

# Motion control

Lexium 23

2009 Catalog



# Lexium 23 Solutions

Lexium 23 is a Powerful Servo Drive, which can be used, either in stand alone mode (with Digital I/O Control), or with External Position Controller.

*Lexium 23 has been designed to meet various application requirements,*

## ■ Material Handling

(Conveyors, Palletizers, Storage & Retrieval systems).



## ■ Assembly & Inspection Machines

(Inserting, Clamping, Testing etc.)



## ■ Printing & Packaging Applications

(Screen Printing, Form fill seal, Blister Packaging, etc.).



## ■ Winding & Unwinding

(Coil Winding, Transformer Winding, Stator Winding etc.)



## ■ Machine Tools

(Small Automated Machines, Multiple Independent Axis Machines, Non CNC cutting Machines).



*Lexium 23 servo drives are equipped with powerful functions making it suitable for various applications.*

- Power full Auto Tuning & Motor recognition functions,
- Power full Display for Parameter Settings,
- Multiple Homing Types & Home Offset settings suitable for all types for applications,
- Option for Backlash Compensation in Position Control,
- Pre defined ASCII commands for data setting via serial port.



# Lexium 23

**Motion Control** with Ease, for simple automation solutions.

The range of **Lexium 23** servo drives, compatible with **BCH** servo motors constitutes a tailored solution for machines across a wide power and functionality range.

A **tailored solution** for machines across a wide power and functionality range,

## Lexium 23 C servo drives :

- 200... 255 V single phase, 0,1 to 1,5 kW
- 170... 255 V three phase, 0,1 to 3 kW



## Lexium 23 M servo drives :

- 170... 255 V single phase, 3 kW to 7,5 kW



## BCH servo motor :

- Rated power : 0,1 to 7,5 kW
- Rated torque : 0,3 to 48 Nm
- Rated speed : 1000 to 3000 rpm depending of the model



## Drive Features:

1. 8 - 24 V Configurable Digital inputs.
2. 5 -24 V Configurable Digital outputs.
3. Separate Inputs for Pulse Direction Control.
4. 2 Analog inputs for Torque & Speed Control.
5. 2 Analog out of +/- 8 V for torque & speed feedback.
6. High resolution simulated encoder feedback with A /A, B /B& Z /Z Pulses.

Control Type	Input Type	Precision
Speed	Analog +/-10VDC	0.1 RPM
Pulse Direction	Pulse Direction Inputs	0.03°

## Communication Options:

RS232, RS485 & RS422 built in communication port

Comply with EN 50178 and IEC/EN 61800-3 international standards and carry UL (USA) and CE marking.



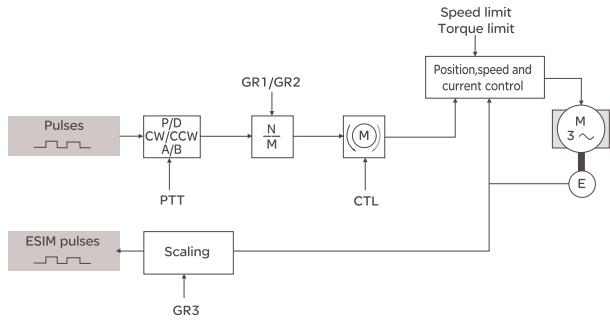
# Lexium 23

## A Strong Solution for Motion Control

With a strong Power, position & torque control loops, Lexium 23 can be controlled in 4 different modes.

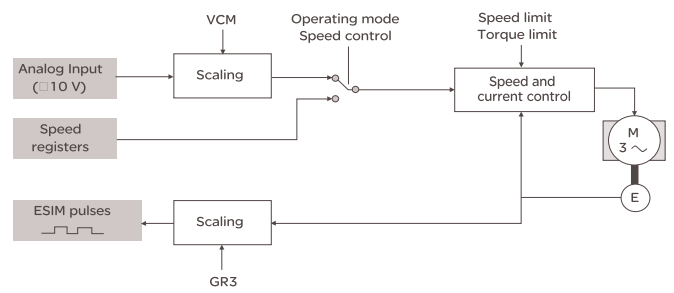
### Position Control :

With 3 types of pulse inputs AB phase pulse, CW CCW, Pulse/Direction @ 500 Kpps Line Driver & 200 Kpps Open Collector.



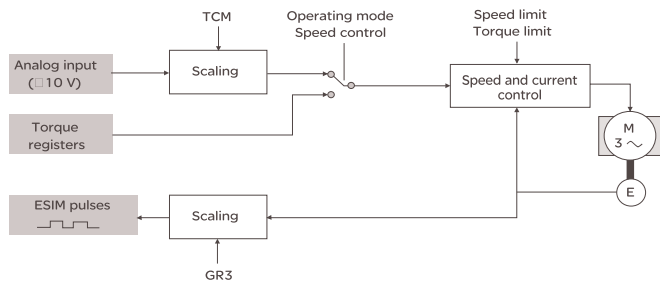
### Speed Control :

Using analog inputs ( $\pm 10V$ )



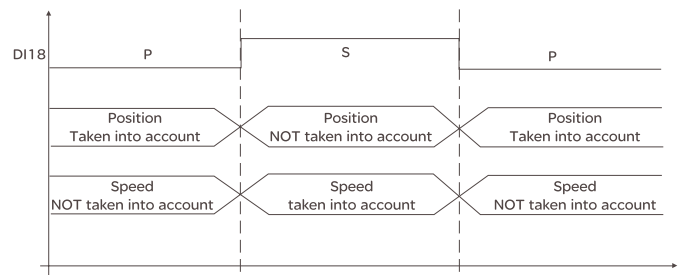
### Torque Control :

Using analog inputs ( $\pm 10V$ ).



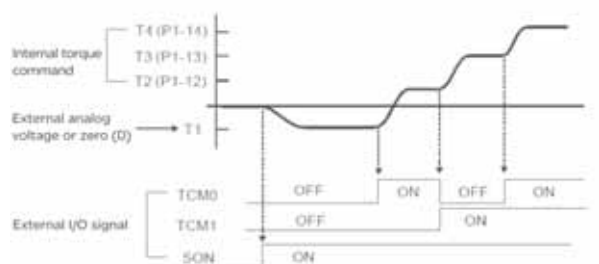
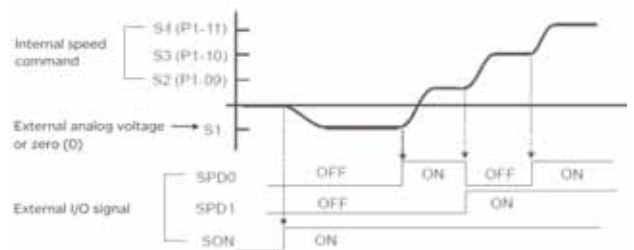
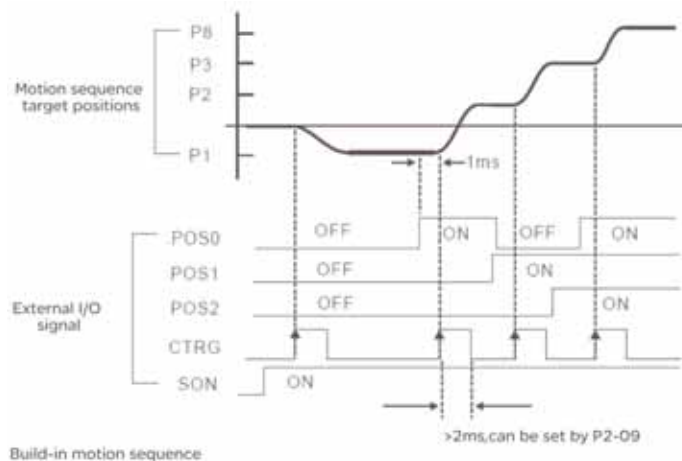
### Switching control mode :

Under this mode, position, speed and torque control can be switched instantly by digital I/O.



### Motion Sequence Control :

- Built in 8 Position Registers,
- 3 Speed Registers,
- 3 Torque Registers.



# BCH Servo Motors



**BCH** servo motors are **3 phases synchronous motors**.

**BCH** motor are equipped with **2 ranges of high quality encoder**.

The **Lexium 23C** Series is compatible with **10,000 Increment encoder**; **Lexium 23M** is compatible with 20 bit encoder, allowing the Lexium 23M to be used on applications requiring high performance for material working, for example machine tools etc

**BCH** Servo motors are available in a wide range of power & inertia suitable for a wide range of applications.

**Ultra low inertia motor:** Power range is 0.1 ~ 0.4 kW, suitable for electronic equipment and small printing machinery.

Low inertia motor: Power range is 0.4 ~ 2 kW, suitable for textile and packaging machinery.

**Medium inertia motor:** Power range is 0.3 ~ 3 kW, suitable for material handling and machine tools.

**High inertia motor:** Power range is 2 ~ 7.5 kW, suitable for metal processing and printing machinery.

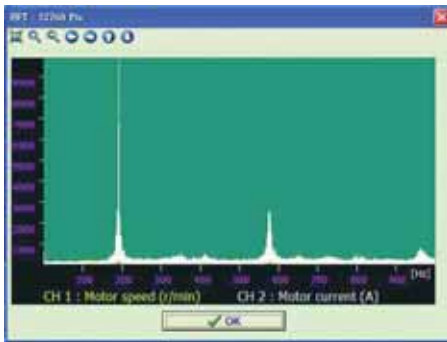


# LEXIUM 23 SET UP Tool

**LEXIUM 23** commissioning software shortens tuning and diagnoses time greatly, providing

- Auto recognition of communication format.
- Quick set up mode and graphical parameter set.
- Auto tuning and manual tuning.
- Resonance point detection using FFT analysis.
- Real time oscilloscope function.

The software is also equipped with debugging tool & compressive three language interface ( English, Simplified & Traditional Chinese)



## Auto Tuning :

**LEXIUM 23** SET UP provides state of the art auto tuning functionalities offering 2 different modes

**Off line Auto tuning :** This mode permits to calculate the values of the gain parameters according to the conditions selected by user.

**On line dynamic tuning :** This mode provides the best control for your machine by computing dynamically the gain parameters according to the real response of the machine



# Integrate **Lexium 23** with **Modicon M340**

## Winning Association **M340** Automation Platform

Modicon M340, the ideal solution for machines with independent axes. Robust, powerful and compact, the new Modicon M340 PLC is the ideal solution for machine manufacturers in applications such as secondary packaging, material handling, textiles, printing, food processing, woodworking machines, ceramics, etc.

Interface with **ease** by BMX MSP 0200,

### **PTO (Pulse Train Output) :**

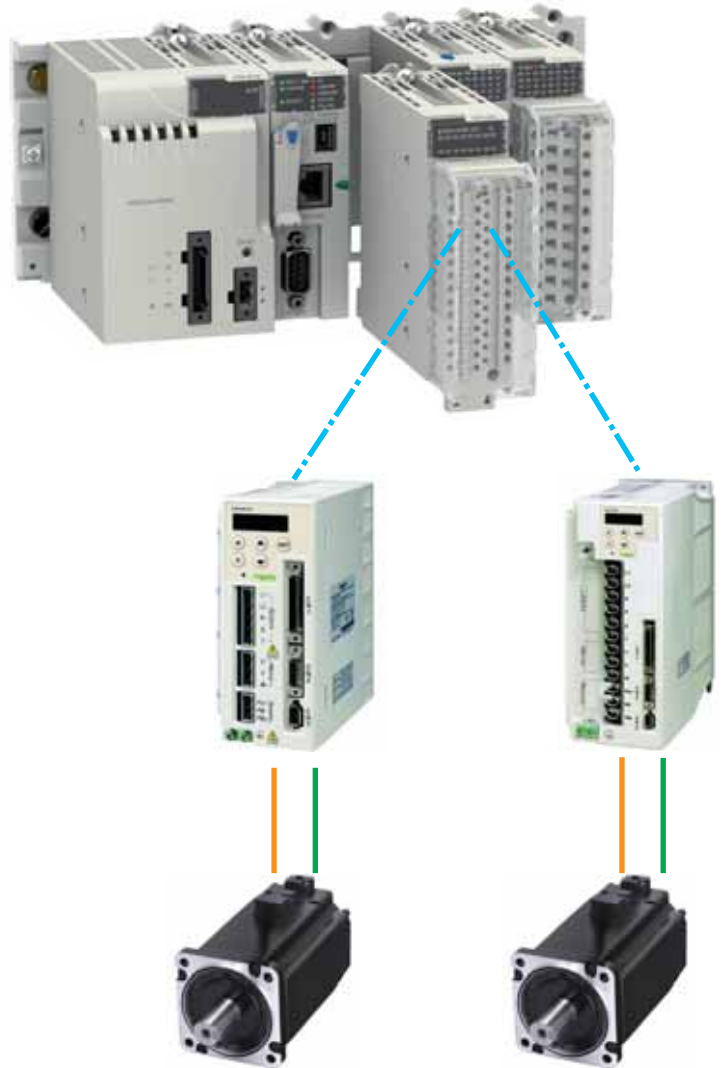
Upto 36 drives with a max. frequency of 200 kHz  
(Precision 0.1% up to 0.5%).

### **Modbus Serial:**

Upto 32 drives.

### **Analog I/O:**

Upto 256 Analog IOs upto 16 bits resolution



*Please refer to M340 BMX MSP 0200 catalog for further details on interface*





# LEXIUM 23 Selection Guide

## Drive & Motor Combination

Single phase: 220...255 V a 50/60 Hz or three phase : 170...255 V a 50/60 Hz								
Power KW	Speed (RPM)		Torque (Nm)		Inertia		Combination	
	N nom	N Max	T nom	T Peak	kgcm	Type	Motor	Drive
0.1 KW	3000	5000	0.32	0.96	0.04	UL	BCH0401O	LXM23CU01M3X
0.2 KW	3000	5000	0.64	1.92	0.18	UL	BCH0601O	LXM23CU02M3X
0.4 KW	3000	5000	1.27	3.82	0.28	UL	BCH0602O	LXM23CU04M3X
0.4 KW	3000	5000	1.27	3.82	0.68	L	BCH0801O	LXM23CU04M3X
0.75 KW	3000	5000	2.39	7.16	1.33	L	BCH0802O	LXM23CU07M3X
1.00 KW	3000	5000	3.18	9.54	2.65	L	BCH1001O	LXM23CU10M3X
0.50 KW	2000	3000	2.39	7.16	8.17	M	BCH1301N	LXM23CU04M3X
1.00 KW	2000	3000	4.77	14.32	8.41	M	BCH1302N	LXM23CU10M3X
1.50 KW	2000	3000	7.16	21.48	11.18	M	BCH1303N	LXM23CU15M3X
0.30 KW	1000	2000	2.86	8.59	8.17	M	BCH1301M	LXM23CU04M3X
0.60 KW	1000	2000	5.73	17.19	8.41	M	BCH1302M	LXM23CU07M3X
0.90 KW	1000	2000	8.59	25.78	11.18	M	BCH1303M	LXM23CU10M3X

Three phase : 170...255 V a 50/60 Hz								
Power KW	Speed (RPM)		Torque (Nm)		Inertia		Combination	
	N nom	N Max	T nom	T Peak	kgcm	Type	Motor	Drive
2.00 KW	3000	5000	6.37	19.11	4.55	L	BCH1002O	LXM23CU20M3X
2.00 KW	2000	3000	9.55	28.65	14.59	M	BCH1304N	LXM23CU20M3X
2.00 KW	2000	3000	9.55	28.65	34.68	H	BCH1801N	LXM23CU20M3X
3.00 KW	1500	3000	19.10	57.29	54.95	H	BCH1802M	LXM23CU30M3X
3.50 KW	2000	3000	16.71	50.31	54.80	H	BCH1802N	LXM23MU45M3X
4.50 KW	1500	3000	28.65	71.62	77.75	H	BCH1803M	LXM23MU45M3X
5.50 KW	1500	3000	35.01	87.53	99.78	H	BCH1804M	LXM23MU55M3X
7.50 KW	1500	3000	47.74	118.36	142.70	H	BCH1805M	LXM23MU75M3X





# LEXIUM 23 Cables

Pre Fabricated Power Cable					
Name	For Motors	To Drives	Gauge	Length	Reference
Servo motor side with plastic connector Drive side with flying lead, no brake	BCH0401O**A1C	LXM23CU01M3X	4 × 0.82 mm <sup>2</sup>	3 Meter	VW3M5111R30
	BCH0601O**A1C	LXM23CU02M3X		5 Meter	VW3M5111R50
	BCH0602O**A1C	LXM23CU04M3X			
	BCH0801O**A1C	LXM23CU04M3X			
	BCH0802O**A1C	LXM23CU07M3X			
Servo motor side with plastic connector Drive side with flying lead, with brake	BCH0601O**F1C	LXM23CU02M3X	6 × 0.82 mm <sup>2</sup>	3 Meter	VW3M5112R30
	BCH0602O**F1C	LXM23CU04M3X		5 Meter	VW3M5112R50
	BCH0801O**F1C	LXM23CU04M3X			
	BCH0802O**F1C	LXM23CU07M3X			
Servo motor side with military connector Drive side with flying lead, no brake	BCH1001O**A1C	LXM23CU10M3X	4 × 1.3 mm <sup>2</sup>	3 Meter	VW3M5121R30
	BCH1301M**A1C	LXM23CU04M3X		5 Meter	VW3M5121R50
	BCH1301N**A1C	LXM23CU04M3X			
	BCH1302M**A1C	LXM23CU07M3X			
	BCH1302N**A1C	LXM23CU10M3X			
	BCH1303M**A1C	LXM23CU10M3X			
	BCH1303N**A1C	LXM23CU15M3X			
Servo motor side with military connector Drive side with flying lead, with brake	BCH1001O**F1C	LXM23CU10M3X	6 × 1.3 mm <sup>2</sup>	3 Meter	VW3M5131R30
	BCH1301M**F1C	LXM23CU04M3X		5 Meter	VW3M5131R50
	BCH1301N**F1C	LXM23CU04M3X			
	BCH1302M**F1C	LXM23CU07M3X			
	BCH1302N**F1C	LXM23CU10M3X			
	BCH1303M**F1C	LXM23CU10M3X			
	BCH1303N**F1C	LXM23CU15M3X			
Servo motor side with military connector Drive side with flying lead, no brake	BCH1002O**A1C	LXM23CU20M3X	4 × 2.1 mm <sup>2</sup>	3 Meters	VW3M5122R30
	BCH1304N**A1C	LXM23CU20M3X		5 Meter	VW3M5122R50
Servo motor side with military connector Drive side with flying lead, with brake	BCH1002O**F1C	LXM23CU20M3X	4 × 2.1 mm <sup>2</sup>	3 Meters	VW3M5132R30
	BCH1304N**F1C	LXM23CU20M3X		5 Meter	VW3M5132R50
Servo motor side with military connector Drive side with flying lead, no brake	BCH1801N**A1C	LXM23CU20M3X	4 × 3.3 mm <sup>2</sup>	3 Meter	VW3M5123R30
	BCH1802M**A1C	LXM23CU30M3X		5 Meter	VW3M5123R50
	BCH1802M**A1C	LXM23MU45M3X			
	BCH1802N**A1C	LXM23MU45M3X			
Servo motor side with military connector Drive side with flying lead, with brake	BCH1801N**F1C	LXM23CU20M3X	6 × 3.3 mm <sup>2</sup>	3 Meter	VW3M5133R30
	BCH1802M**F1C	LXM23CU30M3X		5 Meter	VW3M5133R50
	BCH1802M**F1C	LXM23MU45M3X			
	BCH1802N**F1C	LXM23MU45M3X			
Servo motor side with military connector Drive side with flying lead, no brake	BCH1803M**A1C	LXM23MU45M3X	4 × 8.4 mm <sup>2</sup>	3 Meter	VW3M5124R30
	BCH1804M**A1C	LXM23MU55M3X		5 Meter	VW3M5124R50
	BCH1805M**A1C	LXM23MU75M3X			

Contd... 

# LEXIUM 23 Cables

## Pre Fabricated Power Cable

Name	For Motors	To Drives	Gauge	Length	Reference
Servo motor side and drive side with plastic connector	BCH0401O	LXM23CU01M3X	10 × 0.13 mm <sup>2</sup>	3 Meter	VW3M8111R30
	BCH0601O	LXM23CU02M3X		5 Meter	VW3M8111R50
	BCH0602O	LXM23CU04M3X			
	BCH0801O	LXM23CU04M3X			
	BCH0802O	LXM23CU07M3X			
Servo motor side with military connector, Drive side with plastic connector	BCH1001O	LXM23CU10M3X	10 × 0.13 mm <sup>2</sup> 3	3 Meter	VW3M8112R30
	BCH1301M	LXM23CU04M3X		5 Meter	VW3M8112R50
	BCH1301N	LXM23CU04M3X			
	BCH1302M	LXM23CU07M3X			
	BCH1302N	LXM23CU10M3X			
	BCH1303M	LXM23CU10M3X			
	BCH1303N	LXM23CU15M3X			
	BCH1002O	LXM23CU20M3X			
	BCH1304N	LXM23CU20M3X			
	BCH1801N	LXM23CU20M3X			
	BCH1802M	LXM23CU30M3X			
	BCH1802M	LXM23MU45M3X			
	BCH1803M	LXM23MU45M3X			

# Lexium 23 Part Description

## Definition of BCH motor reference

	B	C	H	O	4	O	1	O	O	1	A	1	C
<b>BCH= BCH servo motor series</b>	BCH			O4O			1	O	O	1	A	1	C
<b>Flange Size</b> O40 = 40 mm Flange O60 = 60 mm Flange O80 = 80 mm Flange 100 = 100 mm Flange 130 = 130 mm Flange 180 = 180 mm Flange													
<b>Length (Number of stacks)</b> 1 = one stack 2 = two stack 3 = three stack 4 = four stack 5 = five stack													
<b>Speed type:</b> M = Low Speed (100/1500 rpm) N = Medium Speed (2000 rpm) O = High Speed (3000 rpm)													
<b>Shaft</b> 0 = Smooth, No Oil Seal 1 = With key, No Oil Seal 2 = Smooth, With Oil Seal 3 = With key, With Oil Seal													
<b>Encoder</b> 1 = Incremental encoder 2500 ppr (Only for under 3kW - C series) 2 = High resolution incremental encoder 20 bits (Only for above 3kW - M series)													
<b>Brake</b> A = w/o brake F = with rake (0.1kw no brake option)													
<b>Connection System</b> 1 = Straight connector													
<b>Connection System</b> C = Asia mechanical mounting													

## Definition of Lexium 23 drive reference

	L	X	M	2	3	C	U	O	1	M	3	X
<b>LXM = Lexium Servo Drive</b>	L	X	M									
<b>23 = New generation compact I/O drive</b>				2	3							
<b>Interface</b> C = Normal I/O interface M = I/O interface oriented to Machine tools (1)						C						
<b>Continuous Power</b> U01 = 0.1 kW U02 = 0.2 kW U04 = 0.4 kW U07 = 0.75 kW U10 = 1.0 kW U15 = 1.5 kW U20 = 2.0 kW U30 = 3.0 kW U45 = 4.5 kW U55 = 5.5 kW U75 = 7.5 kW							U	O	1			
<b>Mains voltage</b> M3X = 220 VAC three phase/single phase, no EMC filter										M	3	X



For more information visit our website at: [www.schneider-electric.co.in](http://www.schneider-electric.co.in)

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