Product Overview

Interroll 24 V Drive Systems
Intelligent Solutions for Efficient Conveyor Technology

INSPIRED BY EFFICIENCY

Smart handling of resources
is mandatory for Interroll. Because
we are convinced that efficiency is a
fundamental value. It drives us to constantly
improve products and processes. Efficiency inspires
our daily activities.

"Inspired by efficiency" means: We develop products
for internal logistics that perfectly adapt to the needs
of our customers.

As global market leader in technology and innovation
in our industry, we believe that strengthening
the business of our customers in a significant
and lasting way is our responsibility. For Interroll,
the key to success is the consistent pursuit
of efficiency.

Table of Contents

The RollerDrive is a 24 V motorized roller specifically tailored to the needs of intralogistics users. Many years of experience and many hundreds of thousands of RollerDrive in use make Interroll the leading manufacturer in the intralogistics sector.

Interroll 24 V drive systems: simple transportation with zero pressure accumulation

Transportation with zero pressure accumulation can be used for sensitive transport materials which should not pile up in lines or which can be damaged by impact loading or accumulated pressure. The system can also be used in buffer segments to ensure an optimum filling ratio of the transport zone or to separate transport materials.

Systems with zero pressure accumulation are divided into different conveyor zones. Each zone is powered by a separate RollerDrive and is fitted with a zone sensor for identifying transport material. Both the drive unit and sensor are connected to a control system such as the Interroll MultiControl. The conveyor logic can either come directly from the Interroll control system or from a central control unit.

Energy efficient and economical

Dividing the conveyor system into different zones results in considerable **energy savings**: sensors and the intelligent control system switch each zone on or off individually.

The conveyor system only moves when there is material to be transported, and only the RollerDrive that are required for optimum throughput of the goods are powered. This signifies a huge potential for energy saving, as well as **a reduction in noise and wear**.

50 % energy savings

- Energy efficient
- Low noise and wear
- Compact design
- Fast and simple integration

Compared with 400 V drive systems, a conveyor system powered with RollerDrive allows for energy savings of up to 50% on average.

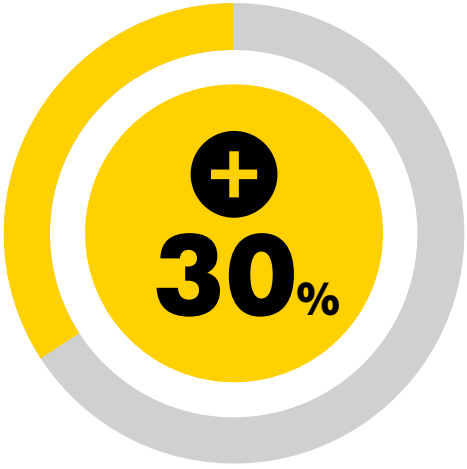
The **fast and simple integration** into the conveyor system saves time, and therefore money. The conveyor systems can also be constructed in a compact manner as there are no protruding components.

Advantages of Interroll 24 V products

- Flexible arrangement into zones
- Low noise levels; just 50 dBA depending on use
- No pneumatics, resulting in less noise and lower operating costs
- Long lifetimes; over 30,000 hours already in some systems
- Practically maintenance-free
- High protection rating, up to IP66
- High safety potential due to low voltage range
- Installation and maintenance does not require qualified staff
- Easily upgradeable in existing conveyor systems

Interroll EC310
24 volt DC RollerDrive

The best drive solution for practically any conveyor system.



Energy recuperation

The RollerDrive EC310 is powered by a brushless 24 V DC motor integrated into a series 1700 conveyor roller to save space.

The commutation electronics are located next to the motor in the tube. This construction offers reliable protection against overheating as the temperature is measured and calculated directly from the motor.

The integrated overload protection offers further safety as it can recognize changes in speed resulting from external influences or blockages in the RollerDrive.

By feeding energy from braking back into the system, the RollerDrive EC310 is capable of energy savings of up to 30%.

Efficient, low-maintenance and quiet

Integrated decoupling protect the motor gear box unit, considerably reducing noise levels. As a result, it is not uncommon for RollerDrive driven conveyor systems to have a noise level of under 50 dBA. Maintenance costs remain low throughout the entire life of the RollerDrive EC310.

NOISE LEVEL UNDER 50 DBA

MINIMAL MAINTENANCE COSTS

Technical data

- 9 gear ratios
- Starting torque up to 12 Nm
- Speeds of up to 1.75 m/s
- Start and brake ramps
- Electronic holding brakes for ascending or descending conveyors
- IP54 and IP66 protection rating
- Frozen-storage version

Overview of control systems

The perfect control concept for every use.

Whatever the unit load handling challenge, there is a perfect control system for the RollerDrive EC310. Thanks to simple cabling and configuration, the different control systems can be installed and ready for use in next to no time.

As a result, conveyors can be upgraded with zero pressure accumulation without needing to rebuild the conveyor frame.

EASY SETUP

		DriveControl 20 DriveControl 54	ZoneControl	ConveyorControl*	MultiControl
Function		Interface for an EC310 via digital I/Os	Single-zone control system with peer-to-peer communication	Fieldbus-based control system	Control system based on industrial Ethernet
Characteristics		Cost-optimized solution for RollerDrive application in conveyor systems without zero pressure accumulation conveyor logic	No addressing required › Simple replacement	Simple cabling and installation. Communication with PLC via gateway.	Direct communication with PLC
Typical application		Small, compact systems. PLC without fieldbus.	Independently controlled conveyor system with zero pressure accumulation without PLC	Independently controlled conveyor system with zero pressure accumulation. PLC can monitor and control.	PLC-managed conveyor system
Zero pressure accumulation logic included			X	X	X
Communication with PLC	**EtherCAT**				X
	EtherNet/IP			X (Gateway)	X
	PROFIBUS			X (Gateway)	
	PROFINET			X (Gateway)	X
	Digitale I/O's, no fieldbus	X	X		
Parameter settings		DIP switch	DIP switch	Via configuration software	Via web user interface or PLC
Interface to RollerDrive	**RollerDrive connections**	1	1	2 (SegmentControl)	4
	Configurable start/stop ramps	Only slow and fast	No	Yes	Yes
I/O connections	**Zone sensors**	0	1	2 (SegmentControl)	4
	Additional inputs/outputs	0	1 (Startsensor)	2 Inputs/3 Outputs (ComControl)	4 Inputs/Outputs (configurable)
Protection rating		IP20/IP54	IP20	IP54	IP54
Suitable for use in deep-freeze areas		DriveControl 54		x	x

* with GatewayControl

Interroll DriveControl

DriveControl 20

DriveControl 54

Universal interface

The DriveControl 20 and DriveControl 54 are the simplest interfaces for use with the RollerDrive EC310. Both casings are designed for industrial use and have a protection rating of IP20 or IP54, making them ideal for all kinds of applications.

The DriveControl does not have its own logic, meaning it requires suitable input signals from a PLC.
Digital inputs and outputs serve as an interface to a higher-level control system.

The direction of rotation and speed of the RollerDrive can be adjusted via DIP switch and can be influenced by a PLC. An acceleration/deceleration ramp can also be enabled using a DIP switch. There is no need for expensive digital/analog converters to control the RollerDrive directly.

Safety first: safety when connecting and during operation
The DriveControl comes with reverse polarity protection to ensure the safe connection of the power cable and RollerDrive EC310. With the help of an integrated braking chopper, the DriveControl is capable of limiting the voltage feedback to 30 V, reliably protecting other devices in the 24 V network from excessive voltage.

Diagnostic function during operation and on-site
LEDs indicate the operating condition of the DriveControl and the RollerDrive, as well as the operational voltage. In addition, error messages can be issued and analyzed.

Interroll ZoneControl

ZoneControl

Single-zone control system: great for self-sufficient conveyor systems with zero pressure accumulation

ZoneControl contains sophisticated logic for zero pressure accumulation conveying with the necessary interfaces for a RollerDrive and a sensor. It is not necessary to program or use a PLC, but additional functions can be added and communication with upstream and downstream conveyor systems is possible by means of digital inputs and outputs.

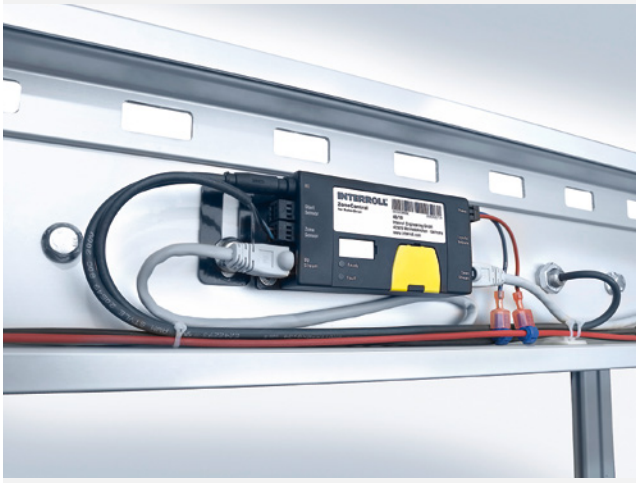
Several ZoneControl systems can communicate using standard Ethernet cables, making the system fully expandable.

Simple configuration
No addressing of the control system is required as the ZoneControl automatically recognizes its position within the conveyor system. Individual position and block withdrawal provides two different conveyor logics, which – in addition to the speed and direction of rotation of the RollerDrive – can be adjusted using DIP switches. Thanks to the lack of addressing and the simple configuration, even unqualified personnel can install a new ZoneControl system quickly and easily.

Reliable, safe operation
Transport goods which have accumulated are separated automatically.
Transport goods located between sensors are transported into sensor range when the system is switched on.
Adjustments to other transport goods or removal during operation is possible at any moment from any zone.

Digital inputs and outputs allow:

- Empty run of conveyor system with a signal
- Change in speed across entire conveyor system
- Reading of zone status
- Setting of start/stop signals
- Activation of second RollerDrive in the zone
- Reading of error message across entire system



Interroll ConveyorControl

Flexible control system concept with intuitive configuration software

4 **DIFFERENT** CONTROL MODULES

1 CONFIGURATION SOFTWARE

1 COMPREHENSIVE SOLUTION

product design award

Thanks to its well-designed logic for zero pressure accumulation transportation, the ConveyorControl system offers flexible control for the RollerDrive EC310. Four different control modules with different functions and the free configuration software make up a comprehensive solution which is free and easy to install and put into operation.

The huge advantage offered by the ConveyorControl is that the conveyor logic is included and does not need to be programmed separately in a PLC, which can be very time-consuming. This makes it easier for software specialists when putting systems into operation.

It is still possible to connect a PLC via a fieldbus if required. This can take readings from the system and carry out tracking, as well as managing specific points.

The most important control functions

- Transport with zero pressure accumulation in both directions
- Separate RollerDrive settings such as start and brake ramps or speed changes during operation
- Empty run in all zones
- Stoppage of all transport goods at end of zone

Versatile and reliable
In zero pressure accumulation transport systems, almost any application is possible thanks to flexible settings:

- Certified GatewayControl for PROFIBUS, PROFINET and EtherNet/IP versions
- Centrally adjustable via intuitive PC software
- Ready for use without the need to adjust settings
- Up to 80 different adjustable parameters
- Protection class IP54, housing designed for industrial use
- Temperature range between –30 °C and +40 °C

Economical, reliable cabling
Standard flat ribbon cables and piercing technology are used for all power and communications cabling regardless of length, making installation economical, fast and reliable.

UP TO 80
ADJUSTABLE SETTINGS

Configuration software

The Interroll Configurator is a PC-based user interface. It can be used to configure and address as many conveyor systems as needed. The main parameters to set:

- Accumulation logic and direction of accumulation logic
- Sensor functions
- Speed, direction of rotation, acceleration and deceleration of the RollerDrive

Simple parameter setting via the Configurator.

ConveyorControl system modules

COMCONTROL

For controlling a single zone with additional inputs/ outputs

ComControl is used for controlling one single zone in a conveyor system. It also has two further inputs and three additional outputs for use with a subsequent system, for example.
ComControl is used where a junction in the communications cable or additional input/output signals are required.

SEGMENTCONTROL

For controlling two zones

SegmentControl controls up to two zones in a conveyor system, each consisting of a RollerDrive EC310, several conveyor rollers and a zone sensor. All parameters can be set using the Configurator.

Logic for zero pressure accumulation transport included

CENTRALCONTROL

For data communication between modules

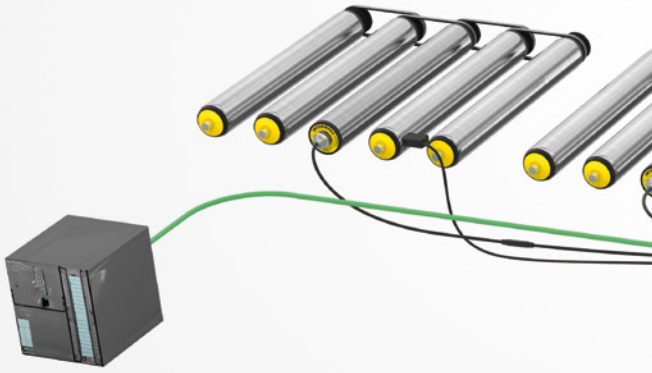
CentralControl controls data exchange between the modules. A USB allows connection to a PC.
With the help of the computer and the configuration software, all modules can be addressed and configured. Up to 100 modules, i.e. approximately 200 zones, can be connected to one CentralControl.

GATEWAYCONTROL

Data communication between modules to a PLC via a fieldbus

GatewayControl offers the same functionality as CentralControl, but with the main difference of an interface to a PROFIBUS, PROFINET or EtherNet/IP fieldbus, and therefore on to a PLC. This allows control via a PLC and detailed status and error analysis and even, for example, tracking of transport goods.

Interroll MultiControl
Direct integration at fieldbus level



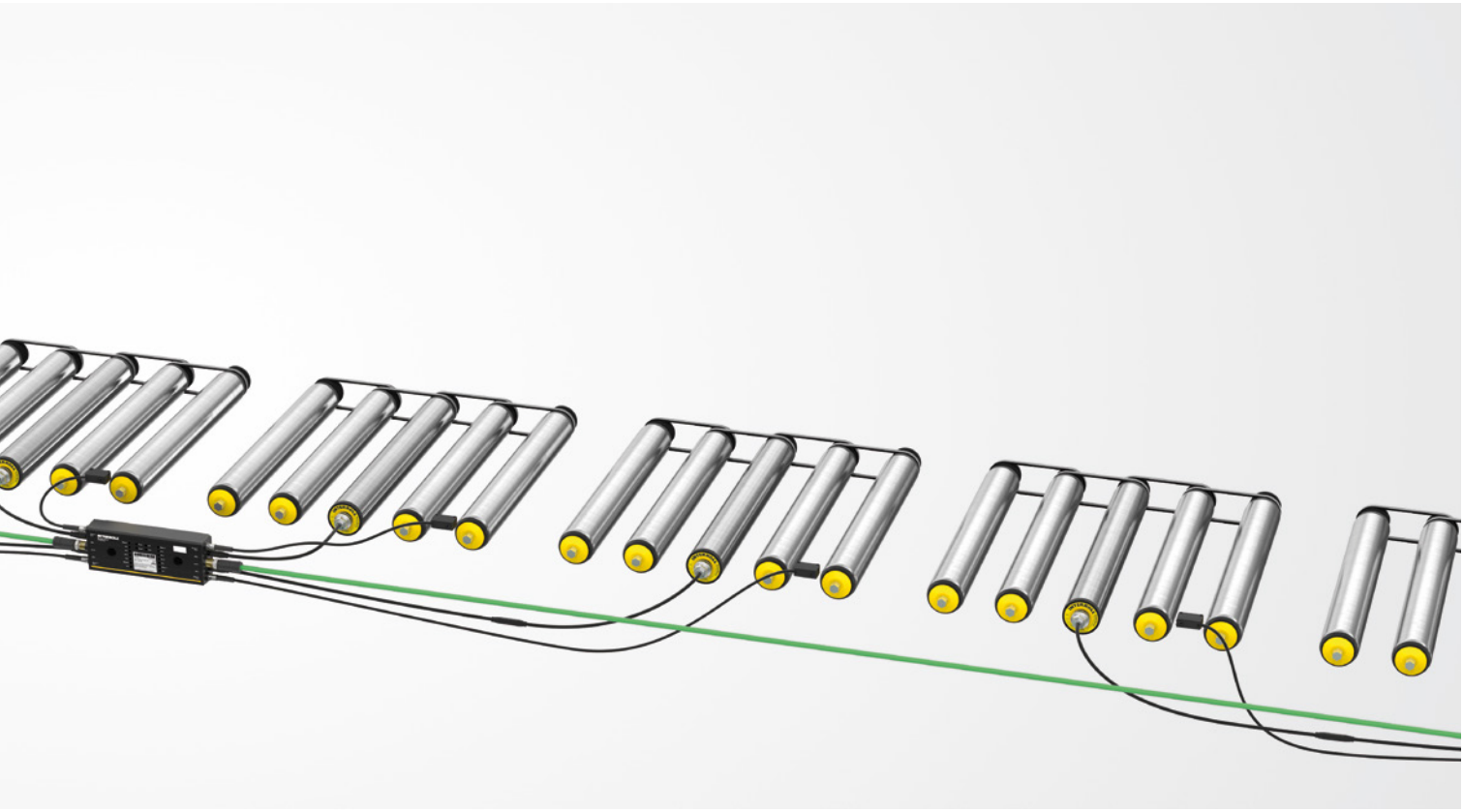
MultiControl is a certified network card for PROFINET, EtherNet/IP and EtherCAT. Changeover to the desired network protocol is easy via a magnetic key.

The sensors and RollerDrive are integrated directly at fieldbus level. This allows a complete additional sensor/actuator layer to be saved.

Addressing and naming is simple and flexible and can be done directly via PLC planning software, a web user interface or the Interroll teach-in process.

This process simplifies and shortens the system commissioning time on-site and also allows automatic configuration of the MultiControl neighborhood relationships. With software provided by Interroll, the MultiControl can also be used in unusual transport logics as a separate control unit either with or without a PLC.

Multiple connection possibilities via Y cables



Connections and cables
Power is supplied by standard flat ribbon cables which are connected to the MultiControl with the aid of piercing contacts. Deactivation of the RollerDrive is possible with an active bus when a second flat ribbon able is attached. Up to four RollerDrive and four sensors can be connected to the MultiControl; four additional inputs or outputs can be added via Y cables. Two network cables can be connected via M12 plugs.

Thanks to plug-and-play technology, the MultiControl is fast and easy to replace and requires no addressing or configuration. Its extremely simple operability means even unqualified personnel can exchange devices.

Functions and advantages at a glance

- Direct integration at fieldbus level
- Real-time communication with a PLC
- Configuration via web interface or PLC
- Housing designed for industrial use with protection class IP54
- Temperature range between –30 °C and +40 °C
- UL certified

Accessories

ROLLERDRIVE ACCESSORIES

PowerControl
PowerControl is the high-performance, robust 24 V mains adapter for the RollerDrive's power supply. It can manage energy feedback and high start-up currents from several different RollerDrive (peak current of 30 A for up to 4 s). Thanks to its mains voltage range of 380 – 480 V AC, the PowerControl can be used in many different countries. PowerControls with a protection rating of IP54 and two 24 V outputs can be attached directly to the roller conveyor, eliminating the need for integration into costly switch cabinets. As a result, small conductor cross-sections and short cable lengths are possible. The 400 V cable can be looped. Suitable for use at temperatures between -30 °C and +40 °C.

- Article number: S-1004029

RollerDrive extension cable
The RollerDrive extension cable can be used to extend the supply cable to the EC310 by 2 m via a simple plug-in connector.

- Article number: S-1004033

RollerDrive fastening socket
The socket can be used to tighten the RollerDrive fastening nut to the correct torque with the help of a torque wrench. The socket has an opening on the side through which the RollerDrive connection cable can pass.

- Article number: S-1101248

ROLLERS/TORQUE TRANSMISSION ACCESSORIES

Conveyor rollers
Interroll offers a wide range of conveyor rollers made of different materials with different torque transmission and fastening options. All suitable conveyor rollers can be found in our comprehensive roller catalog.

PolyVee belts
Interroll offers two-band and three-band PolyVee belts for use with different roller pitches. All suitable PolyVee belts can be found in our comprehensive roller catalog.

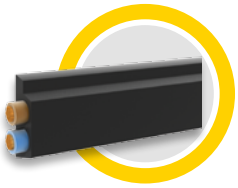
PolyVee tightening tools
Use PolyVee tightening tools to position PolyVee belts correctly for roller pitches of 75 mm and 100 mm, thereby ensuring the right pre-tension.

- Article number: S-1101272

PolyVee contact protection
PolyVee contact protection offers safe, reliable protection for unintentional contact between the belts and alignment to the tube (PolyVee head). The protection sits on PolyVee series 3500 roller seals. As a result, it can be used independently of the side profile, meaning that it can be used for all standard profiles.

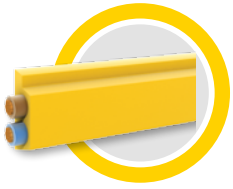
- Article number for 75 mm roller pitch: 8863
- Article number for 100 mm roller pitch: 8864

CONTROL SYSTEM ACCESSORIES



Flat cable voltage supply
The black flat cable with a cable diameter of 2.5 mm^2 allows voltage supply even over mid-range distances. The ConveyorControl systems modules and MultiControl are designed for simple power supply using a flat cable.

- Article number: S-1004030



Flat cable communication
Yellow flat cables can be used for communication between the different ConveyorControl systems modules.

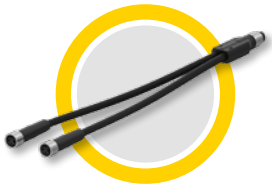
- Article number: S-1004031

Termination box
The small termination box serves as terminating resistance for the communications cable in the ConveyorControl system. The termination box can also be integrated easily into the cable thanks to piercing technology.

- Article number: S-1103892

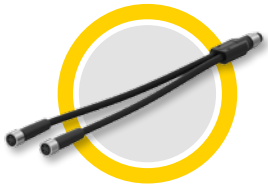
MultiControl communications cable
The 3 m long Ethernet communications cable can be connected to the MultiControl using M12 plugs. It allows communication between several MultiControls and a PLC.

- Article number: S-1104438



Y cable with two outbound 3-pin M8 plugs
This Y cable permits the use of an additional input or output on the MultiControl with 3-pin M8 plugs.

- Article number: S-1104439



Y cable with two outbound 4-pin M8 plugs
This Y cable permits the use of an additional input or output on the MultiControl with 4-pin M8 plugs.

- Article number: S-1104460

Magnetic key
Use the magnetic key to change several settings or trigger functions on the MultiControl. The magnetic key can be used, for example, to change the network protocol.

- Article number: H28J

About Interroll

Established in 1959, Interroll has grown to become the world's leading supplier of key equipment for material handling.

Whether you're handling boxes, pallets, parcels or soft goods, no other supplier has such a comprehensive range of solutions on offer.
This is why system integrators, OEMs and operators choose Interroll as a trusted partner for material handling installations, worldwide.

The Interroll global network ensures quick delivery and superior service forevery local customer.
We inspire our customers and provide opportunities for them to increase efficiency.

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