Driving Conveyor Technology.

Unmatched housing advantages: perfected for seamless integration and easy installation.

G20 Series Motor Control Modules

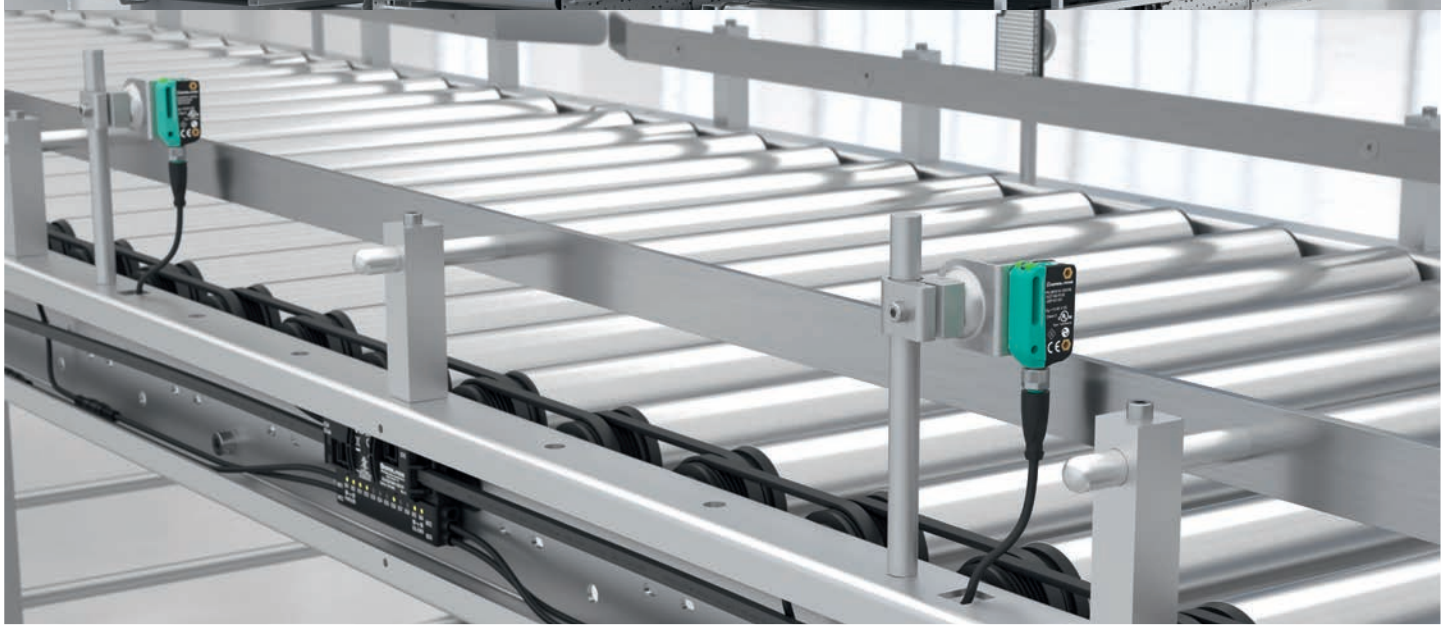


Your automation, our passion.

PEPPERL+FUCHS







G20 Series Motor Control Modules

Perfected for Use in Roller Conveyor Systems

Fast throughput times, high efficiency, and reliable process sequences: When it comes to conveyor systems, speed, efficiency, and reliability are critical. The G20 series motor control modules deliver exceptional performance where it matters most.

Reliable Control of Motorized Drive Rollers (MDRs)

In roller conveyor systems, goods move along a series of rollers. Motor-driven active rollers transmit motion to passive rollers via a rubber O-ring, enabling continuous material flow.

The modules in the G20 series are the tailor-made solution for reliable and efficient control of motorized drive rollers. While all the electronics for motorized rollers are built into the roller itself, classic motors are often controlled via digital IOs. G20 modules are also available for this type of control.

Sophisticated Housing Concept

Specially developed for roller conveyor technology, the extremely compact G20 modules can be installed directly into the side profile of the mounting rail using simple clip or screw mounting. All cables required for up to two sensors and motorized rollers are integrated into the module. The flat cables for power and communication can be easily snapped into place without tools using piercing technology. The LEDs also provide a clear status display at all times.

Streamline the Assembly of Conveyor Segments

The G20 housing was designed for easy installation. It enables the assembly of conveyor segments with integrated motor control modules and sensors. Once installed, the system is completed by simply snapping in flat power and communication cables tool-free, ensuring fast, reliable, and error-free assembly.

Highlights

- G20 series motor control modules for 24 V and 48 V motorized drive rollers for use in modern logistic applications
- Easy integration with four industry-leading technologies: AS-Interface, IO-Link, stand-alone ZPA module, or Ethernet system solution
- Perfect integration: application-optimized design for installation directly into the mounting rail
- Fast, straightforward connection of conveyor segments with tool-free penetration technology
- All required cables are integrated into the module for improved cost efficiency
- Compatible with most common MDRs, customer-specific special solutions possible

For more information, visit
pepperl-fuchs.com/pf-g20

G20 Series Motor Control Modules

The Ideal Solution for Every Application

Flexibility is delivered through four technology options—IO-Link, AS-Interface, standalone ZPA, and Ethernet—allowing seamless adaptation to a wide range of conveyor applications in both 24 V and 48 V systems.

A Variety of Technologies for Greater Flexibility

The **Ethernet G20 system** solution, consisting of an Ethernet G20 controller on up to four conveyor lines to which up to 15 G20 motor modules can be connected, with only one IP address required per Ethernet controller to control up to 120 motorized rollers. Each individual module can still be controlled to specific needs of the application.

The **G20 AS-Interface modules** are the ideal choice for long conveyor lines with widely distributed IOs. For standard applications with static parameter settings and no need for detailed diagnostic data, AS-Interface offers a simple and cost-effective solution.

The **G20 IO-Link module** can control up to four motorized drive rollers, making it ideal for applications with high I/O density, such as elevators with buffer zones in storage areas. Due to the higher data bandwidth of IO-Link, comprehensive data can be supplied and therefore more complex conveying tasks can be solved.

The **G20 ZPA modules** with integrated logic are suitable for long, straight conveyor sections, such as loading zones, as they use a defined safety distance to ensure that the conveyed goods do not collide at any time—without the need for a higher-level control system.

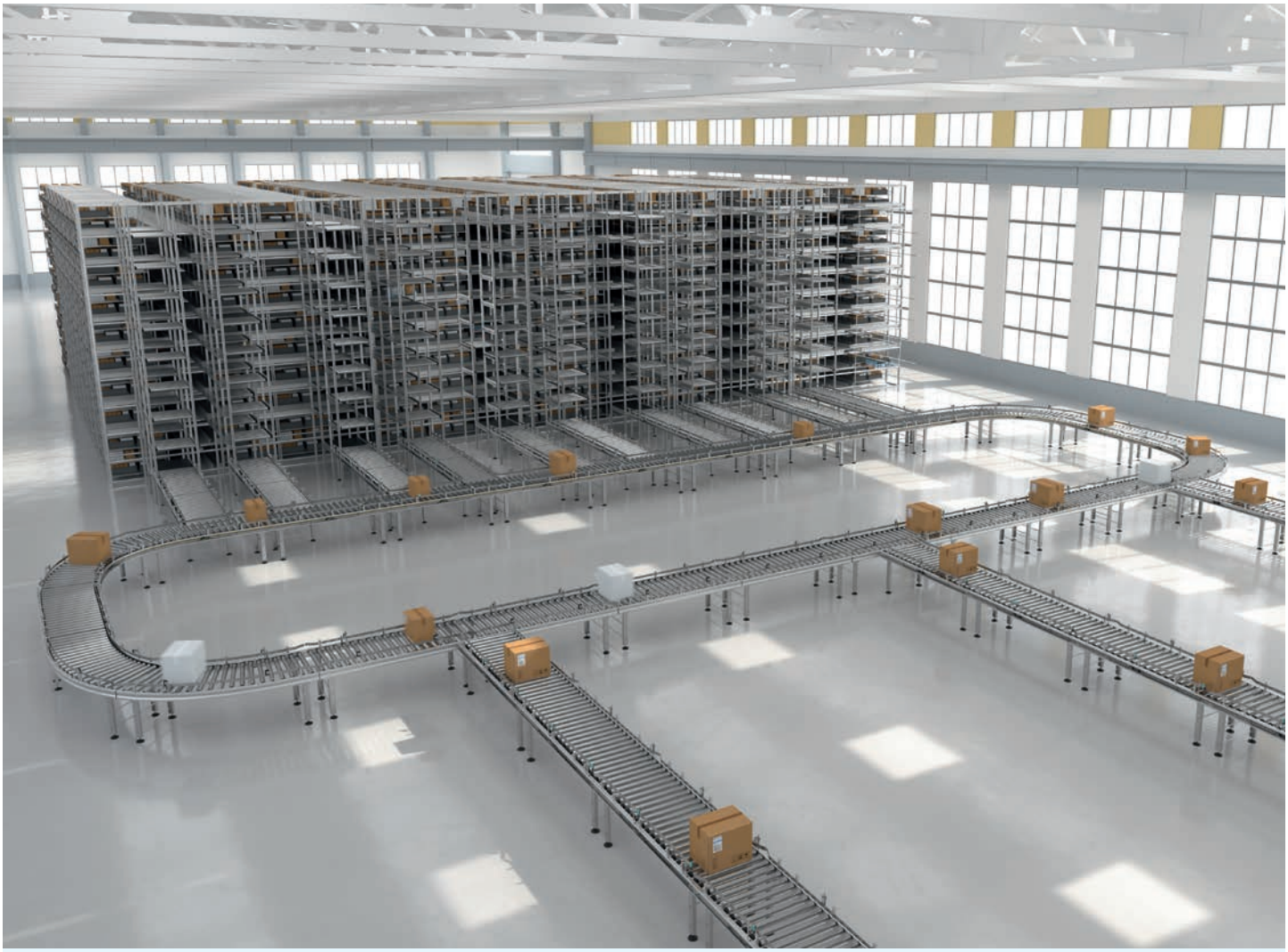
24 V and 48 V Conveyor Technology

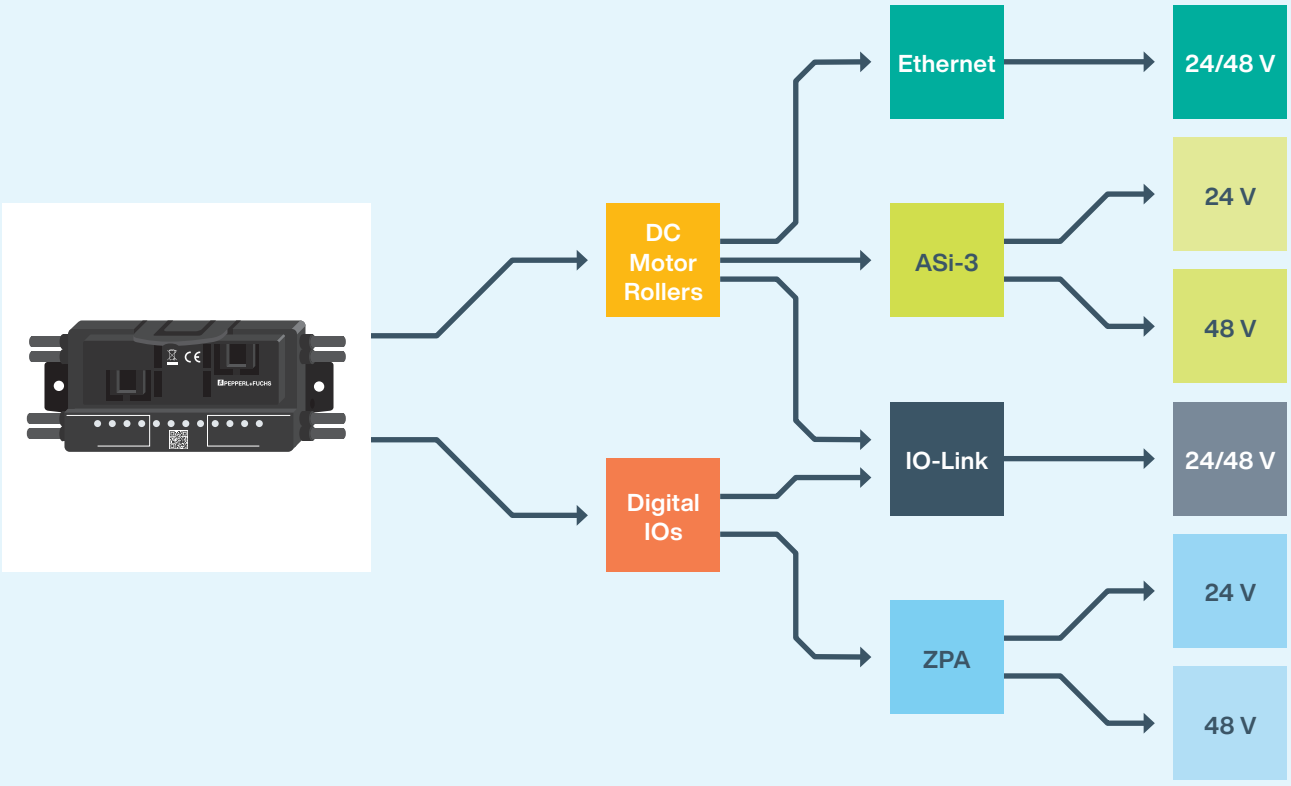
While conventional conveyor systems are predominantly equipped with 24 V motorized rollers, conveyor technology is increasingly moving toward 48 V technology. This not only simplifies the wiring concept, but also offers savings potential for the power supply units along the entire conveyor line. The modules in the G20 series can control both 24 V and 48 V motorized drive rollers.

Compatible Motorized Drive Rollers

The G20 portfolio is compatible with most MDR manufactures. Pepperl+Fuchs also offers the option of customer-specific special solutions. The modules are compatible with the following common motorized drive roller types, among others:

- Interroll EC310 AI (24 V)
- Interroll EC5000 AI (24 V/48 V)
- Rulmeca BL3
- Itoh Denki PM500XC
- Itoh Denki PM500XK
- PULSEROLLER Senergy-IDC
- MTA MRD50 A (24 V/48 V)
- Conveline RM50
- Johnson Electric
- UniDrive One
- Lenze Analogue
- Motor Power Company
- WWL
- Rolex




DC Motor Rollers
Digital IOs
Ethernet
ASi-3
IO-Link
ZPA
24/48 V
24 V
48 V
24/48 V
24 V
48 V

G20 Series Motor Control Modules

Detailed Diagnostics Down to the Motorized Roller

In material handling, maximizing machine availability is key to maintaining stable and reliable logistics processes. The G20 series motor control modules support this by providing technology-dependent diagnostics that help reduce downtime and enable proactive maintenance.

Comprehensive Diagnostics

While most cost-driven motor rollers rely on simple analog interfaces with only a single error bit, the G20 modules go further, providing detailed diagnostics by generating comprehensive status data directly within the module.

Technology-Dependent Diagnostics

The scope of diagnostic data in the G20 module is determined by the selected communication interface. ASi and ZPA configurations provide only a single error bit, whereas IO-Link and Ethernet variants enable comprehensive access to module status data.



Power Consumption

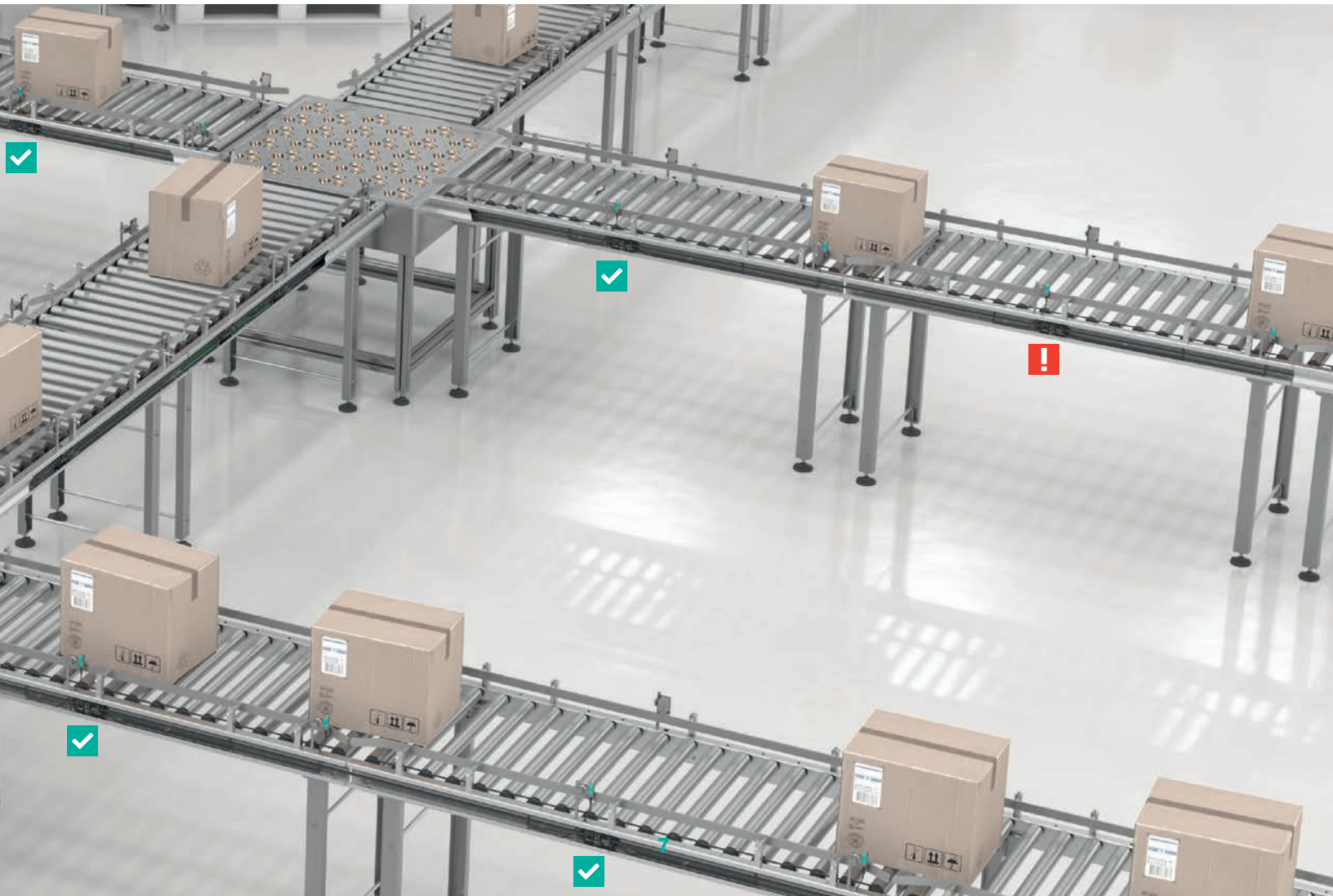
The energy consumption of a material handling system is an important factor, and not just in the context of sustainability. At the motorized roller level, determining energy consumption allows for an assessment of the motorized roller's condition. If, for example, energy consumption increases gradually, this may indicate insufficient lubrication or general wear of the motor roller. In the best-case scenario, the motor roller can be replaced before an actual failure occurs. To this end, the G20 motor modules allow both the supply voltage and the actual current consumption per motor roller to be determined at any given time.

Operating Hours

The operating hours of a motor drive are a key indicator for determining maintenance intervals. For this reason, the G20 modules provide both operating time and the number of switching cycles for each motor.

Temperature

If the temperature in the application becomes too high, the risk of failures increases. Rising temperature can also indicate unwanted friction. The G20 modules provide not only the current temperature reading, but can also issue active warnings when the temperature falls below or exceeds configurable threshold values.



Ethernet G20 System

Scalable Control Solution for Complex Conveyor Systems



Ethernet in Conveyor Technology

Ethernet-based systems enable the efficient control of complex conveyor systems with a large number of motorized rollers. With the Ethernet G20 System, up to 120 motorized rollers can be controlled via a single IP address, significantly reducing the effort required for network management and engineering. Integration into the control system is achieved via a single node, while connected modules are automatically detected and addressed. At the same time, the system offers full control of all relevant motor parameters as well as access to extensive diagnostic data, such as current measurement per connected motorized roller.

Efficient Control of Complex Conveyor Systems

The Ethernet G20 System expands the G20 portfolio with a high-performance communication solution designed for demanding applications. It supports widely used industrial protocols such as PROFINET and EtherNet/IP, while also providing modern interfaces like OPC UA and REST API for IIoT integration.

Depending on the application, each module can be individually controlled either directly via a PLC or operated in decentralized ZPA (Zero Pressure Accumulation) mode. This flexibility makes the system suitable for both complex material handling processes and simpler conveyor lines, allowing it to adapt easily to a wide range of operational requirements.

Ethernet System



Technical Data	ICE-EP2-G20-4B22A-P17 Controller
Communication interface	PROFINET, EtherNet/IP, REST API, OPC UA
Number of lines/ MDR modules	4 lines/15 MDR modules (P18) per line: up to 120 motorized rollers
Line length	Max. 50 m per line
Temperature range	–25 °C ... +60 °C
Degree of protection	IP67
Dimensions (H × W × L)	27.5 ×131.5 ×54 mm

Technical Data	ICA-4IO-2M4-G20-B22A-P18 Motor Roller Module
Supported motor rollers	■ Interroll EC310/Interroll EC5000 AI (24 V/48 V) (20 W/35 W/50 W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/Itoh Denki PM500XC ■ PULSEROLLER Senergy-IDC ■ Unidrive One (pancake motor) ■ MTA MRD50 A (24 V/48 V) ■ Conveline RM50
Inputs/outputs	4 digital inputs/outputs + 2 motor roller outputs
Current loading capacity	■ 3.5 A (continuous), 5 A (< 2 s), max. 7.5 A (< 0.3 s) per motor ■ Total current (continuous) ■ Max. 7 A per device (TB ≤ 60 °C)
Modes	PLC control / decentralized ZPA logic
Temperature range	–25 °C ... +60 °C
Degree of protection	IP67
Dimensions (H × W × L)	27.5 ×131.5 ×54 mm

For more information, visit
pepperl-fuchs.com/pf-g20-system

G20 AS-Interface

For Standard Applications on Long Conveyor Lines



AS-Interface in Conveyor Technology

AS-Interface is a cost-effective and straightforward solution for wiring conveyor lines with widely distributed motorized drive rollers. It enables efficient control of decentralized conveyor segments with minimal installation effort. Each G20 module can control up to two motorized drive rollers and associated sensors using 4-bit process data. Up to 62 G20 modules can be connected to a single AS-Interface line. With a dual gateway configuration, up to 124 devices—each controlling two conveyor zones—can be integrated into a PLC system via a single IP address. This enables simplified network architecture while maintaining scalable system expansion.

Scalable Solution for Decentralized Automation

The AS-Interface portfolio from Pepperl+Fuchs provides all the components required for wiring conveyor systems using AS-Interface. It offers a complete and scalable solution for decentralized automation architectures.

The high-performance gateway can be integrated into both EtherNet/IP and PROFINET networks and is available in single and dual versions. An integrated web server enables simple configuration, diagnostics, and monitoring via mobile devices, while the REST API interface supports the implementation of IIoT applications.





Technical Data	VBA-4E4A-G20-ZEJ/M3L-P9 AS-Interface Motor Roller Module	VBA-4E4A-G20-ZEJ/M3L-P10 AS-Interface Motor Roller Module	VBA-4E4A-G20-ZEJ/M48L-P12 AS-Interface Motor Roller Module
Supported motor rollers	■ Interroll EC310/EC5000 AI (24 V) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24 V) ■ Conveline RM50	■ Itoh Denki PM500XE/PM500XP	■ Interroll EC5000 AI (48 V) ■ MTA MRD50 A (48 V)
Communication interface	AS-Interface V 3.0 (A/B device)		
Inputs/outputs	2 digital inputs + 2 motor roller outputs		
Current loading capacity	■ 3.5 A (continuous), 5 A (< 2 s), max. 7.5 A (< 0.3 s) per motor ■ Total current (continuous): ■ max. 10 A per device (TB ≤ 50 °C) ■ max. 6 A per device (TB ≤ 70 °C)		
Modes	Standard (Speed, Direction ... as parameters)		
Temperature range	–25 °C ... +70 °C		
Degree of protection	IP67		
Dimensions (H × W × L)	27.5 × 135.5 × 54 mm		

For more information, visit
pepperl-fuchs.com/pf-g20-asi

G20 IO-Link

Larger Data Bandwidth for More Complex Conveying Tasks



IO-Link in Conveyor Technology

IO-Link enables the transmission of process, parameter, and diagnostic data, providing efficient handling of large data volumes for precise control in complex conveying applications.

G20 IO-Link modules allow individual configuration of speed, direction, and acceleration ramps, ensuring accurate and flexible motion control. Diagnostic data provides reliable information on the status of connected sensors and actuators, supporting predictive maintenance strategies and helping to prevent unplanned downtime and easy adaption to changing requirements.

Comprehensive IO-Link Portfolio

The Pepperl+Fuchs portfolio includes all devices required to set up conveyor systems with IO-Link communication, ranging from the infrastructure level to IO-Link sensors and peripheral devices. The ICE11 IO-Link master with multiprotocol support is a versatile and robust solution for controller-based applications. The ICE2 and ICE3 series IO-Link masters feature OPC UA and MQTT interfaces, making them ideal for cloud-based applications without a higher-level controller.





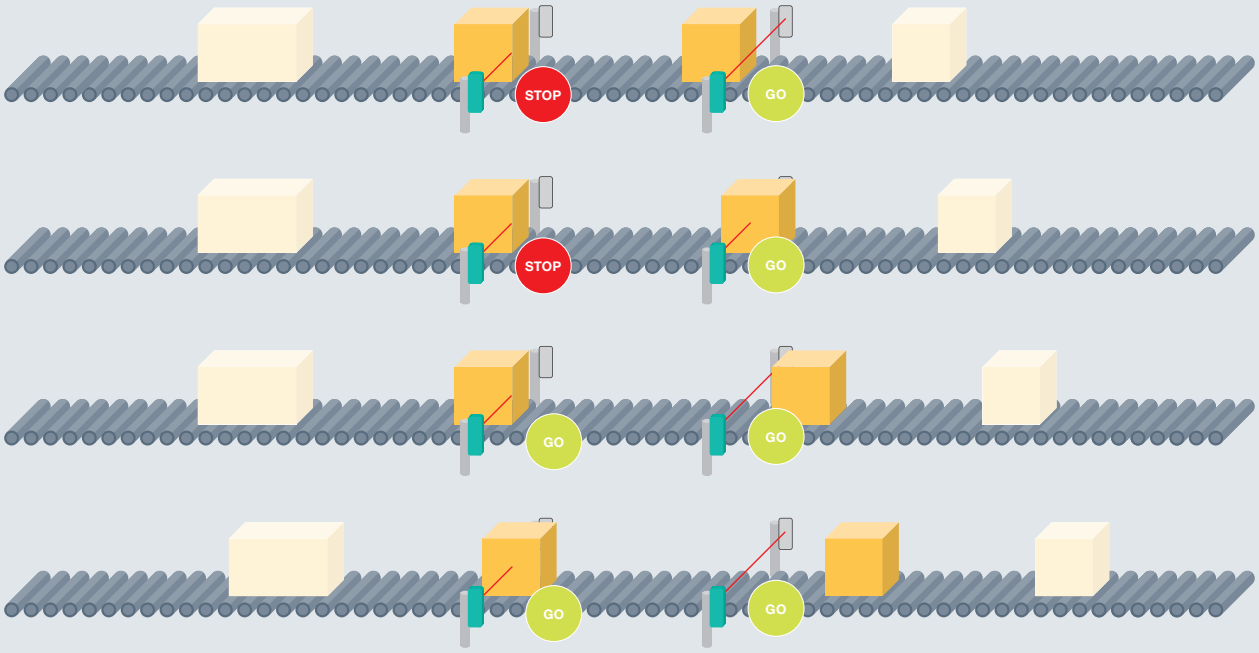
IO-Link

Technical Data	ICA-8IO-4M4-G20-IO-P14 IO-Link Motor Roller Module
Supported motor rollers	■ Interroll EC310/EC5000 AI (24 V/48 V) (20 W/35 W/50 W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24 V/48 V) ■ Conveline RM50
Communication interface	IO-Link V1.1.3 (Class A device)
Inputs/outputs	8 digital inputs/outputs + 4 motor roller outputs + rotary encoder input
Current loading capacity	■ 3.5 A (continuous), 5 A (< 2 s), max. 7.5 A (< 0.3 s) per motor ■ Total current (continuous): ■ max. 10 A per device (TB ≤ 50 °C) ■ max. 6 A per device (TB ≤ 60 °C)
Modes	Standard (Speed, Direction ... as parameters) Extended (Speed, Direction ... as process data)
Temperature range	–25 °C ... +70 °C
Degree of protection	IP67
Dimensions (H × W × L)	27.5 × 135.5 × 54 mm

For more information, visit
pepperl-fuchs.com/pf-g20-io-link

G20 ZPA

Independent Control Module for Zero Pressure Accumulation Conveying



Zero Pressure Accumulation in Conveyor Technology

The principle of zero pressure accumulation (ZPA) ensures that defined distances are maintained between individual conveyed goods. To prevent collisions, the conveyor section is divided into multiple zones. If the next zone is occupied, a sensor signal prevents goods from the preceding zone from entering, ensuring a predefined safety distance between products.

The intelligent G20 ZPA module operates autonomously without a higher-level control system. Application-specific settings can be configured directly on the module via rotary switches, enabling simple plug-and-play operation.

In addition to the stand-alone ZPA module, zero pressure accumulation functionality is also integrated into the Ethernet G20 system. Each connected module can be individually configured to operate either in centralized control mode via the PLC or in decentralized ZPA mode, depending on application requirements.

ZPA Analyzer – Simple Access to Diagnostics

With the ZPA Analyzer, an accessory tool for the stand-alone ZPA module, diagnostics are simplified. When connected to the last module in a series, all settings and diagnostic are easily viewed in the ZPA Control software, users can view the current configuration of the G20 ZPA motor control modules and access detailed diagnostic information. This provides a clear overview of module configuration, selected operating mode, and input status at a glance. Defective modules can also be quickly and reliably identified, enabling efficient troubleshooting and maintenance.



ZPA



Technical Data	VAZ-2E2A-G20-ZPA1 ZPA Motor Roller Module
Supported motor rollers	■ Interroll EC310/EC5000 AI (24 V) (20 W/35 W/50 W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24 V) ■ Conveline RM50
Communication interface	Integrated logic
Inputs/outputs	2 digital inputs + 2 motor roller outputs

Current loading capacity	■ 3.5 A (continuous), 5 A (< 2 s), max. 7.5 A (< 0.3 s) per motor
	■ Total current (continuous):
	  ■ max. 10 A per device (TB ≤ 50 °C)
	  ■ max. 6 A per device (TB ≤ 70 °C)

Modes	7 modes (Standard ZPA, Enhanced ZPA, Long Zone, Transportation, Direct Control, Direction Control, Secondary)
Temperature range	–25 °C ... +70 °C
Degree of protection	IP67
Dimensions (H × W × L)	27.5 × 135.5 × 54 mm

For more information, visit
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