SEW EURODRIVE

Operating instructions

ECDriveS®

ECC-DBC Binary Control, ECR Roller Drive , ECG Gearmotor

Edition 11/2018

28507088/EN

Table of contents

28507088/EN – 11/2018

28507088/EN – 11/2018

1 General information

1.1 About this documentation

The current version of the documentation is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the systems and their operation as well as persons who work on the product independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

1.2 Information on this documentation

This documentation describes the ECDriveS® roller drive system.

This document shows how to install and connect the ECR roller drive/ECG roller gearmotor and how to start up the roller drive system with the ECC-DBC binary control.

1.3 Structure of the safety notes

1.3.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety notes.

Signal word	Meaning	Consequences if disregarded
⚠ **DANGER**	Imminent hazard	Severe or fatal injuries
⚠ **WARNING**	Possible dangerous situation	Severe or fatal injuries
⚠ **CAUTION**	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the product or its environment
INFORMATION	Useful information or tip: Simplifies handling of the product.	

1.3.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:

SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

28507088/EN – 11/2018

Meaning of the hazard symbols

The hazard symbols in the safety notes have the following meaning:

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning of automatic restart

1.3.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

⚠ **SIGNAL WORD** Type and source of hazard. Possible consequence(s) if disregarded. Measure(s) to prevent the hazard.

28507088/EN – 11/2018

1.4 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.5 Other applicable documentation

Observe the corresponding documentation for all further components.

1.6 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

1.7 Copyright notice

28507088/EN – 11/2018

2 Safety notes

2.1 Preliminary information

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

2.2 Duties of the user

As the user, you must ensure that the basic safety notes are observed and complied with. Make sure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it.

As the user, you must ensure that all of the work listed in the following is carried out only by qualified specialists:

- Setup and installation
- Installation and connection
- Startup
- Maintenance and repairs
- Shutdown
- Disassembly

Ensure that the persons who work on the product pay attention to the following regulations, conditions, documentation, and information:

- National and regional safety and accident prevention regulations
- Warning and safety signs on the product
- All other relevant project planning documents, installation and startup instructions, and wiring diagrams
- Do not assemble, install or operate damaged products
- All system-specific specifications and conditions

Ensure that systems in which the product is installed are equipped with additional monitoring and protection devices. Observe the applicable safety regulations and legislation governing technical work equipment and accident prevention regulations.

2.3 Target group

Specialist for mechanical work

Any mechanical work may only be performed by adequately qualified specialists. Specialists in the context of this documentation are persons familiar with the design, mechanical installation, troubleshooting, and maintenance of the product who possess the following qualifications:

- Qualification in the mechanical area in accordance with the national regulations
- Familiarity with this documentation

28507088/EN – 11/2018

Specialist for electrotechnical work

Any electrotechnical work may only be performed by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons familiar with electrical installation, startup, troubleshooting, and maintenance of the product who possess the following qualifications:

- Qualification in the electrotechnical area in accordance with the national regulations
- Familiarity with this documentation

Additional qualification

In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation. The persons must have the express authorization of the company to operate, program, parameterize, label, and ground units, systems, and circuits in accordance with the standards of safety technology.

Instructed persons

All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately. The purpose of the instruction is that the persons are capable of performing the required tasks and work steps in a safe and correct manner.

2.4 Designated use

The product is intended for installation in electrical plants or machines.

In case of installation in electrical systems or machines, startup of the product is prohibited until it is determined that the machine meets the requirements stipulated in the local laws and directives. For Europe, Machinery Directive 2006/42/EC as well as the EMC Directive 2014/30/EU apply. Observe EN 60204-1 (Safety of machinery -– electrical equipment of machines).

The standards given in the declaration of conformity apply to the product.

The product is designed for stationary use.

Technical data and information on the connection conditions are provided on the nameplate and in chapter "Technical data" in the documentation. Always comply with the data and conditions.

Unintended or improper use of the product may result in severe injury to persons and damage to property.

2.5 Functional safety technology

The product must not perform any safety functions without a higher-level safety system, unless explicitly allowed by the documentation.

28507088/EN – 11/2018

2.6 Transport

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product is damaged, it must not be assembled, installed or started up.

Observe the following notes when transporting the device:

- Ensure that the product is not subject to mechanical impact.
- Before transportation, cover the connections with the supplied protection caps.
- Only place the product on the cooling fins or on the side without connectors during transportation.
- Always use lifting eyes if available.

If necessary, use suitable, sufficiently dimensioned handling equipment.

Observe the information on climatic conditions in chapter "Technical data" of the documentation.

2.7 Installation/assembly

Ensure that the product is installed and cooled according to the regulations in the documentation.

Protect the product from strong mechanical strain. The product and its mounting parts must never protrude into the path of persons or vehicles. Ensure that components are not deformed and insulation spaces are not changed, particularly during transportation and handling. Electric components must not be mechanically damaged or destroyed.

Observe the notes in chapter "Mechanical installation" (→ 🗎 17) in the documentation.

2.7.1 Restrictions of use

The following applications are prohibited unless explicitly permitted:

- Use in potentially explosive areas
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, and radiation
- Operation in applications with impermissibly high mechanical vibration and shock loads in excess of the regulations stipulated in EN 61800-5-1
- Use at an elevation of more than 1000 m above sea level

2.8 Electrical installation

Ensure that all of the required covers are correctly attached after carrying out the electrical installation.

Make sure that preventive measures and protection devices comply with the applicable regulations (e.g. EN 60204-1 or EN 61800-5-1).

2.8.1 Required preventive measure

Use the drive system only in systems that comply with the requirements of protection class 3 according to EN 61140, e.g. SELV.

28507088/EN – 11/2018

2.9 Startup/operation

Observe the safety notes in the chapters "Startup" (→ 🗎 26) and "Operation" (→ 🗎 30) in the documentation.

Ensure that all required covers are mounted properly before applying the supply voltage.

Depending on the degree of protection, products may have live, uninsulated, and sometimes moving or rotating parts, as well as hot surfaces during operation.

In the event of deviations from normal operation, switch the product off. Possible deviations are increased temperatures, noise, or vibration, for example. Determine the cause. Contact SEW-EURODRIVE if necessary.

Mechanical blocking or internal protective functions of the product can cause a motor standstill. Eliminating the cause of the problem or performing a reset may result in the drive restarting automatically. If, for safety reasons, this is not permitted for the drive-controlled machine, first disconnect the product from the supply system and then start troubleshooting.

Risk of burns: The surface temperature of the product can exceed 60 °C during operation. Do not touch the product during operation. Let the product cool down before touching it.

28507088/EN – 11/2018

3 Device structure

3.1 Type code

3.1.1 Type code ECR roller drive

Example: ECR-A2M-50-450-045-Z-A-V1		
Product family	EC	EC = ECDriveS® device family
Product type	R	R = Roller
Design	A	• A = IP54 degree of protection (standard) • W = IP66 degree of protection (wet area application) • Z = Operation up to -30 °C (deep-freezing application)
Voltage	2	2 = 24 V
Motor connection	M	Motor cable M8, 1000 mm
Roller diameter	50	• 50 = 50 mm • 48 = 48.6 mm[1)]
Length between frames	450	Roller length in mm
Speed class	045	Speed in m/min • 015 • 020 • 025 • 035 • 045 • 060 • 075 • 095 • 125 • 175 • 215
Tube options	Z	• Z = Galvanized steel (standard) • J = Stainless design • U = PUR coating 2 mm • P = PVC hose 2 mm • K = Cone 1.8° on galvanized steel • C = Cone 1.8° on steel in stainless steel design • D = PVC hose on steel in stainless steel design • E = PUR hose on steel in stainless steel design • X = Special design
Axis design	A	• A = Cable side: M12×1.25 on 11 mm hexagon Opposite side: M8 female thread • B = Cable side: M12×1.25 on 11 mm hexagon On the opposite side: Smooth 11 mm spring-loaded hexagon axis
Transmission heads	V1	• A0 = Smooth tube without groove or drive head • V1 = Drive head for Poly-V-belt in shape PJ according to DIN 7867 • G0 = Tube with groove head • G1 = Grooved tube with groove position 50/80 • GX = Grooved tube with special groove position

1) Only available in the USA (1.9 inch).

28507088/EN – 11/2018

3.1.2 Type code ECG gearmotor

Example: ECG-A2M-67-A-K0		
Product family	EC	EC = ECDriveS® device family
Product type	G	G = Gearmotor
Design	A	A = IP54 degree of protection
Voltage	2	2 = 24 V
Motor options	M	M8 plug connector
Gear unit ratio	67	Gear ratio i: • 67 • 45 • 33 • 27 • 18 • 15 • 11 • 9
Version	A	A = Standard mounting 4xM5x7
Output shaft	K0	K = Key
	X	Special design

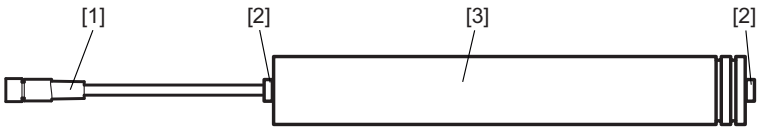
3.1.3 Type designation of the controls

- ECC-DBC-24-00: Binary control
- ECC-DFC-24-00: Fieldbus controller

28507088/EN – 11/2018

3.2 Overview of the roller drives

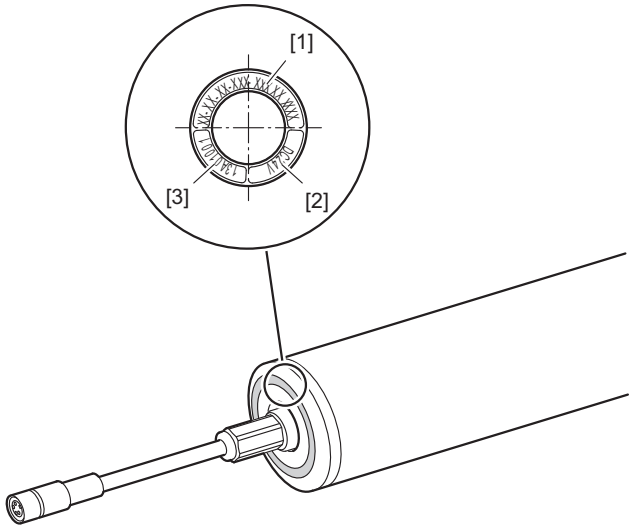
3.2.1 ECR roller drive



19809722123

[1] Electrical connection
[2] Axis journal
[3] Motor roller

Nameplate



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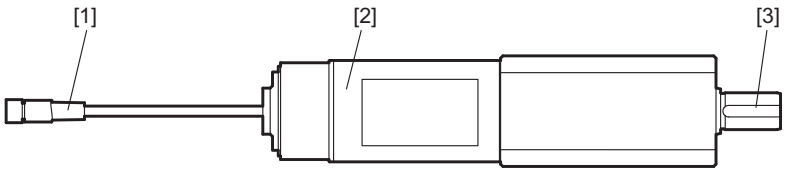
[1] Type designation, e.g.: ECR-A2M-50-450-045-Z-B-V0
[2] Voltage
[3] Serial number

28507088/EN – 11/2018

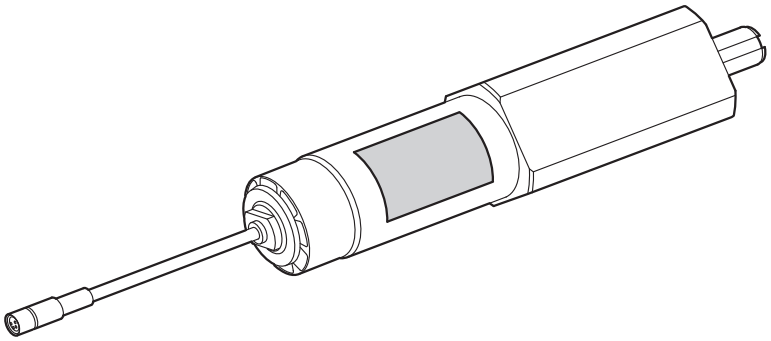
3.2.2 ECG gearmotor



19809719179

[1] Electrical connection
[2] Gearmotor
[3] Motor shaft

Nameplate



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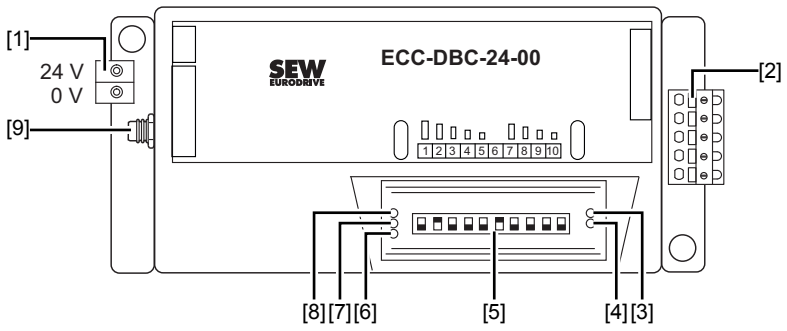
28507088/EN – 11/2018

3.3 Overview of the hardware of the ECC-DBC binary control



25852264587

[1] Removable feed-in terminal 24 V
[2] Removable I/O terminal strip
[3] LED “Overtemperature”
[4] Operation LED
[5] DIP switch
[6] LED "Start"
[7] LED "Hold"
[8] LED "Stop"
[9] ECR or ECG roller drive connection

3.4 Definition of the motor direction of rotation

The definition of the motor direction of rotation is based on the view of the motor roller from the cable output side.

- Clockwise (CW)
- Counter-clockwise (CCW)

28507088/EN – 11/2018

4 Installation

4.1 Mechanical installation

4.1.1 Mounting the ECR roller drive

⚠ CAUTION

Improper fixation of the axis can destroy the motor roller.

Possible damage to property.

- Make sure not to damage the cable during assembly.
- Ensure the correct torque for the screw connections.
- Do not use an impact screwdriver to tighten the screws and nuts.

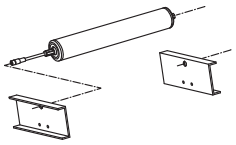
INFORMATION

The procedure for the mechanical installation depends on the design of the motor roller.

Design A

- Cable side: M12×1.25 on 11 mm hexagon
- Opposite side: M8 female thread
- Mounting hole position: M12 nut/M8 screw

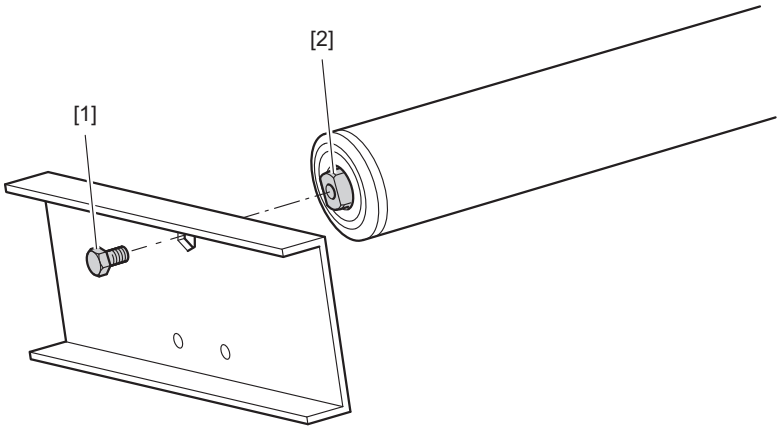
Proceed as follows:



Start at the cable side:

1. Guide the connector and the cable through the profile hole on the cable side.
2. Insert the axis into the profile hole on the cable side.

Continue with opposite side:

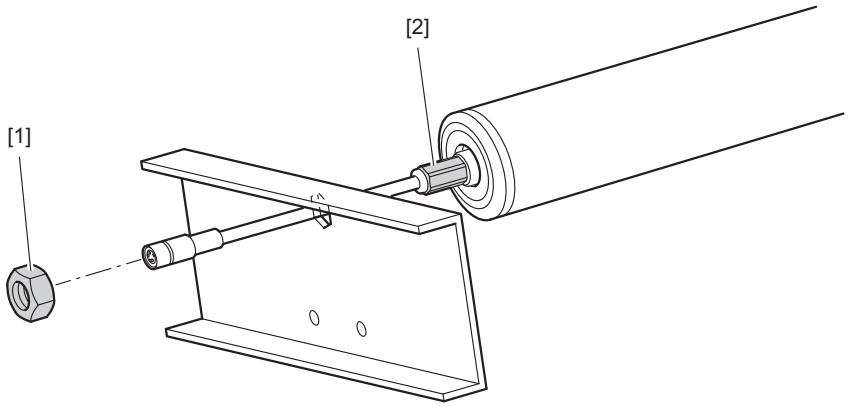


19519163019

[1] M8 screw with spur-cut teeth
[2] Axis journal

3. Press axis journal [2] inwards on the opposite side.
4. Secure axis journal [2] through profile hole with a M8 screw with spur-cut teeth [1].

Continue with cable side:



19844223243

[1] M12 flange nut
[2] Axis

5. Screw the flange nut [1] from outside onto the axis [2] on the cable side.
6. Grip axis [2] from inside with a suitable tool and tighten the flange nut [1] with a tightening torque of 50 Nm.

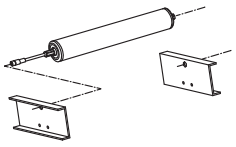
Continue with opposite side:

7. Grip axis journal [2] from inside on the opposite side with a suitable tool and tighten the screw with spur-cut teeth [1] from outside with a tightening torque of 10 – 14 Nm.

Design B

- Cable side: M12×1.25 on 11 mm hexagon
- On the opposite side: smooth 11 mm spring-loaded hexagon axis
- Mounting hole position: M12 nut

Proceed as follows:

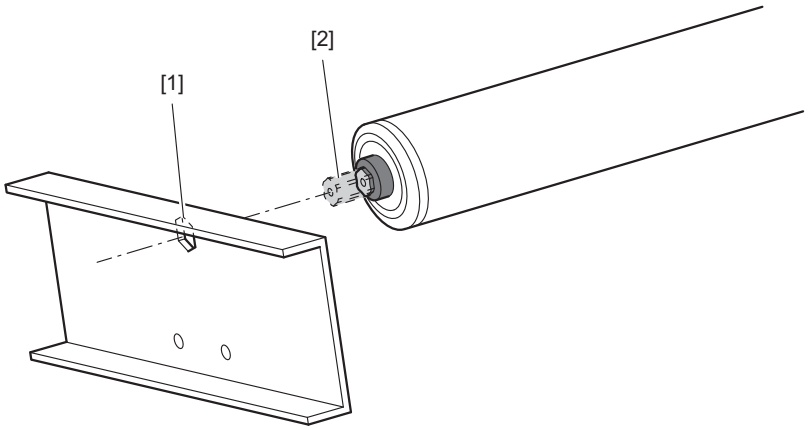


Start at the cable side:

1. Guide the connector and the cable through the profile hole on the cable side.
2. Insert the axis into the profile hole on the cable side.

28507088/EN – 11/2018

Continue with opposite side:

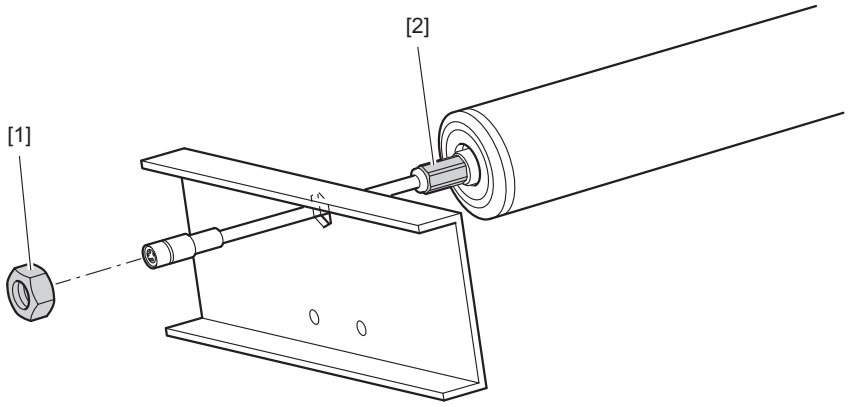


19520502923

[1] Profile hole
[2] Spring axis

3. Press spring axis [2] inwards on the opposite side and insert the motor roller into the conveyor.
4. When the motor roller reaches its proper position on the profile hole [1], release spring axis [2].

Continue with cable side:



19844223243

[1] M12 flange nut
[2] Axis

5. Screw the flange nut [1] from outside onto the axis [2] on the cable side.
6. Grip axis [2] from inside with a suitable tool and tighten the flange nut [1] with a tightening torque of 50 Nm.

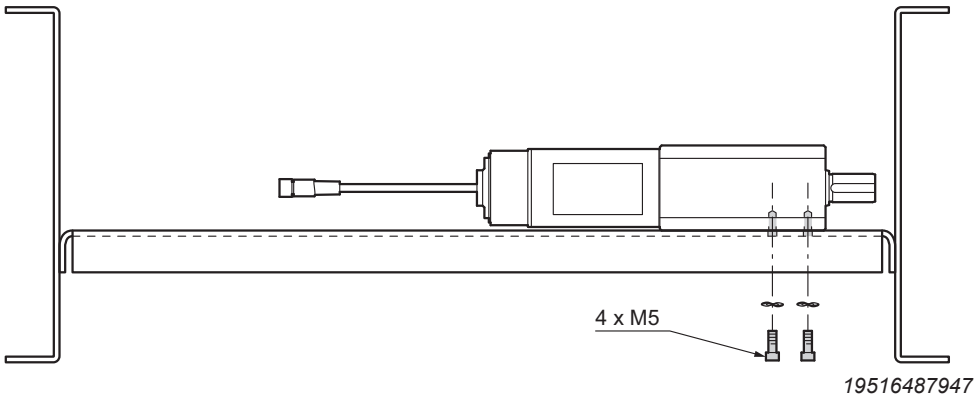
4.1.2 Mounting the ECG gearmotor

⚠ CAUTION

Sharp edges due to open keyway.

Cuts.

- Insert the key into the keyway.
- Pull a protective tubing over the shaft.



Proceed as follows:

1. Place the gearmotor onto the carrier plate.
2. Secure the gearmotor with four M5 screws with spring washers as threadlocker.
3. Tighten the screws with a tightening torque of 2.5 – 3.5 Nm.

Permitted mounting positions

In general, only mounting positions M1, M3, M5 and M6 are approved. Contact SEW-EURODRIVE when using the ECG gearmotor in mounting position M2 or M4.

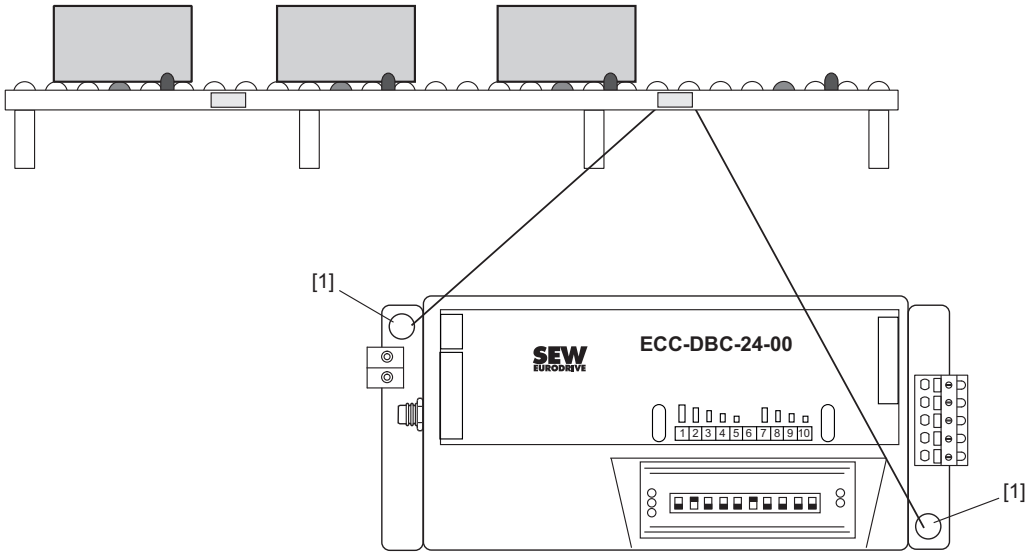
4.1.3 Mounting the ECC-DBC binary control

The ECC-DBC binary control must be mounted with its long side in parallel to the conveyor belt. The plate of the heat sink of the binary control must be in contact with the frame of the conveyor belt. Secure the binary control with screws to the frame of the conveyor belt. Guide the screws through both mounting bores of the binary control as well as through matching bores drilled in the frame of the conveyor belt.

Observe the following mounting instructions:

- The metal surface of the heat sink must point to the frame of the conveyor belt. The heat sink must only be accessible if the binary control has been removed from the frame of the conveyor belt.
- The binary control must be installed on a grounded metal surface or must have a conducting wire that establishes a ground connection to the heat sink of the binary control.
- The binary control must be installed in such a way that the operator can easily and without any hindrance disconnect the current supply connector, the motor connector, and the control signal connector.
- The binary control must be easily accessible.

28507088/EN – 11/2018



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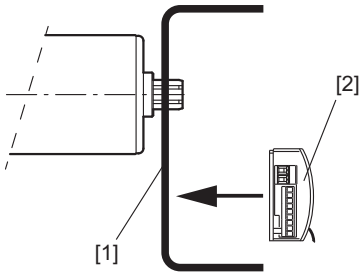
[1] Mounting holes Ø 6 mm



19852794507

[1] Frame of the conveyor belt
[2] Binary control with metal plate as heat sink

28507088/EN – 11/2018

4.2 Electrical installation

4.2.1 General information

The motor roller's input end of the shaft and/or the mounting bracket must be electrically connected with the grounded frame of the conveyor belt.

⚠ WARNING

Risk of crushing if the drive starts up unintentionally.

Severe or fatal injuries.

- Before you start working on the unit, disconnect the motor and all connected options from the power supply.
- Secure the motor against unintended power-up.

⚠ WARNING

Electric shock due to faulty ground connection or equipotential bonding.

Severe or fatal injuries.

- Make sure to install the ground connection and equipotential bonding correctly.

NOTICE

Danger due to incorrect dimensioning of the current supply.

Damage to property

- Before starting installation work, familiarize yourself with the power requirements of the motors.
- Make sure that the current supply and the wiring are correctly dimensioned on the basis of the applicable directives and standards.

4.2.2 Installation instructions

The nominal voltage of the ECDriveS® control must correspond to the data for the supply voltage.

Dimension the cable cross section according to the input current I_1 of the inverter (see chapter "Technical data" (→ 🗎 32)).

ECDriveS® is an enclosed drive system. Therefore, you must only connect ECR or ECG motors from SEW-EURODRIVE to the motor connections.

Use the ECDriveS® drive system only in systems that comply with the requirements of protection class 3 according to EN 61140, e.g. SELV.

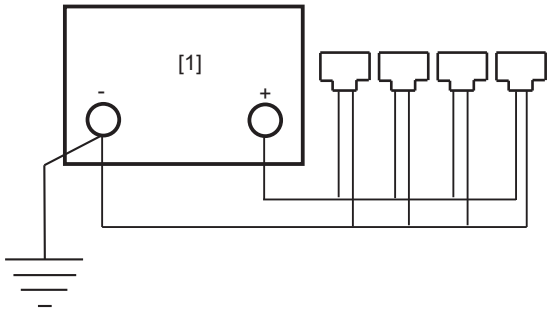
Thermal overload protection of the connection lead shall be provided by at least one of the following means:

- The maximum output current of the 24 V switched-mode power supply is limited to the value of the maximum current carrying capacity of the connected conductor.
- Fuses in utilization category gG
- Type C miniature circuit breaker

28507088/EN – 11/2018

4.2.3 Grounding of switched-mode power supply

According to the requirements for a SELV system, the mass connections of the output channels must be connected with the ground potential of the switched-mode power supply (SMPS).

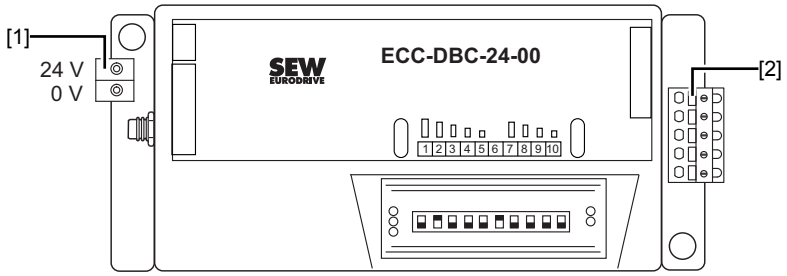


25884830987

[1] Switched-mode power supply

If several switched-mode power supplies are connected in parallel, the mass connections of at least one device must be grounded.

4.2.4 Terminal designation



25852312459

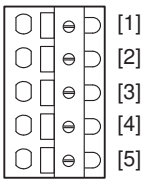
[1] Removable feed-in terminal 24 V
[2] Removable E/A terminal strip

Removable feed-in terminal [1]

This is a removable 2-pin connector with screw terminals. Cable sizes are within the range of 0.4 mm^2 and 1.5 mm^2 (28 AWG and 16 AWG). The terminal assignment is shown in the illustration.

Removable I/O terminal strip [2]

This is a removable 5-pin connector with screw terminals. Cable sizes are within the range of 0.4 mm^2 and 1.5 mm^2 (28 AWG and 16 AWG).



19853478795

[1]	Provides +24 V output voltage if error state is active
[2]	+24 V input voltage activates speed control (see section Run A and Run B)
[3]	+24 V input voltage activates speed control (see section Run A and Run B)
[4]	At an input voltage of +24 V, the motor runs against the direction selected on DIP switch 6
[5]	0 V ground connection

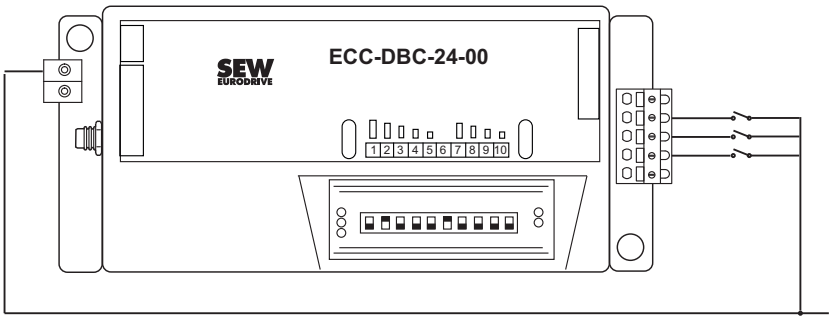
Run A	Run B	Description
ON	OFF	Motor roller starts and runs with 100% of the speed selected on DIP switches 1 to 5
OFF	ON	Motor roller starts and runs with 50% of the speed selected on DIP switches 1 to 5
ON	ON	Motor roller starts and runs with 75% of the speed selected on DIP switches 1 to 5
OFF	OFF	Motor roller stops

28507088/EN – 11/2018

4.2.5 Wiring diagrams

For the terminal assignment of the feed-in terminal and the I/O terminal strip, refer to chapter "Terminal designation" (→ 🗎 23).

PNP module with RUN/REVERSE wiring

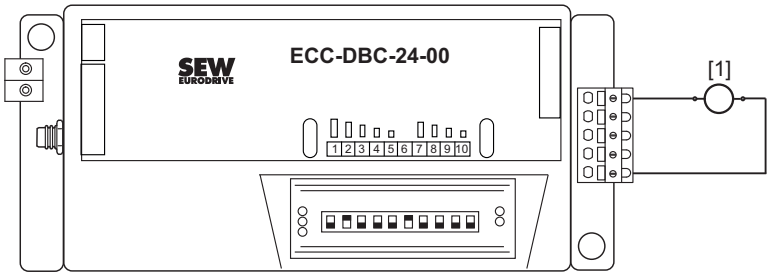


19886800779

As a requirement for the direction of rotation reversal using the "reverse" input, "RUN A" or "RUN B" must be activated.

Observe that the roller drive must be stopped before the direction of rotation is reversed.

PNP module with error output wiring



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[1] Max. 100 mA

For this connection, the current must not exceed 100 mA. If the device connected with the error output requires a higher current, an interface relay must be used in between.

5 Startup

5.1 General information

⚠ WARNING

Risk of crushing if the drive starts up unintentionally.

Severe or fatal injuries.

- Before you start working on the unit, disconnect the motor and all connected options from the power supply.
- Secure the motor against unintended power-up.

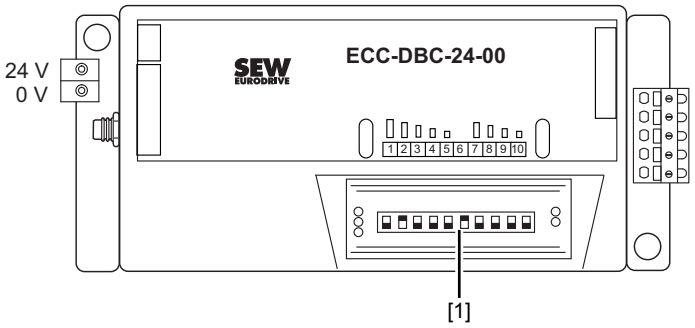
⚠ CAUTION

The surfaces on the drive can be very hot during operation.

Risk of burns.

- Let the motor cool down sufficiently before you start working on it.

5.2 Setting the DIP switches



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[1] DIP switch

There is an expandable and transparent protection cover above the DIP switches and the LED field of the binary control. Open the protection cover from the lower edge of the binary control to operate the DIP switches. Make sure that the cover is closed properly after setting the DIP switches.

DIP switch	Function	Button position	
		OFF	ON
1	Speed selection	See section DIP switches 1 to 5: Roller speed	
2			
3			
4			
5			
6	Direction of rotation	CW	CCW

28507088/EN – 11/2018

DIP switch	Function	Button position	
		OFF	ON
7	Selection acceleration/deceleration	See section DIP switches 7 to 10: Roller acceleration/deceleration	
8			
9			
10			

5.2.1 DIP switches 1 to 5: Roller speed

S1	S2	S3	S4	S5	Motor speed in min^{-1}
-	-	-	-	-	580
-	-	-	-	x	800
-	-	-	x	-	1000
-	-	-	x	x	1200
-	-	x	-	-	1400
-	-	x	-	x	1600
-	-	x	x	-	1800
-	-	x	x	x	2000
-	x	-	-	-	2200
-	x	-	-	x	2400
-	x	-	x	-	2600
-	x	-	x	x	2800
-	x	x	-	-	3000
-	x	x	-	x	3200
-	x	x	x	-	3400
-	x	x	x	x	3600
x	-	-	-	-	3800
x	-	-	-	x	4000
x	-	-	x	-	4200
x	-	-	x	x	4400
x	-	x	-	-	4600
x	-	x	-	x	4800
x	-	x	x	-	4900
x	-	x	x	x	5000
x	x	-	-	-	5100
x	x	-	-	x	5200
x	x	-	x	-	5300
x	x	-	x	x	5400
x	x	x	-	-	5500
x	x	x	-	x	5600
x	x	x	x	-	5700
x	x	x	x	x	5800
x = ON - = OFF					

5.2.2 DIP switches 7 to 10: Roller acceleration/deceleration

S7	S8	S9	S10	acceleration/deceleration time in s
-	-	-	-	0.05
-	-	-	x	0.1
-	-	x	-	0.2
-	-	x	x	0.3
-	x	-	-	0.4
-	x	-	x	0.5
-	x	x	-	0.6
-	x	x	x	0.7
x	-	-	-	0.8
x	-	-	x	1
x	-	x	-	1.2
x	-	x	x	1.4
x	x	-	-	1.6
x	x	-	x	1.8
x	x	x	-	2
x	x	x	x	2.5
x = ON - = OFF				

Notice: The specified time in seconds applies to the acceleration and to the deceleration.

28507088/EN – 11/2018

5.3 Controlling the roller speed

To calculate the roller speed based on the motor speed selected on DIP switch switches 1 to 5, the diameter of the respective roller as well as the gear unit reduction ratio of the motor roller must be known.

The following table shows the speed classes of the ECR motor rollers and their respective reduction ratios.

Speed class	Gear unit reduction ratio
10	67.22 : 1
15	45 : 1
20	32.94 : 1
25	27 : 1
35	18.3 : 1
45	15 : 1
60	10.98 : 1
75	9 : 1
95	6.818 : 1
125	5 : 1
175	3.66 : 1
215	3 : 1

The formula for calculating the roller speed in meters per seconds:

$$v = \left(\frac{n_{Mot}}{i} \right) \times \pi \times \left(\frac{D_{roller}}{60} \right)$$

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The following example shows the calculation for one roller with the speed class 75 and 50 mm roller diameter at 5000 min^{-1}:

$$\left(\frac{5000}{9} \right) \times \pi \times \left(\frac{0.05}{60} \right) = 1.45 \text{ m/s}$$

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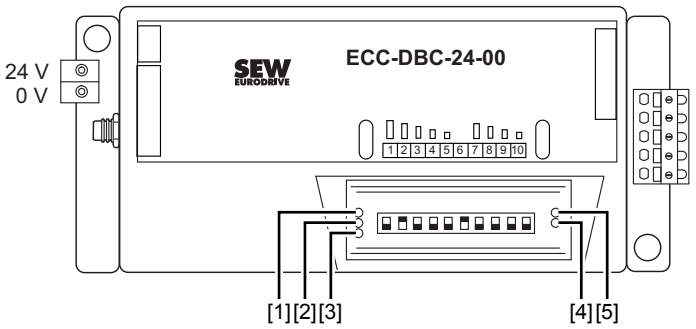
6 Operation

6.1 Status and error statuses



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[1] LED "Stop"
[2] LED "Hold"
[3] LED "Start"
[4] Operation LED
[5] LED "Overtemperature"

The following table lists all LEDs with their main functions.

LED	LED status	Description
[1]	0.2 seconds of flashing at an interval of 0.4 seconds	Motor roller is not connected
	Flashing at an interval of 1 second	Motor stopped by control due to error status
[2]	ON	Motor current limitation is active
	Flashing and flickering	Blocking or overcurrent with limited PWM
[3]	Flash	RUN signal/s is/are on and flashing in sync is proportional to the motor speed
[4]	ON with normal brightness	Input voltage is between 18 V and 31 V
	FLASHES at an interval of 0.1 seconds	Input voltage is less than 18 V
	ON with high brightness level	Input voltage is higher than 31 V
[5]	ON	Calculated motor temperature exceeds 107 °C

28507088/EN – 11/2018

7 Inspection/maintenance

⚠ WARNING

Risk of crushing if the drive starts up unintentionally.

Severe or fatal injuries.

- Before you start working on the unit, disconnect the motor and all connected options from the power supply.
- Secure the motor against unintended power-up.

⚠ CAUTION

The surfaces on the drive can be very hot during operation.

Risk of burns.

- Let the motor cool down sufficiently before you start working on it.

If necessary, all components of the ECDriveS® system are replaced. It is not planned to have the components repaired.

7.1 Storage

- Never store the roller motor / gearmotor and the modules of the control in the open.
- Store the roller motor / gearmotor and the modules of the control in a temperature range of -30 °C to +70 °C and a relative humidity of 10% to 90% (non-condensing).

28507088/EN – 11/2018

8 Technical data

8.1 Technical data of the ECR roller drive

8.1.1 Electrical data

	ECR-A2M-..
Voltage:	DC 24 V
Nominal mechanical output power at 25 °C:	40 W
Nominal current:	2.5 A
Maximum starting current:	7.2 A
Ambient temperatures:	-10 °C – 40 °C
Humidity:	10 to 90%, not condensing
Degree of protection:	IP54, optional IP66
Maximum motor cable length:	5 m

8.2 Technical data of the ECG gearmotor

8.2.1 Electrical data

	ECG-A2M-..
Voltage:	DC 24 V
Nominal mechanical output power at 25 °C:	40 W
Nominal current:	2.5 A
Maximum starting current:	7.2 A
Ambient temperatures:	-10 °C – 40 °C
Humidity:	10 to 90%, not condensing
Degree of protection:	IP54, optional IP66
Maximum motor cable length:	5 m

28507088/EN – 11/2018

8.2.2 Pulses per revolution

Nominal gear ratio	Real gear ratio	Pulses per revolution	Gear unit backlash in degrees
67	67.22[1)]	2009	4.8
45	45.00	1350	5.1
33	32.94	988	5.1
27	27.00	810	5.1
18	18.33[1)]	549	4.5
15	15.00	450	4.7
11	10.98	329	4.7
9	9.00	270	4.7

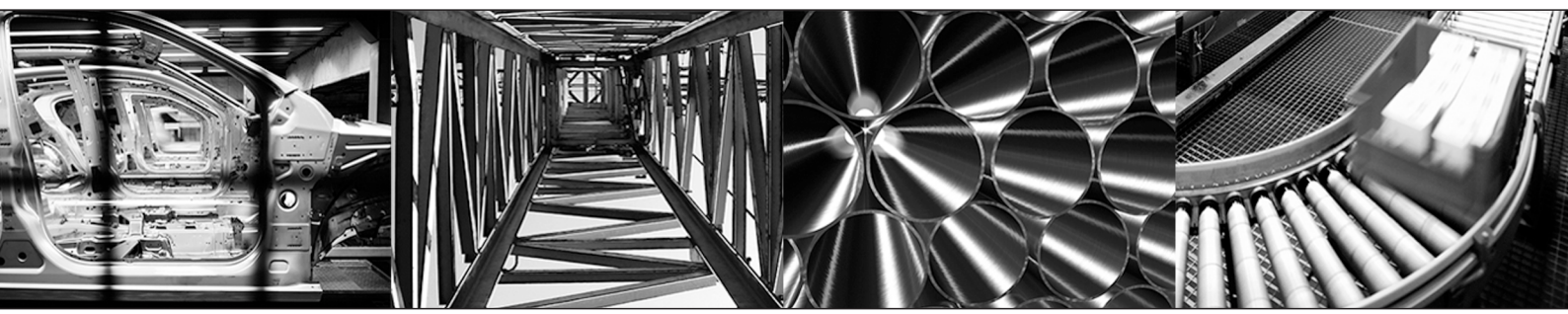
1) Infinite gear unit ratio (67.22 = 67 2/9, 18.33 = 18 1/3)

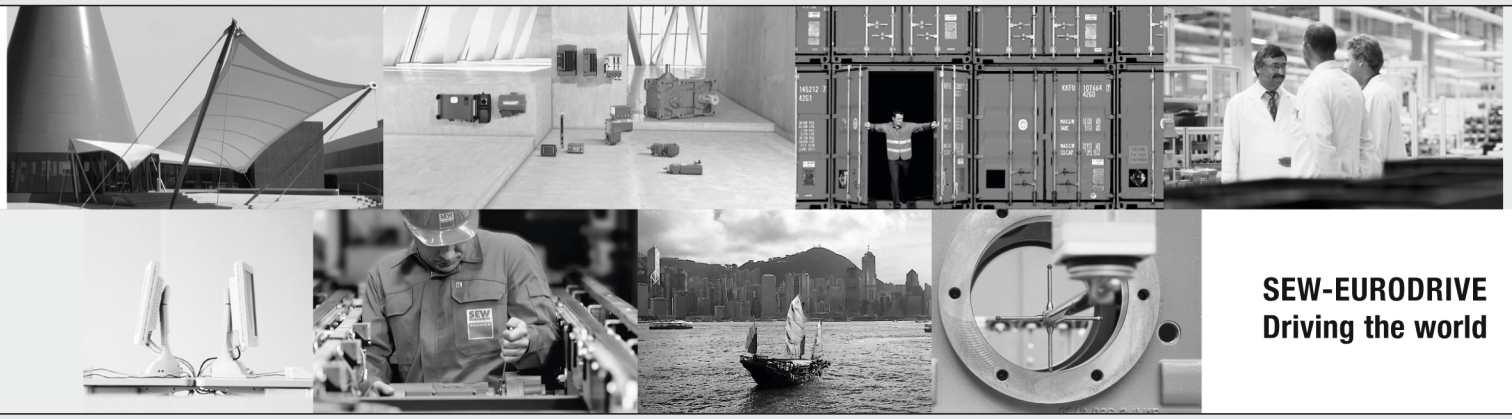
28507088/EN – 11/2018

8.3 Technical data of the ECC-DBC binary control

Connection voltage	DC 24 V +15%/-25%	
Voltage range on control input	DC 14 - 30 V	
Current consumption	≈ 30 mA without motor roller	
Integrated current limiting	Max. peak current	16 A
	Max. starting current	4 A
	Max. nominal current	3 A
	Input fuse	8 A
	Max. current error output	100 mA (only P versions)
		50 mA (only P versions)
	Error output Short circuit protection	150 mA (only P versions)
Supported motor rollers	ECR roller drives max. 120% overload	
	ECG gearmotors max. 120% overload	
PWM frequency	20 kHz	
Time delay Initialization	≤ 20 ms at start	
Time delay to startup of the motor	≤ 5 ms	
Operating temperature	0 °C – 50 °C	
Storage temperature	-40 °C – 85 °C	
Degree of protection	IP20 for indoor use only Altitude up to 1000 m Maximum relative humidity: 70% for temperatures up to 30 °C, linearly decreasing to 50% for 50 °C Environmental class 2	
Mass	ca. 60 g	

28507088/EN – 11/2018





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