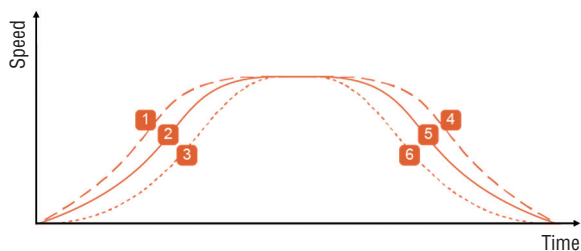
❶ Early acceleration
❷ Constant acceleration
❸ Late acceleration
❹ Late deceleration
❺ Constant deceleration
❻ Early deceleration

● POWER THROUGH AND EMERGENCY MODE

Two functions are available for the starting of the motor in emergency situations:
• The function PowerThrough, if enabled, allows the soft starter to control the motor even if one of the three thyristors is damaged, allowing the motor to start with control over two phases, minimizing machine downtime.
• The emergency mode function, controlled via a digital input, instead allows the soft starter to keep the motor running, ignoring any fault or alarm condition, prioritizing motor control in case of emergency.

● USB PORT AND OPTIONAL COMMUNICATION CARDS

On the top of the soft starter, there is a USB port for the connection of a USB pen drive through which it is possible to:
• upload the parameter configuration file
• download the event log
• modify the languages
• update the soft starter firmware.
The configuration of the exportable files via USB is done with a PC with the software ADXTSW, downloadable from the website www.LovatoElectric.com. If it is necessary to integrate the soft starter into a control and supervision network, two optional communication cards are also available with an RS485 (Modbus-RTU protocol) or Ethernet (Modbus-TCP protocol) port.

● SCHEDULED START

It is possible to configure the soft starter to automatically start or stop the motor at a specific time of day or on certain days of the week based on the integrated clock calendar.

● cULus CERTIFICATION

The ADXT soft starters are cULus certified, an essential requirement for sales in the US and Canadian markets.

Basic version
ADXNB… type

ADXNB…

Order code	IEC rated starter current Ie	Rated motor power ≤40°C			Qty per pkg	Wt
		400V	400-480V	550-600V		
	[A]	[kW]	[HP]	[HP]	n°	[kg]

Parameters setting with potentiometers.
Built-in bypass relay and 2 relay outputs.
Rated operational voltage 208...600VAC
Auxiliary supply voltage 100...240VAC.

ADXNB006	6	2.2	3	5	1	0.540
ADXNB012	12	5.5	7.5	10	1	0.540
ADXNB018	18	7.5	10	15	1	0.540
ADXNB025	25	11	15	20	1	0.720
ADXNB030	30	15	20	25	1	0.720
ADXNB038	38	18.5	25	30	1	0.750
ADXNB045	45	22	30	40	1	0.750

Auxiliary supply voltage 24VAC/DC.

ADXNB00624	6	2.2	3	5	1	0.540
ADXNB01224	12	5.5	7.5	10	1	0.540
ADXNB01824	18	7.5	10	15	1	0.540
ADXNB02524	25	11	15	20	1	0.720
ADXNB03024	30	15	20	25	1	0.720
ADXNB03824	38	18.5	25	30	1	0.750
ADXNB04524	45	22	30	40	1	0.750

NFC version
ADXNF… type

ADXNF…

NFC

Order code	IEC rated starter current Ie	Rated motor power ≤40°C			Qty per pkg	Wt
		400V	400-480V	550-600V		
	[A]	[kW]	[HP]	[HP]	n°	[kg]

NFC connectivity for parameters setting with smartphone and App.
Built-in bypass relay and 2 relay outputs.
Rated operational voltage 208…600VAC
Auxiliary supply voltage 100...240VAC.

ADXNF006	6	2.2	3	5	1	0.540
ADXNF012	12	5.5	7.5	10	1	0.540
ADXNF018	18	7.5	10	15	1	0.540
ADXNF025	25	11	15	20	1	0.730
ADXNF030	30	15	20	25	1	0.730
ADXNF038	38	18.5	25	30	1	0.760
ADXNF045	45	22	30	40	1	0.760

Auxiliary supply voltage 24VAC/DC.

ADXNF00624	6	2.2	3	5	1	0.540
ADXNF01224	12	5.5	7.5	10	1	0.540
ADXNF01824	18	7.5	10	15	1	0.540
ADXNF02524	25	11	15	20	1	0.730
ADXNF03024	30	15	20	25	1	0.730
ADXNF03824	38	18.5	25	30	1	0.760
ADXNF04524	45	22	30	40	1	0.760

General characteristics
ADXN... is a soft starter with two phase control for the gradual control of the start and stop of asynchronous motors. Its main strengths are the simplicity of configuration, thanks to a short set of parameters which allows the programming simple and fast, and the compactness, thanks to the enclosure only 45mm wide which makes it suitable for the installation in panels with limited spaces.
It can be used for several applications such as the control of pumps, fans, compressors, conveyor belts and mixers.
It is available with rated current from 6 to 45A, suitable for the installation in systems with rated line voltage from 208 to 600VAC 50/60Hz.
The series consists of 3 versions which differs in the type of programming mode (settings with potentiometers on front or via smartphone with NFC connectivity and App) and integrated functions.
Every version is available in double variant with auxiliary supply voltage 24VAC/DC or 100...240VAC to suit every need based on the voltage present in the plant.

BASIC VERSION ADXNB
The soft starter ADXNB is the ideal solution for those who need a soft starter with basic functions and extremely simple to configure. The configuration requires the settings of only 3 parameters adjusted with potentiometers present on the front of the soft starter.
The general characteristics are the following:
– Built-in bypass relay
– Programming with potentiometers on front: starting voltage, acceleration ramp and deceleration ramp
– Voltage ramp startup
– Free wheel or controlled stop
– Integrated overtemperature protection
– 2 built-in relay outputs with normally open contact, with function line contactor control and TOR (Top Of Ramp)
– Suitable for the control of pumps, fans, blowers, conveyor belts, compressors and general purpose applications.

NFC VERSION ADXNF
The soft starter ADXNF is a version provided with NFC connectivity for the programming via smartphone and LOVATO NFC App. The default settings make it ready to use for the control of scroll compressors, typically used in air conditioning systems, refrigerators and heating pumps but the parameters can be modified via smartphone and LOVATO NFC App for the control of every kind of application, like pumps, fans, conveyor belts, etc.
It is also possible to configure a password for the locking of the settings.
The general characteristics are the following:
– Built-in bypass relay
– Programming with smartphone with NFC connectivity and LOVATO NFC App, available for Android and iOS smart devices, freely downloadable from Google Play Store and App Store.
– Default settings with pre-configured parameters for the control of scroll compressors
– Voltage ramp startup
– Free wheel or controlled stop
– Integrated overtemperature protection
– 2 built-in relay outputs with normally open contact with programmable function line contactor control, TOR (Top Of Ramp) and alarm
– Suitable for the control of scroll compressors (air conditioning systems, refrigerators and heating pumps), pumps, fans, blowers, conveyor belts, compressors and general purpose applications with parameters settings via NFC connectivity and LOVATO NFC App.

Operational characteristics ADXN…
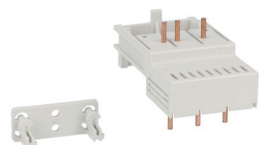See page 5-9.

Certifications and compliance
See page 5-9.

5-8

Dimensions
page 5-16

Wiring diagrams
page 5-19

Technical characteristics
page 5-21

Advanced version ADXNP... type

ADXNP…

NFC

Setting of basic parameters with potentiometers and advanced parameters with NFC connectivity and App. Integrated motor electronic thermal protection. Built-in bypass relay and 2 relay outputs. Built-in optical port on front. Optional RS485 Modbus-RTU module. Rated operational voltage 208...600VAC Auxiliary supply voltage 100...240VAC.

Order code	IEC rated starter current Ie	Rated motor power ≤40°C			Qty per pkg	Wt
		400V	400-480V	550-600V		
	[A]	[kW]	[HP]	[HP]	n°	[kg]
ADXNP006	6	2.2	3	5	1	0.560
ADXNP012	12	5.5	7.5	10	1	0.560
ADXNP018	18	7.5	10	15	1	0.560
ADXNP025	25	11	15	20	1	0.750
ADXNP030	30	15	20	25	1	0.750
ADXNP038	38	18.5	25	30	1	0.780
ADXNP045	45	22	30	40	1	0.780

Auxiliary supply voltage 24VAC/DC.

Order code	IEC rated starter current Ie	Rated motor power ≤40°C			Qty per pkg	Wt
ADXNP00624	6	2.2	3	5	1	0.560
ADXNP01224	12	5.5	7.5	10	1	0.560
ADXNP01824	18	7.5	10	15	1	0.560
ADXNP02524	25	11	15	20	1	0.750
ADXNP03024	30	15	20	25	1	0.750
ADXNP03824	38	18.5	25	30	1	0.780
ADXNP04524	45	22	30	40	1	0.780

Accessories for ADXN…

SM1X3150R

EXP8007

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Accessories for soft starters ADXN... type			
SM1X3150R	Rigid connection for soft starters type ADXN from 6 to 38 A for the direct mounting to a motor protection circuit breaker type SM1R❶	1	0.053
EXP8007	Fan for soft starters type ADXN from 6 to 30 A for the increasing of number of operations per hour (ADXN size 38 and 45A already have a built-in fan as standard)	1	0.044

❶ For details about motor protection circuit breakers type SM1R refer to the chapter 1.

Communication devices and remote display unit for ADXNP… type

CX01

CX02

CX04

EXCRDU2

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Communication devices			
CX01	USB connection device PC ↔ ADXNP with optical connector for programming, data download, diagnostics and firmware update	1	0.090
CX02	Wi-Fi connection device PC/smartphone ↔ ADXNP for data download, programming and diagnostics	1	0.090
CX04	RS485 communication module for ADXNP, Modbus-RTU protocol. Auxiliary supply voltage 24VAC/DC.	1	0.046
Remote display unit			
EXCRDU2	Remote display unit, widescreen colour LCD graphic display, built-in RS485 port, for the monitoring and control of max 32 starters, IP65, 3m cable included	1	0.420

ADVANCED VERSION ADXNP
The soft starter ADXNP provides the motor electronic current thermal protection, obtained thanks to the presence of integrated current transformers, which allow the motor protection against overload and the management of starting ramps with current limiting, which are automatically adapted to follow the load variations. It is provided with both potentiometers on front for the setting of the basic parameters and NFC connectivity and optical port for the programming of the advanced parameters through the LOVATO NFC App.
ADXNP can also be equipped with an optional RS485 communication module in order to be integrated in a supervision network.
The general characteristics are the following:
– Built-in bypass relay
– Integrated electronic thermal protection of the motor, with double class configurable (starting and running)
– Programming of basic parameters with potentiometers on front (which can be disabled via NFC if preferable): starting voltage, acceleration ramp and deceleration ramp
– Programming of advanced parameters (rated motor current, starting current limit, tripping thermal class, protection thresholds, communication parameters, password, relay outputs function and alarm properties) with smartphone with NFC connectivity and LOVATO NFC App, available for Android and iOS smart devices, freely downloadable from Google Play Store and App Store
– Voltage ramp startup with current limiting
– Free wheel or controlled stop
– Integrated overtemperature protection
– 2 built-in relay outputs with normally open contact with programmable function line contactor control, TOR (Top Of Ramp), alarm and maximum torque
– Optical port on front for the connection of USB (CX01) or Wi-Fi (CX02) optional devices for programming, data download and diagnostics from PC with Sam1 software or smart devices with LOVATO Xpress App, freely downloadable from Google Play Store and App Store
– Optional RS485 module (CX04), Modbus-RTU protocol
– Suitable for the control of pumps, fans, blowers, conveyor belts, compressors mixers and general purpose applications.

Operational characteristics ADXN…
– Two phase control
– Rated operational voltage: 208...600VAC ±10%
– Rated frequency: 50/60Hz ±5%
– Auxiliary supply voltage: 24VAC/DC (ADXN...24), 100...240VAC (ADXN...) -15%/+10%
– IEC rated soft starter current Ie: 6...45A
– Rated motor power: 2.2...22kW (400VAC) and 5...40HP (600VAC)
– 3 LEDs: presence of auxiliary power supply, ramp in progress / TOR, alarm
– 1 digital input for start command
– 2 relay outputs with normally open contact, programmable on ADXNF and ADXNP, fixed function on ADXNB
– Operating temperature: -20...+60°C (above 40°C with derating of the soft starter current by 1%/°C)
– Storage temperature: -30...+80°C
– Screw fixing or 35mm DIN rail mounting (IEC/EN/BS 60715)
– Protection degree: IP20.

Software Synergy, Xpress, Sam1 and App NFC
See the chapter 36.

Certifications and compliance for soft starters ADXN…
Certifications: cULus, EAC, RCM (pending).
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-2, UL 60947-4-2, CSA C22.2 n° 60947-4-2.

Certifications and compliance for accessories
Certifications: cULus (EXP8007 and CX04), cETLus (only for EXCRDU2), EAC (excluded EXCRDU2).
Compliant with standards: CX01: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3; CX02: IEC/EN/BS 60950-1, EN 62311, EN301 489-1 V2.2.0, EN 301 489-17 V3.2.0, EN300 328 V2.1.1. SM1X3150R: IEC/EN/BS 60947-1; CX04: IEC/EN/BS 61010-1, UL 61010-1, CSA C22.2 n° 61010-1; EXCRDU2: IEC/EN/BS 61010-1, IEC/EN/BS 61010-2-030, IEC/EN/BS 61000-6-2, IEC61000-6-4.

ADXL... series

NFC

ADXL0018600…ADXL0060600

NFC

ADXL0135600…ADXL0162600

Order code	IEC rated starter current Ie	Rated motor power ≤40°C IEC (400V)		Qty per pkg	Wt
	[A]	[kW]	[HP]	n°	[kg]

For standard and heavy-duty applications.
Built-in bypass relay.
Rated operational voltage 208...600VAC.
Auxiliary supply voltage 100...240VAC.

Order code	IEC rated starter current Ie	Rated motor power ≤40°C IEC (400V)		Qty per pkg	Wt
ADXL0018600	18	7.5	10	1	2.100
ADXL0030600	30	15	15	1	2.100
ADXL0045600	45	22	25	1	2.100
ADXL0060600	60	30	30	1	2.100
ADXL0075600	75	37	40	1	2.900
ADXL0085600	85	45	50	1	2.900
ADXL0115600	115	55	60	1	2.900
ADXL0135600	135	75	75	1	7.800
ADXL0162600	162	90	75	1	7.800
ADXL0195600	195	110	100	1	13.900
ADXL0250600	250	132	150	1	13.900
ADXL0320600	320	160	200	1	13.900

IEC power ratings ≤40°C (50Hz)

Order code	Rated starter current Ie	Rated motor power ❶		
		230V	400V	500V
	[A]	[kW]	[kW]	[kW]
ADXL0018600	18	4	7.5	11
ADXL0030600	30	7.5	15	18.5
ADXL0045600	45	11	22	30
ADXL0060600	60	15	30	37
ADXL0075600	75	22	37	45
ADXL0085600	85	22	45	55
ADXL0115600	115	37	55	75
ADXL0135600	135	37	75	90
ADXL0162600	162	45	90	110
ADXL0195600	195	55	110	132
ADXL0250600	250	75	132	160
ADXL0320600	320	90	160	200

UL power ratings ≤40°C (60Hz)

Order code	Rated starter current FLA	Rated motor power ❷				
		208V	220-240V	380-415V	440-480V	550-600V
	[A]	[HP]	[HP]	[HP]	[HP]	[HP]
ADXL0018600	18	5	5	10	10	15
ADXL0030600	28	10	10	15	20	25
ADXL0045600	44	10	15	25	30	40
ADXL0060600	60	20	20	30	40	50
ADXL0075600	75	25	25	40	50	60
ADXL0085600	83	25	30	50	60	75
ADXL0115600	114	40	40	60	75	100
ADXL0135600❸	130	40	50	75	100	125
ADXL0162600❸	156	50	60	75	125	150
ADXL0195600❸	192	60	75	100	150	200
ADXL0250600❸	248	75	100	150	200	250
ADXL0320600❸	320	100	125	200	250	300

❶ Preferred rated values according to IEC/EN/BS 60072-1.
❷ Horsepower and current values according to UL508 (60Hz).
❸ Terminal lug kits and shrouds are required for UL. See page 5-11.

General characteristics
The ADXL soft starter with two phase control and built-in bypass relay allows the control of the start and stop of three-phase asynchronous motors. ADXL is equipped with a backlit display with icons and NFC connectivity, for a simple, intuitive and fast configuration, with smartphones and tablets.
ADXL is ideal for simple "plug and play" applications, thanks to the installation wizard, and for high-performance applications, with control and protection during the motor start-up and operation.
The ADXL includes protection features for the soft starter and motor, and it's possible to enable specific alarms to signal maintenance needs, such as the number of startups performed or the operation hours of the motor.

It has the following main features:
– Two phase control
– Backlit LCD icon display
– Texts available in 6 languages (ENG-ITA-FR-ES-POR-DE)
– Built-in bypass relay
– Voltage or torque ramp startup
– Torque control
– Kick start
– Starting with current limitation
– Free wheel or controlled stop
– 3 programmable digital inputs, one of which configurable as digital or PTC input
– 3 programmable relay outputs: 1 with changeover contact, 2 with NO contact
– 3 indicator LEDs: presence of power supply, ramp in progress/TOR, alarm
– 4 configurable sets of motor parameters
– Optical port for programming, data download and diagnostics with the software Xpress and LOVATO Sam1 App, freely downloadable from Google Play Store and App Store
– NFC connectivity for parameter settings with LOVATO NFC App, freely downloadable from Google Play Store and App Store
– Optional RS485 communication card, Modbus-RTU protocol
– Supervision and energy management software Synergy
– Measures visible on display: max current, phase currents, torque, voltage, active power, power factor, motor thermal status, heatsink temperature, energy, motor hour counter, number of starts counter
– Protections:
  • motor: motor thermal protection with double class (starting and running), protection with PTC probe, locked rotor, current asymmetry, starting too long, low torque, motor not connected
  • auxiliary supply: voltage too low or micro-interruption
  • power line: lack of voltage, phase loss, wrong phase sequence, voltage or frequency out of limits
  • soft starter: overtemperature, overcurrent, thyristor failure, bypass relay failure, temperature sensor failure, fan failure
– Events log.

Operational characteristics
– Rated operational voltage: 208...600VAC ±10%
– Rated frequency: 50/60Hz ±5%
– Auxiliary supply voltage: 100...240VAC
– IEC rated soft starter current Ie from 18 to 320A
– Rated motor current selectable from the 50% to the 100% of rated soft starter current Ie
– Rated motor power 7.5...160kW (400VAC) and 15...300HP (600VAC)
– Operating temperature: -20...+60°C (above 40°C with derating of the soft starter current by 0.5%/°C)
– Storage temperature: -30...+80°C
– Number of starts per hour: see page 5-23.
– Screw fixing or 35mm DIN rail mounting for ADXL0018600...ADXL0115600 with optional accessory EXP8003
– Protection degree: IP00

Certifications and compliance
Certifications obtained: cULus, EAC, RCM.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-2, UL508, CSA C22.2 n°14.

Accessories for ADXL…

CX01

CX02

EXCRDU2

EXC1042

EXCGLB…

EXCCON02

EXCM4G01

EXP8003

EXP8004

EXA01

EXA02

EXA03

EXA04

new

new

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Communication devices			
CX01	USB connection device PC ↔ ADXL with optical connector for programming, data download, diagnostics and firmware update	1	0.090
CX02	Wi-Fi connection device PC/smartphone ↔ ADXL for data download,programming, diagnostics and cloning	1	0.090
EXC1042	RS485 communication card, Modbus-RTU protocol	1	0.020
Remote display unit			
EXCRDU2	Remote display unit, widescreen colour LCD graphic display, built-in RS485 port, for the monitoring and control of max 32 starters, IP65, 3m cable included	1	0.420
Gateway and converters			
EXCGLB01	Gateway data logger, 1 RS485 port, 1 Ethernet port, Wi-Fi connection	1	0.190
EXCGLB02	Gateway data logger, 1 RS485 port, 1 Ethernet port, LTE connection, GNSS (GPS)	1	0.190
EXCGLB03	Gateway data logger, 1 RS485 port, 2 Ethernet ports, 4G (LTE) connection	1	0.190
EXCM4G01	4G Gateway with RS485 and Ethernet port, Modbus-RTU/TCP protocol	1	0.300
EXCCON02	RS485/Ethernet converter, 9…48VDC, with Modbus-RTU/TCP protocol conversion functionality	1	0.400
Accessories.			
EXP8003	35mm DIN rail mounting accessory for ADXL0018600… ADXL0115600	1	0.200
EXP8004	Fan for ADXL0018600… ADXL0115600 (codes ADXL0075600…ADXL0115600 max of two EXP8004 fans)	1	0.040
EXA01	Kit of 3 UL terminal lugs for ADXL0135600, ADXL0162600, and ADXL0195600	1	0.141
EXA02	Kit of 3 terminals protection covers for ADXL0135600, ADXL0162600 and ADXL0195600	1	0.125
EXA03	Kit of 3 UL terminal lugs for ADXL0250600 and ADXL0320600	1	0.314
EXA04	Kit of 3 terminals protection covers for ADXL0250600 and ADXL0320600	1	0.154

General characteristics
Communication devices to connect LOVATO Electric products to:
– PC
– Smartphones
– Tablets.

CX01
This USB/optical device, complete with cable, allows the frontal connection of products compatible with PC with **X**press software without the need to remove the power supply from the electric panel.

CX02
Via Wi-Fi connection, compatible LOVATO Electric products can be viewed on PCs, smartphones and tablets with no need for cabling. Compatible with **X**press software and LOVATO **S**am1 App.

For dimensions, wiring diagrams and technical characteristics, consult the manuals available on the website www.LovatoElectric.com

EXCRDU2
With the EXCRDU2 remote display unit it is possible to command and monitor up to 32 starters via RS485 communication, at choice between soft starters ADXL... or ADXNP... series and variable speed drives VLB... series.
– Auxiliary power supply: 100...240VAC 50/60Hz, 110...250VDC
– Widescreen colour LCD graphic display 118x96mm
– Isolated RS485 communication port, Modbus-RTU protocol
– Configurable communication parameters
– Integrated optical port for firmware update
– Flush mount, standard 92x92mm cut-out
– Compatible with soft starters ADXL... series equipped with RS485 communication card, code EXC1042
– RS485 cable included, 3m length
– IEC degree of protection: IP65 frontal with gasket (provided as standard), IP20 housing and terminals.

EXGLB…, EXCCON02, EXCM4G01
For details please see section 34.

Certifications and compliance
Certifications obtained: cULus for EXA..., EXP8003 and EXP8004, cETLus for EXCRDU2, EAC (except EXA... and EXCRDU2).
Compliant with standard:
CX01: IEC/EN/BS 61010-1,
IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3;
CX02: IEC/EN/BS 60950-1, EN 62311, EN 301 489-1 V2.2.0, EN 301 489-17 V3.2.0, EN 300 328 V2.1.1.
EXC1042: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-2;
EXCRDU2: IEC/EN/BS 61010-1, IEC/EN/BS 61010-2-030, IEC/EN/BS 61000-6-2, IEC61000-6-4.

ADXT... series
In-line connection

ADXT...

new

new

Order code	IEC rated soft starter current Ie in-line connection					Qty per pkg	Wt
	Starting current (starting time)						
	3*Ie (10s)	3.5*Ie (15s)	4*Ie (10s)	4*Ie (20s)	5*Ie (5s)		
	[A]	[A]	[A]	[A]	[A]	n°	[kg]
For standard and heavy-duty applications. Built-in bypass contactor. Rated operational voltage 380...690VAC. Auxiliary supply voltage 110...120VAC and 220...240VAC.							
ADXT0034	42	34	34	27	31	1	4.800
ADXT0060	64	62	60	50	53	1	4.900
ADXT0084	105	86	84	68	76	1	5.500
ADXT0104	115	107	104	86	95	1	5.500
ADXT0126	135	129	126	103	115	1	5.500
ADXT0139	184	143	139	115	127	1	12.700
ADXT0165	200	170	165	138	150	1	12.700
ADXT0187	229	194	187	157	170	1	12.700
ADXT0230	250	244	230	200	202	1	12.700
ADXT0311	397	322	311	262	288	1	15.500
ADXT0410	410	410	410	379	400	1	15.500
ADXT0506	550	526	506	427	462	1	19.000
ADXT0554	580	578	554	469	507	1	19.000
Auxiliary supply voltage 24VAC/DC.							
ADXT003424	42	34	34	27	31	1	4.800
ADXT006024	64	62	60	50	53	1	4.900
ADXT010424	115	107	104	86	95	1	5.500
ADXT013924	184	143	139	115	127	1	12.700
ADXT023024	250	244	230	200	202	1	12.700

Inside-delta connection

ADXT...

new

new

Order code	IEC rated soft starter current Ie inside-delta connection					Qty per pkg	Wt
	Starting current (starting time)						
	3*Ie (10s)	3,5*Ie (15s)	4*Ie (10s)	4*Ie (20s)	5*Ie (5s)		
	[A]	[A]	[A]	[A]	[A]	n°	[kg]
For standard and heavy-duty applications. Built-in bypass contactor. Rated operational voltage 380...690VAC. Auxiliary supply voltage 110...120VAC and 220...240VAC.							
ADXT0034	63	51	51	41	47	1	4.800
ADXT0060	96	93	90	75	80	1	4.900
ADXT0084	158	129	126	102	114	1	5.500
ADXT0104	173	161	156	129	143	1	5.500
ADXT0126	203	194	189	155	173	1	5.500
ADXT0139	276	215	209	173	191	1	12.700
ADXT0165	300	255	248	207	225	1	12.700
ADXT0187	344	291	281	236	255	1	12.700
ADXT0230	375	366	345	300	303	1	12.700
ADXT0311	596	484	466	393	433	1	15.500
ADXT0410	615	615	615	568	600	1	15.500
ADXT0506	825	789	758	640	694	1	19.000
ADXT0554	870	868	832	704	760	1	19.000
Auxiliary supply voltage 24VAC/DC.							
ADXT003424	63	51	51	41	47	1	4.800
ADXT006024	96	93	90	75	80	1	4.900
ADXT010424	173	161	156	129	143	1	5.500
ADXT013924	276	215	209	173	191	1	12.700
ADXT023024	375	366	345	300	303	1	12.700

General characteristics
ADXT... is a soft starter with three phase control for the progressive starting and stopping of three phase asynchronous motors. It is mainly used for the control of heavy loads, thanks to the high torque available during the starting phase, which allows overcoming the inertia of applications such as crushers, fans, vertical or inclined conveyors, screw compressors, centrifuges, propellers, mills, band or circular saws, shredders, and many others. The entire range integrates a bypass contactor, which allows a reduction of the power consumption and heat dissipation once the motor is started. Programming can be done either through the integrated keyboard with display or from a PC and USB pen drive and it offers advanced features and integrated protections for the motor control.

The main features are the following:
– Three phase control
– Backlit LCD graphic display
– Texts available in 8 languages (English, Italian, French, Spanish, Portuguese, German, Chinese, Russian)
– Built-in bypass contactor
– Several motor control modes available: constant current, current ramp, voltage ramp, adaptive control (starting with acceleration profile that adapts automatically based on information from previous starts)
– Kick start
– Starting with current limitation
– Free wheel or controlled stop
– DC current braking
– Soft brake with braking contactor for loads with high inertia or variable loads requiring maximum possible braking torque
– Pump clean cycles, to temporarily start the motor forwards and backwards via a dedicated input, to remove any debris present in the impeller before starting
– Control of reversing contactor to operate the motor in reverse direction
– Jog operation, with the run of the motor at reduced speed, to allow alignment of the load or to assist servicing
– Possibility to install the soft starter with the in-line connection or inside delta connection (6-wires wiring)
– Timed starting and stopping management based on the clock calendar
– PowerThrough function for motor starting even with damaged soft starter on one phase, with control on two phases
– Emergency mode for the running of the motor ignoring alarm conditions
– 4 digital inputs: 1 for start/stop, 1 for reset, and 2 programmable
– 1 thermistor input
– 3 relay outputs: 1 programmable with changeover contact, 2 with NO contact (1 for line contactor control and 1 programmable)
– 1 programmable analog output, type 0/4…20mA
– 4 indicator LEDs: soft starter ready, ramp in progress/TOR, alarm, control with remote keypad
– 2 configurable sets of motor parameters
– Integrated USB port for parameter transfer and event log export to csv file on USB pen drive
– Optional RS485 communication card, Modbus-RTU protocol
– Optional Ethernet communication card, Modbus-TCP protocol
– Measures visible on display: current, motor voltage, phase voltage, mains frequency, motor power factor, motor power, motor temperature %, operating hours, number of starts, analog output value, heatsink temperature, SCR temperature, soft starter thermal capacity, information about the last start
– User-configurable display screens
– Real-time performance trend on display
– Protections:
  • motor: thermal protection, overtemperature, overcurrent, locked rotor, current asymmetry, starting too long, current too low, power too high or too low, motor not connected
  • auxiliary supply: voltage too low
  • power line: lack of voltage, phase loss, wrong phase sequence, voltage or frequency out of limits
  • soft starter: overtemperature, overcurrent, thyristors failure, bypass overload
– Events log
– Calendar clock.

Dimensions page 5-17

Wiring diagrams page 5-20

Technical characteristics page 5-24

ADXT… series

**Rated power
In-line connection**

Order code	Rated soft starter current Ie (starting 4*Ie 10s)	Rated motor power IEC ≤40°C (50Hz)			Rated motor power UL ≤40°C (60Hz)		
		400V	500V	690V	380-415V	440-480V	550-600V
	[A]	[kW]	[kW]	[kW]	[HP]	[HP]	[HP]
Auxiliary supply voltage 110...120VAC and 220...240VAC.							
ADXT0034	34	18.5	22	30	20	25	30
ADXT0060	60	30	37	55	30	40	50
ADXT0084	84	45	55	75	50	60	75
ADXT0104	104	55	75	90	60	75	100
ADXT0126	126	55	90	110	75	100	125
ADXT0139	139	75	90	132	75	100	125
ADXT0165	165	90	110	160	100	125	150
ADXT0187	187	90	132	185	100	150	200
ADXT0230	230	132	160	200	125	150	200
ADXT0311	311	160	220	315	150	250	300
ADXT0410	410	220	280	400	250	300	400
ADXT0506	506	280	355	500	300	400	500
ADXT0554	554	315	400	560	300	450	500
Auxiliary supply voltage 24VAC/DC.							
ADXT003424	34	18.5	22	30	20	25	30
ADXT006024	60	30	37	55	30	40	50
ADXT010424	104	55	75	90	60	75	100
ADXT013924	139	75	90	132	75	100	125
ADXT023024	230	132	160	200	125	150	200

**Rated power
Inside delta connection**

Order code	Rated soft starter current Ie (starting 4*Ie 10s)	Rated motor power IEC ≤40°C (50Hz)			Rated motor power UL ≤40°C (60Hz)		
		400V	500V	690V	380-415V	440-480V	550-600V
	[A]	[kW]	[kW]	[kW]	[HP]	[HP]	[HP]
Auxiliary supply voltage 110...120VAC and 220...240VAC.							
ADXT0034	51	22	30	45	30	30	40
ADXT0060	90	45	55	75	50	60	75
ADXT0084	126	55	75	110	60	100	125
ADXT0104	156	75	110	132	75	125	150
ADXT0126	189	90	132	160	100	150	150
ADXT0139	209	110	132	200	125	150	200
ADXT0165	248	132	160	200	150	200	250
ADXT0187	281	160	200	250	150	200	250
ADXT0230	345	160	250	315	200	250	350
ADXT0311	466	250	315	400	250	350	450
ADXT0410	615	355	400	630	350	500	600
ADXT0506	758	400	500	710	400	600	700
ADXT0554	832	450	600	800	500	600	700
Auxiliary supply voltage 24VAC/DC.							
ADXT003424	51	22	30	45	30	30	40
ADXT006024	90	45	55	75	50	60	75
ADXT010424	156	75	110	132	75	125	150
ADXT013924	209	110	132	200	125	150	200
ADXT023024	345	160	250	315	200	250	350

Operational characteristics
– Rated operational voltage: 380...690VAC ±10%
– Rated frequency: 50/60Hz ±5%
– Auxiliary supply voltage:
  • ADXT...: 110...120VAC and 220...240VAC -15%/+10%
  • ADXT...24: 24VAC/DC ±20%
– IEC rated soft starter current Ie from 34 to 554A
– Possibility to increase the rated current for light loads (see the selection table at page 5-12)
– Rated motor power 18.5...315kW (400VAC), 20...300HP (400VAC)
– Operating temperature: -10...+60°C (above 40°C with derating of the soft starter current, see the technical manual, available on the website www.LovatoElectric.com)
– Storage temperature: -25...+60°C
– Number of starts per hour: see the technical manual, available on the website www.LovatoElectric.com
– Screw fixing
– Protection degree: IP20 up to ADXT0126, IP00 for higher sizes (IP20 with fingerguards type ADXTFG)

Certifications and compliance
Certifications (pending): cULus, RCM.
Compliant with standards: IEC/EN/BS 60947-4-2, UL 60947-4-2, CSA C22.2 n°60947-4-2.

5

Accessories for ADXT...

ADXTRTU

ADXTTCP

ADXTC01KIT
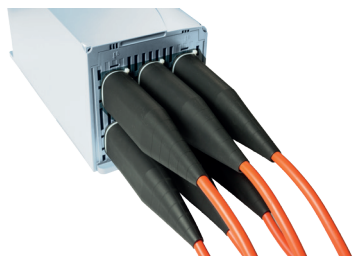
ADXTFG

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Communication cards.			
ADXTRTU	RS485 communication card, Modbus-RTU protocol❶	1	0.330
ADXTTCP	Ethernet communication card, Modbus-TCP protocol ❶	1	0.330
Accessories.			
ADXTC01KIT	Remote keypad kit composed by IP65 type 12 remote keypad ADXTC01, connection card to ADXT... and connection cable 3m length	1	0.560
ADXTFG	IP20 fingerguards kit for ADXT0139...ADXT0554	6	0.850

new

new

❶ The communication cards integrate the port for the connection of the optional ADXTC01 remote keypad.

General characteristics
COMMUNICATION CARDS
The ADXTRTU and ADXTTCP cards equip the ADXT soft starter with a communication port type RS485 (Modbus-RTU) or Ethernet (Modbus-TCP) for interfacing with a control and monitoring system. The cards integrate also the DB9 connector for the connection of the optional remote keypad type ADXTC01.

REMOTE KEYPAD KIT
The ADXTC01 remote keypad allows the control and monitoring of the ADXT soft starter from the panel door. With the keypad, it is possible to control the motor's start and stop operations and set the parameters. The kit includes the remote keypad, a card for the connection of the keypad to the soft starter (not necessary if ADXT is already equipped with a communication card type ADXTRTU or ADXTTCP), DB9 connection cable, IP65 gasket, and fixing screws.

FINGERGUARDS KIT
They are installed on the power terminals of the ADXT0139...ADXT0554 soft starters to prevent accidental contact with live terminals. The kit includes 6 terminal covers with respective mounting brackets and cable ties, offering IP20 protection when used with cables of diameter equal to or greater than 22mm.

Certifications and compliance
Certifications (pending): cULus for ADXTC01KIT.
Compliant with standards: ADXTC01KIT: IEC/EN/BS 60947-4-2, IEC/EN/BS 60529, UL60947-4-2, CSA C22.2 n° 60947-4-2.
ADXTRTU and ADXTTCP: IEC/EN/BS 60947-4-2.

5

51ADX… series

51ADX0017B…51ADX0045B

51ADX0060B…51ADX0085B

51ADX0110B…51ADX0125B

Order code	IEC rated starter current Ie	IEC rated motor power ≤40°C		Qty per pkg	Wt
		400V	380-415V		
	[A]	[kW]	[HP]	n°	[kg]

For severe duty.
Built-in bypass contactor.
Rated operational voltage 208...500VAC.
Auxiliary supply voltage 208...240VAC.

51ADX0017B	17	7.5	7.5	1	8.970
51ADX0030B	30	15	15	1	9.240
51ADX0045B	45	22	25	1	9.240
51ADX0060B	60	30	30	1	14.200
51ADX0075B	75	37	40	1	14.400
51ADX0085B	85	45	50	1	14.400
51ADX0110B	110	55	60	1	17.700
51ADX0125B	125	55	60	1	17.700
51ADX0142B	142	75	75	1	28.000
51ADX0190B	190	90	100	1	37.300
51ADX0245B	245	132	150	1	39.300

For severe duty.
Predisposed for external bypass contactor.
Rated operational voltage 208...415VAC.
Auxiliary supply voltage 208...240VAC.

51ADX0310	310	160	150	1	48.900
51ADX0365	365	200	200	1	49.300
51ADX0470	470	250	250	1	95.000
51ADX0568	568	315	350	1	95.000
51ADX0640	640	355	400	1	106.000

Accessories for 51ADX…

51ADXTAST

51C4

Order code	Description	Qty per pkg	Wt
		n°	[kg]
51ADXTAST	Remote keypad 96x96mm, IP41 2x16 characters backlit LCD, 208...240VAC supply, provided with 51C8 cable, 3m/10ft length	1	0.350
31PA96X96	IP54 protective cover for remote keypad 51ADXTAST	1	0.076
51C2	PC (RS232) ↔ 51ADX connecting cable, 1.8m/6ft length	1	0.062
51C4	PC (RS232) ↔ RS232/ RS485 converter drive connecting cable, 1.8m/6ft length	1	0.147
51C6	51ADX ↔ RS232/RS485 converter drive connecting cable, 1.8m/6ft length	1	0.102
51C8	51ADX ↔ 51ADXTAST remote keypad connecting cable, 3m/10ft length	1	0.080

General characteristics
The 51ADX... is a soft starter with three phase control for the progressive starting and stopping of three phase asynchronous motors. Its high robustness and the considerable torque available during the startup make it the ideal solution for controlling heavy loads with high inertia, such as fans, cutting machines, turbines, crushers, mixers, band saws, mills, crushers, etc.... Startup can be performed using a voltage ramp with torque control and limitation of the maximum starting current. The internal bypass contactor (built-in only on versions 51ADX...B) allows for a drastic reduction in heat dissipation once the ramp is completed, reducing the need for oversized electrical panels or ventilation systems.

The main features are the following:
– Three phase control
– Backlit LCD display 2 rows x 16 characters
– Texts available in 4 languages (English, Italian, French, Spanish)
– Built-in bypass contactor up to size 245A (51ADX...B), predisposed for external bypass contactor for the higher sizes
– Starting with voltage ramp with torque control, starting with current limiting, torque boost
– Free wheel or controlled stop, dynamic breaking
– In emergency conditions: starting without protection, direct-on-line starting using integrated bypass contactor
– 3 digital inputs: start and stop/reset + 1 programmable digital/analog
– 4 relay outputs: 1 with changeover contact for alarm signaling, 3 programmable with NO contact
– 1 programmable analog output, type 0/4…20mA
– 3 indicator LEDs: presence of power supply, ramp in progress/TOR, alarm
– 2 configurable sets of motor parameters
– Built-in RS232 port with Modbus-RTU protocol for setup and control from PC with 51ADXSW software, freely downloadable from the website www.LovatoElectric.com. The connection between 51ADX and PC can be made through 51C2 serial cable, RS232/RS485 converter or GSM modem
– Built-in RS485 port for the connection to the 51ADXTAST remote keypad through 51C8 cable (included with the remote keypad, 3m length) for setup, measures monitoring and parameter transfer
– Measures visible on display: phase voltage, phase currents, active and apparent power, power factor, energy
– Protections:
  • motor: motor thermal protection with double class (starting and running) or by PTC sensor, locked rotor, current asymmetry, minimum torque and starting time too long
  • auxiliary supply: voltage too low
  • power line: lack of voltage, phase loss, wrong phase sequence, voltage or frequency out of limits
  • soft starter: overtemperature, overcurrent, thyristors failure, bypass failure
– Events log
– Calendar clock with backup battery.

Operational characteristics
– Rated operational voltage:
  • 208...500VAC ±10% (51ADX...B)
  • 208...415VAC ±10% (51ADX...)
– Rated frequency: 50/60Hz ±5%
– Auxiliary supply voltage: 208...240VAC ±10%
– IEC rated soft starter current Ie:
  • 17A...245A (51ADX...B)
  • 310A...640A (51ADX...)
– Overload current:
  • 105% Ie for 51ADX...B
  • 115% Ie for 51ADX...
– Operating temperature: -10...+55°C (above 45°C with derating of the soft starter current by 1.5%/°C)
– Storage temperature: -30...+70°C
– Number of starts per hour: see the technical manual available on the website www.LovatoElectric.com
– Screw fixing
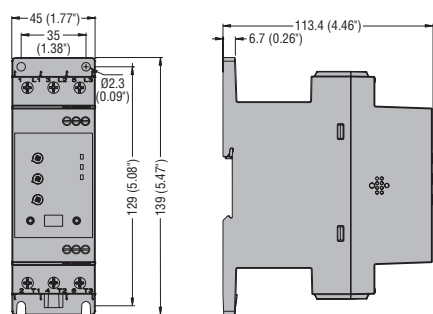– Protection degree: IP20 for 51ADX0017B…51ADX0125B, IP00 for higher sizes.

Certifications and compliance
Certifications: EAC.
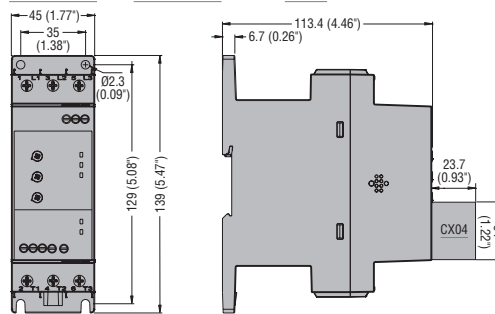Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-2.

SOFT STARTER
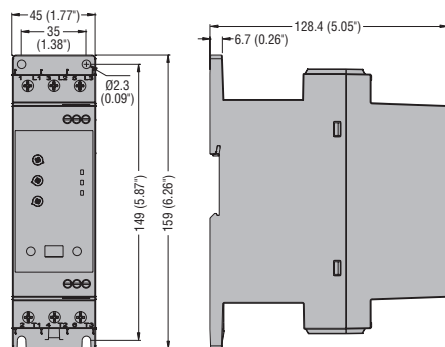**ADXN…006… - ADXN…018…**

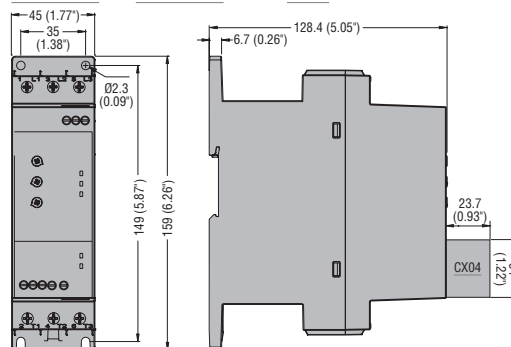**ADXNP006… - ADXNP018…** with CX04 RS485 communication module.

ADXN…025… - ADXN…045…

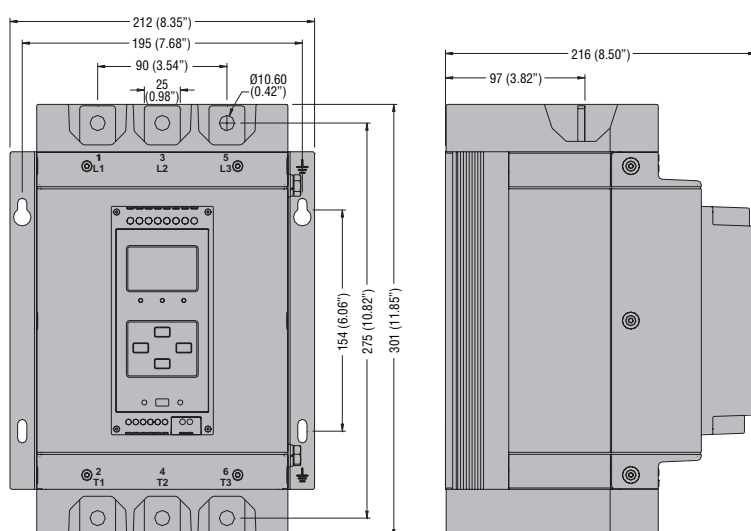**ADXNP025… - ADXNP045…** with CX04 RS485 communication module.

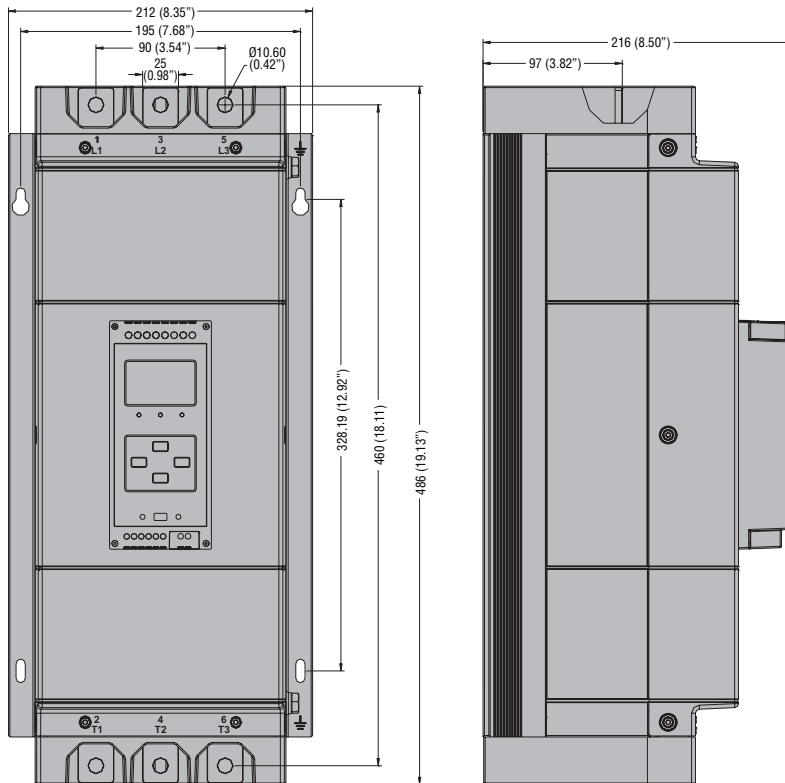**ADXL0018600…ADXL0060600**
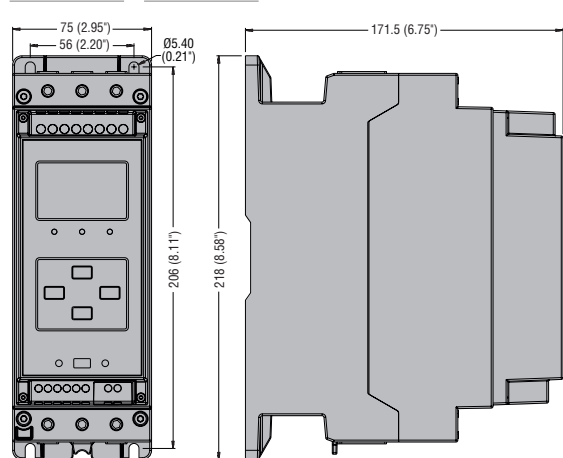
**ADXL0075600…ADXL0115600**
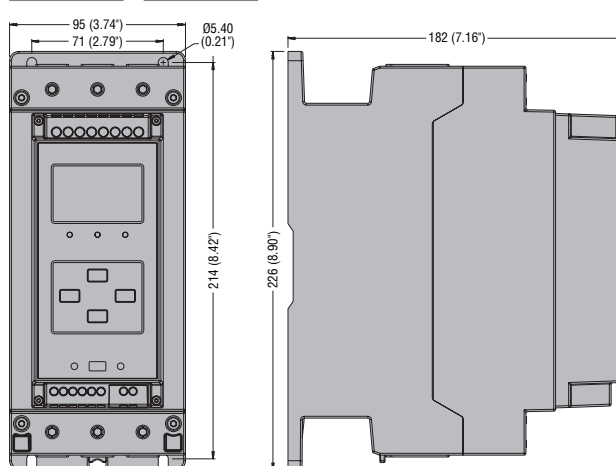
ADXL0135600 - ADXL0162600

For the dimensions of ADXL0135600 and ADXL0162600 complete with UL terminal lugs and protection covers (type EXA…) refer to the technical manual of the ADXL soft starters, available on the website www.LovatoElectric.com.

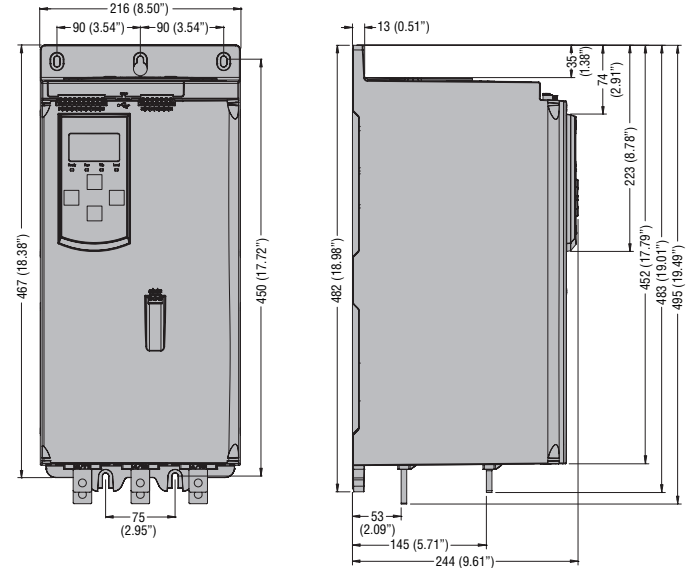**Lovato electric**

ADXL0195600…ADXL0320600

For the dimensions of ADXL0195600, ADXL0250600 and ADXL0320600 complete with UL terminal lugs and protection covers (type EXA...) refer to the technical manual of the ADXL soft starters, available on the website www.LovatoElectric.com.

ADXT0034…ADXT0126
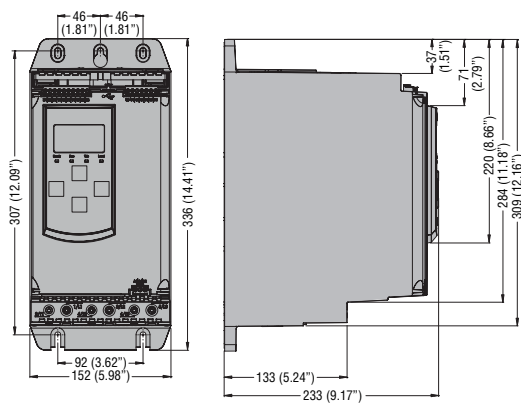
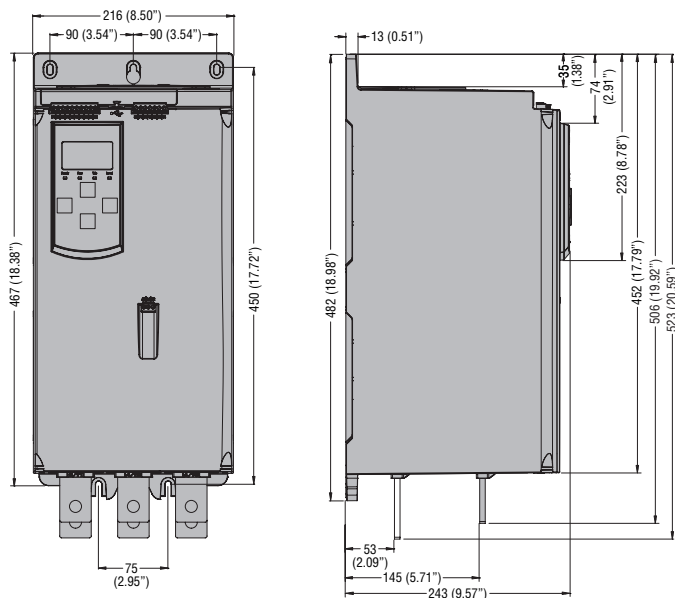**ADXT0139…ADXT0230**

ADXT0311…ADXT0554

51ADX0017B...51ADX0125B
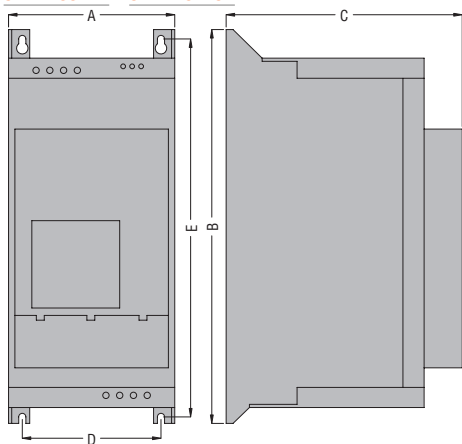
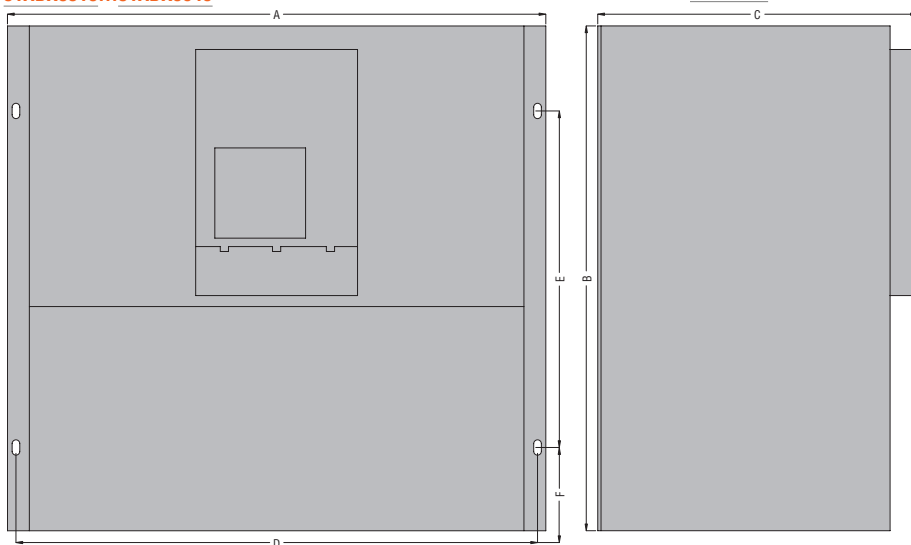| TYPE	A	B	C	D	E
51ADX0017B	157 (6.18")	372 (14.64")	223 (8.78")	131 (5.16")	357 (14.05")
51ADX0030B	157 (6.18")	372 (14.64")	223 (8.78")	131 (5.16")	357 (14.05")
51ADX0045B	157 (6.18")	372 (14.64")	223 (8.78")	131 (5.16")	357 (14.05")
51ADX0060B	157 (6.18")	534 (21.02")	250 (9.84")	132 (5.20")	517 (20.35")
51ADX0075B	157 (6.18")	534 (21.02")	250 (9.84")	132 (5.20")	517 (20.35")
51ADX0085B	157 (6.18")	534 (21.02")	250 (9.84")	132 (5.20")	517 (20.35")
51ADX0110B	157 (6.18")	584 (22.99")	250 (9.84")	132 (5.20")	567 (22.32")
51ADX0125B	157 (6.18")	584 (22.99")	250 (9.84")	132 (5.20")	567 (22.32")

51ADX0142B...51ADX0245B
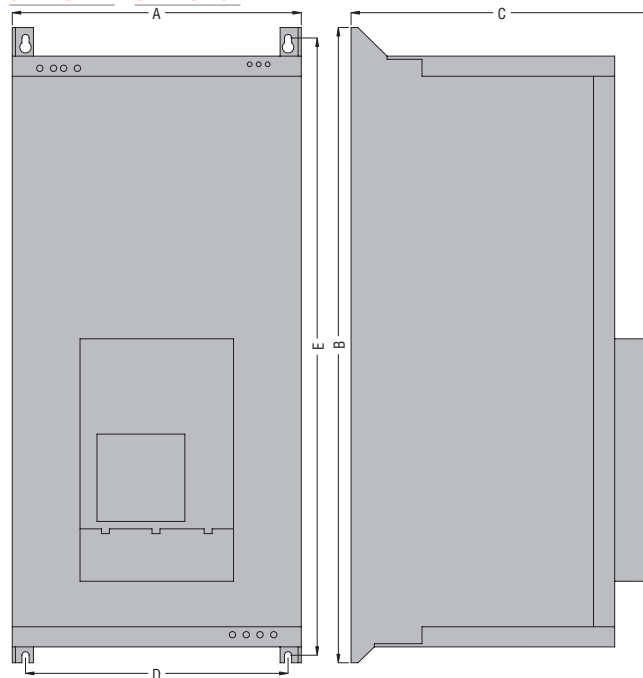
| TYPE	A	B	C	D	E
51ADX0142B	273 (10.75")	600 (23.62")	285 (11.22")	230 (9.05")	560 (25.20")
51ADX0190B	273 (10.75")	680 (26.77")	310 (12.20")	230 (9.05")	640 (25.20")
51ADX0245B	273 (10.75")	680 (26.77")	310 (12.20")	230 (9.05")	640 (25.20")

51ADX0310...51ADX0640

TYPE	A	B	C	D	E	F
51ADX0310	640 (25.20")	600 (23.62")	380 (14.96")	620 (24.41")	400 (15.75")	100 (3.94")
51ADX0365	640 (25.20")	600 (23.62")	380 (14.96")	620 (24.41")	400 (15.75")	100 (3.94")
51ADX0470	790 (31.10")	650 (25.59")	430 (16.93")	770 (30.31")	450 (17.72")	100 (3.94")
51ADX0568	790 (31.10")	650 (25.59")	430 (16.93")	770 (30.31")	450 (17.72")	100 (3.94")
51ADX0640	790 (31.10")	650 (25.59")	430 (16.93")	770 (30.31")	450 (17.72")	100 (3.94")

REMOTE KEYPADS
EXCRDU2
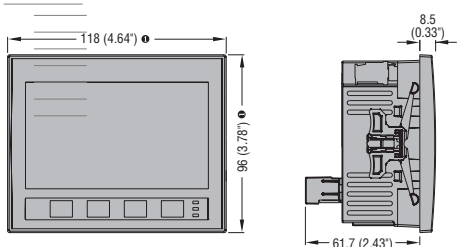
Cut-out
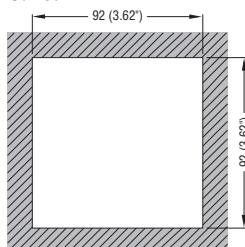
ADXTC01
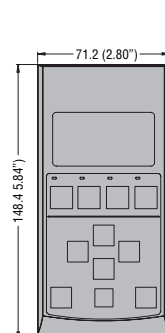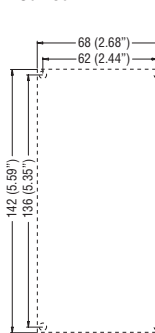
Cut-out

51ADXTAST
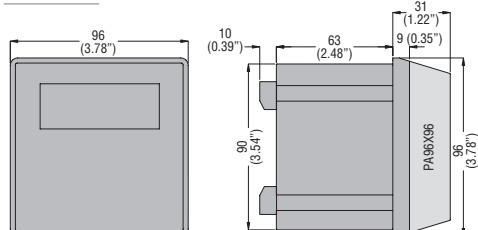
Cut-out
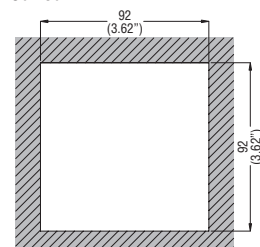
❶ Dimensions with gasket: 122x100mm.

ADXN...
Switch disconnector + fuses + contactor, control by switch (type 0-1)
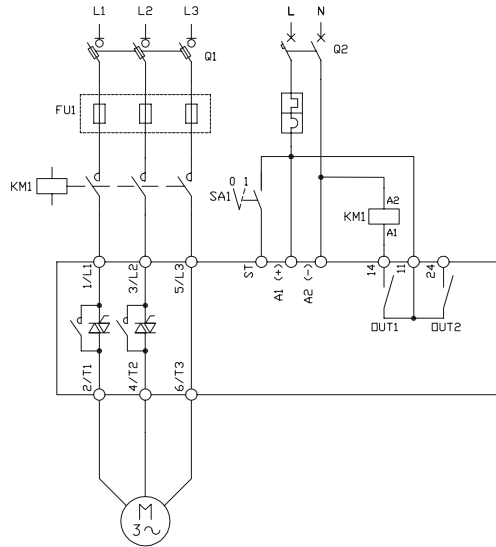
MPCB + contactor, control by pushbuttons

MPCB + contactor, control by switch (type 0-1)

Switch disconnector + fuses + contactor + thermal overload relay,
control by switch (type 0-1)

ADXL...

Lovato electric

ADXT...

In-line connection

Inside delta connection

51ADX...B

51ADX...

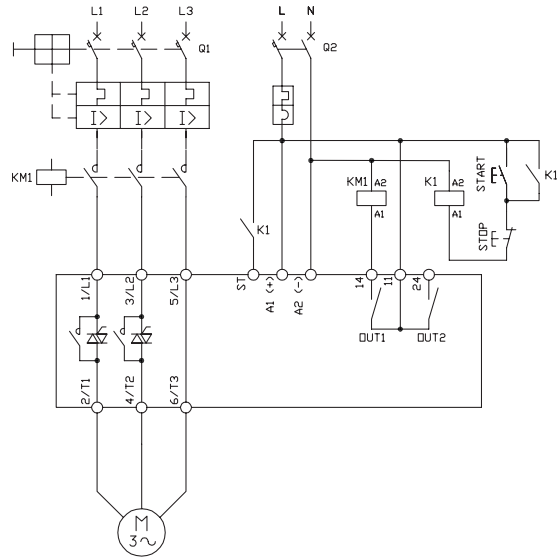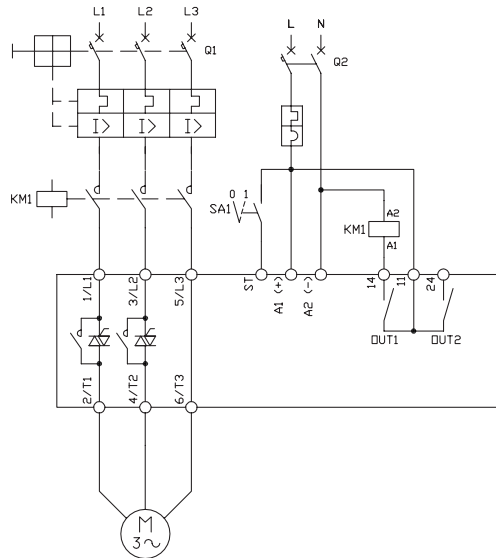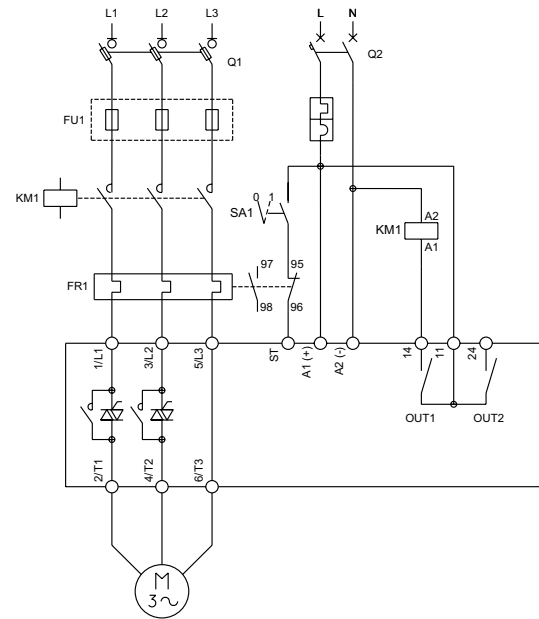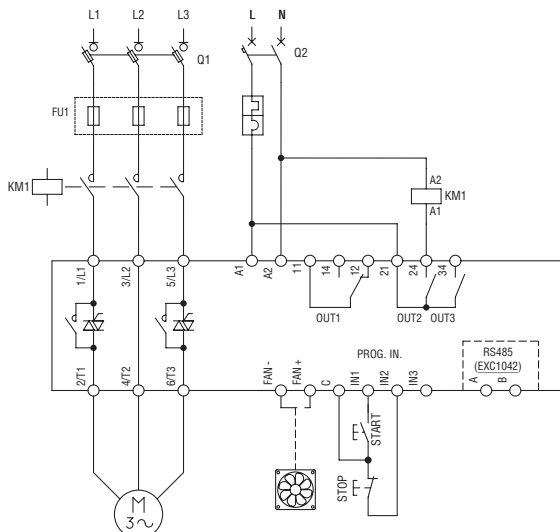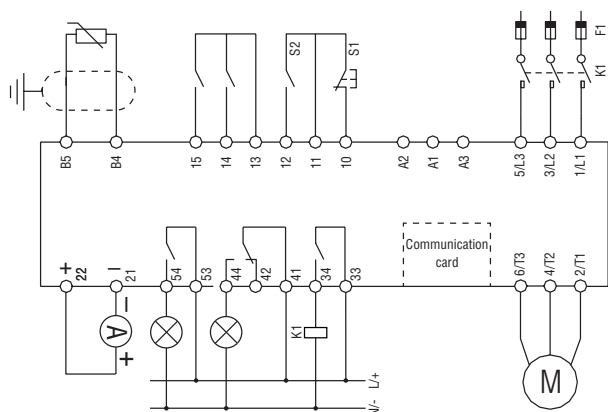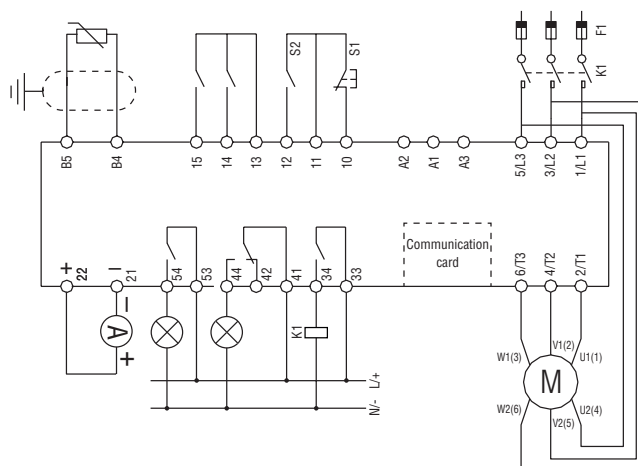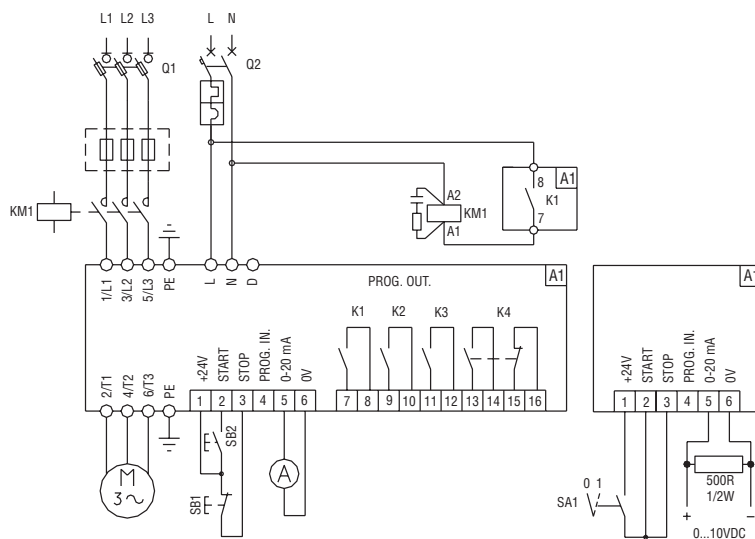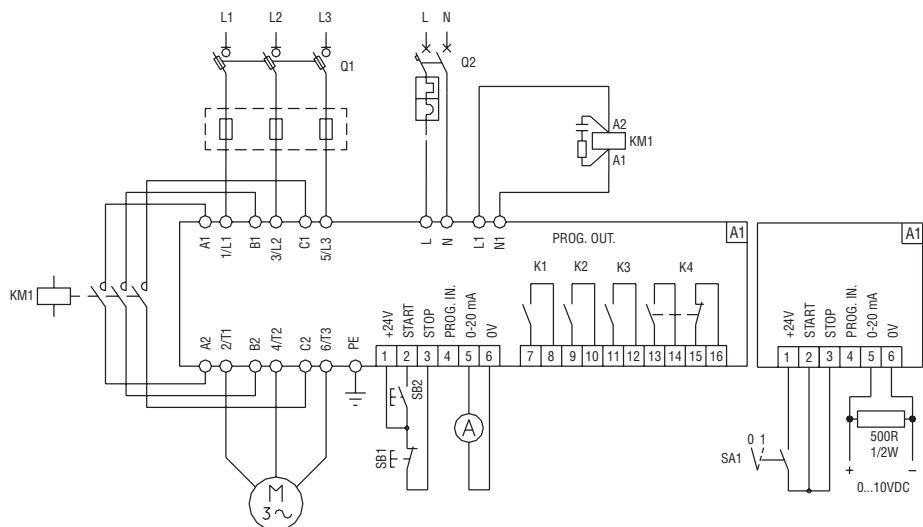| TYPE (with 2 controlled phases)		**ADXNB…**	**ADXNF…**	**ADXNP…**
Motor	Type	Asynchronous three phase		
	Power	1.1...11kW (230VAC), 2.2...22kW (400VAC), 3...30kW (500VAC) 1.5...15HP (220-240VAC), 3...30HP (440-480VAC), 5...40HP (550-600VAC)		
	Rated current	6...45A		
Supply voltage	Line voltage	208...600VAC ±10%		
	Auxiliary supply voltage	100...240VAC for ADXN..., 24VAC/DC for ADXN...24 -15%/+10%		
	Frequency	50 or 60Hz ±5%		
Bypass relay		Integrated		
Cooling system	Natural	ADXN...006... - ADXN...030...		
	Forced	ADXN...038... - ADXN...045..., optional for ADXN...006... - ADXN...030...		
Number of starts per hour		See page 5-23		
PROTECTIONS				
Line voltage		Lack of line voltage, phase loss, voltage out of limits, frequency out of limits, wrong phase sequence		
Motor		–	–	Electronic current thermal protection (overload), locked rotor, current asymmetry, load too low, starting too long
Soft starter		Overtemperature	Overtemperature	Overcurrent and overtemperature
START AND STOP SETTINGS				
Starting		Voltage ramp	Voltage ramp	Voltage ramp with current limit
Stop		Voltage ramp or free-wheel stop		
Braking		–		
PROGRAMMING INTERFACES				
Potentiometers		Settings: starting voltage, acceleration ramp time, deceleration ramp time	–	Settings: starting voltage, acceleration ramp time, deceleration ramp time. Note. The potentiometers can be disabled via NFC.
NFC connectivity		–	Settings: starting voltage, acceleration ramp time, deceleration ramp time, protection thresholds, password, relay outputs function and alarm properties	Settings: rated motor current, starting current limit, thermal protection class, protection thresholds, communication parameters, password, relay outputs function and alarm properties
Optical port		–	–	Connection with USB device CX01 for the connection to a PC with Xpress software. Connection to Wi-Fi device CX02 for the connection to a PC with Xpress software or Android and iOS smartphone and tablet with LOVATO SAM1 App. Connection of the RS485 communication module CX04, Modbus-RTU protocol.
LEDs		3: POWER (presence of auxiliary power supply), RUN (ramp in progress/Top Of Ramp), ALARM (alarm, with identification of the type of active alarm with number of flashes of the LED)		
DIGITAL INPUT ST (start)				
Input type		Volt-free contact		
Input function		Motor start		
RELAY OUTPUTS				
Number of outputs		2		
Outputs arrangement		2 NO contacts with the same common, 5A 250VAC AC1 – 5A 30VDC		
Outputs function		Line contactor, TOR (Top Of Ramp)	Programmable: Line contactor, TOR (Top Of Ramp), alarm	Programmable: Line contactor, TOR (Top Of Ramp), alarm, max torque
COMMUNICATION INTERFACES				
RS485 port		–	–	Optional, with communication module CX04 (RS485, Modbus-RTU protocol)
AMBIENT CONDITIONS				
Operating temperature		-20...+60°C (above 40°C with derating of the starter current by 1%/°C)		
Storage temperature		-30...+80°C		
Relative humidity		<80%		
Maximum altitude		1000m without derating (above 1000m with derating of starter current ❶)		
Pollution degree		2		
Overvoltage category		III		
Operating position		Vertical		
HOUSING				
Mounting		Screw fixing or mounting on 35mm DIN rail (IEC/EN/BS 60715)		
IEC degree of protection		IP20		

❶ Consult the ADXN technical manual, available on the website www.LovatoElectric.com.

TYPE (with 2 controlled phases)		**ADXL…600**
Motor	Type	Asynchronous three phase
	Power	7.5...160kW (400VAC) 15...300HP (550...600VAC)
	Rated current	18...320A (the motor current can be set between the 50% and 100% of the rated soft starter current Ie)
Supply voltage	Line voltage	208...600VAC ±10%
	Auxiliary supply voltage	100...240VAC ±10%
	Frequency	50 or 60Hz ±5%
Bypass relay		Integrated
Cooling system	Natural	ADXL0018600...ADXL0115600
	Forced	ADXL0135600...ADXL0320600 Optional for ADXL0018600...ADXL0115600
Number of starts per hour		See table at page 5-23
PROTECTIONS		
Auxiliary supply		Voltage too low
Line voltage		Lack of line voltage, phase loss, voltage out of limits, frequency out of limits, wrong phase sequence
Motor		Overload at starting (trip class 2, 10A, 10, 15, 20, 25, 30, 35 and 40), overload during running (trip class 2, 10A, 10, 15, 20, 25 and 30), locked rotor, current asymmetry, minimum torque and starting too long
Soft starter		Overcurrent and overtemperature
START AND STOP SETTINGS		
Starting		Torque ramp with current limit, voltage ramp with current limit
Stop		Torque ramp, voltage ramp or free-wheel stop
Braking		—
DISPLAY AND PROGRAMMING		
		Using the built-in keyboard and display, PC with CX01 and CX02 with software Xpress, smartphone or tablet with LOVATO NFC App or LOVATO SAM1 App with CX02 and remote display unit EXCRDU2 with EXC1042
Display		Backlit icon LCD display
Measure view		Maximum current, L1 current, L2 current, L3 current, torque, line voltage, power factor, motor thermal status, soft starter temperature, active power, active energy, motor hour counter, startup counter
Other views		Operational status, events, alarms, measures
LEDs		3: POWER (presence of auxiliary supply voltage), RUN (ramp in progress/bypass), ALARM (alarm)
DIGITAL INPUTS		
Number of inputs		3
Input type		2 programmable digital inputs with volt-free contact, 1 programmable input configurable as digital input with volt-free contact or PTC input
Inputs function		OFF, motor start, motor stop, free-wheel stop, motor preheating, local control, alarm inhibition, thermal status reset, keyboard lock, motor selection, user alarm, command, alarm reset
RELAY OUTPUTS		
Number of outputs		3
Outputs arrangement		- 2 NO programmable: 3A 250VAC AC1 - 3A 30VDC - 1 changeover programmable: NO contact 5A 250VAC AC1 - 5A 30VDC; NC contact 3A 250VAC AC1 - 3A 30VDC
Outputs function		OFF, line contactor, run (ramp completed), global alarm, limits, remote variable, alarm
COMMUNICATION INTERFACES		
		NFC, front optical port, optional RS485 (EXC1042)
VARIOUS FUNCTIONS		
Calendar clock		—
Event memory		60 events
Operational data memory		Energy meter, startup counter, motor hour meter and maintenance hour counter
AMBIENT CONDITIONS		
Operating temperature		-20...+60°C (above 40°C with derating of starter current by 0.5%/°C)
Storage temperature		-30°...+80°C
Maximum altitude		1000m without derating (above 1000m with derating of starter current of 0.5%/100mt)
Pollution degree		2
Operating position		Vertical
HOUSING		
Mounting		Screw-mount on panel or 35mm DIN rail (IEC/EN/BS 60715) with EXP8003 accessory for ADXL0018600...ADXL0115600
IEC degree of protection		IP00

NUMBER OF STARTS PER HOUR ADXN... SERIES
The following data are based on an ambient temperature of 40°C, starting current of 4*In and ramp time 6 seconds. In=Rated motor current.

NUMBER OF STARTS PER HOUR WITHOUT FAN

In	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
3A											ADXN006									
6A						ADXN006							ADXN012							
9A					ADXN012					ADXN018										
12A					ADXN012 - ADXN018															
18A		ADXN018			ADXN025				ADXN030											
25A		ADXN025				ADXN030														
30A		ADXN030																		
38A																				
45A																				

ADXN038… and ADXN045… have built-in fan

NUMBER OF STARTS PER HOUR WITH FAN

In	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
3A											ADXN006									
6A										ADXN006										ADXN012
9A										ADXN012										ADXN018
12A								ADXN012							ADXN018					ADXN025
18A						ADXN018								ADXN025			ADXN030			
25A							ADXN025									ADXN030				
30A						ADXN030							ADXN038		ADXN045					
38A					ADXN038						ADXN045									
45A			ADXN045																	

NUMBER OF STARTS PER HOUR ADXL... SERIES
The following data are based on an ambient temperature of 40°C, starting current of 4*In and ramp time 6 seconds. In=Rated motor current.

NUMBER OF STARTS PER HOUR WITHOUT FAN

In	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
16A					ADXL0018600										ADXL0030600					
30A					ADXL0030600						ADXL0045600			ADXL0060600						
37A				ADXL045600					ADXL0060600						ADXL0075600					
45A			ADXL0045600				ADXL0060600			ADXL0075600					ADXL0085600					
60A		ADXL0060600			ADXL0075600				ADXL0085600	ADXL0115600										
66A			ADXL0075600					ADXL0085600		ADXL0115600										
75A		ADXL0075600			ADXL0085600			ADXL0115600												
85A		ADXL0085600			ADXL0115600															
97A		ADXL0115600																		
115A	ADXL0115600																			
135A																				
162A																				
195A																				
250A																				
320A																				

ADXL0135600...ADXL0320600 have two integrated fans as standard

NUMBER OF STARTS PER HOUR WITH FAN

In	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
16A								ADXL0018600									ADXL0030600			
30A						ADXL0030600								ADXL0045600				ADXL0060600		
37A						ADXL0045600									ADXL0060600					ADXL0075600
45A					ADXL0045600									ADXL0060600			ADXL0075600		ADXL0085600	
60A					ADXL0060600						ADXL0075600				ADXL0085600			ADXL0115600		
66A					ADXL0075600								ADXL0085600				ADXL0115600			
75A					ADXL0075600							ADXL0085600		ADXL0115600				ADXL0135600		
85A					ADXL0085600							ADXL0115600			ADXL0135600				ADXL0162600	
97A					ADXL0115600						ADXL0135600			ADXL0162600				ADXL0195600		
115A				ADXL0115600							ADXL01355600			ADXL0162600			ADX0 ADXL0195600			
135A					ADXL0135600							ADXL0162600			ADXL0195600				ADXL0250600	
162A				ADXL0162600						ADXL0195600				ADXL0250600				ADXL0320600		
195A					ADXL0195600						ADXL0250600					ADXL0320600				
250A				ADXL0250600					ADXL0320600											
320A				ADXL0320600																

TYPE (with 3 controlled phases)		**ADXT...**
Motor	Type	Asynchronous three phase
	Power at 400VAC	18.5...315kW (400VAC), 20...300HP (400VAC)
	Rated current	See the selection tables at page 5-12 and 5-13
Supply voltage	Line voltage	380...690VAC ±10%
	Auxiliary supply voltage	ADXT...: 110...120VAC and 220...240VAC -15%/+10%, ADXT...24: 24VAC/DC ±20%
	Frequency	50 or 60Hz ±5%
Bypass contactor		Integrated
Cooling system		Forced
PROTECTIONS		
Auxiliary supply		Voltage too low
Line voltage		Lack of line voltage, phase loss, voltage out of limits, frequency out of limits and wrong phase sequence
Motor		Thermal protection, overtemperature, overcurrent, locked rotor, current asymmetry, starting too long, current too low, power too low or too high, motor not connected
Soft starter		Overcurrent and overtemperature
START AND STOP SETTINGS		
Starting		Constant current, current ramp, voltage ramp, adaptive control
Stop		Voltage ramp, adaptive control or free-wheel stop
Braking		DC braking, soft brake with braking contactor
DISPLAY AND PROGRAMMING		
		Using the built-in keypad and display, PC with software ADXTSW and USB pen drive
Display		Backlit LCD graphic display
Measure view		Current, motor voltage, phase voltage, network frequency, motor power factor, motor power, motor temperature %, motor hour counter, number of starts, analog output value, heatsink temperature, SCR temperature, soft starter thermal capacity
Other views		Status, events, alarms, performance trend
LED		4: READY (soft starter ready), RUN (ramp in progress/TOR), ALARM (alarm), REMOTE (control via optional remote keypad)
DIGITAL AND ANALOG INPUTS		
Number of inputs		5
Inputs type		4 digital inputs with volt-free contact (2 for start/stop and reset, 2 programmable), 1 input for motor thermistor
Inputs function		Input trip, zero speed sensor, motor set select, emergency mode, reverse direction, jog forward, jog reverse, pump clean
RELAY OUTPUTS		
Number of outputs		3
Output arrangement		2 NO (1 for line contactor + 1 programmable) + 1 C/O (programmable): 10A 250VAC AC1, 5A 250VAC AC15
Outputs function		Off, ready, line contactor, run (TOR), warning, alarm, low current, high current, motor overtemperature, soft brake relay, reversing contactor, failsafe alarm
ANALOG OUTPUT		
Type		0...20mA or 4...20mA
Associated measure		Current %, motor temperature %, motor power factor, motor power %, heatsink temperature
COMMUNICATION INTERFACES		
RS485		Optional, with ADXTRTU card, Modbus-RTU protocol
Ethernet		Optional, with ADXTTCP card, Modbus-TCP protocol
USB		Integrated, for loading configuration files, download parameters and event logs
VARIOUS FUNCTIONS		
Calendar clock		Calendar clock with backup battery
Event memory		384 events with date and time
Operational data memory		Startup counter, motor operating hours counter, number of thermal status reset counter
AMBIENT CONDITIONS		
Operating temperature		-10...+60°C (above 40°C with derating of the soft starter current ❶)
Storage temperature		-25...+60°C
Maximum altitude		1000m without derating (higher up with derating of the soft starter current ❶)
Pollution degree		3
Operating position		Vertical
HOUSING		
Mounting		Screw-mount on panel
IEC degree of protection		IP20 for ADXT0034...ADXT0126, IP00 for higher sizes (IP20 with optional ADXTFG fingerguards)

❶ Consult the ADXT technical manual, available on the website www.LovatoElectric.com.

TYPE (with 3 controlled phases)		**51ADX…B**	**51ADX…**
Motor	Type	Asynchronous three phase	
	Rated power (at 400VAC)	7.5...132kW	160...355kW
	Rated current	17...245A	310...640A
Supply voltage	Line voltage	208...500VAC ±10%	208...415VAC ±10%
	Auxiliary supply voltage	208...240VAC ±10%	
	Frequency	50 or 60Hz ±5%	
Bypass contactor		Integrated	Predisposed for external bypass contactor
Cooling system	Natural	51ADX0017B...51ADX0045B	—
	Forced	51ADX0060B...51ADX0245B	All types

PROTECTIONS	
Auxiliary supply	Voltage too low
Line voltage	Lack of line voltage, phase loss, voltage out of limits, frequency out of limits and wrong phase sequence
Motor	Overload at starting (trip class 2, 10A, 10, 15, 20, 25, 30, 35, and 40), overload during running (trip class 2, 10A, 10, 15, 20, 25 and 30), locked rotor, current asymmetry, minimum torque and maximum starting time
Soft starter	Overcurrent and overtemperature

START AND STOP SETTINGS	
Starting	Torque ramp with maximum current control
Stop	Torque ramp, voltage ramp or free-wheel stop
Braking	DC braking, soft brake with braking contactor

DISPLAY AND PROGRAMMING	
	Integrated keypad on front, remote keypad 51ADXTAST or PC with software 51ADXSW
Display	Backlit LCD 2x16 characters
Measure view	Voltage, current, torque, active power, apparent power, power factor, thermal status of motor and starter, energy
Other views	Operating status, events, alarms, event log, data
LEDs	"POWER", "RUN" and "FAULT"

DIGITAL AND ANALOG INPUTS	
Number of inputs	3 (2 digital + 1 digital/analog)
Input type	Volt-free contact
Inputs with fixed functions	2 inputs for starting and stopping/reset
Multifunction input PROG.IN configured as digital input	Free-wheel stop, external alarm, motor preheat, local control, alarm inhibition, thermal protection, manual reset, cascade starting and keypad lock
Multifunction input PROG.IN configured as analog input	Motor protection via PTC probe, acceleration and/or deceleration ramp via analog input, analog input thresholds for motor starting and stopping, analog input thresholds for programmable relay enable and disable, PT100 input thresholds for motor starting and stopping and PT100 input thresholds for programmable relay enable and disable

RELAY OUTPUTS	
Number of outputs	4
Output arrangement	1NO+1NC (global alarm) and 3 NO programmable: 5A 250VAC AC1
Outputs function	Motor running, motor started, braking, current threshold triggering, maintenance schedule, cascaded startup, PROG-IN thresholds, alarm

ANALOG OUTPUT	
Type	0...20mA, 4...20mA or 0...10V (with external 500Ω resistor)
Associated measure	Current, torque, motor thermal status, power factor and active power

COMMUNICATION INTERFACES	
RS232	Setup and remote control with software 51ADXSW
RS485	Dedicated only for the connection of 51ADXTAST optional remote keypad

VARIOUS FUNCTIONS	
Calendar clock	Calendar clock with backup battery
Event memory	20 events with date and time
Operational data memory	Energy meter, startup counter, motor hour meter and maintenance hour counter

AMBIENT CONDITIONS	
Operating temperature	-10...+55°C (above 45°C with derating of the starter current of 1.5%/°C)
Storage temperature	-30°...+70°C
Pollution degree	3
Maximum altitude	1000m without derating (above 1000m with derating of the starter current of 0.5%/100mt)
Operating position	Vertical

HOUSING	
Mounting	Screw-mount on panel
IEC degree of protection	IP20 for 51ADX0017B...51ADX0125B. IP00 for higher sizes