PacDrive 3 automation solution

Lexium 52 stand-alone servo drive

Catalog

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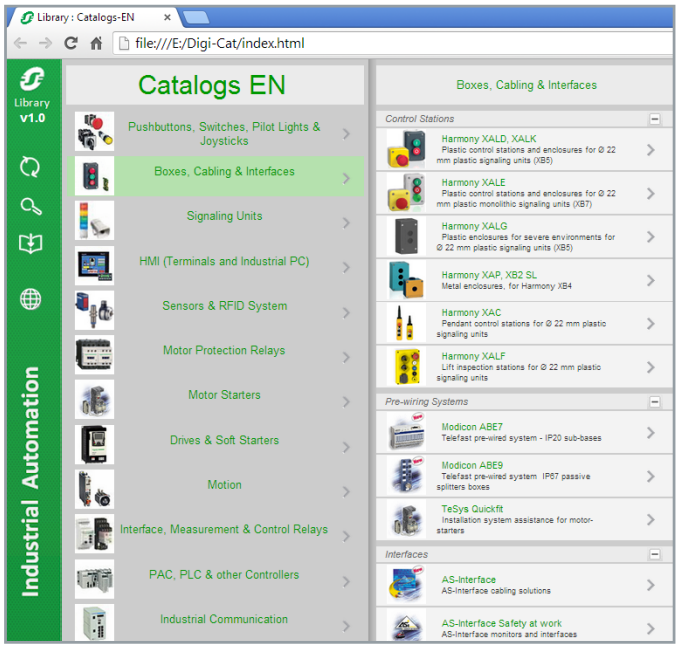

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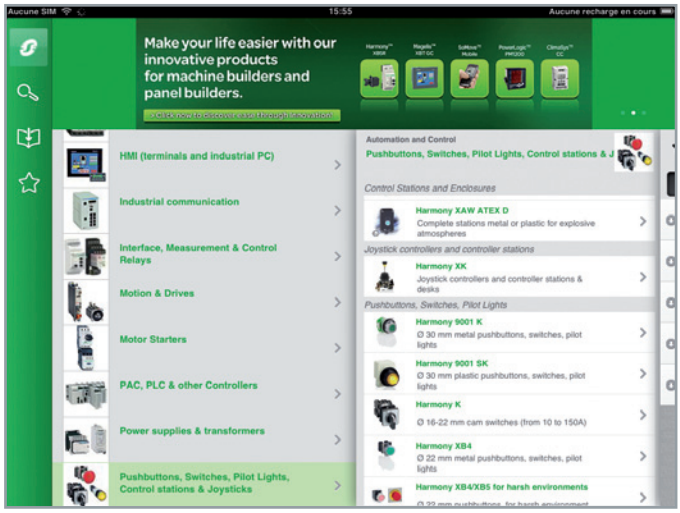

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General contents

PacDrive 3 automation solution

Lexium 52 stand-alone servo drive

PacDrive 3 automation solution
Lexium 52 stand-alone servo drive

Lexium 52 stand-alone servo drives

Presentation

> Lexium 52 stand-alone servo drive

In a conventional stand-alone design with an integrated 3-phase power supply, Lexium 52 series servo drives are particularly well suited for economical configuration of servo drive solutions with self-contained single axes. They communicate via Sercos and offer embedded digital I/O. Lexium 52 servo drives are available in five different power levels, ranging from 1.5 to 24 A continuous current and 6 to 72 A peak current. This corresponds to a power range of 0.4 to 7 kW (0.536 to 9.383 hp).

Lexium 52 is ideal for solutions with a small number of axes and is fully compatible with the ´smaller´ PacDrive Eco controllers.

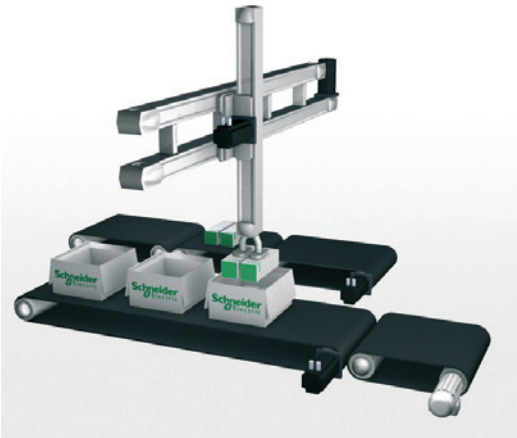
The Lexium 52 servo drive series include five servo drive models associated with Lexium SH3 series servo motors, optimized to meet demands for high performance, power, and simplicity of use in motion control applications. It covers power ratings between 0.4 and 7 kW (*0.536 and 9.383 hp*). The Lexium 52 servo drive is designed to simplify the machine lifecycles.

The SoMachine Motion setup software, side-by-side mounting, and color-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 less expensive thanks to the new duplication and backup tools.

The compact size of the servo drives and servo motors provides maximum power within a minimum space, enabling reduced machine dimensions and lower costs. Integrated safety functions reduce design times and facilitate compliance with safety standards.

> Compliance with electromagnetic compatibility (EMC) requirements

The integration of a category C3 EMC filter in Lexium 52 servo drives and compliance with EMC requirements simplify installation and significantly lower the costs of bringing the device into conformity to obtain the CE mark. Additional filters, available as an option, can be installed by the customer to reduce levels of conducted and radiated emissions.



Lexium 52 stand-alone servo drive, controlling a pick-and-place robot

> High performance

The Lexium 52 servo drive increases machine performance with the following features:

- Overload capacity: high peak current (up to 4 times the continuous current)
- Increases range of movement
- Power density: the servo drive's compact size offers maximum efficiency in a small space

> Lexium SH3, MH3 and SHS servo motors: dynamics and power

Lexium 52 servo drives can operate synchronous 3-phase servo motors of the Lexium SH3, MH3, and SHS series.
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.

These servo drives cover a continuous stall torque range of 0.5 to 94.4 Nm (0.368 to 69.625 ft lbf) for nominal speeds between 2000 and 8000 rpm.
All servomotors in this Lexium series have an electronic type plate. Therefore they all follow to the principles of PacDrive´s system communication for automatic configuration via the controller.
Please refer to our catalog "Lexium SH3/MH3/SHS servo motors".

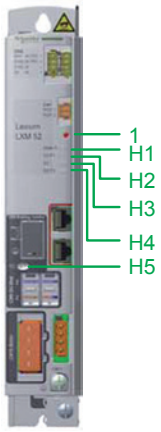
> Accessories and options

- External accessories
- Options: braking resistors, line chokes, etc.

PacDrive 3 automation solution
Lexium 52 stand-alone servo drive

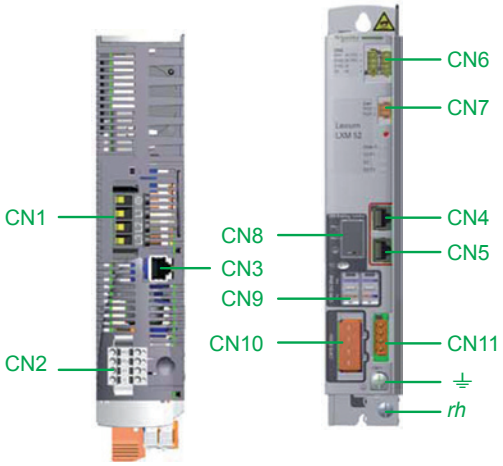
Lexium 52 servo drives – range presentation

Servo drive type	LXM52DU60C41000	LXM52DD12C41000	LXM52DD18C41000	LXM52DD30C41000	LXM52DD72C41000
Rated current (8 kHz)	1.5	3	6	10	24
Peak current (8 kHz) A	6	12	18	30	72
Continuous output kW/*hp*	0.4/*0.536*	0.9/*1.206*	1.8/*2.412*	3/*4.021*	7/*9.383*
Supply voltage VAC	3-phase nominal 208 / 200 (-15%)...240 (+10%) 3-phase nominal 400 / 380 (-15%)...480 (+10%)				
Supply frequency Hz	48…62				
Control voltage VDC	24 (-20%…+25%)				
Motion bus	Sercos				
Inverter Enable	**1 input for STO function (Safe Torque Off) (two channels)**				
Encoder	Hiperface® or SinCos				
Digital input	2				
Touchprobe input	2				
Digital input or output	2				
Housing dimensions DxWxH	220x 48 x 270 mm *(8.661x 1.890x 10.630 in.)*			220x 68x 230 mm *(8.661x 2.677x 9.055 in.)*	220x 108x 230 mm *(8.661x 4.252 x 9.055 in.)*
Protection rating	IP20				
Certifications	CE, Ulus, CSA, and TÜV				



Lexium 52 stand-alone servo drive interfaces

Item	Function
1	Reset button
H1	Status LED A
H2	S3 Port 1 LED
H3	S3 LED
H4	S3 Port 2 LED
H5	DC bus LED



Connector	Function
CN1	Mains connection
CN2	24 VDC control supply and Inverter Enable 2-channel
CN3	Motor encoder
CN4 , CN5	Sercos communication ports
CN6	Digital input/output
CN7	Ready relay output
CN8	External braking resistor
CN9	DC bus connection for parallel operation
CN10	Motor phases
CN11	Holding brake/motor temperature
rh	Shielded connector

Lexium 52 servo drives – type code

LXM	52	D	U60	C	4	1	0	00

Customer
00= Standard

Internal
0= Internal production

Hardware Release
1

Options
4= 3 phases 208/400/480 VAC

Variants
C= Single Drive HW-STO SIL 3 PLe

Current Output (Peak)
U60= 6 A
D12= 12 A
D18= 18 A
D30= 30 A
D72= 72 A

Type
D= Drive

Size
52= Lexium 52

Family
LXM= Lexium

LXM52DU60C41000, LXM52DD12C41000, LXM52DD18C41000

LXM52DD30C41000

LXM52DD72C41000

VW3M7101R01

Lexium 52 servo drives – references *(1)*

Designation	Continuous output	Continuous current	Peak current	Reference	Weight kg/*lb*
Single drives	0.4 kW (*0.536 hp*)	1.5 A @ 8 kHz	6 A	**LXM52DU60C41000**	1.800/ *3.97*
	0.9 kW (*1.206 hp*)	3 A @ 8 kHz	12 A	**LXM52DD12C41000**	1.800/ *3.97*
	1.8 kW (*2.412 hp*)	6 A @ 8 kHz	18 A	**LXM52DD18C41000**	1.900/ *4.19*
	3 kW (*4.021 hp*)	10 A @ 8 kHz	30 A	**LXM52DD30C41000**	2.700/ *5.95*
	7 kW (*9.383 hp*)	24 A @ 8 kHz	72 A	**LXM52DD72C41000**	5.000/ *11.02*

Accessories – references

Designation	Description	Reference	Weight kg/*lb*
Single drive connector kit	Spare part	**VW3E6018**	0.055 *0.12*
Daisy chain bus cordset	Length 0.18 m *(0.59 ft.)* Equipped with 2 connectors	**VW3M7101R01**	0.144/ *0.32*

(1) The Lexium 52 stand-alone servo drive includes a Sercos cable for connection on Sercos bus.

PacDrive 3 automation solution
Lexium 52 stand-alone servo drive
Option: Braking resistors

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 recovered energy is converted into heat by the braking resistor.
This enables maximum transient braking torque.

> External braking resistor

When the servo motor has to be braked frequently, use of an external braking resistor is recommended to dissipate the excess braking energy. In such a case, the internal braking resistor should 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 provided by the casing is
- IP65 for VW3A7601R●● to VW3A7608●● braking resistors
- IP20 for VW3A770●●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 52 servo drives within the same installation can be connected in parallel.

> Applications

- Machines with high inertia
- Driving heavy loads
- Machines with fast cycles

VW3A770●●

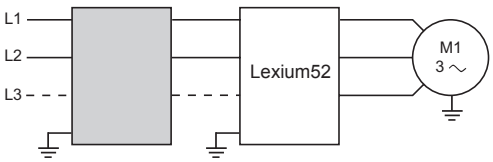
VW3A760●R●●

Braking resistors – references

Designation	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	*ft*		kg	*lb*
Braking resistors for Lexium 52 servo drives – IP20	10	1000	36500	36500	22500	22500	-	-	**VW3A7705**	11.000	*24.251*
	15	1000	43100	43100	26500	26500	-	-	**VW3A7704**	11.000	*24.251*
Braking resistors for Lexium 52 servo drives – IP65	10	400	18800	13300	7300	7700	0.75	*2.461*	**VW3A7601R07**	1.420	*3.131*
	10	400	18800	13300	7300	7700	2	*6.562*	**VW3A7601R20**	1.470	*3.241*
	10	400	18800	13300	7300	7700	3	*9.843*	**VW3A7601R30**	1.620	*3.571*
	27	100	4200	3800	1900	1700	0.75	*2.461*	**VW3A7602R07**	0.630	*1.389*
	27	100	4200	3800	1900	1700	2	*6.562*	**VW3A7602R20**	0.780	*1.720*
	27	100	4200	3800	1900	1700	3	*9.843*	**VW3A7602R30**	0.900	*1.984*
	27	200	9700	7400	4900	4300	0.75	*2.461*	**VW3A7603R07**	0.930	*2.050*
	27	200	9700	7400	4900	4300	2	*6.562*	**VW3A7603R20**	1.080	*2.381*
	27	200	9700	7400	4900	4300	3	*9.843*	**VW3A7603R30**	1.200	*2.646*
	27	400	25500	18100	11400	10500	0.75	*2.461*	**VW3A7604R07**	1.420	*3.131*
	27	400	25500	18100	11400	10500	2	*6.562*	**VW3A7604R20**	1.470	*3.241*
	27	400	25500	18100	11400	10500	3	*9.843*	**VW3A7604R30**	1.620	*3.571*
	72	100	5500	3700	2500	2300	0.75	*2.461*	**VW3A7605R07**	0.620	*1.367*
	72	100	5500	3700	2500	2300	2	*6.562*	**VW3A7605R20**	0.750	*1.653*
	72	100	5500	3700	2500	2300	3	*9.843*	**VW3A7605R30**	0.850	*1.874*
	72	200	14600	9600	6600	6000	0.75	*2.461*	**VW3A7606R07**	0.930	*2.050*
	72	200	14600	9600	6600	6000	2	*6.562*	**VW3A7606R20**	1.080	*2.381*
	72	200	14600	9600	6600	6000	3	*9.843*	**VW3A7606R30**	1.200	*2.646*
	72	400	36600	24700	16200	15500	0.75	*2.461*	**VW3A7607R07**	1.420	*3.131*
	72	400	36600	24700	16200	15500	2	*6.562*	**VW3A7607R20**	1.470	*3.146*
	72	400	36600	24700	16200	15500	3	*9.843*	**VW3A7607R30**	1.620	*3.571*
	100	100	4400	4400	2900	2900	0.75	*2.461*	**VW3A7608R07**	0.410	*0.904*
	100	100	4400	4400	2900	2900	2	*6.562*	**VW3A7608R20**	0.560	*1.235*
	100	100	4400	4400	2900	2900	3	*9.843*	**VW3A7608R30**	0.760	*1.676*

Recommendation: The total continuous power dissipated in the external braking resistor(s) should be less than or equal to the nominal power of the Lexium 52 servo drive.
Note: The size of the braking resistor must be calculated based upon the application.

PacDrive 3 automation solution
Lexium 52 stand-alone servo drive
Option: Line chokes



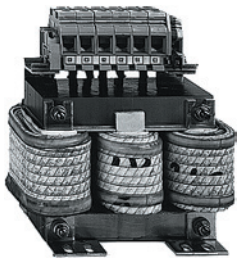
Lexium52 servo drive with line choke

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 IEC 61800-5-1 (VDE 0160 level 1 high-energy overvoltages on the line supply). The inductance values are defined for a voltage drop of between 3% and 5% of the nominal line voltage. Values higher than this will cause loss of torque. It is recommended that these chokes 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 the servo drives at nominal voltage is greater than or equal to the nominal current of the line choke.

Applications

The use of line chokes is particularly recommended 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 imbalance between phases greater 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 cosφ correction capacitors, if the installation includes a power factor correction unit

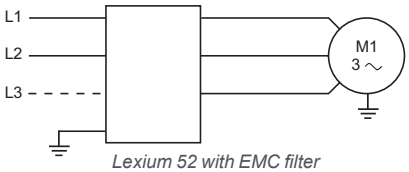


VW3A455●

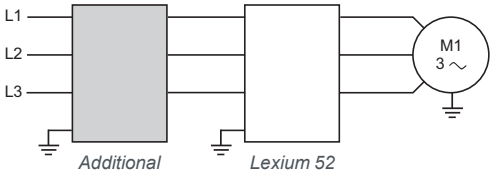
Line chokes – references

Designation	For use with servo drives	Line current and THD				Reference	Weight	
		Without choke		With choke				
		A	%	A	%		kg	lb
3-phase supply voltage: 380 V 50/60 Hz								
Line chokes	LXM52DU60C41000	1.4	187	1.9	106	**VW3A4553**	3.5	*7.716*
	LXM52DD12C41000	3	174	3.5	88			
	LXM52DD18C41000	5.5	159	7.2	88	**VW3A4554**	6	*13.228*
	LXM52DD30C41000	8.7	146	11.6	74			
	LXM52DD72C41000	18.1	124	23.5	43			
3-phase supply voltage: 480 V 50/60 Hz								
Line chokes	LXM52DU60C41000	1.2	201	1.6	116	**VW3A4553**	3.5	*7.716*
	LXM52DD12C41000	2.4	182	2.9	98			
	LXM52DD18C41000	4.5	165	6	98	**VW3A4554**	6	*13.228*
	LXM52DD30C41000	7	152	9.6	85			
	LXM52DD72C41000	14.6	129	19.5	55			

PacDrive 3 automation solution
Lexium 52 stand-alone servo drive
Option: EMC filters



Lexium 52 with EMC filter



Additional EMC input filter

Lexium 52

Presentation

> Integrated EMC filter

Lexium 52 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).

> Additional EMC input filters

Additional EMC input filters can be used with Lexium 52 servo drives to meet more stringent requirements, and are designed to reduce conducted emissions on the line supply below the limits of IEC/EN 61800-3 edition 2, category C2 or C3. Additional EMC filters are mounted on the side of the device. They have tapped holes for mounting within an enclosure.

Use according to the type of line supply

Integrated or additional EMC filters can be used only in TN (neutral connection) or TT (neutral to ground) systems. Lexium 52 servo drives cannot be used in IT (impedance grounded or isolated neutral) systems. IEC/EN 61800-3, appendix D2.1, states that in IT systems, filters can cause permanent insulation monitors to operate in a random manner.

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


VW3A442●

EMC filters – references

Designation	Rated current	For use with servo drives	Maximum servo motor shielded cable length (m) conforming to		Reference	Weight
			EN55011, class A Gr1 IEC/EN 61800-3 cat. C2 in environment 1 Switching frequency: 8 kHz	EN55011, class A Gr2 IEC/EN 61800-3 cat. C3 in environment 2 Switching frequency: 8 kHz		kg/ lb
3-phase supply voltage						
EMC filters	15 A	LXM52DU60C41000 LXM52DD12C41000 LXM52DD18C41000 LXM52DD30C41000	50	100	**VW3A4422**	0.90 / *1.984*
	25 A	LXM52DD72C41000	50	100	**VW3A4423**	1.35 / *2.976*

The Next Generation

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