



11 DR Series AC Motors with Decentralized Technology

11.1 MOVI-SWITCH® product description

Unit designation

/MSW

Description

MOVI-SWITCH® is the gearmotor with integrated switching and protection function.

The 4-pole AC (brake) motor sizes DR.71 to DR.100 can be combined with all appropriate gear units in the modular concept as part of the MOVI-SWITCH® product range. For detailed information on MOVI-SWITCH®, refer to the "Drive Systems for Decentralized Installation" catalog.

Advantages of MOVI-SWITCH®

MOVI-SWITCH® offers the following advantages:

- Circuit breaker and protection functions are completely integrated, saving control cabinet space and cabling.
- Integrated mechatronic solution, robust and compact.
- AC motors and AC brakemotors have the same connection configuration,
- therefore simple installation.

MOVI-SWITCH® types

Two MOVI-SWITCH® variants are available: one for operation with one direction of rotation (MSW-1E); one for operation with direction of rotation reversal (MSW-2S).

The supply system and control connections are the same for motors with or without brake.

MSW-1E

MOVI-SWITCH® MSW-1E is switched on and off without changing direction by means of a short circuit-proof star bridge switch. A thermal winding monitor (TF) is also integrated, which acts directly on the switch.

MSW-2S

The direction of rotation is reversed in MOVI-SWITCH® MSW-2S using a reversing relay combination with a long service life. Supply system monitoring, phase-sequence monitoring, brake control, circuit breaker and protection functions are grouped together in the controller. The various operating states are indicated by the diagnostic LED.

The pin assignment for clockwise direction of rotation (CW) is compatible with that of MSW-1E. The integrated AS interface connection is compatible with MLK11A.



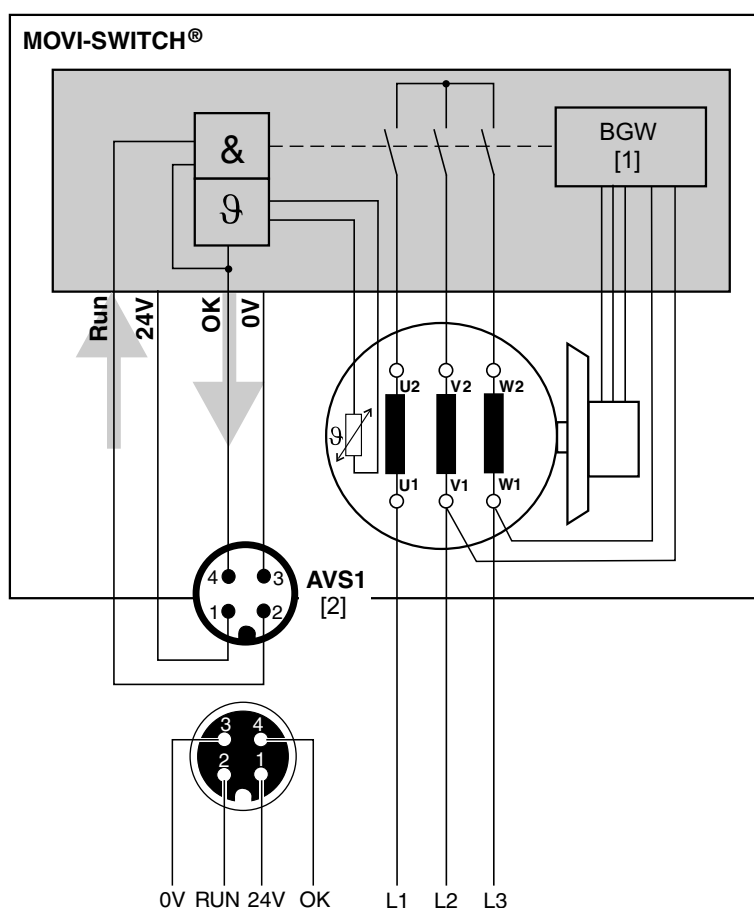
11.2 MOVI-SWITCH® project planning notes

Combination options

MOVI-SWITCH® AC motors and AC brakemotors of sizes DR.71 to DR.100 can be combined with all suitable gear unit types, mounting positions and designs in accordance with the selection tables for gearmotors.

Operating principle

The following diagram illustrates how MOVI-SWITCH®-1E operates.

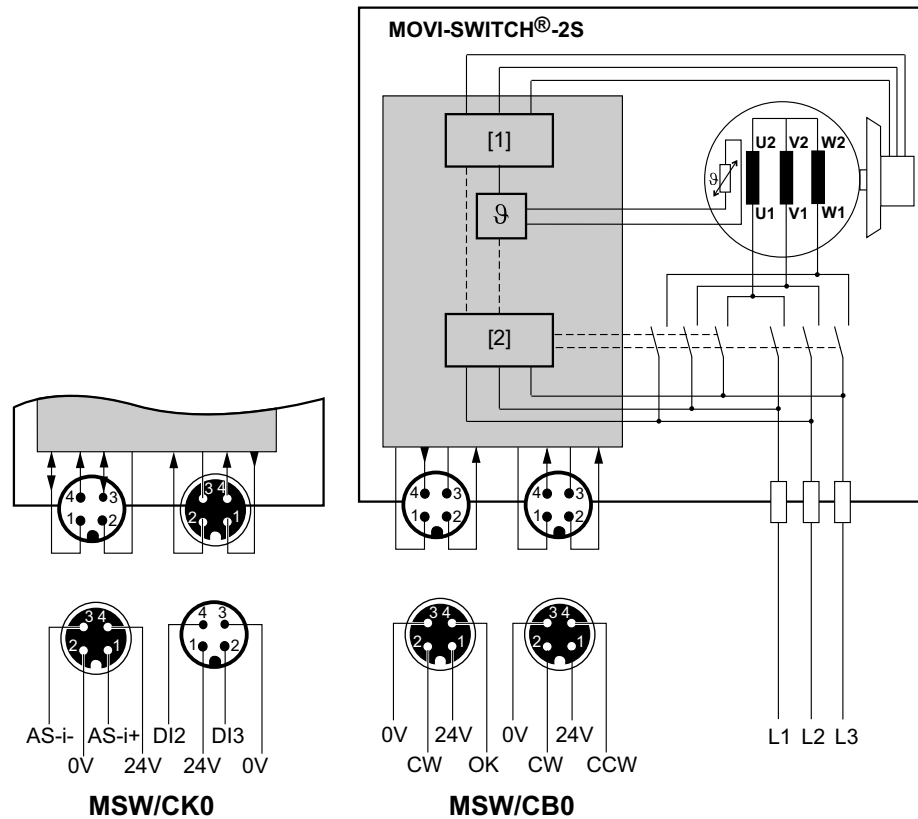


[1] = Brake control
[2] = M12 connector (standard coding)

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The following figure illustrates how MOVI-SWITCH®-2S operates.



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[1] Brake control
[2] Rotating field recognition

Voltage range

Motors within the following voltage range can be switched using MOVI-SWITCH®:

- $3 \times 380 - 500 \text{ V}$, 50 / 60 Hz



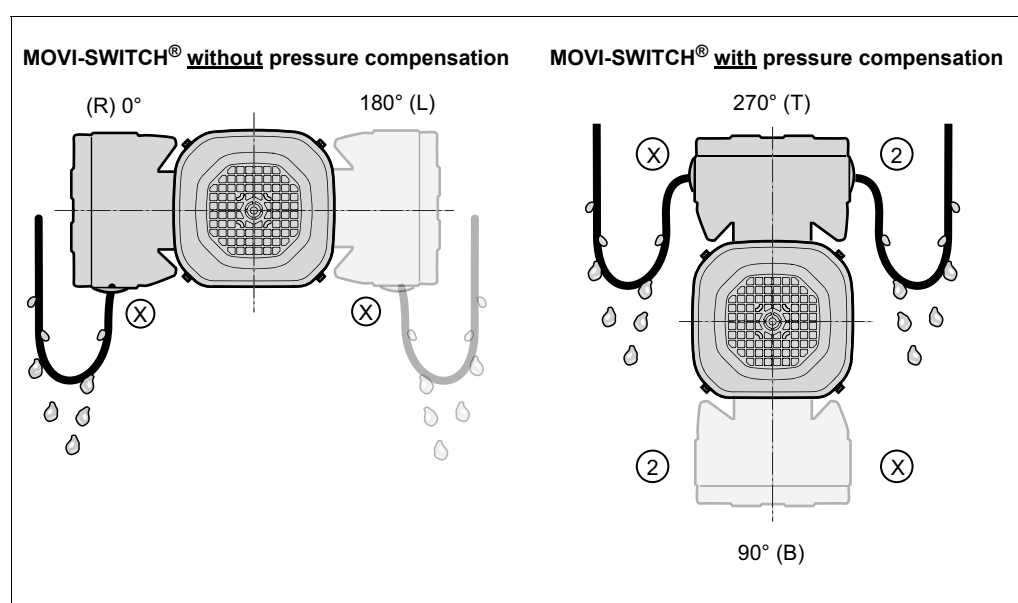
MOVI-SWITCH®-1E drives in degree of protection IP66

Characteristics

MOVI-SWITCH®-1E drives in enclosure IP66 are characterized by the following features:

- IP66 motor with condensation bore and corrosion protection
- IP66 terminal box with cable outlet on one end
- Stainless steel screw plugs with seal on inside
- Stainless steel retaining screws in terminal box cover
- Two metal cable glands (1 x M25 and 1 x M16, enclosed loose)
- Available with optional pressure compensation fitting (M16, enclosed loose)

Available designs



Drives	Type	Possible positions of the terminal box/cable entry
MOVI-SWITCH®-1E without pressure compensation fitting	D../MSW/AVS1/IP66	0°/X 180°/X
MOVI-SWITCH®-1E with pressure compensation fitting	D../MSW/AVS1/IP66	90°/ X 270°/X 90°/2 270°/2



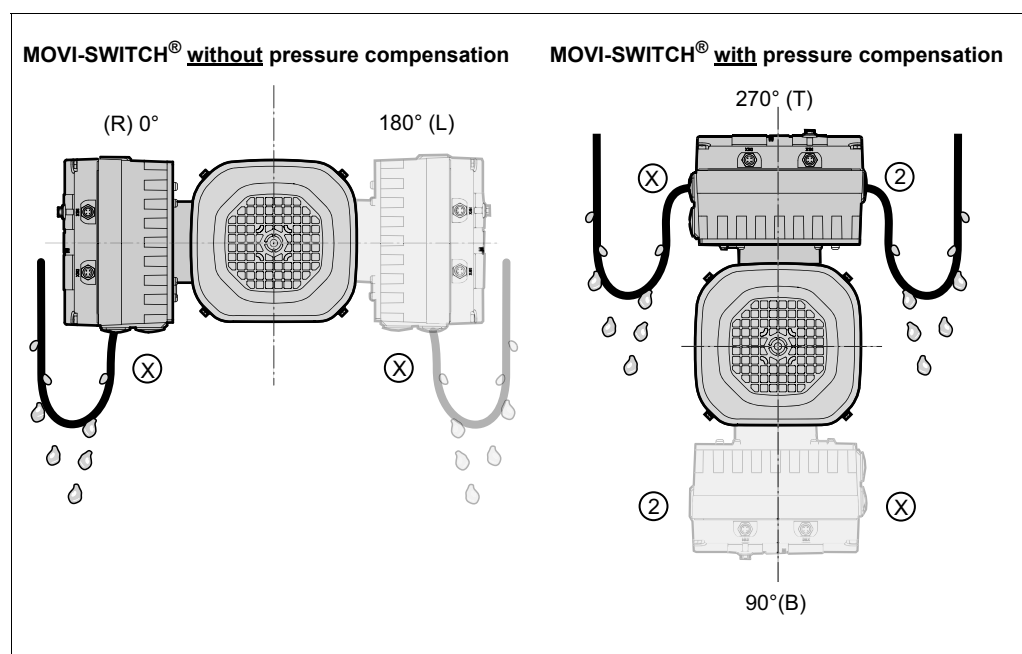
MOVI-SWITCH®-2S drives in degree of protection IP66

Characteristics

MOVI-SWITCH®-2S drives in enclosure IP66 are characterized by the following features:

- IP66 motor with condensation bore and corrosion protection
- IP66 terminal box with cable outlet on one end (.. /RA2A)
- Wiring board with increased resistance to moisture condensation (coated)
- Stainless steel screw plugs with seal on inside
- Stainless steel retaining screws in MSW control unit
- Two metal cable glands (1 x M25 and 1 x M16, enclosed loose)
- Available with optional pressure compensation fitting (M16, enclosed loose)

Available designs



Drives	Type	Possible positions of the terminal box/cable entry
MOVI-SWITCH®-2S without pressure compensation fitting	D../MSW/C../RA2A - IP66	0°/X 180°/X
MOVI-SWITCH®-2S with pressure compensation fitting	D../MSW/C../RA2A - IP66	90°/X 270°/X 90°/2 270°/2



Important information for ordering

Note the following points when ordering AC (brake) motors or gearmotors with MOVI-SWITCH®:

- Voltage for winding in star connection only
- Only two brake voltages are possible:
 - Motor voltage $/\sqrt{3}$ or
 - Motor voltage
- Position of the terminal box preferably 270°. Consult SEW-EURODRIVE for other positions.

MSW-1E

Connection
technology

Overview

MOVI-SWITCH®-1E is supplied with AVS1 plug connector for control signals if not specified otherwise in the order. The plug connectors listed in the following table are available as standard. For other types, please contact SEW-EURODRIVE.

Order designation	Function	Manufacturer designation
MSW../AVS1	Control signals	1 x round plug connector M12 x 1
MSW../AVS1/ASA3	Control signals Power	1 x round plug connector M12 x 1+ Harting Han® 10 ES pin element (built-on housing with 2 clips)
MSW../ASAW	Connection to field distributor Z.3V or Z.6V	Harting Han® 10 ES pin element (built-on housing with 2 clips)

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Possible plug con-
nector positions

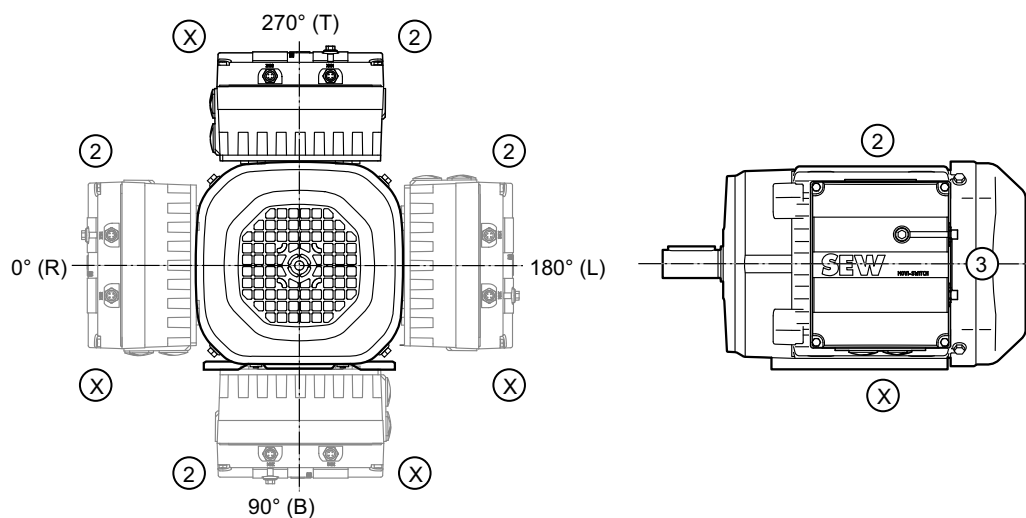
The following positions are possible for ASA3 and AVS1 plug connectors:

Plug connectors	Possible positions
AVS1	X (standard)
	2
	3
ASA3 ASAW	X (standard)
	2
	3
AVS1/ASA3	ASA3 = X (standard) + AVS1 = X (standard)
	ASA3 = 2 + AVS1 = 2
	ASA3 = 3 + AVS1 = 3
	ASA3 = X (standard) + AVS1 = 2
	ASA3 = 2 + AVS1 = X (standard)



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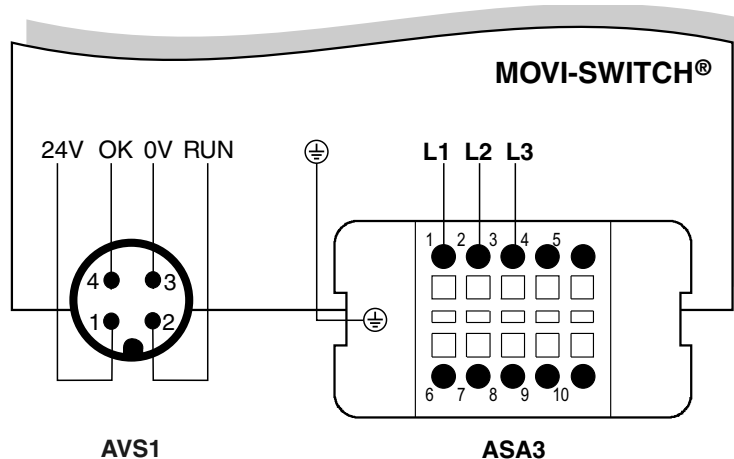
MOVI-SWITCH® project planning notes



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AVS1/ASA3 pin assignment

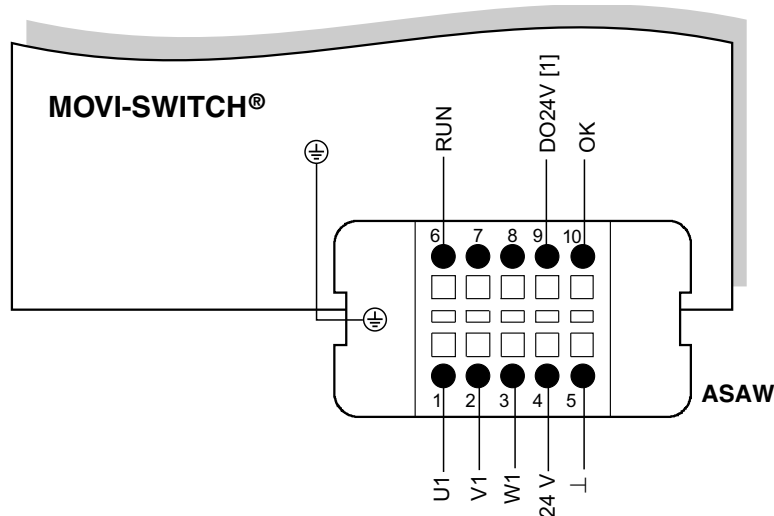
The following figure shows the assignment of the AVS1/ASA3 plug connectors:



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ASAW pin assignment

The following figure shows the assignment of the ASAW plug connector:



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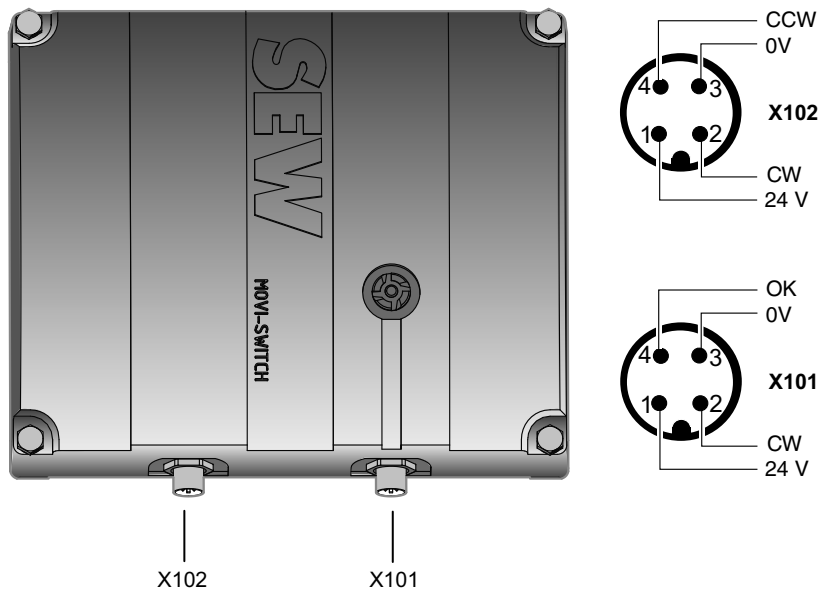
[1] Plug connector monitoring possible with suitable connection wiring



MSW-2S

Connection technology of CB0 design (binary control)

Standard version As standard, MOVI-SWITCH®-2S is equipped with two plug connectors for connecting control signals and 24 V supply. The plug connectors are integrated in the control unit, see the following figure.
Order designation of the standard design: MSW/CB0/RA2A.



Optional plug connectors

The following table shows the plug connectors in the terminal box that are available as option for MOVI-SWITCH®-2S (CB0 design). For other types, please contact SEW-EURODRIVE.

Order designation	Function	Manufacturer designation
MSW/.../ASA3	Power	Harting Han® 10 ES pin element (built-on housing with 2 clips)
MSW/.../AND3	Power	Harting Han® Q8/0 pin element (built-on housing with 1 clip)
MSW/.../ASAW	Connection to field distributor Z.3W or Z.6W	Harting Han® 10 ES pin element (built-on housing with 2 clips)

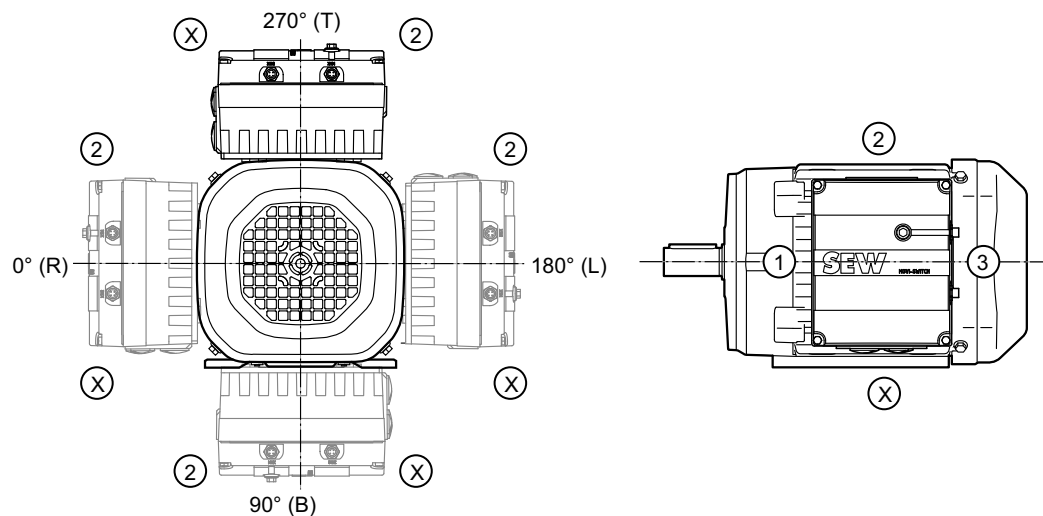


DR Series AC Motors with Decentralized Technology

MOVI-SWITCH® project planning notes

Possible plug connector positions

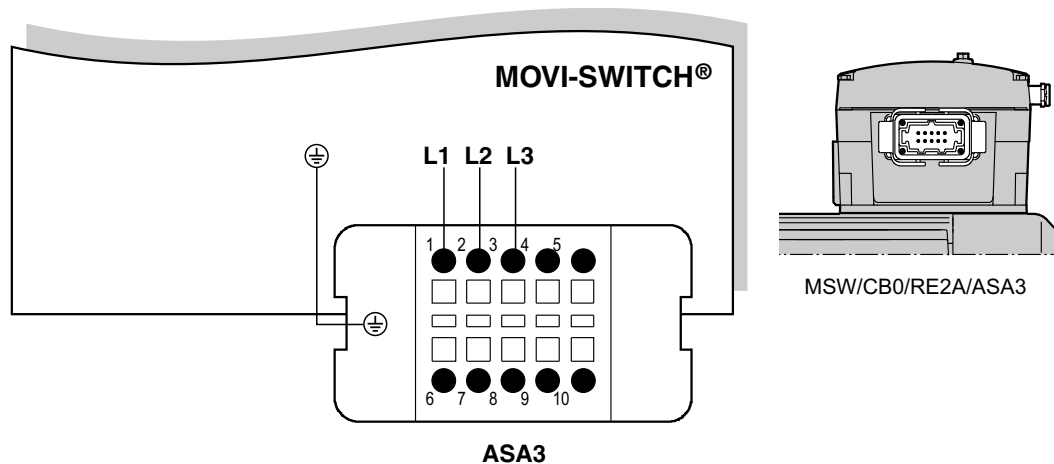
The positions shown in the following figure are possible for plug connectors. Some positions might not be possible for certain gear unit types and mounting positions (contact SEW-EURODRIVE).



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ASA3 pin assignment

The following figure shows the assignment of the ASA3 plug connector:



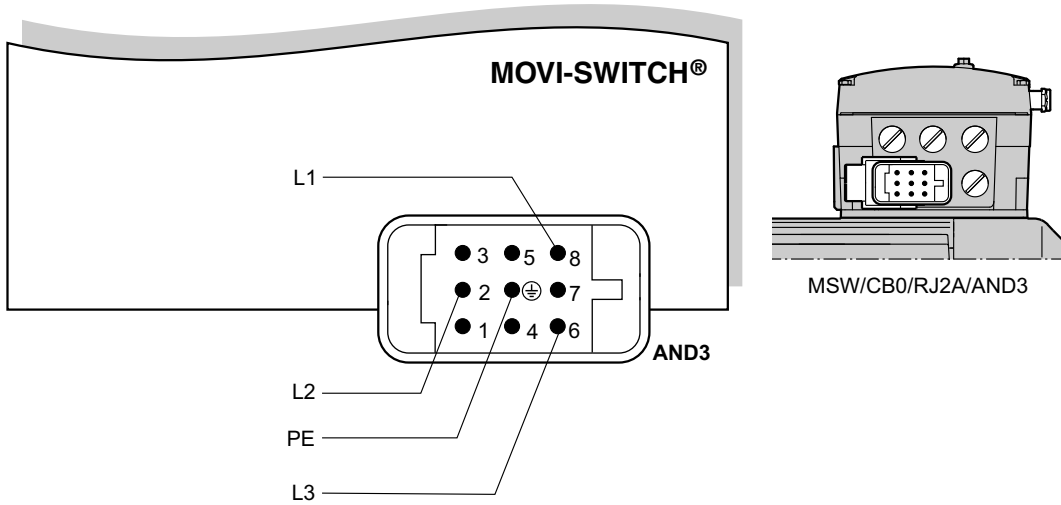
MSW/CB0/RE2A/ASA3

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AND3 pin
assignment

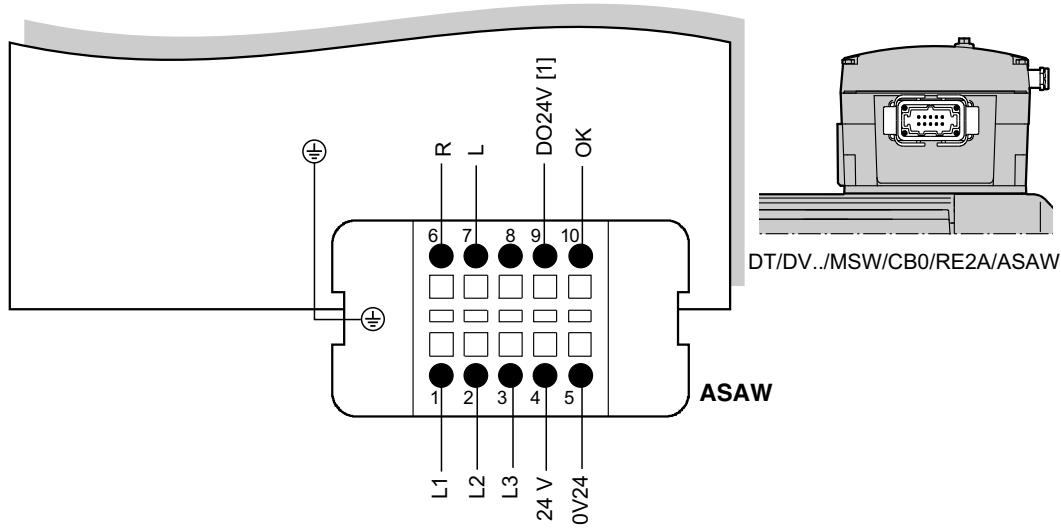
The following figure shows the assignment of the AND3 plug connector:



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ASAW pin
assignment

The following figure shows the assignment of the ASAW plug connector:



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[1] Plug connector monitoring possible with suitable connection wiring



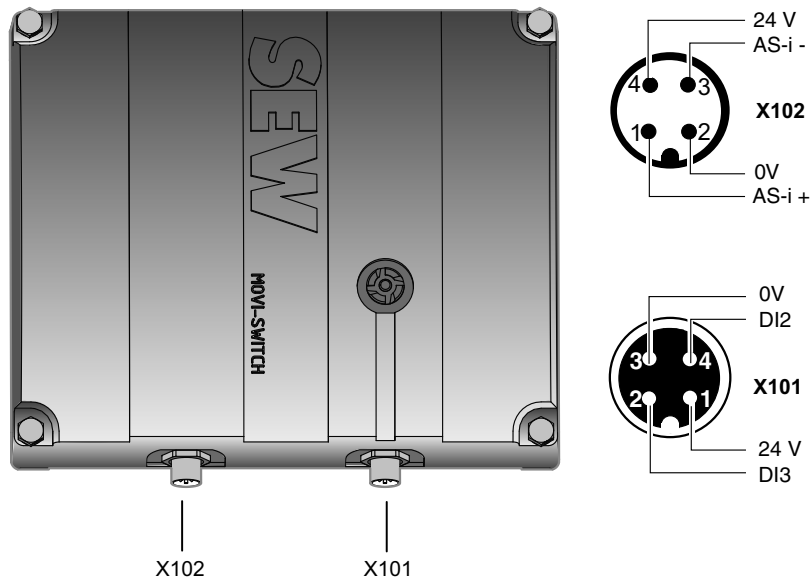
DR Series AC Motors with Decentralized Technology

MOVI-SWITCH® project planning notes

Connection technology of CK0 design (with integrated AS-Interface)

Standard version MOVI-SWITCH®-2S is equipped with 2 plug connectors for AS-Interface and digital inputs as standard. The plug connectors are integrated in the control unit, see the following figure.

Order designation of the standard design: MSW.



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Optional plug connectors

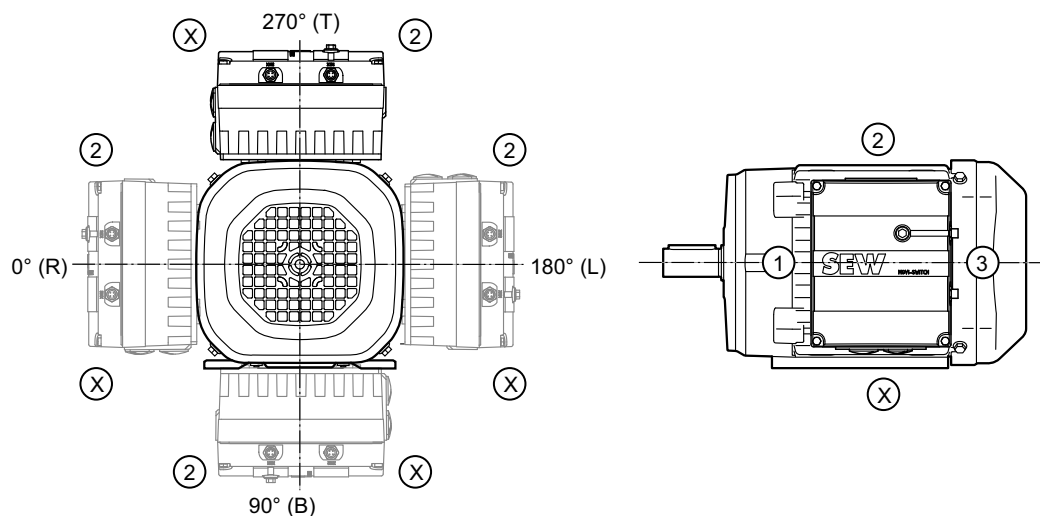
The following table shows the optional plug connectors in the terminal box that are available for MOVI-SWITCH®-2S (CK0 design). For other types, please contact SEW-EURODRIVE.

Order designation	Function	Manufacturer designation
MSW/.../ASA3/AVS0	Power + AUX PWR	Harting Han® 10 ES pin element (built-on housing with 2 clips) + 1 x round plug connector M12 x 1
MSW/.../AND3/AVS0	Power + AUX PWR	Harting Han® Q8/0 pin element (built-on housing with 1 clip) + 1 x round plug connector M12 x 1



Possible plug connector positions

The positions shown in the following figure are possible for plug connectors. Some positions might not be possible for certain gear unit types and mounting positions (contact SEW-EURODRIVE).

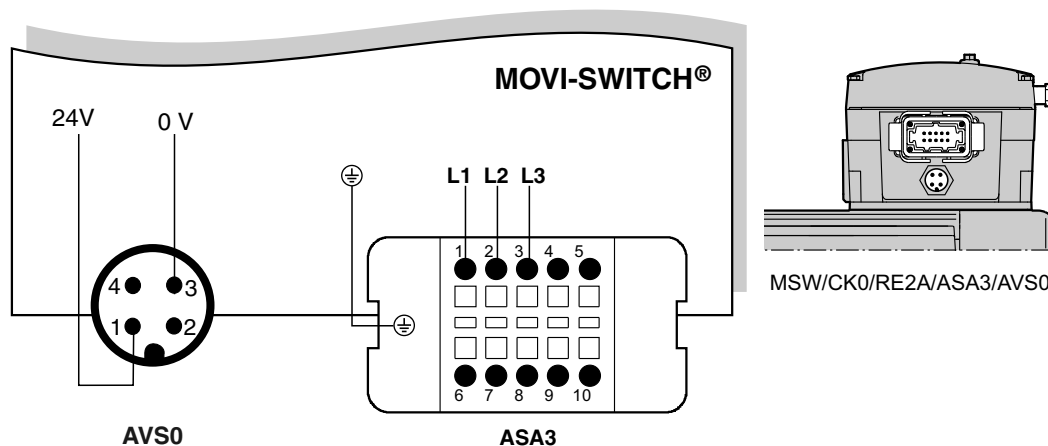


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Pin assignments

AVS0/ASA3 pin assignment

The following figure shows the assignment of the AVS0/ASA3 plug connectors:

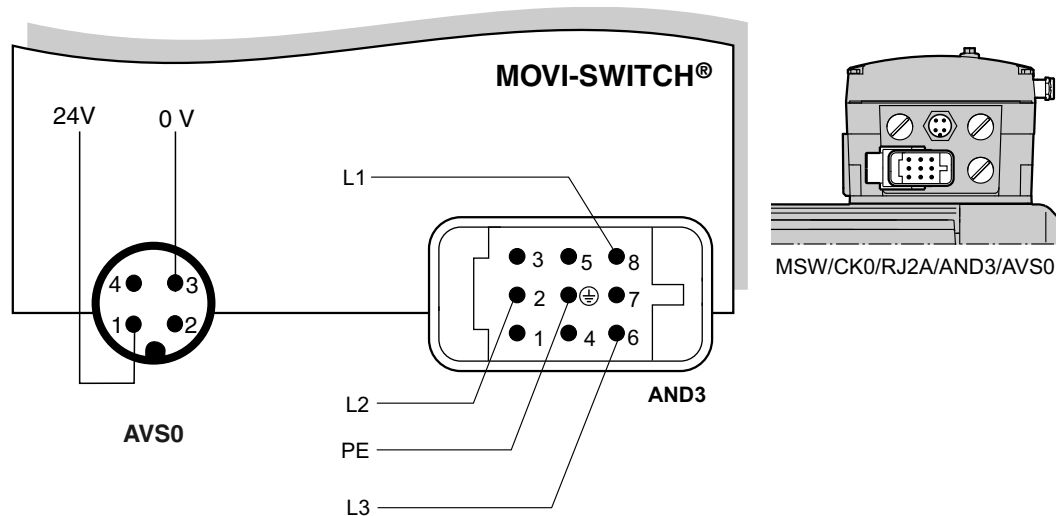


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AVS0/AND3 pin assignment

The following figure shows the assignment of the AVS0/AND3 plug connectors:



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11.3 Key to the data tables of energy-efficient motors with MOVI-SWITCH®

The following table lists the short symbols used in the "Technical Data" tables.

P_N	Rated power
M_N	Rated torque
n_N	Rated speed
I_N	Rated current
$\cos\phi$	Power factor
$\eta_{75\%}$	Efficiency at 75% of the rated power
$\eta_{100\%}$	Efficiency at 100% of the rated power
I_A/I_N	Starting current ratio
M_A/M_N	Starting torque ratio
M_H/M_N	Ramp-up torque ratio
m	Mass of the motor
J_{Mot}	Mass moment of inertia of the motor
BE..	Brake used
Z_0 BG	Switching frequency for operation with BG brake controller
Z_0 BGE	Switching frequency for operation with BGE brake controller
M_B	Braking torque
m_B	Mass of the brakemotor
J_{MOT_BE}	Mass moment of inertia of the brakemotor



DR Series AC Motors with Decentralized Technology

Technical data of MOVI-SWITCH®-1E/2S, 2-pole

11.4 Technical data of MOVI-SWITCH®-1E/2S, 2-pole

DRS: 3000 rpm - S1 IE1

Motor type DRS./MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRS71M2	0.55	1.87	2810	1.37	1.42	0.79	-	73.5 72.9	4.9	2.9 2.1	9.1	7.1
DRS80S2	0.75	2.55	2800	1.73	1.78	0.84	IE1	74.6 74.4	4.6	2.5 2.3	11.5	14.9
DRS80M2	1.1	3.7	2840	2.35	2.4	0.88	IE1	77.7 76.5	6	2.7 2.5	14.3	21.5
DRS90M2	1.5	5.1	2830	3.1	3.2	0.89	IE1	80 78.3	5.9	2.7 2.6	18.4	35.5
DRS90L2	2.2	7.4	2820	4.45	4.6	0.89	IE1	82.8 80.5	5.8	2.9 2.5	21.5	43.5
DRS100M2	3	10.1	2840	5.8	6	0.91	IE1	84.6 82.5	6.4	3.1 2.8	26	56

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRS.../FI..)

DRE: 3000 rpm - S1 IE2

Motor type DRE../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRE80M2	0.75	2.5	2890	1.54	1.6	0.89	IE2	79.2 79.2	7.9	3.4 3	14.3	21.5
DRE90M2	1.1	3.65	2870	2.2	2.3	0.89	IE2	82.2 81.2	7.2	3.2 3	18.4	35.5
DRE90M2	1.5	5.1	2830	2.95	3.05	0.89	IE2	83.5 81.8	5.9	2.7 2.6	18.4	35.5
DRE100M2	2.2	7.3	2880	4.15	4.3	0.91	IE2	85.6 84.5	8.2	3.8 3.3	26	56
DRE100L2	3	10.1	2850	5.5	5.7	0.93	IE2	87.4 85.6	7.2	3.5 3.1	29	68

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRE.../FI..)



Motor type DRS../MSW	BE..	Z_0 BG ¹⁾ BGE ²⁾ [1/h]	M_B [Nm] ³⁾	m_B [kg] ⁴⁾	J_{Mot_BE} [10 ⁻⁴ kgm ²]
DRS71M2	BE05	2000 4500	3.5	11.5	8.4
DRS80S2	BE05	1400 3300	5	14.2	16.4
DRS80M2	BE1	1300 3000	7	17.3	23
DRS90M2	BE1	1100 2700	10	22.5	37
DRS90L2	BE2	900 2200	14	26	48.5
DRS100M2	BE2	700 1800	20	30.5	61

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRS...BE../FI..)

Motor type DRE../MSW	BE..	Z_0 BG ¹⁾ BGE ²⁾ [1/h]	M_B [Nm] ³⁾	m_B [kg] ⁴⁾	J_{Mot_BE} [10 ⁻⁴ kgm ²]
DRE80M2	BE05	1300 3200	5	17	23
DRE90M2	BE1	1100 2700	10	22.5	37
DRE90M2	BE1	1100 2700	10	22.5	37
DRE100M2	BE2	700 1800	14	30.5	61
DRE100L2	BE2	450 1000	20	33.5	73

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRE...BE../FI..)



DR Series AC Motors with Decentralized Technology

Technical data of MOVI-SWITCH®-1E/2S, 2-pole

DRP: 3000 rpm - S1 IE3

Motor type DRP../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRP80M2	0.75	2.5	2890	1.46	1.51	0.89	IE3	83.2 83.2	7.9	3.4 3	14.3	21.5
DRP90M2	1.1	3.65	2870	2.1	2.2	0.89	IE3	84.7 83.7	7.2	3.2 3	18.4	35.5
DRP100M2	1.5	4.95	2890	2.65	-	0.93	IE3	87.9 87.1	8.7	3.8 3.3	26	56
DRP100M2	2.2	7.3	2880	4	-	0.91	IE3	87.8 86.7	8.2	3.8 3.3	26	56
DRP100LC2	3	9.8	2920	5.5	-	0.9	IE3	88 87.1	9.1	3 2.4	31	90

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRP.../FI..)



Motor type DRP../MSW	BE..	Z_0 BG ¹⁾ BGE ²⁾ [1/h]	M_B [Nm] ³⁾	m_B [kg] ⁴⁾	J_{Mot_BE} [10 ⁻⁴ kgm ²]
DRP80M2	BE05	1300 3200	5	17	23
DRP90M2	BE1	1100 2700	7	22.5	37
DRP100M2	BE2	700 1800	14	30.5	61
DRP100M2	BE2	700 1800	14	30.5	61
DRP100LC2	BE2	300 700	20	36	95

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRP...BE../FI..)



11.5 Technical data of MOVI-SWITCH®-1E/2S, 4-pole

DRS: 1500 rpm - S1 IE1

Motor type DRS../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRS71S4	0.37	2.55	1380	1.14	1.24	0.7	-	65.3 66.6	3.5	1.8 1.8	7.8	4.9
DRS71M4	0.55	3.8	1380	1.55	1.62	0.72	IE1	71.9 70.6	3.6	2.1 2.1	9.1	7.1
DRS80S4	0.75	5.1	1400	1.8	1.82	0.81	IE1	76.6 75.3	4.3	1.9 1.9	11.5	14.9
DRS80M4	1.1	7.4	1410	2.40	2.50	0.84	IE1	78.6 77	5.1	2.2 1.7	14.3	21.5
DRS90M4	1.5	10.3	1395	3.30	3.40	0.82	IE1	82 79.6	5.0	2.3 2.0	18.4	35.5
DRS90L4	2.2	15	1400	4.85	4.95	0.81	IE1	83.1 81.1	5.1	2.5 2.2	21.5	43.5
DRS100M4	3	20.5	1400	6.4	6.5	0.82	IE1	84.7 82.4	5.3	2.8 2.4	26	56

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRS../FI..)

DRE: 1500 rpm - S1 IE2

Motor type DRE../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRE80M4	0.75	5.0	1435	1.68	1.75	0.79	IE2	81.3 81	6.2	2.8 2.1	14.3	21.5
DRE90M4	1.1	7.4	1420	2.45	2.55	0.79	IE2	83.5 82.4	5.9	2.8 2.3	18.4	35.5
DRE90L4	1.5	10	1430	3.35	3.45	0.77	IE2	84.7 84	6.6	3.2 2.8	21.5	43.5
DRE100M4	2.2	14.7	1425	4.6	4.7	0.80	IE2	86.7 85.4	6.4	3.3 2.7	26	56
DRE100LC4	3	19.7	1455	6.2	6.3	0.81	IE2	87.1 86.3	7.5	2.7 2.4	31	90
DRE112M4	3	19.7	1455	6	6.2	0.83	IE2	87.4 86.5	7.3	2.4 2	41.5	146

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRE../FI..)



Motor type DRS../MSW DRS../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m _B [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRS71S4	BE05	6000 9500	5	10.2	6.2
DRS71M4	BE1	4100 11000	10	11.7	8.4
DRS80S4	BE1	3500 9000	10	14.5	16.4
DRS80M4	BE2	3500 9000	14	18	26
DRS90M4	BE2	2900 7500	20	23	40
DRS90L4	BE5	- 5600	40	27.5	49.5
DRS100M4	BE5	- 8500	40	32	62

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRS...BE../FI..)

Motor type DRE../MSW DRE../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m _B [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRE80M4	BE1	3500 9000	10	17.3	23
DRE90M4	BE2	3000 8000	14	23	40
DRE90L4	BE2	3000 8000	20	26	48.5
DRE100M4	BE5	- 8000	28	32	62
DRE100LC4	BE5	- 3800	40	37	96
DRE112M4	BE5	- 3100	40	50	151

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRE...BE../FI..)



DR Series AC Motors with Decentralized Technology

Technical data of MOVI-SWITCH®-1E/2S, 4-pole

DRP: 1500 rpm - S1 IE3

Motor type DRP../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRP90M4	0.75	4.95	1450	1.81	1.86	0.72	IE3	82.7 83.3	7.3	3.7 3.1	18.4	35.5
DRP90L4	1.1	7.3	1440	2.4	2.5	0.78	IE3	86.0 85.3	6.8	3.2 2.7	21.5	43.5
DRP100M4	1.5	9.9	1440	3.2	3.3	0.79	IE3	87.2 86.6	7.4	3.6 3.1	26	56
DRP100L4	2.2	14.6	1440	4.75	4.85	0.77	IE3	87.5 87.1	7.7	4.1 3.2	29	68
DRP112M4	3	19.7	1455	6	6.2	0.82	IE3	88.7 88	7.3	2.4 2	41.5	146

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRP.../FI..)



Motor type DRP../MSW DRP../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRP90M4	BE1	2900 7500	10	22.5	37.0
DRP90L4	BE2	2300 5600	14	26	48.4
DRP100M4	BE2	1800 8500	20	30.5	61
DRP100L4	BE5	- 7600	28	35	74
DRP112M4	BE5	- 3100	40	50	151

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRP...BE../FI..)



11.6 Technical data of MOVI-SWITCH®-1E/2S, 6-pole

DRS: 1000 rpm - S1 IE1

Motor type DRS../MSW	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRS71S6	0.25	2.65	895	0.83	0.86	0.7	-	61.4 62.2	2.7	1.7 1.7	7.8	4.9
DRS71M6	0.37	3.9	905	1.13	1.16	0.71	-	66.4 66.5	3.1	1.9 1.9	9.1	7.1
DRS80S6	0.55	5.7	915	1.64	1.66	0.71	-	68.2 67.9	3.4	1.8 1.8	11.5	14.9
DRS80M6	0.75	7.8	915	2.15	2.15	0.71	IE1	71.6 70.7	3.6	2 1.9	14.3	21.5
DRS90L6	1.1	11.3	930	3.1	3.15	0.68	IE1	76.3 75	4.2	2.3 2.3	21.5	43.5
DRS100M6	1.5	15.5	925	4.25	4.25	0.68	IE1	77.3 75.7	4.2	2.7 2.7	26	56
DRS112M6	2.2	22	955	5.4	5.5	0.74	IE1	80.5 79.3	5.5	2.1 1.8	41.5	146
DRS112M6	3	30.5	945	7	7.2	0.76	IE1	83 81	5.1	1.9 1.6	41.5	146

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRS../FI..)

DRE: 1000 rpm - S1 IE2

Motor type DRE../MSW DRE../MSW/C.0	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRE90L6	0.75	7.6	940	2.15	2.2	0.65	IE2	77.8 77.2	4.6	2.4 2.4	21.5	43.5
DRE100M6	1.1	11.2	940	3.1	3.15	0.64	IE2	79.4 78.7	4.7	3 2.9	26	56
DRE100L6	1.5	15.2	940	4	4.05	0.66	IE2	81.5 80.9	5	3.3 3.1	29	68
DRE112M6	2.2	22	955	5.2	5.3	0.74	IE2	84.2 83	5.5	2.1 1.8	41.5	146
DRE132S6	3	30	955	6.8	7	0.74	IE2	85.8 84.4	5.5	2.3 2.1	46.5	190

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRE../FI..)



Motor type DRS../MSW DRS../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m _B [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRS71S6	BE05	7000 16000	5	10.2	9.4
DRS71M6	BE1	6600 15000	10	11.7	13
DRS80S6	BE2	6000 14000	14	15.2	19.4
DRS80M6	BE2	4300 10000	20	18	26
DRS90L6	BE5	3500 8000	28	27.5	49.5
DRS100M6	BE5	- 7000	40	32	62
DRS112M6	BE11	- 4000	80	56	156
DRS112M6	BE11	- 3600	80	56	156

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor (DRS...BE../FI..)

Motor type DRE../MSW DRE../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m _B [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRE90L6	BE2	3500 8000	20	26	48
DRE100M6	BE5	- 7000	28	32	62
DRE100L6	BE5	- 6000	40	35	74
DRE112M6	BE5	- 4000	55	50	150
DRE132S6	BE11	- 3500	80	61	199

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor with brake (DRE...BE../FI..)



DR Series AC Motors with Decentralized Technology

Technical data of MOVI-SWITCH®-1E/2S, 6-pole

DRP: 1000 rpm - S1 IE3

Motor type DRP../MSW DRP../MSW/C.0	P _N [kW]	M _N [Nm]	n _N [rpm]	I _N 400 V [A]	I _N 380-420 V [A]	cosφ	IE class	η _{75%} η _{100%} [%] ¹⁾	I _A /I _N	M _A /M _N M _H /M _N	m [kg] ²⁾	J _{Mot} [10 ⁻⁴ kgm ²]
DRP90L6	0,75	7.6	940	2.05	- ³⁾	0.65	IE3	80 79.5	4,6	2,4 2.4	21.5	43.5
DRP100L6	1,1	11,1	950	3,1	- ³⁾	0.63	IE3	82.4 82.4	5,3	3,6 3.1	29	68
DRP112M6	1.5	14.8	965	3.5	- ³⁾	0.7	IE3	86.1 85.8	6.2	2.4 1.7	41.5	145
DRP132S6	2.2	22	965	5.1	- ³⁾	0.72	IE3	86.5 85.6	6	2.5 2.2		188

1) Efficiency levels according to IEC 60034-2-1 Ed.1 (2007) / PLL from Residual Losses

2) Applies for foot-mounted motor (DRP.../Fl...)

3) In preparation



Motor type DRP../MSW DRP../MSW/C.0	BE..	Z ₀ BG ¹⁾ BGE ²⁾ [1/h]	M _B [Nm] ³⁾	m _B [kg] ⁴⁾	J _{Mot_BE} [10 ⁻⁴ kgm ²]
DRP90L6	BE2	3500 8000	20	26	48.5
DRP100L6	BE5	- 6000	28	35	74
DRP112M6	BE5	- 4000	40	50	151
DRP132M6	BE5	- 3500	55		195

- 1) Operation with BG brake control system
- 2) Operation with BGE brake control system
- 3) Standard braking torque for IEC brakemotor
- 4) Applies for foot-mounted motor with brake (DRP...BE../Fl..)



11.7 Notes on the dimension sheets

Observe the following notes regarding dimension sheets for 4-pole DR series AC motors:

- The collective term IV (= industrial plug connectors) in the dimension sheets includes the plug connectors AC..., AS..., AM... and AB.
- Leave a clearance of at least half the fan guard diameter to provide unhindered air access.

Software support

Not any cable entry position [X, 1, 2, 3] and terminal box position [0°(R), 90°(B), 180°(L), 270°(T)] can be chosen. Some additional features for the motor require a connection inside the terminal box, which means this terminal box is larger than the standard terminal box due to the normative air gaps and creepage distances. The dimension sheets only depict the standard terminal box.

For a thorough check of the possible positions of your drive, you can use the DRIVECAD software in DriveGate on the SEW-EURODRIVE website.

- If you are already a registered DriveGate user: <https://portal.drivegate.biz/drivecad>.
- If you are not yet a registered DriveGate user: www.sew-eurodrive.de: DriveGate login.

Tolerances

Shaft heights

The following tolerances apply to the indicated dimensions:

h	≤ 250 mm	→ -0.5 mm
h	> 250 mm	→ -1 mm

Shaft ends

Diameter tolerance:

Ø	≤ 28 mm	→ ISO j6
Ø	≤ 50 mm	→ ISO k6
Ø	> 50 mm	→ ISO m6

Center bores according to DIN 332, shape DR:

Ø	= 7 - 10 mm	→ M3	Ø	> 30 - 38 mm	→ M12
Ø	> 10 - 13 mm	→ M4	Ø	> 38 - 50 mm	→ M16
Ø	> 13 - 16 mm	→ M5	Ø	> 50 - 85 mm	→ M20
Ø	> 16 - 21 mm	→ M6	Ø	> 85 - 130 mm	→ M24
Ø	> 21 - 24 mm	→ M8	Ø	> 130 mm	→ M30
Ø	> 24 - 30 mm	→ M10			

Keys: according to DIN 6885 (domed type)

Flanges

Centering shoulder tolerance:

Ø	≤ 230 mm (flange sizes A120 – A300)	→ ISO j6
Ø	> 230 mm (flange sizes A350 – A660)	→ ISO h6

Different flange dimensions are available for each AC (brake) motor size. The respective dimension drawings will show the flanges approved for each size.



Eyebolts, lifting eyes Motors up to DR.100 are delivered without special transportation fixtures.
Motors $\geq$ DR.112 are equipped with removable lifting eye bolts.

Motor dimensions

Motor options The motor dimensions may change when installing motor options. Refer to the dimension drawings of the motor options.

Special designs The terminal box dimensions in special designs might vary from the standard.

EN50347 European standard EN50347 became effective in August 2001. This standard adopts the dimension designations for three-phase AC motors for sizes 56 to 315M and flange sizes 65 to 740 from the IEC72-1 standard.
The new dimension designations according to EN50347/IEC72-1 are used for the relevant dimensions in the dimension sheet tables.

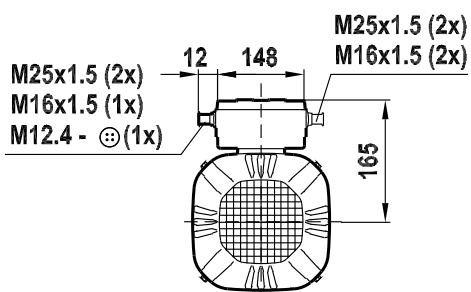
Notes on the dimension sheets of the DRL motors

Special designs The DRL motor dimension sheets show the standard motors. For other designs, please refer to the dimension sheets of the DR. series AC motors.

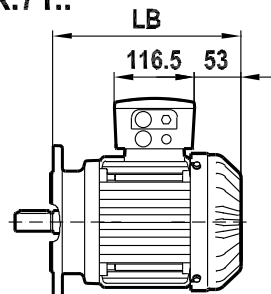


11.8 Dimension sheets of DR. series AC motors with MOVI-SWITCH®

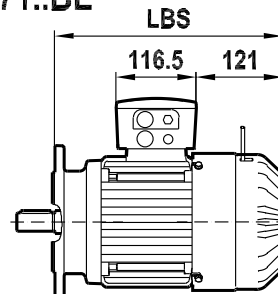
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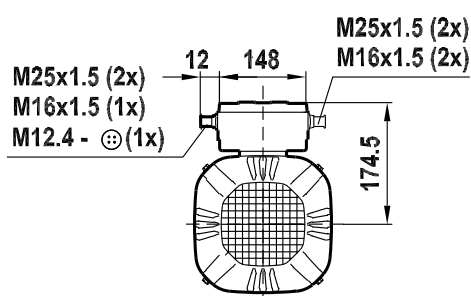
DR.71..



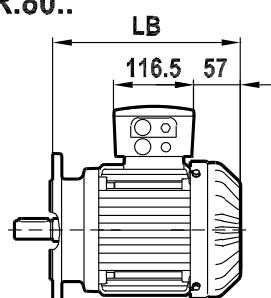
DR.71..BE



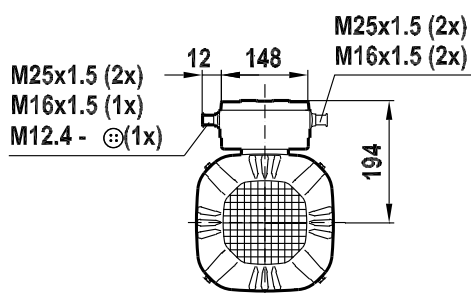
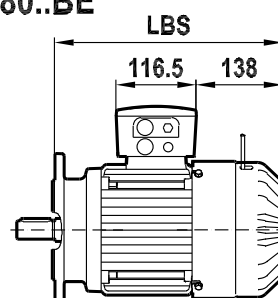
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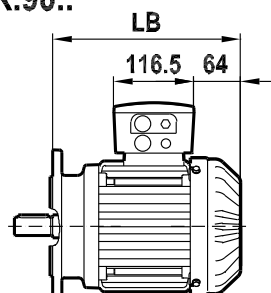
DR.80..



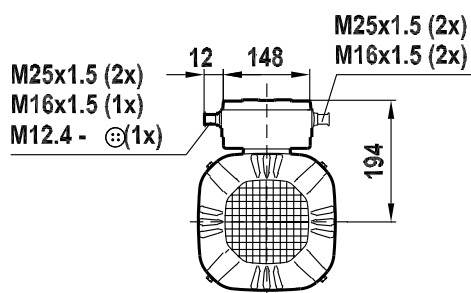
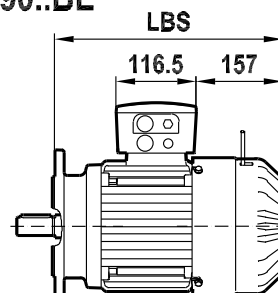
DR.80..BE



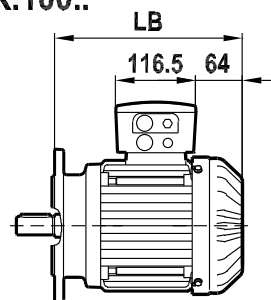
DR.90..



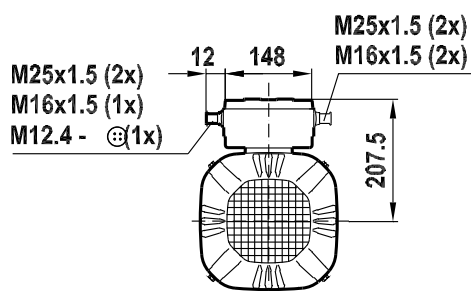
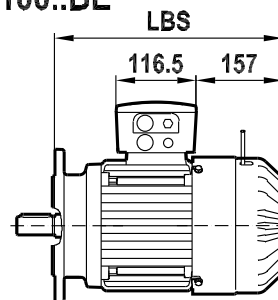
DR.90..BE



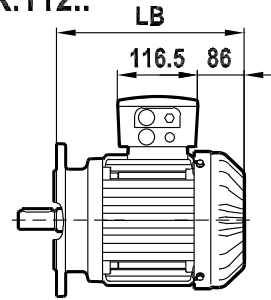
DR.100..



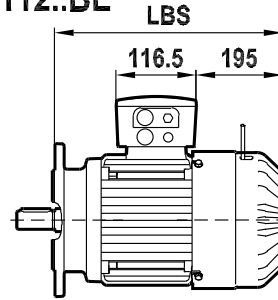
DR.100..BE



DR.112..

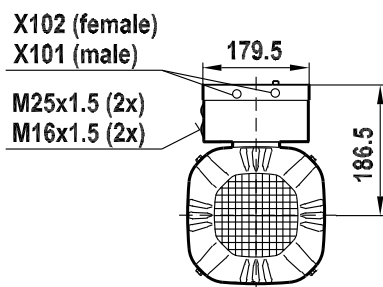


DR.112..BE

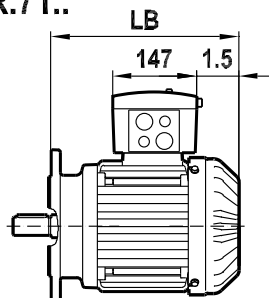




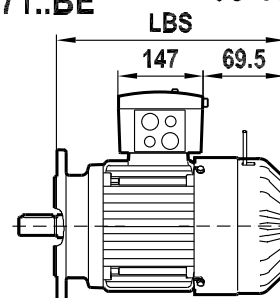
MSW-2S



DR.71..

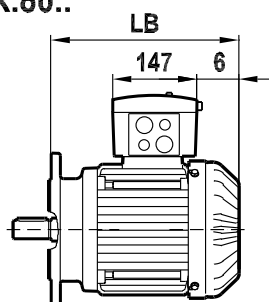


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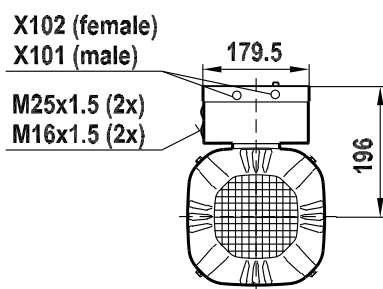
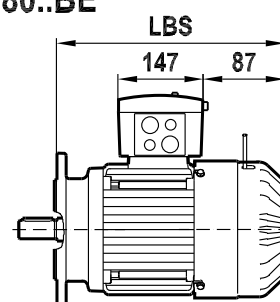


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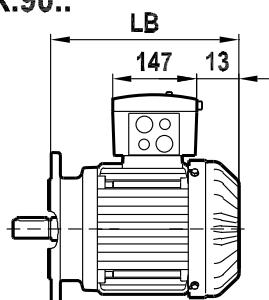
DR.80..



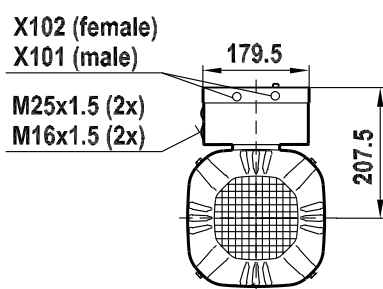
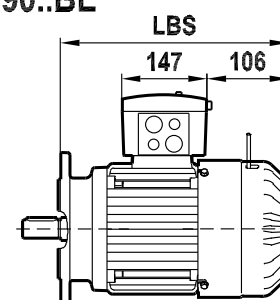
DR.80..BE



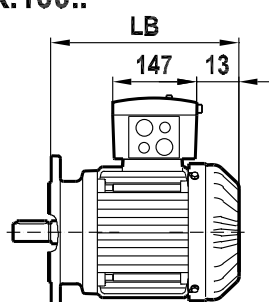
DR.90..



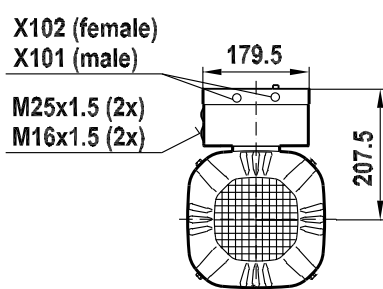
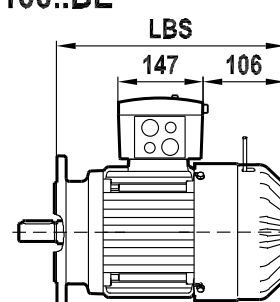
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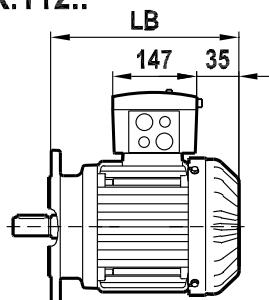
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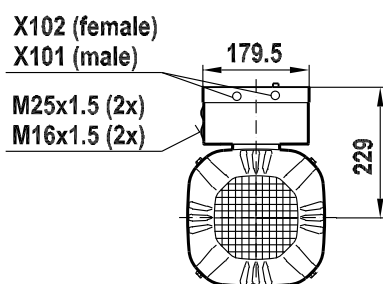
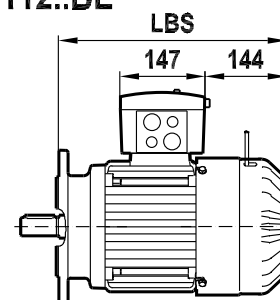
DR.100..BE



DR.112..



DR.112..BE





11.9 MOVIMOT® product description

MOVIMOT® version D

Unit designation /MM03 - /MM40

Description MOVIMOT®, the combination of the new AC (brake)motors DRS, DRE and DRP and a new digital frequency inverter, is available in the power range 0.37 – 4.0 kW. Especially decentralized drive tasks can be solved easily and economically.

MOVIMOT® is the ideal solution for a variety of decentralized drive tasks.

The following functional description provides an overview of the most important features:

- Power range from 0.37 to 4 kW.
- Voltage range: 3 x 380 - 500 V.
- Frequency inverter with vector-oriented motor control.
- Application-specific parameter setting is possible.
- Pluggable parameter memory for data backup.
- Comprehensive protection and monitoring functions.
- Low-noise thanks to PWM switching frequency 16 kHz.
- Status LED for fast diagnostics.
- Diagnostic interface with plug connector as standard.
- Diagnostics and manual operation using SEW MotionStudio.
- 4-quadrant operation as standard.
- Integrated brake management:
 - For motors with mechanical brake, the brake coil is used as braking resistor.
 - For motors without brake, MOVIMOT® is supplied with internal braking resistor as standard.
- Control takes place either via binary signals, via the serial interface RS-485 or optionally via AS-Interface or all common fieldbus interfaces (PROFIBUS, PROFI-safe, INTERBUS, DeviceNet, CANopen).
- MOVIMOT® can be supplied with UL approval (UL listed) on request.

Advantages of MOVIMOT®

MOVIMOT® offers the following advantages:

- Low total volume.
- Interference-free connection between inverter and motor.
- Closed design with integrated protection functions.
- Inverter cooling independent of the motor speed.
- No space required in the control cabinet.
- Optimum default settings of the parameters for the expected applications.
- Compliance with EMC standards EN 50 081 (interference suppression level A) and EN 50 082.
- Easy installation, startup and maintenance.
- Easy to service for retrofitting and replacement.



MOVIMOT® can be used to equip extensive systems in a modular manner or can be integrated into existing systems. MOVIMOT® is also the electronic replacement for pole-changing motors or mechanical variable speed drives.

MOVIMOT® is available as motor, brakemotor, gearmotor or geared brakemotor in many different standard variants and mounting positions.

MOVIMOT® options

/MO

MOVIMOT® can be supplemented by many different options.

/MO in the unit designation is used no matter whether one or several of the following options is used.

Designation	Description
BEM	Brake controller
URM	Voltage relay
MLU13A	Internal DC 24 V voltage supply (380 - 500 V)
MNF11A	Internal line filter option (MM03 - MM15)
MLU11A	DC 24 V voltage supply (380 - 500 V)
MLU21A	DC 24 V voltage supply (200 - 240 V)
MLG11A	Setpoint generator DC 24 V voltage supply (380 - 500 V)
MLG21A	Setpoint generator DC 24 V voltage supply (200 - 240 V)
MFP...	PROFIBUS interface
MFI...	INTERBUS interface
MFD...	DeviceNet interface
MFO...	CANopen interface

For detailed information and project planning notes on the MOVIMOT® options, refer to the "Drive Systems for Decentralized Installation" manual and the "MOVIMOT® Gearmotors" catalog.

Motor identification for MOVIMOT®

/MI

Each MOVIMOT® contains a motor identification module (DIM) for easy and fast startup. The DIM is included in the scope of delivery of the MOVIMOT® motor or MOVIMOT® gearmotor.

If a DR. motor / brakemotor is ordered without MOVIMOT®, a DIM can be supplied for the DR. motor according to its energy efficiency class. The DIM is attached in the standard terminal box of the DR. motor or DR...BE brakemotor. In the unit designation of the DR. motor / brakemotor, the DIM is indicated by /MI.



11.10 Project planning, technical data for MOVIMOT®

MOVIMOT®

/MM03 - /MM40

Note the following points during project planning for MOVIMOT® AC motors:

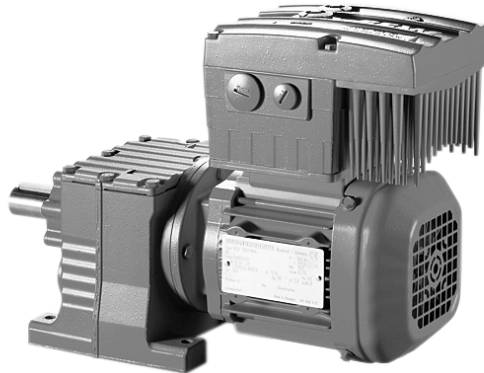
- The suitable MOVIMOT® gearmotor is selected with regard to the speed, power, torque and spatial conditions of the application (see the selection tables in the "MOVIMOT® Gearmotors" catalog/price catalog).
- For detailed project planning information, technical data and information on the communication of MOVIMOT® via fieldbus interfaces or RS-485, refer to the relevant publications for "Decentralized Installation" (MOVIMOT®, MOVI-SWITCH®, communication and supply interfaces).
- The options are selected depending on the type of control.
- MOVIMOT® can be used for hoist applications with restrictions only. Please contact SEW-EURODRIVE to inquire about suitable solutions with MOVITRAC®, MOVIFIT® or MOVIDRIVE®.

Technical data of MOVIMOT®

/MM03 - /MM40

For detailed information about MOVIMOT®, refer to the "MOVIMOT® Gearmotors" catalog.

MOVIMOT® gearmotor:



11851axxf

- Available power range: 0.37 – 4.0 kW
- Supply voltages: 3 x 380 - 500 V, 50 / 60 Hz 3 x 200 - 240 V, 50/60 Hz (up to 2.2 kW)
- Rated speeds: 1400, 1700 and 2900 rpm