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: The demands placed on conveyor technology are high. The motor control modules in the G20 series meet these perfectly.

Reliable Control of Motorized Drive Rollers (MDRs)

In a roller conveyor system, the conveyed goods are transported via rollers. The active rollers (motorized drive rollers) are connected via a rubber o-ring and set the passive rollers in motion.

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 required sensor, actuator, and motor roller cables are integrated directly 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.

Efficient Pre-Assembly of Individual Conveyor Segments

The sophisticated housing concept allows time-saving pre-assembly of individual conveyor segments. The motor control modules and sensors are already fitted to the individual conveyor segments when they are delivered to their destination. Once these have been assembled into a complete conveyor system, only the flat cables for power and communication are snapped into place without tools in the final assembly step. This makes the assembly of a system particularly efficient and less prone to errors.

Highlights

- G20 series motor control modules for 24 V and 48 V DC motorized drive rollers for use in modern logistic applications
- Flexible application options due to numerous 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
- Tool-free connection technology allows pre-assembly of individual conveyor segments
- 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 Optimum Solution for Every Application

For maximum efficiency, choose from motor control modules with IO-Link, AS-Interface, a standalone ZPA module, or the Ethernet system solution, depending on your conveyor application. Solutions are available for conveyor systems with both 24 V and 48 V technology.

A Variety of Technologies for Greater Flexibility

The **G20 Ethernet system** solution consists of a G20 controller on four conveyor lines and supports up to 15 G20 motor modules per line, offering maximum flexibility. Each individual module can be controlled completely flexibly according to specific application requirements. Only a single IP address is required per Ethernet controller to control up to 120 motorized rollers.

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

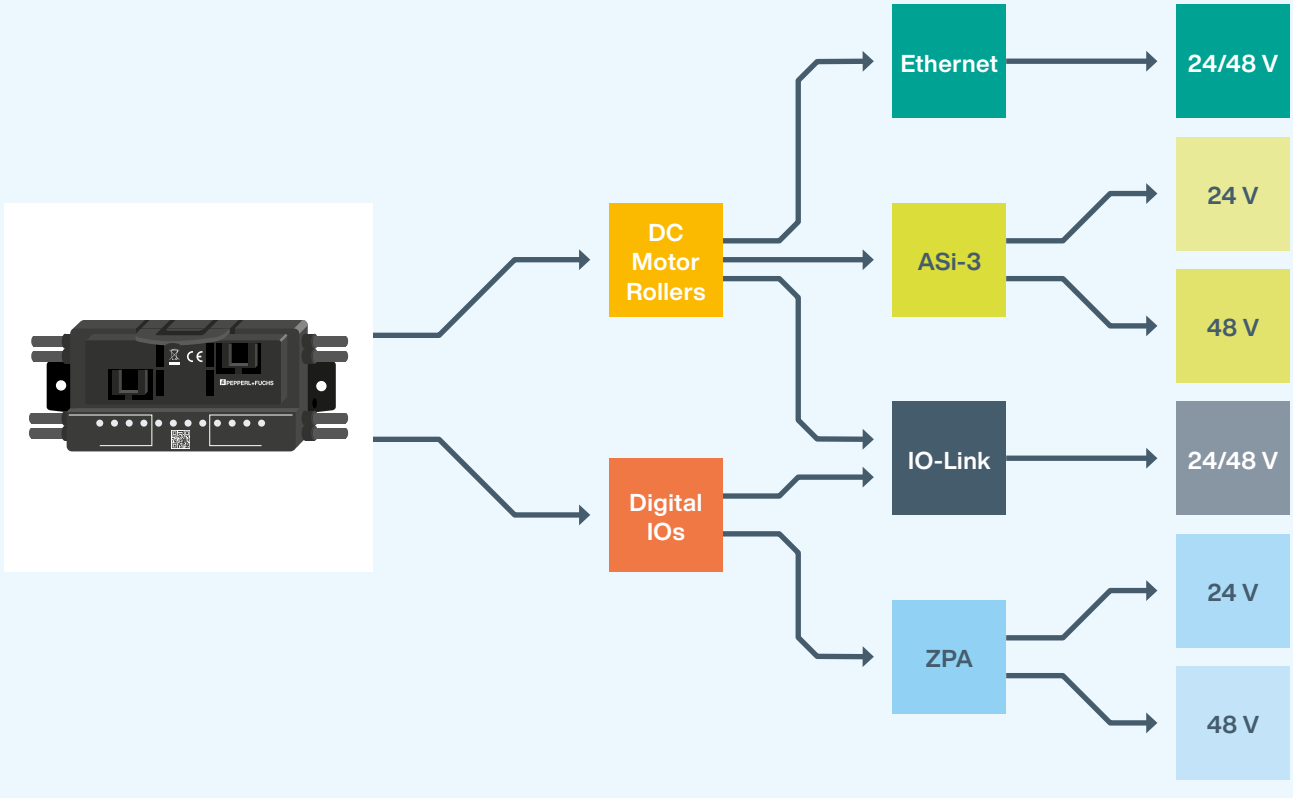
While conventional conveyor systems are predominantly equipped with 24 V motorized rollers, conveyor technology is increasingly moving toward 48 V technology. This not only simplifies the wiring concept, but also offers savings potential for the power supply units along the entire conveyor line. The 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 motorized drive rollers from many manufacturers and therefore already covers a large number of different motorized rollers. 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 24 V AI
- Interroll EC5000 24/48 V AI
- Rulmeca BL3
- Itoh Denki PM500XC
- Itoh Denki PM500XK
- PULSEROLLER Senergy-IDC
- MTA MRD50 A (24 V/48 V)
- Conveline RM50




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

Maximizing machine availability is crucial in material handling to ensure stable and reliable logistics processes. To minimize downtime or, ideally, prevent it proactively, the G20 series motor control modules offer detailed diagnostic capabilities depending on the technology.

Comprehensive Diagnostics

For cost reasons, the vast majority of motor rollers available on the market rely on an analog motor interface and provide only a single error bit. To still offer detailed diagnostic capabilities, a wide range of status data is determined directly within the G20 modules.

Data Depending on Communication Interface

The diagnostic data provided by the G20 module depends on the selected communication interface. While ASi and ZPA modules provide no diagnostic data other than a single error bit, the IO-Link and Ethernet G20 modules allow detailed access to the status data listed.



Power Consumption

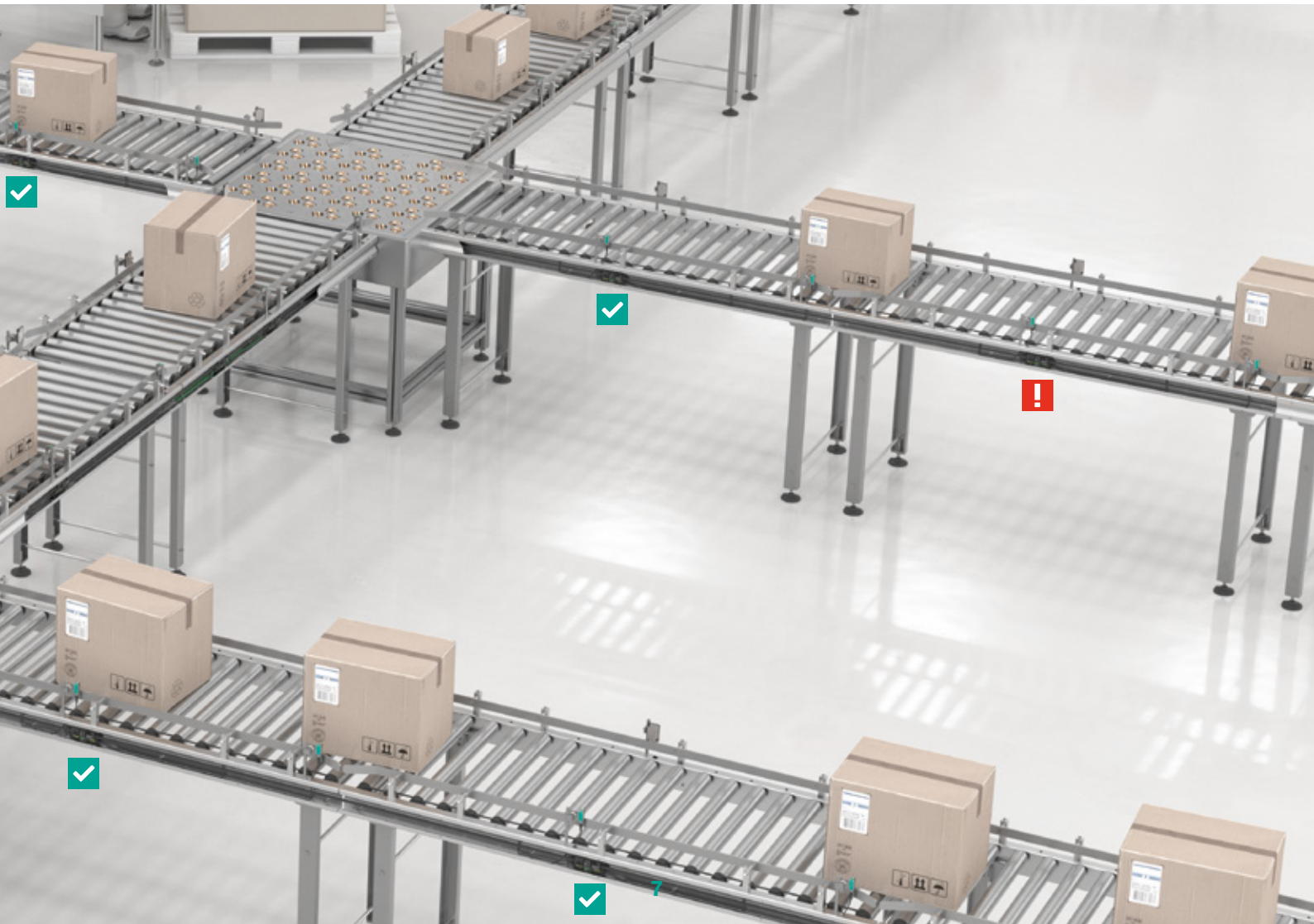
The energy consumption of a material handling system is an important factor, and not just in the context of sustainability. At the motorized roller level, determining energy consumption allows for an assessment of the motorized roller's condition. If, for example, energy consumption increases gradually, 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.



G20 Ethernet System

Scalable Control Solution for Complex Conveyor Systems



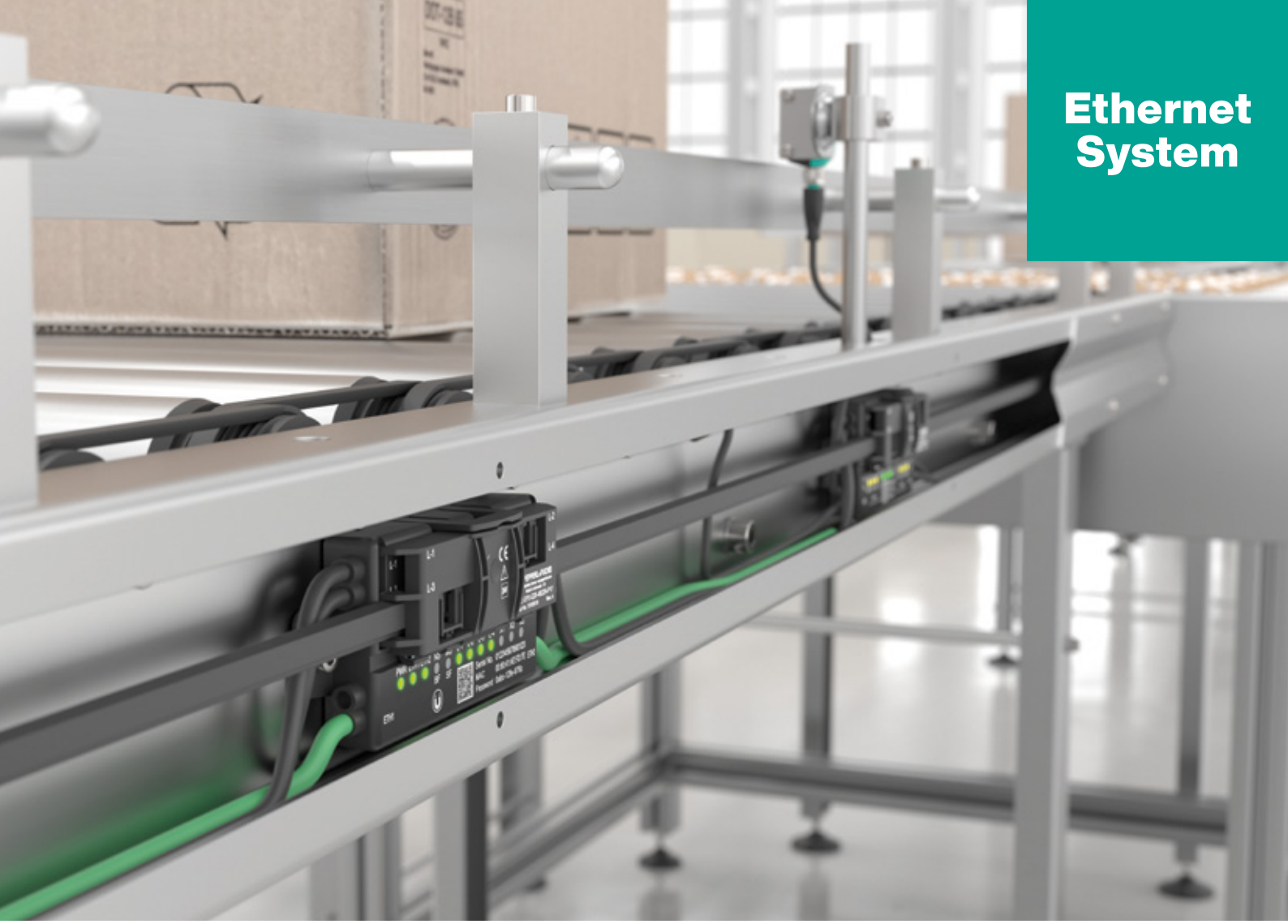
Ethernet in Conveyor Technology

Ethernet-based systems enable the efficient control of complex conveyor systems with a large number of motorized rollers. With the G20 Ethernet 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.

Ethernet Portfolio for Maximum Flexibility

The G20 Ethernet system complements the G20 portfolio with a high-performance communication solution for demanding applications. It supports common protocols such as PROFINET and EtherNet/IP and additionally offers interfaces such as OPC UA and REST API for IIoT applications. Depending on the application, each module can be individually controlled either directly via the PLC or operated in decentralized ZPA mode. This makes the system suitable for both complex material flows and simple conveyor lines, enabling flexible adaptation to different 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 Modules
Supported motor rollers	■ Interroll EC310/Interroll EC5000 24V/48V AI (20W/35W/50W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/Itoh Denki PM500XC ■ PULSEROLLER Senergy-IDC ■ Unidrive One (Pancake-Motor) ■ MTA MRD50 A 24V/48V ■ 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 the cost-effective and simple solution when it comes to wiring extensive conveyor lines with widely distributed motorized drive rollers. Two motorized drive rollers and sensors can be controlled per module using 4-bit process data. Up to 62 G20 modules can be flexibly connected to an AS-Interface line. With a double gateway, up to 124 devices—each controlling two zones—can even be connected to a PLC by using only one IP address.

Complete AS-Interface Portfolio

In the ASi portfolio from Pepperl+Fuchs you will find all the components you need for wiring a conveyor system with AS-Interface. The powerful gateway can be integrated into both EtherNet/IP and PROFINET networks and is available as a single and double version. The integrated web server enables simple configuration, diagnostics, and monitoring via mobile devices. The REST API interface also enables the implementation of IIoT applications.





Technical Data	VBA-4E4A-G20-ZEJ/ M3L-P9	VBA-4E4A-G20-ZEJ/ M3L-P10	VBA-4E4A-G20-ZEJ/ M48L-P12
Supported motor rollers	■ Interroll EC310/EC5000 24 V AI ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24V) ■ Conveline RM50	■ Itoh Denki PM500XE/PM500XP	■ Interroll EC5000 48 V AI ■ MTA MRD50 A (48V)
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 parameter)		
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

Process, parameter, and diagnostic data are supplied via IO-Link. The transmission of large amounts of data enables high-precision process control for complex conveying tasks. Speed, direction, and ramps can be individually controlled with the G20 IO-Link modules. Diagnostic data can be used to obtain reliable information about the status of connected sensors and actuators in order to prevent downtime through predictive maintenance, for example. IO-Link also offers particularly simple and flexible configuration options.

Comprehensive IO-Link Portfolio

The Pepperl+Fuchs portfolio includes all devices for setting up a conveyor system with IO-Link communication: from the infrastructure level to IO-Link sensors and peripheral devices. The ICE11 IO-Link master with multiprotocol is the flexible and robust choice for control-based applications. The IO-Link masters in the ICE2/ICE3 series have an OPC UA/MQTT interface, making them the ideal solution for cloud-based applications without a higher-level controller.





IO-Link

Technical Data	ICA-8IO-4M4-G20-IO-P14
Supported motor rollers	■ Interroll EC310/EC5000 24 V/48 V AI (20 W/35 W/50 W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24V/48V) ■ 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

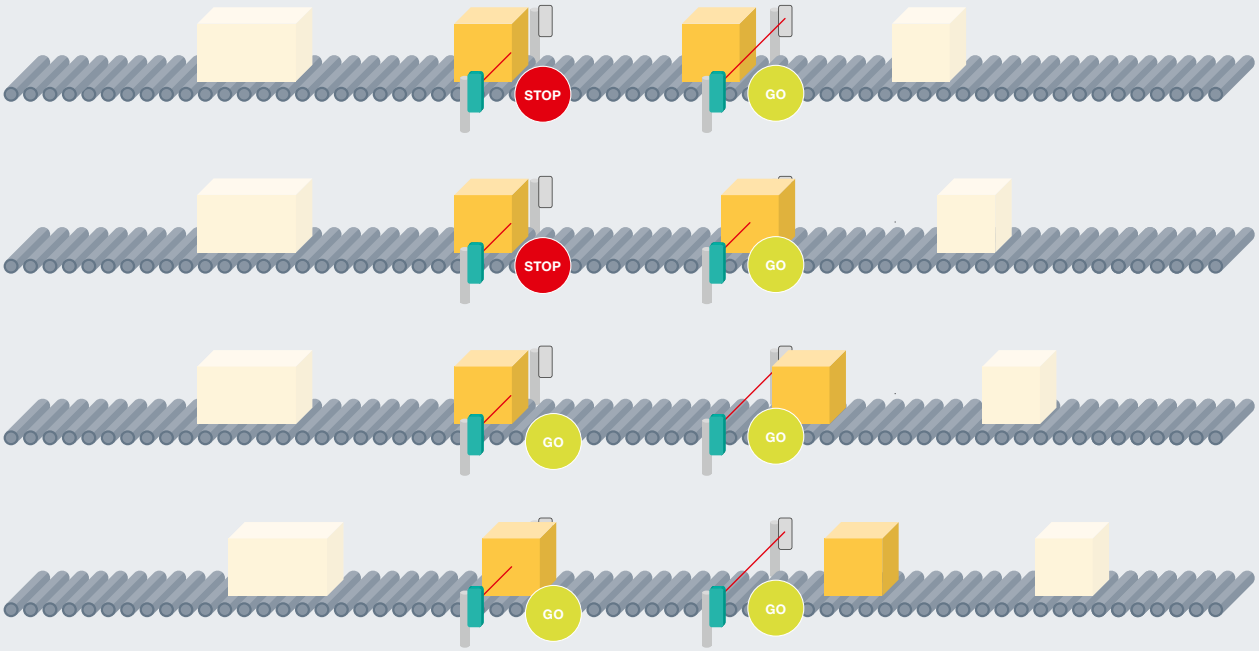
Current loading capacity	■ 3.5 A (continuous), 5 A (< 2 s), max. 7.5 A (< 0.3 s) per motor
	■ Total current (continuous):
	  ■ max. 10 A per device (TB ≤ 50 °C)
	  ■ max. 6 A per device (TB ≤ 60 °C)

Modes	Standard (Speed, Direction ... as parameters)/ Extended (Speed, Direction ... in 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

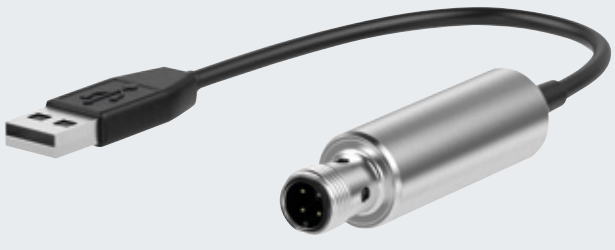
The principle of zero pressure accumulation (ZPA) ensures that defined distances are maintained between the individual conveyed goods. To prevent collisions, the conveyor section is divided into several zones. If the next zone is occupied, a sensor signal prevents the conveyed goods from the previous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

The intelligent G20 ZPA works completely autonomously and without a higher-level control system. Application-specific settings can be made directly on the module using rotary switches and operation is very simple via plug-and-play.

In addition to the stand-alone ZPA module, the logic for zero pressure accumulation is also available in the G20 Ethernet system. For each connected module, you can choose whether it is controlled centrally from the controller or operated decentrally in ZPA mode.

ZPA Analyzer for Simple Diagnostics

With the ZPA Analyzer as an accessory tool for the stand-alone ZPA module, diagnostics are also extremely simple. If the analyzer is connected to the last module in a series, all settings and diagnostic information are clearly displayed immediately after connection via USB. This provides information on the module configurations, the set operating mode, and the status of the inputs at a glance. Defective modules can also be easily detected.





ZPA

Technical Data	VAZ-2E2A-G20-ZPA1
Supported motor rollers	■ Interroll EC310/EC5000 24 V AI (20 W/35 W/50 W) ■ Rulmeca BL3 ■ Itoh Denki PM500XK/PM500XC ■ PULSEROLLER Senergy-IDC ■ UniDrive One (pancake motor) ■ MTA MRD50 A (24V) ■ 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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