

# Motion control Lexium 23 Plus

Catalogue

April 2012





All technical information about products listed in this catalogue are now available on:  
[www.schneider-electric.com](http://www.schneider-electric.com)

Browse the “product data sheet” to check out :

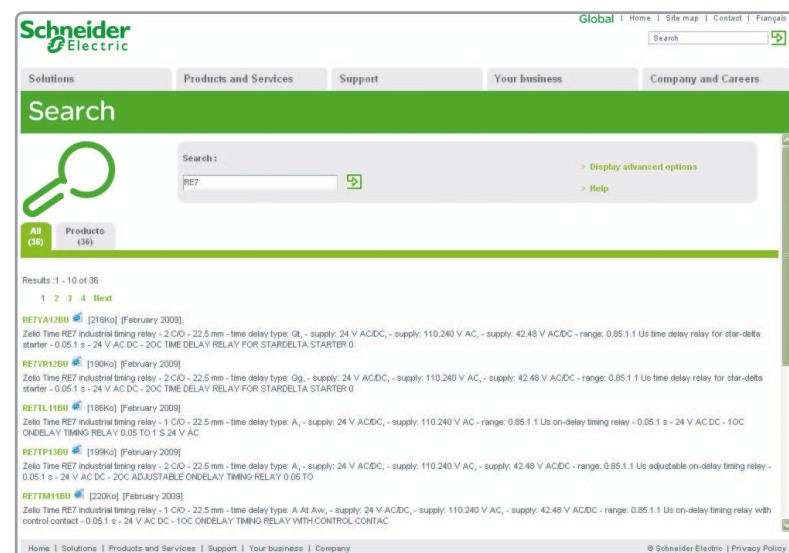
- characteristics,
- dimensions,
- curves, ...
- and also the links to the user guides and the CAD files.

**1** From the home page, type the model number\* into the “Search” box.



\* type the model number without any blank, replace “●” by “\*”

**2** Under “All” tab, click the model number that interests you.



### 3 The product data sheet displays.

Example : Zelio Time data sheet

**Zelio Time-RE 7 / RE 8 / RE 9**  
Timer relays that are simply ingenious

**RE7YA12BU**  
Zelio Time RE7 industrial timing relay - 2 C/O - 22.5 mm - time delay type: Ot - supply: 110...240 V AC, - supply: 42...48 V AC/DC - range: 0.85...1.1 Us

range of product	Zelio Time
product or component type	industrial timing relay
discrete output type	relay
width pitch dimension	22.5 mm
contacts type and composition	2 C/O
component name	RE7
contacts material	90/10 silver nickel contacts
time delay type	Ot
time delay range	0.05 s...300 h
[Ui] rated supply voltage	24 V AC/DC 50/60 Hz 110...240 V AC 50/60 Hz 42...48 V AC/DC 50/60 Hz
product weight	0.15 kg
voltage range	0.85...1.1 Us
tightening torque	0.6...1.1 N.m
CAD overall width	22.5 mm
CAD overall height	78 mm
CAD overall depth	80 mm

#### Discover this product

- Characteristics
- Functions
- Connection
- Dimensions
- Download & Documents

#### Other products

- Help me to choose
- Accessories**
  - Plug
  - Sockets

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Diagram showing dimensions: 80 mm (width), 89.5 mm (height), 82 mm (depth), 78 mm (height), 22.5 mm (width).

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☑ You can get this information in one single pdf file.



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### Lexium 23 Plus servo drives

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### BCH servo motors

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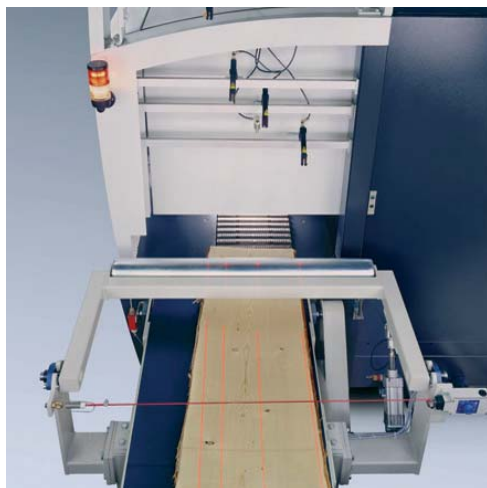
# Motion control

## Lexium 23 Plus

### Servo drives



Packaging application



Woodworking application



Textile application

#### Presentation

The Lexium 23 Plus offer features a range of servo drives and a range of BCH servo motors.

There are a large number of possible combinations to suit the requirements of motion control applications and optimize the performance of the installation.

The servo drives range covers a wide range of power ratings from 0.1 kW to 7.5 kW, with two types of power supply:

- 200...255 V single phase, 0.1 kW to 1.5 kW
- 170...255 V three-phase, 0.1 kW to 7.5 kW

BCH motors provide a nominal torque from 0.3 Nm to 48 Nm and a nominal speed of between 1000 rpm and 3000 rpm, depending on the model.

They are suitable for a very wide variety of applications due to the four levels of inertia offered (see page 14).

#### An offer to boost performance

When used with BCH servo motors and with the addition of options and accessories, Lexium 23 Plus servo drives provide a complete, very high performance system, designed in particular for installations equipped with simple machines.

See page 8.

#### Compact range

The compact dimensions of Lexium 23 Plus servo drives mean they fit very easily into small spaces, thus reducing the size of the installation and the cost of the equipment.

#### Simple commissioning

Commissioning is simple with the Lexium 23 CT PC commissioning software which has an auto-tuning function enabling extremely fast start-up.

The simplicity of the wiring of Lexium 23 Plus servo drives also makes installation easier and reduces installation costs.

#### Flexibility

Lexium 23 Plus servo drives have digital and analog I/O as standard, and one of the following communication interfaces, depending on the model:

- Interface for CANopen/CANmotion machine bus (**LXM 23A**)
- Pulse/direction (P/D) interface (**LXM 23D**)

The servo drives incorporate numerous functions, including auto-tuning, position, speed and torque control, etc. (see page 7).

This open communication concept enables integration into numerous different control system architectures.

#### Applications

- Material handling (conveying, palletizers, warehousing, etc.)
- Assembly (clamping, etc.)
- Printing
- Packaging
- Winding and unwinding
- Machine tools (multi-axis machines, cutting machines, etc.)
- Etc.



# Motion control

## Lexium 23 Plus

### Servo drives



Lexium 23A Plus servo drives with control via CANopen machine bus

#### The Lexium 23 Plus servo drive range

##### Configuration

The drives can be configured via the integrated graphic display terminal or using the Lexium 23 CT PC commissioning software.

##### Control

##### Control via CANopen machine bus: Lexium 23A servo drive

The Lexium 23 A servo drive features a CANopen/CANmotion machine bus control interface.

It also has numerous I/O:

- 2 inputs for high performance position capture
- 8 digital inputs
- 4 digital outputs
- 2 analog inputs
- 2 analog outputs

It has a closed loop current regulation function (sampling time 62.5  $\mu$ s).

It is compatible with PLCopen function blocks which offer applications such as flying shear, rotary knife, etc.



Lexium 23D Plus servo drives with control via I/O

##### Control via I/O: Lexium 23D servo drive

The Lexium 23 D drive can be used in standalone operation, with no axis controller (control via digital I/O).

It can also be used with an axis controller and can therefore be incorporated in numerous architectures.

It provides, for example, the following features:

- Creation of position registers up to 8 positions
- Switching between the speed/position/torque parameters

It has a closed loop current regulation function (sampling time 62.5  $\mu$ s).

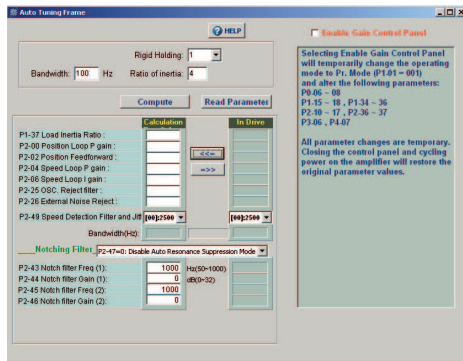
It also has a pulse/direction interface (up to 4 m/s) as well as numerous I/O:

- 8 digital inputs
- 4 digital outputs
- 2 analog inputs
- 2 analog outputs

# Motion control

## Lexium 23 Plus

### Servo drives



Commissioning using Lexium 23 CT software

### Lexium 23 CT PC commissioning software : for rapid commissioning and easy configuration

The commissioning time for Lexium 23 Plus servo drives is considerably reduced using Lexium 23 CT PC software.

It is used for commissioning, parameter setting, diagnostics and maintenance.

It can also be used to install Lexium 23 Plus servo drives in existing installations, keeping downtime to a minimum.

### Functions

Lexium 23 CT software includes the following functions:

- Auto-tuning
- Manual tuning
- Entry and display of parameters
- Oscilloscope function
- Fault diagnostics

### Auto-tuning

The auto-tuning function can be activated with the Lexium 23 CT software in two ways:

- Theoretical parameter setting: to calculate the gain parameters according to conditions selected by the user.
- Dynamic parameter setting: for optimum control, calculating the gain parameters in real time, according to the behaviour of the machine.

### Entry and display of parameters

The Lexium 23 CT software can be used to configure all the functions of a given operating mode.

The user interface of the Lexium 23 CT software enables quick, easy navigation. All the parameters can be displayed on a single graphic screen, which gives the experienced user a great deal of flexibility.

### Frequency analysis (FFT)

The frequency analysis, based on the Fast Fourier Transform (FFT) algorithm, is used to diagnose noise and vibration in machines.

To carry out the FFT analysis, the motor records the behaviour of the axis in terms of current and speed. Once the movement has been executed, the Lexium 23 CT commissioning software analyses the resonance peaks and displays them on the oscilloscope screen.

It is possible to enter the gain as a numerical value, a variable or an expression in the gain parameter field.

Filters can be applied to reduce resonance.

### Oscilloscope function

The Lexium 23 CT PC commissioning software provides an Oscilloscope function which can be used in two ways:

- Realtime mode: to monitor the evolution of a value measured in real time
- Precision mode: to capture a precise moment of the application. This function records all the information before displaying it, which enables very precise information to be obtained and very fine tuning to be carried out.

### Required configuration

The Lexium 23 CT software runs on a PC with the Microsoft Windows® 2000/XP/Vista operating systems. The servo drive is commissioned via the RS 232 serial link interface.

### Downloading

The Lexium 23 CT PC commissioning software can be downloaded from our website [www.schneider-electric.com](http://www.schneider-electric.com).



# Motion control

## Lexium 23 Plus

### Servo drives

#### Main functions

Lexium 23 Plus servo drives feature numerous functions enabling them to be used in a wide range of motion control applications.

#### Main functions of Lexium 23 Plus servo drives

- Automatic recognition of the motor
- Filtering:
  - Reduction of resonance
  - Low pass filter for attenuation of high frequency disturbance
  - Command smoothing
- Monitoring functions:
  - Status monitoring, I/O monitoring
  - Fault log, fault reset
  - Monitoring of closed loop control, etc.

#### Tuning functions

- Manual mode (JOG) for position and speed
- Auto-tuning: This function is used to optimize application performance

#### Operating modes for the Lexium 23D version (activation/setting parameters of functions via the digital I/O)

##### Position control

In this mode position and speed control are carried out via a pulse train sent by an axis controller, such as a PLC, a motion controller or a numerical controller.

This mode is particularly suitable for the following applications:

- Material handling
- Cutting to length
- Packaging

##### Speed control

In this mode the Lexium 23 Plus servo drive is controlled with an axis controller with analog output. It is suitable for any application requiring high-performance speed control.

This mode is particularly suitable for the following applications:

- Winding
- Unwinding

##### Current regulation

Current regulation is required in applications in which servo motor torque control is crucial.

This mode is particularly suitable for the following applications:

- Printing
- Winding

##### Parameter switching

This function enables switching between three sets of parameters:

- Speed/position
- Speed/torque
- Torque/position

This function is specifically for machines with numerous manufacturing processes.

##### Other functions

- Speed limiting
- Torque limiting
- Encoder simulation (ESIM): control of speed, torque or frequency

#### Operating modes for the Lexium 23A version (activation/setting parameters of functions via the CANopen machine bus)

The following operating modes are available:

- Homing (in accordance with functional profile CiA DSP 402)
- Point-to-point mode (in accordance with functional profile CiA DSP 402)
- Position gear mode
- Sync (cyclic)

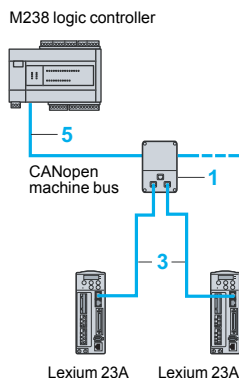
For details of all the functions integrated in Lexium 23 Plus servo drives, please consult our website [www.schneider-electric.com](http://www.schneider-electric.com).

BCH servo motor/Lexium 23 Plus servo drive combinations																
Motor		Servo drive				Combination		Motor inertia type								
Power indicated on rating plate	Inertia (without brake)	Nominal torque	Maximum peak torque	Maximum speed	Nominal speed	Servo drive	Servo motor									
kW	kgcm²	Nm	Nm	rpm	rpm											
Supply voltage, single phase: 200...255 V or three-phase: 170...255 V 50/60 Hz																
0.1	0.037	0.32	0.96	5000	3000	LXM23•U01M3X	BCH0401O•2•1C	Ultra low								
0.2	0.177	0.64	1.92	5000	3000	LXM23•U02M3X	BCH0601O•2•1C	Ultra low								
0.3	8.17	2.86	8.59	2000	1000	LXM23•U04M3X	BCH1301M•2•1C	Medium								
0.4	0.277	1.27	3.82	5000	3000	LXM23•U04M3X	BCH0602O•2•1C	Ultra low								
0.4	0.68	1.27	3.82	5000	3000	LXM23•U04M3X	BCH0801O•2•1C	Low								
0.5	8.17	2.39	7.16	3000	2000	LXM23•U04M3X	BCH1301N•2•1C	Medium								
0.6	8.41	5.73	17.19	2000	1000	LXM23•U07M3X	BCH1302M•2•1C	Medium								
0.75	1.13	2.39	7.16	5000	3000	LXM23•U07M3X	BCH0802O•2•1C	Low								
0.9	11.18	8.59	25.78	2000	1000	LXM23•U10M3X	BCH1303M•2•1C	Medium								
1	2.65	3.18	9.54	5000	3000	LXM23•U10M3X	BCH1001O•2•1C	Low								
1	11.18	4.77	14.32	3000	2000	LXM23•U10M3X	BCH1302N•2•1C	Medium								
1.5	11.18	7.16	21.48	3000	2000	LXM23•U15M3X	BCH1303N•2•1C	Medium								
Three-phase supply voltage: 170...255 V 50/60 Hz																
2	4.45	6.37	19.11	5000	3000	LXM23•U20M3X	BCH1002O•2•1C	Low								
2	14.59	9.55	26.65	3000	2000	LXM23•U20M3X	BCH1304N•2•1C	Medium								
2	34.58	9.55	26.65	3000	2000	LXM23•U20M3X	BCH1801N•2•1C	High								
3	54.95	14.32	42.96	3000	2000	LXM23•U30M3X	BCH1802N•2•1C	High								
3	54.95	19.1	57.29	3000	1500	LXM23•U30M3X	BCH1802M•2•1C	High								
3.5	54.8	16.71	50.31	3000	2000	LXM23•U45M3X	BCH1803N•2•1C	High								
4.5	77.75	28.65	71.62	3000	1500	LXM23•U45M3X	BCH1803M•2•1C	High								
5.5	99.78	35.01	87.53	3000	1500	LXM23•U55M3X	BCH1804M•2•1C	High								
7.5	142.7	47.74	119.36	3000	1500	LXM23•U75M3X	BCH1805M•2•1C	High								
References																
Example					L	X	M	2	3	A	U	0	1	M	3	X
Servo drive					L	X	M	2	3	A	U	0	1	M	3	X
LXM = Lexium servo drive																
Drive type					L	X	M	2	3	A	U	0	1	M	3	X
23 = standard																
Interface					L	X	M	2	3	A	U	0	1	M	3	X
A = CANopen machine bus																
D = pulse/direction interface																
Power					L	X	M	2	3	A	U	0	1	M	3	X
U01 = 0.1 kW																
U02 = 0.2 kW																
U04 = 0.4 kW																
U07 = 0.75 kW																
U05 = 0.5 kW																
U10 = 1 kW																
U15 = 1.5 kW																
U20 = 2 kW																
U30 = 3 kW																
U45 = 4.5 kW																
U55 = 5.5 kW																
U75 = 7.5 kW																
Supply voltage					L	X	M	2	3	A	U	0	1	M	3	X
M3X = 200...240 V ~																
single phase or three-phase																
Dimensions (overall in mm)																
Servo drives		LXM 23														
		•U01M3X •U02M3X •U04M3X	•U07M3X •U10M3X •U15M3X	•U20M3X •U30M3X	•U45M3X	•U55M3X	•U75M3X									
W x H		60 x 162	85 x 162	114 x 225	110 x 245	123 x 245	136 x 245									
D		146	180	195	205	216.5										

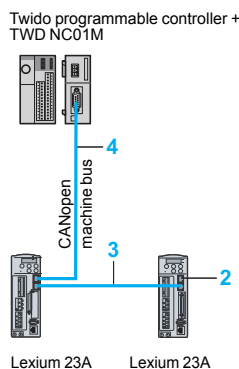
# Motion control

## Lexium 23 Plus

### Connection accessories

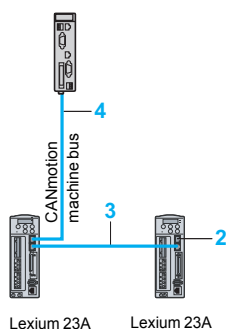


Example of architecture with control by M238 logic controller



Example of architecture with control by Twido programmable controller

Lexium Controller LMC 20 or LMC 20A130●



Example of architecture with control by LMC Lexium Controller

### CANopen and CANmotion machine bus for Lexium 23 Plus servo drives

Lexium 23 Plus servo drives can be connected directly to the CANopen machine bus using an RJ45 connector. To simplify daisy chain connection, each servo drive is equipped with two RJ45 connectors.

The communication function provides access to the servo drive's configuration, adjustment, control and monitoring functions.

Used with a Lexium Motion Controller, the CANmotion bus can be used to control motion for applications with up to eight Lexium 23 Plus servo drives.

#### Connection accessories (1)

Description	Use	Item no.	Reference	Weight kg
<b>IP 20 CANopen tap</b> 2 RJ45 ports	Tap-off from trunk cable for RJ45 cabling	1	<b>VW3 CAN TAP2</b>	0.480
<b>Line terminator</b> 120 Ω (equipped with 1 RJ45 connector)	Connection to the RJ45 connector	2	<b>TCS CAR 013M120</b>	0.009

#### Cordsets and cables (1)

Description	Use	Item no.	Length m	Reference	Weight kg
	From	To			
<b>CANopen cordsets</b> equipped with 2 RJ45 connectors	VW3 CAN TAP2	LXM 23A servo drive	0.3	<b>VW3 CAN CARR03</b>	0.320
	LXM 23A servo drive	LXM 23A servo drive	1	<b>VW3 CAN CARR1</b>	0.500
<b>CANopen cordsets</b> equipped with one 9-way female SUB-D connector with integrated line terminator and one RJ45 connector	Twido programmable controller	LXM 23A servo drive	1	<b>VW3 M3 805R010</b>	—
	Lexium motion controller LMC 20, LMC 20A130●	LXM 23A servo drive	3	<b>VW3 M3 805R030</b>	—
<b>CANopen cables</b> Standard cables, CE marking Low smoke, zero halogen Flame retardant (IEC 60332-1)	PLC	VW3 CAN TAP2 junction box	50	<b>TSX CAN CA 50</b>	4.930
			100	<b>TSX CAN CA 100</b>	8.800
			300	<b>TSX CAN CA 300</b>	24.560
<b>CANopen cables</b> UL certification, CE marking Flame retardant (IEC 60332-2)	PLC	VW3 CAN TAP2 junction box	50	<b>TSX CAN CB 50</b>	3.580
			100	<b>TSX CAN CB 100</b>	7.840
			300	<b>TSX CAN CB 300</b>	21.870
<b>CANopen cables</b> Cables for harsh environments (2) or mobile installations, CE marking Low smoke, zero halogen Flame retardant (IEC 60332-1)	PLC	VW3 CAN TAP2 junction box	50	<b>TSX CAN CD 50</b>	3.510
			100	<b>TSX CAN CD 100</b>	7.770
			300	<b>TSX CAN CD 300</b>	21.700

(1) For other CANopen machine bus connection accessories, please consult our website [www.schneider-electric.com](http://www.schneider-electric.com).

(2) Harsh environment:

- Resistance to hydrocarbons, industrial oils, detergents, solder splashes
- Relative humidity up to 100%
- Saline atmosphere
- Significant temperature variations
- Operating temperature between - 10°C and + 70°C

# Motion control Lexium 23 Plus

Option: braking resistors for servo drives

## Presentation

### Internal braking resistor

A braking resistor is built into the servo drive to absorb the braking energy. If the DC bus voltage in the servo drive exceeds a specified value, this braking resistor is activated. The restored energy is converted into heat by the braking resistor.

It enables maximum braking torque.

### External braking resistor

When the servo motor has to be braked frequently, an external braking resistor must be used to dissipate the excess braking energy. In this case, the internal braking resistor must be deactivated.

Several external braking resistors can be connected in parallel.  
The servo drive monitors the power dissipated in the braking resistor.

The degree of protection of the unit is IP 21.

## Applications

Machines with high inertia, driving loads and machines with fast cycles.

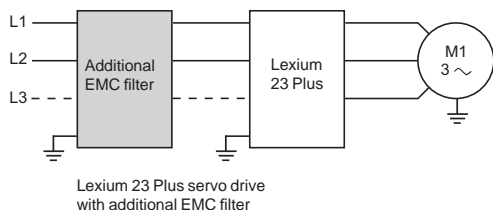
## References

Ohmic value	Continuous power PPr	Peak energy (220 V) EPk	Reference	Weight
Ω	W	Ws		kg
40	400	4000	VW3 M7 111	0.930
20	1000	4000	VW3 M7 112	2.800

**Note:** The total continuous power dissipated in the external braking resistor(s) must be less than or equal to the nominal power of the Lexium 23 Plus servo drive (see page 8).

# Motion control Lexium 23 Plus

Option: additional EMC input filters for  
servo drives



## Additional EMC input filters

### Applications

Combined with Lexium 23 Plus servo drives, additional EMC input filters can be used to meet more stringent requirements and are designed to reduce conducted emissions on the line supply below the limits of standard IEC/EN 61800-3 edition 2 category C2 or C3 (EMC immunity and conducted and radiated EMC emissions).

The additional EMC filters have tapped holes for mounting in an enclosure.

### Use according to the type of line supply

EMC filters can only be used on TN (neutral connection) and TT (neutral to earth) type systems.

Lexium 23 Plus servo drives cannot be used on IT (isolated or impedance earthed neutral) systems. Standard IEC/EN 61800-3, appendix D2.1, states that on IT systems, filters can cause permanent insulation monitors to operate in a random manner.

In addition, the effectiveness of additional filters on this type of system depends on the type of impedance between neutral and earth, and therefore cannot be predicted.

If a machine has to be installed on an IT system, an isolation transformer must be inserted in order to re-create a TT system on the secondary side.

## References

For servo drive	Maximum servo motor shielded cable length conforming to		Reference	Weight
	EN 55011 class A Gr1 IEC/EN 61800-3 category C2 (1) in environment 1	EN 55011 class A Gr2 IEC/EN 61800-3 category C3 (1) in environment 2		
	m	m		kg

### Single phase supply voltage

LXM23●U01M3X LXM23●U02M3X LXM23●U04M3X	—	—	VW3 A31 401	0.600
LXM23●U07M3X LXM23●U10M3X LXM23●U15M3X	—	—	VW3 A31 403	0.775

### Three-phase supply voltage

LXM23●U07M3X LXM23●U10M3X LXM23●U15M3X LXM23●U20M3X LXM23●U30M3X	20	40	VW3 A31 404	0.900
LXM23●U45M3X LXM23●U55M3X	20	40	VW3 A31 406	1.350
LXM23●U75M3X	20	40	VW3 A31 407	3.150

(1) Standard IEC/EN 61800-3: EMC immunity and conducted and radiated EMC emissions:  
- Category C2 in environment 1: restricted distribution, for domestic use, sale conditional on the competence of the user and the distributor in the reduction of current harmonics.  
- Category C3 in environment 2: industrial premises.

PF105585



Additional EMC filter VW3 A31 401

# Motion control

## Lexium 23 Plus

### Motor starters



GV2 L14  
+  
LC1 D09  
+  
LXM 23AU04M3X

#### Applications

The combinations listed below can be used to create a complete motor starter unit comprising a circuit breaker, a contactor and a Lexium 23 Plus servo drive.

The circuit-breaker provides protection against accidental short-circuits, disconnection and, if necessary, isolation.

The contactor turns on and manages any safety functions, as well as isolating the servo motor on stopping.

The servo drive controls the servo motor, provides protection against short-circuits between the servo drive and the servo motor and protects the motor cable against overloads. The overload protection is provided by the motor thermal protection of the servo drive.

#### Motor starters for Lexium 23 Plus servo drives

Servo drive		Circuit breaker		Contactor
Reference	Nominal power	Reference	Rating	Reference (1) (2)
	kW		A	
Single phase supply voltage: 200...255 V ~ 50/60 Hz or three-phase supply voltage: 170...255 V ~ 50/60 Hz				
LXM 23•U01M3X	0.1	GV2 L10	6.3	LC1 K0610••
LXM 23•U02M3X	0.2	GV2 L10	6.3	LC1 K0610••
LXM 23•U04M3X	0.4	GV2 L14	10	LC1 D09••
LXM 23•U07M3X	0.75	GV2 L14	10	LC1 D09••
LXM 23•U10M3X	1	GV2 L16	14	LC1 D12••
LXM 23•U15M3X	1.5	GV3 L22	25	LC1 D18••
LXM 23•U20M3X	2	GV3 L32	30	LC1 D32••
LXM 23•U30M3X	3	GV3 L32	30	LC1 D32••
LXM 23•U45M3X	4,5	GV3L65	60	LC1D65••
LXM 23•U55M3X	5,5	GV3L65	60	LC1D65••
LXM 23•U75M3X	7,5	NSE75HC (3)	75	LC1D80••

(1) Composition of the contactors:

LC1 K06: 3 poles + 1 N/O auxiliary contact

LC1 D••: 3 poles + 1 N/O auxiliary contact + 1 N/C auxiliary contact

Please refer to the "Control and protection components" catalogue.

(2) Replace •• with the control circuit voltage reference given in the table below:

	Volts ~	24	48	110	220	230	240
LC1-K	50/60 Hz	B7	E7	F7	M7	P7	U7
	Volts ~	24	48	110	220/230	230	230/240
LC1 D	50 Hz	B5	E5	F5	M5	P5	U5
	60 Hz	B6	E6	F6	M6	–	U6
	50/60 Hz	B7	E7	F7	M7	P7	U7

For other available voltages between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Centre.

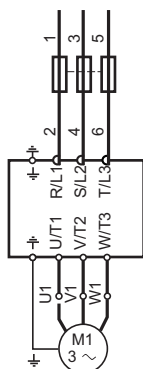
(3) Circuit breaker NSE75HC to be ordered under the reference number 35710.



# Motion control Lexium 23 Plus

Motor starters

Protection using fuses



Motor starter with fuse protection

## Protection using class J fuses (UL certification)

Servo drive	Fuse to be placed upstream	
Reference	Nominal power kW	A
Single phase supply voltage: 200...255 V ~ 50/60 Hz or three-phase supply voltage: 170...255 V ~ 50/60 Hz		
LXM 23●U01M3X	0.1	5
LXM 23●U02M3X	0.2	5
LXM 23●U04M3X	0.4	20
LXM 23●U07M3X	0.75	20
LXM 23●U10M3X	1	25
LXM 23●U15M3X	1.5	40
LXM 23●U20M3X	2	60
LXM 23●U30M3X	3	80
LXM 23●U45M3X	4.5	160
LXM 23●U55M3X	5.5	160
LXM 23●U75M3X	7.5	200

# Motion control

## Lexium 23 Plus

### BCH servo motors



BCH servo motor range

#### Presentation

BCH servo motors are synchronous motors.

They are equipped as standard with a high resolution (20-bit) incremental encoder. They are therefore ideal for high performance applications such as material working, machine tools, etc.

The servo motors are available in six flange sizes: 40 mm, 60 mm, 80 mm, 100 mm, 130 mm and 180 mm.

They are available in a version with holding brake (see opposite page).

With the four types of motor inertia available, ranging from ultra low to high inertia, the servo motors can be used in a very wide variety of installations:

- Ultra low inertia:  
power between 0.1 kW and 0.4 kW, suitable for electronic equipment and small printing machinery.
- Low inertia:  
power between 0.4 kW and 2 kW, suitable for textile and packaging applications.
- Medium inertia:  
power between 0.3 kW and 3 kW, suitable for material working and machine tool applications.
- High inertia:  
power between 2 kW and 7.5 kW, suitable for metal working and printing applications.

Examples of applications according to motor inertia type:

Type of machine	Inertia			
	Ultra low	Low	Medium	High
Conveyors				
Packaging machines				
Printers				
Loaders/unloaders				
X - Y tables				
Presses				
PCB drilling machines				
Electronic card testers				
Labelling machines				
Knitting and embroidery machines				
Special machines				
Winders/unwinders				

# Motion control

## Lexium 23 Plus

### BCH servo motors

References													
Example:	B	C	H	0	4	0	1	O	0	2	A	1	C
Servo motor BCH = three-phase servo motor	B	C	H	0	4	0	1	O	0	2	A	1	C
Flange size 040 = 40 mm 060 = 60 mm 080 = 80 mm 100 = 100 mm 130 = 130 mm 180 = 180 mm	B	C	H	0	4	0	1	O	0	2	A	1	C
Number of motor stages 1 = 1 stage (all flange sizes) 2 = 2 stages (with 60, 80, 100, 130 and 180 mm flanges) 3 = 3 stages (with 130 and 180 mm flanges) 4 = 4 stages (with 130 and 180 mm flanges) 5 = 5 stages (with 180 mm flange)	B	C	H	0	4	0	1	O	0	2	A	1	C
Speed type M = slow (1000/1500 rpm), (with 130 and 180 mm flanges) N = medium (2500 rpm), (with 130 and 180 mm flanges) O = fast (3000 rpm), (with 40, 60, 80 and 100 mm flanges)	B	C	H	0	4	0	1	O	0	2	A	1	C
Shaft end 0 = smooth, IP 40 degree of protection 1 = keyed, IP 40 degree of protection 2 = smooth, IP 65 degree of protection 3 = keyed, IP 65 degree of protection	B	C	H	0	4	0	1	O	0	2	A	1	C
Integrated encoder 2 = 20-bit high resolution incremental encoder	B	C	H	0	4	0	1	O	0	2	A	1	C
Holding brake A = without brake F = with brake	B	C	H	0	4	0	1	O	0	2	A	1	C
Connection 1 = flying leads (for BCH040...080 servo motors) or round connector (for BCH100...180 servo motors)	B	C	H	0	4	0	1	O	0	2	A	1	C
Type of mounting C = mechanical	B	C	H	0	4	0	1	O	0	2	A	1	C

Characteristics				
Servo motors	Without holding brake		With holding brake	
	W x H x D (1)	Weight	W x H x D (1)	Weight
	mm	kg	mm	kg
BCH0401	40 x 40 x 100.6	0.500	40 x 40 x 136.6	0.800
BCH0601	60 x 60 x 105.5	1.200	60 x 60 x 141.6	1.500
BCH0602	60 x 60 x 130.7	1.600	60 x 60 x 166.8	2.000
BCH0801	80 x 80 x 112.3	2.100	80 x 80 x 152.8	2.900
BCH0802	80 x 80 x 138.3	3.000	80 x 80 x 178	3.800
BCH1001	100 x 100 x 153.5	4.300	100 x 100 x 192.5	4.700
BCH1002	100 x 100 x 199	6.200	100 x 100 x 226	7.200
BCH1301	130 x 130 x 147.5	6.800	130 x 130 x 183.5	8.200
BCH1302	130 x 130 x 147.5	7.000	130 x 130 x 183.5	8.400
BCH1303M	130 x 130 x 163.5	7.500	130 x 130 x 198	8.900
BCH1303N	130 x 130 x 167.5	7.500	130 x 130 x 202	8.900
BCH1304	130 x 130 x 187.5	7.800	130 x 130 x 216	9.200
BCH1801	180 x 180 x 169	13.500	180 x 180 x 203.1	17.500
BCH1802	180 x 180 x 202.1	18.500	180 x 180 x 235.3	22.500
BCH1803N	180 x 180 x 202.1	18.500	180 x 180 x 235.3	22.500
BCH1803M	180 x 180 x 235.3	23.500	180 x 180 x 279.3	29.000
BCH1804M	180 x 180 x 279.7	30.500	180 x 180 x 311.7	36.000
BCH1805M	180 x 180 x 342	37.000	180 x 180 x 376.1	53.000

(1) D: dimensions of the casing (excluding shaft end)

# Motion control

## Lexium 23 Plus

BCH servo motors  
Connection accessories

### Connection accessories

Designation	Description	Reference	Weight kg
Set of 3 terminal blocks	1 terminal block for power supply 1 terminal block for motor power supply 1 terminal block for braking resistor For mounting on drive side	VW3 M4 121	0.500
Connector for I/O interface	For mounting on drive side	VW3 M4 112	0.050
Screw terminal block	For I/O interface For mounting on drive side	VW3 M4 113	0.020
RS 232/USB converter	Equipped with: ■ One USB connector ■ One RJ 45 connector	VW3 M8 131	0.300

### Connection cable

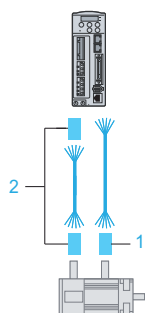
Designation	Description	Cable length m	Reference	Weight kg
Connection cable for VW3 M8 131 converter	Equipped with an RJ 45 connector at each end. To connect the VW3 M8 131 converter to the servo drive.	2	490 NTW 00002	—

### Connectors for power cable

Description	For servo motor	Item no.	Reference	Weight kg
Connector for motor without holding brake	BCH 0401O●2A1C BCH 0601O●2A1C BCH 0602O●2A1C BCH 0801O●2A1C BCH 0802O●2A1C	1	VW3 M5 111	0.030
Connector for motor with holding brake	BCH 0601O●2F1C BCH 0602O●2F1C BCH 0801O●2F1C BCH 0802O●2F1C	1	VW3 M5 112	0.030
Round connectors for motor with or without holding brake	BCH 1001O●2●1C BCH 1002O●2●1C BCH 1301M●2●1C BCH 1301N●2●1C BCH 1302M●2●1C BCH 1302N●2●1C BCH 1303M●2●1C BCH 1304N●2●1C  BCH 1801N●2●1C BCH 1802M●2●1C BCH 1802N●2●1C BCH 1803M●2●1C BCH 1803N●2●1C	1	VW3 M5 121	0.180
	BCH 1804M●2●1C BCH 1805M●2●1C	1	VW3 M5 131	0.180
Connector for holding brake	BCH 1804M●2F1C BCH 1805M●2F1C	1	VW3 M5 141	0.300
		1	VW3 M7 151	0.500

### Connectors for encoder cable

Description	For servo motor	Item no.	Reference	Weight kg
Connector for motor with connection via stripped cable	BCH 0401O●2●1C BCH 0601O●2●1C BCH 0602O●2●1C BCH 0801O●2●1C BCH 0802O●2●1C	2	VW3 M8 121	0.800
Connector for motor equipped with a round connector	BCH 1001O●2●1C BCH 1002O●2●1C BCH 1301M●2●1C BCH 1301N●2●1C BCH 1302M●2●1C BCH 1302N●2●1C BCH 1303M●2●1C BCH 1303N●2●1C BCH 1304N●2●1C BCH 1801N●2●1C BCH 1802M●2●1C BCH 1802N●2●1C BCH 1803M●2●1C BCH 1803N●2●1C BCH 1804M●2●1C BCH 1805M●2●1C	2	VW3 M8 122	0.800



# Motion control

## Lexium 23 Plus

BCH servo motors  
Connection accessories



### Connection components (continued)

#### Power cordsets

Description	From servo motor	To servo drive	Composition	Length of cable m	Reference	Weight kg
<b>Cordsets equipped with a plastic connector</b> (servo motor end) <b>and one end with flying leads</b> (servo drive end). <b>Without holding brake</b>	BCH0401O●2A1C	LXM23●U01M3X	4 x 0.82 mm <sup>2</sup>	3	VW3 M5 111R30	0.200
	BCH0601O●2A1C	LXM23●U02M3X		5	VW3 M5 111R50	0.350
	BCH0602O●2A1C	LXM23●U04M3X				
	BCH0801O●2A1C	LXM23●U04M3X				
	BCH0802O●2A1C	LXM23●U07M3X				
<b>Cordsets equipped with a plastic connector</b> (servo motor end) <b>and one end with flying leads</b> (servo drive end). <b>With holding brake</b>	BCH0401O●2F1C	LXM23●U01M3X	6 x 0.82 mm <sup>2</sup>	3	VW3 M5 112R30	0.200
	BCH0601O●2F1C	LXM23●U02M3X		5	VW3 M5 112R50	0.350
	BCH0602O●2F1C	LXM23●U04M3X				
	BCH0801O●2F1C	LXM23●U04M3X				
	BCH0802O●2F1C	LXM23●U07M3X				
<b>Cordsets equipped with a round connector</b> (servo motor end) <b>and one end with flying leads</b> (servo drive end). <b>Without holding brake</b>	BCH1001O●2A1C	LXM23●U10M3X	4 x 1.3 mm <sup>2</sup>	3	VW3 M5 121R30	0.350
	BCH1301M●2A1C	LXM23●U04M3X		5	VW3 M5 121R50	0.600
	BCH1301N●2A1C	LXM23●U04M3X				
	BCH1302M●2A1C	LXM23●U07M3X				
	BCH1302N●2A1C	LXM23●U10M3X				
	BCH1303M●2A1C	LXM23●U10M3X				
	BCH1303N●2A1C	LXM23●U15M3X				
	BCH1002O●2A1C	LXM23●U20M3X	4 x 2.1 mm <sup>2</sup>	3	VW3 M5 122R30	0.450
	BCH1304N●2A1C	LXM23●U20M3X		5	VW3 M5 122R50	0.750
	BCH1801N●2A1C	LXM23●U20M3X	4 x 3.3 mm <sup>2</sup>	3	VW3 M5 123R30	0.760
	BCH1802N●2A1C	LXM23●U30M3X		5	VW3 M5 123R50	1.750
	BCH1802M●2A1C	LXM23●U30M3X				
	BCH1803M●2A1C	LXM23●U45M3X				
	BCH1803N●2A1C	LXM23●U45M3X	4 x 8.4 mm <sup>2</sup>	3	VW3 M5 124R30	1.000
				5	VW3 M5 124R50	1.200
<b>Cordsets equipped with a round connector</b> (servo motor end) <b>and one end with flying leads</b> (servo drive end). <b>With holding brake</b>	BCH1001O●2F1C	LXM23●U10M3X	6 x 1.3 mm <sup>2</sup>	3	VW3 M5 131R30	0.350
	BCH1301M●2F1C	LXM23●U04M3X		5	VW3 M5 131R50	0.600
	BCH1301N●2F1C	LXM23●U04M3X				
	BCH1302M●2F1C	LXM23●U07M3X				
	BCH1302N●2F1C	LXM23●U10M3X				
	BCH1303M●2F1C	LXM23●U10M3X				
	BCH1303N●2F1C	LXM23●U15M3X				
	BCH1002O●2F1C	LXM23●U20M3X	6 x 2.1 mm <sup>2</sup>	3	VW3 M5 132R30	0.750
	BCH1304N●2F1C	LXM23●U20M3X		5	VW3 M5 132R50	1.250
	BCH1801N●2F1C	LXM23●U20M3X	6 x 3.3 mm <sup>2</sup>	3	VW3 M5 133R30	0.760
	BCH1802M●2F1C	LXM23●U30M3X		5	VW3 M5 133R50	1.950
	BCH1802N●2F1C	LXM23●U30M3X				
	BCH1803N●2F1C	LXM23●U45M3X				
	BCH1803M●2F1C	LXM23●U45M3X	6 x 8.4 mm <sup>2</sup>	3	VW3 M5 134R30	—
				5	VW3 M5 134R50	—

#### Encoder cordsets

<b>Cordsets equipped with a plastic connector at each end</b>	BCH0401O●2●1C	LXM23●U01M3X	10 x 0.13 mm <sup>2</sup>	3	VW3 M8 121R30	1.000
	BCH0601O●2●1C	LXM23●U01M3X		5	VW3 M8 121R50	1.200
	BCH0602O●2●1C	LXM23●U04M3X				
	BCH0801O●2●1C	LXM23●U04M3X				
	BCH0802O●2●1C	LXM23●U07M3X				
<b>Cordsets equipped with a round connector</b> (servo motor end) <b>and a plastic connector</b> (servo drive end)	BCH1001O●2●1C	LXM23●U10M3X	10 x 0.13 mm <sup>2</sup>	3	VW3 M8 122R30	1.000
	BCH1002O●2●1C	LXM23●U20M3X		5	VW3 M8 122R50	1.200
	BCH1301M●2●1C	LXM23●U04M3X				
	BCH1301N●2●1C	LXM23●U04M3X				
	BCH1302M●2●1C	LXM23●U07M3X				
	BCH1302N●2●1C	LXM23●U10M3X				
	BCH1303M●2●1C	LXM23●U10M3X				
	BCH1303N●2●1C	LXM23●U15M3X				
	BCH1304N●2●1C	LXM23●U20M3X				
	BCH1801N●2●1C	LXM23●U20M3X				
	BCH1802M●2●1C	LXM23●U30M3X				
	BCH1802N●2●1C	LXM23●U30M3X				
	BCH1803M●2●1C	LXM23●U45M3X				
	BCH1803N●2●1C	LXM23●U45M3X				
	BCH1804M●2●1C	LXM23●U75M3X				
	BCH1805M●2●1C	LXM23●U75M3X				











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