

Lexium 28 motion control

General overview

Maximize your business and machine performance with MachineStruxure



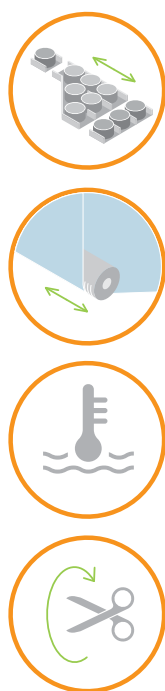
Machine builders like you are constantly looking for new ways to design and build more innovative machines in less time and at lower cost. MachineStruxure™ can help.

The NEXT generation of MachineStruxure is a complete machine automation solution that provides flexible and scalable machine control, ready-to-use architectures, efficient engineering solutions, and comprehensive customization and engineering support services. It can help you meet your challenges for improved efficiency and greater productivity, as well as allow you to deliver higher added value to your customers throughout the entire machine life cycle.

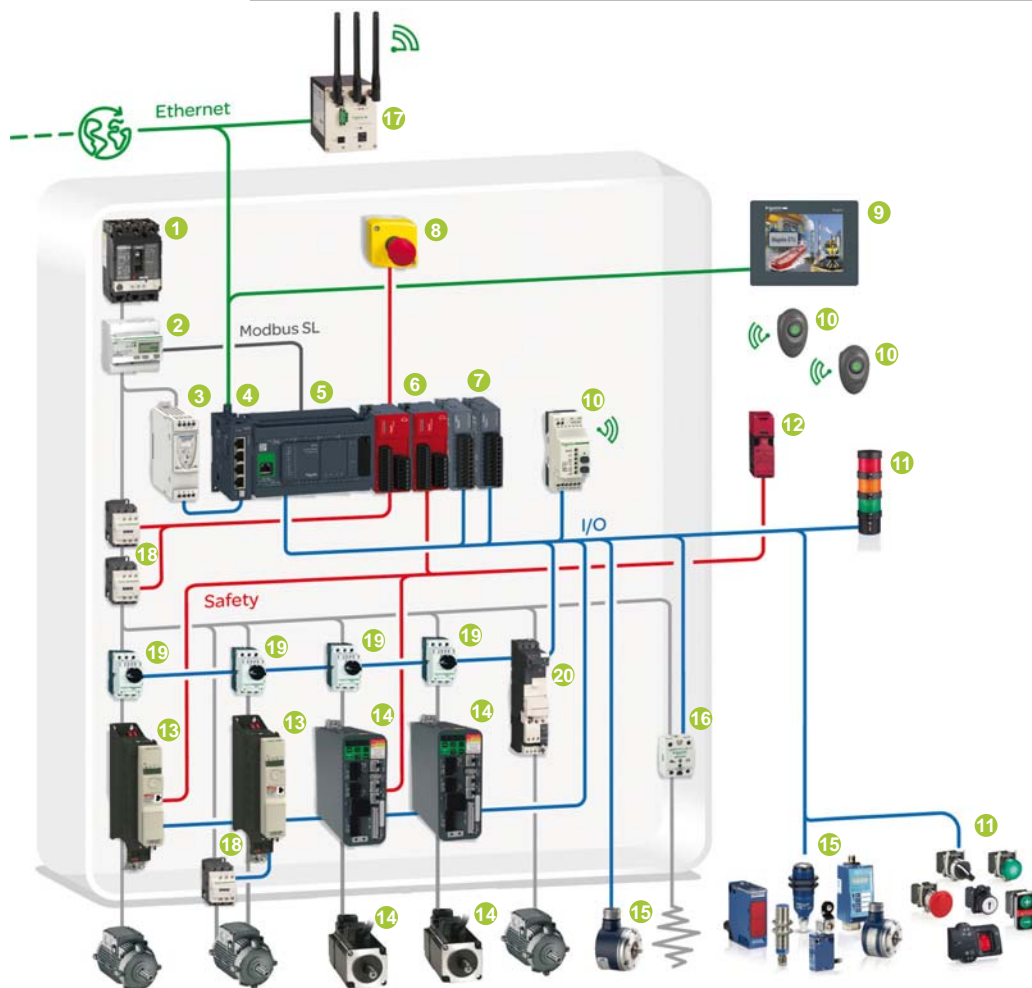
Ready-to-use architectures and function blocks

- > Tested, Validated, and Documented Architectures (TVDAs) are just one of the ways we help you reduce design time.
- > Whether your machines are simple or complex, Application Function Blocks (AFBs) make system design fast and easy.

Lexium 28 is part of MachineStruxure



Application Function Blocks (AFB)



Compact / Hardwired / Logic Controller **Modicon M241**

Solution Breakdown

- | | |
|--|--|
| 1 Compact NSX circuit breaker | 11 Harmony XB4/XB5 Control & signaling units |
| 2 IEM32 energy meter | 12 Preventa XCS safety switch |
| 3 Phaseo switch mode power supply | 13 Altivar 32 variable speed drive |
| 4 Modicon TM4 Ethernet switch module | 14 Servo Drive Lexium 28 , servo motor BCH2 |
| 5 Modicon M241 logic controller | 15 OsiSense proximity & photoelectric sensors, limit switch, encoder |
| 6 Modicon TM3 functional safety module | 16 Zelio Relay solid-state relay |
| 7 Modicon TM3 I/O expansion module | 17 ConneXium wireless Ethernet access |
| 8 Harmony XALK emergency stop | 18 TeSys D switch connector fuse |
| 9 Magelis STO/STU HMI | 19 TeSys GV2L magnetic circuit breaker |
| 10 Harmony XB5R wireless and batteryless pushbutton, configurable access point | 20 TeSys GV2M/3P D.O.L. / reversing starter |

Lexium 28 & BCH2: optimized servo bundles for compact machines

Servo range with best-in-class performance

The predefined servo bundles of Lexium 28 servo drive & BCH2 servo motor are optimized for easy integration & commissioning in your machine. It includes standard interfaces, embedded safety function and DC-bus sharing.



> CANopen / CANmotion
> Pulse Train

Reduce your time to market

- > Automatic tuning and motor identification
- > PLC open motion library

Increase profitability

- > Designed for optimized & cost effective solutions
- > Drive embedded safety function: Safe-Torque-Off

Improve efficiency

- > Energy efficient because of DC-bus sharing
- > Predefined servo bundles to fit each machine type

Simplify integration & maintenance

- > Standard fieldbus interface CANopen / CANmotion
- > Pulse-train-input (PTI) and Pulse-train-output (PTO) interfaces
- > Digital input interface to control simple movements directly by the servo drive: Position sequence mode
- > Analog input interface +/-10 V for speed control mode

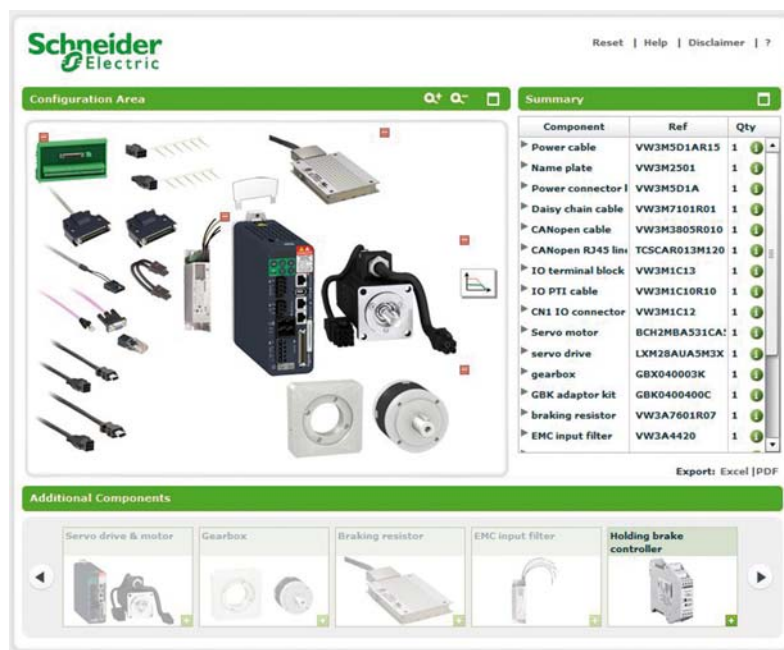
Easy to select



Lexium configurator app

Online configurator for intuitive product selection

Predefined servo drives and motors bundles include accessories, easy to select because of online configurator... You can get this also as App for mobile devices, see Lexium configurator in App store or Google Play.



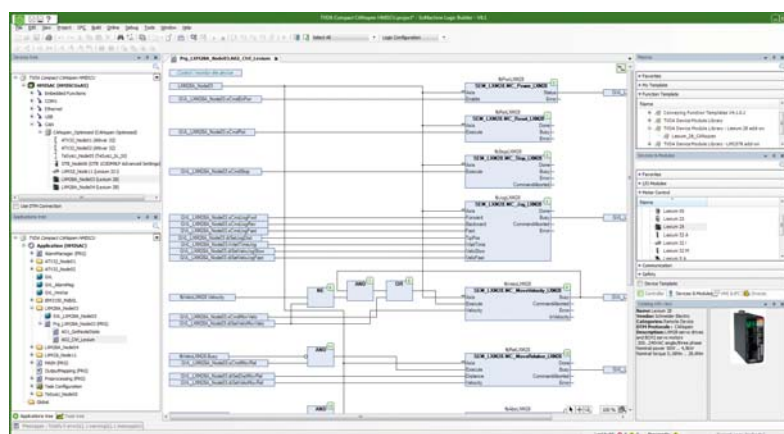
Intuitive commissioning & programming



SoMachine configuration software

SoMachine®- One software for commissioning and programming

SoMachine® is the universal programming software for machines automated by MachineStruxure controllers. Simple navigation that requires only few clicks delivers a more efficient engineering process. The programming, visualization, and commissioning are handled in just one intuitive tool. SoMachine software includes a 21 day free trial. After this period a license is required to continue to benefit from SoMachine. It can be installed from a DVD. Please consult our catalog "SoMachine configuration software" or on our web site www.schneider-electric.com



SoMove Setup software

In addition to SoMachine the SoMove Setup software can be used for the commissioning of Lexium 28. This could be done in just the same way as it is on other Schneider Electric drives and starters, to configure, adjust, debug, and maintain the drive.



SoMove Setup software

Achieve benchmark performance

while increasing profitability

Lexium 28 and Lexium BCH2,

the optimized servo bundle for motion control solutions

- > Cost effective
- > Energy efficient
- > Embedded safety



Make the most of your energySM



Material working application



Material handling application



Packaging application



Textile application

Presentation

The Lexium 28 range is defined by AC-servo drives LXM28 for combination with AC-servo motors BCH2.

- The Lexium 28 range offers predetermined combinations to suit the requirements of motion control applications, and optimize installation's performance.
- The combinations of servo motors with servo drives are based on the power class: both servo motor and servo drive have the same power class.
- The bundle of a servo drive with its related servo motor is designed to cover a nominal power from 0.05 kW up to 4.5 kW (0.067 up to 6.03 hp) with 200..240 V mains supply voltage

- The Lexium 28 servo drives are delivered without EMC filter, the EMC immunity is reached with additional EMC filter.

- The Lexium 28 servo drives have degree of protection IP 20.

- BCH2 motors provide a nominal torque from 0.16 Nm to 28.6 Nm and a nominal speed of from 1,500 to 3,000 rpm, depending on the model. They are suitable for a wide variety of applications due to the different levels of motor inertia offered.

Compact range

The compact dimensions of Lexium 28 servo drives mean they fit very easily into small spaces, thus reducing the size of the installation and the cost of the equipment.

Applications

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

SoMove Setup software

SoMove Setup software is used for commissioning, parameter setting, diagnostics and maintenance.

The drives can be configured

- via their integrated HMI interface
- using the SoMove Setup software.

It can also be used for fast device replacement in existing machine installations.

SoMove Setup software is used in just the same way as it is on other Schneider Electric drives, for configuring and optimizing control loops in automatic or manual mode using the Oscilloscope function and for maintenance of the Lexium 28 drive. See page 62323/10.

Multi-loader tool

The Multi-loader tool enables configurations to be copied from a PC or a servo drive and loaded onto another servo drive. The servo drives do not need to be powered-up (see page 62323/10).

Flexibility

Lexium 28 servo drives have digital and analog I/O as standard, an interface for CANopen/CANmotion fieldbus and an encoder interface for BCH2 servo motors. The servo drives incorporate numerous functions, including auto-tuning, position, speed, torque control, and the position sequence mode.

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

Mounting and maintenance

Connecting the servo drives is simplified by identified plug-in connectors, which are easily accessed, mainly on the front panel and also on top of the drive (see Description page 62323/9).



SoMove Setup software



Multi-loader tool

Main functions of Lexium 28 servo drives

- Automatic motor identification by the servo drive: the technical data related to the motor is provided from the motor to the drive via the encoder connection cable.
- Filtering: Anti-vibration function for suppression of resonance frequencies of the power train connected with the moving mass of the application
- Monitoring functions:
 - Status monitoring, I/O monitoring
 - Log function to memorize alarm and warning messages (in the drive)
 - Reset function of alarms and warnings
 - Monitoring of drive variables related to motor control and closed loop control

Additional main functions of Lexium 28 servo drives

- Movement control with digital input interface directly in the servo drive:
 - Relative or absolute positioning mode
 - Velocity mode
 - Torque control mode
 - Position sequence mode: a sequence of up to 32 movements, controlled by a digital input interface

Control via I/O interface or CANopen/CANmotion fieldbus

The Lexium 28 servo drive is controlled through “CN4 CAN” interface with a CANopen/CANmotion fieldbus control interface. It can also be controlled through numerous digital and analog signals, accessible by “CN1 I/O” interface:

- 2 digital inputs for high performance position capture
- 8 digital inputs
- 5 digital outputs
- 2 analog inputs
- 2 analog outputs
- 1 digital input for the safety function “Safe-Torque-Off”

Drive functions activated by commissioning software or directly by the HMI interface

- Jog mode: Velocity movement
- “Easy tuning” one-button tuning mode: this function is used to optimize application performance.
- 2 additional tuning functions, which can be activated by the SoMove Setup commissioning software or by the HMI interface:
 - “Comfort tuning” with predefined settings for different mechanical systems such as spindle axes (e.g. portal axes), transportation belt, vertical axes (e.g. cantilever axes)
 - “Auto-adaptive tuning”

Operating modes for the Lexium 28 via PTI / PTO interface

Lexium 28 drives movement can be managed by a machine controller (Modicon M221 logic controller) with pulse-train-output (PTO) interface or the PTO interface from another (Lexium28) servo drive. The corresponding pulse-train-input (PTI) of the Lexium 28 drive is then electrically connected to CN1 I/O interface.

Operating modes for the Lexium 28 via the CANopen and CANmotion fieldbus

The following operating modes are available:

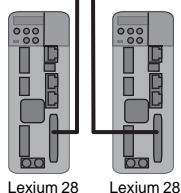
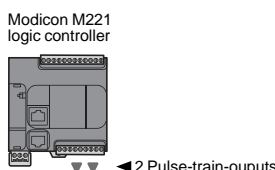
- Homing (in accordance with functional profile CiA DSP 402)
- Point-to-point mode (in accordance with functional profile CiA DSP 402)
- Position gear mode
- Cyclic synchronous position mode, cyclic synchronous velocity mode, cyclic synchronous torque mode (with CANmotion interface)

For more details of each integrated function, please consult our web site: www.schneider-electric.com.

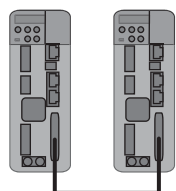
Embedded safety function STO

The Lexium 28 range of servo drives is an integral part of the MachineStruxure™ safety system “Preventa solutions for efficient machine safety” with its drive embedded Safe-Torque-Off (STO) function.

This STO function meets the requirements of SIL 2 according IEC 61800-5-2 / IEC62061 / IEC 61508 as well as up to category 3 and PL d according to EN ISO 13849-1. It simplifies the setup of installations requiring complex safety equipment and improves performance during maintenance operations.



Example of architecture with control by Modicon M221 logic controller



Example of a Lexium28 drive controlling another Lexium 28 drive with PTO/PTI interface



Guard monitoring safety function held by Lexium 28.
 More details on our web site: www.schneider-electric.com
 > Solutions > Process Systems, Machine Control >
Machine Safety

Lexium 28 motion control

Combinations: Lexium 28 servo drive and BCH2 servo motor



Lexium 28
50 W, 100 W, 200 W,
400 W and 750 W



Lexium 28
1 kW and 1.5 kW



Lexium 28
2 kW



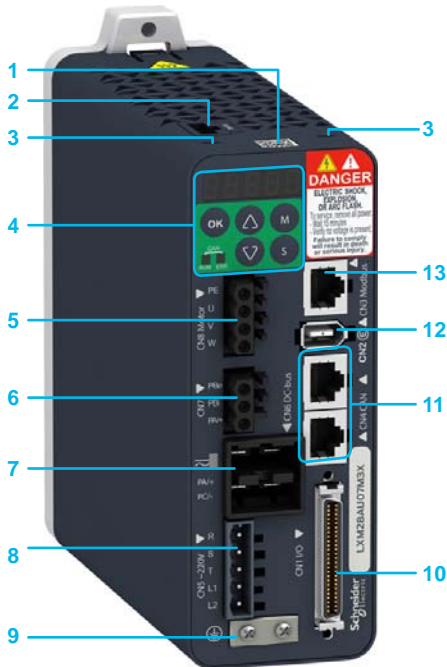
Lexium 28
3 kW and 4.5 kW

BCH2 servo motor/Lexium 28 servo drive combinations

| Available power output | | Nominal speed of rotation | Nominal torque | | Maximum peak torque | | Servo drive | Servo motor | Inertia (without holding brake) | Motor inertia type |
|--|-------|---------------------------|----------------|--------|---------------------|--------|--------------|----------------|---------------------------------|--------------------|
| kW | hp | rpm | Nm | ft lbf | Nm | ft lbf | | | kgcm ² | |
| Single-phase supply voltage: 200/240 VAC | | | | | | | | | | |
| 0.05 | 0.067 | 3,000 | 0.16 | 0.11 | 0.48 | 0.35 | LXM28AU5M3X | BCH2MBA53●C●5C | 0.054 | Medium |
| 0.1 | 0.13 | 3,000 | 0.32 | 0.23 | 0.96 | 0.70 | LXM28AU01M3X | BCH2MB013●C●5C | 0.075 | Medium |
| 0.2 | 0.26 | 3,000 | 0.64 | 0.47 | 1.92 | 1.41 | LXM28AU02M3X | BCH2LD023●C●5C | 0.16 | Low |
| 0.3 | 0.41 | 1,000 | 2.86 | 2.10 | 8.59 | 6.33 | LXM28AU04M3X | BCH2MM031●C●6C | 6.63 | Medium |
| 0.4 | 0.53 | 3,000 | 1.27 | 0.93 | 3.81 | 2.81 | LXM28AU04M3X | BCH2LD043●C●5C | 0.27 | Low |
| 0.4 | 0.53 | 3,000 | 1.27 | 0.93 | 3.81 | 2.81 | LXM28AU04M3X | BCH2LF043●C●5C | 0.67 | Low |
| 0.5 | 0.67 | 2,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2MM052●C●6C | 6.63 | Medium |
| 0.6 | 0.80 | 1,000 | 5.73 | 4.22 | 17.19 | 12.67 | LXM28AU07M3X | BCH2MM061●C●6C | 6.63 | Medium |
| 0.75 | 1.00 | 3,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2HF073●C●5C | 1.54 | High |
| 0.75 | 1.00 | 3,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2LF073●C●5C | 1.19 | Low |
| 0.85 | 1.13 | 1,500 | 5.39 | 3.97 | 13.8 | 10.17 | LXM28AU10M3X | BCH2MM081●C●6C | 13.5 | Medium |
| 0.9 | 1.21 | 1,000 | 8.59 | 6.33 | 25.77 | 19.01 | LXM28AU10M3X | BCH2MM091●C●6C | 9.7 | Medium |
| 1 | 1.34 | 3,000 | 3.18 | 2.34 | 9.54 | 7.03 | LXM28AU10M3X | BCH2LH103●C●6C | 2.4 | Low |
| 1 | 1.34 | 2,000 | 4.77 | 3.51 | 14.3 | 10.54 | LXM28AU10M3X | BCH2MM102●C●6C | 6.63 | Medium |
| 1.5 | 2.01 | 2,000 | 7.16 | 5.28 | 21.48 | 15.84 | LXM28AU15M3X | BCH2MM152●C●6C | 9.7 | Medium |
| 3 phase supply voltage: 200/240 VAC | | | | | | | | | | |
| 0.05 | 0.067 | 3,000 | 0.16 | 0.11 | 0.48 | 0.35 | LXM28AU5M3X | BCH2MBA53●C●5C | 0.054 | Medium |
| 0.1 | 0.13 | 3,000 | 0.32 | 0.23 | 0.96 | 0.70 | LXM28AU01M3X | BCH2MB013●C●5C | 0.075 | Medium |
| 0.2 | 0.26 | 3,000 | 0.64 | 0.47 | 1.92 | 1.41 | LXM28AU02M3X | BCH2LD023●C●5C | 0.16 | Low |
| 0.3 | 0.41 | 1,000 | 2.86 | 2.10 | 8.59 | 6.33 | LXM28AU04M3X | BCH2MM031●C●6C | 6.63 | Medium |
| 0.4 | 0.53 | 3,000 | 1.27 | 0.93 | 3.81 | 2.81 | LXM28AU04M3X | BCH2LD043●C●5C | 0.27 | Low |
| 0.4 | 0.53 | 3,000 | 1.27 | 0.93 | 3.81 | 2.81 | LXM28AU04M3X | BCH2LF043●C●5C | 0.67 | Low |
| 0.5 | 0.67 | 2,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2MM052●C●6C | 6.63 | Medium |
| 0.6 | 0.80 | 1,000 | 5.73 | 4.22 | 17.19 | 12.67 | LXM28AU07M3X | BCH2MM061●C●6C | 6.63 | Medium |
| 0.75 | 1.00 | 3,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2HF073●C●5C | 1.54 | High |
| 0.75 | 1.00 | 3,000 | 2.39 | 1.76 | 7.16 | 5.28 | LXM28AU07M3X | BCH2LF073●C●5C | 1.19 | Low |
| 0.85 | 1.13 | 1,500 | 5.39 | 3.97 | 13.8 | 10.17 | LXM28AU10M3X | BCH2MM081●C●6C | 13.5 | Medium |
| 0.9 | 1.21 | 1,000 | 8.59 | 6.33 | 25.77 | 19.01 | LXM28AU10M3X | BCH2MM091●C●6C | 9.7 | Medium |
| 1 | 1.34 | 3,000 | 3.18 | 2.34 | 9.54 | 7.03 | LXM28AU10M3X | BCH2LH103●C●6C | 2.4 | Low |
| 1 | 1.34 | 2,000 | 4.77 | 3.51 | 14.3 | 10.54 | LXM28AU10M3X | BCH2MM102●C●6C | 6.63 | Medium |
| 1.5 | 2.01 | 2,000 | 7.16 | 5.28 | 21.48 | 15.84 | LXM28AU15M3X | BCH2MM152●C●6C | 9.7 | Medium |
| 2.0 | 2.68 | 3,000 | 6.37 | 4.69 | 19.1 | 14.08 | LXM28AU20M3X | BCH2LH203●C●6C | 4.28 | Low |
| 2.0 | 2.68 | 2,000 | 9.55 | 7.04 | 28.65 | 21.13 | LXM28AU20M3X | BCH2MM202●C●6C | 13.5 | Medium |
| 2.0 | 2.68 | 2,000 | 9.55 | 7.04 | 28.65 | 21.13 | LXM28AU20M3X | BCH2MR202●C●6C | 26.5 | Medium |
| 3.0 | 4.02 | 1,500 | 19.1 | 14.08 | 57.29 | 42.25 | LXM28AU30M3X | BCH2MR301●C●6C | 53.56 | Medium |
| 3.0 | 4.02 | 2,000 | 14.32 | 10.56 | 42.97 | 31.69 | LXM28AU30M3X | BCH2MR302●C●6C | 53.56 | Medium |
| 3.5 | 4.69 | 2,000 | 16.7 | 12.31 | 50.3 | 37.09 | LXM28AU45M3X | BCH2MR352●C●6C | 53.56 | Medium |
| 4.5 | 6.03 | 1,500 | 28.65 | 21.13 | 71.62 | 52.82 | LXM28AU45M3X | BCH2MR451●C●6C | 73.32 | Medium |

Lexium 28 motion control

Lexium 28 servo drive



Lexium 28 servo drive

Description

On the drive top side:

- 1 QR code for access to detailed technical data, wiring guide, and installation guide
- 2 Removable terminal (1) for STO function (marked CN9)
- 3 Slot for application name plate

On the drive front side:

- 4 HMI interface, 7-segment display, 5 buttons (OK, mode, set, value up, value down) and servo drive status LED
- 5 Removable terminal (1) for motor connection (marked CN8 Motor)
- 6 Removable terminal (1) for braking resistor connection (marked CN7)
- 7 DC-bus connector with status LED "DC-bus charged" (marked CN6 DC-bus)
- 8 Removable terminal (1), 5 terminals (R, S, T, L1, L2) for connecting the 220 V ~ power supply (marked CN5 ~ 220 V)
- 9 Protected earth connector (marked Ⓢ)
- 10 Input/output interface connector (marked CN1 I/O)
- 11 2x RJ 45 connectors for CANopen/CANmotion fieldbus connection (marked CN4 CAN)
- 12 Connector for motor encoder: 20-bit single-turn absolute encoder, type ServoSense R (marked CN2 Ⓢ)
- 13 RJ 45 connector for Modbus serial link (marked CN3 Modbus)

(1) Removable spring terminals are supplied with each Lexium 28 servo drive.

References

To order a Lexium 28 servo drive, make up the reference as follows:

| Example | L | X | M | 2 | 8 | A | U | A | 5 | M | 3 | X |
|--------------------------|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|
| Lexium 28 AC servo drive | L | X | M | 2 | 8 | | | | | | | |
| Interface | CANopen and CANmotion fieldbus | | | | | A | | | | | | |
| Power | 50 W (0.067 hp) | | | | | | U | A | 5 | | | |
| | 100 W (0.13 hp) | | | | | | U | 0 | 1 | | | |
| | 200 W (0.26 hp) | | | | | | U | 0 | 2 | | | |
| | 400 W (0.53 hp) | | | | | | U | 0 | 4 | | | |
| | 750 W (1.00 hp) | | | | | | U | 0 | 7 | | | |
| | 1 kW (1.34 hp) | | | | | | U | 1 | 0 | | | |
| | 1.5 kW (2.01 hp) | | | | | | U | 1 | 5 | | | |
| | 2 kW (2.68 hp) | | | | | | U | 2 | 0 | | | |
| | 3 kW (4.02 hp) | | | | | | U | 3 | 0 | | | |
| | 4.5 kW (6.03 hp) | | | | | | U | 4 | 5 | | | |
| Supply voltage | 200...240 V ~, no EMC filter | | | | | | | | | M | 3 | X |

Dimensions and weight

| Servo drives | Dimensions (overall) | | Weight | |
|--|------------------------------------|--------------------|--------|-------|
| | Width x Height x Depth (W x H x D) | | | |
| | mm | in. | kg | lb |
| LXM28AUA5M3X LXM28AU01M3X LXM28AU02M3X LXM28AU04M3X LXM28AU07M3X | 55 x 150 x 146 | 2.17 x 5.91 x 5.75 | 1.000 | 2.190 |
| LXM28AU10M3X LXM28AU15M3X | 55 x 150 x 170 | 2.17 x 5.91 x 6.69 | 1.200 | 2.630 |
| LXM28AU20M3X | 62 x 170 x 184 | 2.44 x 6.69 x 7.24 | 1.700 | 3.720 |
| LXM28AU30M3X LXM28AU45M3X | 116 x 234 x 186 | 4.56 x 9.21 x 7.32 | 3.200 | 7.010 |



Configuration with the SoMove Setup software



TCSMCNAM3M002P

SoMove Setup software

Presentation

SoMove Setup software is used on Lexium 28 servo drives in just the same way as it is on other Schneider Electric drives and starters, to configure, adjust, debug, and maintain the drive.

The configuration of Lexium 28 servo drives can be done using the USB/RJ 45 cordset TCSMCNAM3M002P (used between the PC and the Lexium 28, on CN3 interface).

SoMove Setup software can be downloaded from our web site: www.schneider-electric.com

More information: see catalog "SoMove Setup software" (DIA2ED2140801EN) on our web site: www.schneider-electric.com

References

| Designation | Description | Reference | Weight kg/lb |
|-------------------|---|----------------|------------------|
| USB/RJ 45 cordset | <ul style="list-style-type: none"> ■ For connecting a PC to the device (Lexium 28) ■ Length: 2.5 m (8.2 ft.) ■ Equipped with a USB connector (PC end), and an RJ 45 connector (Device end) | TCSMCNAM3M002P | 0.160 / 0.353 |

Multi-loader configuration tool

Presentation

The Multi-loader tool enables several configurations to be copied from a PC or a Lexium 28 servo drive and loaded onto another servo drive.

The Lexium 28 servo drives do not need to be powered up.



Configuration of a Lexium 28 in its packaging with the VW3A8121 Multi-loader tool + VW3A8126 cordset



VW3A8126

References

| Designation | Description | Reference | Weight kg/lb |
|---------------------------------|--|-----------|------------------|
| Multi-loader configuration tool | Supplied with: <ul style="list-style-type: none"> □ 1 cordset equipped with two RJ 45 connectors □ 1 cordset equipped with one type A USB connector and one mini B USB connector □ 1 x 2 GB SD memory card □ 1 x female/female RJ 45 adapter □ 4 AA 1.5 V LR6 round batteries | VW3A8121 | 0.910 / 2.006 |
| Cordset for multi-loader tool | For connecting the multi-loader tool to the Lexium 28 servo drive in its packaging. Equipped with: <ul style="list-style-type: none"> □ A non-locking RJ 45 connector with special mechanical catch on the drive end □ An RJ 45 connector on the Multi-loader end | VW3A8126 | 0.065 / 0.143 |



VW3M7101R01



VW3M2207



VW3M4C21



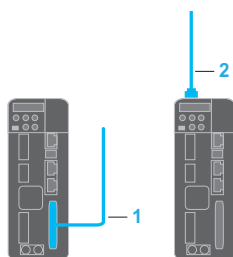
VW3M4C22



VW3M1C12



VW3M1C13



VW3M1C10R●●

VW3M1C20R●●



VW3M2501

Servo drive with application
name plate VW3M2501

Connection accessories

Cordsets

| Designation | Use | Description | Length m/ft | Unit reference | Weight kg/lb |
|--|--|----------------------------|----------------|--------------------|-----------------|
| Daisy chain connection of the DC-bus (sold in lots of 5) | Between LXM28A●●●●M3X and LXM28A●●●●M3X drives | Equipped with 2 connectors | 0.1 / 0.33 | VW3M7101R01 | 0.150/ 0.220 |

Cable

| Designation | Use | Description | Length m/ft | Reference | Weight kg/lb |
|--|--|---|----------------|---------------------|-----------------|
| Shielded cable for Daisy chain connection of the DC-bus | Between LXM28A●●●●M3X and LXM28A●●●●M3X drives | This cable can be used with DC-bus connector kit VW3M2207 | 15 / 49.21 | VW3M7102R150 | 3.650/ 8.047 |

Connectors

| Designation | Use | Description | Unit reference | Weight kg/lb |
|---|---|---|-----------------|-----------------|
| DC-bus connector kit | Lexium 28 | 10 connectors for creating extension cordsets for the CN6 DC-bus interface | VW3M2207 | 0.050/ 0.110 |
| Replacement connector sets | 50 W (0.067 hp), 100 W (0.13 hp), 200 W (0.26 hp), 400 W (0.53 hp), 750 W (1.00 hp), 1 kW (1.34 hp), and 1.5 kW (2.01 hp) drives (sold in lots of 3) | 3 connectors: 1 for CN5, 1 for CN7, and 1 for CN8 interfaces | VW3M4C21 | 0.100/ 0.220 |
| | 2 kW (2.68 hp), 3 kW (4.02 hp), and 4.5 kW (6.03 hp) drives (sold in lots of 2) | 3 connectors: 1 for CN5, 1 for CN7, and 1 for CN8 interfaces | VW3M4C22 | 0.100/ 0.220 |
| I/O connector (sold in lots of 3) | Lexium 28 | SUB-D 50-pin connector for CN1 I/O interface | VW3M1C12 | 0.100/ 0.220 |
| I/O terminal block module | Lexium 28 | Terminal block + Cordset Composed with 2x SUB-D 50-pin connectors type VW3M1C12, and one 0.5 m / 1.640 ft. cable, for CN1 I/O interface connection | VW3M1C13 | 0.380/ 0.838 |

I/O PTI connection cordsets

| Description | Length m/ft | Reference | Weight kg/lb |
|--|----------------|--------------------|-----------------|
| Equipped with one SUB-D 50-pin connector for connection on CN1 interface (drive side), and open end (controller side) (item 1) | 1 / 3.28 | VW3M1C10R10 | 0.100/ 0.220 |
| | 2 / 6.56 | VW3M1C10R20 | 0.200/ 0.441 |
| | 3 / 9.84 | VW3M1C10R30 | 0.300/ 0.661 |

STO connection cordsets

| | | | |
|---|----------|--------------------|-----------------|
| Equipped with one Molex 4-pin connector for connection on CN9 interface (drive side), and open end (controller side) (item 2) | 1 / 3.28 | VW3M1C20R10 | 0.100/ 0.220 |
| | 2 / 6.56 | VW3M1C20R20 | 0.200/ 0.441 |
| | 3 / 9.84 | VW3M1C20R30 | 0.300/ 0.661 |

Accessories

| Designation | Use | Dimensions mm / in. | Unit reference | Weight kg/lb |
|---|--|------------------------------|-----------------|-----------------|
| Application name plate (sold in lots of 50) | This contains information about the servo drive. To be inserted onto a dedicated slot on the top of the servo drive | 38.5 x 13 / 1.516 x 0.512 | VW3M2501 | 0.100/ 0.220 |

Lexium 28 motion control

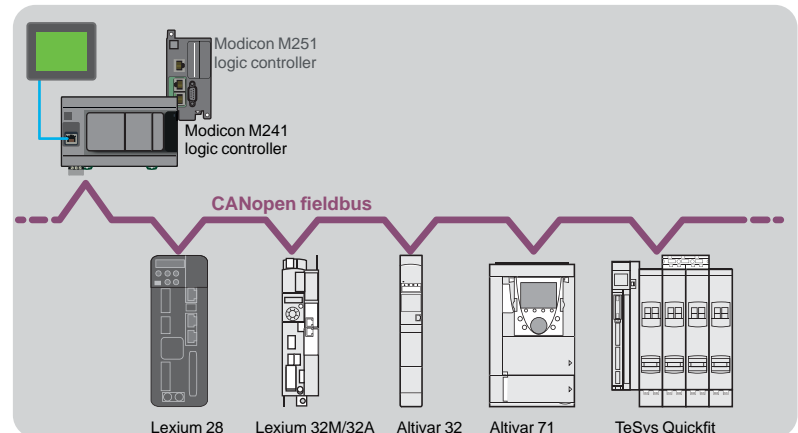
Lexium 28 servo drive

Communication on CANopen/CANmotion fieldbus

CANopen and CANmotion fieldbus

Presentation

Lexium 28 servo drives integrate the CANopen communication protocol as standard.



The CANopen fieldbus 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

This facilitates the set up.

Connection

Lexium 28 servo drives are connected to CANopen/CANmotion fieldbus via 2 RJ 45 connectors, providing an optimized solution for daisy chain connection to the CANopen fieldbus.

The same communication port provides access to either the CANopen or CANmotion fieldbus.



2x RJ 45 connectors,
marked **CN4 CAN**

Lexium 28 motion control

Lexium 28 servo drive

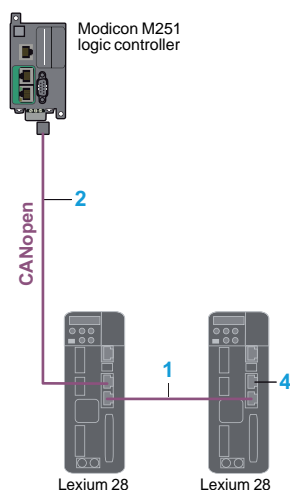
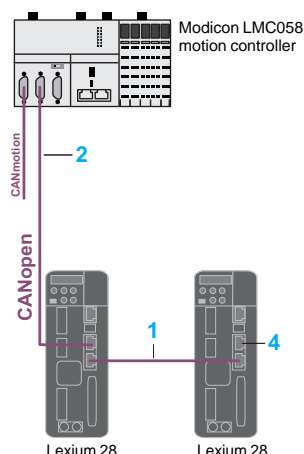
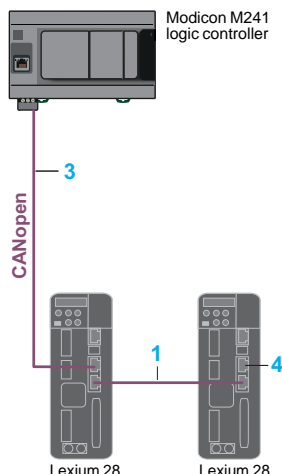
Communication on CANopen/CANmotion fieldbus

CANopen/CANmotion fieldbus for Lexium 28 servo drives

Lexium 28 servo drives can be directly connected to CANopen/CANmotion fieldbus using the RJ 45 connectors.

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

To simplify daisy chain connection, each servo drive is equipped with two RJ 45 connectors (marked CN4 CAN).



Example of architectures with control by Modicon M241/M251 logic controllers or LMC058 motion controller

Cordsets and cables (1)

| Description | Item no. | Length m/ft | Reference | Weight kg/lb |
|--|----------|-------------|---------------------|---------------|
| CANopen cordsets (1) | 1 | 0.3/0.98 | VW3CANCARR03 | 0.320/0.705 |
| Equipped with 2 RJ 45 connectors | | 1/3.28 | VW3CANCARR1 | 0.500/1.102 |
| CANopen cordsets (1) | 2 | 1/3.28 | VW3M3805R010 | 0.080/0.176 |
| Equipped with one 9-way female SUB-D connector with integrated line terminator and one RJ 45 connector | | 3/9.843 | VW3M3805R030 | 0.139/0.306 |
| CANopen cables (1) | 3 | 50/164.04 | TSXCANCA50 | 4.930/10.869 |
| Standard cables, C€ marking, Low smoke, zero halogen, Flame retardant (IEC 60332-1) | | 100/328.08 | TSXCANCA100 | 8.800/19.401 |
| | | 300/984.25 | TSXCANCA300 | 24.560/54.145 |
| CANopen cables (1) | 3 | 50/164.04 | TSXCANCB50 | 3.580/7.893 |
| UL certification, C€ marking, Flame retardant (IEC 60332-2) | | 100/328.08 | TSXCANCB100 | 7.840/17.284 |
| | | 300/984.25 | TSXCANCB300 | 21.870/48.215 |
| CANopen cables (1) | 3 | 50/164.04 | TSXCANCD50 | 3.510/7.738 |
| Cables for harsh environments (2) | | 100/328.08 | TSXCANCD100 | 7.770/17.130 |
| or mobile installation, C€ marking, Low smoke, zero halogen, Flame retardant (IEC 60332-1) | | 300/984.25 | TSXCANCD300 | 21.700/47.840 |

Connection accessories (1)

| Description | Item no. | Use | Reference | Weight kg/lb |
|--|----------|----------|----------------------|--------------|
| CANopen line terminator for RJ 45 connector | 4 | Lexium28 | TCSCAR013M120 | 0.009/0.020 |

(1) For other CANopen fieldbus connection accessories, please consult our web site: 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/+ 14 °F and + 70 °C/+ 158 °F

Options: 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 is required 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 casing degree of protection is IP 65 for VW3A7601R●● to VW3A7607R●● braking resistors and IP 20 for VW3A770●● braking resistors.

The operating temperature around the unit can be between 0 and + 50 °C (+ 32 and + 122 °F).

To optimize the size of the braking resistor, the DC-buses on Lexium 28 servo drives in the same installation can be connected in parallel.

Applications:

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



VW3A760●R●●



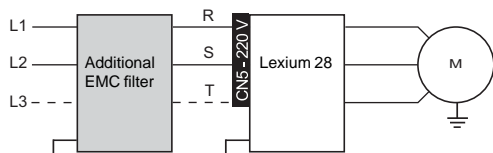
VW3A770●

References

External braking resistor

| Ohmic value | Continuous power | | Peak energy | Length of connection cable | | Reference | Weight |
|-------------|------------------|------|-------------|----------------------------|------|-------------|-------------------|
| | W | hp | 230 V Ws | m | ft | | |
| Ω | | | | | | | kg/lb |
| 10 | 400 | 0.53 | 13,300 | 0.75 | 2.46 | VW3A7601R07 | 1.420/ 3.131 |
| | | | | 2 | 6.56 | VW3A7601R20 | 1.470/ 3.241 |
| | | | | 3 | 9.84 | VW3A7601R30 | 1.620/ 3.571 |
| 10 | 1,000 | 1.34 | 36,500 | — | — | VW3A7705 | 11.000/ 24.251 |
| 15 | 1,000 | 1.34 | 43,100 | — | — | VW3A7704 | 11.000/ 24.251 |
| 27 | 100 | 0.13 | 3,800 | 0.75 | 2.46 | VW3A7602R07 | 0.630/ 1.389 |
| | | | | 2 | 6.56 | VW3A7602R20 | 0.780/ 1.720 |
| | | | | 3 | 9.84 | VW3A7602R30 | 0.900/ 1.984 |
| | 200 | 0.26 | 7,400 | 0.75 | 2.46 | VW3A7603R07 | 0.930/ 2.050 |
| | | | | 2 | 6.56 | VW3A7603R20 | 1.080/ 2.381 |
| | | | | 3 | 9.84 | VW3A7603R30 | 1.200/ 2.646 |
| | 400 | 0.53 | 18,100 | 0.75 | 2.46 | VW3A7604R07 | 1.420/ 3.131 |
| | | | | 2 | 6.56 | VW3A7604R20 | 1.470/ 3.241 |
| | | | | 3 | 9.84 | VW3A7604R30 | 1.620/ 3.571 |
| 72 | 200 | 0.26 | 9,600 | 0.75 | 2.46 | VW3A7606R07 | 0.930/ 2.050 |
| | | | | 2 | 6.56 | VW3A7606R20 | 1.080/ 2.381 |
| | | | | 3 | 9.84 | VW3A7606R30 | 1.200/ 2.646 |
| | 400 | 0.53 | 24,700 | 0.75 | 2.46 | VW3A7607R07 | 1.420/ 3.131 |
| | | | | 2 | 6.56 | VW3A7607R20 | 1.470/ 3.241 |
| | | | | 3 | 9.84 | VW3A7607R30 | 1.620/ 3.571 |

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 28 servo drive.



Lexium 28 servo drive with additional EMC filter



VW3A4420 EMC filter and Lexium 28 servo drive



VW3A4422



VW3A4424

Additional EMC input filters for servo drives

Presentation

Lexium 28 servo drives require external 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).

Applications

Additional EMC filters are mounted next to the device. They have tapped holes for mounting in an enclosure.

The maximum servo motor cable length conforming to IEC/EN 61800-3 category C3 (1) in environment 2 is 20 m (65.62 ft).

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 ground) systems.

Lexium 28 servo drives cannot be used on IT (impedance grounded 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.

References

| Designation | Max. nominal power Combination | Line current (A) | Reference | Weight kg/lb |
|--|--|------------------------|-----------------|-----------------|
| Single-phase supply voltage | | | | |
| Additional EMC input filters for Lexium 28 servo drives | 50 W to 750 W (0.067 to 1.00 hp) servo drives 1x EMC filter and a single Lexium 28 servo drive | 9 | VW3A4420 | 0.600/ 1.323 |
| | 1 kW and 1.5 kW (1.34 hp and 2.01 hp) servo drives 1x EMC filter and a single Lexium 28 servo drive | 16 | VW3A4421 | 0.775/ 1.709 |
| | 7.5 kW max (10.05 hp max) servo drives 1x common EMC filter and several Lexium 28 servo drives | 24 | VW3A4426 | 1.130/ 2.491 |
| Three-phase supply voltage | | | | |
| Additional EMC input filters for Lexium 28 servo drives | 50 W to 1.5 kW (0.067 hp to 2.01 hp), 2kW (2.68 hp), and 3kW (4.02 hp) servo drives 1x EMC filter and a single Lexium 28 servo drive | 15 | VW3A4422 | 0.900/ 1.984 |
| | 4.5 kW (6.03 hp) servo drives 1x EMC filter and a single Lexium 28 servo drive | 25 | VW3A4423 | 1.350/ 2.976 |
| | Up to 10 kW (up to 13.40 hp) servo drives 1x common EMC filter and several Lexium 28 servo drives | 47 | VW3A4424 | 3.150/ 6.945 |

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



GV2P●●



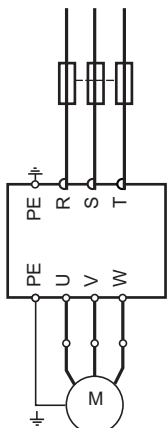
LC1●●●



LXM28AU●●M3X



LXM28AU●●M3X



Lexium 28 servo drive, BCH2 servo motor with fuse protection

Motor starters

Presentation

The combinations listed below can be used to create a complete motor starter unit comprising a circuit breaker, a contactor, and a Lexium 28 servo drive.

- GV2P circuit-breaker provides protection against accidental short-circuits, disconnection and, if necessary, isolation.
- LC1 contactor turns on and manages any safety functions, as well as isolating the servo motor on stopping.
- Lexium 28 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. Overload protection is provided by the servo drive's motor thermal protection.

Combinations

| Servo drive | | Circuit-breaker (1) | | Contactor | |
|---|------------------------|---------------------------|-----------|-------------|----------------------|
| Reference | Nominal power kW hp | Mains number of phases | Reference | Rating A | Reference (2) (3) |
| Mains supply voltage: 200...240 V ~ 50/60Hz | | | | | |
| LXM28AUA5M3X | 0.05 0.067 | 1 or 3 phases | GV2P14 | 10 | LC1K0610●● |
| LXM28AU01M3X | 0.1 0.13 | 1 or 3 phases | GV2P14 | 10 | LC1K0610●● |
| LXM28AU02M3X | 0.2 0.26 | 1 or 3 phases | GV2P14 | 10 | LC1K0610●● |
| LXM28AU04M3X | 0.4 0.53 | 1 or 3 phases | GV2P14 | 10 | LC1K09●● |
| LXM28AU07M3X | 0.75 1.00 | 1 or 3 phases | GV2P14 | 10 | LC1K09●● |
| LXM28AU10M3X | 1 1.34 | 1 or 3 phases | GV2P14 | 10 | LC1K12●● |
| LXM28AU15M3X | 1.5 2.01 | 1 or 3 phases | GV2P16 | 14 | LC1D18●● |
| LXM28AU20M3X | 2 2.68 | 3 phases | GV2P20 | 18 | LC1D32●● |
| LXM28AU30M3X | 3 4.02 | 3 phases | GV2P20 | 18 | LC1D32●● |
| LXM28AU45M3X | 4.5 6.03 | 3 phases | GV2P21 | 23 | LC1D65●● |

(1) Circuit-breakers for single drive installation according to IEC 60364-5-52

(2) Composition of the contactors:

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

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

(3) Replace ●● with the control circuit voltage reference given in the table below:

| | Volts ~ | 220 | 230 | 240 |
|------|----------|---------|-----|---------|
| LC1K | 50/60 Hz | M7 | P7 | U7 |
| | Volts ~ | 220/230 | 230 | 230/240 |
| LC1D | 50 Hz | M5 | P5 | U5 |
| | 60 Hz | M6 | — | U6 |
| | 50/60 Hz | M7 | P7 | U7 |

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

Please refer to the "Control and protection components" catalog or consult our web site: www.schneider-electric.com.

Protection using class J fuses (UL certification)

| Servo drive | Fuse to be placed upstream (A) | |
|---|--------------------------------|-----|
| Reference | Nominal power (kW/hp) | |
| Mains supply voltage: 200...240 V ~ 50/60Hz | | |
| LXM28AUA5M3X | 0.05 0.067 | 5 |
| LXM28AU01M3X | 0.1 0.13 | 5 |
| LXM28AU02M3X | 0.2 0.26 | 5 |
| LXM28AU04M3X | 0.4 0.53 | 20 |
| LXM28AU07M3X | 0.75 1.00 | 20 |
| LXM28AU10M3X | 1 1.34 | 25 |
| LXM28AU15M3X | 1.5 2.01 | 40 |
| LXM28AU20M3X | 2 2.68 | 60 |
| LXM28AU30M3X | 3 4.02 | 80 |
| LXM28AU45M3X | 4.5 6.03 | 160 |



BCH2 with free leads connection



BCH2 servo motor with MIL connectors

BCH2 servo motors

Presentation

BCH2 motors are synchronous AC servo motors.

- They are equipped as standard with a high resolution (20-bit) single-turn absolute encoder. They are therefore ideal for high performance applications such as material working, machine tools, etc.
- BCH2 motors are available in six flange sizes: 40 mm (1.58 in.), 60 mm (2.36 in.), 80 mm (3.15 in.), 100 mm (3.94 in.), 130 mm (5.12 in.), and 180 mm (7.08 in.).
- Depending on flange size, the BCH2 motors are supplied with:
 - free leads with connectors
 - or MIL connectors
- BCH2 motors are available with holding brake.
- With the three available types of motor inertia, ranging from low to high inertia, the servo motors can be used in a very wide variety of installations:
 - low inertia: power between 0.2 kW and 1 kW (0.26 hp and 1.34 hp), suitable for textile and packaging applications.
 - medium inertia: power between 0.05 kW and 4.5 kW (0.067 hp and 6.03 hp), suitable for material working and machine tool applications.
 - high inertia: 0.75 kW (1.00 hp) power, suitable for metal working and printing applications.

Examples of applications according to motor inertia type:

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

Holding brake

BCH2 servo motors can be equipped with an electromagnetic holding brake.

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

Integrated encoder

BCH2 servo motors are equipped with an absolute encoder.

This encoder performs the following functions:

- ☐ provides the absolute position of the motor so that flows can be synchronized
- ☐ measures the servo motor speed via the associated Lexium 28 servo drive (this information is used by the servo drive's position and speed controller)
- ☐ sends data from the servo motor to the servo drive, which provides automatic identification of the motor when the servo drive starts

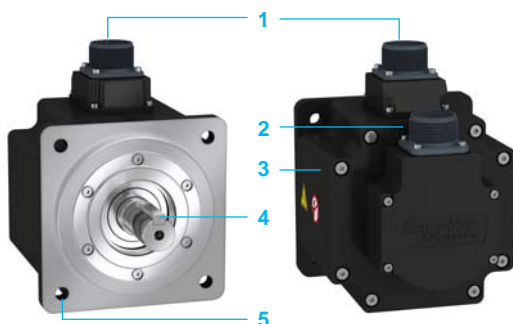
This encoder measures the motor angular position with a precision of ± 2.6 arc minutes.

Description

BCH2 servo motors, with a 3-phase stator and a rotor with rare earth based permanent magnets, consist of:

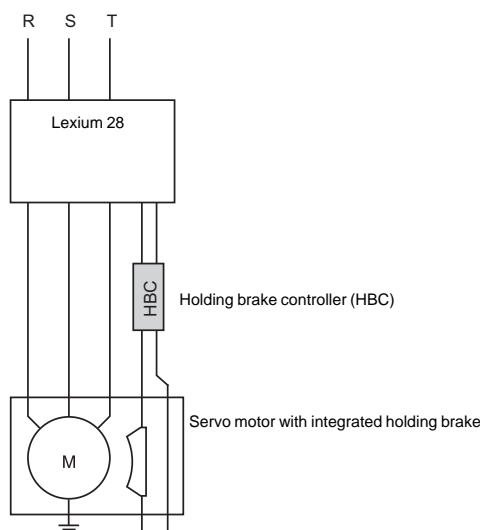
- 1 Connector for the power cable
- 2 Connector for the encoder cable
- 3 Casing with RAL 9005 opaque black paint coating
- 4 Smooth or keyed shaft end (depending on the model)
- 5 4-point axial mounting flange (Flange is mechanically compatible for mounting with Asian style servo motors).

Cables and connectors to be ordered separately, for connection to Lexium 28 servo drives. Schneider Electric has taken particular care over the compatibility of BCH2 servo motors and Lexium 28 servo drives. This compatibility is only possible when using cables and connectors sold by Schneider Electric (see page 62323/18).



| BCH2 servo motors | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| References | | | | | | | | | | | | | | |
| To order a BCH2 servo motor, make up the reference as follows: | | | | | | | | | | | | | | |
| Brushless servo motor | | B | C | H | 2 | ● | ● | ●● | ● | ● | C | ● | ● | C |
| Inertia | Low inertia | | | | | L | | | | | | | | |
| | Medium inertia | | | | | M | | | | | | | | |
| | High inertia | | | | | H | | | | | | | | |
| Flange size | 40 mm (1.58 in.) | | | | | | B | | | | | | | |
| | 60 mm (2.36 in.) | | | | | | D | | | | | | | |
| | 80 mm (3.15 in.) | | | | | | F | | | | | | | |
| | 100 mm (3.94 in.) | | | | | | H | | | | | | | |
| | 130 mm (5.12 in.) | | | | | | M | | | | | | | |
| | 180 mm (7.08 in.) | | | | | | R | | | | | | | |
| Rated output | 50 W (0.067 hp) | | | | | | | A5 | | | | | | |
| | 100 W (0.13 hp) | | | | | | | 01 | | | | | | |
| | 200 W (0.26 hp) | | | | | | | 02 | | | | | | |
| | 300 W (0.41 hp) | | | | | | | 03 | | | | | | |
| | 400 W (0.53 hp) | | | | | | | 04 | | | | | | |
| | 500 W (0.67 hp) | | | | | | | 05 | | | | | | |
| | 600 W (0.80 hp) | | | | | | | 06 | | | | | | |
| | 750 W (1.00 hp) | | | | | | | 07 | | | | | | |
| | 850 W (1.13 hp) | | | | | | | 08 | | | | | | |
| | 1 kW (1.34 hp) | | | | | | | 10 | | | | | | |
| | 1.5 kW (2.01 hp) | | | | | | | 15 | | | | | | |
| | 2 kW (2.68 hp) | | | | | | | 20 | | | | | | |
| | 3 kW (4.02 hp) | | | | | | | 30 | | | | | | |
| | 3.5 kW (4.69 hp) | | | | | | | 35 | | | | | | |
| | 4.5 kW (6.03 hp) | | | | | | | 45 | | | | | | |
| Power supply ~ 220 V Winding type | 1000/1500 rpm | | | | | | | | 1 | | | | | |
| | 2000 rpm | | | | | | | | 2 | | | | | |
| | 3000 rpm | | | | | | | | 3 | | | | | |
| Shaft end | Smooth shaft (shaft IP 54; housing IP 65) | | | | | | | | | 0 | | | | |
| | Keyed shaft (shaft IP 54; housing IP 65) | | | | | | | | | 1 | | | | |
| | Smooth shaft (shaft & housing IP 65) | | | | | | | | | 2 | | | | |
| | Keyed shaft (shaft & housing IP 65) | | | | | | | | | 3 | | | | |
| Encoder | High resolution single-turn absolute encoder, 20-bit resolution | | | | | | | | | | C | | | |
| Holding brake | Without brake | | | | | | | | | | | A | | |
| | With brake (option) | | | | | | | | | | | F | | |
| Connections | Free leads with connectors (BCH2●B/●D/●F motors only) | | | | | | | | | | | | 5 | |
| | MIL connectors (BCH2●H/●M/●R motors only) | | | | | | | | | | | | 6 | |
| Mechanical motor design | Motor compatible with Asian style mounting standards | | | | | | | | | | | | | C |

| Dimensions and weight | | | | | | | | | | | | |
|-----------------------|------|--------|----------------------|------------------------------------|--------------------|------------------------------------|---------------------|---------------|-------|------------|-------|----|
| | | | Dimensions (overall) | | | | | Weight | | | | |
| Servo motor | Pn | Flange | | Servo motor without brake | | Servo motor with brake | | without brake | | with brake | | |
| | | | | Width x Height x Depth (W x H x D) | | Width x Height x Depth (W x H x D) | | | | | | |
| | | W | mm | in. | mm | in. | mm | in. | kg | lb | kg | lb |
| BCH2MBA53●C●5C | 50 | 40 | 1.57 | 40 x 58.5 x 82 | 1.57 x 2.30 x 3.23 | 40 x 58.5 x 112 | 1.57 x 2.30 x 4.41 | 0.400 | 0.88 | 0.600 | 1.32 | |
| BCH2MB013●C●5C | 100 | 40 | 1.57 | 40 x 58.5 x 100 | 1.57 x 2.30 x 3.94 | 40 x 58.5 x 130 | 1.57 x 2.30 x 5.12 | 0.560 | 1.23 | 0.770 | 1.70 | |
| BCH2LD023●C●5C | 200 | 60 | 2.36 | 60 x 78.5 x 104 | 2.36 x 3.09 x 4.09 | 60 x 78.5 x 140 | 2.36 x 3.09 x 5.51 | 1.020 | 2.25 | 1.500 | 3.31 | |
| BCH2LD043●C●5C | 400 | 60 | 2.36 | 60 x 78.5 x 129 | 2.36 x 3.09 x 5.08 | 60 x 78.5 x 165 | 2.36 x 3.09 x 6.50 | 1.450 | 3.20 | 2.000 | 4.41 | |
| BCH2LF043●C●5C | 400 | 80 | 3.15 | 80 x 98.5 x 112 | 3.15 x 3.88 x 4.41 | 80 x 98.5 x 152 | 3.15 x 3.88 x 4.41 | 2.000 | 4.41 | 2.800 | 6.17 | |
| BCH2HF073●C●5C | 750 | 80 | 3.15 | 80 x 98.5 x 138 | 3.15 x 3.88 x 5.43 | 80 x 98.5 x 178 | 3.15 x 3.88 x 7.01 | 2.900 | 6.39 | 3.700 | 8.16 | |
| BCH2LF073●C●5C | 750 | 80 | 3.15 | 80 x 98.5 x 138 | 3.15 x 3.88 x 5.43 | 80 x 98.5 x 178 | 3.15 x 3.88 x 7.01 | 2.800 | 6.17 | 3.600 | 7.94 | |
| BCH2LH103●C●6C | 1000 | 100 | 3.94 | 100 x 145.6 x 153.5 | 3.94 x 5.73 x 6.04 | 100 x 145.6 x 180.5 | 3.94 x 5.73 x 7.11 | 4.600 | 10.14 | 5.100 | 11.24 | |
| BCH2LH203●C●6C | 2000 | 100 | 3.94 | 100 x 145.6 x 198.5 | 3.94 x 5.73 x 7.81 | 100 x 145.6 x 225.5 | 3.94 x 5.73 x 8.88 | 6.700 | 14.77 | 7.200 | 15.87 | |
| BCH2MM031●C●6C | 300 | 130 | 5.12 | 130 x 175.6 x 147 | 5.12 x 6.91 x 5.79 | 130 x 175.6 x 183 | 5.12 x 6.91 x 7.20 | 7.000 | 15.43 | 8.200 | 18.08 | |
| BCH2MM052●C●6C | 500 | 130 | 5.12 | 130 x 175.6 x 147 | 5.12 x 6.91 x 5.79 | 130 x 175.6 x 183 | 5.12 x 6.91 x 7.20 | 7.000 | 15.43 | 8.200 | 18.08 | |
| BCH2MM061●C●6C | 600 | 130 | 5.12 | 130 x 175.6 x 147 | 5.12 x 6.91 x 5.79 | 130 x 175.6 x 183 | 5.12 x 6.91 x 7.20 | 7.000 | 15.43 | 8.200 | 18.08 | |
| BCH2MM081●C●6C | 850 | 130 | 5.12 | 130 x 175.6 x 187 | 5.12 x 6.91 x 7.36 | 130 x 175.6 x 216 | 5.12 x 6.91 x 8.50 | 9.600 | 21.16 | 10.900 | 24.03 | |
| BCH2MM091●C●6C | 900 | 130 | 5.12 | 130 x 175.6 x 163 | 5.12 x 6.91 x 6.42 | 130 x 175.6 x 198 | 5.12 x 6.91 x 7.80 | 7.600 | 16.76 | 8.800 | 19.40 | |
| BCH2MM102●C●6C | 1000 | 130 | 5.12 | 130 x 175.6 x 147 | 5.12 x 6.91 x 5.79 | 130 x 175.6 x 183 | 5.12 x 6.91 x 7.20 | 7.000 | 15.43 | 8.200 | 18.08 | |
| BCH2MM152●C●6C | 1500 | 130 | 5.12 | 130 x 175.6 x 167 | 5.12 x 6.91 x 6.57 | 130 x 175.6 x 202 | 5.12 x 6.91 x 7.95 | 7.600 | 16.76 | 8.800 | 19.40 | |
| BCH2MM202●C●6C | 2000 | 130 | 5.12 | 130 x 175.6 x 187 | 5.12 x 6.91 x 7.36 | 130 x 175.6 x 216 | 5.12 x 6.91 x 8.50 | 9.700 | 21.38 | 11.000 | 24.25 | |
| BCH2MR202●C●6C | 2000 | 180 | 7.09 | 180 x 245.1 x 169 | 7.09 x 9.65 x 6.65 | 180 x 245.1 x 203 | 7.09 x 9.65 x 7.99 | 13.000 | 28.66 | 18.000 | 39.68 | |
| BCH2MR301●C●6C | 3000 | 180 | 7.09 | 180 x 245.1 x 202 | 7.09 x 9.65 x 7.95 | 180 x 245.1 x 235 | 7.09 x 9.65 x 9.25 | 18.500 | 40.79 | 23.000 | 50.71 | |
| BCH2MR302●C●6C | 3000 | 180 | 7.09 | 180 x 245.1 x 202 | 7.09 x 9.65 x 7.95 | 180 x 245.1 x 235 | 7.09 x 9.65 x 9.25 | 18.500 | 40.79 | 23.000 | 50.71 | |
| BCH2MR352●C●6C | 3500 | 180 | 7.09 | 180 x 245.1 x 202 | 7.09 x 9.65 x 7.95 | 180 x 245.1 x 235 | 7.09 x 9.65 x 9.25 | 18.500 | 40.79 | 23.000 | 50.71 | |
| BCH2MR451●C●6C | 4500 | 180 | 7.09 | 180 x 245.1 x 235 | 7.09 x 9.65 x 9.25 | 180 x 245.1 x 279 | 7.09 x 9.65 x 10.98 | 23.640 | 52.12 | 28.000 | 61.73 | |



VW3M3103

Holding brake controller

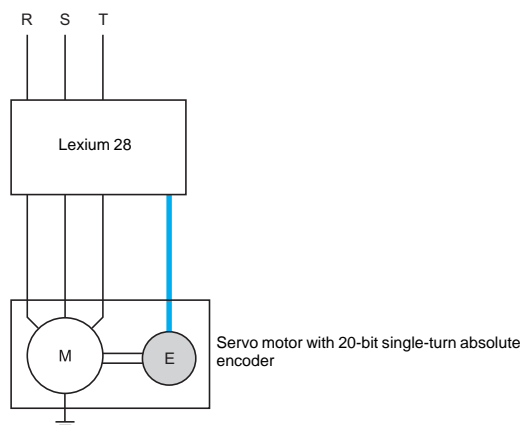
Presentation

If a servo motor has a holding brake, it is necessary to give an appropriate control logic (HBC, Holding Brake Controller), which releases the brake when power is supplied to the servo motor and immobilizes the servo motor shaft when it is stationary.

The holding brake controller amplifies the braking control signal (Digital output) transmitted by the Lexium 28 servo drive, so that the brake is deactivated quickly. It then reduces this control signal so as to decrease the power dissipated by the holding brake.

References

| Designation | Description | Reference | Weight kg/lb |
|--------------------------|---|-----------|-----------------|
| Holding brake controller | <input type="checkbox"/> 24 V $\overline{\text{---}}$ power supply <input type="checkbox"/> Max. power 50 W (0.06 hp) <input type="checkbox"/> IP 20 <input type="checkbox"/> for mounting on 55 mm (2.17 in) \perp rail | VW3M3103 | 0.600/ 1.323 |



Integrated encoder in BCH2 servo motors

Presentation

The standard measurement device is a 20-bit single-turn absolute encoder integrated in BCH2 servo motors. This measurement device is particularly suited to the Lexium 28 range of servo drives.

Use of this interface enables:

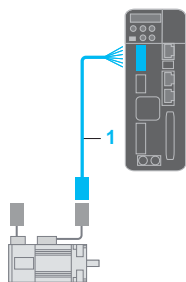
- Automatic identification of BCH2 servo motor data by the servo drive
- Automatic initialization of the servo drive control loops, thus simplifying installation and drive commissioning at the machine

Lexium 28 motion control

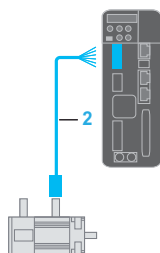
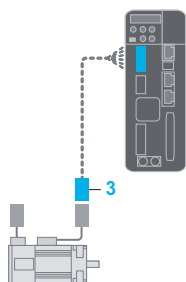
BCH2 servo motors

Connection components:

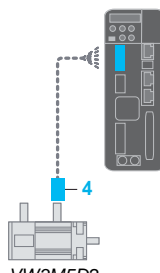
Motor power cordsets, connector kits



VW3M5D1●R●●

VW3M5D2●R●●
VW3M5D4●R●●
VW3M5D6●R●●

VW3M5D1●



VW3M5D2●

Connection components for BCH2 servo motors

Power cable type

| Connector | AWG | mm ² | Length m/ft | Reference | Weight kg/lb |
|-----------|-----|-----------------|----------------|-----------|-----------------|
|-----------|-----|-----------------|----------------|-----------|-----------------|

Shielded power cordsets for BCH2 motors without brake

| | | | | | |
|---|-------|--------------|------------|-------------|-----------------|
| Equipped with one quick connector (servo motor side), and open end (servo drive side) (item 1) | AWG18 | 4x 0.82..1.0 | 1.5 / 4.92 | VW3M5D1AR15 | 0.200/ 0.441 |
| | | | 3 / 9.84 | VW3M5D1AR30 | 0.300/ 0.661 |
| | | | 5 / 16.40 | VW3M5D1AR50 | 0.450/ 0.992 |

| | | | | | |
|---|-------|-------------|-----------|-------------|-----------------|
| Equipped with one MIL connector (servo motor side), and open end (servo drive side) (item 2) | AWG16 | 4x 1.3..1.5 | 3 / 9.84 | VW3M5D2AR30 | 0.450/ 0.992 |
| | | | 5 / 16.40 | VW3M5D2AR50 | 0.700/ 1.543 |
| | AWG12 | 4x 3.3..4.0 | 3 / 9.84 | VW3M5D4AR30 | 0.750/ 1.653 |
| | | | 5 / 16.40 | VW3M5D4AR50 | 1.250/ 2.756 |
| | AWG10 | 4x 6.0 | 3 / 9.84 | VW3M5D6AR30 | 2.100/ 4.630 |
| | | | 5 / 16.40 | VW3M5D6AR50 | 3.400/ 7.496 |

Shielded power cordsets for BCH2 motors with brake

| | | | | | |
|--|-------|--------------|-----------|-------------|------------------|
| Equipped with one quick connector (servo motor side), and open end (servo drive side) (item 1) | AWG18 | 6x 0.82..1.0 | 3 / 9.84 | VW3M5D1FR30 | 0.300/ 0.661 |
| | | | 5 / 16.40 | VW3M5D1FR50 | 0.450/ 0.992 |
| Equipped with one MIL connector (servo motor side), and a free lead (servo drive side) (item 2) | AWG16 | 6x 1.3..1.5 | 3 / 9.84 | VW3M5D2FR30 | 0.650/ 1.433 |
| | | | 5 / 16.40 | VW3M5D2FR50 | 0.900/ 1.984 |
| | AWG12 | 6x 3.3..4.0 | 3 / 9.84 | VW3M5D4FR30 | 0.950/ 2.094 |
| | | | 5 / 16.40 | VW3M5D4FR50 | 1.450/ 3.197 |
| | AWG10 | 6x 6.0 | 3 / 9.84 | VW3M5D6FR30 | 3.000/ 6.614 |
| | | | 5 / 16.40 | VW3M5D6FR50 | 5.000/ 11.023 |

Motor power connectors kits

| Description | Use | Unit reference | Weight kg/lb |
|---|--|----------------|-----------------|
| Motor power connector kits (sold in lots of 3) (item 3) | BCH2●B/●D/●F motors (flange size: 40/60/80 mm) with free leads connection, without brake | VW3M5D1A | 0.150/ 0.331 |
| | BCH2●B/●D/●F motors (flange size: 40/60/80 mm) with free leads connection, with brake | VW3M5D1F | 0.150/ 0.331 |

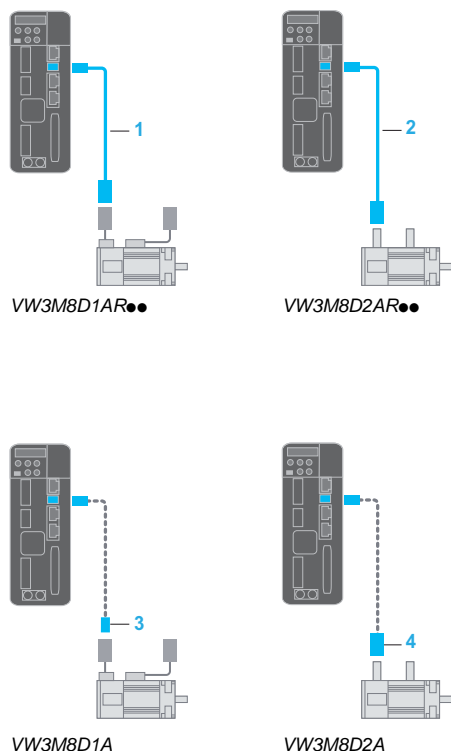
| | | | |
|--------------------------------------|---|----------|-----------------|
| Power MIL connector kits (item 4) | BCH2●H/●M motors (flange size: 100/130 mm) with or without brake | VW3M5D2A | 0.300/ 0.661 |
| | BCH2●R motors (flange size: 180mm) with or without brake | VW3M5D2B | 0.300/ 0.661 |

Lexium 28 motion control

BCH2 servo motors

Connection components:

Encoder cordsets, connector kits,



Connection components for BCH2 servo motors

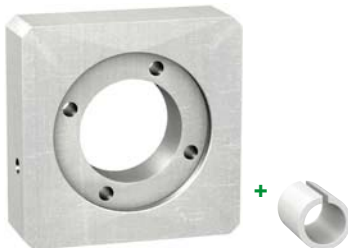
| Description | Use | Composition | Length m/ft | Reference | Weight kg/lb |
|--|---|--------------|----------------|-------------|-----------------|
| Shielded encoder cordsets | | | | | |
| Equipped with a connector at both ends (item 1) | For BCH2●B/●D/●F motors, for connection on CN2 interface | 10x 0.13 mm² | 1.5 / 4.92 | VW3M8D1AR15 | 0.500/ 1.102 |
| | | | 3 / 9.84 | VW3M8D1AR30 | 1.000/ 2.205 |
| | | | 5 / 16.40 | VW3M8D1AR50 | 1.200/ 2.646 |
| | | | | | |
| Equipped with one MIL connector (servo motor side), and a firewire connector (servo drive side) (item 2) | For BCH2●H/●M/●R, for connection on CN2 interface | 10x 0.13 mm² | 3 / 9.84 | VW3M8D2AR30 | 1.300/ 2.866 |
| | | | 5 / 16.40 | VW3M8D2AR50 | 1.500/ 3.307 |
| | | | | | |
| Encoder connector kits | | | | | |
| Encoder connector kits | For BCH2●B/●D/●F motors (flange: 40/60/80 mm) with free leads connection (item 3) (sold in lots of 3) | | | VW3M8D1A | 0.150/ 0.331 |
| | For BCH2●H/●M/●R motors (flange: 100/130/180 mm) with MIL connector (item 4) (sold in lots of 1) | | | VW3M8D2A | 0.150/ 0.331 |

Selection of motor connector kit, or encoder connector kit, according to BCH2 motor type

| Motor | Motor power cable connector kit | | Encoder connector kit | Motor power cable | | Encoder cable |
|----------------|---------------------------------|------------|-----------------------|-------------------|-------------|---------------|
| | Without brake | With brake | | Without brake | With brake | |
| BCH2MBA53●C●5C | VW3M5D1A | VW3M5D1F | VW3M8D1A | VW3M5D1AR●● | VW3M5D1FR●● | VW3M8D1AR●● |
| BCH2MB013●C●5C | | | | | | |
| BCH2LD023●C●5C | | | | | | |
| BCH2LD043●C●5C | | | | | | |
| BCH2LF043●C●5C | | | | | | |
| BCH2HF073●C●5C | | | | | | |
| BCH2LF073●C●5C | VW3M5D2A | VW3M5D2A | VW3M8D2A | VW3M5D2AR●● | VW3M5D2FR●● | VW3M8D2AR●● |
| BCH2LH103●C●6C | | | | | | |
| BCH2LH203●C●6C | | | | | | |
| BCH2MM081●C●6C | | | | | | |
| BCH2MM031●C●6C | | | | | | |
| BCH2MM052●C●6C | | | | | | |
| BCH2MM061●C●6C | | | | | | |
| BCH2MM102●C●6C | | | | | | |
| BCH2MM091●C●6C | | | | | | |
| BCH2MM152●C●6C | | | | | | |
| BCH2MM202●C●6C | VW3M5D2B | VW3M5D2B | | VW3M5D4AR●● | VW3M5D4FR●● | |
| BCH2MR202●C●6C | | | | | | |
| BCH2MR301●C●6C | | | | | | |
| BCH2MR302●C●6C | | | | | | |
| BCH2MR352●C●6C | | | | | | |
| BCH2MR451●C●6C | | | | | | |
| | | | | VW3M5D6AR●● | VW3M5D6FR●● | |



GBX●●●●●K planetary gearbox



GBK●●●●●C adapter kit

GBX●●●●●K planetary gearboxes

Presentation

Schneider Electric proposes the use of **GBX●●●●●K** planetary gearboxes with the BCH2 range of servo motors.

Motion control typically requires the use of planetary gearboxes to adapt speeds and torques, while providing the precision demanded by the application.

- The combination of **BCH2** servo motors with the most suitable **GBX●●●●●K** planetary gearboxes makes them very easy to mount and set up.
- The planetary gearboxes are designed for applications that are not susceptible to mechanical backlash. They have a keyed shaft, are lubricated for life, and conform to IP 54 degree of protection.
- Planetary gearboxes offer is available:
 - in four sizes (40 mm (1.58 in), 60 mm (2.36 in), 80 mm (3.15 in.), and 120 mm (4.72 in.)),
 - offered with ten reduction ratios (3:1, 5:1, 8:1, 10:1, 12:1, 15:1, 20:1, 25:1, 32:1, and 40:1).

The tables on next page shows the most suitable combinations of servo motor and **GBX●●●●●K** planetary gearbox.

For other combinations or any additional information about planetary gearbox characteristics, refer to the servo motor data sheets or visit our web site: www.schneider-electric.com.

A **GBK●●●●●C** adapter kit is available for mounting the BCH2 servo motors with GBX040●●●K to GBX120●●●K planetary gearboxes (see page 62323/23).

The adapter kit comprises:

- an adapter plate
- a shaft end adapter, depending on the model (depends on the servo motor/ planetary gearbox combination)
- accessories for mounting the plate on the planetary gearbox
- accessories for mounting the servo motor

References

| Size | Reduction ratio | Reference | Weight kg/lb |
|--------|---------------------------------------|------------|-------------------|
| GBX040 | 3:1, 5:1 and 8:1 | GBX040●●●K | 0.900/ 1.984 |
| | | | |
| GBX60 | 3:1, 5:1, 8:1 and 10:1 | GBX060●●●K | 2.100/ 4.630 |
| | 12:1, 15:1, 20:1, 25:1, 32:1 and 40:1 | GBX060●●●K | 2.600/ 5.732 |
| GBX80 | 3:1, 5:1, 8:1 and 10:1 | GBX080●●●K | 6.000/ 13.228 |
| | 12:1, 15:1, 20:1, 25:1, 32:1 and 40:1 | GBX080●●●K | 8.000/ 17.637 |
| GBX120 | 3:1, 5:1, 8:1 and 10:1 | GBX120●●●K | 18.000/ 39.683 |
| | 12:1, 15:1, 20:1, 25:1, 32:1 and 40:1 | GBX120●●●K | 22.000/ 48.502 |

| GBX●●●●●K planetary gearboxes | | | | | | |
|---|-----------------|-------------------|-----|-----|-----|---|
| References | | | | | | |
| To order a GBX040●●●K...GBX120●●●K planetary gearbox, complete each reference as follows: | | | | | | |
| | | | GBX | ●●● | ●●● | K |
| Gearbox size | Casing diameter | 40 mm (1.58 in.) | | 040 | | |
| | | 60 mm (2.36 in.) | | 060 | | |
| | | 80 mm (3.15 in.) | | 080 | | |
| | | 120 mm (4.72 in.) | | 120 | | |
| Reduction ratio | | 3:1 | | | 003 | |
| | | 5:1 | | | 005 | |
| | | 8:1 | | | 008 | |
| | | 10:1 | | | 010 | |
| | | 12:1 | | | 012 | |
| | | 15:1 | | | 015 | |
| | | 20:1 | | | 020 | |
| | | 25:1 | | | 025 | |
| | | 32:1 | | | 032 | |
| | 40:1 | | | 040 | | |
| Mounting with GBK adaptation kit (see table below) | | | | | | K |

| BCH2 servo motor and GBX gearbox combinations | | | | | | | | | | |
|---|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Reduction ratio from 3:1 to 40:1 | | | | | | | | | | |
| Servo motor | Reduction ratio | | | | | | | | | |
| | 3:1 | 5:1 | 8:1 | 10:1 | 12:1 | 15:1 | 20:1 | 25:1 | 32:1 | 40:1 |
| BCH2MBA53●C●5C | GBX 040 | GBX 040 | GBX 040 | - | - | - | - | - | - | - |
| BCH2MB013●C●5C | GBX 040 | GBX 040 | GBX 040 | - | - | - | - | - | - | - |
| BCH2LD023●C●5C | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | GBX 060 | - |
| BCH2LD043●C●5C | GBX 060 | GBX 060 | GBX 060 | - | GBX 060 | GBX 060 | - | GBX 060 | GBX 060 | - |
| BCH2LF043●C●5C | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 | GBX 080 |
| BCH2LF073●C●5C | GBX 080 | GBX 080 | GBX 080 | - | GBX 080 | GBX 080 | GBX 080 | GBX 080 | - | - |
| BCH2LH103●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| BCH2LH203●C●6C | GBX 120 | GBX 120 | GBX 120 | - | GBX 120 | GBX 120 | GBX 120 | - | - | - |
| BCH2MM031●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| BCH2MM052●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 |
| BCH2MM061●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | - | - |
| BCH2MM081●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | - | - |
| BCH2MM102●C●6C | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | GBX 120 | - | - |
| BCH2MM091●C●6C | GBX 120 | GBX 120 | GBX 120 | - | GBX 120 | GBX 120 | - | - | - | - |
| BCH2MM152●C●6C | GBX 120 | GBX 120 | GBX 120 | - | GBX 120 | GBX 120 | - | - | - | - |
| BCH2MM202●C●6C | GBX 120 | GBX 120 | GBX 120 | - | GBX 120 | GBX 120 | - | - | - | - |

| Adaptation kits for planetary gearbox | | | | | | |
|--|-------------------|--------------------------------------|------------------------------|------------------------|-------------|--------------|
| References | | | | | | |
| For mounting a GBX●●●●●K planetary gearbox on a BCH2 servo motors, an adapter kit GBK●●●●●C is required. | | | | | | |
| Gearbox size | For servo motor | Gearbox external diameter (mm / in.) | Motor flange size (mm / in.) | Number of motor stacks | Reference | Weight kg/lb |
| Size 40 | BCH2MB●●●●●●●● | 40 / 1.58 | 40 / 1.58 | 1 and 2 | GBK0400400C | 0.140 / 0.31 |
| Size 60 | BCH2LD●●●●●●●● | 60 / 2.36 | 60 / 2.36 | 1 and 2 | GBK0600600C | 0.240 / 0.53 |
| Size 80 | BCH2LF04●●●●●● | 80 / 3.15 | 80 / 3.15 | 1 | GBK0800801C | 0.460 / 1.01 |
| | BCH2LF07●●●●●● | 80 / 3.15 | 80 / 3.15 | 2 and 3 | GBK0800803C | 0.440 / 0.97 |
| Size 120 | BCH2LH●●●●●●●● | 120 / 4.72 | 100 / 3.94 | 1 and 2 | GBK1201000C | 0.900 / 1.98 |
| | BCH2MM031●●●●●●●● | 120 / 4.72 | 130 / 5.12 | 1...4 | GBK1201300C | 1.350 / 2.98 |
| | BCH2MM052●●●●●●●● | | | | | |
| | BCH2MM061●●●●●●●● | | | | | |
| | BCH2MM091●●●●●●●● | | | | | |
| | BCH2MM102●●●●●●●● | | | | | |
| | BCH2MM152●●●●●●●● | | | | | |
| | BCH2MM202●●●●●●●● | | | | | |
| | BCH2MM081●●●●●●●● | 120 / 4.72 | 130 / 5.12 | 1 (850 W) | GBK1201308C | 350 / 2.98 |

