# Motion control
# Lexium 32

## Catalogue

## January 2011

Schneider Electric

*Contents*

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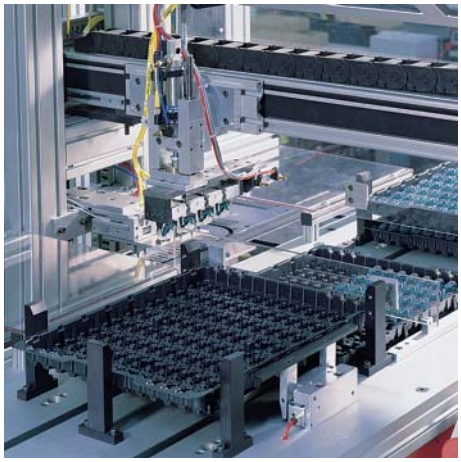
PF080934

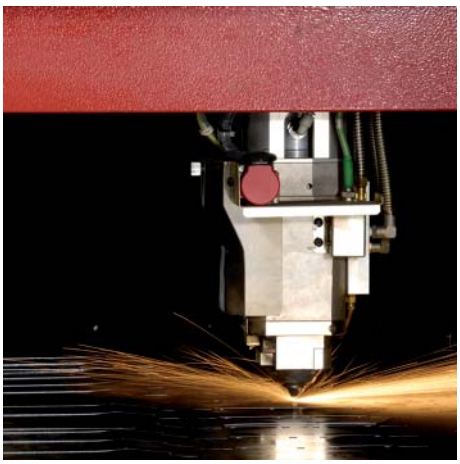
*Lexium 32 servo drive controlling a packaging machine*

PF080932



*Lexium 32 servo drive controlling an handling machine*

PF080933



*Lexium 32 servo drive controlling a material working machine*

## Presentation

The Lexium 32 range of servo drives includes three servo drive models associated with two servo motor ranges for optimum use which can adapt to demands for high performance, power and simplicity of use in motion control applications.
It covers power ratings between 0.15 and 7 kW.

The Lexium 32 servo drive offer is designed to simplify the life cycle of machines. The SoMove setup software, SoMove Mobile software, side-by-side mounting and colour-coded plug-in connectors, easily accessible on the front panel or on top of the servo drives, all make installation, setup and maintenance easier. Maintenance is also quicker and cheaper thanks to the new duplication and backup tools, such as the memory card.

Performance is improved by optimized motor control: reduction of vibration with automatic parameter calculation, speed observer, additional band-stop filter. This optimization increases machine productivity.

The compact size of the servo drives and servo motors provides maximum power in the minimum space, enabling the machine dimensions and costs to be reduced.

Integrated communication or optional communication cards, depending on the model, as well as standard encoders, enable adaptation to numerous types of control system architecture for industry.

Integrated safety function and access to additional safety functions reduce design times and make it easier to comply with safety standards.

## Applications for industrial machines

The Lexium 32 servo drive incorporates functions which are suitable for the most common applications, including:
- Printing: cutting, machines with position control, etc.
- Packaging and wrapping: cutting to length, rotary knife, bottling, capsuling, labelling, etc.
- Textiles: winding, spinning, weaving, embroidery, etc.
- Handling: conveying, palletization, warehousing, pick and place, etc.
- Transfer machines (gantry cranes, hoists), etc.
- Clamping, “on the fly” cutting operations (flying shear, printing, marking), etc.
- Material working.

## The offer

The Lexium 32 range of servo drives covers motor power ratings between 0.15 kW and 7 kW with three types of power supply:
- 110…120 V single-phase, 0.15 kW to 0.8 kW (**LXM 32●●●●M2**)
- 200…240 V single-phase, 0.3 kW to 1.6 kW (**LXM 32●●●●M2**)
- 208…480 V three-phase, 0.4 kW to 7 kW (**LXM 32●●●●N4**)

### Compliance with international standards and certifications

The entire range conforms to international standards IEC/EN 61800-5-1, IEC/EN 61800-3, is UL and CSA certified, and has been developed to meet the requirements of directives regarding protection of the environment (RoHS) as well as those of European Directives to obtain the CE mark.

### Compliance with electromagnetic compatibility (EMC) requirements

The integration of a category C3 EMC filter in Lexium 32 servo drives and compliance with EMC simplify installation and make it very inexpensive to bring the device into conformity to obtain the CE mark.

Additional filters, available as an option, can be installed by the customer to reduce the level of conducted and radiated emissions (see page 62094/8). They also enable the servo drive to be used with cable lengths of up to 100 metres, to meet the requirements of applications in a wide variety of fields.

### Accessories and options

External accessories and options such as braking resistors, line chokes, etc. enhance this offer.

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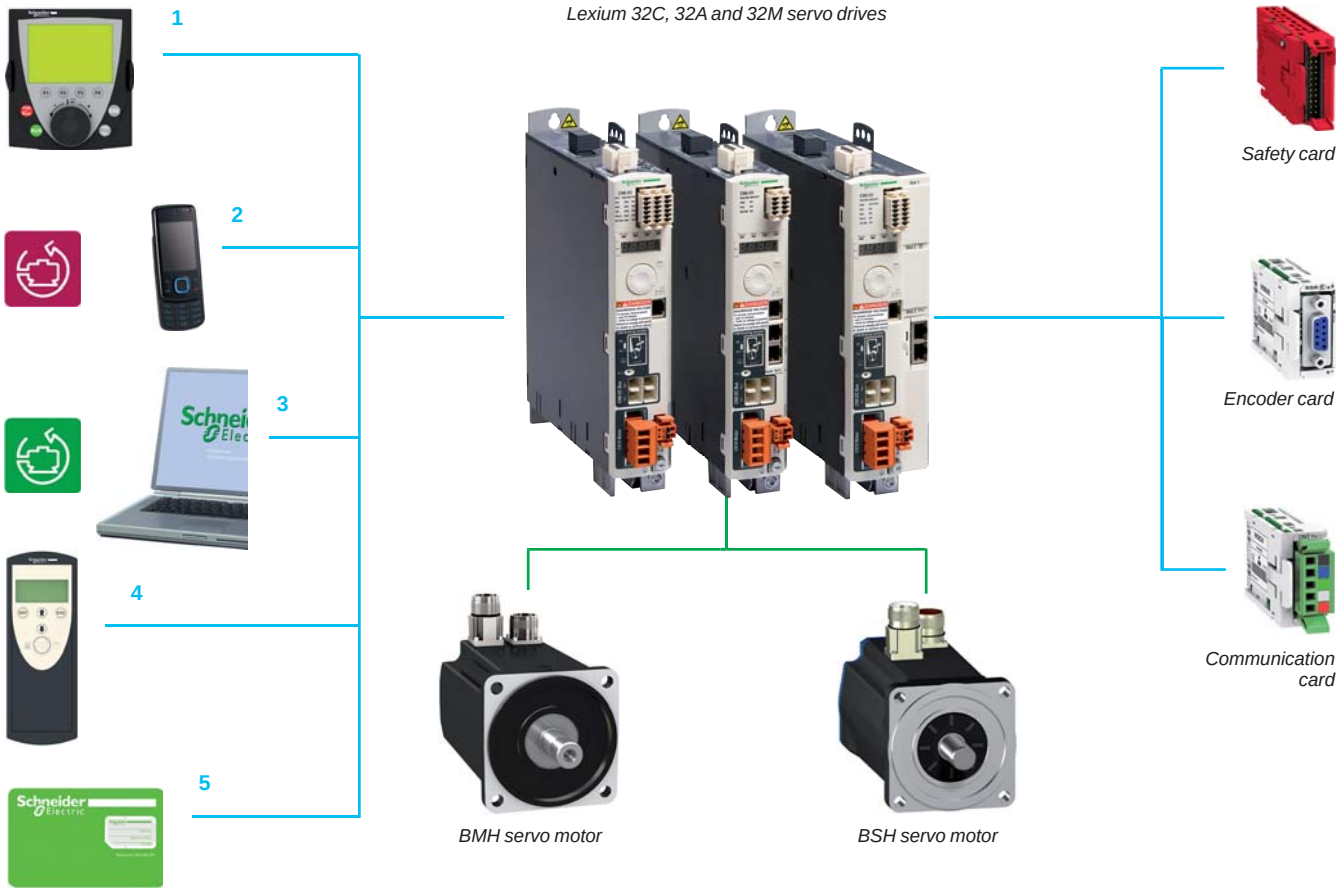
# Lexium 32 motion control

## Simplicity, from installation to maintenance




| | |
|---|---|
| **Human-Machine Interface (HMI)** | The display can be used to control and configure the servo drive, display states and faults, access parameters and modify them in manual mode using the navigation button. |
| **Remote graphic display terminal 1** | The Lexium 32 servo drive can be connected to a remote display terminal, available as an option. This terminal can be mounted on an enclosure door with IP 54 degree of protection.<br>It provides access to the same functions as the Human-Machine interface and some additional functions (see page 62083/5). |
| **SoMove Mobile software 2** | The SoMove Mobile software converts any mobile phone into a remote graphic display terminal, offering an identical Human-Machine Interface (see page 62083/6). |
| **SoMove setup software 3** | The SoMove setup software is used to configure and optimize control loops with the Oscilloscope function in automatic mode or in manual mode, and also for maintenance of the Lexium 32 servo drive, like all other Schneider Electric drives and starters.<br>It can be used with a Bluetooth® wireless connection (see page 62083/6). |
| **Multi-Loader tool 4** | The Multi-Loader tool enables configurations to be copied from a PC or a servo drive and loaded onto another servo drive.<br>The servo drives can be powered-down (see page 62083/7). |
| **Memory card 5** | This stores all the servo drive parameters. When replacing a Lexium 32 servo drive, this function ensures immediate startup since the programming time has been eliminated. Maintenance time is optimized, and costs reduced (see page 62083/7). |
| **Auto-tuning** | Adapted to each user, the three auto-tuning levels, automatic, semi-automatic and expert, allow your machine to achieve a high level of performance, whatever the application. |
| **Mounting and maintenance** | Several Lexium 32 servo drives can be mounted side by side to save space.<br>Connecting the servo drives is simplified by colour-coded plug-in connectors, which are easily accessed on the front panel or on top of the drive. |

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# Lexium 32 motion control


*Example of control system architecture with CANopen and CANmotion machine bus*

## High performance

The Lexium 32 servo drive offer increases machine performance due to the following characteristics:
- Overload capacity: the high peak current (up to 4 times the direct current) increases the range of movement
- Power density: the compact size of the servo drives offers maximum efficiency in a small space
- High bandwidth: better speed stability and faster acceleration improve the quality of control
- Motor control: reduction of vibration, speed observer and additional band-stop filter enhance the quality of control

## A design suitable for the various different control system structures

Its versatile specifications provide the Lexium 32 range of servo drives with excellent flexibility for integration in different control system structures.

Depending on the model, the Lexium 32 servo drive has logic or analog inputs and outputs as standard, which can be configured to adapt better to applications.
It also has control interfaces for easy access to the various architecture levels:
- It has a control interface for control via pulse train
- It integrates a combined CANopen/CANmotion port for enhanced control system performance
- It can also be connected to the main industrial communication networks and buses using various communication cards

The following protocols are available: PROFIBUS DP V1, DeviceNet, EtherNet/IP and EtherCAT.

## Functions dedicated to safety

The Lexium 32 range of servo drives forms part of a control system's safety system since it integrates the “Safe Torque Off” (STO) function, which prevents unintended restarting of the servo motor.
This function complies with standard IEC/EN 61508 level SIL3 governing electrical installations and the power drive systems standard IEC/EN 61800-1.
It simplifies the setup of installations which require a complex safety device, and improves performance during maintenance operations by reducing the time required and increasing safety.

An additional eSM module is available for accessing enhanced safety functions.

## BMH and BSH servo motors: dynamics and power

BMH and BSH servo motors are synchronous three-phase motors.
They feature a SinCos Hiperface® encoder for sending data from the servo motor to the servo drive automatically, and are available with or without a holding brake.

### BMH servo motors

BMH servo motors are motors with medium inertia. They are perfectly adapted to high-load applications and allow the movement to be adjusted in a more robust manner.

This product offer covers a continuous stall torque range between 1.2 Nm and 84 Nm for nominal speeds between 1200 and 5000 rpm.

### BSH servo motors

BSH servo motors satisfy requirements for precision and high dynamic performance, due to the low rotor inertia. They are compact, and offer a high power density.

This product offer covers a continuous stall torque range between 0.5 Nm and 33.4 Nm for nominal speeds between 2500 and 6000 rpm.

## Main functions

| Type of servo drive | | LXM 32C | LXM 32A | LXM 32M |
|---|---|---|---|---|
| **Communication** | Integrated | Modbus serial link<br>Pulse train | Modbus serial link<br>CANopen, CANmotion machine bus | Modbus serial link<br>Pulse train |
| | As an option | – | – | CANopen, CANmotion machine bus,<br>DeviceNet, EtherNet/IP,<br>PROFIBUS DP V1,<br>EtherCAT |
| | Operating modes | Manual mode (JOG)<br>Electronic gearbox<br>Speed control<br>Current control | Homing<br>Manual mode (JOG)<br>Speed control<br>Current control<br>Position control | Homing<br>Manual mode (JOG)<br>Motion sequence<br>Electronic gearbox<br>Speed control<br>Current control<br>Position control |
| | Functions | Auto-tuning, monitoring, stopping, conversion | | |
| | | – | Stop window<br>Rapid entry of position values<br>Rotary axes<br>Position register | Stop window<br>Rapid entry of position values<br>Rotary axes<br>Position register |
| **24 V ⎓ logic inputs** *(1)* | | 6, reassignable | – | 4, reassignable |
| **24 V ⎓ capture inputs** *(1) (2)* | | – | 1 | 2 |
| **24 V ⎓ logic outputs** *(1)* | | 5, reassignable | – | 3, reassignable |
| **Analog inputs** | | 2 | – | |
| **Pulse control input** | | 1, configurable as:<br>■ RS 422 link<br>■ 5 V or 24 V push-pull<br>■ 5 V or 24 V open collector | – | 1, configurable as:<br>■ RS 422 link<br>■ 5 V or 24 V push-pull<br>■ 5 V or 24 V open collector |
| **ESIM PTO output** | | RS 422 link | – | RS 422 link |
| **Human/Machine Interface** | Via integrated display terminal: | Manual mode (positive/negative, fast/slow), auto-tuning, simple startup, display of information and errors, homing for Lexium 32A and 32M | | |
| **Safety functions** | Integrated | "Safe Torque Off" STO | | |
| | As an option | – | | Safe Stop 1 (SS1) and Safe Stop 2 (SS2)<br>Safe Operating Stop (SOS)<br>Safe Limited Speed (SLS) |
| **Sensor** | Integrated | SinCos Hiperface® sensor | | |
| | As an option | – | | Resolver encoder<br>Analog encoder<br>Digital encoder |
| **Architecture** | | Control via:<br>■ Logic or analog I/O | Control via:<br>■ Motion controller via CANopen and CANmotion machine bus | Control via:<br>■ Schneider Electric or third-party PLCs via communication buses and networks |

| Type of servo motor | BMH | BSH |
|---|---|---|
| **Application type** | High load<br>With robust adjustment of the movement | High dynamic response<br>Power density |
| **Flange size** | 70, 100, 140 and 205 | 55, 70, 100 and 140 |
| **Continuous stall torque** | 1.2 to 84 Nm | 0.5 to 33.4 Nm |
| **Encoder type** | Single turn SinCos:<br>■ 32,768 points/turn and<br>■ 131,072 points/turn<br>Multiturn SinCos:<br>■ 32,768 points/turn x 4096 turns and<br>■ 131,072 points/turn x 4096 turns | Single turn SinCos:<br>■ 131,072 points/turn<br>Multiturn SinCos:<br>■ 131,072 points/turn x 4096 turns |
| **Degree of protection** – Casing | IP 65 (IP 67 conformity kit as an option) | |
| **Degree of protection** – Shaft end | IP 50 or IP 65 (IP 67 conformity kit as an option) | |

*(1) Unless otherwise stated, the logic I/O can be used in positive logic (Sink inputs, Source outputs) or negative logic (Source inputs, Sink outputs).*
*(2) The capture inputs can be used as standard logic inputs.*

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# Lexium 32 motion control

Supply voltage 100…120 V single phase

Servo drive/servo motor combinations

## Lexium 32 servo drive/BMH or BSH servo motor combinations

**Servo motors**

**Lexium 32C, 32A and 32M servo drives**

**100…120 V single-phase supply voltage with integrated EMC filter**

| BMH (IP 50 or IP 65) | | BSH (IP 50 or IP 65) | | LXM 32●U90M2 Continuous output current: 3 A rms | | | |
|---|---|---|---|---|---|---|---|
| | | | | Nominal operating point | | | Stall torques |
| Type of servo motor | Rotor inertia | Type of servo motor | Rotor inertia | Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ (1) |
| | kgcm² | | kgcm² | Nm | rpm | W | Nm/Nm |
| | | BSH 0551T | 0.06 | 0.49 | 3000 | 150 | 0.5/1.5 |
| | | BSH 0552T | 0.10 | 0.77 | 3000 | 250 | 0.8/1.9 |
| | | BSH 0553T | 0.13 | | | | |
| BMH 0701T | 0.59 | | | | | | |
| | | BSH 0701T | 0.25 | | | | |
| | | BSH 0702T | 0.41 | | | | |
| BMH 0702T | 1.13 | | | | | | |
| BMH 0703T | 1.67 | | | | | | |
| | | BSH 1001T | 1.40 | | | | |
| BMH1001T | 3.2 | | | | | | |
| BMH1002T | 6.3 | | | | | | |

*(1) - $M_0$: Continuous stall torque*
*- $M_{max}$: Peak stall torque*

| LXM 32●D18M2<br>Continuous output current: 6 A rms | | | |
|---|---|---|---|
| Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm |
| | | | |
| | | | |
| 1.14 | 3000 | 350 | 1.2/3.3 |
| 1.35 | 2500 | 350 | 1.4/4.2 |
| 1.36 | 2500 | 350 | 1.4/3.5 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| LXM 32●D30M2<br>Continuous output current: 10 A rms | | | |
|---|---|---|---|
| Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 2.07 | 2500 | 550 | 2.2/6.1 |
| 2.3 | 2500 | 600 | 2.5/6.4 |
| 3.1 | 2000 | 650 | 3.4/8.7 |
| 2.75 | 2500 | 700 | 3.3/6.3 |
| 3.3 | 2000 | 700 | 3.4/8.9 |
| 3.5 | 2000 | 750 | 6/10.3 |

# Lexium 32 motion control
## Supply voltage 200…240 V single phase
## Servo drive/servo motor combinations

### Lexium 32 servo drive/BMH or BSH servo motor combinations

**Servo motors**

**Lexium 32C, 32A and 32M servo drives**
**200…240 V single-phase supply voltage with integrated EMC filter**

| BMH (IP 50 or IP 65) | | BSH (IP 50 or IP 65) | | LXM 32●U45M2 Continuous output current: 1.5 A rms | | | |
|---|---|---|---|---|---|---|---|
| | | | | Nominal operating point | | | Stall torques |
| Type of servo motor | Rotor inertia | Type of servo motor | Rotor inertia | Nominal torque | Nominal speed | Nominal power | $M^0/M_{max}$ (1) |
| | kgcm² | | kgcm² | Nm | rpm | W | Nm/Nm |
| | | BSH 0551T | 0.06 | 0.45 | 6000 | 300 | 0.5/1.4 |
| | | BSH 0552T | 0.10 | | | | |
| | | BSH 0553T | 0.13 | | | | |
| | | BSH 0701T | 0.25 | | | | |
| BMH 0701T | 0.59 | | | | | | |
| | | BSH 0702T | 0.41 | | | | |
| | | BSH 0703T | 0.58 | | | | |
| BMH 0702T | 1.13 | | | | | | |
| | | BSH 1001T | 1.40 | | | | |
| BMH 0703T | 1.67 | | | | | | |
| BMH 1001T | 3.2 | | | | | | |
| | | BSH 1002T | 2.31 | | | | |
| BMH 1002T | 6.3 | | | | | | |
| BMH 1003T | 9.4 | | | | | | |
| BMH 1401P | 16.5 | | | | | | |

*(1) - $M_0$: Continuous stall torque*
*- $M_{max}$: Peak stall torque*

| LXM 32●U90M2<br>Continuous output current: 3 A rms | | | |
|---|---|---|---|
| Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm |
| 0.74 | 6000 | 450 | 0.8/2.5 |
| 0.84 | 6000 | 550 | 1.2/3 |
| 0.94 | 5000 | 500 | 1.3/3.5 |
| 1.1 | 4000 | 450 | 1.4/4 |

| LXM 32●D18M2<br>Continuous output current: 6 A rms | | | |
|---|---|---|---|
| Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm |
| 1.8 | 5000 | 950 | 2.2/7.2 |
| 2.1 | 4000 | 900 | 2.6/7.4 |
| 2.1 | 4000 | 900 | 2.5/7.4 |
| 2.2 | 4000 | 900 | 2.7/7.5 |
| 2.9 | 3000 | 900 | 3.4/10.2 |
| 2.8 | 3000 | 900 | 3.4/10.2 |

| LXM 32●D30M2<br>Continuous output current: 10 A rms | | | |
|---|---|---|---|
| Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M_0/M_{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm |
| 3.7 | 4000 | 1500 | 5.8/16.4 |
| 4.6 | 3000 | 1450 | 6/18.4 |
| 5.6 | 2500 | 1450 | 8/23.5 |
| 8.9 | 1500 | 1450 | 10.3/30.8 |

# Lexium 32 motion control

208…480 V three-phase supply voltage

Servo drive/servo motor combinations

## Lexium 32 servo drive/BMH or BSH servo motor combinations

**Servo motors**

**Lexium 32C, 32A and 32M servo drives**

**208…480 V three-phase supply voltage with integrated EMC filter**

| BMH (IP 50 or IP 65) | | BSH (IP 50 or IP 65) | | LXM 32●U60N4 Continuous output current: 1.5 A rms | | | | LXM 32●D12N4 Continuous output current: 3 A rms | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nominal operating point | | | Stall torques | Nominal operating point | | | Stall torques |
| Motor type | Rotor inertia | Motor type | Rotor inertia | Nominal torque | Nominal speed | Nominal power | $M^0/M^{max}$ (1) | Nominal torque | Nominal speed | Nominal power | $M^0/M^{max}$ (1) |
| | kgcm² | | kgcm² | Nm | rpm | W | Nm/Nm | Nm | rpm | W | Nm/Nm |
| | | BSH 0551P | 0.06 | 0.48 | 6000 | 300 | 0.5/1.5 | | | | |
| | | BSH 0552P | 0.10 | 0.65 | 6000 | 400 | 0.8/2.5 | | | | |
| | | BSH 0553P | 0.13 | 0.65 | 6000 | 400 | 1.05/3.5 | | | | |
| BMH 0701P | 0.59 | | | 1.1 | 3000 | 350 | 1.2/4.2 | | | | |
| BMH 0701P | 0.59 | | | | | | | 1.3 | 5000 | 700 | 1.4/4.2 |
| | | BSH 0701P | 0.25 | | | | | 1.32 | 5000 | 700 | 1.4/3.5 |
| | | BSH 0702P | 0.41 | | | | | 1.64 | 5000 | 850 | 2.2/7.6 |
| BMH 1001P | 3.2 | | | | | | | 1.9 | 4000 | 800 | 3.3/10.8 |
| BMH 0702P | 1.13 | | | | | | | 2.2 | 3000 | 700 | 2.5/7.4 |
| BMH 0703T | 1.67 | | | | | | | | | | |
| | | BSH 0703P | 0.58 | | | | | | | | |
| | | BSH 1001P | 1.40 | | | | | | | | |
| BMH 1001P | 3.2 | | | | | | | | | | |
| BMH 1002P | 6.3 | | | | | | | | | | |
| | | BSH 1002P | 2.31 | | | | | | | | |
| BMH 1003P | 9.4 | | | | | | | | | | |
| | | BSH 1003P | 3.2 | | | | | | | | |
| BMH 1401P | 16.5 | | | | | | | | | | |
| | | BSH 1004P | 4.2 | | | | | | | | |
| | | BSH 1401P | 7.4 | | | | | | | | |
| BMH 1402P | 32.0 | | | | | | | | | | |
| | | BSH 1402T | 12.7 | | | | | | | | |
| | | BSH 1403T | 17.9 | | | | | | | | |
| BMH 1403P | 47.5 | | | | | | | | | | |
| | | BSH 1404P | 23.7 | | | | | | | | |
| BMH 2051P | 71.4 | | | | | | | | | | |
| BMH 2052P | 129 | | | | | | | | | | |
| BMH 2053P | 190 | | | | | | | | | | |

*(1) - $M_0$: Continuous stall torque*
*- $M_{max}$: Peak stall torque*

| LXM 32●D18N4<br>Continuous output current: 6 A rms | | | | LXM 32●D30N4<br>Continuous output current: 10 A rms | | | | LXM 32●D72N4<br>Continuous output current: 24 A rms | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nominal operating point | | | Stall torques | Nominal operating point | | | Stall torques | Nominal operating point | | | Stall torques |
| Nominal torque | Nominal speed | Nominal power | $M^0/M^{max}$ *(1)* | Nominal torque | Nominal speed | Nominal power | $M^0/M^{max}$ *(1)* | Nominal torque | Nominal speed | Nominal power | $M^0/M^{max}$ *(1)* |
| Nm | rpm | W | Nm/Nm | Nm | rpm | W | Nm | Nm | rpm | W | Nm |
| 2.4 | 5000 | 1300 | 3.4/10.2 | | | | | | | | |
| 2.44 | 5000 | 1300 | 3.1/11.3 | | | | | | | | |
| 2.7 | 4000 | 1100 | 3.3/9.6 | | | | | | | | |
| 3.1 | 4000 | 1300 | 3.4/10.2 | | | | | | | | |
| 3.9 | 4000 | 1600 | 5.9/18.4 | | | | | | | | |
| 4 | 4000 | 1700 | 5.8/18.3 | | | | | | | | |
| | | | | 6.2 | 4000 | 2600 | 8.4/25.1 | | | | |
| | | | | 6.3 | 3000 | 2000 | 8/28.3 | | | | |
| | | | | 7.6 | 3000 | 2400 | 10.3/30.8 | | | | |
| | | | | 8.3 | 2500 | 2100 | 10/37.9 | | | | |
| | | | | 9.5 | 2500 | 2500 | 11.1/27 | | | | |
| | | | | | | | | 12.1 | 3000 | 3800 | 16.8/50.3 |
| | | | | | | | | 12.3 | 3000 | 3900 | 19.5/59.3 |
| | | | | | | | | 12.9 | 3000 | 4100 | 27.8/90.2 |
| | | | | | | | | 14.2 | 3000 | 4500 | 24/71.8 |
| | | | | | | | | 19 | 2500 | 5000 | 33.4/103.6 |
| | | | | | | | | 25.8 | 2000 | 5400 | 34.4/103.4 |
| | | | | | | | | 41.6 | 1500 | 6500 | 62.5/170 |
| | | | | | | | | 52.2 | 1200 | 6500 | 84/232 |

# Lexium 32 motion control
## Servo drives

PF516055

*LXM 32C●●●●●*

PF516056

*LXM 32A●●●●●*

### Lexium 32C, 32A and 32M servo drives

| Output current at 8 kHz | | Nominal power at 8 kHz | Line current *(2)* | | Max. prospective line Isc | Reference | Weight |
|---|---|---|---|---|---|---|---|
| Continuous (rms) | Peak (rms) *(1)* | | | | | | |
| A | A | kW | A | A | kA | | kg |
| **Single-phase supply voltage: 115 V ∼ 50/60 Hz, with integrated EMC filter** *(3)* | | | | | | | |
| 1.5 | 3 | 0.15 | 2.9 | | 1 | **LXM 32CU45M2** | 1.600 |
| | | | | | | **LXM 32AU45M2** | 1.600 |
| | | | | | | **LXM 32MU45M2** | 1.700 |
| 3 | 6 | 0.3 | 5.4 | | 1 | **LXM 32CU90M2** | 1.700 |
| | | | | | | **LXM 32AU90M2** | 1.700 |
| | | | | | | **LXM 32MU90M2** | 1.800 |
| 6 | 10 | 0.5 | 8.5 | | 1 | **LXM 32CD18M2** | 1.800 |
| | | | | | | **LXM 32AD18M2** | 1.800 |
| | | | | | | **LXM 32MD18M2** | 1.900 |
| 10 | 15 | 0.8 | 12.9 | | 1 | **LXM 32CD30M2** | 2.000 |
| | | | | | | **LXM 32AD30M2** | 2.000 |
| | | | | | | **LXM 32MD30M2** | 2.100 |
| **Single-phase supply voltage: 230 V ∼ 50/60 Hz, with integrated EMC filter** *(3)* | | | | | | | |
| 1.5 | 4.5 | 0.3 | 2.9 | | 1 | **LXM 32CU45M2** | 1.600 |
| | | | | | | **LXM 32AU45M2** | 1.600 |
| | | | | | | **LXM 32MU45M2** | 1.700 |
| 3 | 9 | 0.5 | 4.5 | | 1 | **LXM 32CU90M2** | 1.700 |
| | | | | | | **LXM 32AU90M2** | 1.700 |
| | | | | | | **LXM 32MU90M2** | 1.800 |
| 6 | 18 | 1 | 8.4 | | 1 | **LXM 32CD18M2** | 1.800 |
| | | | | | | **LXM 32AD18M2** | 1.800 |
| | | | | | | **LXM 32MD18M2** | 1.900 |
| 10 | 30 | 1.6 | 12.7 | | 1 | **LXM 32CD30M2** | 2.000 |
| | | | | | | **LXM 32AD30M2** | 2.000 |
| | | | | | | **LXM 32MD30M2** | 2.100 |

| **Dimensions** (overall) | **W x H x D mm** |
|---|---|
| LXM 32CU45M2, CU90M2, CD18M2<br>LXM 32AU45M2, AU90M2, AD18M2 | 48 x 270 x 237 |
| LXM 32MU45M2, MU90M2, MD18M2, MD30M2<br>LXM 32CD30M2<br>LXM 32AD30M2 | 68 x 270 x 237 |

*(1) Maximum value for 1 second*
*(2) Without line choke (see page 62094/7)*
*(3) Additional EMC filters available as an option (see page 62094/8)*

PF516057

*LXM 32M●●●●●*

## Lexium 32C, 32A and 32M servo drives (continued)

| Output current at 8 kHz | | Nominal power at 8 kHz | Line current (2) | | Max. prospective line Isc | Reference | Weight |
|---|---|---|---|---|---|---|---|
| Continuous (rms) | Peak (rms)(1) | | | | | | |
| A | A | kW | A | A | kA | | kg |
| **Three-phase supply voltage: 208 V ∼ 50/60 Hz, with integrated EMC filter (3)** | | | | | | | |
| 1.5 | 6 | 0.4 | 1.4 | | 5 | **LXM 32CU60N4** | 1.700 |
| | | | | | | **LXM 32AU60N4** | 1.700 |
| | | | | | | **LXM 32MU60N4** | 1.800 |
| 3 | 12 | 0.9 | 3 | | 5 | **LXM 32CD12N4** | 1.800 |
| | | | | | | **LXM 32AD12N4** | 1.800 |
| | | | | | | **LXM 32MD12N4** | 1.900 |
| 6 | 18 | 1.8 | 5.5 | | 5 | **LXM 32CD18N4** | 2.000 |
| | | | | | | **LXM 32AD18N4** | 2.000 |
| | | | | | | **LXM 32MD18N4** | 2.100 |
| 10 | 30 | 3 | 8.7 | | 5 | **LXM 32CD30N4** | 2.600 |
| | | | | | | **LXM 32AD30N4** | 2.600 |
| | | | | | | **LXM 32MD30N4** | 2.700 |
| 24 | 72 | 7 | 18.1 | | 5 | **LXM 32CD72N4** | – |
| | | | | | | **LXM 32AD72N4** | – |
| | | | | | | **LXM 32MD72N4** | – |
| **Three-phase supply voltage: 480 V ∼ 50/60 Hz, with integrated EMC filter (3)** | | | | | | | |
| 1.5 | 6 | 0.4 | 1.2 | | 5 | **LXM 32CU60N4** | 1.700 |
| | | | | | | **LXM 32AU60N4** | 1.700 |
| | | | | | | **LXM 32MU60N4** | 1.800 |
| 3 | 12 | 0.9 | 2.4 | | 5 | **LXM 32CD12N4** | 1.800 |
| | | | | | | **LXM 32AD12N4** | 1.800 |
| | | | | | | **LXM 32MD12N4** | 1.900 |
| 6 | 18 | 1.8 | 4.5 | | 5 | **LXM 32CD18N4** | 2.000 |
| | | | | | | **LXM 32AD18N4** | 2.000 |
| | | | | | | **LXM 32MD18N4** | 2.100 |
| 10 | 30 | 3 | 7 | | 5 | **LXM 32CD30N4** | 2.600 |
| | | | | | | **LXM 32AD30N4** | 2.600 |
| | | | | | | **LXM 32MD30N4** | 2.700 |
| 24 | 72 | 7 | 14.6 | | 5 | **LXM 32CD72N4** | – |
| | | | | | | **LXM 32AD72N4** | – |
| | | | | | | **LXM 32MD72N4** | – |

| **Dimensions** (overall) | **W x H x D mm** |
|---|---|
| LXM 32CU45N4, CD12N4, CD18N4<br>LXM 32AU60N4, AD12N4, AD18N4 | 48 x 270 x 237 |
| LXM 32MU60N4, MD12N4, MD18N4, MD30N4<br>LXM 32CD30N4<br>LXM 32AD30N4 | 68 x 270 x 237 |
| LXM 32●D72N4 | 108 x 270 x 237 |

*(1) Maximum value for 1 second*
*(2) Without line choke (see page 62094/7)*
*(3) Additional EMC filters available as an option (see page 62094/8)*

## Servo drive name plate

| Description | Use | Dimensions mm | Reference | Weight kg |
|---|---|---|---|---|
| **Name plate** **(sold in multiples of 50)** | This contains information about the servo drive. To be clipped onto the top right-hand part of the servo drive | 385 x 130 | **VW3 M2 501** | – |

## Documentation

| Description | Reference | Weight kg |
|---|---|---|
| **"Description of the Motion & Drives offer" DVD-ROM** *(1)* | **VW3 A8 200** | 0.100 |
| Comprising:<br>■ Technical documentation (programming manuals, installation manuals, quick reference guides)<br>■ SoMove Lite setup software<br>■ Catalogues, brochures | | |
| **Simplified Lexium 32 user's manual** | Available on our website www.schneider-electric.com | – |

*(1) The documentation for the servo drives and servo motors is also available on our website www.schneider-electric.com.*

# Lexium 32 motion control
## Servo drives
## Dialogue tool


*Graphic display terminal*
*+*
*remote-mounting cordset*
*+*
*female/female RJ45 adaptor*

## Remote graphic display terminal (to be ordered separately) *(1)*

Lexium 32 servo drives can be connected to a remote graphic display terminal, which can be used remotely using remote mounting accessories. It can be mounted on an enclosure door with IP 54 degree of protection.

This terminal is common to various ranges of variable speed drives or servo drives. It has a graphic screen and is used to accesses the same functions as the integrated display and control keys on the servo drive, as well as some additional functions. It can be used for example to:
- Configure, adjust and control the servo drive remotely
- Display the servo drive status and faults remotely
- Override the servo drive I/O
- Execute motion sequences
- Load configurations

Its main characteristics are as follows:
- The graphic screen displays 8 lines of 24 characters of plain text.
- The navigation button provides quick and easy access to the drop-down menus.
- It is supplied with six languages installed as standard (Chinese, English, French, German, Italian and Spanish). Other languages can be downloaded to the flash memory using the VW3 A8 121 Multi-Loader configuration tool (see page 62083/7).

Its maximum operating temperature is 60°C.

### Description

1 Graphic display:
- 8 lines of 24 characters, 240 x 160 pixels
- Large digit display
- Bar chart display

2 Function keys F1, F2, F3, F4
3 "**ESC**" key: aborts a value, a parameter or a menu to return to the previous selection
4 "**FWD/REV**" key: Local control for reversing the direction of rotation of the motor
5 Navigation button:
- Rotate ±: Goes to the next or previous line, increases or decreases the value
- Press: Saves the current value ("**ENT**")

6 Motor local control keys:
- "**RUN**": Starts the motor
- "**STOP/RESET**": Local control of motor stopping/clearing drive faults

7 Remote graphic display terminal
8 Remote-mounting cordset
9 Female/female RJ45 adaptor

### References

| Description | Item no. | Length m | Reference | Weight kg |
|---|---|---|---|---|
| **Remote graphic display terminal**<br>A remote-mounting cordset (VW3 A1 104R●●) and an RJ45 adaptor (VW3 A1 105) are also required | 7 | – | **VW3 A1 101** | – |
| **Remote-mounting cordsets**<br>equipped with 2 RJ45 connectors | 8 | 1 | **VW3 A1 104R10** | 0.050 |
| | | 3 | **VW3 A1 104R30** | 0.150 |
| | | 5 | **VW3 A1 104R50** | 0.250 |
| | | 10 | **VW3 A1 104R100** | 0.500 |
| **Female/female RJ45 adaptor** | 9 | – | **VW3 A1 105** | 0.010 |

*(1) This terminal may require a software upgrade using the VW3 A8 121 Multi-Loader configuration tool (see page 62083/7).*

*Configuration with SoMove Mobile software for mobile phones via Bluetooth®*

## SoMove Mobile software for mobile phones

The SoMove Mobile software converts any compatible mobile phone into a remote graphic display terminal, offering an identical Human-Machine Interface (see page 62083/5).

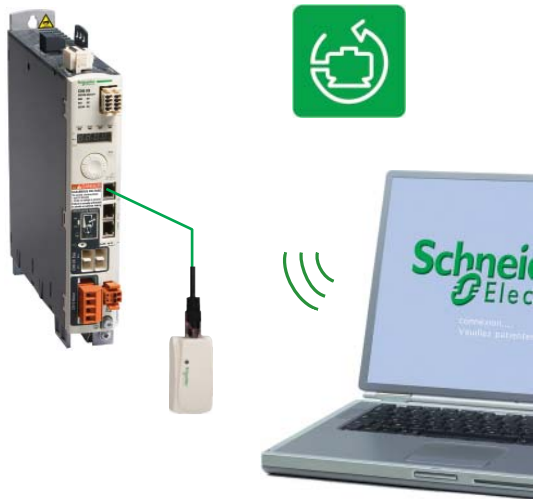
Particularly suitable for on-site or remote maintenance operations, the SoMove Mobile software can be used to print out and save configurations, import them from a PC and export them to a PC, or to a servo drive equipped with the Modbus adaptor via the Bluetooth® wireless link.

It requires a mobile phone with minimum features, please consult our website www.schneider-electric.com.

The SoMove Mobile software and drive configuration files can be downloaded from our website www.schneider-electric.com.

**Reference**

| Description | Reference | Weight kg |
|---|---|---|
| **SoMove Mobile software for mobile phones**<br>Download from our website www.schneider-electric.com. | – | – |
| **Modbus-Bluetooth® adaptor**<br>Enables any non-Bluetooth® device to communicate using this technology.<br><br>Comprising:<br>■ 1 Bluetooth® adaptor (range 10 m, class 2) with an RJ45 connector<br>■ For SoMove: 1 x 0.1 m cordset with 2 x RJ45 connectors<br>■ Etc.*(1)* | **VW3 A8 114** | 0.155 |



*Configuration with the SoMove setup software via Bluetooth®*

## SoMove setup software

The SoMove setup software is used to configure, adjust, debug and maintain the Lexium 32 servo drive, as for all other Schneider Electric variable speed drives and starters.

It communicates via Bluetooth® wireless link with the servo drive, which is equipped with the Modbus-Bluetooth® adaptor (VW3 A8 114).

It can be downloaded from our website www.schneider-electric.com or is available on the “Description of the Motion & Drives Offer” DVD ROM (VW3 A8 200).

For presentation, description and references, see page 60205/2.

*(1) Also includes other components for connecting compatible Schneider Electric devices.*

PF080925

*Configuration of a Lexium 32 in its packaging with the VW3 A8 121 Multi-Loader tool + a VW3 A8 126 cordset*

## Multi-Loader configuration tool

The Multi-Loader tool enables several configurations to be copied from a PC or a servo drive and loaded onto another servo drive.
The Lexium 32 servo drives do not need to be powered up.

### References

| Description | Reference | Weight kg |
|---|---|---|
| **Multi-Loader configuration tool**<br>Supplied with:<br>■ 1 cordset equipped with 2 RJ45 connectors<br>■ 1 cordset equipped with one type A USB connector and one mini B USB connector<br>■ 1 x 2 GB SD memory card<br>■ 1 x female/female RJ 45 adaptor<br>■ 4 AA 1.5 V LR6 round batteries | **VW3 A8 121** | – |
| **Cordset for Multi-Loader tool**<br>For connecting the Multi-Loader tool to the Lexium 32 servo drive in its packaging.<br>Equipped with:<br>■ A non-locking RJ45 connector with special mechanical catch on the drive end and<br>■ An RJ45 connector on the Multi-Loader end. | **VW3 A8 126** | – |

PF080995

*Duplication of an application with the VW3 M8 705 memory card*

## Memory card

| Description | Reference | Weight kg |
|---|---|---|
| **Memory card**<br>Used to store the parameters of the Lexium 32 servo drive. Another Lexium 32 servo drive can be commissioned immediately in the event of maintenance or duplication. | **VW3 M8 705** | – |
| **Pack of 25 memory cards** | **VW3 M8 704** | – |
| **Memory card recorder**<br>Writes data from the Lexium 32 servo drive to the memory card.<br>This recorder is not supplied by Schneider Electric. | See the User's manual | – |

## Connection accessories

### Replacement connectors

| Designation | For use with | Description | Reference | Weight kg |
|---|---|---|---|---|
| **Set of connectors** | Lexium 32C | Comprising:<br>■ 3 connectors for the line supply<br>■ 1 connector for the DC bus<br>■ 3 connectors for the I/O<br>■ 1 connector for the motor power supply<br>■ 1 connector for the holding brake | **VW3 M2 201** | – |
| | Lexium 32A | Comprising:<br>■ 3 connectors for the line supply<br>■ 1 connector for the DC bus<br>■ 2 connectors for the I/O<br>■ 1 connector for the motor power supply<br>■ 1 connector for the holding brake | **VW3 M2 202** | – |
| | Lexium 32M | Comprising:<br>■ 3 connectors for the line supply<br>■ 1 connector for the DC bus<br>■ 3 connectors for the I/O<br>■ 1 connector for the motor power supply<br>■ 1 connector for the holding brake | **VW3 M2 203** | – |
| | Lexium 32 (all types) | Comprising:<br>■ 10 connectors for creating extension cordsets for the DC bus | **VW3 M2 207** | – |

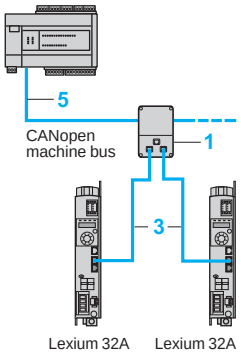
### Cordsets

| For use with | | Description | Length m | Unit reference | Weight kg |
|---|---|---|---|---|---|
| **Daisy chain connection of the DC bus** | Between 1 Altivar 32 drive *(1)* and 1 Lexium 32 servo drive:<br>ATV 32H●●●32M2/LXM 32●●●●M2<br>ATV 32H●●●32N4/LXM 32●●●●N4 | Equipped with 2 connectors<br>**(sold in lots of 5)** | 0.18 | **VW3 M7 101R01** | – |
| **Daisy chain connection or pulse control** | For Lexium 32C and 32M servo drives | Equipped with 2 RJ45 connectors | 0.3 | **VW3 M8 502R03** | 0.025 |
| | | | 1.5 | **VW3 M8 502R15** | 0.062 |
| | | Equipped with 1 RJ45 connector and a free end | 3 | **VW3 M8 223R30** | – |
| **Adaptor for motor encoder cable** | Replacement of a Lexium 05 servo drive with a Lexium 32 servo drive | Equipped with one 10-way Molex connector and one RJ45 connector (Lexium 32 servo drive end). Cable length 1 m | – | **VW3 M8 111R10** | – |
| | Replacement of a Lexium 15 servo drive with a Lexium 32 servo drive | Equipped with one 15-way male SUB-D connector and one RJ45 connector (Lexium 32 servo drive end). Cable length 1 m | – | **VW3 M8 112R10** | – |

*(1) Variable speed offer, see the "Altivar 32 variable speed drives" catalogue or consult our website www.schneider-electric.com.*

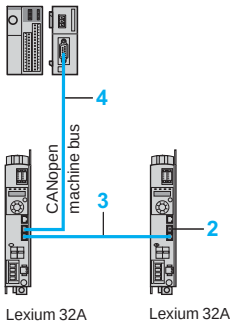
# Lexium 32 motion control
## Lexium 32A servo drives
## Connection accessories

M238 logic controller



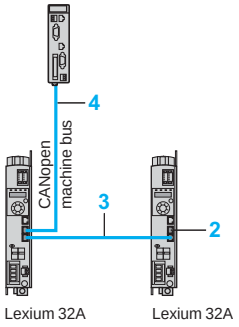

*Example of architecture with control by M238 logic controller*

Twido programmable controller + TWD NC01M




*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 32A servo drives

Lexium 32A 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 connectors of this type (marked CN4 and CN5).
The communication function provides access to the servo drive's configuration, adjustment, control and monitoring functions.
Used with a Lexium Controller motion controller, the CANmotion bus can be used to control motion for applications with up to eight Lexium 32A servo drives.

### Connection accessories *(1)*

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

### Cordsets and cables *(1)*

| Description | Use | | Item no. | Length | Reference | Weight |
|---|---|---|---|---|---|---|
| | From | To | | m | | kg |
| **CANopen cordsets** *(1)*<br>equipped with 2 RJ45 connectors | VW3 CAN TAP2 junction box<br>LXM 32A servo drive (CN4 and CN5 connectors) | LXM 32A servo drive (CN4 and CN5 connectors) | 3 | 0.3 | **VW3 CAN CARR03** | 0.320 |
| | | | | 1 | **VW3 CAN CARR1** | 0.500 |
| **CANopen cordsets** *(1)*<br>equipped with one 9-way female SUB-D connector with integrated line terminator and one RJ45 connector | Twido programmable controller<br>Motion controller Lexium Controller LMC 20, LMC 20A130● | LXM 32A servo drive (CN4 and CN5 connectors) | 4 | 1 | **VW3 M3 805R010** | – |
| | | | | 3 | **VW3 M3 805R030** | – |
| **CANopen cables** *(1)*<br>Standard cables,<br>CE marking<br>Low smoke, zero halogen<br>Flame retardant (IEC 60332-1) | PLC | VW3 CAN TAP2 junction box | 5 | 50 | **TSX CAN CA 50** | 4.930 |
| | | | | 100 | **TSX CAN CA 100** | 8.800 |
| | | | | 300 | **TSX CAN CA 300** | 24.560 |
| **CANopen cables** *(1)*<br>UL certification,<br>CE marking<br>Flame retardant (IEC 60332-2) | PLC | VW3 CAN TAP2 junction box | 5 | 50 | **TSX CAN CB 50** | 3.580 |
| | | | | 100 | **TSX CAN CB 100** | 7.840 |
| | | | | 300 | **TSX CAN CB 300** | 21.870 |
| **CANopen cables** *(1)*<br>Cables for harsh environments *(2)* or mobile installation,<br>CE marking<br>Low smoke, zero halogen<br>Flame retardant (IEC 60332-1) | PLC | VW3 CAN TAP2 junction box | 5 | 50 | **TSX CAN CD 50** | 3.510 |
| | | | | 100 | **TSX CAN CD 100** | 7.770 |
| | | | | 300 | **TSX CAN CD 300** | 21.700 |

*(1) For other CANopen machine bus connection accessories, please consult our website 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*

Presentation: page 62080/2 | Options: page 62094/2 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2 | Servo drive/motor combinations: page 62080/5

# Lexium 32 motion control

## Option: encoder cards for Lexium 32M servo drives

PF080920

*VW3 M3 401 encoder card*

## Presentation

The Lexium 32M servo drive can take an encoder interface card. This has an input available for an additional encoder, thus offering the following advantages:

- The ability to connect to third-party motors, which increases the installation's flexibility
- The ability to improve positioning accuracy by reducing the effect of mechanical backlash thanks to position measurement directly on the machine, and to meet the requirements of simple applications or complex systems which need a very quick response or very accurate path following

Three cards are available depending on the encoder technology:

- Resolver encoder
- Encoder with digital output
- Encoder with analog output

## References

| Description | Technology type | Power supply | Encoder type | | Reference | Weight |
|---|---|---|---|---|---|---|
| | | | Machine encoder | Motor encoder | | |
| | | V ⎓ | | | | kg |
| **Resolver card** | | | | ■ | **VW3 M3 401** | – |
| **Encoder interface card with digital output** | A/B/I | 5 | ■ | | **VW3 M3 402** | – |
| | SSI | 12 | ■ | | | |
| | BISS | 5 | ■ | | | |
| | EnDat 2.2 | 5 | ■ | | | |
| **Encoder interface card with analog output** | 1 Vpp | 5 | | ■ | **VW3 M3 403** | – |
| | 1 Vpp/Hall | 5 | | ■ | | |
| | Hiperface | 12 | ■ | ■ | | |

## Connection accessories

| Description | Composition | Length m | Reference | Weight kg |
|---|---|---|---|---|
| **Connectors** | | | | |
| **Connector**<br>9-way male SUB-D<br>For resolver card | – | – | **AEO CON 011** | – |
| **Cordset** | | | | |
| **Cordset** equipped with<br>1 x 15-way high density male SUB-D connector<br>For card with digital or analog output | – | 1 | **VW3 M4 701** | – |
| **Connecting cable** | | | | |
| **Cable**<br>for creating cordsets<br>for encoder interface cards | [5 x<br>(2 x 0.25 mm²)<br>+<br>(2 x 0.5 mm²)] | 100 | **VW3 M8 221R1000** | 21.000 |

# Lexium 32 motion control
## Option: encoder cards for Lexium 32M servo drives

## Osicoder® machine encoders for VW3 M3 402 encoder card

### Presentation

To meet requirements for machine encoders, Schneider Electric offers the Osicoder® range of encoders. They connect to the VW3 M3 402 encoder interface card with digital output.

The Osicoder® offer consists of incremental encoders and absolute encoders.

The proposed incremental encoder, with its configurable resolution, satisfies most requirements for machine encoders with A/B/I output signal.
The proposed absolute encoders are among the most commonly used machine encoders with SSI interface.

For more information on the Osicoder® offer, please refer to the "Rotary encoders - Osicoder®" catalogue or our website www.schneider-electric.com.

PF105184

*XCC 1510PSM50X incremental encoder*

### Ø 58 mm incremental encoder

Operating on the principle of in-line differential optical reading, XCC incremental encoders are extremely rugged, thanks to their technology based on photo-sensitive cells and their triple light source.
The cyclic ratio is maintained even in the event of:
- Failure of one of the sender components
- Reduced efficiency of the sender components (up to 30%)
- Deposit of fine dust on the optical elements

| Resolution | Type of connection | Type of output stage | Supply voltage | Reference | Weight kg |
|---|---|---|---|---|---|
| **Configurable encoder with Ø 10 mm solid shaft** | | | | | |
| **5000…80,000 points** | Male M23 radial connector | 5 V, RS 422 | 4.75…30 V | **XCC 1510PSM50X** | 0.465 |

***Note**: XCC incremental encoders can also be used as a master encoder on Lexium 32C and Lexium 32M servo drives, when connected to the PTI input.*

PF105173

*XCC 2510PS81SBN absolute encoder*

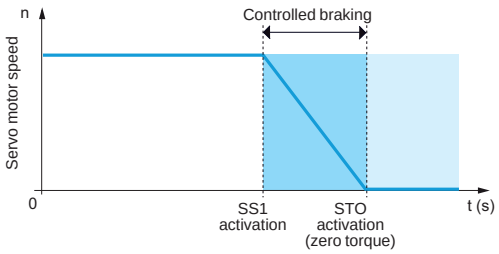
### Ø 58 mm absolute encoders

An absolute encoder continuously delivers a code which is the image of the actual position of the moving part to be controlled. On the first power-up or on return of the power after a power failure, the encoder will deliver a data item which can be used directly by the processing system.

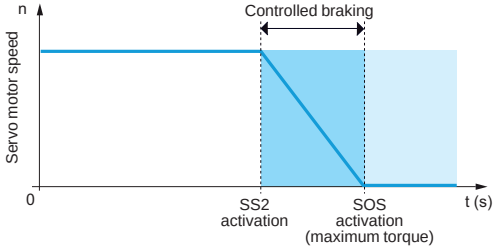
| Resolution | Type of connection | Type of output stage | Supply voltage | Reference | Weight kg |
|---|---|---|---|---|---|
| **Single turn encoder with Ø 10 mm solid shaft** | | | | | |
| **8192 points** | Male M23 radial connector | SSI, 13 bits, binary | 11…30 V | **XCC 2510PS81SBN** | 0.460 |
| **Multiturn encoder with Ø 10 mm solid shaft** | | | | | |
| **8192 points x 4096 turns** | Male M23 radial connector | SSI, 25 bits, binary | 11…30 V | **XCC 3510PS84SBN** | 0.685 |

Presentation: page 62080/2 | Servo drives: page 62083/2 | Servo drive/motor combinations: page 62080/5 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2

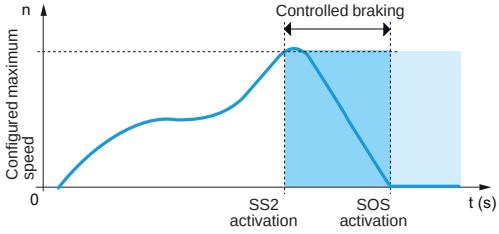
# Lexium 32 motion control
## Option: safety card for Lexium 32M servo drives




*Activation of the "Safe Stop 1" (SS1) safety function*




*Activation of the "Safe Stop 2" (SS2) safety function*




*Activation of the "Safe Limited Speed" (SLS) safety function*

## Presentation

The eSM safety card allows Lexium 32 servo drives to access additional safety functions, as well as the "Safety Torque Off" (STO) function, thus putting in place a complex safety device, while ensuring reliable monitoring of the installation.

The eSM card optimizes the overall cost of the installation by avoiding the addition of external safety products, while conforming to international safety standards. As a result, wiring is cheaper and quicker.

It also improves performance during maintenance by reducing machine or installation downtime and increases the safety of any work carried out.

The eSM card complies with the machinery standard ISO 13849-1, performance level "e" (PL e), functional safety standard IEC/EN 61508, SIL 3 capability, and functional safety standard IEC/EN 62061, SIL 3 capability.

It includes safety functions compliant with standard IEC/EN 61800-5-2. These functions, required in the majority of applications, are as follows:

- "Safe Torque Off" (STO)
- "Safe Stop 1" (SS1)
- "Safe Stop 2" (SS2)
- "Safe Limited Speed" (SLS)
- "Safe Operating Stop" (SOS)

## Safety functions

### "Safe Stop 1" (SS1) safety function

The SS1 safety function is used to achieve a category 1 safe stop.
After activation of the function, the servo motor is braked in a controlled manner, maintaining the power on the actuators. The power is then cut when the actuators stop after the machine has come to a halt.

### "Safe Stop 2" (SS2) safety function

The SS2 safety function is used to achieve a category 2 safe stop. After activation of the function, the servo motor is braked in a controlled manner, maintaining the power on the actuators. Once the motor has come to a halt, it is kept at a standstill with the "Safe Operating Stop" (SOS) function.

### "Safe Limited Speed" (SLS) safety function

The SLS safety function is used to monitor the configured maximum speed. If this speed is exceeded, the servo motor will be stopped in accordance with SS2.

### "Safe Operating Stop" (SOS) safety function

The SOS safety function is used to monitor any deviation from the standstill position, once the servo motor has come to a halt.

# Lexium 32 motion control
## Option: safety card for Lexium 32M servo drives

PF080921

*VW3 M3 501 safety card*

## References

| Description | Power supply | Cable length | Unit reference | Weight |
|---|---|---|---|---|
| | V | m | | kg |
| **eSM safety card for** Lexium 32M servo drives | 24 ⎓ (min. 19, max. 30) | – | **VW3 M3 501** | – |
| **Cordset** preassembled with a 24-way female connector (safety card end) and a free end | – | 1.5 | **VW3 M8 801R15** | – |
| | | 3 | **VW3 M8 801R30** | – |
| **Cordset** preassembled with 2 x 24-way female connectors | – | 3 | **VW3 M8 802R30** | – |
| **eSM distribution unit** equipped with 5 connectors | – | – | **VW3 M8 810** | – |
| **Removable connector** for connecting an additional eSM distribution unit **Sold in lots of 4** | – | – | **VW3 M8 820** | – |

Presentation: page 62080/2 | Servo drives: page 62083/2 | Servo drive/motor combinations: page 62080/5 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2

# Lexium 32 motion control
## 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 transient 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 casing is IP 65 for VW3 A7 601 R●● to VW3 A7 608 R●● braking resistors and IP 20 for VW3 A7 70● braking resistors.
The operating temperature around the unit can be between 0 and + 50°C.

To optimize the size of the braking resistor, the DC buses on Lexium 32 servo drives in the same installation can be connected in parallel (see 62083/8).

### Applications

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

PF106005

*VW3 A7 60● R●●*

PF105659

*VW3 A7 70●*

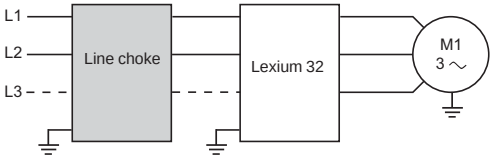
## References

| Ohmic value | Continuous power PPr | Peak energy EPk | | | | Length of connection cable | Reference | Weight |
|---|---|---|---|---|---|---|---|---|
| | | 115 V | 230 V | 380 V | 480 V | | | |
| Ω | W | Ws | Ws | Ws | Ws | m | | kg |
| **10** | 400 | 18,800 | 13,300 | 7300 | 7700 | 0.75 | **VW3 A7 601 R07** | 1.420 |
| | | | | | | 2 | **VW3 A7 601 R20** | 1.470 |
| | | | | | | 3 | **VW3 A7 601 R30** | 1.620 |
| | 1000 | 36,500 | 36,500 | 22,500 | 22,500 | – | **VW3 A7 705** | 11.000 |
| **15** | 1000 | 43,100 | 43,100 | 26,500 | 26,500 | – | **VW3 A7 704** | 11.000 |
| **27** | 100 | 4200 | 3800 | 1900 | 1700 | 0.75 | **VW3 A7 602 R07** | 0.630 |
| | | | | | | 2 | **VW3 A7 602 R20** | 0.780 |
| | | | | | | 3 | **VW3 A7 602 R30** | 0.900 |
| | 200 | 9700 | 7400 | 4900 | 4300 | 0.75 | **VW3 A7 603 R07** | 0.930 |
| | | | | | | 2 | **VW3 A7 603 R20** | 1.080 |
| | | | | | | 3 | **VW3 A7 603 R30** | 1.200 |
| | 400 | 25,500 | 18,100 | 11,400 | 10,500 | 0.75 | **VW3 A7 604 R07** | 1.420 |
| | | | | | | 2 | **VW3 A7 604 R20** | 1.470 |
| | | | | | | 3 | **VW3 A7 604 R30** | 1.620 |
| **72** | 100 | 5500 | 3700 | 2500 | 2300 | 0.75 | **VW3 A7 605 R07** | 0.620 |
| | | | | | | 2 | **VW3 A7 605 R20** | 0.750 |
| | | | | | | 3 | **VW3 A7 605 R30** | 0.850 |
| | 200 | 14,600 | 9600 | 6600 | 6000 | 0.75 | **VW3 A7 606 R07** | 0.930 |
| | | | | | | 2 | **VW3 A7 606 R20** | 1.080 |
| | | | | | | 3 | **VW3 A7 606 R30** | 1.200 |
| | 400 | 36,600 | 24,700 | 16,200 | 15,500 | 0.75 | **VW3 A7 607 R07** | 1.420 |
| | | | | | | 2 | **VW3 A7 607 R20** | 1.470 |
| | | | | | | 3 | **VW3 A7 607 R30** | 1.620 |
| **100** | 100 | 4400 | 4400 | 2900 | 2900 | 0.75 | **VW3 A7 608 R07** | 0.410 |
| | | | | | | 2 | **VW3 A7 608 R20** | 0.560 |
| | | | | | | 3 | **VW3 A7 608 R30** | 0.760 |

***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 32 servo drive (see pages 62083/2 and 62083/3).*

# Lexium 32 motion control
## Option: line chokes for servo drives

## Presentation




A line choke can be used to provide improved protection against overvoltages on the line supply and to reduce harmonic distortion of the current produced by the servo drive.

The recommended chokes limit the line current.
They have been developed in line with standard IEC 61800-5-1 (VDE 0160 level 1 high-energy overvoltages on the line supply).

The inductance values are defined for a voltage drop between 3% and 5% of the nominal line voltage. Values higher than this will cause loss of torque.

These chokes must be installed upstream of the servo drive.
One line choke can be connected to a number of servo drives. In such cases, the current consumption of all the servo drives at nominal voltage must not exceed the nominal current of the line choke.
The use of line chokes is recommended in particular under the following circumstances:

- Close connection of several servo drives in parallel
- Line supply with significant disturbance from other equipment (interference, overvoltages)
- Line supply with voltage unbalance between phases that is more than 1.8% of the nominal voltage
- Servo drive supplied by a line with very low impedance (in the vicinity of a power transformer 10 times more powerful than the servo drive rating)
- Installation of a large number of servo drives on the same line
- Reduction of overloads on the cos φ correction capacitors, if the installation includes a power factor correction unit.

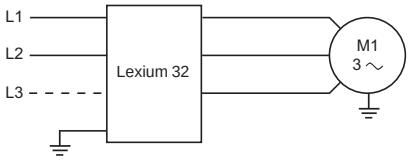
## References

| For servo drive | Inductance value | Losses | Line current and THD | | | | Reference | Weight |
|---|---|---|---|---|---|---|---|---|
| | | | Without choke | | With choke | | | |
| | mH | W | A | % | A | % | | kg |
| **Single-phase supply voltage: 115 V ~ 50/60 Hz** | | | | | | | | |
| **LXM 32●U45M2** | 5 | 20 | 2.9 | 173 | 2.6 | 85 | **VZ1 L007UM50** | 0.880 |
| **LXM 32●U90M2** | 2 | 30 | 5.4 | 159 | 5.2 | 90 | **VZ1 L018UM20** | 1.990 |
| **LXM 32●D18M2** | 2 | 30 | 8.5 | 147 | 9.9 | 74 | | |
| **LXM 32●D30M2** | 2 | 30 | 12.9 | 135 | 9.9 | 72 | | |
| **Single-phase supply voltage: 230 V ~ 50/60 Hz** | | | | | | | | |
| **LXM 32●U45M2** | 5 | 20 | 2.9 | 181 | 3.4 | 100 | **VZ1 L007UM50** | 0.880 |
| **LXM 32●U90M2** | 2 | 30 | 4.5 | 166 | 6.3 | 107 | **VZ1 L018UM20** | 1.990 |
| **LXM 32●D18M2** | 2 | 30 | 8.4 | 148 | 10.6 | 93 | | |
| **LXM 32●D30M2** | 2 | 30 | 12.7 | 135 | 14.1 | 86 | | |
| **Three-phase supply voltage: 380 V ~ 50/60 Hz** | | | | | | | | |
| **LXM 32●U60N4** | 2 | 75 | 1.4 | 187 | 1.9 | 106 | **VW3 A4 553** | 3.500 |
| **LXM 32●D12N4** | 2 | 75 | 3 | 174 | 3.5 | 88 | | |
| **LXM 32●D18N4** | 1 | 90 | 5.5 | 159 | 7.2 | 88 | **VW3 A4 554** | 6.000 |
| **LXM 32●D30N4** | 1 | 90 | 8.7 | 146 | 11.6 | 74 | | |
| **LXM 32●D72N4** | 1 | 90 | 18.1 | 124 | 23.5 | 43 | | |
| **Three-phase supply voltage: 480 V ~ 50/60 Hz** | | | | | | | | |
| **LXM 32●U60N4** | 2 | 75 | 1.2 | 201 | 1.6 | 116 | **VW3 A4 553** | 3.500 |
| **LXM 32●D12N4** | 2 | 75 | 2.4 | 182 | 2.9 | 98 | | |
| **LXM 32●D18N4** | 1 | 90 | 4.5 | 165 | 6 | 98 | **VW3 A4 554** | 6.000 |
| **LXM 32●D30N4** | 1 | 90 | 7 | 152 | 9.6 | 85 | | |
| **LXM 32●D72N4** | 1 | 90 | 14.6 | 129 | 19.5 | 55 | | |

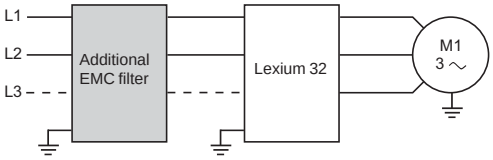
Presentation: page 62080/2 | Servo drives: page 62083/2 | Servo drive/motor combinations: page 62080/5 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2

# Lexium 32 motion control

## Integrated EMC filters and additional EMC input filters for servo drives




Lexium 32 servo drive with integrated EMC filter




Lexium 32 servo drive with additional EMC filter

PF080930

*Additional EMC filter mounted on a Lexium 32M servo drive*

## Integrated EMC filter

### Function

Lexium 32 servo drives have integrated radio interference input filters to comply with the EMC standard for variable speed electrical power drive “products” IEC/EN 61800-3, edition 2, category C3 in environment 2, and to comply with the European directive on EMC (electromagnetic compatibility).

| For servo drive | Maximum servo motor cable length conforming to EN 55011, class A, Gr2 IEC/EN 61800-3, category C3 in environment 2 *(1)* Switching frequency: 8 kHz |
|---|---|
| | m |
| **Single-phase supply voltage: 115 V ~ 50/60 Hz** | |
| **LXM 32●●●●M2** | 20 (10 metres in category C2, environment 1) |
| **Single-phase supply voltage: 230 V ~ 50/60 Hz** | |
| **LXM 32●●●●M2** | 20 (10 metres in category C2, environment 1) |
| **Three-phase supply voltage: 380 V ~ 50/60 Hz** | |
| **LXM 32●●●●N4** | 20 |
| **Three-phase supply voltage: 480 V ~ 50/60 Hz** | |
| **LXM 32●●●●N4** | 20 |

## Additional EMC input filters

### Applications

Used with Lexium 32 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 (see page 62094/9).

Additional EMC filters are mounted on the side of the device. They have tapped holes for mounting in an enclosure.

### Use according to the type of line supply

Integrated or additional EMC filters can only be used on TN (neutral connection) or TT (neutral to earth) systems.
Lexium 32 servo drives cannot be used on IT (impedance earthed or isolated 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.

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.

*(1) Standard IEC/EN 61800-3: EMC immunity and conducted and radiated EMC emissions:*
*- Category C3 in environment 2: industrial premises.*

# Lexium 32 motion control
## Option: additional EMC input filters for servo drives

PF095115

*VW3 A4 422*

## References

| For servo drive | Maximum servo motor shielded cable length conforming to | | Reference | Weight |
|---|---|---|---|---|
| | EN 55011 class A Gr1 | EN 55011 class A Gr2 | | |
| | IEC/EN 61800-3 category C2 *(1)* in environment 1 | IEC/EN 61800-3 category C3 *(1)* in environment 2 | | |
| | Switching frequency 8 kHz | Switching frequency 8 kHz | | |
| | m | m | | kg |
| **Single-phase supply voltage** | | | | |
| LXM 32●U45M2<br>LXM 32●U90M2 | 50 | 100 | **VW3 A4 420** | 0.600 |
| LXM 32●D18M2<br>LXM 32●D30M2 | 50 | 100 | **VW3 A4 421** | 0.775 |
| **Three-phase supply voltage** | | | | |
| LXM 32●U60N4<br>LXM 32●D12N4<br>LXM 32●D18N4<br>LXM 32●D30N4 | 50 | 100 | **VW3 A4 422** | 0.900 |
| LXM 32●D72N4 | 50 | 100 | **VW3 A4 423** | 1.350 |

*(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 terms of reduction of current harmonics*
*- Category C3 in environment 2: industrial premises.*

# Lexium 32 motion control
## Communication buses and networks
## CANopen/CANmotion machine bus

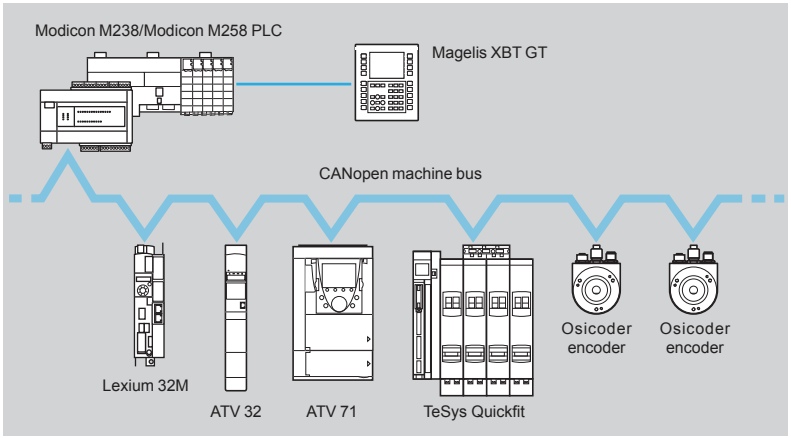
Lexium 32A servo drives integrate the CANopen communication protocol as standard (see page 62083/9).

If one of the communication cards (available as options) is added, the Lexium 32M servo drive can be connected to the following communication buses and networks:
- CANopen and CANmotion machine bus
- PROFIBUS DP V1 fieldbus
- DeviceNet fieldbus
- EtherNet/IP network
- EtherCAT fieldbus

The Lexium 32M servo drive can only take one communication card.

## CANopen and CANmotion machine bus

### Presentation




PF080931

*Installing the CANopen communication card VW3 A3 608*

The CANopen machine bus is specifically designed for integration in control system architectures. It provides openness and interoperability for various devices (drives, motor starters, smart sensors, etc.).

A tiered CANopen connectivity solution reduces costs and optimizes the creation of the control system architecture, providing:
- Reduced cabling time
- Greater reliability of the load
- Flexibility should you need to add or remove equipment

It is very easy to set up.

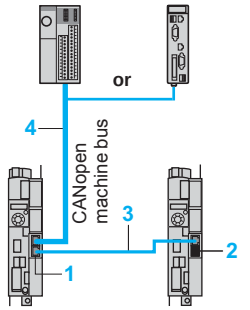
The same communication card provides access to either the CANopen or CANmotion machine bus. The characteristics of the cards are available on our website www.schneider-electric.com.

### An optimized solution for connection to the CANopen/CANmotion machine bus

To simplify the setup of Lexium 32M servo drives, three communication cards are available, each with different connectors:
- CANopen/CANmotion Daisy chain card with connection to the bus via two RJ45 connectors, providing an optimized solution for daisy chain connection to the CANopen machine bus (see page 62084/3)
- CANopen/CANmotion card with connection to the bus via screw terminals (see page 62084/3)
- CANopen/CANmotion card with connection to the bus via 9-way male SUB-D connector (see page 62084/4)

# Lexium 32 motion control
## Communication buses and networks
## CANopen/CANmotion machine bus

Twido programmable controller **or** Lexium Controller

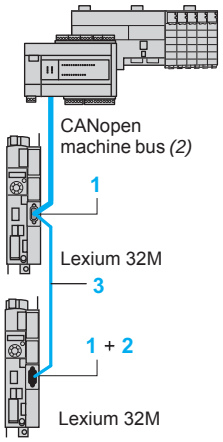



*Daisy chain connection to the CANopen machine bus with VW3 A3 608 card*

PF095143

*VW3 A3 628 CANopen communication card*

Modicon M328/Modicon M258 PLC




*Example of connection to the CANopen machine bus with VW3 A3 628 card*

## CANopen/CANmotion machine bus: connection via RJ45 connector

### CANopen/CANmotion Daisy Chain communication card

| Description | Type of port | Item no. | Unit reference | Weight kg |
|---|---|---|---|---|
| **CANopen/CANmotion Daisy Chain card** for Lexium 32M servo drives | 2 RJ45 connectors | 1 | **VW3 A3 608** | – |

### Connection accessories for VW3 A3 608 CANopen Daisy Chain card

| | | | | |
|---|---|---|---|---|
| **CANopen line terminator** *(1)* | With RJ45 connector | 2 | **TCS CAR 013M120** | 0.009 |
| **CANopen IP 20 junction boxes** | 2 RJ45 connectors | – | **VW3 CAN TAP2** | 0.250 |

### Cordsets for VW3 A3 608 CANopen/CANmotion Daisy Chain card

| Description | Use | | Item no. | Length | Reference | Weight kg |
|---|---|---|---|---|---|---|
| | From | To | | m | | |
| **CANopen cordsets** equipped with one RJ45 connector at each end | LXM 32A servo drive<br>LXM 32M servo drive<br>VW3 A3 608 card<br>VW3 CAN TAP2 junction box | VW3 A3 608 card<br>LXM 32A servo drive<br>LXM 32M servo drive | 3 | 0.3 | **VW3 CAN CARR03** | 0.320 |
| | | | | 1 | **VW3 CAN CARR1** | 0.500 |
| **CANopen cordsets** equipped with one 9-way female SUB-D connector with integrated line terminator and one RJ45 connector | Twido programmable controller<br>Lexium Controller:<br>LMC 20<br>LMC 20A130 | VW3 A3 608 card<br>LXM 32A servo drive<br>LXM 32M servo drive | 4 | 1 | **VW3 M3 805R010** | – |
| | | | | 3 | **VW3 M3 805R030** | – |

## CANopen/CANmotion machine bus: connection via screw terminals

### CANopen/CANmotion communication card

| Description | Type of port | Item no. | Unit reference | Weight kg |
|---|---|---|---|---|
| **CANopen/CANmotion card** for Lexium 32M servo drives | One 5-way screw terminal block | 1 | **VW3 A3 628** | – |

### Connection accessory for VW3 A3 628 CANopen/CANmotion communication card

| | | | | |
|---|---|---|---|---|
| **CANopen line terminator** *(1)* | Stripped wires for screw terminal connector | 2 | **TCS CAR 013M120** | – |

### Connection cables for VW3 A3 628 CANopen/CANmotion communication card

| Description | Use | | Item no. | Length | Reference | Weight kg |
|---|---|---|---|---|---|---|
| | From | To | | m | | |
| **CANopen cables** Standard cables, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1) | Programmable controller | VW3 A3 628 card | 3 | 50 | **TSX CAN CA 50** | 4.930 |
| | | | | 100 | **TSX CAN CA 100** | 8.800 |
| | | | | 300 | **TSX CAN CA 300** | 24.560 |
| **CANopen cables** UL certification, CE marking Flame retardant (IEC 60332-2) | Programmable controller | VW3 A3 628 card | 3 | 50 | **TSX CAN CB 50** | 3.580 |
| | | | | 100 | **TSX CAN CB 100** | 7.840 |
| | | | | 300 | **TSX CAN CB 300** | 21.870 |
| **CANopen cables** Cable for harsh environment *(3)* or mobile installation, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1) | Programmable controller | VW3 A3 628 card | 3 | 50 | **TSX CAN CD 50** | 3.510 |
| | | | | 100 | **TSX CAN CD 100** | 7.770 |
| | | | | 300 | **TSX CAN CD 300** | 21.700 |

***(1) Order in lots of 2.***

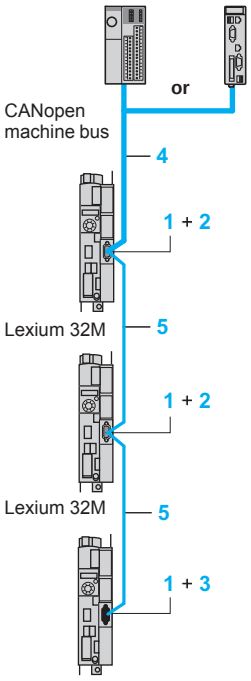
*(2) Cable dependent on the type of controller or PLC; please refer to the corresponding catalogue.*

*(3) 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.*

# Lexium 32 motion control
## Communication buses and networks
## CANopen/CANmotion machine bus

PF080926

*VW3 A3 618 CANopen communication card*




*Example of connection to the CANopen machine bus with VW3 A3 618 card*

## CANopen/CANmotion machine bus: connection via SUB-D connector

### CANopen/CANmotion communication card

| Description | Type of port | Item no. | Reference | Weight kg |
|---|---|---|---|---|
| **CANopen/CANmotion card** for Lexium 32M servo drives | One 9-way male SUB-D connector | 1 | **VW3 A3 618** | – |

### Connection accessories for VW3 A3 618 CANopen/CANmotion card

| Description | Type of port | Item no. | Unit reference | Weight kg |
|---|---|---|---|---|
| 9-way female SUB-D **connector** with screw terminals. Line termination switch that can be deactivated | – | 2 | **VW3 M3 802** | – |
| **CANopen line terminator** *(1)* | Stripped wires for screw terminal connector | 3 | **TCS CAR 01NM120** | – |
| **CANopen IP20 connectors,** 9-way female SUB-D Line termination switch that can be deactivated | Straight | – | **TSX CAN KCDF180T** | 0.049 |
| | Angled at 90° | – | **TSX CAN KCDF90T** | 0.046 |
| | Angled at 90° with 9-way SUB-D for connecting PC or diagnostics tool | – | **TSX CAN KCDF90TP** | 0.051 |

### Cordsets for VW3 A3 618 CANopen/CANmotion card

| Description | Use | | Item no. | Length m | Reference | Weight kg |
|---|---|---|---|---|---|---|
| | From | To | | | | |
| **CANopen IP 20 cordsets** equipped with one 9-way female SUB-D 9 connector at each end. Standard cables, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1) | Lexium Controller: LMC 20 LMC 20A130 | VW3 A3 618 card | 4 | 0.3 | **TSX CAN CADD 03** | 0.091 |
| | | | | 1 | **TSX CAN CADD 1** | 0.143 |
| | | | | 3 | **TSX CAN CADD 3** | 0.295 |
| | | | | 5 | **TSX CAN CADD 5** | 0.440 |
| **CANopen IP 20 cordsets** equipped with one 9-way female SUB-D 9 connector at each end. Standard cables, UL certification, CE marking Flame retardant (IEC 60332-2) | Lexium Controller: LMC 20 LMC 20A130 | VW3 A3 618 card | 4 | 0.3 | **TSX CAN CBDD 03** | 0.086 |
| | | | | 1 | **TSX CAN CBDD 1** | 0.131 |
| | | | | 3 | **TSX CAN CBDD 3** | 0.268 |
| | | | | 5 | **TSX CAN CBDD 5** | 0.400 |

## CANopen/CANmotion machine bus: other connection accessories

| Description | Use | | Item no. | Length m | Reference | Weight kg |
|---|---|---|---|---|---|---|
| | From | To | | | | |
| **CANopen cables** Standard cables, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1) | VW3 M3 802 connector TSX CAN KCDF90T connector M238 logic controller | VW3 M3 802 connector TSX CAN KCDF90T connector M238 logic controller | 5 | 50 | **TSX CAN CA 50** | 4.930 |
| | | | | 100 | **TSX CAN CA 100** | 8.800 |
| | | | | 300 | **TSX CAN CA 300** | 24.560 |
| **CANopen cables** UL certification, CE marking Flame retardant (IEC 60332-2) | VW3 M3 802 connector TSX CAN KCDF90T connector M238 logic controller | VW3 M3 802 connector TSX CAN KCDF90T connector VW3 CAN TAP2 junction box | 5 | 50 | **TSX CAN CB 50** | 3.580 |
| | | | | 100 | **TSX CAN CB 100** | 7.840 |
| | | | | 300 | **TSX CAN CB 300** | 21.870 |
| **CANopen cables** Cable for harsh environment *(2)* or mobile installation, CE marking Low smoke zero halogen Flame retardant (IEC 60332-1) | VW3 M3 802 connector TSX CAN KCDF90T connector M238 logic controller | VW3 M3 802 connector TSX CAN KCDF90T connector VW3 CAN TAP2 junction box | 5 | 50 | **TSX CAN CD 50** | 3.510 |
| | | | | 100 | **TSX CAN CD 100** | 7.770 |
| | | | | 300 | **TSX CAN CD 300** | 21.700 |

***(1) Order in lots of 2.***

*(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.*

Presentation: page 62080/2 | Servo drives: page 62083/2 | Servo drive/motor combinations: page 62080/5 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2

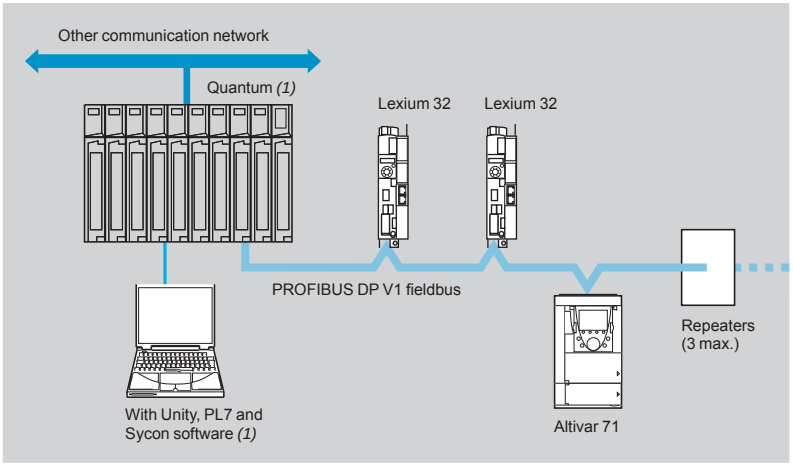
# Lexium 32 motion control
## Communication buses and networks
## PROFIBUS DP V1 and DeviceNet fieldbuses

## PROFIBUS DP V1 fieldbus

### Presentation

PF080928

*VW3 A3 607 PROFIBUS DP V1 communication card*




PROFIBUS DP is a fieldbus for industrial communication.

The Lexium 32M servo drive is connected to the PROFIBUS DP V1 fieldbus via the VW3 A3 607 communication card.
Other devices can be connected to the PROFIBUS DP V1 bus such as PLCs *(1)*, STB I/O *(2)*, Altivar variable speed drives *(3)*, Osicoder rotary encoders *(4)*, etc.

### Reference

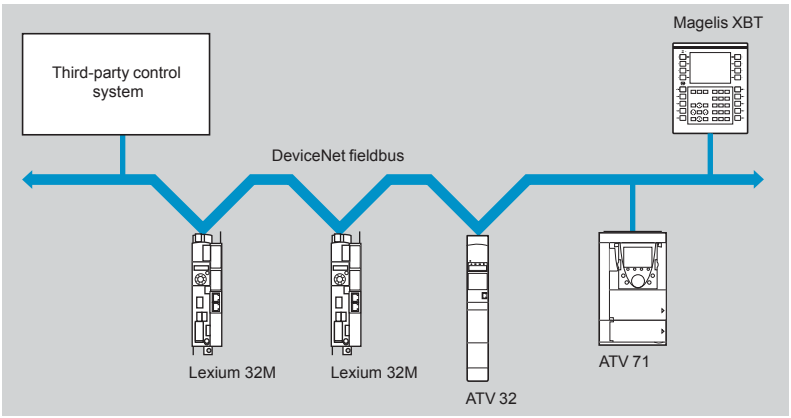
| Description | For use with | Type of port | Reference | Weight kg |
|---|---|---|---|---|
| **PROFIBUS DP V1 card** | Lexium 32M servo drives | One 9-way female SUB-D connector | **VW3 A3 607** | 0.140 |

## DeviceNet fieldbus

### Presentation

PF080941

*VW3 M3 301 DeviceNet communication card*




The DeviceNet fieldbus is used in industry to manage a large number of devices remotely.
Connection to the DeviceNet fieldbus allows Lexium 32M servo drives to standardize motion control solutions, while remaining independent of the system controlling the machine.

### Reference

| Description | For use with | Type of port | Profiles supported | Reference | Weight kg |
|---|---|---|---|---|---|
| **DeviceNet card** | Lexium 32M servo drive | One removable screw connector, 5 contacts with 5.08 pitch | CIP motion profile<br>Profile compatible with PLCopen libraries | **VW3 M3 301** | – |

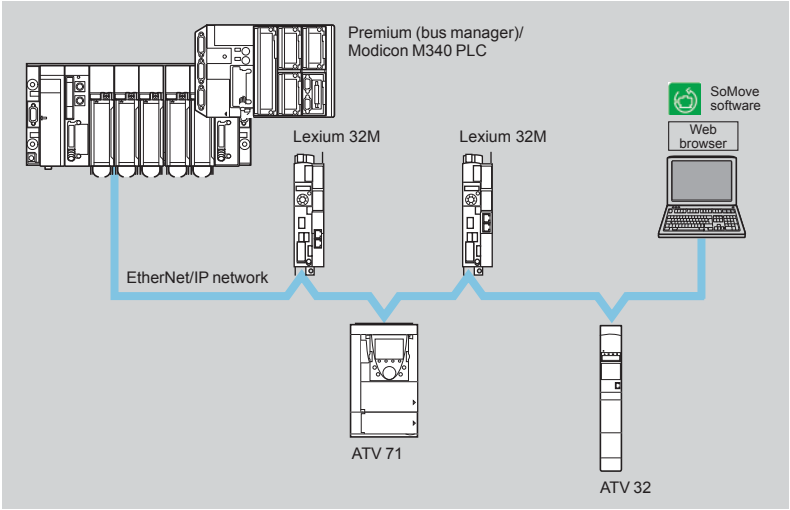
*1) Please refer to the "Automation platform Modicon Quantum and Unity" catalogue or our website www.schneider-electric.com.*
*(2) Please refer to the "Human-Machine interfaces" catalogue or our website www.schneider-electric.com.*
*(3) Please refer to the "Altivar ... variable speed drives" catalogue or our website www.schneider-electric.com.*
*(4) Please refer to the "Global Detection" catalogue or our website www.schneider-electric.com.*

## EtherNet/IP network

### Presentation

PF080927


*VW3 A3 616 EtherNet/IP communication card*




The EtherNet/IP network is a protocol specially designed for industrial environments. It uses the widely implemented Ethernet protocols: TCP (Transmission Control Protocol) and IP (Internet Protocol), thus offering an integrated transparent connection system to the company network.

Thanks to its high speed, the network no longer restricts the application's performance.
It is the pre-eminent open protocol and supports all types of communication:
- Web pages
- File transfers
- Messaging

### Reference

| Description | For use with | Type of port | Reference | Weight kg |
|---|---|---|---|---|
| **EtherNet/IP card**<br>■ 10/100 Mbps, half and full duplex<br>■ Embedded Web server | Lexium 32M servo drives | 2 RJ45 connectors | **VW3 A3 616** | 0.300 |

### EtherNet/IP network connection accessories

| Description | Type of port | Length m *(1)* | Reference | Weight kg |
|---|---|---|---|---|
| **ConneXium cordsets (conforming to EIA/TIA-568, category 5 and IEC1180/EN50173, class D, standards)** | | | | |
| **Straight shielded twisted pair cordsets** | 2 RJ45 connectors | 2 | **490 NTW 000 02** | – |
| | | 5 | **490 NTW 000 05** | – |
| | | 12 | **490 NTW 000 12** | – |
| **Crossed shielded twisted pair cordsets** | 2 RJ45 connectors | 5 | **490 NTC 000 05** | – |
| | | 15 | **490 NTC 000 15** | – |
| **ConneXium cordsets (conforming to UL and CSA 22.1 standards)** | | | | |
| **Straight shielded twisted pair cordsets** | 2 RJ45 connectors | 2 | **490 NTW 000 02U** | – |
| | | 5 | **490 NTW 000 05U** | – |
| | | 15 | **490 NTW 000 12U** | – |
| **Crossed shielded twisted pair cordsets** | 2 RJ45 connectors | 5 | **490 NTC 000 05U** | – |

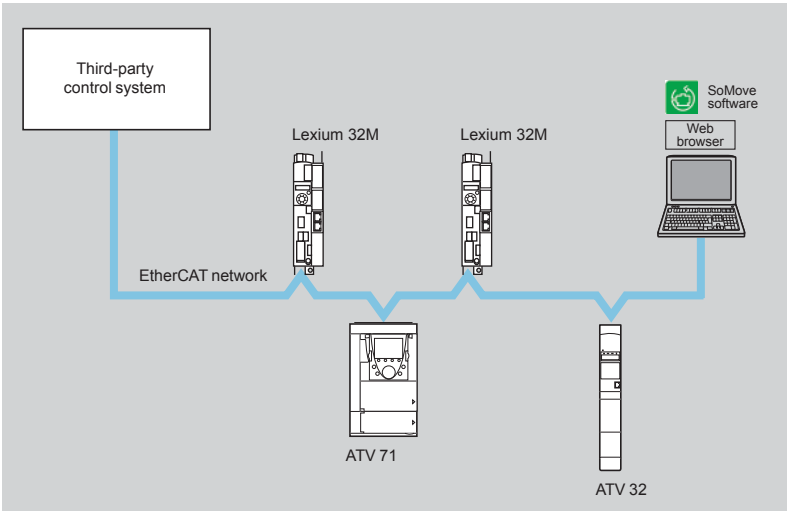
*(1) Also available in 40 and 80 metre lengths.*
*To order other ConneXium connection components, please refer to our website www.schneider-electric.com.*

## EtherCAT fieldbus

### Presentation

PF100281

*VW3 A3 601 EtherCAT communication card*




EtherCAT (EtherNet for Control Automation Technology) is an open fieldbus whose technology is based on EtherNet. As a result, all EtherNet technologies can be used in the EtherCAT environment: embedded Web server, e-mail, FTP transfer, etc.

The EtherCAT fieldbus is intended for applications requiring very short cycle times (≤ 250 µs) with low jitter (≤1 µs) for perfect synchronization.

These characteristics enable the EtherCAT network to achieve very high performance levels in the control systems field, with low equipment costs.

### Reference

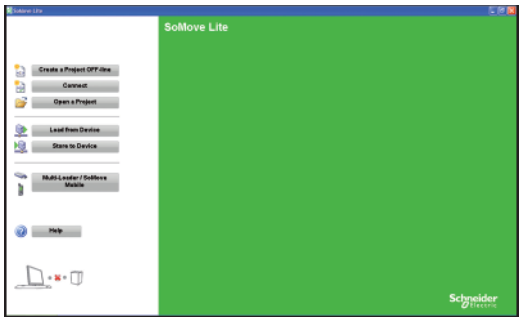
| Description | For use with | Type of port | Reference | Weight kg |
|---|---|---|---|---|
| **EtherCAT card** | Lexium 32M servo drives | 2 RJ45 connectors | **VW3 A3 601** | 0.300 |

### EtherCAT fieldbus connection accessories

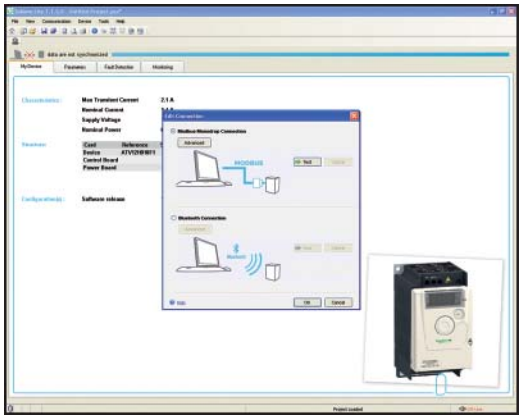
| Description | Type of port | Length m *(1)* | Reference | Weight kg |
|---|---|---|---|---|
| **ConneXium cordsets (conforming to EIA/TIA-568, category 5, and IEC1180/EN50173, class D, standards)** | | | | |
| **Straight shielded twisted pair cordsets** | 2 RJ45 connectors | 2 | **490 NTW 000 02** | – |
| | | 5 | **490 NTW 000 05** | – |
| | | 12 | **490 NTW 000 12** | – |
| **Crossed shielded twisted pair cordsets** | 2 RJ45 connectors | 5 | **490 NTC 000 05** | – |
| | | 15 | **490 NTC 000 15** | – |
| **ConneXium cordsets (conforming to UL and CSA 22.1 standards)** | | | | |
| **Straight shielded twisted pair cordsets** | 2 RJ45 connectors | 2 | **490 NTW 000 02U** | – |
| | | 5 | **490 NTW 000 05U** | – |
| | | 15 | **490 NTW 000 12U** | – |
| **Crossed shielded twisted pair cordsets** | 2 RJ45 connectors | 5 | **490 NTC 000 05U** | – |

*(1) Also available in 40 and 80 metre lengths.*
*To order other ConneXium connection components, please refer to our website www.schneider-electric.com.*

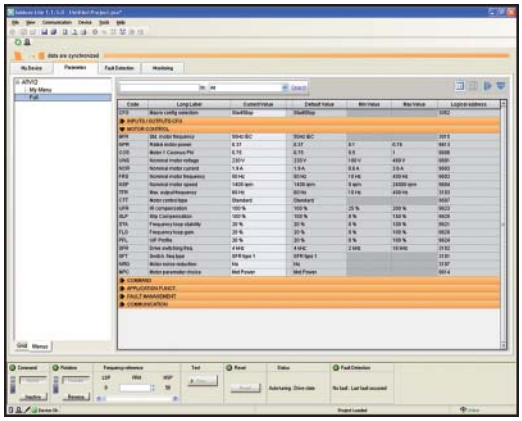
# Lexium 32 motion control
## SoMove setup software




*SoMove start page*



*Example of connecting SoMove software to an ATV 12 drive*



*SoMove control panel*

## Presentation

SoMove is user-friendly setup software for PCs, for setting up the following Schneider Electric motor control devices:
- ATV 12, ATV 312, ATV 31, ATV 32, ATV 61 and ATV 71 variable speed drives
- ATS 22 starters
- TeSys U starter-controllers
- TeSys T motor management system
- Lexium 32 servo drives

SoMove software incorporates various functions for the device setup phases, such as:
- Configuration preparation
- Start-up
- Maintenance

To facilitate setup and maintenance, SoMove software can use a direct USB/RJ45 cable link or a Bluetooth® wireless link.
SoMove software is also compatible with the Multi-Loader configuration tool and SoMove Mobile software for mobile phones.
These tools can save a significant amount of time when loading, duplicating or editing configurations on a device.

SoMove software and all the DTMs (Device Type Managers) associated with the devices can be downloaded from our website www.schneider-electric.com.

## Functions

### Configuration preparation in disconnected mode

SoMove software has a genuine disconnected mode which provides access to all the device parameters. This mode can be used to generate the device configuration. The configuration can be saved, printed and exported to office automation software.

SoMove software also checks the consistency of the parameters, validating the configurations created in disconnected mode.

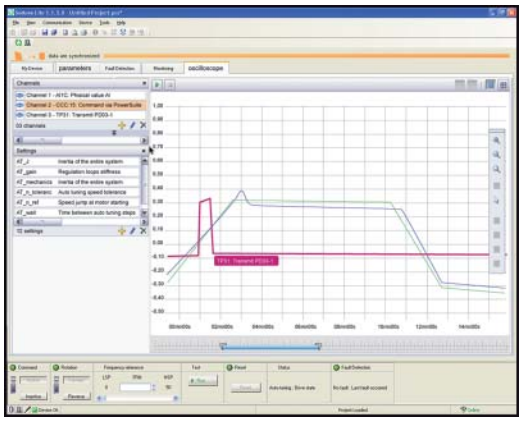
A large number of functions are available in disconnected mode, in particular:
- The device configuration software wizard
- The configuration comparison function
- Saving, copying, printing and creating configuration files for export to Multi-Loader, SoMove Mobile or Microsoft Excel® and sending configurations by e-mail.

### Setup

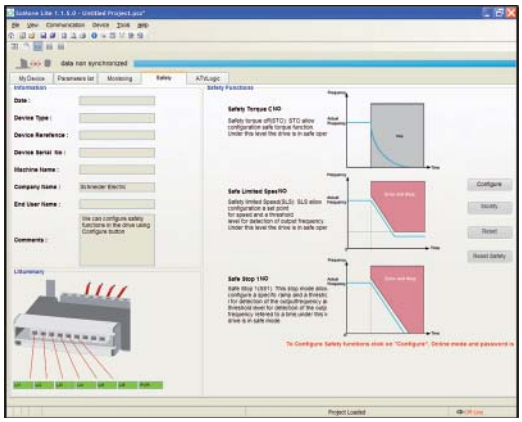
When the PC is connected to the device, SoMove software can be used for:
- Transferring the configuration that has been generated onto the device
- Adjustment and monitoring. This includes such functions as:
  - The oscilloscope
  - Displaying communication parameters
- Easy control via the control panel user interface
- Saving the final configuration

### Maintenance

In order to simplify maintenance operations, SoMove software can be used to:
- Compare the configuration of a device currently being used with a configuration saved on the PC
- Transfer a configuration to a device
- Compare oscilloscope curves
- Save oscilloscope curves and faults



*SoMove oscilloscope function*



*SoMove Safety function*

## Functions (continued)

### User interface

SoMove software provides fast, direct access to all information on the device via five tabs:
■ My Device: Displays all the information on the device (type, reference, software versions, option cards, etc.)
■ Parameters: Displays all the device adjustment parameters, shown in a table or in the form of diagrams
■ Faults: Displays a list of the faults that may be encountered with the device, the fault log and any current faults or alarms
■ Monitoring: Provides a realtime display of the device status, its I/O and all the monitoring parameters. It is possible to create your own control panel by selecting your parameters and how they are to be represented.
■ Oscilloscope: Provides a high-speed oscilloscope (recording traces in the device) or low-speed oscilloscope (recording traces in the software for devices that do not have an integrated oscilloscope)

SoMove's user interface automatically adapts to the specific configured device by offering additional tabs:
■ Safety: For configuring the Safety functions on ATV 32 variable speed drives and Lexium 32 servo drives. It can also be used to:
□ Display the I/O
□ Compile and print a report
■ ATVLogic: For accessing the ATV 32 drive's programmable function blocks. It can also be used to:
□ Develop a program and transfer it to the drive
□ Display and debug the program already on the drive
■ Auto-tuning: For accessing the servo control settings for the three different operating modes of the Lexium 32 servo drive's auto-tuning function:
□ Automatic mode for quick setup, designed for simple applications
□ Semi-automatic mode for quick setup, with the option of optimizing the servo drive/servo motor combination (access to the mechanical and dynamic behaviour parameters)
□ Expert mode for optimizing the adjustment parameters, designed for complex applications

### Connections

#### Modbus serial link

The PC running SoMove software can be connected directly via the RJ45 connector on the device and the USB port on the PC using the USB/RJ45 cable.

See the product references on page 60205/4.

#### Bluetooth® wireless link

SoMove software can communicate via Bluetooth® wireless link with any Bluetooth® enabled device.

If the device is not Bluetooth® enabled, use the Modbus-Bluetooth® adaptor. This adaptor is connected to the terminal port or the Modbus network port on the device. It has a 10 m range (class 2).

If the PC is not Bluetooth® enabled, use the USB-Bluetooth® adaptor.

See the product references on page 60205/4.

# Lexium 32 motion control
## SoMove setup software

*SoMove setup software*

PF080632

*VW3 A8 114:*
*Bluetooth® adaptor*

## References

| Description | Reference | Weight kg |
|---|---|---|
| **SoMove lite setup software**<br>Comprising:<br>■ SoMove setup software for PC in English, French, German, Italian, Spanish and Chinese<br>■ DTMs (Device Type Managers) and technical documentation for variable speed drives, starters and servo motors | *(1)* | – |
| **USB/RJ45 cable**<br>Used to connect a PC to the device.<br>This cable is 2.5 m long, and has a USB connector (PC end) and an RJ45 connector (device end). | **TCSM CNAM 3M002P** | – |
| **Modbus-Bluetooth® adaptor**<br>Used to enable any non-Bluetooth® device to communicate via Bluetooth® wireless link *(2)*.<br><br>Comprising:<br>■ 1 Bluetooth® adaptor (range 10 m, class 2) with an RJ45 connector<br>■ For SoMove: 1 x 0.1 m cable with 2 x RJ45 connectors<br>■ For TwidoSuite: 1 x 0.1 m cable with 1 RJ45 connector and 1 mini DIN connector | **VW3 A8 114** | 0.155 |
| **USB-Bluetooth® adaptor for PC**<br>Used to enable any non-Bluetooth® PC to communicate via Bluetooth® wireless link *(3)*.<br>It connects to a USB port on the PC.<br>Range 10 m (class 2) | **VW3 A8 115** | 0.290 |

*(1) Available on our website www.schneider-electric.com*
*(2) Required for the following devices:*
*- ATV 12, ATV 312, ATV 31, ATV 61 and ATV 71 drives*
*- ATS 22 starters*
*- TeSys U starter-controllers*
*- TeSys T motor management system*
*- Lexium 32 servo drives*
*(3) Check the manufacturer's specification.*

## Compatibility of SoMove software with specific devices

| Device | Range | Version of software on the device |
|---|---|---|
| Variable speed drive | ATV 12, ATV 312, ATV 32 | ≥ 1.0 |
| | ATV 31 | ≥ 1.1 |
| | ATV 61, ATV 71 | ≥ 1.6 |
| Starter | ATS 22 | ≥ 1.0 |
| Starter-controller | TeSys U | ≥ 1.0 |
| Motor management system | TeSys T | ≥ 1.0 |
| Servo drive | Lexium 32 | ≥ 1.0 |

## Environments

SoMove operates in the following PC environments and configurations:
- Microsoft Windows® 7 Professional *(1)*
- Microsoft Windows® XP Professional SP3
- Microsoft Windows® Vista Business SP2
- Pentium IV (or equivalent), 1 GHz, hard disk with 1 GB available space, 1 GB of RAM (minimum configuration)

*(1) Please contact our Customer Care Centre.*

# Lexium 32 motion control
## Motor starters

+

*LC1 D18●●*
*+*
*LXM 32MD30M2*

## Applications

The combinations listed below can be used to create a complete motor starter unit comprising a contactor and a Lexium 32 servo drive.

The contactor turns on and manages any safety features, 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 32 servo drives

| Servo drive | | Max. prospective line Isc | Contactor |
|---|---|---|---|
| Reference | Nominal power | | Reference *(1) (2)* |
| | kW | kA | |
| **Single-phase supply voltage: 100…120 V ∿ 50/60 Hz** | | | |
| **LXM 32●U45M2** | 0.15 | 1 | **LC1 D09●●** |
| **LXM 32●U90M2** | 0.3 | 1 | **LC1 D09●●** |
| **LXM 32●D18M2** | 0.5 | 1 | **LC1 D12●●** |
| **LXM 32●D30M2** | 0.8 | 1 | **LC1 D18●●** |
| **Single-phase supply voltage: 200…240 V ∿ 50/60 Hz** | | | |
| **LXM 32●U45M2** | 0.3 | 1 | **LC1 D09●●** |
| **LXM 32●U90M2** | 0.5 | 1 | **LC1 D09●●** |
| **LXM 32●D18M2** | 1 | 1 | **LC1 D12●●** |
| **LXM 32●D30M2** | 1.6 | 1 | **LC1 D18●●** |
| **Three-phase supply voltage: 400 V ∿ 50/60 Hz** | | | |
| **LXM 32●U60N4** | 0.4 | 5 | **LC1 D09●●** |
| **LXM 32●D12N4** | 0.9 | 5 | **LC1 D09●●** |
| **LXM 32●D18N4** | 1.8 | 5 | **LC1 D09●●** |
| **LXM 32●D30N4** | 3 | 5 | **LC1 D12●●** |
| **LXM 32●D72N4** | 7 | 5 | **LC1 D25●●** |
| **Three-phase supply voltage: 480 V ∿ 50/60 Hz** | | | |
| **LXM 32●U60N4** | 0.4 | 5 | **LC1 D09●●** |
| **LXM 32●D12N4** | 0.9 | 5 | **LC1 D09●●** |
| **LXM 32●D18N4** | 1.8 | 5 | **LC1 D09●●** |
| **LXM 32●D30N4** | 3 | 5 | **LC1 D12●●** |
| **LXM 32●D72N4** | 7 | 5 | **LC1 D25●●** |

*(1) Composition of contactors:*
*LC1 D●●: 3 poles + 1 "N/O" auxiliary contact and 1 "N/C" auxiliary contact.*
*In certain situations, it is possible to use an LC1 K contactor with 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 | 230 | 230/240 |
|---|---|---|---|---|---|---|---|
| **LC1 D●●** | 50 Hz | **B5** | **E5** | **F5** | **M5** | **P5** | **U5** |
| | 50 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 for a DC control circuit, please consult your customer care centre.*

# Lexium 32 motion control
## Motor starters
### Protection using fuses

**Protection using class J fuses (UL standard)**

| Servo drive | | Fuse to be placed upstream |
|---|---|---|
| Reference | Nominal power | |
| | kW | A |
| **Single-phase supply voltage: 100…120 V ∿ 50/60 Hz** | | |
| LXM 32●U45M2 | 0.15 | 4 |
| LXM 32●U90M2 | 0.3 | 6 |
| LXM 32●D18M2 | 0.5 | 10 |
| LXM 32●D30M2 | 0.8 | 15 |
| **Single-phase supply voltage: 200…240 V ∿ 50/60 Hz** | | |
| LXM 32●U45M2 | 0.3 | 4 |
| LXM 32●U90M2 | 0.5 | 6 |
| LXM 32●D18M2 | 1 | 10 |
| LXM 32●D30M2 | 1.6 | 15 |
| **Three-phase supply voltage: 400 V ∿ 50/60 Hz** | | |
| LXM 32●U60N4 | 0.4 | 2 |
| LXM 32●D12N4 | 0.9 | 4 |
| LXM 32●D18N4 | 1.8 | 8 |
| LXM 32●D30N4 | 3 | 10 |
| LXM 32●D72N4 | 7 | 20 |
| **Three-phase supply voltage: 480 V ∿ 50/60 Hz** | | |
| LXM 32●U60N4 | 0.4 | 2 |
| LXM 32●D12N4 | 0.9 | 3 |
| LXM 32●D18N4 | 1.8 | 8 |
| LXM 32●D30N4 | 3 | 10 |
| LXM 32●D72N4 | 7 | 20 |

# Lexium 32 motion control
## BMH servo motors

569427

*BMH servo motor with straight connectors*

569429

*BMH servo motor with rotatable angled connectors*

## Presentation

BMH servo motors provide unequalled power density values to meet the requirements of most compact machines. With four flange sizes and three different lengths for each flange size, they are suitable for most applications, covering a continuous stall range from 1.2 to 84 Nm for a maximum speed of 8000 rpm.

With their medium inertia motor, the new BMH servo motors are ideal for high-load applications and enable more robust adjustment of the movement, making for easier installation and adjustment.

They are certified as “Recognized” by the Underwriters Laboratories and conform to UL 1004 standards as well as to European directives (CE marking).

They are available with the following variants:
- 4 flange sizes: 70, 100, 140 and 205 mm
- 2 degrees of protection for the shaft end: IP 50 or IP 65 (IP 67 with the conformity kit, which is available as an option) in accordance with standard IEC/EN 60529. The degree of protection of the casing is IP 65 (IP 67 with the conformity kit, which is available as an option)
- With or without holding brake
- Straight or angled connectors for power and encoder connection
- Integrated SinCos Hiperface® single turn or multiturn encoder (medium or high resolution)
- Untapped or keyed shaft end

### Special features

BMH servo motors have been developed to comply with the following main specifications:

- The ambient operating temperature is - 20...+ 40°C without derating, in accordance with standard DIN 50019R14, and up to 55°C with derating of 1% of the nominal output power per additional °C above 40°C.

- The maximum operating altitude is 1000 m without derating, 2000 m with k = 0.86 and 3000 m with k = 0.8 *(1)*.
The relative humidity that the servo motor can withstand is in line with standard IEC 60721-3-3, category 3K4.

- The windings are insulation class F (maximum temperature for windings 155°C) in accordance with standard DIN VDE 0530.

- Thermal protection provided and controlled by the Lexium 32 servo drive via the motor temperature control algorithm.

- All mounting positions are permitted (horizontal mounting (IMB5) or vertical mounting (IMV1 with shaft end at the top and IMV3 with shaft end at the bottom) in accordance with standard DIN 42950.

### Sizing

The Lexium Sizer sizing tool is available on our website www.schneider-electric.com to help you size your servo motor.

*(1) k: derating factor*

Servo drives: page 62083/2 | BMH servo motors: page 62102/2 | Options: page 62106/2 | BSH servo motors: page 62110/2 | Servo drive/motor combinations: page 62080/5

## Presentation (continued)

### Holding brake

BMH servo motors can be equipped with a failsafe electromagnetic holding brake.

⚠ **Do not use the holding brake as a dynamic brake for deceleration, as this will quickly damage the brake.**

### Integrated encoder

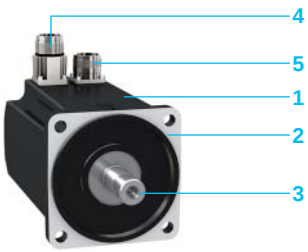
BMH servo motors are equipped as standard with an absolute encoder.

This encoder performs the following functions:
- Gives the absolute position of the motor so that flows can be synchronized
- Measures the servo motor speed via the associated Lexium 32 servo drive. This information is used by the servo drive's speed controller
- Measures the position information for the servo drive's position controller
- Sends data from the servo motor to the servo drive, which ensures automatic identification of the motor when the servo drive starts

Four types of encoder are available:
- High resolution SinCos Hiperface® encoder:
  - Single turn (131,072 points/turn) *(1)* or
  - Multiturn (131,072 points/turn x 4096 turns) *(1)*,

ensuring angular precision of the shaft position, accurate to less than ± 1.3 arc minutes
- Medium resolution SinCos Hiperface® encoder:
  - Single turn (32,768 points/turn) *(1)* or
  - Multiturn (32,768 points/turn x 4096 turns) *(1)*,

ensuring angular precision of the shaft position, accurate to less than ± 4.8 arc minutes.




## Description

BMH servo motors, with a three-phase stator and a 10-pole rotor with Neodymium Iron Boron (NdFeB) magnets, consist of:
1 A casing protected by opaque RAL 9005 black paint
2 A 4-point axial fixing flange
3 A keyed or untapped shaft end (depending on the model)
4 A threaded dust and damp proof male straight connector for connecting the power cable *(2)*
5 A threaded dust and damp proof male straight connector for connecting the control cable (encoder) *(2)*

**Connectors to be ordered separately**, for connection to Lexium 32 servo drives (see page 62102/4).

Schneider Electric has taken particular care to ensure compatibility between BMH servo motors and Lexium 32 servo drives.
This compatibility can only be assured by using cables and connectors sold by Schneider Electric (see page 62102/4).

*(1) Encoder resolution given for use with a Lexium 32 servo drive.*
*(2) Other model with rotatable angled connector (see page 62102/3).*

# Lexium 32 motion control
## BMH servo motors

569430

*BMH 070●● ●●●1A*

569431

*BMH 100●● ●●●1A*

569432

*BMH 1401P ●●●1A*

## BMH servo motors

The BMH servo motors shown below are supplied without a gearbox.
For GBX and GBY gearboxes, see pages 62106/5 and 62106/6.

| Continuous stall torque | Peak stall torque | Nominal servo motor output power | Nominal speed | Maximum mechanical speed | Associated LXM 32 servo drive | Reference *(1)* | Weight *(2)* |
|---|---|---|---|---|---|---|---|
| Nm | Nm | W | rpm | rpm | | | kg |
| 1.2 | 4.2 | 350 | 3000 | 8000 | ●U60N4 | **BMH 0701P ●●●●A** | 1.600 |
| 1.4 | 4 | 450 | 4000 | 8000 | ●U90M2 | **BMH 0701T ●●●●A** | 1.600 |
| | 4.2 | 350 | 2500 | 8000 | ●D18M2 | **BMH 0701T ●●●●A** | 1.600 |
| | | 700 | 5000 | 8000 | ●D12N4 | **BMH 0701P ●●●●A** | 1.600 |
| 2.5 | 6.4 | 600 | 2500 | 8000 | ●D30M2 | **BMH 0702T ●●●●A** | 1.800 |
| | 7.4 | 900 | 4000 | 8000 | ●D18M2 | | |
| | | 700 | 3000 | 8000 | ●D12N4 | **BMH 0702P ●●●●A** | 1.800 |
| 3.4 | 8.7 | 650 | 2000 | 8000 | ●D30M2 | **BMH 0703T ●●●●A** | 2.000 |
| | 10.2 | 900 | 3000 | 8000 | ●D18M2 | **BMH 0703T ●●●●A** | 2.000 |
| | | 1300 | 5000 | 8000 | ●D18N4 | **BMH 0703P ●●●●A** | 2.000 |
| 3.3 | 10.8 | 800 | 4000 | 6000 | ●D12N4 | **BMH 1001P ●●●●A** | 3.340 |
| 3.4 | 8.9 | 700 | 2000 | 6000 | ●D30M2 | **BMH 1001T ●●●●A** | 3.340 |
| | 10.8 | 900 | 3000 | 6000 | ●D18M2 | | |
| | | 1300 | 4000 | 6000 | ●D18N4 | **BMH 1001P ●●●●A** | 3.340 |
| 6 | 10.3 | 750 | 2000 | 6000 | ●D30M2 | **BMH 1002T ●●●●A** | 4.920 |
| | 18.4 | 1450 | 3000 | 6000 | ●D30M2 | | |
| 5.9 | 18.4 | 1600 | 4000 | 6000 | ●D18N4 | **BMH 1002P ●●●●A** | 4.920 |
| 8 | 23.5 | 1450 | 2500 | 5000 | ●D30M2 | **BMH 1003T ●●●●A** | 6.500 |
| 8.4 | 25.1 | 2600 | 4000 | 5000 | ●D30N4 | **BMH 1003P ●●●●A** | 6.500 |
| 10.3 | 30.8 | 1450 | 1500 | 4000 | ●D30M2 | **BMH 1401P ●●●●A** | 8.000 |
| | | 2400 | 3000 | 4000 | ●D30N4 | | |
| 16.8 | 50.3 | 3800 | 3000 | 4000 | ●D72N4 | **BMH 1402P ●●●●A** | 12.000 |
| 24 | 71.8 | 4500 | 3000 | 4000 | ●D72N4 | **BMH 1403P ●●●●A** | 16.000 |
| 34.4 | 103.4 | 5400 | 2000 | 3800 | ●D72N4 | **BMH 2051P ●●●●A** | 33.000 |
| 62.5 | 170 | 6500 | 1500 | 3800 | ●D72N4 | **BMH 2052P ●●●●A** | 44.000 |
| 84 | 232 | 6500 | 1200 | 3800 | ●D72N4 | **BMH 2053P ●●●●A** | 67.000 |

***To order a BMH servo motor, complete each reference above with:***

| | | | **BMH 0701P** | ● | ● | ● | ● | A |
|---|---|---|---|---|---|---|---|---|
| **Shaft end** | IP 54 | Untapped | | **0** | | | | |
| | | Keyed | | **1** | | | | |
| | IP 65/IP 67 *(3)* | Untapped | | **2** | | | | |
| | | Keyed | | **3** | | | | |
| **Integrated sensor** High resolution, optical | Single turn, SinCos Hiperface® 131,072 points/turn *(4)* 128 sine/cosine periods per turn | | | | **1** | | | |
| | Multiturn, SinCos Hiperface® 131,072 points/turn x 4096 turns *(4)* 128 sine/cosine periods per turn | | | | **2** | | | |
| **Integrated sensor** Medium resolution, capacitive | Single turn, SinCos Hiperface® 32,768 points/turn *(4)* 16 sine/cosine periods per turn | | | | **6** | | | |
| | Multiturn, SinCos Hiperface® 32,768 points/turn x 4096 turns *(4)* 16 sine/cosine periods per turn | | | | **7** | | | |
| **Holding brake** | Without | | | | | **A** | | |
| | With | | | | | **F** | | |
| **Connections** | Straight connectors | | | | | | **1** | |
| | Rotatable right-angled connectors | | | | | | **2** | |
| **Flange** | International standard | | | | | | | **A** |

***Note:** The example above is for a **BMH 0701P** servo motor. For other servo motors, replace **BMH 0701P** with the relevant reference.*

*(1) To complete each reference see the table above.*
*(2) Weight of servo motor without brake, no packaging. To obtain the weight of the servo motor with holding brake, please consult our website www.schneider-electric.com.*
*(3) IP 67 with the VW3 M2 30● IP 67 conformity kit supplied as an option (see opposite page).*
*(4) Sensor resolution given for use with a Lexium 32 servo drive.*

## BMH servo motors (continued)

**Dimensions** (overall)

| Servo motors | Flange | W x H x D *(1)* | |
|---|---|---|---|
| | | Without holding brake | With holding brake |
| | | mm | mm |
| **BMH 0701●** | 70 x 70 | 70 x 109.5 x 122 | 70 x 109.5 x 161 |
| **BMH 0702●** | 70 x 70 | 70 x 109.5 x 154 | 70 x 109.5 x 193 |
| **BMH 0703●** | 70 x 70 | 70 x 109.5 x 186 | 70 x 109.5 x 225 |
| **BMH 1001●** | 100 x 100 | 100 x 139.5 x 128 | 100 x 139.5 x 170 |
| **BMH 1002●** | 100 x 100 | 100 x 139.5 x 160 | 100 x 139.5 x 202 |
| **BMH 1003●** | 100 x 100 | 100 x 139.5 x 192 | 100 x 139.5 x 234 |
| **BMH 1401P** | 140 x 140 | 140 x 179.5 x 152 | 140 x 179.5 x 187 |
| **BMH 1402P** | 140 x 140 | 140 x 179.5 x 192 | 140 x 179.5 x 227 |
| **BMH 1403P** | 140 x 140 | 140 x 179.5 x 232 | 140 x 179.5 x 267 |
| **BMH 2051P** | 205 x 205 | 205 x 259 *(2)* x 321 | 205 x 259 *(2)* x 370.5 |
| **BMH 2052P** | 205 x 205 | 205 x 259 *(2)* x 405 | 205 x 259 *(2)* x 454.5 |
| **BMH 2053P** | 205 x 205 | 205 x 259 *(2)* x 489 | 205 x 259 *(2)* x 538.5 |

PF080922

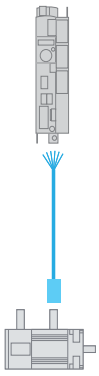
*VW3 M2 30●*

## IP 67 conformity kits

This kit can be used to provide IP 67 degree of protection. It is fitted in place of the rear motor rating plate.

| Description | For use with | Reference | Weight kg |
|---|---|---|---|
| **IP 67 conformity kits** (supplied as an option) | BMH 070●● | **VW3 M2 301** | 0.100 |
| | BMH 100●● | **VW3 M2 302** | 0.150 |
| | BMH 140●● | **VW3 M2 303** | 0.300 |
| | BMH 205●● | **VW3 M2 304** | 0.750 |

*(1) D: dimensions of the casing (excluding shaft end).*
*(2) Height of the servo motor equipped with straight connectors. The height is 265 mm when the servo motor is equipped with rotatable angled connectors.*

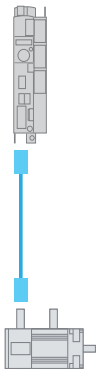


*VW3 M5 10● R●●●*

## Connection elements

### Power cordsets

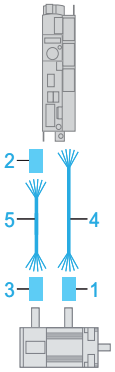
| Description | From servo motor | To servo drive | Composition | Length | Reference | Weight |
|---|---|---|---|---|---|---|
| | | | | m | | kg |
| **Cordsets equipped with one M23 industrial connector** (servo motor end) | BMH 070●● BMH 100●● BMH 1401P | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [(4 x 1.5 mm²) + (2 x 1 mm²)] | 1.5 | **VW3 M5 101 R15** | 0.600 |
| | | | | 3 | **VW3 M5 101 R30** | 0.810 |
| | | | | 5 | **VW3 M5 101 R50** | 1.210 |
| | | | | 10 | **VW3 M5 101 R100** | 2.290 |
| | | | | 15 | **VW3 M5 101 R150** | 3.400 |
| | | | | 20 | **VW3 M5 101 R200** | 4.510 |
| | | | | 25 | **VW3 M5 101 R250** | 6.200 |
| | | | | 50 | **VW3 M5 101 R500** | 12.325 |
| | | | | 75 | **VW3 M5 101 R750** | 18.450 |
| | BMH 1402P BMH 1403P | LXM 32●D72N4 | [(4 x 2.5 mm²) + (2 x 1 mm²)] | 3 | **VW3 M5 102 R30** | 1.070 |
| | | | | 5 | **VW3 M5 102 R50** | 1.670 |
| | | | | 10 | **VW3 M5 102 R100** | 3.210 |
| | | | | 15 | **VW3 M5 102 R150** | 4.760 |
| | | | | 20 | **VW3 M5 102 R200** | 6.300 |
| | | | | 25 | **VW3 M5 102 R250** | 7.945 |
| | | | | 50 | **VW3 M5 102 R500** | 16.170 |
| | | | | 75 | **VW3 M5 102 R750** | 24.095 |
| **Cordsets equipped with one M40 industrial connector** (servo motor end) | BMH 205●P | LXM 32●D72N4 | [(4 x 4 mm²) + (2 x 1 mm²)] | 3 | **VW3 M5 103 R30** | 1.330 |
| | | | | 5 | **VW3 M5 103 R50** | 2.130 |
| | | | | 10 | **VW3 M5 103 R100** | 4.130 |
| | | | | 15 | **VW3 M5 103 R150** | 6.120 |
| | | | | 20 | **VW3 M5 103 R200** | 8.090 |
| | | | | 25 | **VW3 M5 103 R250** | 11.625 |
| | | | | 50 | **VW3 M5 103 R500** | 23.175 |
| | | | | 75 | **VW3 M5 103 R750** | 34.725 |



*VW3 M8 102 R●●●*

### Control cordsets

| Description | From servo motor | To servo drive | Composition | Length | Reference | Weight |
|---|---|---|---|---|---|---|
| | | | | m | | kg |
| **SinCos Hiperface® encoder cordsets equipped with an M23 industrial connector** (servo motor end) **and an RJ45 connector** with 8 + 2 contacts (servo drive end) | BMH ●●●●● | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [3 x (2 x 0.14 mm²) + (2 x 0.34 mm²)] | 1.5 | **VW3 M8 102 R15** | 0.400 |
| | | | | 3 | **VW3 M8 102 R30** | 0.500 |
| | | | | 5 | **VW3 M8 102 R50** | 0.600 |
| | | | | 10 | **VW3 M8 102 R100** | 0.900 |
| | | | | 15 | **VW3 M8 102 R150** | 1.100 |
| | | | | 20 | **VW3 M8 102 R200** | 1.400 |
| | | | | 25 | **VW3 M8 102 R250** | 1.700 |
| | | | | 50 | **VW3 M8 102 R500** | 3.100 |
| | | | | 75 | **VW3 M8 102 R750** | 4.500 |




## Connection elements (continued)

### Connectors for creating power and control cordsets

| Description | For use with | Item no. | For cable cross-section | Reference | Weight |
|---|---|---|---|---|---|
| | | | mm² | | kg |
| **M23 industrial connector** for creating power cordsets **(sold in multiples of 5)** | BMH 070●●, BMH 100●● and BMH 140●P servo motors | 1 | 1.5 or 2.5 | **VW3 M8 215** | 0.350 |
| **M40 industrial connector** for creating power cordsets **(sold in multiples of 5)** | BMH 205●P servo motors | 1 | 4 | **VW3 M8 217** | 0.850 |
| **RJ45 connector** with 8 + 2 contacts for creating control cordsets **(sold in multiples of 5)** | LXM 32●●●●●● servo drives (CN3 connector) | 2 | – | **VW3 M2 208** | 0.200 |
| **M23 industrial connector** for creating control cordsets **(sold in multiples of 5)** | BMH ●●●●● servo motors | 3 | – | **VW3 M8 214** | 0.350 |

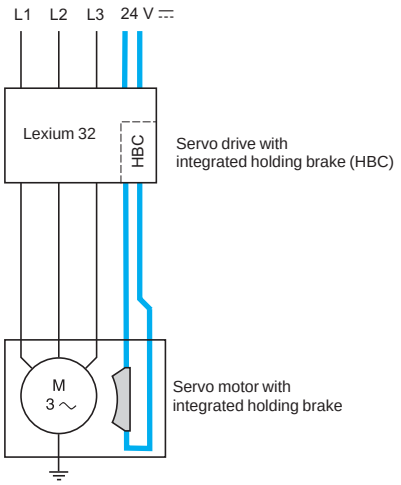
### Cables for creating power and control cordsets

| Description | From servo motor | To servo drive | Composition | Item no. | Length | Reference | Weight |
|---|---|---|---|---|---|---|---|
| | | | | | m | | kg |
| **Cables** for creating power cordsets | BMH 070●● BMH 100●● BMH 1401P | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [(4 x 1.5 mm²) + (2 x 1 mm²)] | 4 | 25 | **VW3 M5 301 R250** | 5.550 |
| | | | | | 50 | **VW3 M5 301 R500** | 11.100 |
| | | | | | 100 | **VW3 M5 301 R1000** | 22.200 |
| | BMH 1402P BMH 1403P | LXM 32●D72N4 | [(4 x 2.5 mm²) + (2 x 1 mm²)] | 4 | 25 | **VW3 M5 302 R250** | 7.725 |
| | | | | | 50 | **VW3 M5 302 R500** | 15.450 |
| | | | | | 100 | **VW3 M5 302 R1000** | 30.900 |
| | BMH 205●P | LXM 32●D72N4 | [(4 x 4 mm²) + (2 x 1 mm²)] | 4 | 25 | **VW3 M5 303 R250** | 9.900 |
| | | | | | 50 | **VW3 M5 303 R500** | 19.800 |
| | | | | | 100 | **VW3 M5 303 R1000** | 39.600 |
| **Cables** for creating control cordsets for SinCos Hiperface® encoders | BMH ●●●●● | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [(3 x (2 x 0.14 mm²) + (2 x 0.34 mm²)] | 5 | 25 | **VW3 M8 222 R250** | 1.400 |
| | | | | | 50 | **VW3 M8 222 R500** | 2.800 |
| | | | | | 100 | **VW3 M8 222 R1000** | 5.600 |

# Lexium 32 motion control
## BMH servo motors
## Option: holding brake integrated in servo motor

## Holding brake

### Presentation




The holding brake integrated in the BMH servo motor is an electromagnetic pressure spring brake that blocks the servo motor axis once the output current has been switched off.

In the event of an emergency, such as a power outage or an emergency stop, the drive is immobilized, significantly increasing safety.
Blocking the servo motor axis is also necessary in cases of torque overload, such as in the event of vertical axis movement.

As standard, the Lexium 32 servo drive has a holding brake controller which amplifies the braking control signal, ensuring the brake is deactivated quickly. The controller then reduces the control signal so as to decrease the power dissipated by the holding brake.

### References

*BMH servo motor*

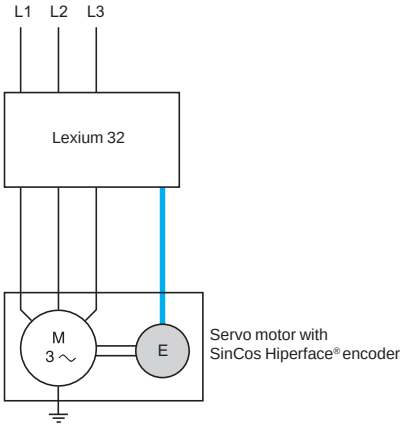
Selection of BMH servo motor with or without holding brake, see references on page 62102/3.

For any additional information about the holding brake characteristics, visit our website www.schneider-electric.com.

# Lexium 32 motion control
## BMH servo motors
## Option: encoder integrated in servo motor

## Encoder integrated in BMH servo motor

### Presentation




The standard measurement device is the SinCos Hiperface® single turn or multiturn encoder integrated in BMH servo motors. This measurement device is perfectly adapted to the Lexium 32 range of servo drives.

Depending on the model, single turn and multiturn SinCos encoders are available in medium resolution, with capacitive sensing, or high resolution, with optical sensing.

Use of this interface enables:
- Automatic identification of BMH servo motor data by the servo drive
- Automatic initialization of the servo drive's control loops, thus simplifying installation of the motion control device

### References

*BMH servo motor*

Selection of type of SinCos Hiperface® encoder integrated into the BMH servo motor (single turn or multiturn), see references on page 62102/3.

For any additional information about the integrated encoder characteristics, visit our website www.schneider-electric.com.

# Lexium 32 motion control
## BMH servo motors
## Option: GB● planetary gearboxes

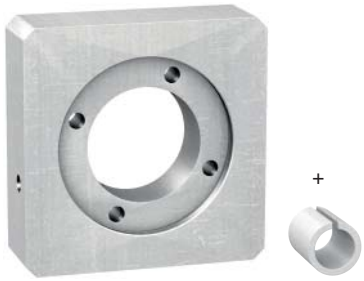
PF080936

*GBX planetary gearbox*

PF080937

*GBY angular planetary gearbox*

PF080938



*GBK adaptation kit*

## Presentation

In many cases, motion control requires the use of planetary gearboxes to adapt speeds and torques, while ensuring the precision demanded by the application.

Schneider Electric has chosen to use GBX planetary gearboxes and GBY angular planetary gearboxes (made by Neugart) with the BMH range of servo motors.
The combination of BMH servo motors with the most suitable planetary gearboxes makes them very easy to mount and ensures simple, risk-free operation.

The gearboxes are designed for applications which are not susceptible to mechanical backlash. They have a keyed shaft, are lubricated for life and conform to IP 54 degree of protection.

Available in 4 sizes (GBX 60...GBX 160), GBX planetary gearboxes are offered in 15 gear ratios (3:1...100:1).
GBY angular planetary gearboxes are available in 3 sizes (GBY 60…GBY 120), in 7 gear ratios (3:1...40:1).

The tables on pages 62106/5 and 62106/6 show the most suitable combinations of servo motor and GBX or GBY planetary gearbox.
For other combinations or any additional information about the characteristics of planetary gearboxes, see the servo motor data sheets or visit our website www.schneider-electric.com.

A GBK adaptation kit is also offered for assembling the BMH servo motor and the GB● planetary gearbox, see page 62106/7.

It comprises:
- An adaptor plate
- A shaft end adaptor, depending on the model (depends on the servo motor/planetary gearbox combination)
- Screws and bolts for mounting the plate on the planetary gearbox
- Screws and bolts for mounting the servo motor

# Lexium 32 motion control
## BMH servo motors
## Option: GBX planetary gearboxes

PF080936

*GBX ●●●●●● K planetary gearbox*

## References

| Size | Gear ratio | Reference | Weight kg |
|---|---|---|---|
| **GBX 60** | 3:1, 4:1, 5:1 and 8:1 | **GBX 060●●● K** | 0.900 |
| | 9:1, 12:1, 15:1, 16:1 | **GBX 060●●● K** | 1.000 |
| **GBX 80** | 3:1, 4:1, 5:1 and 8:1 | **GBX 080●●● K** | 2.100 |
| | 9:1, 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 080●●● K** | 2.600 |
| **GBX 120** | 3:1, 4:1, 5:1 and 8:1 | **GBX 120●●● K** | 6.000 |
| | 9:1, 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 120●●● K** | 8.000 |
| | 60:1, 80:1 and 100:1 | **GBX 120●●● K** | 10.000 |
| **GBX 160** | 8:1 | **GBX 160●●● K** | 18.000 |
| | 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 160●●● K** | 22.000 |

***To order a GBX planetary gearbox, complete each reference above as follows:***

| | | | GBX | ●●● | ●●● | K |
|---|---|---|---|---|---|---|
| **Size** | Casing diameter | 60 mm | | **060** | | |
| | | 80 mm | | **080** | | |
| | | 120 mm | | **120** | | |
| | | 160 mm (▲) | | **160** | | |
| **Gear ratio** | | 3:1 | | | **003** | |
| | | 4:1 | | | **004** | |
| | | 5:1 | | | **005** | |
| | | 8:1 | | | **008** | |
| | | 9:1 | | | **009** | |
| | | 12:1 | | | **012** | |
| | | 15:1 | | | **015** | |
| | | 16:1 | | | **016** | |
| | | 20:1 | | | **020** | |
| | | 25:1 | | | **025** | |
| | | 32:1 | | | **032** | |
| | | 40:1 | | | **040** | |
| | | 60:1 | | | **060** | |
| | | 80:1 | | | **080** | |
| | | 100:1 | | | **100** | |
| **Mounting with GBK adaptation kit** (see page 62106/7) | | | | | | **K** |

## BMH servo motor/GBX planetary gearbox combinations

### Gear ratios from 3:1 to 100:1

| Type of servo motor | Gear ratio | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3:1<br>4:1 | 5:1 | 8:1 | 9:1 | 12:1 | 15:1<br>16:1 | 20:1 | 25:1 | 32:1 | 40:1 | 60:1<br>80:1 | 100:1 |
| **BMH 0701** | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 |
| **BMH 0702** | GBX 060 | GBX 060 | GBX 080 | GBX 060 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| **BMH 0703** | GBX 060 | GBX 060 | GBX 080 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| **BMH 1001** | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | – | – |
| **BMH 1002** | GBX 080 | GBX 080 | GBX 120 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | – | – |
| **BMH 1003** | GBX 080 | GBX 080 | GBX 120 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | – | – |
| **BMH 1401** | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – |
| **BMH 1402** | GBX 120 | GBX 120 | GBX 160 | – | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – |
| **BMH 1403** | GBX 120 | GBX 120 | GBX 160 | – | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – |

**GBX 060**

*For these combinations, you must check that the application will not exceed the maximum gearbox output torque, see the values on our website www.schneider-electric.com.*

▲ Available 2nd quarter 2011

Servo drives: page 62083/2
BMH servo motors: page 62100/2
BSH servo motors: page 62110/2
Servo drive/motor combinations: page 62080/5

# Lexium 32 motion control
## BMH servo motors
## Option: GBY angular planetary gearboxes

## References

PF080937

*GBY ●●●●●● K angular planetary gearbox*

| Size | Gear ratio | Reference | Weight kg |
|---|---|---|---|
| **GBY 60** | 3:1, 4:1, 5:1 and 8:1 | **GBY 060●●● K** | 1.700 |
| | 12:1 | **GBY 060●●● K** | 1.900 |
| **GBY 80** | 3:1, 4:1, 5:1 and 8:1 | **GBY 080●●● K** | 4.400 |
| | 12:1, 20:1 and 40:1 | **GBY 080●●● K** | 5.000 |
| **GBY 120** | 3:1, 4:1, 5:1 and 8:1 | **GBY 120●●● K** | 12.000 |
| | 12:1, 20:1 and 40:1 | **GBY 120●●● K** | 14.000 |

***To order a GBY angular planetary gearbox, complete each reference above as follows:***

| | | | GBY | ●●● | ●●● | K |
|---|---|---|---|---|---|---|
| **Size** | Casing diameter | 60 mm | | **060** | | |
| | | 80 mm | | **080** | | |
| | | 120 mm | | **120** | | |
| **Gear ratio** | | 3:1 | | | **003** | |
| | | 4:1 | | | **004** | |
| | | 5:1 | | | **005** | |
| | | 8:1 | | | **008** | |
| | | 12:1 | | | **012** | |
| | | 20:1 | | | **020** | |
| | | 40:1 | | | **040** | |
| **Mounting with GBK adaptation kit** (see page 62106/7) | | | | | | **K** |

## BMH servo motor/GBY angular planetary gearbox combinations

### Gear ratios from 3:1 to 40:1

| Type of servo motor | Gear ratio | | | | | | |
|---|---|---|---|---|---|---|---|
| | **3:1** | **4:1** | **5:1** | **8:1** | **12:1** | **20:1** | **40:1** |
| **BMH 0701** | **GBY 060** | **GBY 060** | **GBY 060** | **GBY 060** | **GBY 060** | **GBY 080** | **GBY 080** |
| **BMH 0702** | **GBY 060** | **GBY 060** | **GBY 060** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 120** |
| **BMH 0703** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 120** |
| **BMH 1001** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 120** |
| **BMH 1002** | **GBY 080** | **GBY 080** | **GBY 080** | **GBY 120** | **GBY 080** | **GBY 120** | – |
| **BMH 1003** | **GBY 120** | **GBY 120** | **GBY 120** | **GBY 120** | **GBY 120** | **GBY 120** | – |
| **BMH 1401** | **GBY 120** | **GBY 120** | **GBY 120** | **GBY 120** | **GBY 120** | – | – |

**GBY 060**

*For these combinations, you must check that the application will not exceed the maximum gearbox output torque, see the values on our website www.schneider-electric.com.*

Servo drives: page 62083/2 | BMH servo motors: page 62100/2 | BSH servo motors: page 62110/2 | Servo drive/motor combinations: page 62080/5

# Lexium 32 motion control
## BMH servo motors
## Option: adaptation kit for GB● planetary gearboxes

## References

***To order a GBK adaptation kit (1), complete each reference as follows:***

| | | | GBK | ●●● | ●●● | ● | F |
|---|---|---|---|---|---|---|---|
| **Size of GBX or GBY planetary gearbox** | Casing diameter | 60 mm | | **060** | | | |
| | | 80 mm | | **080** | | | |
| | | 120 mm | | **120** | | | |
| | | 160 mm | | **160** | | | |
| **Associated servo motor** | | BMH 070 | | | **070** | | |
| | | BMH 100 | | | **100** | | |
| | | BMH 140 | | | **140** | | |
| **Compatibility** | | Motor with any type of stack | | | | **0** | |
| | | Motor with 1 or 2 stacks | | | | **2** | |
| | | Motor with 1, 2 or 3 stacks | | | | **3** | |
| **BMH servo motor adaptation** | | | | | | | **F** |

## GBK adaptation kit/BMH servo motor combination

| Type of gearbox | BMH servo motor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **0701 ●** | **0702 ●** | **0703 ●** | **1001 ●** | **1002 ●** | **1003 ●** | **1401 ●** | **1402 ●** | **1403 ●** |
| **GBK 060 070 2 F** | ■ | ■ | | | | | | | |
| **GBK 060 070 3F** | | | ■ | | | | | | |
| **GBK 080 070 2F** | ■ | ■ | | | | | | | |
| **GBK 080 070 3F** | | | ■ | | | | | | |
| **GBK 080 100 3F** | | | | ■ | ■ | ■ | | | |
| **GBK 120 070 2F** | ■ | ■ | | | | | | | |
| **GBK 120 070 3F** | | | ■ | | | | | | |
| **GBK 120 100 3F** | | | | ■ | ■ | ■ | | | |
| **GBK 120 140 0F** | | | | | | | ■ | ■ | ■ |
| **GBK 160 100 3F** | | | | ■ | ■ | ■ | | | |
| **GBK 160 140 0F** | | | | | | | ■ | ■ | ■ |

■ **Compatible**
**Incompatible**

*(1) Weight of adaptation kit:*
- *GBK 060●●●F: 0.200 kg*
- *GBK 080●●●F: 0.450 kg*
- *GBK 120●●●F: 0.650 kg*
- *GBK 160●●●F: 0.900 kg*

Servo drives: page 62083/2
BMH servo motors: page 62100/2
BSH servo motors: page 62110/2
Servo drive/motor combinations: page 62080/5

# Lexium 32 motion control
## BSH servo motors

*BSH servo motor with straight connectors*

*BSH servo motor with rotatable angled connectors*

## Presentation

BSH servo motors are the ideal choice to meet requirements for dynamics and precision. With five flange sizes and a variety of lengths, there is a suitable solution for most applications, covering a continuous stall torque range from 0.5 to 33.4 Nm for a maximum speed of 9000 rpm.

Thanks to their new winding technology based on salient poles, BSH servo motors are far more compact and offer a higher power density than conventional servo motors.

BSH servo motors are certified as “Recognized” by the Underwriters Laboratories and conform to UL 1004 standards as well as to European directives (CE marking).

They are available with the following variants:
- 4 flange sizes: 55, 70, 100 and 140 mm
- 2 degrees of protection for the shaft end: IP 50 or IP 65 in accordance with standard IEC/EN 60529. The degree of protection of the casing is IP 65 (IP 67 with the conformity kit, which is available as an option)
- With or without holding brake
- Straight or angled connectors for power and encoder connection
- Integrated SinCos Hiperface® single turn or multiturn encoder (medium or high resolution)
- Untapped or keyed shaft end

### Special features

BSH servo motors have been developed to comply with the following main specifications:

- The ambient operating temperature is - 20...+ 40°C without derating, in accordance with standard DIN 50019R14, and up to 55°C with derating of 1% of the nominal output power per additional °C above 40°C.

- The maximum operating altitude is 1000 m without derating, 2000 m with k = 0.86 and 3000 m with k = 0.8 *(1)*.
The relative humidity that the servo motor can withstand is in line with standard IEC 60721-3-3, category 3K4.

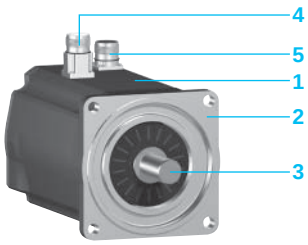
- The windings are insulation class F (maximum temperature for windings 155°C) in accordance with standard DIN VDE 0530.

- All mounting positions are permitted (horizontal mounting (IMB5) or vertical mounting (IMV1 with shaft end at the top and IMV3 with shaft end at the bottom) in accordance with standard DIN 42950.

### Sizing

The Lexium Sizer sizing tool is available on our website www.schneider-electric.com to help you size your servo motor.

*(1) k: derating factor*




## Presentation (continued)

### Holding brake

BSH servo motors can be equipped with a failsafe electromagnetic holding brake.

⚠ **Do not use the holding brake as a dynamic brake for deceleration, as this will quickly damage the brake.**

### Integrated encoder

BSH servo motors are equipped with a SinCos Hiperface® high-resolution single turn (131,072 points/turn) *(1)* or multiturn (131,072 points/turn x 4096 turns) *(1)* encoder providing angular precision of the shaft position, accurate to less than ± 1.3 arc minutes.

This encoder performs the following functions:
- Gives the absolute position of the motor so that flows can be synchronized.
- Measures the servo motor speed via the associated Lexium 32 servo drive. This information is used by the servo drive's speed controller.
- Measures the position information for the servo drive's position controller.
- Sends data from the servo motor to the servo drive, which ensures automatic identification of the motor when the servo drive starts.

## Description

BSH servo motors, with a 3-phase stator and a 6 to 10-pole rotor (depending on model) with Neodymium Iron Borium (NdFeB) magnets, consist of:
1 A casing protected by opaque RAL 9005 black paint
2 A 4-point axial fixing flange
3 A keyed or untapped shaft end (depending on the model)
4 A threaded dust and damp proof male straight connector for connecting the power cable *(2)*
5 A threaded dust and damp proof male straight connector for connecting the control cable (encoder) *(2)*

**Connectors to be ordered separately**, for connection to Lexium 32 servo drives (see page 62112/4).

Schneider Electric has taken particular care to ensure compatibility between BSH servo motors and Lexium 32 servo drives. This compatibility can only be assured by using cables and connectors sold by Schneider Electric (see page 62112/4).

*(1) Encoder resolution given for use with a Lexium 32 servo drive.*
*(2) Other model with rotatable angled connector (see page 62112/3).*

# Lexium 32 motion control
## BSH servo motors

105990

*BSH 055●● ●●●1A*

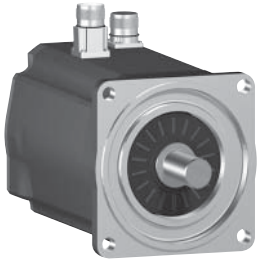
105991

*BSH 070●● ●●●1A*

105992

*BSH 100●● ●●●1A*

105993



*BSH 1401P ●●●1A*

### BSH servo motors

The BSH servo motors shown below are supplied without a gearbox.
For GBX and GBY gearboxes, see pages 62116/5 and 62116/6.

| Continuous stall torque | Peak stall torque | Nominal servo motor output power | Nominal speed | Maximum mechanical speed | Associated LXM 32 servo drive | Reference *(1)* | Weight *(2)* |
|---|---|---|---|---|---|---|---|
| Nm | Nm | W | rpm | rpm | | | kg |
| 0.5 | 1.4 | 300 | 6000 | 9000 | ●U45M2 | **BSH 0551T ●●●●A** | 1.160 |
| | 1.5 | 150 | 3000 | 9000 | ●U90M2 | **BSH 0551T ●●●●A** | 1.160 |
| | | 300 | 6000 | 9000 | ●U60N4 | **BSH 0551P ●●●●A** | 1.160 |
| 0.8 | 1.9 | 250 | 3000 | 9000 | ●U90M2 | **BSH 0552T ●●●●A** | 1.470 |
| | 2.5 | 450 | 6000 | 9000 | ●U90M2 | **BSH 0552T ●●●●A** | 1.470 |
| | | 400 | 6000 | 9000 | ●U60N4 | **BSH 0552P ●●●●A** | 1.470 |
| 1.05 | 3.5 | 400 | 6000 | 9000 | ●U60N4 | **BSH 0553P ●●●●A** | 1.760 |
| 1.2 | 3 | 550 | 6000 | 9000 | ●U90M2 | **BSH 0553T ●●●●A** | 1.760 |
| | 3.3 | 350 | 3000 | 9000 | ●D18M2 | | |
| 1.3 | 3.5 | 500 | 5000 | 8000 | ●U90M2 | **BSH 0701T ●●●●A** | 2.200 |
| 1.4 | 3.5 | 350 | 2500 | 8000 | ●D18M2 | **BSH 0701T ●●●●A** | 2.200 |
| | | 700 | 5000 | 8000 | ●D12N4 | **BSH 0701P ●●●●A** | 2.200 |
| 2.2 | 6.1 | 550 | 2500 | 8000 | ●D30M2 | **BSH 0702T ●●●●A** | 2.890 |
| | 7.2 | 950 | 5000 | 8000 | ●D18M2 | | |
| | 7.6 | 850 | 5000 | 8000 | ●D12N4 | **BSH 0702P ●●●●A** | 2.890 |
| 2.6 | 7.4 | 900 | 4000 | 8000 | ●D18M2 | **BSH 0703T ●●●●A** | 3.620 |
| 2.7 | 7.5 | 900 | 4000 | 6000 | ●D18M2 | **BSH 1001T ●●●●A** | 4.200 |
| 3.1 | 11.3 | 1300 | 5000 | 8000 | ●D18N4 | **BSH 0703P ●●●●A** | 3.620 |
| 3.3 | 6.3 | 700 | 2500 | 6000 | ●D30M2 | **BSH 1001T ●●●●A** | 4.200 |
| | 9.6 | 1100 | 4000 | 6000 | ●D18N4 | **BSH 1001P ●●●●A** | 4.200 |
| 5.8 | 16.4 | 1500 | 4000 | 6000 | ●D30M2 | **BSH 1002T ●●●●A** | 5.900 |
| | 18.3 | 1700 | 4000 | 6000 | ●D18N4 | **BSH 1002P ●●●●A** | 5.900 |
| 8 | 28.3 | 2000 | 3000 | 6000 | ●D30N4 | **BSH 1003P ●●●●A** | 7.400 |
| | | 2600 | 4000 | 6000 | ●D30N4 | **BSH 1003P ●●●●A** | 7.400 |
| 10 | 37.9 | 2100 | 2500 | 6000 | ●D30N4 | **BSH 1004P ●●●●A** | 9.500 |
| | | 2600 | 3000 | 6000 | ●D30N4 | **BSH 1004P ●●●●A** | 9.500 |
| 11.1 | 27 | 2500 | 2500 | 4000 | ●D30N4 | **BSH 1401P ●●●●A** | 11.200 |
| | | 3000 | 3000 | 4000 | ●D30N4 | **BSH 1401P ●●●●A** | 11.200 |
| 19.5 | 59.3 | 3900 | 3000 | 4000 | ●D72N4 | **BSH 1402T ●●●●P** | 16.000 |
| 27.8 | 90.2 | 4100 | 3000 | 4000 | ●D72N4 | **BSH 1403T ●●●●P** | 21.200 |
| 33.4 | 103.6 | 5000 | 2500 | 4000 | ●D72N4 | **BSH 1404P ●●●●P** | 26.500 |

*(1) To complete each reference see the table on page 62112/3.*
*(2) Weight of servo motor without brake, no packaging. To obtain the weight of the servo motor with holding brake, please consult our website www.schneider-electric.com.*

Presentation: page 62110/2 | Options: page 62116/2 | Servo drives: page 62083/2 | BMH servo motors: page 62100/2 | Servo drive/motor combinations: page 62080/5

## BSH servo motors (continued)

***To order a BSH servo motor, complete each reference on the opposite page with:***

| | | | BSH 0551T | ● | ● | ● | ● |
|---|---|---|---|---|---|---|---|
| **Shaft end** | IP 50 | Untapped | **0** | | | | |
| | | Keyed | **1** | | | | |
| | IP 65/IP 67 *(1)* | Untapped | **2** | | | | |
| | | Keyed | **3** | | | | |
| **Integrated sensor** High resolution, optical | Single turn, SinCos Hiperface® 131,072 points/turn *(2)* | | | **1** | | | |
| | Multiturn, SinCos Hiperface® 131,072 points/turn x 4096 turns *(2)* | | | **2** | | | |
| **Holding brake** | Without | | | | **A** | | |
| | With | | | | **F** | | |
| **Connections** | Straight connectors | | | | | **1** | |
| | Rotatable right-angled connectors | | | | | **2** | |
| **Flange** | International standard | | | | | | **A or P** *(3)* |

***Note:** The example above is for a **BSH 0551T** servo motor. For other servo motors, replace **BSH 0551T** with the relevant reference.*

### Dimensions (overall)

| Servo motors | Flange | W x H x D *(4)* | |
|---|---|---|---|
| | | Without holding brake | With holding brake |
| | | mm | mm |
| **BSH 0551●** | 55 x 55 | 55 x 94.5 x 132.5 | 55 x 94.5 x 159 |
| **BSH 0552●** | 55 x 55 | 55 x 94.5 x 154.5 | 55 x 94.5 x 181 |
| **BSH 0553●** | 55 x 55 | 55 x 94.5 x 176.5 | 55 x 94.5 x 203 |
| **BSH 0701●** | 70 x 70 | 70 x 111.5 x 154 | 70 x 111.5 x 180 |
| **BSH 0702●** | 70 x 70 | 70 x 111.5 x 187 | 70 x 111.5 x 213 |
| **BSH 0703●** | 70 x 70 | 70 x 111.5 x 220 | 70 x 111.5 x 254 |
| **BSH 1001●** | 100 x 100 | 100 x 138.5 x 169 | 100 x 138.5 x 200 |
| **BSH 1002●** | 100 x 100 | 100 x 138.5 x 205 | 100 x 138.5 x 236 |
| **BSH 1003●** | 100 x 100 | 100 x 138.5 x 241 | 100 x 138.5 x 272 |
| **BSH 1004●** | 100 x 100 | 100 x 138.5 x 277 | 100 x 138.5 x 308 |
| **BSH 1401P** | 140 x 140 | 140 x 178 x 218 | 140 x 178 x 256 |
| **BSH 1402T** | 140 x 140 | 140 x 192.5*( 5)* x 273 | 140 x 192.5 *(5)* x 311 |
| **BSH 1403T** | 140 x 140 | 140 x 192.5 *(5)* x 328 | 140 x 192.5 *(5)* x 366 |
| **BSH 1404P** | 140 x 140 | 140 x 192.5 *(5)* x 383 | 140 x 192.5 *(5)* x 421 |

## IP 67 conformity kits

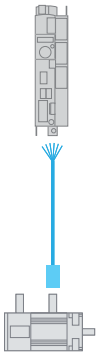
This kit can be used to provide IP 67 degree of protection. It is fitted in place of the rear motor rating plate.

PF080922

*VW3 M2 30●*

| Description | For use with | Reference | Weight kg |
|---|---|---|---|
| **IP 67 conformity kits** (supplied as an option) | BSH 055●● | **VW3 M2 305** | 0.050 |
| | BSH 070●● | **VW3 M2 306** | 0.100 |
| | BSH 100●● | **VW3 M2 307** | 0.150 |
| | BSH 140●● | **VW3 M2 308** | 0.300 |

*(1) IP 67 with the VW3 M2 30● IP 67 conformity kit supplied as an option (see above).*
*(2) Sensor resolution given for use with a Lexium 32 servo drive.*
*(3) "A" or "P" depending on the model (see table of references on page 62112/2).*
*(4) D = dimensions of the casing (excluding shaft end).*
*(5) 192.5 mm with straight connector, 198.5 mm with rotatable angled connector.*



*VW3 M5 10● R●●●*

## Connection elements

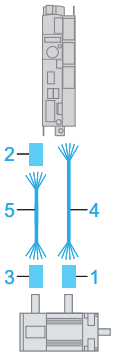
### Power cordsets

| Description | From servo motor | To servo drive | Composition | Length | Reference | Weight |
|---|---|---|---|---|---|---|
| | | | | m | | kg |
| **Cordsets equipped with one M23 industrial connector** (servo motor end) | BSH 055●●<br>BSH 070●●<br>BSH 100●●<br>BSH 1401P | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [(4 x 1.5 mm²) + (2 x 1 mm²)] | 1.5 | **VW3 M5 101 R15** | 0.600 |
| | | | | 3 | **VW3 M5 101 R30** | 0.810 |
| | | | | 5 | **VW3 M5 101 R50** | 1.210 |
| | | | | 10 | **VW3 M5 101 R100** | 2.290 |
| | | | | 15 | **VW3 M5 101 R150** | 3.400 |
| | | | | 20 | **VW3 M5 101 R200** | 4.510 |
| | | | | 25 | **VW3 M5 101 R250** | 6.200 |
| | | | | 50 | **VW3 M5 101 R500** | 12.325 |
| | | | | 75 | **VW3 M5 101 R750** | 18.450 |
| **Cordsets equipped with one M40 industrial connector** (servo motor end) | BSH 1402T<br>BSH 1403T<br>BSH 1404P | LXM 32●D72N4 | [(4 x 4 mm²) + (2 x 1 mm²)] | 3 | **VW3 M5 103 R30** | 1.330 |
| | | | | 5 | **VW3 M5 103 R50** | 2.130 |
| | | | | 10 | **VW3 M5 103 R100** | 4.130 |
| | | | | 15 | **VW3 M5 103 R150** | 6.120 |
| | | | | 20 | **VW3 M5 103 R200** | 8.090 |
| | | | | 25 | **VW3 M5 103 R250** | 11.625 |
| | | | | 50 | **VW3 M5 103 R500** | 23.175 |
| | | | | 75 | **VW3 M5 103 R750** | 34.725 |

*VW3 M8 102 R●●●*

### Control cordsets

| Description | From servo motor | To servo drive | Composition | Length | Reference | Weight |
|---|---|---|---|---|---|---|
| | | | | m | | kg |
| **SinCos Hiperface® encoder cordsets equipped with an M23 industrial connector** (servo motor end) **and an RJ45 connector** with 8+2 contacts (servo drive end) | BSH ●●●●● | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [3 x (2 x 0.14 mm²) + (2 x 0.34 mm²)] | 1.5 | **VW3 M8 102 R15** | 0.400 |
| | | | | 3 | **VW3 M8 102 R30** | 0.500 |
| | | | | 5 | **VW3 M8 102 R50** | 0.600 |
| | | | | 10 | **VW3 M8 102 R100** | 0.900 |
| | | | | 15 | **VW3 M8 102 R150** | 1.100 |
| | | | | 20 | **VW3 M8 102 R200** | 1.400 |
| | | | | 25 | **VW3 M8 102 R250** | 1.700 |
| | | | | 50 | **VW3 M8 102 R500** | 3.100 |
| | | | | 75 | **VW3 M8 102 R750** | 4.500 |




## Connection elements (continued)

### Connectors for creating power and control cordsets

| Description | For use with | Item no. | For cable cross-section | Reference | Weight |
|---|---|---|---|---|---|
| | | | mm² | | kg |
| **M23 industrial connector** for creating power cordsets **(sold in multiples of 5)** | BSH 055●●, BSH 070●●, BSH 100●● and BSH 1401P servo motors | 1 | 1.5 | **VW3 M8 215** | 0.350 |
| **M40 industrial connector** for creating power cordsets **(sold in multiples of 5)** | BSH 1402T, BSH 1403T and BSH 1404P servo motors | 1 | 4 | **VW3 M8 217** | 0.850 |
| **RJ45 connector** with 8+2 contacts for creating control cordsets **(sold in multiples of 5)** | LXM 32●●●●●● servo drives (CN3 connector) | 2 | – | **VW3 M2 208** | 0.200 |
| **M23 industrial connector** for creating control cordsets **(sold in multiples of 5)** | BSH ●●●●● servo motors | 3 | – | **VW3 M8 214** | 0.350 |

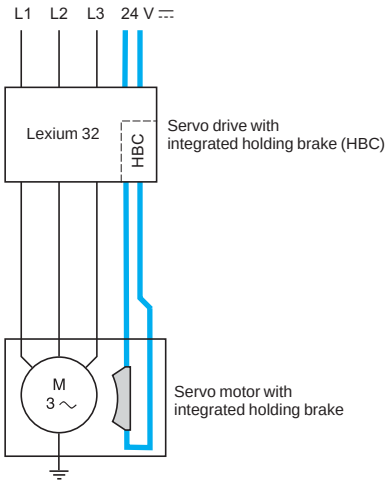
### Cables for creating power and control cordsets

| Description | From servo motor | To servo drive | Composition | Item no. | Length | Reference | Weight |
|---|---|---|---|---|---|---|---|
| | | | | | m | | kg |
| **Cables** for creating power cordsets | BSH 055●● BSH 070●● BSH 100●● BSH 1401P | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [(4 x 1.5 mm²) + (2 x 1 mm²)] | 4 | 25 | **VW3 M5 301 R250** | 5.550 |
| | | | | | 50 | **VW3 M5 301 R500** | 11.100 |
| | | | | | 100 | **VW3 M5 301 R1000** | 22.200 |
| | BSH 1402T BSH 1403T BSH 1404P | LXM 32●D72N4 | [(4 x 4 mm²) + (2 x 1 mm²)] | 4 | 25 | **VW3 M5 303 R250** | 9.900 |
| | | | | | 50 | **VW3 M5 303 R500** | 19.800 |
| | | | | | 100 | **VW3 M5 303 R1000** | 39.600 |
| **Cables** for creating control cordsets for SinCos Hiperface® encoders | BSH ●●●●● | LXM 32●●●●●●, see combinations on our website www.schneider-electric.com | [3 x (2 x 0.14 mm²) + (2 x 0.34 mm²)] | 5 | 25 | **VW3 M8 222 R250** | 1.400 |
| | | | | | 50 | **VW3 M8 222 R500** | 2.800 |
| | | | | | 100 | **VW3 M8 222 R1000** | 5.600 |

# Lexium 32 motion control
## BSH servo motors
## Option: holding brake integrated in servo motor

## Holding brake

### Presentation




The holding brake integrated in the BSH servo motor is an electromagnetic pressure spring brake that blocks the servo motor axis once the output current has been switched off.

In the event of an emergency, such as a power outage or an emergency stop, the drive is immobilized, significantly increasing safety.
Blocking the servo motor axis is also necessary in cases of torque overload, such as in the event of vertical axis movement.

As standard, the Lexium 32 servo drive has a holding brake controller which amplifies the braking control signal, ensuring the brake is deactivated quickly. The controller then reduces the control signal so as to decrease the power dissipated by the holding brake.

### References

*BSH servo motor*

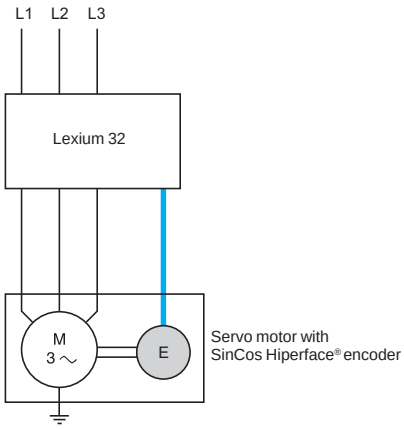
Selection of BSH servo motor with or without holding brake, see references on page 62112/3.

For any additional information about the holding brake characteristics, visit our website www.schneider-electric.com.

# Lexium 32 motion control
## BSH servo motors
## Option: encoder integrated in servo motor

## Encoder integrated in BSH servo motor

### Presentation




The standard measurement device is the SinCos Hiperface® single turn or multiturn encoder integrated in BSH servo motors. This measurement device is perfectly adapted to the Lexium 32 range of servo drives.

Use of this interface enables:
- Automatic identification of BSH servo motor data by the servo drive
- Automatic initialization of the servo drive's control loops, thus simplifying installation of the motion control device

### References

*BSH servo motor*

Selection of type of SinCos Hiperface® encoder integrated into the BSH servo motor (single turn or multiturn), see references on page 62112/3.

For any additional information about the integrated encoder characteristics, visit our website www.schneider-electric.com.

# Lexium 32 motion control
## BSH servo motors
## Option: GB● planetary gearboxes

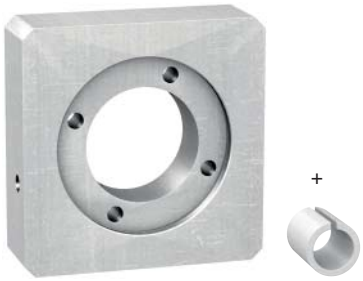
PF080936

*GBX planetary gearbox*

PF080937

*GBY angular planetary gearbox*

PF080938



*GBK adaptation kit*

## Presentation

In many cases, motion control requires the use of planetary gearboxes to adapt speeds and torques, while ensuring the precision demanded by the application.

Schneider Electric has chosen to use GBX planetary gearboxes and GBY angular planetary gearboxes (made by Neugart) with the BSH range of servo motors.
The combination of BSH servo motors with the most suitable planetary gearboxes makes them very easy to mount and ensures simple, risk-free operation.

The gearboxes are designed for applications which are not susceptible to mechanical backlash.
They have a keyed shaft, are lubricated for life and conform to IP 54 degree of protection.

Available in 4 sizes (GBX 60...GBX 160), planetary gearboxes are offered in 15 gear ratios (3:1...100:1).
GBY angular planetary gearboxes are available in 3 sizes (GBY 60…GBY 120), in 7 gear ratios (3:1...40:1).

The tables on pages 62116/5 and 62116/6 show the most suitable combinations of servo motor and GBX or GBY planetary gearbox.
For other combinations or any additional information about the characteristics of planetary gearboxes, see the servo motor data sheets or visit our website www.schneider-electric.com.

A GBK adaptation kit is also offered for assembling the BMH servo motor and the GB● planetary gearbox, see page 62116/7.

Comprising:
- An adaptor plate
- A shaft end adaptor, depending on the model (depends on the servo motor/planetary gearbox combination)
- Screws for mounting the plate on the planetary gearbox
- Screws for mounting the servo motor

# Lexium 32 motion control
## BSH servo motors
## Option: GBX planetary gearboxes

PF080936

*GBX ●●●●●● K ● planetary gearbox*

## References

| Size | Gear ratio | Reference | Weight kg |
|---|---|---|---|
| **GBX 60** | 3:1, 4:1, 5:1 and 8:1 | **GBX 060●●● K** | 0.900 |
| | 9:1, 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 060●●● K** | 1.000 |
| | 60:1 | **GBX 060●●● K** | 1.300 |
| **GBX 80** | 3:1, 4:1, 5:1 and 8:1 | **GBX 080●●● K** | 2.100 |
| | 9:1, 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 080●●● K** | 2.600 |
| **GBX 120** | 3:1, 4:1, 5:1 and 8:1 | **GBX 120●●● K** | 6.000 |
| | 9:1, 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 120●●● K** | 8.000 |
| | 60:1, 80:1 and 100:1 | **GBX 120●●● K** | 10.000 |
| **GBX 160** | 8:1 | **GBX 160●●● K** | 18.000 |
| | 12:1, 15:1, 16:1, 20:1, 25:1, 32:1 and 40:1 | **GBX 160●●● K** | 22.000 |

***To order a GBX planetary gearbox, complete each reference above as follows:***

| | | | GBX | ●●● | ●●● | K |
|---|---|---|---|---|---|---|
| **Size** | Casing diameter | 60 mm | | **060** | | |
| | | 80 mm | | **080** | | |
| | | 120 mm | | **120** | | |
| | | 160 mm (▲) | | **160** | | |
| **Gear ratio** | | 3:1 | | | **003** | |
| | | 4:1 | | | **004** | |
| | | 5:1 | | | **005** | |
| | | 8:1 | | | **008** | |
| | | 9:1 | | | **009** | |
| | | 12:1 | | | **012** | |
| | | 15:1 | | | **015** | |
| | | 16:1 | | | **016** | |
| | | 20:1 | | | **020** | |
| | | 25:1 | | | **025** | |
| | | 32:1 | | | **032** | |
| | | 40:1 | | | **040** | |
| | | 60:1 | | | **060** | |
| | | 80:1 | | | **080** | |
| | | 100:1 | | | **100** | |
| **Mounting with GBK adaptation kit** (see page 62116/7) | | | | | | **K** |

## BSH servo motor/GBX planetary gearbox combinations

### Gear ratios from 3:1 to 100:1

| Type of servo motor | Gear ratio | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3:1 4:1 | 5:1 | 8:1 | 9:1 | 12:1 | 15:1 16:1 | 20:1 | 25:1 | 32:1 | 40:1 | 60:1 | 80:1 | 100:1 |
| **BSH 0551** | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | – | – |
| **BSH 0552** | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | – | – | – | – |
| **BSH 0553** | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | – | – | – | – | – | – |
| **BSH 0701** | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 |
| **BSH 0702** | GBX 060 | GBX 060 | GBX 080 | GBX 060 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| **BSH 0703** | GBX 060 | GBX 060 | GBX 080 | GBX 060 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| **BSH 1001** | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | – | – | – |
| **BSH 1002** | GBX 080 | GBX 080 | GBX 120 | GBX 080 | GBX 080 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1003** | GBX 080 | GBX 080 | GBX 120 | GBX 080 | GBX 120 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1004** | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1401** | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1402** | GBX 120 | GBX 120 | GBX 160 | – | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1403** | GBX 120 | GBX 120 | GBX 160 | – | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | GBX 160 | – | – | – |
| **BSH 1404** | GBX 120 | GBX 120 | GBX 160 | – | GBX 160 | GBX 160 | GBX 160 | – | – | – | – | – | – |

**GBX 060**

*For these combinations, you must check that the application will not exceed the maximum gearbox output torque, see the values on our website www.schneider-electric.com.*

▲ Available 2nd quarter 2011

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BSH servo motors: page 62110/2
BMH servo motors: page 62100/2
Servo drive/motor combinations: page 62080/5

# Lexium 32 motion control
## BSH servo motors
## Option: GBY angular planetary gearboxes

## References

PF080937

*GBY ●●●●●● K angular planetary gearbox*

| Size | Gear ratio | Reference | Weight kg |
|---|---|---|---|
| **GBY 60** | 3:1, 4:1, 5:1 and 8:1 | **GBY 060●●● K** | 1.700 |
| | 12:1, 20:1 and 40:1 | **GBY 060●●● K** | 1.900 |
| **GBY 80** | 3:1, 4:1, 5:1 and 8:1 | **GBY 080●●● K** | 4.400 |
| | 12:1, 20:1 and 40:1 | **GBY 080●●● K** | 5.000 |
| **GBY 120** | 3:1, 4:1, 5:1 and 8:1 | **GBY 120●●● K** | 12.000 |
| | 12:1, 20:1 and 40:1 | **GBY 120●●● K** | 14.000 |

***To order a GBY angular planetary gearbox, complete each reference as follows:***

| | | | GBY | ●●● | ●●● | K |
|---|---|---|---|---|---|---|
| **Size** | Casing diameter | 60 mm | | **060** | | |
| | | 80 mm | | **080** | | |
| | | 120 mm | | **120** | | |
| **Gear ratio** | | 3:1 | | | **003** | |
| | | 4:1 | | | **004** | |
| | | 5:1 | | | **005** | |
| | | 8:1 | | | **008** | |
| | | 12:1 | | | **012** | |
| | | 20:1 | | | **020** | |
| | | 40:1 | | | **040** | |
| **Mounting with GBK adaptation kit** (see page 62116/7) | | | | | | **K** |

## BSH servo motor/GBY angular planetary gearbox combinations

### Gear ratios from 3:1 to 40:1

| Type of servo motor | Gear ratio | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3:1 | 4:1 | 5:1 | 8:1 | 12:1 | 20:1 | 40:1 |
| **BSH 0551** | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 |
| **BSH 0552** | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | – |
| **BSH 0553** | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | – |
| **BSH 0701** | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 060 | GBY 080 | GBY 080 |
| **BSH 0702** | GBY 060 | GBY 060 | GBY 060 | GBY 080 | GBY 080 | GBY 080 | GBY 120 |
| **BSH 0703** | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 120 |
| **BSH 1001** | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 080 | GBY 120 |
| **BSH 1002** | GBY 080 | GBY 080 | GBY 080 | GBY 120 | GBY 080 | GBY 120 | – |
| **BSH 1003** | GBY 120 | GBY 120 | GBY 120 | GBY 120 | GBY 120 | GBY 120 | – |
| **BSH 1004** | GBY 120 | GBY 120 | GBY 120 | – | GBY 120 | – | – |
| **BSH 1401** | GBY 120 | GBY 120 | GBY 120 | GBY 120 | GBY 120 | – | – |

**GBY 060**

*For these combinations, you must check that the application will not exceed the maximum gearbox output torque, see the values on our website www.schneider-electric.com.*

# Lexium 32 motion control
## BSH servo motors
## Option: adaptation kit for GB● planetary gearboxes

## References

***To order a GBK adaptation kit, complete each reference as follows:***

| | | | GBK | ●●● | ●●● | ● | F |
|---|---|---|---|---|---|---|---|
| **Size of GBX or GBY planetary gearbox** | Casing diameter | 60 mm | | **060** | | | |
| | | 80 mm | | **080** | | | |
| | | 120 mm | | **120** | | | |
| | | 160 mm | | **160** | | | |
| **Associated BSH servo motor** | | BSH 055 | | | **055** | | |
| | | BSH 070 | | | **070** | | |
| | | BSH 100 | | | **100** | | |
| | | BSH 140 | | | **140** | | |
| **Compatibility** | | Motor with any type of stack | | | | **0** | |
| | | Motor with 1 or 2 stacks | | | | **2** | |
| | | Motor with 1, 2 or 3 stacks | | | | **3** | |
| | | Motor with 4 stacks | | | | **4** | |
| **BSH servo motor adaptation** | | | | | | | **F** |

## GBK adaptation kit/BSH servo motor combination

| Type of gearbox | BSH servo motor | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0551 ● | 0552 ● | 0553 ● | 0701 ● | 0702 ● | 0703 ● | 1001 ● | 1002 ● | 1003 ● | 1004 ● | 1401 ● | 1402 ● | 1403 ● | 1404 ● |
| GBK 060 055 0 F | ■ | ■ | ■ | | | | | | | | | | | |
| GBK 060 070 2 F | | | | ■ | ■ | | | | | | | | | |
| GBK 060 070 3F | | | | | | ■ | | | | | | | | |
| GBK 080 070 2F | | | | ■ | ■ | | | | | | | | | |
| GBK 080 070 3F | | | | | | ■ | | | | | | | | |
| GBK 080 100 3F | | | | | | | ■ | ■ | ■ | | | | | |
| GBK 120 070 2F | | | | ■ | ■ | | | | | | | | | |
| GBK 120 070 3F | | | | | | ■ | | | | | | | | |
| GBK 120 100 3F | | | | | | | ■ | ■ | ■ | | | | | |
| GBK 120 100 4F | | | | | | | | | | ■ | | | | |
| GBK 120 140 0F | | | | | | | | | | | ■ | ■ | ■ | ■ |
| GBK 160 100 3F | | | | | | | ■ | ■ | ■ | | | | | |
| GBK 160 100 4F | | | | | | | | | | ■ | | | | |
| GBK 160 140 0F | | | | | | | | | | | ■ | ■ | ■ | ■ |

■ **Compatible**
**Incompatible**

*(1) Weight of adaptation kit:*
- *GBK 060●●●F: 0.200 kg*
- *GBK 080●●●F: 0.450 kg*
- *GBK 120●●●F: 0.650 kg*
- *GBK 160●●●F: 0.900 kg*

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