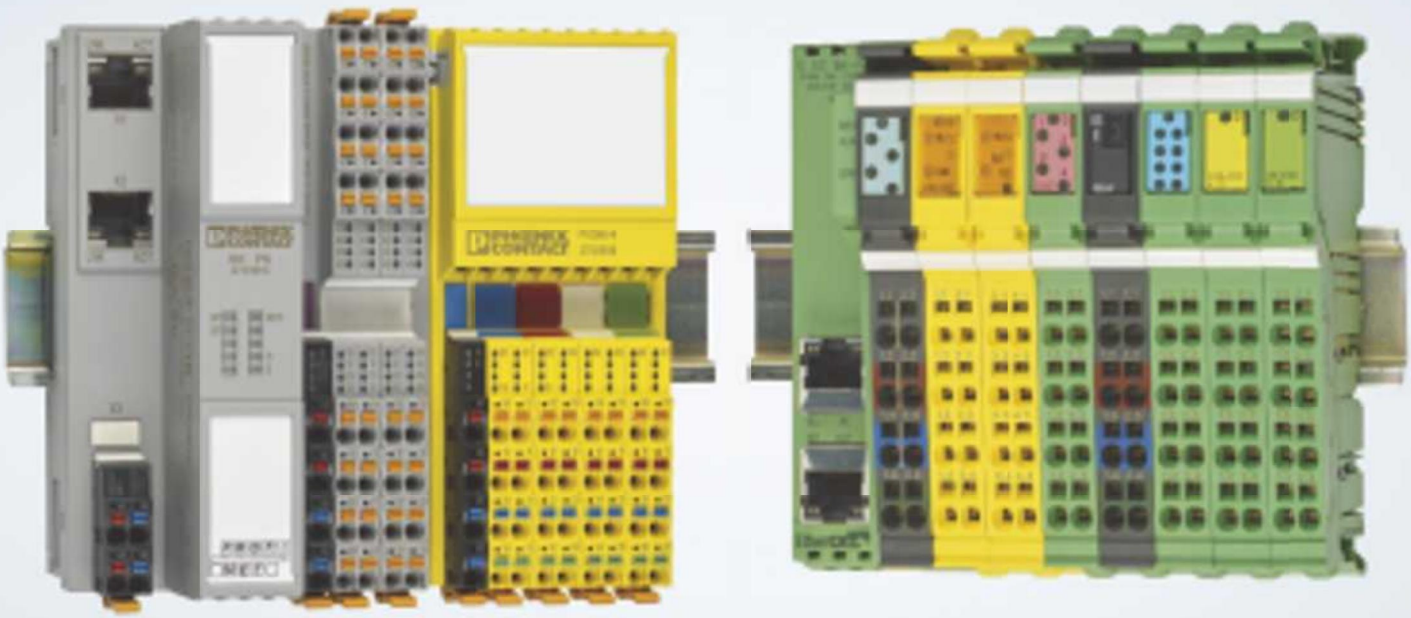


I/O systems for the control cabinet

IP20 solutions for every application

PHOENIX CONTACT
INSPIRING INNOVATIONS

I/O systems for the control cabinet from PHOENIX CONTACT

Whether it's for all common bus systems and networks or for a system-integrated controller, with advanced I/O solutions you can communicate quickly and cost-effectively. The versatile range with IP20 protection provides reliable protection for your data and signal traffic and renders your systems usable at all transmission speeds. The function and structure can be designed according to your requirements.

Find out more with the web code

You can find web codes in this brochure: a hash symbol followed by a four-digit number combination.

Web code: #1234 (example)

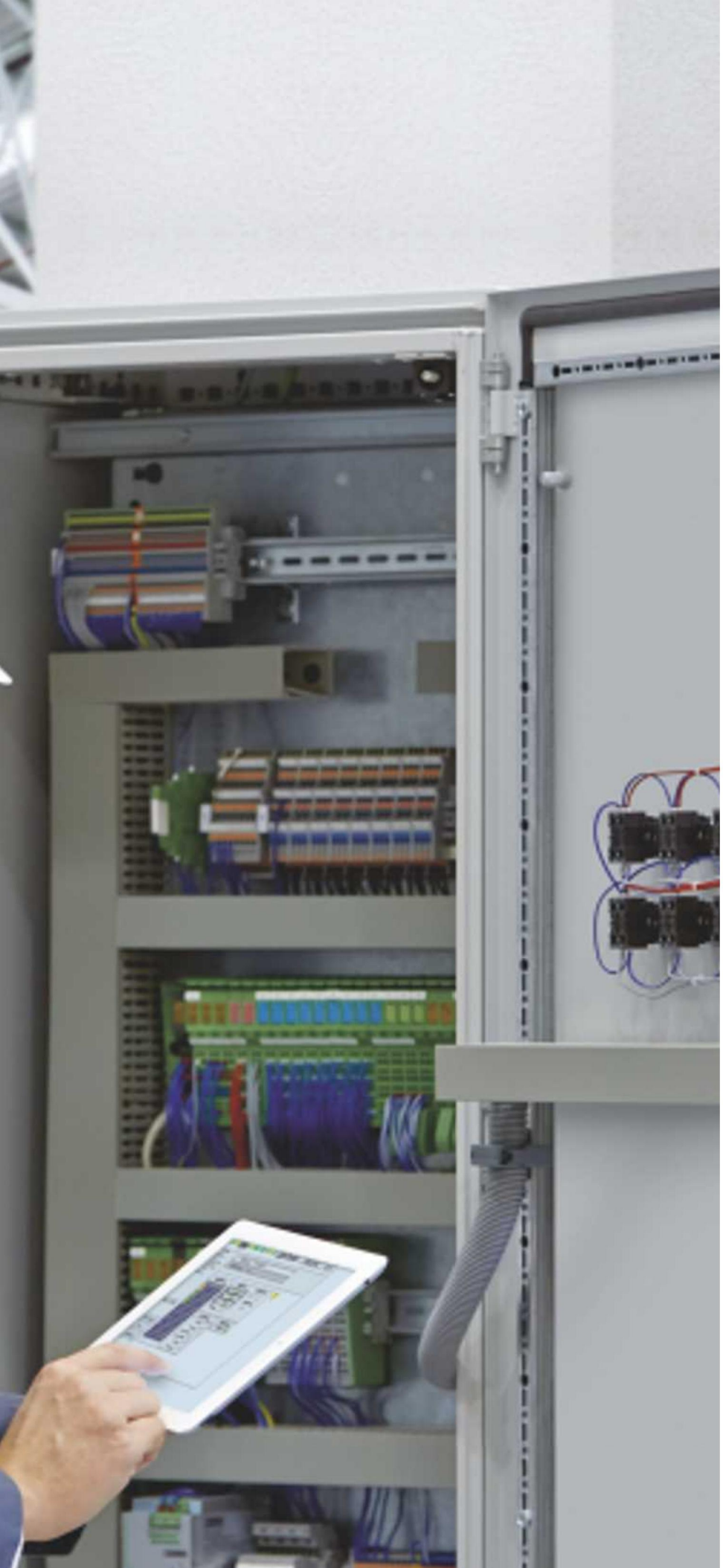
This allows you to access information on our website quickly.

It could not be easier:

1. Go to the Phoenix Contact website
2. Enter # and the number combination in the search field
3. Get more information and product versions

#1234 Search

Or use the direct link:
phoenixcontact.net/webcode/#1234



Contents

Two I/O systems for the control cabinet – the choice is yours

Phoenix Contact offers two I/O systems for the most diverse applications: from simple to complex requirements or for applications in extreme environments. Regardless of the system you opt for:

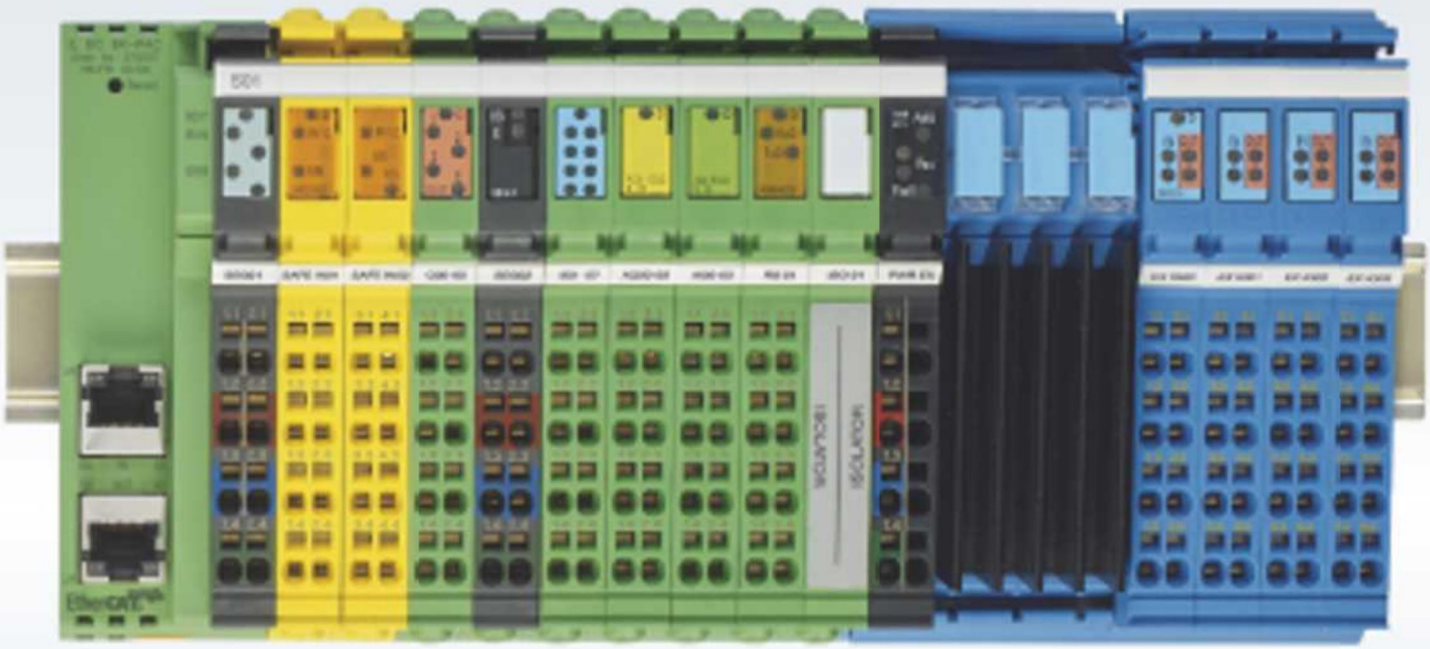
I/O modules with various functions as well as bus couplers and controllers give you freedom in your automation.

Axioline F – fast, robust, easy

Axioline F enables the shortest response times and is characterized by its particularly robust design and easy handling.

Strong together in multiple networks

CANopen · DeviceNet · EtherCAT · EtherNet/IP · INTERBUS · IEC 61850 · Modbus · PROFIBUS · PROFINET · sercos the automation bus



Inline – easy, flexible, reliable

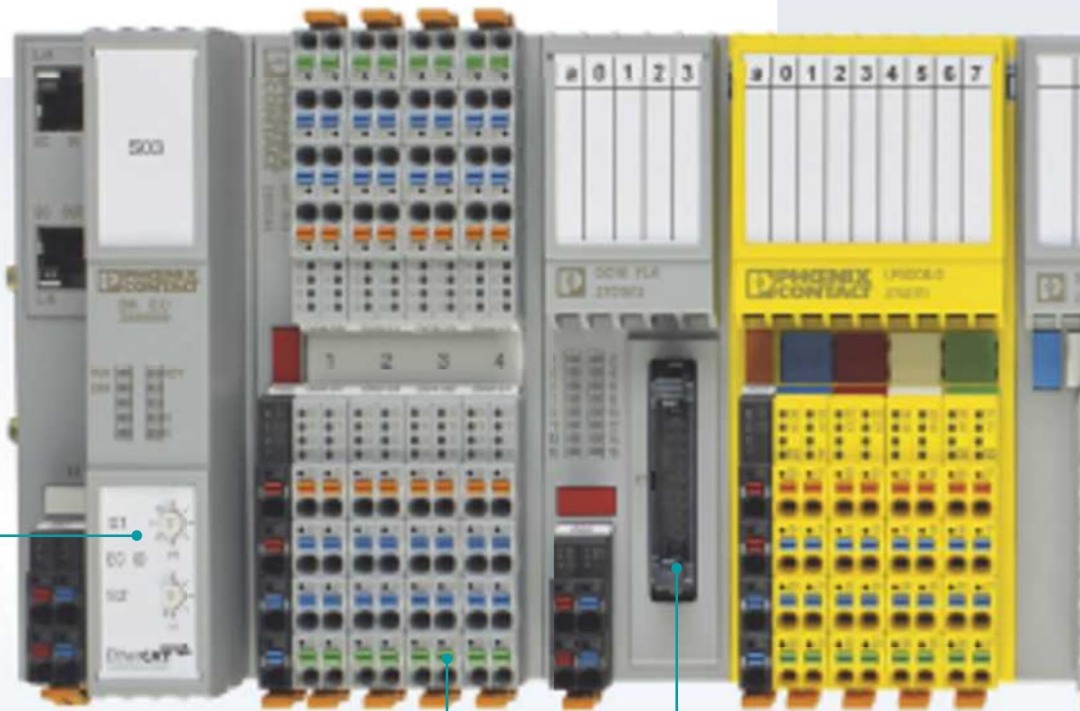
Whether it's simple or complex applications, Inline provides flexibility in automation. Always cost-effectively adapted to your requirements.

Axioline F I/O system

The specialist in the control cabinet

Axioline F is the robust, modular I/O system. Transmit data in real time from the I/O level to the controller – the system is particularly resistant to interference and safe when it comes to EMC. Save time when connecting sensors and actuators and benefit from easy handling.

Web code: #1147



Fast communication

Optimum performance thanks to fast local bus speed

Easy connection of relays by means of system cabling (FLK)

Fast and intuitive wiring thanks to color coding of the contact points – even in the case of multi-conductor connection

Your advantages

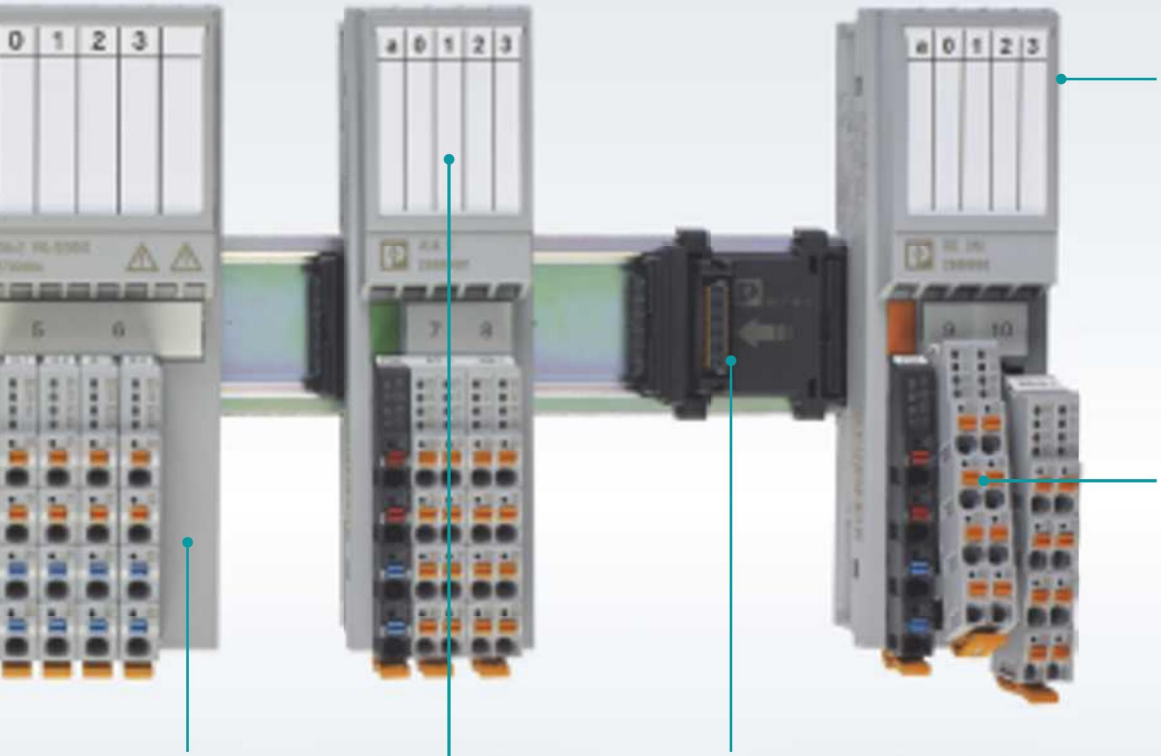
- Increased machine output thanks to particularly fast and synchronous signal acquisition
- Particularly robust mechanics as well as shock and vibration resistance withstand even the most adverse conditions and increase system availability
- Installation time is reduced thanks to fast wiring and easy handling

Rotary coding switches and USB ports simplify startup and maintenance

Push-in Technology

Designed by PHOENIX CONTACT

Reduced installation time thanks to fast wiring



Easy installation

Quick and easy station structure thanks to tool-free installation

Fast module replacement with existing wiring

Integration of modules for low voltage without the need for additional measures to protect the insulation

Robust mechanics

Increased system availability thanks to particularly robust mechanics as well as shock and vibration resistance

Individual and fast marking thanks to MARKING system printing systems

From the component to the complete system

Controllers, bus couplers, and I/O modules – with Axioline F Phoenix Contact is offering a modular I/O system for every application. Fast and synchronous signal acquisition increases your machine output, whether you are using a Phoenix Contact controller or operating in all common networks.

Controllers

With Axiocontrol and Axioline F, you can create a consistent solution for automation tasks with PROFINET or Modbus TCP. With small-scale and high-performance controllers, Axiocontrol offers the right PLC for every application. All Axiocontrol controllers can be seamlessly extended with up to 63 I/O modules from the Axioline F range.

Web code: #1148

Bus coupler

Axioline F – the Ethernet specialist: open to all common bus systems and network protocols, it gives you maximum flexibility in your station structure. The bus coupler opens up a local bus for up to 63 further devices.

Web code: #1149

I/O functions for Axioline F at a glance

- Digital inputs
- Digital outputs
- Analog inputs
- Analog outputs
- Temperature recording
- Counters
- Path detection
- Position detection
- Communication

SafetyBridge Technology

Designed by PHOENIX CONTACT

Safe I/O modules

With SafetyBridge technology, you can implement safety applications with complete ease. And you can do this without a safety controller and regardless of the network used. In PROFIBUS and PROFINET networks, the PROFIsafe modules are used to acquire and output safety-related signals.

Web code: #1150

I/O modules

A large range of modules with digital and analog inputs and outputs and functions or for special applications. The versatile I/O modules give you flexibility in your station structure.

Web code: #1151

Axioline F I/O system

Fast and safe with high performance

In machine building in particular, fast and synchronous processes are often required. At the same time, safety must be taken into account. Thanks to the extremely short update time and the synchronous signal acquisition of the Axioline F system, you can increase clock frequencies and machine output while ensuring your processes.

Implement safety solutions easily and independently of the controller and network by integrating SafetyBridge technology.

Web code: #1239

Your advantages

- Implement network- and controller-independent safety applications with SafetyBridge technology
- Increased machine output thanks to particularly fast and synchronous signal acquisition
- Installation time is reduced thanks to fast wiring and easy handling
- Implement flexible machine and system concepts – open to all networks

Matching products from our range

Bus coupler
for Sercos® supports real time requirements

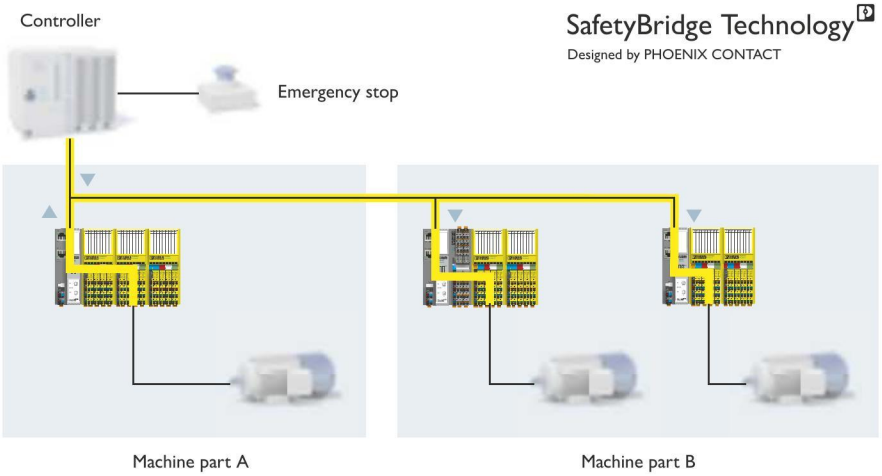
Digital input module
with 16 digital high-speed inputs with a compact design

SafetyBridge logic module
for safe, distributed communication without a safe PLC

How SafetyBridge technology works

With SafetyBridge technology, safety-related data packets are exchanged between safe input and output modules independently of the network and controller used.

- The standard controller and network are only used as a transport medium
- Easy configuration using the SAFECONF software
- Safety requirements up to SIL 3 and PL e are met



Optimum performance at all times

With an update time of 1 µs per I/O module in the local bus, Axioline F is as fast as parallel cabling – as such the higher-level bus system determines the speed.

Short installation times

Shorter installation times thanks to Push-in connection technology. Clear wiring: the design supports cabling from above and below.

Optimum system connection

Axioline F is the Ethernet specialist for control cabinet installation. Alongside PROFIBUS DP, bus couplers are also available for today's leading Ethernet systems.

Axioline F I/O system

Robust under extreme conditions

In harsh conditions, reliable communication is essential. Axioline F features a particularly robust mechanical design. The system is also extremely immune to electromagnetic radiation. The XC versions with an extended operating temperature range of -40°C to +70°C and varnished PCBs are ideal for use under extreme conditions.

Web code: #1240

Your advantages

- High operational reliability thanks to cost-effective network redundancy
- Increased reliability thanks to particularly robust mechanics as well as shock and vibration resistance
- Low noise emission permits use on ships' bridges
- Extensive approvals permit versatile use in maritime applications

Matching products from our range

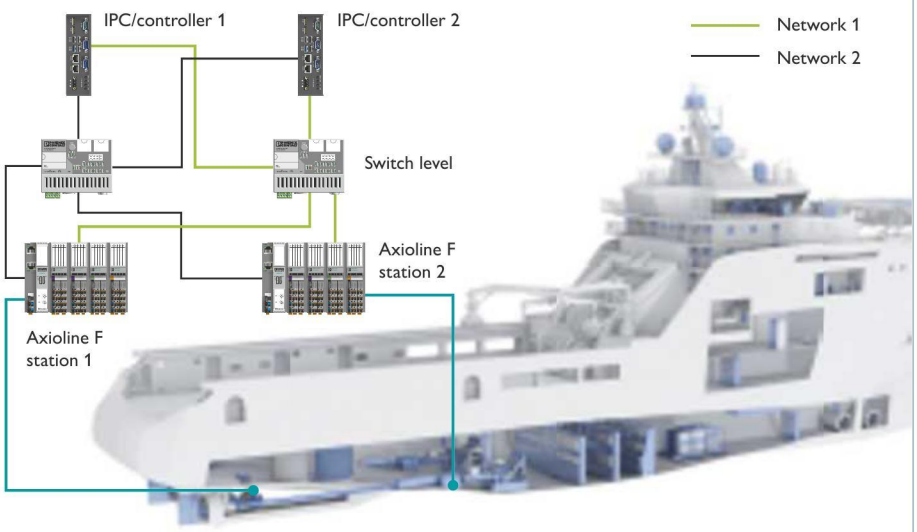
Bus coupler
for Modbus TCP for implementing cost-effective network redundancy

Digital output module
with FLK connection for the cost-effective connection of plug-in relays

XC modules
for an extended operating temperature range of -40°C to +70°C

Cost-effective network redundancy

In maritime applications, network-redundant systems are required for operational reliability. These can be implemented cost-effectively with Axioline F. The bus coupler can be incorporated into redundant networks without redundancy components
The high-performance structure of the Axioline F system provides optimum, reliable data communication.



Robust mechanics

Thanks to its increased mechanical robustness, Axioline F has a vibration resistance of 5 g, a continuous shock resistance of 10 g, and a shock resistance of 30 g.

Low electromagnetic radiation

Thanks to the low noise emission of EMC Class B, Axioline F meets the high requirements of automation in shipbuilding.

Approvals for marine automation

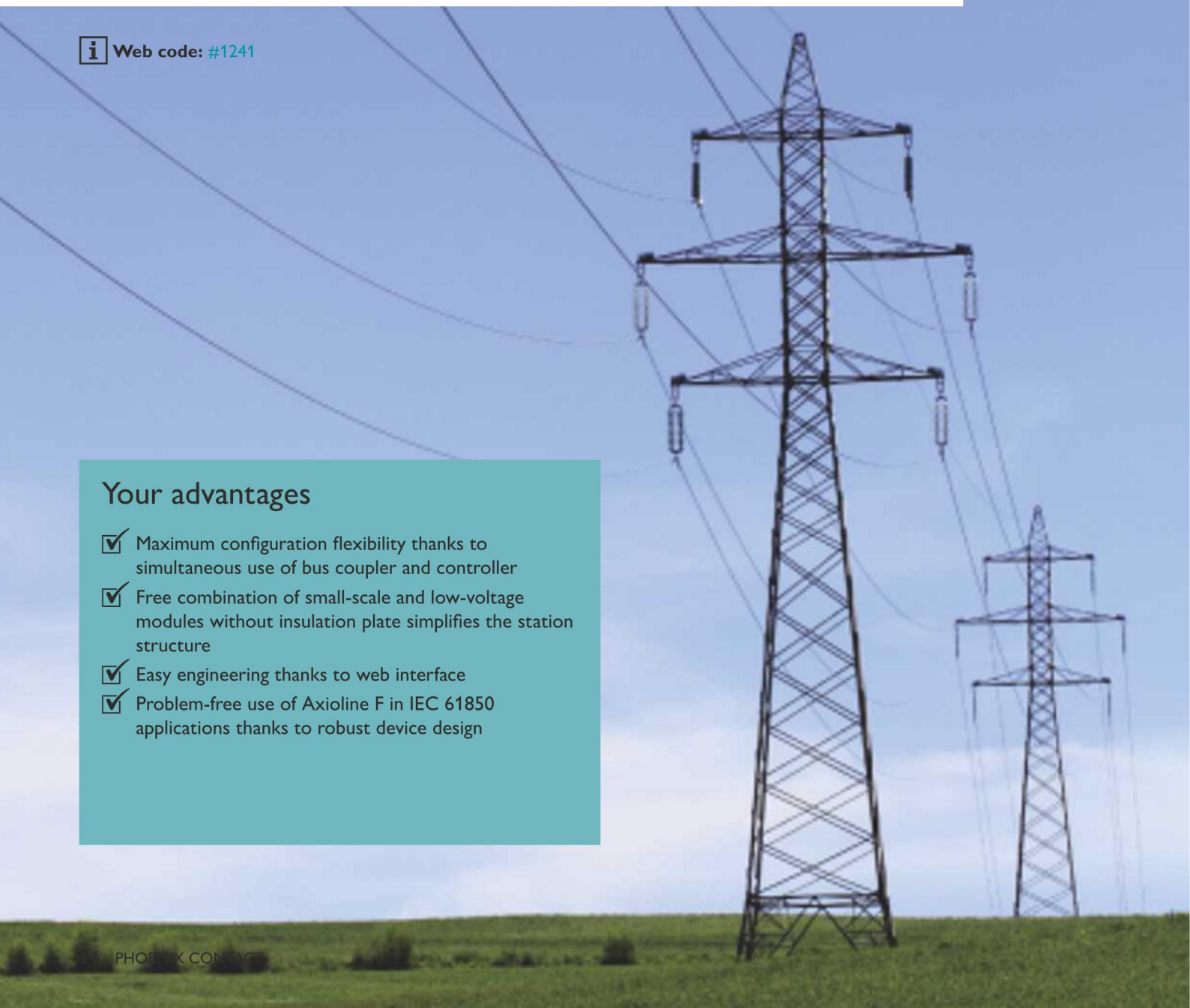
The Axioline F I/O system has been approved by all major maritime classification associations.

Axioline F I/O system

Easy IEC 61850 integration

The particularly robust Axioline F I/O system is the perfect solution for applications in the energy sector. With the bus coupler for IEC 61850 and the I/O modules for increased nominal voltages and corresponding electric strength, you can easily integrate Axioline F into IEC 61850 applications. Here, you benefit in particular from easy handling and the flexible station structure.

Web code: #1241



Your advantages

- Maximum configuration flexibility thanks to simultaneous use of bus coupler and controller
- Free combination of small-scale and low-voltage modules without insulation plate simplifies the station structure
- Easy engineering thanks to web interface
- Problem-free use of Axioline F in IEC 61850 applications thanks to robust device design

Matching products from our range

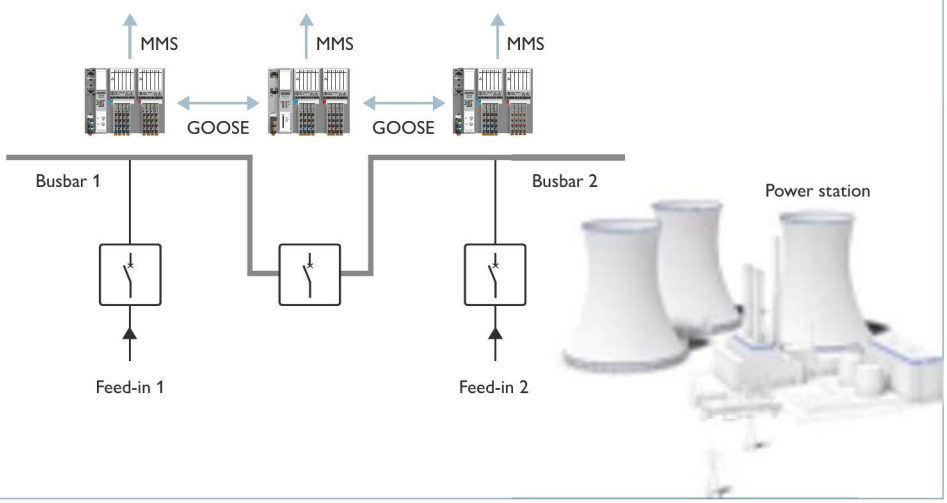
Controller
for IEC 61850,
allows IEC-61131
programming

Relay module
with four relay
outputs, for
220 V DC/230 V AC

Bus coupler
for IEC 61850, supports MMS and
GOOSE communication

Energy technology with Axioline F and Axiocontrol

The integration of changeover devices for controlling busbars can be implemented easily by using GOOSE, the fast cross-communication.
The simultaneous use of bus coupler and controller provides maximum flexibility.



Simple station structure

Benefit from the comprehensive Axioline F product range and flexibly combine extra-low and low-voltage modules without insulation plates.

Easy engineering

The web interface provides flexible online access to the product. This saves time during startup thanks to easy parameterization.

Robust

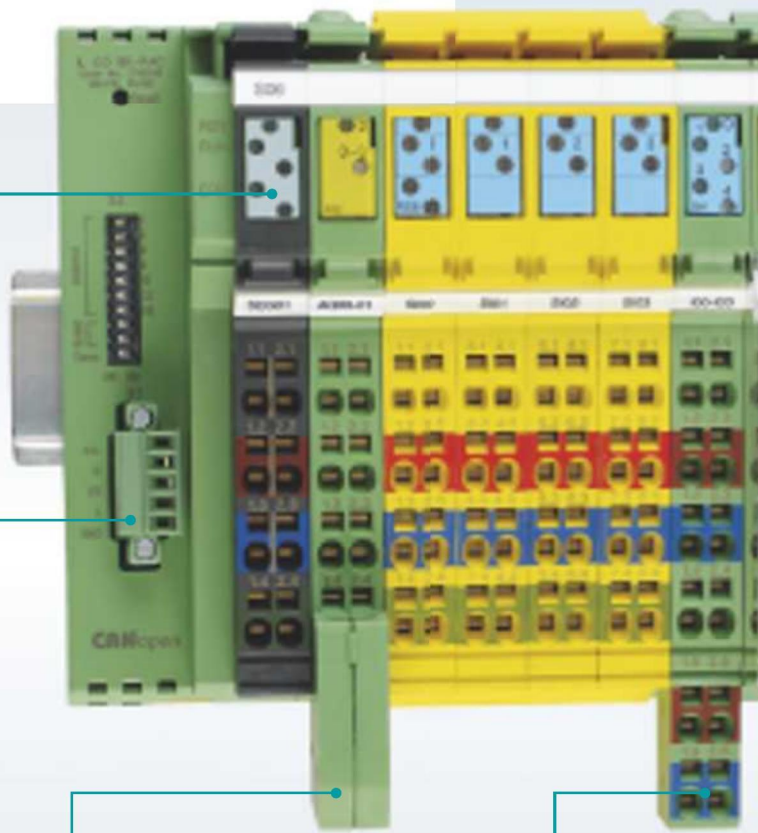
Axioline F modules, which have been developed according to IEC 61850-3, meet extreme requirements, particularly when it comes to climate, mechanics, and EMC.

The all-rounder in the control cabinet

Discover the practical advantages of Inline: the bus and power supply do not have to be wired; they are connected automatically when the extension modules are plugged in. What's more, the system does not require an additional bus termination.

COMBICON spring-cage technology ensures fast I/O wiring. Thanks to the wiring level which is separated from the electronics, terminal replacement can be carried out quickly and easily.

Web code: #1152



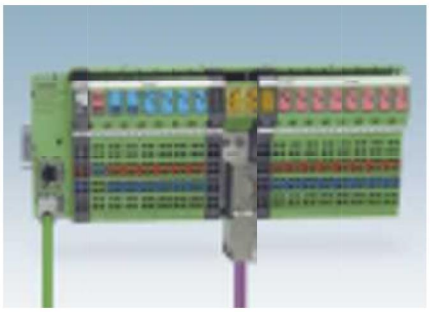
Your advantages

- Maximum flexibility thanks to a large selection of I/O terminals, function terminals, bus couplers, and controllers
- The narrow overall width and tailored number of terminal channels save space in the control cabinet
- Local bus extension to the field without additional bus coupler thanks to the branch terminal

Easy shield connection

Thanks to the integrated shield connection on the terminal, shielded cables can be connected easily without further accessories

Color coding of the terminal points simplifies wiring



Various subsystems can be incorporated via communication master terminals

Terminals, conductors, cables, and devices can be marked quickly and easily using the MARKING system printing system

Thanks to targeted segmentation, you benefit from increased system safety with independently protected and separately switched station segments

Easy handling

- Status and diagnostic LEDs
- Color coding to easily distinguish between I/O functions
- Clearly numbered terminal points

Flexible through to the field

Connection of Fieldline modular devices with IP65/67 degree of protection without additional bus coupler

Controller, bus coupler or I/O terminals – maximum flexibility and versatility

Inline is the flexible all-rounder designed down to the last detail for use in control cabinets. You can design your automation functions to suit your specific requirements with a wide range of controllers and bus couplers for all common networks and a variety of I/O terminals with comprehensive approvals.

Modbus
PROFINET
PC WORX
PLC Programming

CANopen
EtherCAT
DeviceNet
EtherNet/IP
INTERBUS
Modbus
PROFIBUS
PROFINET
sercos
the automation bus

Controllers

Inline controllers support all common communication technologies such as Ethernet, mobile communication or fixed-line network. In addition, they can be easily extended with Inline I/O terminals and offer an integrated web server.

Web code: #1153

Bus coupler

Thanks to the free choice of bus coupler, the Inline I/O system can be integrated into all common fieldbus systems and Ethernet networks.

Web code: #1154

I/O functions for the Inline I/O system:

- Digital inputs
- Digital outputs
- Analog inputs
- Analog outputs
- Temperature recording
- Counters
- Impulse encoders
- Position detection
- Energy data acquisition
- Communication

SafetyBridge Technology

Designed by PHOENIX CONTACT

Safe I/O terminals

With Inline the choice is yours: implement the simplest solutions for functional safety with the Inline ECO Safe terminal or complex safety solutions with SafetyBridge technology or PROFIsafe.

Web code: #1155

I/O terminals

I/O terminals with and without parameterization. A wide range of versatile functions with comprehensive approvals give you the freedom to choose any topology. The fine granularity serves as the basis for the design.

Web code: #1156

Inline I/O system

Easy and cost-effective automation

The Inline ECO terminals allow you to solve automation tasks easily and cost-effectively. Following the principle of "One terminal, one function", you will always find the right function for your automation application in the range of Inline ECO terminals. No special terminal parameterization is required. Make your application safe by using the safe Inline ECO Safe I/O terminal – without any additional software.

Web code: #1242

Your advantages

- Easy safety integration without complex parameterization
- More flexibility, as Inline standard terminals can be combined with Inline ECO terminals
- Reduced startup costs thanks to easy integration of Inline ECO terminals without parameterization
- Easy implementation of distributed safety solutions thanks to SafetyBridge technology

Matching products from our range

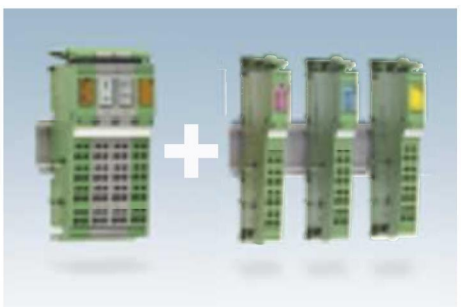
Bus coupler
for the easy integration of Inline ECO and standard terminals into your EtherCAT® network

Safe I/O terminal
for the safe shutdown of connected output terminals

Analog value acquisition
for easy startup without parameterization

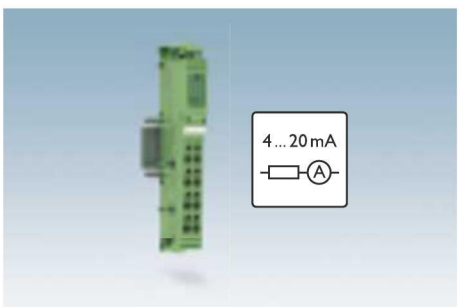
Simple, central solution for functional safety in compact machines

Integrate the safe I/O terminal by simply plugging it into your Inline I/O station. Digital output terminals with approval for the safety-relevant segment circuit are then installed to the right of the safe I/O terminal.
When a sensor is activated, e.g., emergency stop, the actuator voltage supply for the connected output modules is shut down for safety reasons. Up to two dual-channel sensor circuits can be connected to one safe I/O terminal. All status and error messages are forwarded to the standard controller.



Flexible combination

The Inline ECO terminals can be combined with all Inline terminals and other Inline components.



One terminal, one function

Every Inline ECO terminal is particularly easy to handle, as no parameters need to be preset.

Distributed safety solution

The safe I/O terminals with SafetyBridge technology can be distributed in a modular fashion throughout your standard network – entirely without a safety controller and independently of the network.

Inline I/O system

Flexible acquisition and evaluation

The Inline I/O system offers a wide range of analog and function terminals. The range covers easy analog value acquisition right through to the high-performance metering terminal. Use the wide range of parameterization options provided by these I/O terminals and adapt the functions to suit your application.

Web code: #1243

Your advantages

- Large range of analog and function terminals for versatility when it comes to measured value acquisition
- Simplified application programming thanks to a wide range of function blocks
- Flexibility thanks to versatile parameterization
- Reduced programming effort thanks to pre-processing in the terminals

Matching products from our range

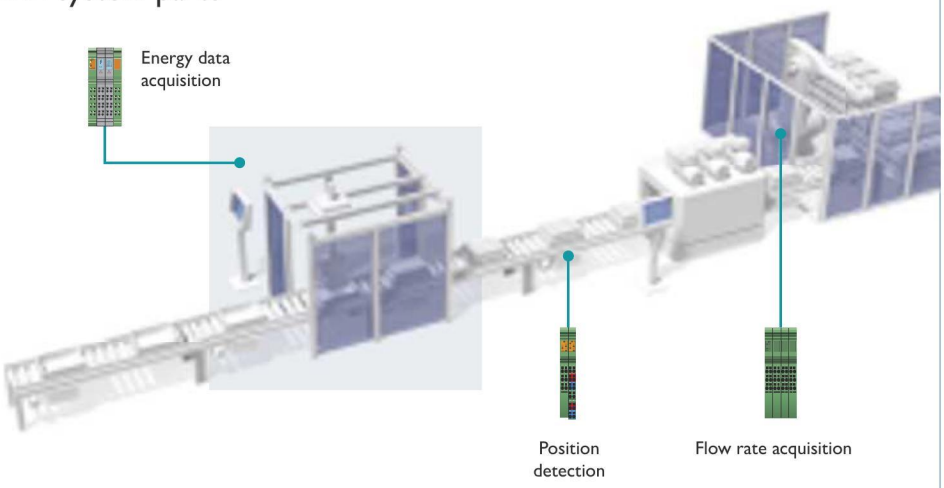
Analog value acquisition
with high resolution and accuracy for highly precise value acquisition

Position detection
for connecting highly precise incremental value encoders

Energy data acquisition
e.g., for recording phase currents and neutral conductor current

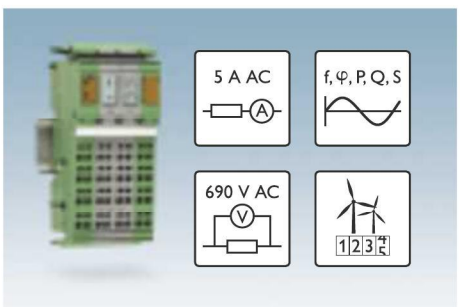
Versatile measured value acquisition in system parts

Flexible installation of the Inline function terminals according to your application. With analog input terminals you can record flow rates, pressures or weights cost-effectively and with high precision. You can determine the positions of your workpieces with an incremental encoder input terminal or define an absolute position with a terminal for evaluating SSI encoders. Analyze your energy consumption with the Inline power measurement terminal and save energy costs by optimizing your application.



IEC 61131 programming

A wide range of blocks for IEC 61131 programming simplifies application programming.



One terminal, multiple functions

The standard function and analog terminals offer a wide range of options for setting parameters and operating modes. All functions can be flexibly adapted to the task.

Function terminals

Wide range of function terminals with pre-processing reduces programming effort.

Inline I/O system

Reliable up to Zone 2

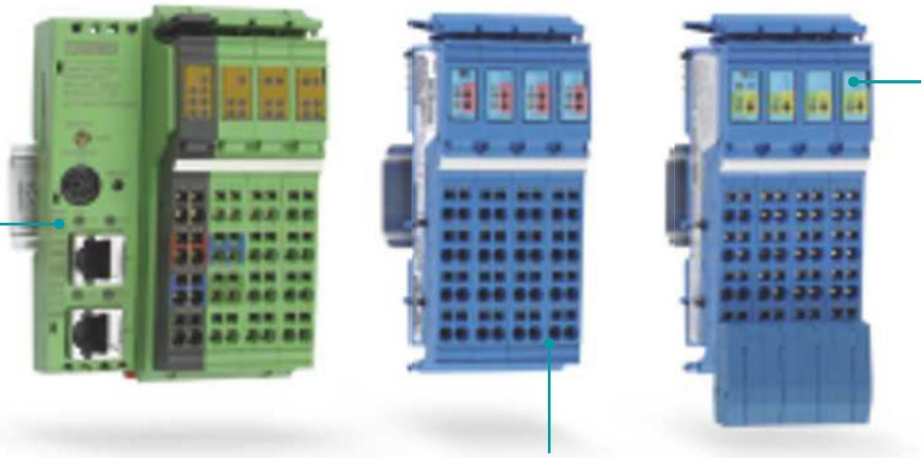
Communicate in potentially explosive areas – with intrinsically safe Inline I/O terminals. There is a range of I/O terminals for use in potentially explosive areas up to Zone 2. With just three intrinsically safe I/O terminals you can solve the most diverse automation tasks in sensitive areas thanks to the wide range of parameterization options.

Web code: #1244

Your advantages

- Reliable acquisition and output of signals from Zone 0 thanks to intrinsically safe I/O terminals
- Comprehensive approvals provide a high degree of flexibility through to potentially explosive areas
- A wide range of connection options to sensors and actuators thanks to parameterizable I/O terminals
- Easy station extension with the addition of an intrinsically safe power supply

Matching products from our range



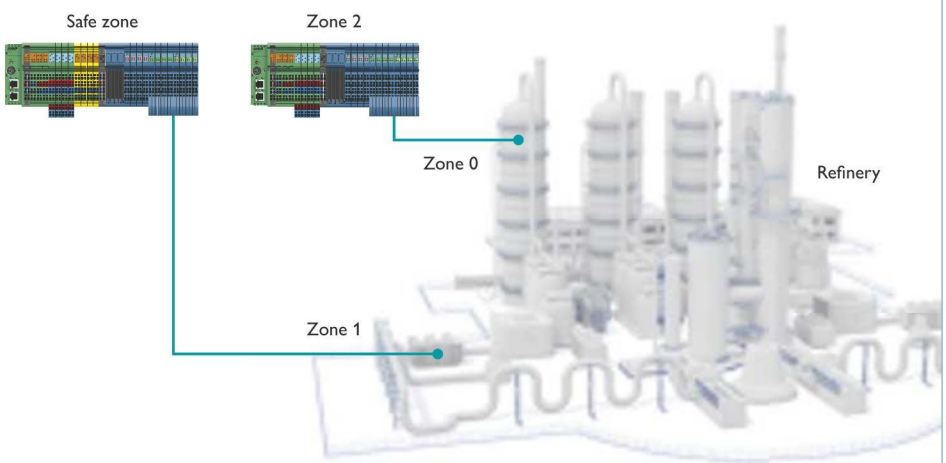
Controller
for IEC 61131 programming with approval for Zone 2

Intrinsically safe temperature input terminal
with four channels, parameterizable, and with shield connection

Intrinsically safe digital input/output terminal
with four channels for NAMUR initiators and mechanical contacts

Reliable and safe signal acquisition in the Ex area

With the blue I/O terminals, you can acquire and output additional input and output signals from potentially explosive areas of Zones 1 and 0.
The Inline station can be installed either inside or outside the potentially explosive area (Zone 2).
Standard I/O terminals and intrinsically safe I/O terminals can be combined at any stage.



Approvals
With all major approvals for use in potentially explosive areas.

Versatile connection
Implement versatile functions with just three I/O terminals: digital and analog input and output plus recording of resistance and thermocouple sensors.

Easy to extend
Extend your existing Inline station with intrinsically safe components. Separate intrinsically safe and non-intrinsically-safe Inline terminals with the isolator terminal.

From planning to startup

Software is the key to more efficient automation. Phoenix Contact offers software from configuration to system operation. All products interact perfectly and impress with their innovative functions and intuitive, user-friendly operation. Use software for all engineering stages. We offer software tools and libraries as well as interfaces and drivers for industrial automation.

Your advantages

- Save time thanks to reduced engineering effort with interconnected software tools
- Fast startup thanks to simulation and diagnostics
- Few errors thanks to automated functions
- High system availability thanks to fast troubleshooting with effective diagnostic tools

Planning

When it comes to configuring electrotechnical equipment for an automation application, Project+, the expert solution, is there to help. With no training required, you can create a functional Axioline F or Inline I/O station according to your specifications very quickly with Project+.

Web code: #1161

Software for all engineering stages

Configuration/ planning	Parameterization/ configuration	Programming	Visualization	System operation
CLIP PROJECT Planning and Marking Software	**CONFIG+** INTERBUS Network Configuration	**LOGIC+** Compact Controller Programming	**VISU+** SCADA Visualization	**Connect+** Application start-up
FL WST BASIC Wireless Simulation	**SAFECONF** Safety Configuration	**PC WORX** PLC Programming	**VISU+ Express** HMI Visualization	**DIAG+** Network Diagnostic
PROJECT+ I/O Project Planning		**PC WORX EXPRESS** Compact Controller Programming	**WEBVISIT** Web Visualization	**DIAG+ NETSCAN** Automatic INTERBUS Diagnostic
		SAFETYPROG Safety Programming		**PC WORX UA SERVER** Communication Interface
				STARTUP+ Wiring Check for Axioline

Configuration

The user-friendly safety software for functional safety. Configure SafetyBridge modules with SAFECONF. Simply drag and drop to create a safety system that is tailored to your requirements.

Web code: #1162

Programming

PC Worx is the consistent engineering software for all controllers from Phoenix Contact. It combines programming according to IEC 61131, fieldbus configuration for INTERBUS, PROFINET, and Modbus, as well as system diagnostics.

Web code: #1163

Operation

The software is specifically designed for the Axioline F I/O system. Startup+ can be used, for example, to test the wiring of your Axioline F station, without having to connect it to a network.

Web code: #1164

Get an overview

Our engineers are constantly developing new products. The following pages contain technical data and product data for Axioline F and Inline I/O components.

Use the web codes provided to access an up-to-date product list.

Are you looking for I/O systems for field installation?

Further information on IP65/IP67 I/O systems for use in the field can be found under the specified web code:

Web code: #1246

Axioline F product overview

Technical data

Ambient conditions		Electromagnetic compatibility	
Relative humidity (operation)	5% … 95% (non-condensing)	Noise emission	Class B according to EN 61000-6-3 (residential area)
Temperature range (operation)	-25°C … +60°C	Noise immunity	according to EN 61000-6-2
Extended temperature range for XC modules (operation)	-40°C … +70°C		
Vibration	5 g according to IEC 60068-2-6		
Shock	30 g according to IEC 60068-2-27		
Continuous shock	10 g according to IEC 60068-2-27		
Degree of protection	IP20		

The current and complete range of Axioline F I/O components can be accessed via our homepage.

Web code: #1157

Bus coupler

The Axioline F bus couplers are the link between the Axioline F system and the higher-level network.

Type	Designation	Order No.
Bus coupler for PROFINET	AXL F BK PN	2701815
Bus coupler for EtherCAT®	AXL F BK EC	2688899
Bus coupler for EtherNet/IP™	AXL F BK EIP	2688394
Bus coupler for EtherNet/IP™ with enhanced functions	AXL F BK EIP EF	2702782
Bus coupler for Sercos®	AXL F BK S3	2701686
Bus coupler for Modbus TCP	AXL F BK ETH	2688459
Bus coupler for Modbus TCP for an extended temperature range	AXL F BK ETH XC	2701949
Bus coupler for Modbus TCP with two independent network ports	AXL F BK ETH NET2	2702177
Bus coupler for Ethernet (IEC 61850)	AXL F BK SAS	2701457
Bus coupler for PROFIBUS DP	AXL F BK PB	2688530

Axiocontrol controllers

Axiocontrol controllers (AXC) for small to complex applications.

Controller type	Designation	Order No.
Small-scale controller	AXC 1050	2700988
Small-scale controller for an extended temperature range	AXC 1050 XC	2701295
High-performance controller	AXC 3050	2700989

Axioline F product overview

Safe I/O modules

Solutions for functional safety with SafetyBridge technology or PROFIsafe.

PROFIsafe	Designation	Order No.	Overall width
8 digital inputs, 1-channel	AXL F PSDI8/4 1F	2701559	54 mm
8 digital outputs, 1-channel	AXL F PSDO8/3 1F	2701560	54 mm
SafetyBridge technology			
8 digital inputs, 1-channel	AXL F SSDI8/4 1F	2702263	54 mm
8 digital outputs, 1-channel	AXL F SSDO8/3 1F	2702264	54 mm
… with integrated safety logic	AXL F LPSDO8/3 1F	2702171	54 mm

Digital input and output modules

Digital I/O modules with 4 to 64 channels and a 35 mm or 54 mm housing width.

Digital input	Designation	Order No.	Overall width
8 channels, 2-conductor, 24 V DC	AXL F DI8/2 24DC 1F	2702783	54 mm
8 channels, 2-conductor, 48, 60 V DC	AXL F DI8/2 48/60DC 1F	2702654	54 mm
8 channels, 2-conductor, 110, 220 V DC	AXL F DI8/2 110/220DC 1F	2700684	54 mm
16 channels, 1-conductor, 24 V DC	AXL F DI16/1 1H	2688310	35 mm
… with fast inputs	AXL F DI16/1 HS 1H	2701722	35 mm
16 channels, 4-conductor, 24 V DC	AXL F DI16/4 2F	2688022	54 mm
… for an extended temperature range	AXL F DI16/4 XC 2F	2701224	54 mm
32 channels, 1-conductor, 24 V DC	AXL F DI32/1 2H	2702052	35 mm
32 channels, 1-conductor, 24 V DC	AXL F DI32/1 1F	2688035	54 mm
… for an extended temperature range	AXL F DI32/1 XC 1F	2701226	54 mm
64 channels, 1-conductor, 24 V DC	AXL F DI64/1 2F	2701450	54 mm
Digital output			
4 channels, 3-conductor, 230 V AC, 2 A, Triac	AXL F DO4/3 AC 1F	2702068	54 mm
4 channels, 2-conductor, 220 V DC / 230 V AC, relay	AXL F DOR4/2 AC/220DC 1F	2700608	54 mm
8 channels, 2-conductor, 24 V DC, 2 A	AXL F DO8/2 2A 1H	2688381	35 mm
16 channels, 1-conductor, 24 V DC	AXL F DO16/1 1H	2688349	35 mm
… with FLK connection	AXL F DO16 FLK 1H	2701813	35 mm
16 channels, 3-conductor, 24 V DC	AXL F DO16/3 2F	2688048	54 mm

Axioline F product overview

Digital output	Designation	Order No.	Overall width
… for an extended temperature range	AXL F DO16/3 XC 2F	2701228	54 mm
32 channels, 1-conductor, 24 V DC	AXL F DO32/1 1F	2688051	54 mm
… for an extended temperature range	AXL F DO32/1 XC 1F	2701230	54 mm
64 channels, 1-conductor, 24 V DC	AXL F DO64/1 2F	2702053	54 mm
Digital input/output			
8 inputs, 8 outputs, 1-conductor, 24 V DC	AXL F DI8/1 DO8/1 1H	2701916	35 mm
… for an extended temperature range	AXL F DI8/1 DO8/1 XC	2702017	35 mm
8 inputs, 8 outputs, 3-conductor, 24 V DC	AXL F DI8/3 DO8/3 2H	2702071	35 mm
16 inputs, 16 outputs, 1-conductor, 24 V DC	AXL F DI16/1 DO16/1 2H	2702106	35 mm
16 inputs, 1-conductor, 8 outputs, 2-conductor, 24 V DC, 2 A	AXL F DI16/1 DO8/2-2A 2H	2702291	35 mm

Analog input/output modules

Analog I/O modules with 2 to 8 channels, 16-bit, 35 mm or 54 mm housing width.



Analog input	Designation	Order No.	Overall width
4 channels, current	AXL F AI4 I 1H	2688491	35 mm
… for an extended temperature range	AXL F AI4 I XC 1H	2702007	35 mm
4 channels, voltage	AXL F AI4 U 1H	2688501	35 mm
… for an extended temperature range	AXL F AI4 U XC 1H	2702008	35 mm
8 channels, current/voltage can be configured	AXL F AI8 1F	2688064	54 mm
… for an extended temperature range	AXL F AI8 XC 1F	2701232	54 mm
Analog output			
4 channels, current/voltage can be configured	AXL F AO4 1H	2688527	35 mm
… for an extended temperature range	AXL F AO4 XC 1H	2702153	35 mm
8 channels, current/voltage can be configured	AXL F AO8 1F	2688080	54 mm
… for an extended temperature range	AXL F AO8 XC 1F	2701237	54 mm
Analog input/output			
2 inputs, 2 outputs, current/voltage can be configured	AXL F AI2 AO2 1H	2702072	35 mm
Temperature recording			
4 channels, for temperature resistors (RTD)	AXL F RTD4 1H	2688556	35 mm
4 channels, for thermocouples (UTH)	AXL F UTH4 1H	2688598	35 mm
8 channels, for temperature resistors (RTD)	AXL F RTD8 1F	2688077	54 mm
… for an extended temperature range	AXL F RTD8 XC 1F	2701235	54 mm
… with a high dynamic measuring range	AXL F RTD8 S 1F	2702120	54 mm
8 channels, for thermocouples (UTH)	AXL F UTH8 1F	2688417	54 mm

Axioline F product overview

Function modules, feed-in module			
Various function and communication modules, 35 mm or 54 mm housing width.			
Serial communication	**Designation**	**Order No.**	**Overall width**
Can be configured as RS-485/422 or RS-232	AXL F RS UNI 1H	2688666	35 mm
… for an extended temperature range	AXL F RS UNI XC 1H	2702006	35 mm
Position detection			
1 SSI interface, 1 analog output	AXL F SSI1 AO1 1H	2688433	35 mm
2 digital impulse interfaces for an extended temperature range	AXL F IMPULSE2 XC 1H	2702655	35 mm
2 counter inputs, 2 incremental encoder inputs	AXL F CNT2 INC2 1F	2688093	54 mm
… for an extended temperature range	AXL F CNT2 INC2 XC 1F	2701239	54 mm
Feed-in			
Boost module for the logic supply U_{Bus}	AXL F PWR 1H	2688297	35 mm

Accessories			
The current and complete range of specific accessories for the Axioline F I/O system can be accessed via our homepage. **Web code:** #1158			
Type	**Designation**	**Order No.**	
Bus base module for housing type H	AXL F BS H	2700992	
Bus base module for housing type F	AXL F BS F	2688129	
Connector set	AXL CNS 8L-ORBG/D/UI/E1/E2	2700980	
Shield connection set	AXL SHIELD SET	2700518	
Zack marker strip, unprinted	ZB 20,3 AXL UNPRINTED	0829579	
Insert label, roll, white, unmarked	EMT (35X28)R	0801602	

Inline product overview

Technical data			
Ambient conditions		**Electromagnetic compatibility**	
Relative humidity (operation)	5% … 95% (non-condensing)	Noise emission	Class A according to EN 61000-6-4
Temperature range (operation)	-25°C … +55°C	Noise immunity	according to EN 61000-6-2
Temperature range (operation) for Inline ECO terminals	0°C … +55°C		
Vibration	5 g according to EN 60068-2-6		
Shock	25 g according to EN 60068-2-27		
Degree of protection	IP20		

The current and complete range of Inline I/O components can be accessed via our homepage.

Web code: #1159

Bus coupler		
The Inline bus couplers are the link between the Inline system and the higher-level network.		
Type	**Designation**	**Order No.**
Bus coupler for PROFINET	IL PN BK DI8 DO4 2TX-PAC	2703994
Bus coupler for PROFINET with FO connection	IL PN BK DI8 DO4 2SCRJ-PAC	2878379
Bus coupler for EtherCAT®	IL EC BK-PAC	2702507
Bus coupler for EtherNet/IP™	IL EIP BK DI8 DO4 2TX-PAC	2897758
Bus coupler for Sercos®	IL S3 BK DI8 DO4 2TX-PAC	2692380
Bus coupler for Modbus TCP	IL ETH BK DI8 DO4 2TX-PAC	2703981
Bus coupler for PROFIBUS DP	IL PB BK DI8 DO4/EF-PAC	2692322
Bus coupler for CANopen®	IL CO BK-PAC	2702230
Bus coupler for DeviceNet™	IL DN BK DI8 DO4-PAC	2897211
Bus coupler for INTERBUS	IBS IL 24 BK-T/U-PAC	2861580
Bus coupler for INTERBUS with D-SUB connection	IBS IL 24 BK-DSUB-PAC	2861593
Bus coupler for INTERBUS with FO connection	IBS IL 24 BK-LK/45-PAC	2862165

Inline product overview

Inline controllers

Inline controllers (ILC) for all common communication paths, such as Ethernet, mobile communication or fixed-line network.

Controller type	Designation	Order No.
Class 100 small-scale controller	ILC 131 ETH	2700973
Class 100 small-scale controller	ILC 151 ETH	2700974
Small-scale controller with two Ethernet ports	ILC 171 ETH 2TX	2700975
Small-scale controller with integrated FPU	ILC 191 ETH 2TX	2700976
Small-scale controller with integrated GSM/GPRS modem	ILC 151 GSM/GPRS	2700977
Class 300 controller	ILC 350 PN	2876928
Class 300 controller	ILC 370 PN 2TX-IB/M	2985576
Highest performance class 300 controller	ILC 390 PN 2TX-IB	2985314

Feed-in, boost, and segment terminals

Various feed-in, boost, and segment terminals with and without fuse.

Feed-in terminals	Designation	Order No.
24 V DC, (U_M, U_S), without fuse	IB IL 24 PWR IN-PAC	2861331
24 V DC, (U_M, U_S), with fuse	IB IL 24 PWR IN/2-F-PAC	2862136
24 V DC, (U_M, U_S), with fuse and diagnostics	IB IL 24 PWR IN/F-D-PAC	2861894
120 V DC, (L, N), without fuse	IB IL 120 PWR IN-PAC	2861454
230 V DC, (L, N), without fuse	IB IL 230 PWR IN-PAC	2861535
230 V DC, (L, N), with fuse and diagnostics	IB IL 230 PWR IN/F-D-PAC	2878971
Boost terminals		
24 V DC, without fuse (U_L, U_{ANA}, U_M, U_S)	IB IL 24 PWR IN/R-PAC	2861674
24 V DC, without fuse (U_L)	IB IL 24 PWR IN/R/L-0,8A-PAC	2693020
Segment terminals		
24 V DC, without fuse	IB IL 24 SEG-PAC	2861344
24 V DC, with fuse	IB IL 24 SEG/F-PAC	2861373
24 V DC, with fuse and diagnostics	IB IL 24 SEG/F-D-PAC	2861904
24 V DC, with electronic fuse	IB IL 24 SEG-ELF-PAC	2861409

Inline product overview

Digital input and output terminals		
Digital I/O terminals with 1 to 32 channels.		
Digital input	**Designation**	**Order No.**
1 channel, 2-conductor, 120 V DC	IB IL 120 DI 1-PAC	2861917
1 channel, 2-conductor, 230 V DC	IB IL 230 DI 1-PAC	2861548
2 channels, 4-conductor, 24 V DC	IB IL 24 DI 2-PAC	2861221
2 channels, 4-conductor, 24 V DC with NPN logic	IB IL 24 DI 2-NPN-PAC	2861483
4 channels, 3-conductor, 24 V DC	IB IL 24 DI 4-PAC	2861234
8 channels, 1-conductor, 24 V DC	IB IL 24 DI8/HD-PAC	2700173
… as ECO version	IB IL 24 DI 8/HD-ECO	2702792
8 channels, 4-conductor, 24 V DC	IB IL 24 DI 8-PAC	2861247
16 channels, 3-conductor, 24 V DC	IB IL 24 DI 16-PAC	2861250
16 channels, 3-conductor, 24 V DC with NPN logic	IB IL 24 DI 16-NPN-PAC	2863520
32 channels, 1-conductor, 24 V DC	IB IL 24 DI 32/HD-PAC	2862835
32 channels, 1-conductor, 24 V DC with NPN logic	IB IL 24 DI 32/HD-NPN-PAC	2878243
Digital output		
1 channel, 2-conductor, 230 V AC	IB IL DO 1 AC-PAC	2861920
1 relay output, 24 V AC / 230 V AC, 3 A	IB IL 24/230 DOR1/W-PAC	2861881
2 channels, 4-conductor, 24 V DC	IB IL 24 DO 2-PAC	2861470
2 channels, 4-conductor, 24 V DC with 2 A outputs	IB IL 24 DO 2-2A-PAC	2861263
2 channels, 4-conductor, 24 V DC with NPN logic	IB IL 24 DO 2-NPN-PAC	2861496
2 relay outputs, 24 V AC / 48 V AC, 2 A	IB IL 24/48 DOR 2/W-PAC	2863119
4 channels, 3-conductor, 24 V DC	IB IL 24 DO 4-PAC	2861276
4 channels, 3-conductor, 24 V DC, for safety-relevant segment circuit	IB IL 24 DO 4/EF-PAC	2701009
… as ECO version	IB IL 24 DO 4/EF-ECO	2702825
4 channels, 3-conductor, 230 V AC, 1 A	IB IL DO 4 AC-1A-PAC	2861658
4 relay outputs, 24 V AC / 230 V AC, 3 A	IB IL 24/230 DOR4/W-PAC	2861878
4 relay outputs, 24 V AC / 230 V AC, 10 A	IB IL 24/230 DOR4/HC-PAC	2897716
8 channels, 4-conductor, 24 V DC	IB IL 24 DO 8-PAC	2861289
8 channels, 4-conductor, 24 V DC with 2 A outputs	IB IL 24 DO 8-2A-PAC	2861603
8 channels, 1-conductor, 24 V DC	IB IL 24 DO8/HD-PAC	2700172
… as ECO version	IB IL 24 DO 8/HD-ECO	2702793
8 channels, 1-conductor, 24 V DC with NPN logic	IB IL 24 DO 8-NPN-PAC	2863546
16 channels, 3-conductor, 24 V DC	IB IL 24 DO 16-PAC	2861292
32 channels, 1-conductor, 24 V DC	IB IL 24 DO 32/HD-PAC	2862822
32 channels, 1-conductor, 24 V DC with NPN logic	IB IL 24 DO 32/HD-NPN-PAC	2878340

Inline product overview

Analog input and output terminals		
Analog I/O terminals with 2 to 8 channels.		
Analog input	**Designation**	**Order No.**
2 channels, current/voltage can be configured	IB IL AI 2/SF-PAC	2861302
2 channels, HART functionality	IB IL AI 2-HART-PAC	2862149
4 channels, 0–20 mA, 4–20 mA	IB IL AI 4/I-PAC	2700458
4 channels, 0–10 V, ± 10 V	IB IL AI 4/U-PAC	2700459
4 channels, current/voltage can be configured	IB IL AI 4/EF-PAC	2878447
4 channels, 4–20 mA, ECO version	IB IL AI 4/I/4-20-ECO	2702495
4 channels, 0–10 V, ECO version	IB IL AI 4/U/0-10-ECO	2702496
8 channels, current, can be configured	IB IL AI 8/IS-PAC	2861661
8 channels, current/voltage can be configured	IB IL AI 8/SF-PAC	2861412
Analog output		
1 channel, current/voltage can be configured	IB IL AO 1/SF-PAC	2861315
2 channels, current/voltage can be configured, 12-bit	IB IL AO 2/UI-PAC	2700775
2 channels, 0–10 V, ± 10 V	IB IL AO 2/U/BP-PAC	2861467
2 channels, current/voltage can be configured	IB IL AO 2/SF-PAC	2863083
4 channels, 4–20 mA, ECO version	IB IL AO 4/I/4-20-ECO	2702497
4 channels, 0–10 V, ECO version	IB IL AO 4/U/0-10-ECO	2702498
8 channels, voltage can be configured	IB IL AO 4/8/U/BP-PAC	2878036
Temperature recording		
2 channels, RTD, can be configured	IB IL TEMP 2 RTD-PAC	2861328
2 channels, thermocouple, can be configured	IB IL TEMP 2 UTH-PAC	2861386
4 channels, RTD PT100, ECO version	IB IL RTD 4/PT100-ECO	2702499
4 channels, RTD PT1000, ECO version	IB IL RTD 4/PT1000-ECO	2702501
4 channels, UTH type J, ECO version	IB IL UTH 4/J-ECO	2702502
4 channels, UTH type K, ECO version	IB IL UTH 4/K-ECO	2702503
4 channels, UTH type L, ECO version	IB IL UTH 4/L-ECO	2702504
8 channels, RTD, can be configured	IB IL TEMP 4/8 RTD/EF-PAC	2897402
8 channels, thermocouple/RTD, can be configured	IB IL TEMP 8 UTH/RTD-PAC	2701000
Measurement terminals for strain gauges		
Can be calibrated	IB IL SGI 1/CAL	2700064
With fast inputs	IB IL SGI 2/F-PAC	2878638
With precise and fast inputs	IB IL SGI 2/P/EF-PAC	2702373

Inline product overview

Safe I/O terminals		
Solutions for functional safety with SafetyBridge technology or PROFIsafe.		
Safe input	**Designation**	**Order No.**
8 digital inputs, 1-channel	IB IL 24 PSDI 8-PAC	2985688
16 digital inputs, 1-channel	IB IL 24 PSDI 16-PAC	2700994
Safe output		
4 digital outputs, 4-conductor, 1-channel	IB IL 24 PSDO 4/4-PAC	2916493
4 safe relay outputs each with 2 contacts	IB IL 24 PSDOR 4-F-PAC	2700563
8 digital outputs, 4-conductor, 1-channel	IB IL 24 PSDO 8-PAC	2985631
… with integrated safety logic	IB IL 24 LPSDO 8 V3-PAC	2701625
Safe segment shut-down		
For the safe shutdown of the actuator voltage supply	IB IL SAFE 2-ECO	2702446

Intrinsically safe terminals		
Intrinsically safe terminals for use up to Zone 2.		
Type	**Designation**	**Order No.**
Isolator terminal	IB IL EX PWR-ISO-PAC	2869909
Intrinsically safe power supply	IB IL EX-IS PWR IN-PAC	2869910
4 digital inputs, 4 digital outputs	IB IL EX-IS DIO 4/NAM-PAC	2869911
4 analog inputs, 4 analog outputs	IB IL EX-IS AIO 4/EF-PAC	2869912
4 temperature inputs, can be configured	IB IL EX-IS TEMP 4 RTD/TC-PAC	2869913

Inline product overview

Function terminals		
Various function terminals, categorized into communication terminals and terminals for control and acquisition.		
Communication terminals	**Designation**	**Order No.**
INTERBUS branch terminal	IBS IL 24 RB-T-PAC	2861441
INTERBUS FO branch terminal	IBS IL 24 RB-LK	2878117
Branch terminal for connecting Fieldline Modular M8	IB IL 24 FLM MULTI-PAC	2737009
Local bus extension terminal for opening up a new Inline station	IB IL 24 LSKIP-PAC	2897457
RS-232, RS-485/422 serial communication, can be parameterized	IB IL RS UNI-PAC	2700893
RS-232 serial communication, ECO version	IB IL RS 232-ECO	2702795
RS-485 serial communication, ECO version	IB IL RS 485-ECO	2702141
DALI master including power supply unit	IB IL DALI/PWR-PAC	2897813
DALI master, extension to IB IL DALI/PWR-PAC	IB IL DALI-PAC	2897910
DALI master including power supply unit, multi-master-capable	IB IL DALI/MM-PAC	2700605
M-bus master	IB IL MBUS-PAC	2701927
INTERFACE system bus master	IB IL IFS-MA-PAC	2692720
PROFIBUS master/slave	IB IL PB MA-PAC	2700630
CAN master	IB IL CAN-MA-PAC	2700196
IO-Link master, 4 IO-Link ports, 12 digital inputs	IB IL 24 IOL 4 DI 12-PAC	2692717
AS-Interface gateway, specification 2.1	ASI MA IL UNI	2736628
Terminals for control and acquisition		
Energy data acquisition	IB IL PM 3P/N/EF-PAC	2700965
Acquisition for position encoder	B IL INC-IN-PAC	2861755
Acquisition for absolute encoder	IB IL SSI-IN-PAC	2819574
Acquisition for position encoder	IB IL IMPULSE-IN-PAC	2861768
1 absolute encoder, with 4 digital inputs and 4 digital outputs	IB IL SSI-PAC	2861865
Counter with 1 counter input and 1 control input, 1 output	IB IL CNT-PAC	2861852
Pulse width and frequency modulation	IB IL PWM/2-PAC	2861632

Power-level terminals

Direct starter and reversing load starter.

Type	Designation	Order No.
Electronic direct starter, up to 1.5 kW / 400 V AC	IB IL 400 ELR 1-3A	2727352
Electronic reversing load starter, up to 1.5 kW / 400 V AC	IB IL 400 ELR R-3A	2727378
Electromechanical direct starter, up to 3.7 kW / 400 V AC	IB IL 400 MLR 1-8A	2727365
Extension module for brake control	IB IL 400 BR	2727394

Accessories

The current and complete range of specific accessories for the Inline I/O system can be accessed via our homepage.

Web code: #1160

Type	Designation	Order No.
Cover plate	I-L ATP GN	2740850
Inline connector, with color print	IB IL SCN-8-CP	2727608
Inline shield plug	IB IL SCN 6-SCHIELD-TWIN	2740245
Coding profile	IL CP	2742683
Marking field, 12.2 mm width	IB IL FIELD 2	2727501
Marking field, 48.8 mm width	IB IL FIELD 8	2727515

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ION02-16.001.L3
MNR 52008135/2016-11-01/00

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