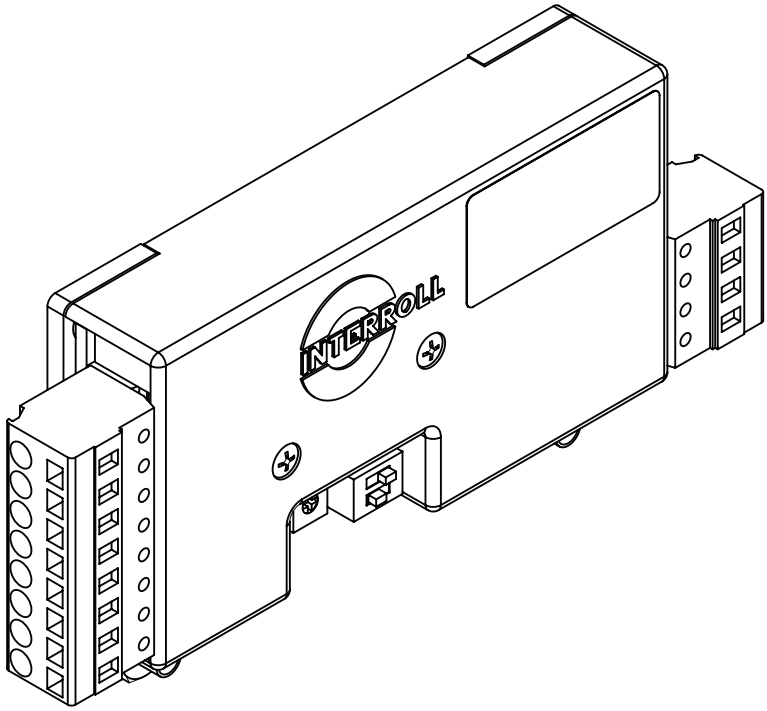
INTERROLL®

WE MAKE THE WORLD MOVE



User Manual

Interroll DriveControl

DC-EC100

Manufacturer
Interroll Corporation
3000 Corporate Drive
USA-Wilmington, NC 28405
Tel. +1 910 799 11 00
Fax. +1 910 392 38 22
www.interroll.com

Version 1.0 (11/2007) en
Original language

Table of contents

Introduction

Handling of the user manual

Content of the manual

This manual contains important advice, notes and information about the DC-EC100 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-EC100 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-EC100.
- ➢ Keep the manual near to the DC-EC100.
- ➢ Pass the manual on to any subsequent operator or occupant of the DC-EC100.
- ➢ 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-EC100. 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

Nature and source of the hazard
Possible consequence of non-observance

➢ Information about how to avoid the hazard.

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-EC100 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-EC100 may only be used for industrial applications and in an industrial environment to control a RollerDrive EC100. It must be integrated in a conveyor module or a conveying system. Any other use is considered inappropriate.

Use of the DC-EC100 is only allowed in the areas described under product information.

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

The DC-EC100 may only be used within the given operation limits.

Unintended use

Applications not according to the intended use of the DC-EC100 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-EC100.

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.

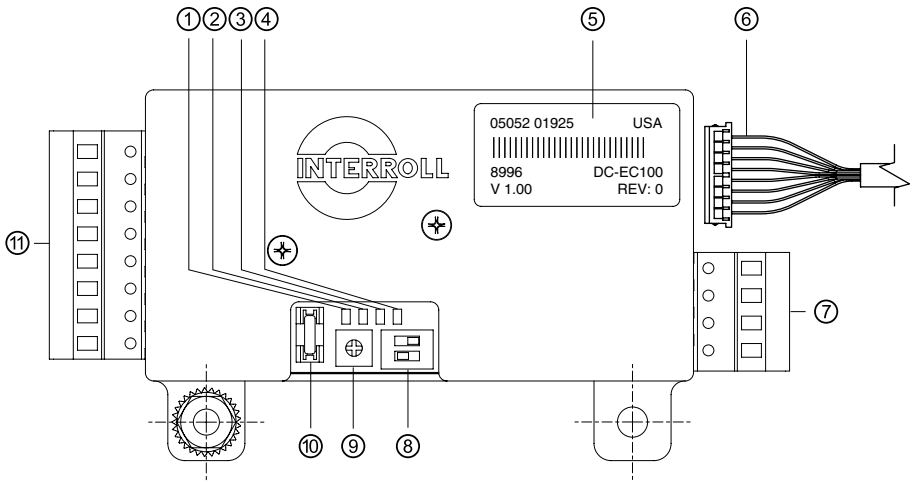
Interfaces

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

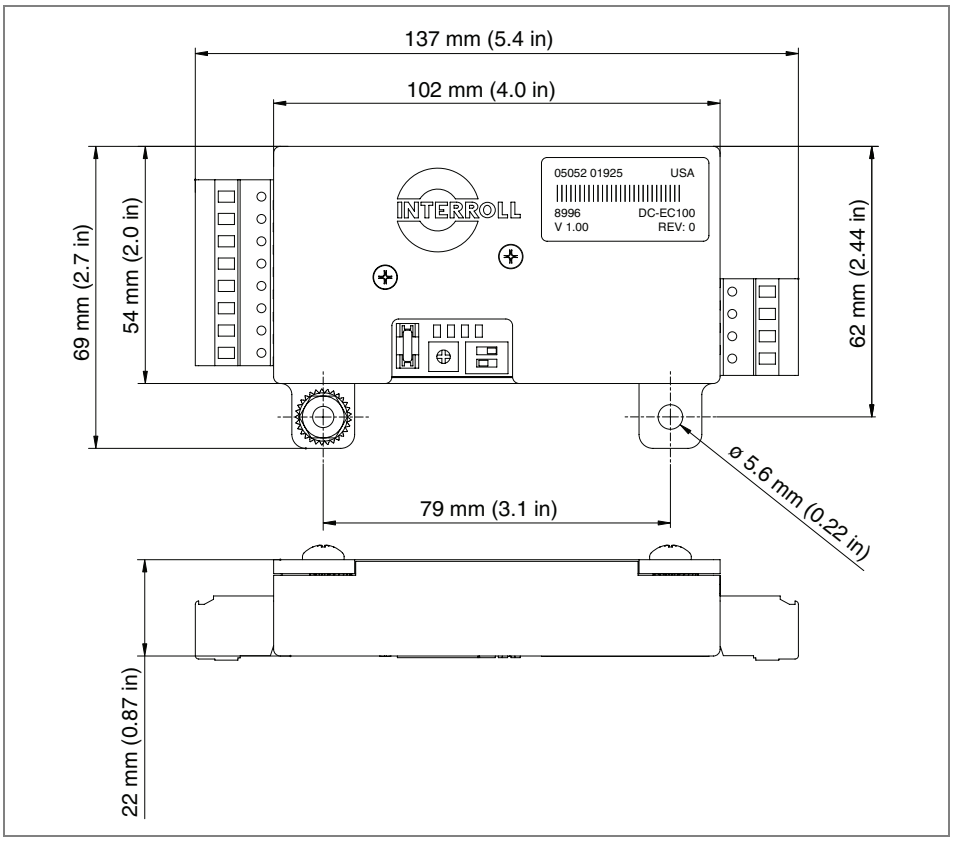
Components



① Fuse LED (red)
② Power LED (green)
③ Fault LED (red)
④ Warning LED (amber)
⑤ Label
⑥ Motor cable of RollerDrive
⑦ Sensor connection
⑧ DIP switches
⑨ Speed potentiometer
⑩ Fuse
⑪ Power input and I/O terminal

Product information

Dimensions



Mounting hardware

The following mounting hardware is supplied:

- 2x button head screw 10-32 UNF x 0.5"
- 2x nut with captive star washer 10-32 UNF

Product information

Product description

The DC-EC100 must be used in conjunction with a RollerDrive EC100.

Features

- **Diagnostics**: LEDs provide motor and sensor diagnostics as well as power, fuse, and temperature status.
- **NPN or PNP**: All inputs and outputs can be switched for NPN or PNP with one switch. The "No fault output" is always PNP (fail-safe).
- **Zero motion hold**: When the RollerDrive is stopped, it will be held in place.
- **Regenerative braking**: Motor acts like a generator and feeds back energy to the power bus.

Safety and stall functions

There are different levels of over-temperature or stall-related functions:

- **Motor temperature foldback**: At a motor temperature of 80 °C (176 °F) the DriveControl will fold back peak current down to continuous current. This is indicated by the amber LED lighting up constantly. When the RollerDrive cools down, the amber LED extinguishes, and the maximum peak current is now possible again. The motor can run at this reduced current limit indefinitely without harming the DriveControl or RollerDrive.
- **Motor temperature shutdown**: At a motor temperature of 100 °C (212 °F) the DC-EC100 will shut down the motor and the motor will go into regenerative braking. This is indicated by the red LED. When the RollerDrive cools back down, the red LED extinguishes and RollerDrive operation will resume.
- **Motor stall current limiting**: When the motor is stalled, the current will fold back to 1.4 A until the stall is cleared.
- **DriveControl temperature foldback**: At a card temperature of 70 °C (158 °F) the DriveControl will fold back peak current down to continuous current. This is indicated by the amber LED lighting up constantly. When the DriveControl cools down, the amber LED extinguishes, and the maximum peak current is now possible again. The DriveControl can run at this reduced current limit indefinitely without harm to the DriveControl or RollerDrive.
- **DriveControl temperature shutdown**: At a DriveControl temperature of 90 °C (194 °F) the DriveControl will shut down the RollerDrive and the motor will go into regenerative braking. This is indicated by the red LED. When the DriveControl cools back down the red LED extinguishes and RollerDrive and DriveControl operation will resume.

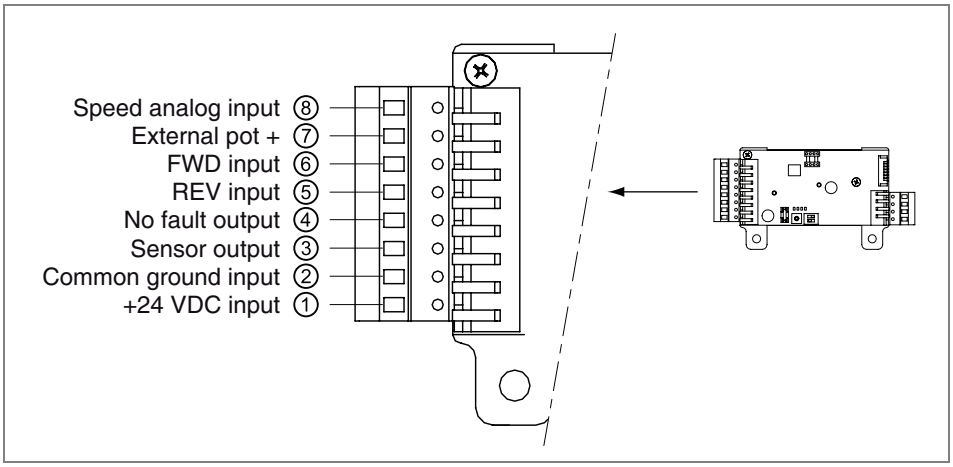
Incline and decline applications

Due to the zero motion hold and regenerative braking features, the DC-EC100 and RollerDrive EC100 can be used for incline and decline applications up to an angle of 15°.

Product information

Inputs and outputs

Power input and I/O connections



⑧ **Speed analog input:** External speed control down to approximately 23% of the maximum speed, if a 0 to 5 VDC PLC or analog input is connected between here and GND. When using a 10 kΩ external potentiometer, the wiper must be connected here. The on-board potentiometer should be set to maximum (CW) so it will not affect the external speed setting (for the wiring diagrams, *see page 15*).

⑦ **External pot+:** An external 10 kΩ potentiometer can be used to adjust the speed down to approximately 23% of the maximum speed. The on-board potentiometer should be set to maximum (CW) so it will not affect the external speed setting (for the wiring diagrams, *see page 15*).

⑥ **FWD input:** Normal rotation is CCW, seen from the cable end. This input is PNP/NPN selectable (with DIP switch 1).

⑤ **REV input:** Causes the RollerDrive to operate in reverse transport mode while the signal is active. Normal reverse rotation is CW, seen from the cable end. This input is PNP/NPN selectable (with DIP switch 1).

④ **No fault output:** Active high (+24 VDC) when either in NPN or PNP mode. Signal goes low only when system faults occur.

③ **Sensor output:** Signal passed through from the sensor input. This output is PNP/NPN selectable (with DIP switch 1).

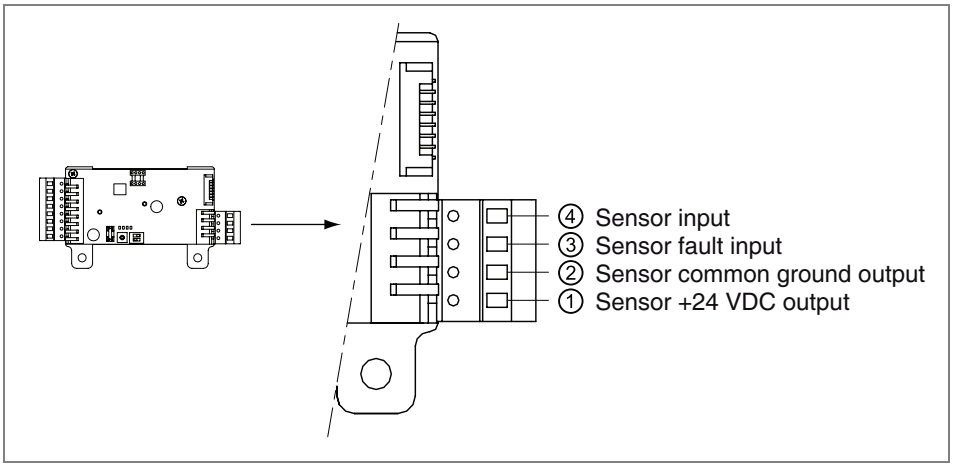
② **Common ground input:** Must be connected to the main power ground.

① **+24 VDC input:** Main power supply 24 VDC (for voltage range, *see "Technical data", page 12*).

The DC-EC100 is protected against reverse polarity, but the power supply must provide a short circuit or over current protection and a voltage ripple tolerance of less than 5%.

Product information

Sensor connection

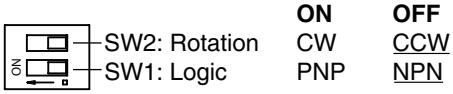


④ **Sensor input:** Signal from external source, typically a photoeye. Passed through to the sensor output. This input is PNP/NPN selectable (with DIP switch 1).
③ **Sensor fault input:** If sensor has a fault output for low gain, it can be connected to this input. This input is PNP/NPN selectable (with DIP switch 1).
② **Sensor common ground output:** Power ground connection for sensor.
① **Sensor +24 VDC output:** +24 VDC power supply for sensor.

DIP switches

The DIP switches allow the selection of the logical convention and the direction. The default DIP switch settings are all OFF.

DIP switch settings are read at reset (power-up) only.



DIP switch settings

The following table shows the switch position for different situations:

DIP switch	ON (left position)	OFF (right position)
SW2 Rotation	**Clockwise** (rotation of the RollerDrive seen from the cable end)	**Counter clockwise** (rotation of the RollerDrive seen from the cable end)
SW1 Logic	**PNP:** all external inputs, photoeye input and output are active high (24 VDC).	**NPN:** all external inputs, photoeye input and output are active low (0 VDC ground). This excludes the "No fault output" which is always active high (+24 VDC) when in either NPN or PNP mode.

Product information

Meaning of the LEDs

The LEDs provide motor and sensor diagnostics as well as power, fuse, and temperature status. The following table shows the meaning of the LEDs:

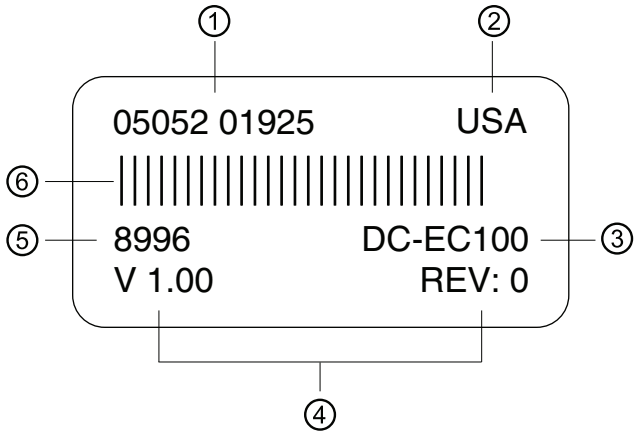
LED	Color	Status	Meaning
Fuse	red	on steady (all other LEDs are off)	Fuse blown
Power	green	on steady	Power OK
Fault	red	on steady	Stalled motor Low gain signal from sensor
			Motor or motor cable disconnected
			Over-voltage detection 29 VDC ± 0.2 VDC (will cease normal operation)
			Under-voltage detection 19 VDC ± 0.2 VDC (will cease normal operation)
			DriveControl severe temperature shut-down (will cease normal operation until cool)
			Motor severe temperature shut-down (will cease normal operation until cool)
			Low gain or bad sensor (sensor with fault output connected)
Warning	amber	on steady	Motor current is limited to maximum continuous current due to motor over-temperature
			Motor current is limited to maximum continuous current due to card over-temperature

There is no error output if the amber LED is on.

Product information

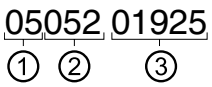
DriveControl label

The specifications on the DriveControl label are used to identify the DC-EC100. This is required to use the DriveControl as intended.



① Serial number
② Country of production
③ Product name
④ Revision information
⑤ Article number
⑥ Identification barcode

The serial number contains the following information about the production date:



① Year
② Day of the year
③ Sequential number of the produced units on that day

Technical data

Nominal voltage	24 VDC
Voltage range	18 to 28 VDC
Voltage ripple tolerance	< 5%, < 1% recommended
Continuous current	1.8 A
Peak current	4.1 A
Fuse	5 A slow blow Littlefuse 0452005
Protection classification	IP20
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

On board speed setting

The speed can be continuously adjusted (between 100% and approximately 33%) by the potentiometer on the DriveControl. Default setting is maximum.

Gear ratio	Speed range RollerDrive EC100 + DC-EC100
12:1	1.32 to 0.44 m/s (260 to 87 fpm)
16:1	1.03 to 0.34 m/s (202 to 67 fpm)
24:1	0.69 to 0.22 m/s (135 to 45 fpm)
36:1	0.44 to 0.15 m/s (88 to 29 fpm)
48:1	0.35 to 0.12 m/s (68 to 22 fpm)
64:1	0.25 to 0.08 m/s (50 to 17 fpm)
96:1	0.17 to 0.06 m/s (34 to 11 fpm)

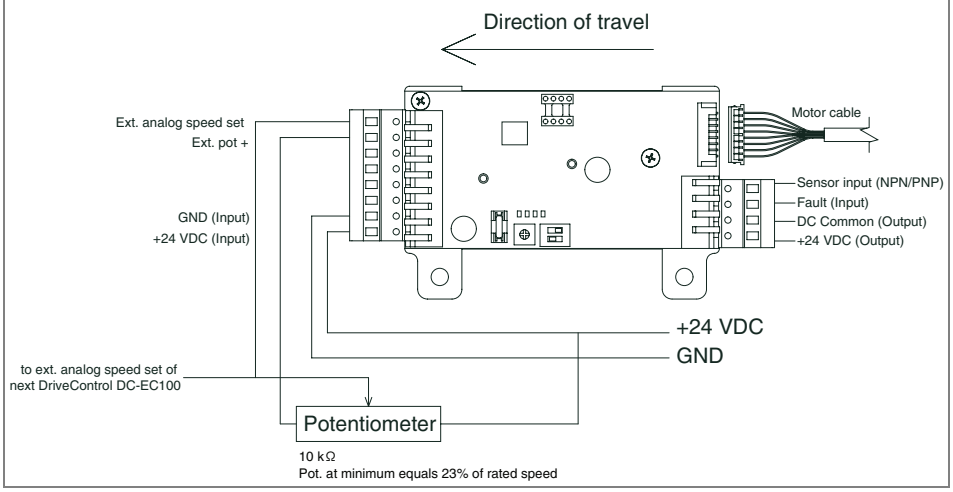
Product information

External speed setting

Apart from the potentiometer on the DriveControl, there are other ways to set the speed.

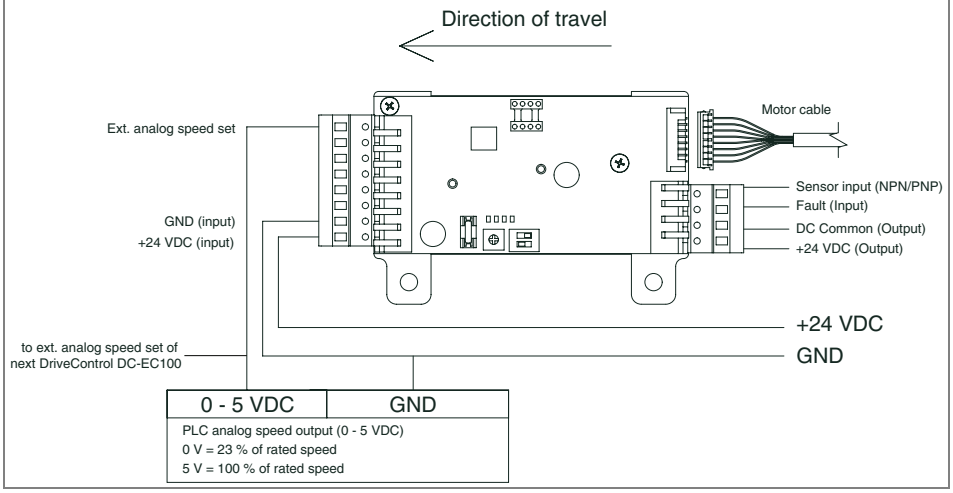
When the DIP switch settings ON / OFF are stated, both settings are possible for the wiring shown (for the meaning of the settings, *see "DIP switches", page 10*).

External speed set by potentiometer



DIP switch settings:
- SW2: ON / OFF
- SW1: ON / OFF

External speed set by PLC



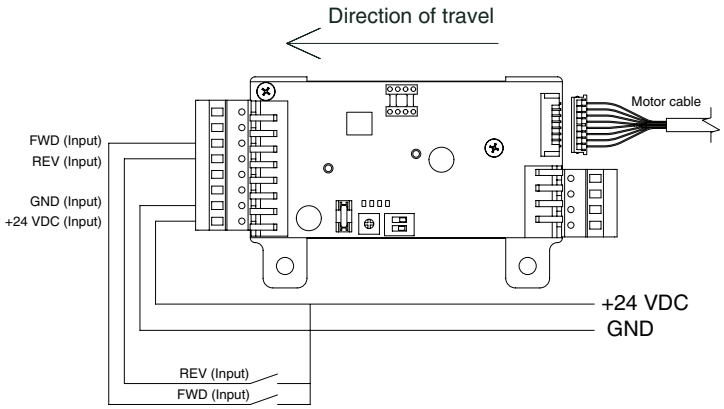
DIP switch settings:
- SW2: ON / OFF
- SW1: ON / OFF

Product information

Wiring diagrams

Motor start and external direction setting

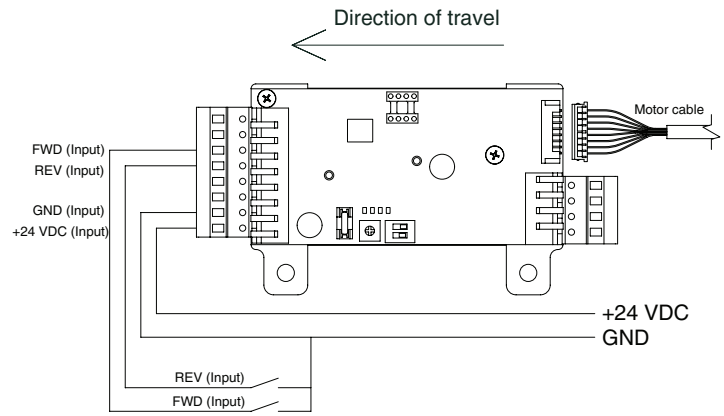
Motor start and external direction setting in PNP mode



DIP switch settings:
- SW2: ON / OFF
- SW1: ON

RollerDrive rotation direction:
- FWD connected to 24 VDC at PNP mode causes ccw rotation.
- REV connected to 24 VDC at PNP mode causes cw rotation.
- FWD and REV connected to 24 VDC at PNP mode causes coast mode.

Motor start and external direction setting in NPN mode



DIP switch settings:
- SW2: ON / OFF
- SW1: OFF

RollerDrive rotation direction:
- FWD connected to GND at NPN mode causes ccw rotation.
- REV connected to GND at NPN mode causes cw rotation.
- FWD and REV connected to GND at NPN mode causes coast mode.

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-EC100 in a conveyor system

- ➢ Use the DriveControl as a template and mark the center of the two mounting holes. For the distance between the holes, *see "Dimensions", page 7*.
- ➢ Drill two ø 5.6 - 6 mm (0.22 - 0.24 in) mounting holes at the marked spots.
- ➢ Insert the button head screws in the holes on the opposite side the DriveControl is to be mounted.
- ➢ Install the DriveControl to the frame with the screws protruding through the mounting holes.
- ➢ Slip the nuts to the screws and tighten.
- ➢ Ensure that there is a ground path between the DriveControl and the conveyor frame it is mounted to.

The DriveControl and conveyor frame should be at the same potential referenced to earth ground.

Assembly

Electrically installation

The connector supplied with the RollerDrive EC100 mates up with the header on the DC-EC100.

The connectors "Power input and I/O terminal" and "Sensor connection" are cage clamp terminals.

- To actuate the cage clamp, use the supplied tool or insert a small screwdriver.
- 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 position of the DIP switches (*see "DIP switches", page 10*).
- Check the speed settings at the speed potentiometer. It is recommended to run the RollerDrive at maximum speed.
- 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 reduce the speed manually, turn the potentiometer counterclockwise with a small screwdriver.
- To increase the speed manually, turn the potentiometer clockwise with a small screwdriver.
- To set the DIP switches, carefully use a small screwdriver.

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 23* and *see "Installing the DC-EC100 in a conveyor system", page 17*).

Replacing fuse

- ➢ Carefully use tweezers to remove and insert the fuse. Ensure you do not damage the fuse holder, the circuit board or its devices.

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.
	Wrong polarity of the bus line inputs	Verify the polarity of the bus line inputs to the DC-EC100 (*see "Inputs and outputs", page 9*).
	Wrong position of the DIP switch 1	Verify that the position of the DIP switch 1 Logic (NPN or PNP) matches the sensor type (*see "DIP switches", page 10*).
	Fuse is blown	Replace the fuse (*see "Replacing fuse", page 20*).

Troubleshooting

The following errors are reported by illuminated LEDs:

(also *see "Meaning of the LEDs", page 11*)

Symptom	Possible cause	Help
Motor is in brake mode, red fault LED is on and error output is active ("No fault output" is active).	Invalid state of motor hall effect sensor • Broken wire • Failed hall effect sensor	Replace the RollerDrive.
	Voltage over or under limits • Power supply fluctuations, failure or overload condition	Check the power supply.
On a decline, motor is in brake mode momentarily. Red fault LED is on ("No fault output" is active) or power supply shutdown.	Over voltage detection (caused by over speed or excessive back EMF) • decline angle too high • package weight too high	• Reduce decline angle • At decline conveyors use brake roller to keep speed low
	Motor overrun, overset speed • Package enters zone at a higher than anticipated speed	Reduce the package entry speed.
Red fault LED is on and error output is active ("No fault output" is active).	Low gain signal from sensor • Dirty sensor lens or misaligned	Clean the sensor lens and align the sensor.
Current folds back to maximum continuous current, amber fault LED is on.	Card or motor over temperature • Excessive load or duty cycle	Reduce the load of packages or throughput of the zone
Current folds back to approximately 1.5 A while applying consistent torque. Red fault LED is on and error output is active ("No fault output" is active).	Motor stall condition • Obstruction or load too heavy to be conveyed	Once the stall condition is removed, the RollerDrive will resume normal operation.
Red fuse LED is on, all other LED's are off .	Fuse is blown	Replace fuse and check for possible reasons.

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

DriveControls

Part	Part #
Z-Card EC Easy	89Z2
Z-Card EC Full	89Z3

Plugs and cables

Part	Description
Power and I/O plug	• 8-pin cage clamp type connector, Wago part # 231-308/026-004 • Wire diameter: – Minimum 0.08 mm^2 (AGW 28) – Maximum 2.5 mm^2 (AGW 12)
Sensor plug	• 4-pin cage clamp type connector, Wago part # 734-104/000-004 • Wire diameter: – Minimum 0.08 mm^2 (AGW 28) – Maximum 1.5 mm^2 (AGW 14)
Motor plug	• The motor plug for the RollerDrive consists of a plug and terminal pins – Plug: AMP part # 175778-8 – Terminal pins: AMP part # 1-175102-1 • Crimping tool AMP part # 9184381

Appendix

Glossary

Back EMF Electromotive force (voltage) generated by a package arriving at high speed at a powered RollerDrive under no load prior to the package's arrival. EMF is a counter-voltage phenomenon that is always present in a motor. Excessive back EMF can cause a current backlash that may damage the DriveControl or power supply. Care should be taken to minimize excessive back EMF by minimizing the speed differences between the gravity conveyor and/or different zones of powered conveyor sections.

Coast mode The RollerDrive is running freely without power or braking.

Dynamic braking For DC motors, dynamic braking is a method of stopping a motor by applying a resistive load across the motor winding leads after disconnection from the DC supply. The motor operates as a generator. By its nature, dynamic braking has no holding power by itself, i.e. the motor can still be rotated by outside forces. Interroll has added zero motion hold to achieve this.

Idler rollers Non-powered rollers attached to a RollerDrive typically via O-rings or multi-rip belts.

O-rings O-rings made of materials such as polyurethane that connect RollerDrives to their associated idler rollers.

Photoeye An ON/OFF sensor that uses light to sense the presence of objects. If the light beam is broken, an object is present. Usually the light is reflected back to the sensor via a reflector placed on the opposite side of the conveyor frame from the sensor itself. The DC-EC100 can use either NPN type or PNP type photoeyes. NPN sensors indicate an active state by a grounded connection being made (NPN mode) or a 24 VDC connection being made (PNP mode).

RollerDrive One of several types of DC powered rollers manufactured by Interroll Corporation.

Zero motion hold For DC motors, zero motion hold is a method of holding a motor by applying a small amount of current to the motor winding leads. When the DC-EC100 is commanded to stop and accumulate, the braking action is twofold. First, the motor/package is stopped using dynamic braking. Second, the motor is held in place by zero motion hold. In this state the DC-EC100 will resist being rotated by outside forces.

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-EC100

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.)

INTERROLL®

DRIVES & ROLLERS

Europe/Nordic

Denmark
Interroll Nordic A/S
Hammerholmen 2-6
DK-2650 Hvidovre/Denmark
Tel. +45 36 88 33 33
Fax +45 36 88 33 72
dk-sales@interroll.com

Interroll Service
Islandsvej 5
DK-7900 Nykøbing M.
Tel. +45 97 71 15 55
Fax +45 97 71 16 55
dk-sales@interroll.com

Iceland
IBH ehf
Dugguvogur 10
104 Reykjavik
Iceland
Tel. +354 562 6858
Fax +354 562 6862
ingi@ibh.ehf.is

Finland
Tel. +358 9 54 94 94 00
Fax +358 9 54 94 94 16

Norway
Tel. +47 32 88 26 00
Fax +47 32 88 26 10

Sweden
Tel. +46 35 227077
Fax +46 35 227078

Western/Southern Europe

France
Interroll S.A.S.
ZI de Kerannou
B.P. 34
F-29250 Saint Pol de Léon
Tel. +33 298 24 41 00
Fax +33 298 24 41 02
f-sales@interroll.com

Italy
Rulli Rulmeca S.p.A.
Via A. Toscanini, 1
I-24011 Almè (Bg)
Tel. +39 035 4300111
Fax +39 035 545523
i-sales@interroll.com

Portugal
Rulmeca Interroll de Portugal Lda
Apartado 69, Centro Civico
P-6201-909 Covilhã
Tel. +351 275 330 780
Fax +351 275 330 789
p-sales@interroll.com

Spain
Interroll España S.A.
C.I. Santiga
C/Puig dels Tudons, 5
E-08210 Barberà del Vallès
Tel. +34 93 729 96 50
Fax +34 93 718 96 50
e-sales@interroll.com

United Kingdom
Interroll Ltd.
Brunel Road
Earlstrees Industrial Estate
GB-Corby, Northants NN17 4UX
Tel. +44 1536 200 322
Fax +44 1536 748 505
gb-sales@interroll.com

Central Europe

Germany
Interroll Fördertechnik GmbH
Höferhof 16
D-42929 Wermelskirchen
Tel. +49 2193 23 0
Fax +49 2193 20 22
d-sales@interroll.com

Austria
Tel. +49 2193 23 187
Fax +49 2193 23 164

Belgium
Tel. +49 2193 23 131
Fax +49 2193 23 164

Luxembourg
Tel. +49 2193 23 190
Fax +49 2193 23 164

Netherlands
Tel. +49 2193 23 151
Fax +49 2193 23 164

Switzerland
Tel. +49 2193 23 190
Fax +49 2193 23 164

Benelux
Interroll Trommelmotoren b.v.
Veldweg 38
NL-6075 Herkenbosch
Tel. +31 4755 33701
Fax +31 4755 32597
nl-drummotors@interroll.com

Eastern Europe

Czech Republic
Interroll CZ, s.r.o.
G. Šimka 3147
CZ-69003 Břeclav
Tel. +420 519 330 210
Fax +420 519 330 211
cz-sales@interroll.com

Hungary
Tel. +36 23 337 891
Fax +36 23 337 892

Poland
Interroll Polska Sp. z o.o.
ul. Jagiellońska 78
lok. 3.31
PL-03-301 Warszawa
Tel. +48 22 334 63 43
Fax +48 22 675 72 92
pl-sales@interroll.com

Slovakia
Tel. +421 2 4363 8102
Fax +421 2 4342 7294

Slovenia
Tel. +386 1 56 56 370
Fax +386 1 56 56 372

Turkey
Roller Makina San. Ve. Tic. Ltd. Sti.
Zihni Sakaryali Ali Sok.
Ufuk Apt. No. 1 D. 11
Ersoy Sahil Sitesi
81070 Suadiye
Istanbul
Tel. +90 216 386 37 75
Fax +90 216 386 38 22
tr-sales@interroll.com

Near East

Israel
ComTrans-Tech Ltd.
P.O.B. 17433
Tel-Aviv 61174
Israel
Tel. +972 54 4 27 27 47
Fax +972 3 7 44 08 64
il-sales@interroll.com

Africa

South Africa
Interroll SA Pty. Ltd.
P.O. Box 327
Isando 1600
ZA-Gauteng
Tel. +27 11 974 1901
Fax +27 11 974 1896
za-sales@interroll.com

North & South America

USA
Interroll Corporation
3000 Corporate Drive
USA-Wilmington, NC 28405
Tel. +1 910 799 11 00
Fax +1 910 392 38 22
usa-sales@interroll.com

Canada
Interroll Canada Ltd.
1201 Gorham Street
CDN-Newmarket
Ontario L3Y 8Y2, Canada
Tel. +1 905 727 3399
Fax +1 905 727 3299
cdn-sales@interroll.com

Argentina
Interroll South America
Calle 117, No. 3591
B1650NRU San Martin
Provincia de Buenos Aires
Tel. +54 11 4753 8005
Fax +54 11 4754 1332
ar-sales@interroll.com

Brasil
Interroll Brasil
Av. Portugal 918
CEP 06651-970
Itapevi - SP
Tel. +55 11 41 43 43 43
Fax +55 11 41 43 77 19
br-sales@interroll.com

Asia

China
Interroll (Suzhou) Co. Ltd.
Unit 10B, Modern Industrial Square
No. 333 Xing Pu Road
Suzhou Industrial Park
Suzhou, Jiangsu Province
People's Republic of China
Postal Code: 215126
Tel. +86 512 6256 0383
Fax +86 512 6256 0385
cn-sales@interroll.com

Japan
Interroll Japan Co. Ltd.
302-1 Shimokuzawa
Sagamihara-shi
JPN - Kanagawa 229-1134
Tel. +81 42 764 2677
Fax +81 42 764 2678
jpn-sales@interroll.com

Korea
Interroll Korea Corporation
Room 301, Dongsan Bldg, 333-60
Shindang-Dong, Choong-ku
Seoul
Tel. +822 2 231 1900
Fax +822 2 254 36 83
kr-sales@interroll.com

Singapore
Interroll (Asia) Pte. Ltd.
386 Jalan Ahmad Ibrahim
629156 Singapore
Republic of Singapore
Tel. +65 6266 6322
Fax +65 6266 6849
sgp-sales@interroll.com

Thailand
Interroll (Thailand) Co. Ltd.
41/6 Moo 6, Bangchalong,
Bangplee
Samutprakarn 10540
Tel. +66 2 337 0188 91
Fax +66 2 337 01 92
th-sales@interroll.com

Australia & New Zealand

Australia
Conveyor Solutions Australia Pty. Ltd.
70 Keon Parade
Thomastown 3074
Melbourne
Tel. +61 3 9460 2155
Fax +61 3 9460 2029
aus-sales@interroll.com

New Zealand
Anthony Group (NZ) Ltd.
42 Parkway Drive
Mairangi Bay
NZ-Auckland 10
Tel. +64 9 478 6150
Fax +64 9 479 6394
nz-sales@interroll.com

For other countries please
see contacts at
www.interroll.com

Version 1.0 (11/2007) en
Original language