

# LOVATO ADX SOFT STARTERS by CMG

with TORQUE CONTROL



*Lovato ADX & ADX-B Series*



*Lovato ADX Micro Series*

**PRODUCT CATALOGUE**

**CMG**  
SOLUTIONS, not just products



## **“SOLUTIONS, not just products.”**

### ***Specialists in Electric Motors, Geared Motors & Variable Speed Drives***

At CMG we offer customised packages to the most demanding industrial markets.

Our success is built on a strong commitment to our customers' needs and a willingness to find the best solution possible. We have been in business since 1948 so you can be confident our experience and knowledge is second to none.

With over 500 staff around the globe, our branches extend across Australia, New Zealand, Asia Pacific, South Africa, Europe and the Middle East.

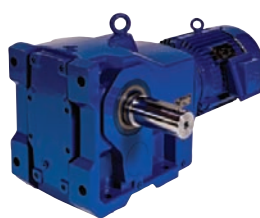
We have the capability to value-add our products through partnerships with leading international companies whose technical skills are equal to ours, including Gear Motors from NORD and Soft Starters from Lovato. In return we offer these companies superior technical support that complements their own R&D capabilities.

Our manufacturing facility in Melbourne, Australia, demonstrates our commitment to efficient automated manufacturing processes. This facility includes a NATA & ILAC accredited laboratory which offers complete design and testing services.

***“We specialise in an extensive range of Electric Motors, Geared Motors and Variable Speed Drives. Offering a “complete package” ensures our customers get the most efficient, cost effective solution possible.”***



**Electric Motors**



**Geared Motors**



**AC Drives & Soft Starters**

# SOFT STARTERS by CMG

with TORQUE CONTROL

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# THE SOFT STARTER SCIENCE

**The Lovato range of reduced voltage soft starters with torque control provide the best control and protection for your three phase squirrel cage motors.**

## What are the advantages of incorporating soft starters into your system?

Soft starters - in combination with AC electric motors - control the acceleration (Fig.1) and deceleration during startup. This process temporarily reduces the load and torque in the powertrain of the motor. The benefit of such a process is the improved lifespan of your system as the mechanical stress on the motor and shaft has been reduced, as well as the electrodynamic stresses on power cables and the electrical distribution network.

Combining your electric motors with a soft starter not only reduces risk, breakage and maintenance downtime, but also increases your production efficiency and results.

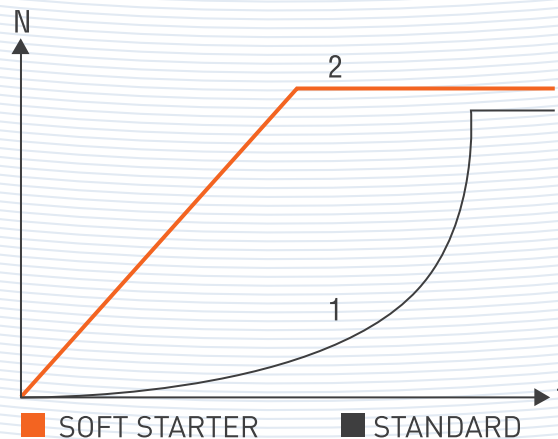


Fig.1: Controlled acceleration

## Why buy from CMG?

At CMG, we ensure our clients achieve maximum efficiency and productivity by utilising products such as soft starters. We have the experience, knowledge and facilities to customise and combine products to suit your operational needs.

By incorporating our high efficiency, world class Electric Motor range with Lovato's Soft Starters and our outstanding range of leading Gear Drives, you can save on production costs and maximise production output.

Our 24 hour technical support, installation and connection services - including swift commissioning procedures - ensure's our clients get the complete package. At CMG we believe in providing solutions, not just products.

## Features and benefits

### Soft Starters speak your language

Whether it be plain English text or your preferred language, CMG's Lovato soft starters cater for global industry needs and user-friendly experiences.

### Troubleshooting made easy

Find out exactly what happened - and when - with the events log (with real time clock). Our log of 25 different time-stamped events helps you diagnose exactly what went on, and get the most out of your system.

### Customisation options

Customisation of the CMG Lovato soft starter can be easily controlled from either the keypad, I/O terminals or fieldbus. Make use of the many features, including integrated Modbus, a useful set of input terminals, relay outputs and analogue output, and even connect to a modem with Autocall function.

### Enhanced protection for your system

#### Soft Starters protect Motors by:

- using preset thermal curves, selectable for different protection classes
- utilising PTC probes
- conducting phase supervision

#### Soft Starters protect Machines by:

- utilising underload protection
- overcurrent protection
- locked rotor protection

### Easy navigation

Take advantage of **CMG's quick reference guide**, available from your local CMG Branch. The quick reference guide creates an easy-to-use navigation and menu structure, assuring you get to the right location.

### High performance starting

Our standard heavy duty starters all include motor torque control for linear starting and stopping of machines.

### User software

Make life even simpler with the **FREE** user software. Program and store settings, set up print configurations, monitor variables etc. For more information, contact your local CMG branch today.

## The CMG-Lovato difference

- Save \$\$ with improved efficiency and reduced starting currents.
- Expert advice - 24 hours a day.
- Quick and convenient installation, connection & commissioning procedures.
- CMG offers total packaged solutions.



# LOVATO ADX & ADX-B SERIES

Designed to operate in the most unfavorable conditions, the **CMG Lovato ADX and ADX-B series** provide the best control and protection for your three phase squirrel-cage motors.

Using the latest generation in advanced assembly technologies, the ADX series provides sure proof reliability and outstanding performance.

This reduced voltage soft starter with torque control, ensures smooth starting and stopping. Boasting an in-built Boost Function, you can be sure even the highest load torques will be started. The Dynamic Braking feature also caters for applications that require a quick stop, delivering ultimate control.

The ADX and ADX-B ranges are specifically designed to operate under severe circumstances and can deliver starting currents up to 500% during acceleration. The ADX model ranges from 160 to 630kW (208V to 415V), and the ADX-B model ranges from 7.5kW to 132kW (208V to 500V) with higher voltages available upon request.

## Features and Benefits

- **Integral Bypass contactors up to 132kW:** Reduced ventilation and installation cost.
- **Emergency bypass protection start, DOL start (up to 132kW):** The bypass contactor can be used for emergency starts (requires external overload for motor thermal protection).
- **Torque control acceleration:** Smooth acceleration of machinery reduces mechanical stress.
- **Start boost function:** When starting high inertia loads.
- **3 Braking modes - Dynamic/Torque Decel/Free Wheel:** A stopping mode to suit any application.



- **Onboard Modbus RTU:** Communicates with process control without additional cards or equipment.
- **3 digital inputs:** Start/Stop, reset and programmable.
- **Analogue input (0-10V or 4-20mA):** For ramp control or threshold start/stop.
- **PTC or PT100 input:** For ramp control or threshold start/stop.
- **3 relay outputs plus 1NO/NC global fault relay:** Set and programmed functions to interface with control circuitry.
- **Analogue output - programmable for motor current, torque, power or power factor:** Metering of all motor variables.
- **2 line, 16 character English text LCD:** Easy to read monitoring and programming.
- **Real time clock and events log:** Diagnostic information for troubleshooting.
- **Adjustable dual motor thermal overload class (2-40):** Select overload class to suit application.
- **Starter thermal protection:** Heatsink temperature monitoring.
- **Overcurrent protection:** Current  $>550\%I_e^1$  for an interval  $\geq 200\text{ms}$  during starting.
- **Underload protection:** Current  $>10\% I_n^2$

<sup>1</sup> Starter name plate current  
<sup>2</sup> Present motor rated current

- **Locked rotor protection:** Current >500%  $I_n^3$  for interval  $\geq 200\text{ms}$  during running.
- **Auxiliary and supply voltage protection:** Fused auxiliary supply. Mains detection during starting or running.
- **Full monitoring:** Monitoring of motor phase currents and voltages, consumed power, kWh metering and I/O status provides you with all the relevant data.
- **Reliable protection:** Includes of dual class motor thermal protection, locked rotor, underload and current asymmetry.
- **Significant cost savings:** No cabinet ventilation.

## Applications

Lovato ADX Series drives are used in a host of applications utilising the various software solutions available. These include applications such as conveyors belts, compressors, pumps, hoists, blowers, fans and mixers.

## Performance Data

### ADX-B with Integral Bypass

Product code	Motor current & power (415 V)			Dimensions	
	Current [ A ]	Max Current [ A ]	Power [ kW ]	W x H x D [ mm ]	Weight [ kg ]
L51ADX0017B	17	105%	7.5	157 x 372 x 223	7.9
L51ADX0030B	30	105%	15	157 x 372 x 223	8.0
L51ADX0045B	45	105%	22	157 x 372 x 223	8.3
L51ADX0060B	60	105%	30	157 x 534 x 250	14.9
L51ADX0075B	75	105%	37	157 x 534 x 250	14.9
L51ADX0085B	85	105%	45	157 x 534 x 250	14.9
L51ADX0110B	110	105%	55	157 x 584 x 250	15.7
L51ADX0125B	125	105%	59	157 x 584 x 250	15.7
L51ADX0142B	142	105%	75	273 x 600 x 285	28
L51ADX0190B	190	105%	90	273 x 680 x 310	36
L51ADX0245B	245	105%	132	273 x 680 x 310	36

### ADX without Integral Bypass

Product code	Motor current & power (415 V)			Dimensions	
	Current [ A ]	Max Current [ A ]	Power [ kW ]	W x H x D [ mm ]	Weight [ kg ]
L51ADX0310	310	115%	160	640 x 600 x 380	50
L51ADX0365	365	115%	200	640 x 600 x 380	50
L51ADX0470	470	115%	250	790 x 650 x 430	90
L51ADX0568	568	115%	315	790 x 650 x 430	90
L51ADX0640	640	115%	355	790 x 650 x 430	110
L51ADX0820	820	115%	440	910 x 950 x 442	170
L51ADX1200	1200	115%	630	910 x 950 x 442	185

3 Present motor rated current

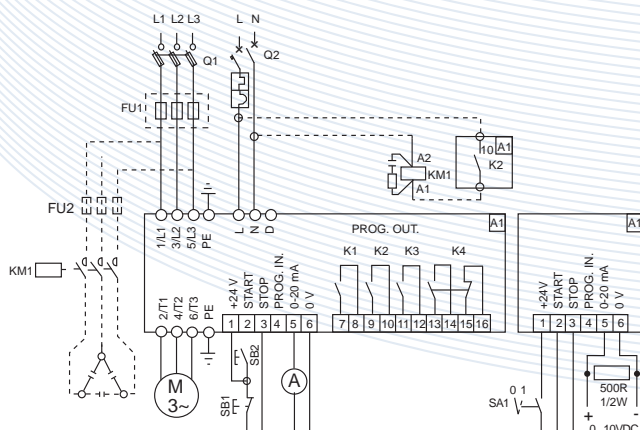


# ADX & ADX-B CONTINUED

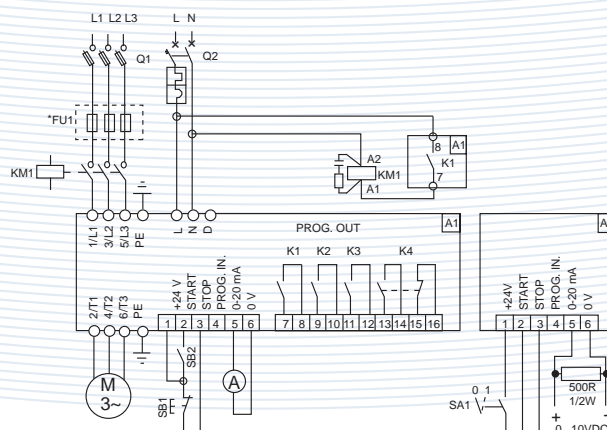
## Wiring diagrams: ADX & ADX-B

The following diagrams illustrate typical wiring layouts and are suitable for all of the ADX starter types, unless indicated otherwise.

Starting with one direction of running and free-wheel or soft stopping



Starting with one direction of running, line contactor and free-wheel or soft stopping



Note:

\*FU1 include quick blow fuses in the case of type 2 coordination.

The K1 relay must have the "Motor powered" function (default setting) assigned.

Caution: The KM1 contactor control current should be  $\leq 1.5A$  in AC15 category.

## Control Connections

	Terminal A1	Description	Features
1	+24V	Supply to digital inputs	24VDC $\pm 10\%$
2	START	Start Input	11mA input current at 24VDC; <5V logic status "0" and >12V logic status "1"; 28VDC maximum input voltage; 50ms Input Delay
3	STOP	Stop Input	
4	PROG. IN.	Programmable Input or 0-10V/0(4)-20mA analogue input, PTC input, PT100 input.	Analogue Input: 0-10V, >100k $\Omega$ measurement impedance, $\pm 2\%$ Repeat accuracy Analogue Input: PT100, 2-wire sensor (DIN 43670), $-50^\circ$ to $+250^\circ C$ , $\pm 2\%$ accuracy Input: PTC DIN 44081 sensor, total resistance of $\approx 1.5k\Omega$ at $25^\circ C$ , $\approx 2.9k\Omega$ tripping resistance, $\approx 1.6k\Omega$ resetting resistance
5	0(4) - 20mA	Analogue Output	0(4)-20mA, (0-10V with resistor), 0 - 850 $\Omega$ max load impedance, 50 - 500% scaling, $\pm 2\%$ Linearity, $\pm 1\%$ Repeat accuracy
6	0V		
7-8	K1 N/O	Programmable Relay Outputs  Fault Relay Output	5A - 250VAC (AC1) rated thermal current Ith, 250VAC maximum switching voltage, maximum capacity: AC15 2A-250VAC / DC13 0.5A - 50VDC, Switching capacity 1500VA maximum / 100mA at 24VDC minimum
9-10	K2 N/O		
11-12	K3 N/O		
13-14	K4 N/O		
15-16	K4 N/C		

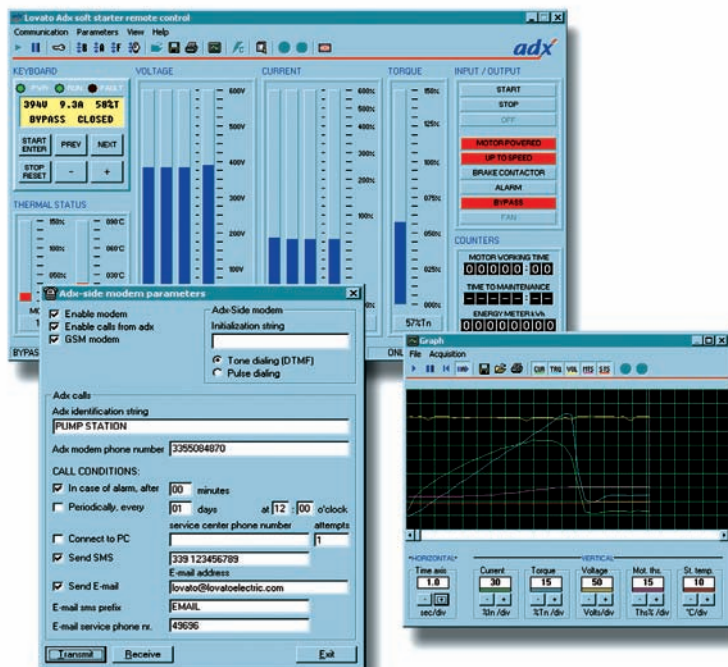


## Accessories

Interfacing with the ADX is made simple through a wide range of accessories.

Remote control and supervision is easily achieved using additional ADX Software. The software provides a facility for easy commissioning, parameter storing and trending, with the capability of both direct connection to a PC or via a modem.

Remote control is possible via the door mounted keypad. The remote control unit comes complete with 3m cable, and is rated to IP54 with L31PA96X96 protective cover.





# LOVATO ADX MICRO SOFT STARTER

The *CMG Lovato ADX Micro Soft Starter* is a compact easy-to-install soft starter for three-phase induction motors. Utilising its controlled acceleration and deceleration, the Micro guarantees less stress on your equipment.

This compact soft starter achieves up to 22kW at 400V and deliver currents up to 45A. Built in potentiometers enable independent start and stop times, ensuring ultimate control.

## Features & Benefits

- **Integrated bypass relay:** The integrated bypass ensures very low heat dissipation, so neither the product nor your enclosure overheats. This helps avoid the need for cooling ventilation.
- **PTC input:** Motor protection via PTC input and thermal protection of semiconductors is provided as standard in the larger frame size.
- **Fully adjustable:** You can adjust the ramp up time from voltage minimum to voltage maximum in seconds. Similarly, you can select the deceleration ramp time of the motor.
- **Degree of protection:** IP20
- **Mounting on 35mm DIN rail**
- **Thermistor input:** on 25A, 38A and 45A models
- **High ambient temperature rating**
- **Smooth starting and stopping:** Eliminates excessive impact on your equipment.
- **A reduced start up voltage:** For accurate torque control, and the reduction of starting current peaks.
- **Built in integrated bypass:** Eliminates the need for cooling and ventilation, or installation of an external bypass.



- **Hassle free installation and set-up**
- **Quick set up: Only three parameters to adjust by potentiometers** (start, stop and initial torque).
- **High number of starts per hour:** Reduces likelihood of nuisance overheating.
- **LED indications**
- A wide range of auxiliary control voltage can be used so you still know the status even when something has gone wrong.

## Applications

CMG Lovato ADX Micro soft starters are used in a host of applications. These include applications such as conveyors belts, compressors, pumps, hoists, blowers, fans and mixers.

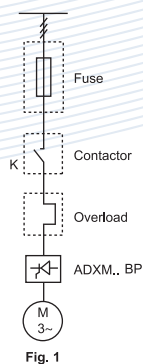


## Performance Data

Product code	Motor current & power (415 V)		Dimensions
	Current I [ A ]	Power [ kW ]	W x H x D [ mm ]
L51ADXM06BP	6	2.2	45 x 110 x 126
L51ADXM12BP	12	5.5	45 x 110 x 126
L51ADXM18BP	18	7.5	45 x 110 x 126
L51ADXM25BP	25	11	90 x 114 x 109
L51ADXM38BP	38	18.5	90 x 114 x 109
L51ADXM45BP	45	22	90 x 114 x 109

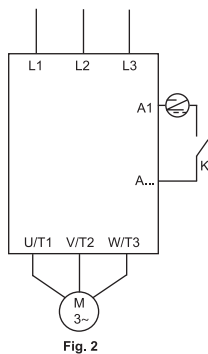
## Wiring diagrams

The following diagrams illustrate typical wiring layouts and are suitable for all of CMG ADX Micro soft starter types, unless otherwise indicated.



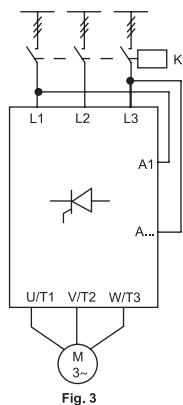
Use of fuses - Fig. 1

Semiconductors protect the motor supply line and starter from damage due to short circuit connections.



Two wire starting control - Fig. 2

When K is closed, the input is supplied to A1 - A...(A2 or A3) and soft starting of the motor is performed. When K is opened, soft stopping is conducted.



Two phase control - Fig. 3

By connecting 2 of the incoming phases to A1 - A...(A2 or A3), soft starting is activated when K is closed. When K is opened, the motor is stopped without ramp down.

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