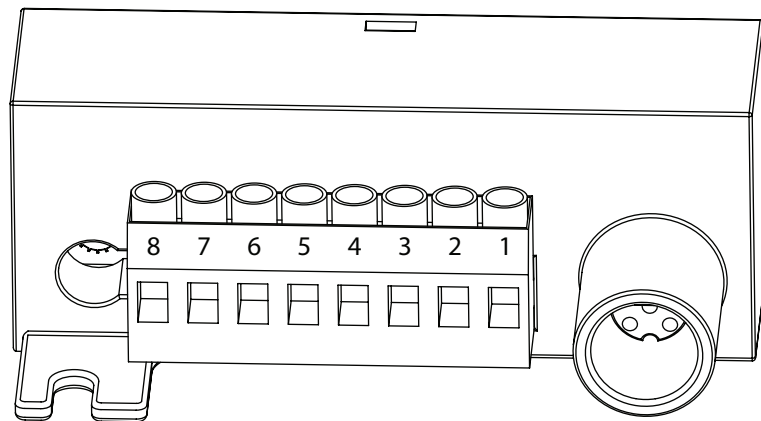




WE MAKE THE WORLD MOVE



User Manual

Interroll DriveControl

DC-EC300 (7.85:1)

Manufacturer

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Introduction

Handling of the user manual

Content of the manual

This manual contains important advice, notes and information about the DC-EC300 (7.85:1) in all phases of its lifecycle:

- Transport, assembly and commissioning
- Safe operation, maintenance and troubleshooting, disposal
- Accessories

Validity of the manual

The manual describes the DC-EC300 (7.85:1) as it is delivered by Interroll.

Special application designs require validation from Interroll and additional technical instructions.

The manual is part of the product

- For trouble-free, safe operation and warranty claims, read the manual and follow the instructions before handling the DC-EC300 (7.85:1).
- Keep the manual near to the DC-EC300 (7.85:1).
- Pass the manual on to any subsequent operator or occupant of the DC-EC300 (7.85:1).
- Interroll does not accept any liability for malfunctions or defects due to non-observance of this manual.
- If you have any questions after reading the user manual, feel free to contact our customer service. See the last page for contact information.

Warning notices in this manual



The warning notices in this document refer to risks which may arise during usage of the DC-EC300 (7.85:1). For relevant warning notices, see "Safety", page 4 and the warning notices at the beginning of each chapter.

There are three categories of danger. The following signal words are used in the document as required:

- Danger
- Warning
- Caution

Signal word	Meaning
Danger	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
Warning	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Caution	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

Structure of warning notices

	 DANGER
<p>Nature and source of the hazard Possible consequence of non-observance</p> <p>➤ Information about how to avoid the hazard.</p>	

Introduction

Further symbols

	NOTICE
	This symbol identifies possible material damage. ➤ Information about how to avoid the damage.



This symbol displays safety instructions.



This symbol marks useful and important information.

➤ This symbol marks the steps that have to be carried out.

Safety

General safety instructions

The DC-EC300 (7.85:1) is designed according to the technical state of the art and is reliable in operation, once distributed. However, risks may still arise.

- Risks of physical injury to the user or bystanders.
- Adverse effects of the DriveControl and other material.



Disregarding the warning notices in this manual may lead to serious injury.

- Always read the entire operating and safety instructions before starting to work with the DriveControl and follow the information contained therein in full.
- Only instructed and qualified persons may work with the DriveControl.
- Always keep the user manual at hand when working at the DriveControl so you can consult it quickly if required.
- Always comply with relevant national safety regulations.
- If you have any questions after reading the operation manual, feel free to contact our customer service. See the last page for contact information.

Intended use

The DC-EC300 (7.85:1) may only be used for industrial applications and in an industrial environment to control a RollerDrive EC300 (7.85:1). It must be integrated in a conveyor module or a conveying system. Any other use is considered inappropriate.

Use of the DC-EC300 (7.85:1) is only allowed in the areas described under product information.

Any changes that affect the safety of the product are not allowed.

The DC-EC300 (7.85:1) may only be used within the given operation limits.

Unintended use

Applications not according to the intended use of the DC-EC300 (7.85:1) require approval from Interroll.

Qualified persons

Qualified persons are persons who read and understand the manual and, taking national regulations into account, can competently execute incidental work.

Only instructed and qualified persons may work with the DriveControl, taking the following into account:

- the relevant manuals and diagrams,
- the warning and safety instructions in this manual,
- the system specific regulations and requirements,
- national or local regulations and requirements for safety and accident prevention.

Safety

Risks



The following list informs you about the various types of danger or damage that may occur while working with the DC-EC300 (7.85:1).

Persons

- Maintenance or repair work must only be executed by authorized and qualified persons in accordance with the applicable regulations.
- Before using the DriveControl, ensure that no unauthorized persons are near the conveyor.

Electricity

- Only perform installation and maintenance work after you have switched off the power. Ensure that the power cannot be turned on accidentally.

Working environment

- Do not use the DriveControl in explosive atmospheres.
- Remove equipment or material which is not required from the workspace.

Avoiding malfunctions in operation

- Regularly check the DriveControl for visible damage.
- In case of fumes, turn off the power at once and ensure that it cannot be turned on accidentally.
- Contact qualified personnel immediately to find the source the malfunction.

Maintenance

- As the product is maintenance free, you only need to check regularly for visible damage and that all leads and screws are still tightened.

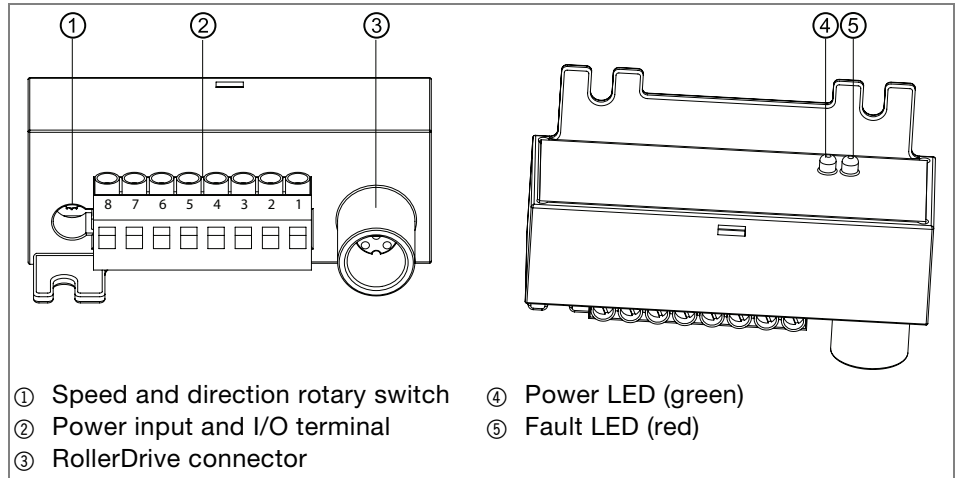
Interfaces

By assembling the DriveControl in a conveyor module, potential hazards may occur. These are not part of this manual and have to be analyzed during the design, installation and startup of the conveyor module.

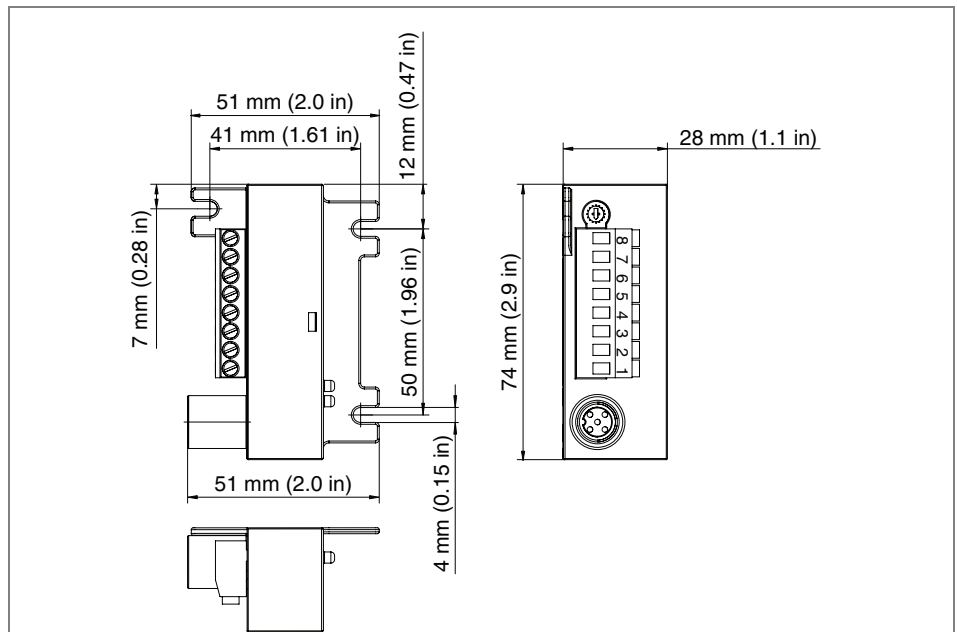
- After assembling the DriveControl in a conveyor module, check the whole system for a new potential dangerous spot before turning on the conveyor.

Product information

Components



Dimensions



Product description

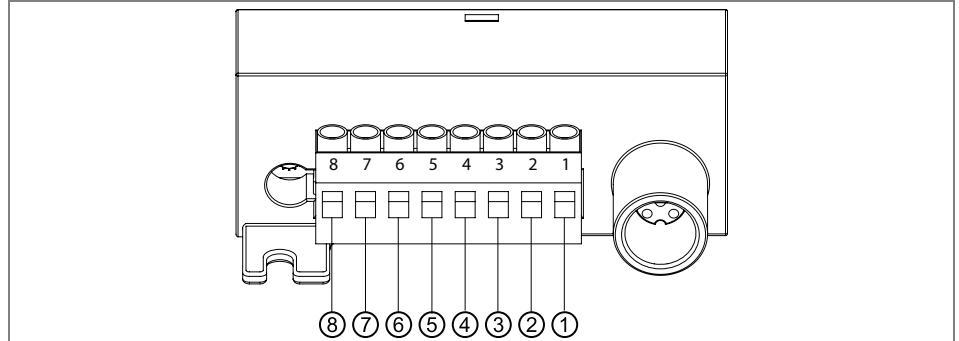
The DC-EC300 (7.85:1) must be used in conjunction with a RollerDrive EC300 (7.85:1). It is the interface to the power bus and allows to set run commands and to control the speed and direction of transport by switch or PLC.

Features

- LEDs provide power and fault status.
- All IO interfaces are optically isolated and are bipolar accessible by a PLC. NPN and PNP is possible.
- The DC-EC300 (7.85:1) is equipped with an active protection against an incorrect polarity connection.

Product information

Inputs and Outputs



- ① **Power +24 VDC:** Main power supply (voltage range see "Technical data", page 8)
- ② **Power GND:** Must be connected to the main power ground
- ③ **Start IN1:** Must be connected to signal +24 VDC (e. g. PLC output)
- ④ **Start IN2:** Must be connected to signal ground (e. g. PLC ground)
- ⑤ **Direction IN1:** Must be connected to signal +24 VDC (e. g. PLC output) for external direction setting
- ⑥ **Direction IN2:** Must be connected to signal ground (e. g. PLC ground) for external direction setting
- ⑦ **Fault OUT1:** Power supply for fault detection (max. 30 VDC)
- ⑧ **Fault OUT2:** Input PLC (logic high at no fault)



Due to the galvanic separated outputs of pin 3, 4, 5 and 6 the Start IN1 can be interchanged with Start IN2 and Direction IN1 can be interchanged with Direction IN2.

Meaning of the LEDs

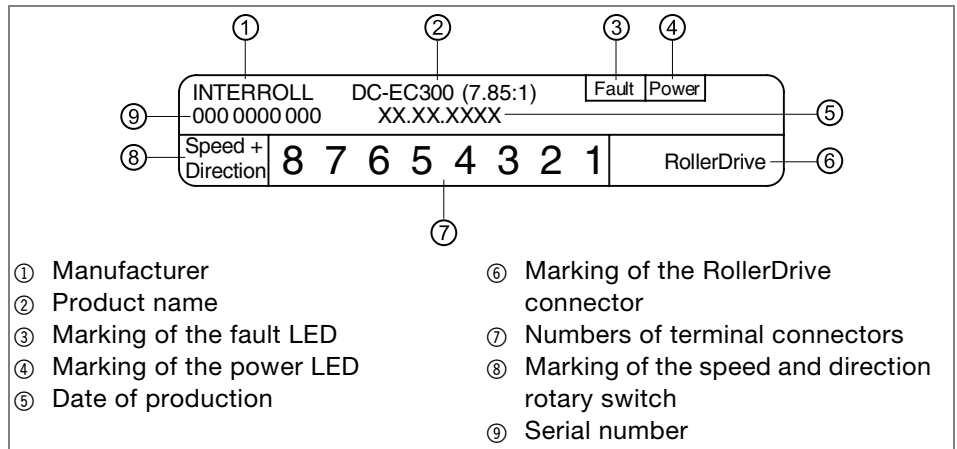
The LEDs provides motor and power status. The following table shows the meaning of the LEDs.

LED	Color	Status	Meaning
Power	green	on steady	Power OK
Fault	red	on steady	Motor fault or motor is disconnected

Product information

DC-EC300 (7.85:1) label

The specifications on the DriveControl label are used to identify the DC-EC300 (7.85:1). This is required to use the DriveControl as intended. Moreover the positions of the DriveControl elements are marked on the label.





Technical data

Nominal voltage	24 VDC
Voltage range	18 to 30 VDC
Voltage ripple tolerance	< 5%, < 1% recommended
Continuous current input	4 A
Peak current output	4 A
Fuse	4 A slow blow
Protection classification	IP40
Ambient temperature for operation	0 °C to 40 °C (32 °F to 104 °F)
Ambient temperature for transport and storage	-20 °C to 75 °C (-4 °F to 167 °F)
Ambient temperature changes	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
Ambient humidity	max. 90% not condensing
Installation altitude above sea level	max. 1000 m (max. 3300 ft)

Product information

Speed settings

Position of the speed and direction rotary switch	Speed of transport [m/s (ft/min)]	Rotation direction of the RollerDrive
	EC300 (7.85:1)	
0	2.0 (394)	
1	1.83 (360)	
2	1.68 (330)	
3	1.55 (305)	
4	1.27 (250)	
5	1.17 (230)	
6	1.08 (212)	
7	1.02 (200)	
8	2.0 (394)	
9	1.83 (360)	
A	1.68 (330)	
B	1.55 (305)	
C	1.27 (250)	
D	1.17 (230)	
E	1.08 (212)	
F	1.02 (200)	

Transport and storage

Transport

- Each DriveControl is packed in its own carton case.



CAUTION

Risk of injury due to improper transport

- Transport may only be carried out by qualified and authorized persons.
 - Observe the following notices.
-
- Do not stack more than four carton boxes.
 - Check the fixation of the DriveControls before transport.
 - Avoid hard shocks during transport.
 - Check each DriveControl visually for damage after transport.
 - In case of damage, take photos of the damaged parts.
 - To maintain the warranty, report any damage caused by transport instantly to the transport company and Interroll.
 - Do not transfer the DriveControls between warm and cold environments. This may cause condensing water.

Storage



CAUTION

Risk of injury due to improper storage

- Do not stack more than four carton boxes.
-
- Check each DriveControl for damage after storage.

Assembly

Warning notices concerning assembly

NOTICE

Risk of damage leading to failure or shortened life expectancy of the DriveControl

➤ Observe the following notices.

- Do not drop or mishandle the DriveControl to avoid internal damage.
- Check each DriveControl visually for damage before assembly.

Warning notices concerning the electrical installation

NOTICE

Risk of damage to the DriveControl

➤ Observe the following notices.

- The electrical installation may only be executed by qualified and authorized persons.
- Disconnect the power before installing, removing or rewiring the DriveControl.
- Do not apply AC current to the RollerDrive or DriveControl device at any time as this will cause irreparable damage.
- Do not apply too much stress to the connector pins. Bending the wires at the connector can cause damage to the insulation of the wires, which could result in failure of the DriveControl or the RollerDrive.
- Ensure that the RollerDrive, the DriveControl and the 24 VDC power source are properly earthed through the frame or supporting structure in which the RollerDrive and the DriveControl are installed. Failure to do so could cause the buildup of static electricity or ground loops and can cause the motor or DriveControl to malfunction or fail prematurely.
- Do not spin the RollerDrive manually, as this generates an induction voltage which could damage the DriveControl.

Installing the DC-EC300 (7.85:1) in a conveyor system



Mounting hardware is not supplied with the DriveControl. Choose adequate screws and nuts for the 4 mm (0.15 in) wide flaps.

- Use the DriveControl as a template and mark the center of the three mounting flaps. For the distance between the holes, see "*Dimensions*", page 6.
- Drill three \varnothing 3.5 - 4 mm (0.13 - 0.15 in) mounting holes at the marked spots.
- Insert the screws in the holes.
- Install the DriveControl to the frame with the screws protruding through the mounting holes.
- Slip the nuts to the screws and tighten.

Assembly

Electrically installation

The connector supplied with the RollerDrive EC300 (7.85:1) mates up with the header on the DC-EC300 (7.85:1).

- Connect wires according the wiring diagrams (see *page 10*) at the power input and I/O terminal.
- Plug in the RollerDrive connector.

Initial startup and operation

Initial startup

Inspections before initial startup

- Ensure that all bolts are tightened according to the specifications.
- Ensure that no additional dangerous areas arise due to interfaces to other components.
- Ensure that the wiring is in accordance with the specification and legal directives.
- Check all protection devices.
- Ensure that no bystanders are in dangerous areas around the conveyor.

Operation

NOTICE

Damage to the DriveControl or the motor of the RollerDrive due to induction

- Do not push items along the roller conveyor by hand.
- Do not spin the RollerDrive manually.

Inspections before every startup

- Check the speed and direction settings at the speed and direction rotary switch.
- Check the DriveControl for visible damage.
- Check all protection devices.
- Ensure that no bystanders are in dangerous areas around the conveyor.
- Clearly specify and monitor the way goods are placed on the conveyor.

Changing settings

- To change the speed or the direction of the RollerDrive manually, turn the speed and direction rotary switch with a small screwdriver (also see "*Speed settings*", page 9).

Maintenance and cleaning

Warning notices concerning maintenance and cleaning



CAUTION

Risk of injury due to improper handling or accidental motor starts

- Maintenance work and cleaning may only be executed by qualified and authorized persons.
- Only perform maintenance work after switching off the power. Ensure that the DriveControl cannot be turned on accidentally.
- Set up signs indicating maintenance work.

Maintenance

Checking the DriveControl

The DriveControl must be checked at regular intervals to avoid malfunctions.

- Monthly check the DriveControl and its leads for visible damage.
- Annually ensure that the screws of the DriveControl are still tight and that the cables are still laid properly and connected to the terminals.

Replacing the DriveControl

If a DriveControl is damaged, it has to be replaced.

- Install a new DriveControl (see "Abandonment", page 17 and see "Installing the DC-EC300 (7.85:1) in a conveyor system", page 12).

Cleaning

Dust and dirt in combination with humidity may bridge the electric circuit. Therefore, in a dirty environment, periodic cleaning will help to avoid short-circuits which could damage the DriveControl.

- Regularly blow off dust and dirt with low compressed air.

Troubleshooting

Error search

Symptom	Possible cause	Help
System is not operating	No power supply	Check whether the output voltage of the power supply is within the specified voltage range.
	Fuse is blown	Replace the DriveControl.
RollerDrive EC300 (7.85:1) is not in braking mode without any packages on the conveyor system	This is not an error. It is a power saving feature. The RollerDrive EC300 (7.85:1) is in coast mode until it is commanded to run or accumulate.	

Abandonment and disposal

Abandonment



CAUTION

Risk of injury due to improper handling

- Abandonment may only be executed by qualified and authorized persons.
- Only abandon the DriveControl after switching off the power. Ensure that the DriveControl cannot be turned on accidentally.

- Disconnect all cables from the DriveControl.
- Unscrew the screws attaching the DriveControl to the conveyor frame.
- Extract the DriveControl from the conveyor frame.

Disposal

The operator is responsible for the proper disposal of the DriveControl. In doing so, industry-specific and local provisions must be observed for the disposal of the DriveControl and its packaging.

Appendix

Accessories

Wiring accessories

Part	Characteristics	Part #
Extension cable RollerDrive - DriveControl	Length 1600 mm	89VK

Power input and I/O terminal connector

Part	Characteristics	Part #
8-pin Lumberg Connector		KSC08P78
Power supply	230 V / 150 W / 24 VDC	89NT

Appendix

Manufacturer's declaration

in terms of the EC-Machine Directive 98/37/EC and its amendment 98/79/EC, Annex II B

The manufacturer:

Interroll Corporation
3000 Corporate Drive
Wilmington, NC 28405

hereby declares with sole responsibility that the product range

- DC-EC300 (7.85:1)

is not a ready-to-use assembly in terms of the EC-Machine Directive and therefore does not fully comply with the requirements of this directive. It must not be put into service until the machinery into which it is to be incorporated has been declared to conform with the provisions of the Machine Directive.

Applied EC Directives:

Machine Directive 98/37/EC and its amendment 98/79/EC
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC
RoHS Directive 2002/95/EC

Applied harmonized norms:

EN ISO 12100 Part1 and Part2

Wilmington, November 7th 2007

Richard Keely
(VP of Manufacturing)

(This declaration can be obtained at www.interroll.com, if needed.)



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