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- ADXM...BP**
- Rated starter current Ie 6 to 45A ratings
 - Rated motor power 2.2 to 22kW at 400VAC
 - Integrated by-pass relay
 - Total protection against over-temperature
 - Acceleration and deceleration time adjustable on front
 - LED indicator of starter status
 - Fixing on 35mm DIN rail.



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- ADX...BP**
- For standard duty, starting current 3.5•Ie
 - Rated starter current Ie 22 to 231A ratings
 - Rated motor power, 9.2 to 110kW at 380/415VAC
 - Reduced voltage soft starter with torque control and built-in by-pass contactor
 - Maximum starting current limitation
 - PC remote control supervision
 - Modbus®-RTU and property ASCII communication protocols
 - LCD backlit screen.



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- ADX...B**
- For severe duty, starting current 5•Ie
 - Rated starter current Ie 17 to 245A ratings
 - Rated motor power, 7.5 to 132kW at 380/415VAC
 - Reduced voltage soft starter with torque control and built-in by-pass contactor
 - Maximum starting current limitation
 - PC remote control supervision
 - Modbus®-RTU and property ASCII communication protocols
 - LCD backlit screen.

- ◆ 6A to 1200A starter ratings
- ◆ Standard and severe-duty types
- ◆ Internal by-pass contactor up to 245A rating
- ◆ Torque ramp starting
- ◆ Total motor protection incorporated
- ◆ Clock calendar
- ◆ Digital control and adjustment
- ◆ RS232 and RS485 serial ports for remote supervision and control
- ◆ Modbus®-RTU and proprietary ASCII communication protocols.



PLANET - LOGIC



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- ADX**
- For severe duty, starting current 5•Ie
 - Rated starter current Ie, 310A to 1200A ratings
 - Rated motor power, 160kW to 630kW at 380/415VAC
 - Reduced voltage soft starter with torque control, predisposed for external by-pass contactor
 - Maximum starting current limitation
 - PC remote control supervision
 - Modbus®-RTU and property ASCII communication protocols
 - LCD backlit screen.



Soft starters

ADX...BP type with integrated by-pass relay	15-	2
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SEC. PAGE



ADXM...BP type



51 ADXM 06BP
51 ADXM 12BP
51 ADXM 18BP



51 ADXM 25BP
51 ADXM 38BP
51 ADXM 45BP

Order code	Rated starter power Ie [A]	Rated motor power [kW]	Qty per pkg n°	Wt [kg]
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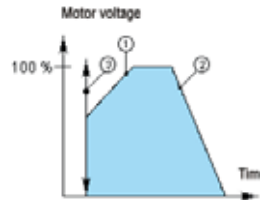
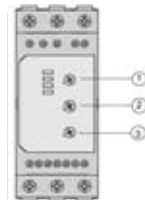
With integrated by-pass relay. 400VAC

51 ADXM 06BP	6	2.2	1	0.580
51 ADXM 12BP	12	5.5	1	0.580
51 ADXM 18BP	18	7.5	1	0.580
51 ADXM 25BP	25	11	1	0.800
51 ADXM 38BP	38	18,5	1	0.800
51 ADXM 45BP	45	22	1	0.800

With integrated by-pass relay. 220VAC

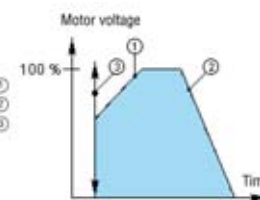
51 ADXM 06BP A220	6	1.1	1	0.580
51 ADXM 12BP A220	12	3	1	0.580
51 ADXM 18BP A220	18	4	1	0.580
51 ADXM 25BP A220	25	5.5	1	0.800
51 ADXM 38BP A220	38	11	1	0.800
51 ADXM 45BP A220	45	11	1	0.800

ADXM 06/12/18BP ADJUSTMENTS



- ① Ramp-up time 0.5 to 10s. Time from zero to full load voltage.
- ② Ramp-down time 0.5 to 20s. Time from full load voltage to zero.
- ③ Initial torque 0 to 85% of voltage at the beginning of the ramp-up function.

ADXM 25/38/45BP ADJUSTMENTS



- ① Ramp-up time 1 to 10s. Time from zero to full load voltage.
- ② Ramp-down time 1 to 30s. Time from full load voltage to zero.
- ③ Initial torque 0 to 70% of voltage at the beginning of the ramp-up function.

General characteristics

ADXM...BP is a compact type of soft starter, for motors up to 22kW at 400VAC, 11kW at 220VAC. ADXM soft starts and soft stops three-phase induction motors with rated load currents up to 45A. Starting and stopping times as well as initial torque can be independently adjusted by built-in potentiometers. ADXM...BP reduces the mechanical load on motors, shafts, gearboxes and drive belts.

Main features are:

- For three phase induction motors up to 22kW at 400VAC, 11kW at 220VAC
- 35mm DIN (IEC/EN 60715) rail mounting
- Integrated by-pass relay
- Full protection against overtemperature (ADXM 25/38/45BP)
- Simple setting and installation
- Ideal for conveyor belts, compressors, pumps, hoisting devices, blowers, fans, mixers.

Operational characteristics

- Number of controlled phases: 2
- Controlled input voltage L1-L2.L3:
 - 400VAC -15 +10% (ADXM...BP) ①
 - 220VAC -15 +10% (ADXM...BP A220)
- Frequency range: 50/60Hz ±10Hz
- Auxiliary supply voltage:
 - A1-A2 - 24-110VAC/DC ±15% (ADXM 06/12/18BP...)
 - A1-A3 - 110-480VAC ±15% (ADXM 06/12/18BP...)
 - A1-A2 - 24-550VAC/DC ±15% (ADXM 25/38/45BP...)
- Start time adjustment (ramp up):
 - 0.5 to 5s (ADXM 06/12/18BP...)
 - 1 to 10s (ADXM 25/38/45BP...)
- Stop time adjustment (ramp down):
 - 0.5 to 20s (ADXM 06/12/18BP...)
 - 1 to 30s (ADXM 25/38/45BP...)
- Start torque adjustment (initial torque):
 - 0-85% voltage (ADXM 06/12/18BP...)
 - 5-70% voltage (ADXM 25/38/45BP...)
- Degree of protection: IP20
- LED indicators:

	ADXM 06/12/18BP	LED
Power on	Green LED	POWER ON
Ramp up/down	Yellow LED (constantly on)	RAMPING
By-pass relay	Yellow LED (constantly on)	BYPASS

	ADXM 25/38/45BP	LED
Power on	Green LED	POWER ON
Ramp up/down	Yellow LED (flashing)	RAMPING
By-pass relay	Yellow LED (constantly on)	BYPASS
Overtemperature inside starter	Red LED (flashing)	OVERHEAT
Overtemperature in motor (PTC)	Red LED (constantly on)	
Phase failure/loss②	Red LED (flashing)	WRONG SEQ
Wrong phase sequence②	Red LED (fast flashing)	PHASE LOSS
Voltage too low	Red LED (slow flashing)	

① 480VAC or 600VAC version available on request. Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com).

② These protections are active at power on only.

Certifications and compliance

Certifications obtained: cULus and GOST
Compliant to standards: IEC/EN 60947-1, IEC/EN 60947-4-2.

ADX type



51 ADX 0022BP - 51 ADX 0048BP
51 ADX 0017B - 51 ADX 0045B



51 ADX 0058BP - 51 ADX 0092BP
51 ADX 0060B - 51 ADX 0085B



51 ADX 0082BP - 51 ADX 0144BP
51 ADX 0110B - 51 ADX 0125B

Order code	Rated starter current I _e	Rated motor power (380/415V)	Qty per pkg	Wt
	[A]	[kW]	n°	[kg]

For standard duty (starting current 3.5•I_e).
With integrated by-pass contactor.

51 ADX 0022BP	22	9.2	1	7.900
51 ADX 0034BP	34	15	1	8.000
51 ADX 0048BP	48	22	1	8.300
51 ADX 0058BP	58	26	1	14.900
51 ADX 0068BP	68	30	1	14.900
51 ADX 0082BP	82	37	1	14.900
51 ADX 0092BP	92	45	1	15.700
51 ADX 0114BP	114	55	1	15.700
51 ADX 0126BP	126	63	1	28.000
51 ADX 0150BP	150	75	1	36.000
51 ADX 0196BP	196	92	1	36.000
51 ADX 0231BP	231	110	1	36.000

For severe duty (starting current 5•I_e).
With integrated by-pass contactor.

51 ADX 0017B	17	7.5	1	7.900
51 ADX 0030B	30	15	1	8.000
51 ADX 0045B	45	22	1	8.300
51 ADX 0060B	60	30	1	14.900
51 ADX 0075B	75	37	1	14.900
51 ADX 0085B	85	45	1	14.900
51 ADX 0110B	110	55	1	15.700
51 ADX 0125B	125	59	1	15.700
51 ADX 0142B	142	75	1	34.000
51 ADX 0190B	190	90	1	37.000
51 ADX 0245B	245	132	1	37.000

For severe duty (starting current 5•I_e).
Predisposed for external by-pass contactor.

51 ADX 0310	310	160	1	50.000
51 ADX 0365	365	200	1	50.000
51 ADX 0470	470	250	1	90.000
51 ADX 0568	568	315	1	90.000
51 ADX 0640	640	355	1	110.000
51 ADX 0820	820	440	1	170.000
51 ADX 1200	1200	630	1	185.000

General characteristics

ADX is a reduced voltage soft starter with torque control and maximum starting current limit. It is used for the progressive starting and stopping of asynchronous three-phase squirrel-cage motors.

The integrated by-pass contactor ADX...BP or ADX...B types only, drastically limits dissipation, as a result equipment for electric panel cooling ventilation can be eliminated and the enclosure size can be reduced as well.

CONTROL

During starting: Torque control acceleration, current limit control and booster.

During stopping: Torque control deceleration, dynamic braking and free-wheel.

In emergency conditions: Starting without protections, direct-on-line starting using integrated by-pass contactor.

Remote control: PC supervision by connection with RS232/RS485 converter, modem or GSM modem.

Automatic call function (Autocall) in case of alarm conditions by sending a message to a cellular phone (SMS-Short Message Service) and/or to a mailbox.

Property ASCII and Modbus®-RTU communication protocols.

KEYPAD OPERATIONS

- Liquid-crystal backlit 2-line 16-character display
- Multilanguage capability (Italian, English, French, Spanish)
- Basic, advanced and function programming menus
- Keypad stop and start
- Motor and mains parameter readings:
 - line voltage values (L-L)
 - phase current
 - active and apparent power values per phase
 - power factor per phase
 - kWh
- Time sequential events log
- Clock calendar with backup battery.

PARTICULAR FUNCTIONS

Digital inputs and programmable relay outputs. Analog input (0 ...10V, 0 ... 20V or 4 ... 20mA) for ramp acceleration and/or deceleration, motor starting and stopping control thresholds, programmable relay enable and disable control thresholds. Analog output (0 ...10V, 0 ... 20V or 4 ... 20mA) for current, torque, motor thermal status and power factor readings. Input programming for second motor.

PROTECTIONS

- Motor: Dual thermal protection class (one during starting phase and the other during running) or by PTC sensor, locked rotor, current asymmetry, minimum torque and starting time too long
- Auxiliary voltage: Voltage value too low
- Power voltage: Phase failure, phase sequence and frequency out of limits
- Control inputs and analog output: Static 24VDC short-circuit protection with automatic resetting.
- Starter: Overcurrent, high temperature, SCR and by-pass contactor malfunction.

Operational characteristics

- Input voltage:
 - 208-500VAC ±10% for ADX...BP and ADX...B^①
 - 208-415VAC ±10% for ADX...^②
- Mains frequency: 50-60Hz ±5%
- Auxiliary supply voltage: 208-240VAC ±10%
- Auxiliary consumption: 20VA
- Rated starter current I_e:
 - 22-231A for ADX...BP
 - 17-245A for ADX...B
 - 310-1200A for ADX...
- Motor current: 0.5-1 I_e
- Overload current:
 - 105% I_e continuous for ADX...BP and ADX...B
 - 115% I_e continuous for ADX...

Certifications and compliance

Certifications obtained: GOST for all; CCC for ADX 0110B and ADX 0125B types only.

Compliant with standard: IEC/EN 60947-1, IEC/EN 60947-4-2

^① 208-575VAC ±10% on request.

^② Voltages on request: higher than 415V to 690V maximum.

Soft starters

Remote keypad and accessories for ADX... types

Remote keypad for ADX... types



51 ADX TAST

Accessories for ADX... types



51 C4



4PX1

Order code	Description	Qty per pkg	Wt
		n°	[kg]
51 ADX TAST	Remote keypad 96x96mm, 2x16 backlit LCD, 208-240VAC supply c/w 3m long connecting cable	1	0.350
51 C2	PC ↔ ADX connecting cable, 1.8m long	1	0.090
51 C3	PC ↔ GSM modem connecting cable, 1.8m long ^①	1	0.210
51 C4	PC ↔ 4 PX1 converter drive connecting cable, 1.8m long	1	0.147
51 C5	ADX ↔ Analog modem connecting cable, 1.8m long ^②	1	0.111
51 C6	ADX ↔ 4 PX1 converter drive connecting cable, 1.8m long	1	0.102
51 C7	ADX ↔ GSM modem "FUNK-ANLAGEN" ^① connecting cable, 1.8m long	1	0.101
51 C8	ADX ↔ remote keypad connecting cable, 3m long	1	0.081
4 PX1	RS232/RS485 converter drive, opto-isolated, 220-240VAC ^③	1	0.600
31 PA 96X96	Protective cover (IP54)	1	0.077

^① "FUNK-ANLAGEN" GSM modem, model n° FALCOM A2-1 or FALCOM A2D-1 or FALCOM TANGO 900/1800, compatible with LOVATO ELECTRIC remote control software.

^② "3Com-U.S. Robotics" 56k V.92, FAXMODEM model 5630, with RS232 interface, complete with PC connecting cable, compatible with LOVATO ELECTRIC remote control software.

^③ RS232/RS485 opto-isolated converter drive, 38,400 Baud-rate maximum, automatic or manual TRANSMIT line supervision, 220...240VAC ±10% supply (110-120VAC available on request).

General characteristics

The flush-mount ADX TAST remote keypad is identical to the one on board the soft starter except for the start and stop controls of the motor, which are permanently disabled. With this keypad, starter setup can be conducted, motor readings and operating data displayed and data and parameter transfer (ADX ↔ remote keypad) made, as well.

A backup copy of the starter data and parameter setup is obtainable with the transfer functions. In this way, quick and easy setup operations can be done especially with machines assembled in series.

The baud transmission rate, the contrast and backlight can also be adjusted by this keypad.

It is supplied standard with a 3 metre long cable and suitable connectors to complete the link to the ADX RS485 port. The three terminals of the keypad supply are removable.

For longer distances, this keypad can be connected to the ADX RS232 port via RS232/RS485 converter.

Advantages

- Flush mount
- Messages in selectable language
- Readings display
- Parameter setup
- Two-way data and parameter transfer.

Operational characteristics

- Auxiliary supply voltage: 208-240VAC ±10%
- Power consumption: 6.9VA
- Dissipation: 3.2W
- Mains frequency: 50/60Hz
- RS-485 port: RJ 4/4 connector
- Supply: Removable 3-pole 2.5 mm² terminal block.
- Display: 2 line, 16 character backlit LCD
- LED indication (3): POWER, RUN and FAULT
- Keys (6) ENTER/START, RESET/STOP, ←PREVIOUS, NEXT→, ▼ and ▲
- Ambient condition
 - Operating temperature: -10...+60°C
 - Storage temperature: -20...+70°C
- Flush mount enclosure
- Degree of protection on front: IP41; IP54 with protective cover.

Certifications

Certifications obtained: GOST.

Remote control software for ADX... types



51 ADX SW

Order code	Description	Qty per pkg	Wt
		n°	[kg]
51 ADX SW	PC-ADX remote control software with proprietary ASCII and Modbus® RTU protocols and a set of connecting cables 51 C2, 51 C3, 51 C5, 51 C7 for communications via RS232 port, analog or GSM modem	1	0.550

The remote control software consents to the PC supervision of all ADX soft starter functions, including: parameter set-up, real-time readout display, graphics of monitored parameter data during operation and starter events log display, each with time and date entry.

The PC-ADX connection is made by cable via the RS232 port, RS232/RS485 converter, analog or GSM modem.

The RS232 port is not suitable for permanent connections. The connection via modem permits the ADX starter to advise alarm conditions, that is an automatic link to the remote PC. GSM modem represents the ultimate solution for unmanned applications or where there are no telephone lines.

Interesting communications features are available with this type of modem, such as:

- SMS (Short Message Service): At alarm conditions, the ADX can send its ID and alarm code, with time and date entry. The advantage is the possibility of reaching service people, without delay, wherever they are located.
- E-mail (via Internet): a message with the same structure as mentioned above can be transmitted to a specified mailbox. The advantages of this type of message with respect to the SMS are that any communication, received through Internet mail server, is permanent and an vast number of these can be received and reviewed at any time.

General characteristics

- Display of all the monitored data by the ADX starter
- Virtual ADX keypad with access to all functions
- Parameter adjustment, only accessible with password, saving on disc and subsequent reloading on ADX starter
- Display of starter events log, showing time and date entry
- Graphics display of monitored data during operation
- Connection through RS232/RS485 converter or modem
- GSM-modem management with SMS or e-mail transmission
- AUTOCALL function for automatic PC call
- Program configuration in 4 languages (Italian, English, Spanish and French)
- Easy installation and set-up.

Advantages

- GSM network management for inaccessible applications where there are no telephone lines
- Call management during alarm conditions for SMS or e-mail transmission
- No limit for remote control distance
- Possibility of remote motor starting
- Reduction of service time
- Reduction of maintenance and downtime.

Operational characteristics

Minimum hardware requirements of the personal computer:

- Windows 95/98 operating system
- Pentium 100MHz or faster processor
- At least 16MB of free RAM
- About 4MB of free hard disk memory
- Graphic card having at least 800x600 resolution
- One free serial interface port
- CD-ROM drive.

Example of main window frame using 51 ADX SW remote control software

