



Power & Signal Quality TRABTECH

## PLUGTRAB PT-IQ

Intelligent and systematic surge protection



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See the product details here

# Surge protection for measurement and control technology

Signal interfaces are at far greater risk of surge voltages than power supply systems. This is a result of a) the numerous cables laid in parallel and b) the more sensitive input and output interfaces.

Based on the risk potential and safety level required for the interface, a variety of surge protective devices are used. These are installed directly before the signal inputs to be protected. The circuits of these protective devices are adapted to the relevant signal types.

## Potential threats to industry

In virtually all industries, a large number of signal lines are required in order to guarantee the smooth operation of system parts. If these signals drop out it can result in considerable costs.

## Hazards



Unexpected device damage or system failures in data, measurement, and control technology are often caused by surge voltages. These occur as a result of lightning effects or switching operations in the power supply network. Time-consuming troubleshooting, replacements, repairs, and downtimes can result in considerable follow-up costs.



## Our solution: PLUGTRAB PT-IQ



The intelligent PLUGTRAB PT-IQ surge protection provides an effective method of limiting high-energy transients. This significantly increases the availability and operability of your systems and devices. As a plug-in and self-monitoring system, PLUGTRAB PT-IQ also offers additional advantages. Thanks to the multi-stage monitoring

and signaling, you are aware of the status of the protective devices at all times. If a surge protective device is defective or reaches its performance limit as a result of a high-energy coupling, you can simply replace the damaged plug without having to interfere with the installation.

### The advantages:

- Permanent and error-free installation
- Forward-looking monitoring
- Limitless extension
- Variable connection technology
- Installation directly in Ex zone 2



# Intelligent and systematic surge protection




PLUGTRAB PT-IQ is a new, forward-looking surge protection system with a variety of new features. The intelligent monitoring of all voltage-limiting components immediately detects pre-existing damage as a result of high-energy surge voltages. The multi-stage signaling is carried out directly on site or via remote signaling.

A controller manages the installed protective devices. It supplies the system with voltage and also functions as the central evaluation unit for all status signals.

As soon as each module is snapped on, the power supply and the status signal are connected. This considerably minimizes the amount of cabling required.

## Forward-looking monitoring

PLUGTRAB PT-IQ provides multi-stage monitoring of the protective devices and issues group messages via the controller. A yellow status signal indicates that as a result of frequent surge voltages, the performance limit has been reached. The arresters continue to function and your system is still protected. A replacement is, however, recommended in order to avoid unnecessary service operations. Remote signaling enables you to check how well your system is being protected at any time and place.

-  OK
-  Performance limit reached, replacement recommended
-  Overloaded, replacement required

## Energy efficiency

The green LEDs on all protection modules can be switched off centrally via the controller.

### PT-IQ-PTB-P





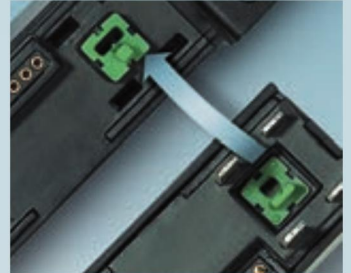
### Vibration-resistant installation

The new latching guarantees a secure fit for installations in harsh environments. It holds the plug in place in the base element, even during extremely strong vibrations.



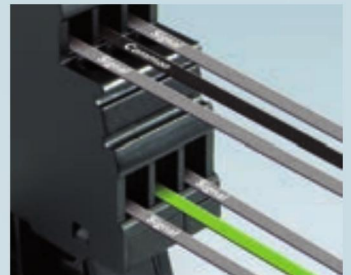
### Error-free installation

Voltage coding and protection against polarity reversal make incorrect connection impossible.



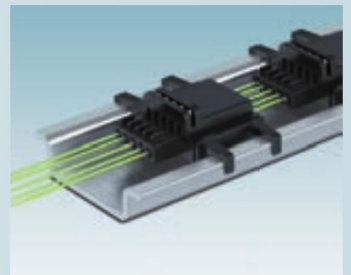
### Space-saving installation

Up to five signal lines can be protected with one device. This requires a design width of just 17.5 mm on the DIN rail, meaning only 3.5 mm per signal line.



### Permanent installation

Individual DIN rail connectors can be converted into a bus. This transmits the power supply and status information. Conventional wiring is not used.



### Limitless extension

A controller supplies up to 28 protection modules with voltage via the DIN rail connectors. You can bridge these across DIN rails to supply additional protective devices. After 28 modules an additional controller must be installed in order to supply voltage.

### Variable connection technology

Choose between the classic screw connection or push-in connection technology which is even faster to wire.



# PLUGTRAB PT-IQ also with push-in connection technology

Push-in connection technology has proven extremely successful in terminal technology and is now also used in surge protective devices.

PT push-in connection terminal blocks have been developed for direct conductor connection. This means that solid or stranded conductors with ferrules can be directly inserted into the terminal block without tools. This further reduces the installation time required for PLUGTRAB PT-IQ.

Benefit from the further advantages of these technologies.

## Your advantages at a glance:

- Fast and direct plugging of solid and stranded conductors with ferrules
- Reduced installation time
- Short operating paths – fast wiring times
- Conductor release without special tools
- No deformation of the contact chamber as a result of using incorrect tools
- Test connection at each terminal point (protected/unprotected)

## Push-in Technology

Designed by PHOENIX CONTACT



### Easy insertion

The reduction in insertion force of up to 50% offered by push-in technology enables easy, direct insertion of solid and stranded conductors with ferrules with a cross section of 0.34 mm<sup>2</sup> or higher.



### Latch function

The integrated latch enables you to release connected conductors using any standard screwdriver – easily and without direct contact with the signal wires.



### All-round insulation

The plastic latch protects the sensitive signals from contact with external potentials and prevents the contact chamber from being deformed as a result of using incorrect tools.

# Surge protection for the Ex area

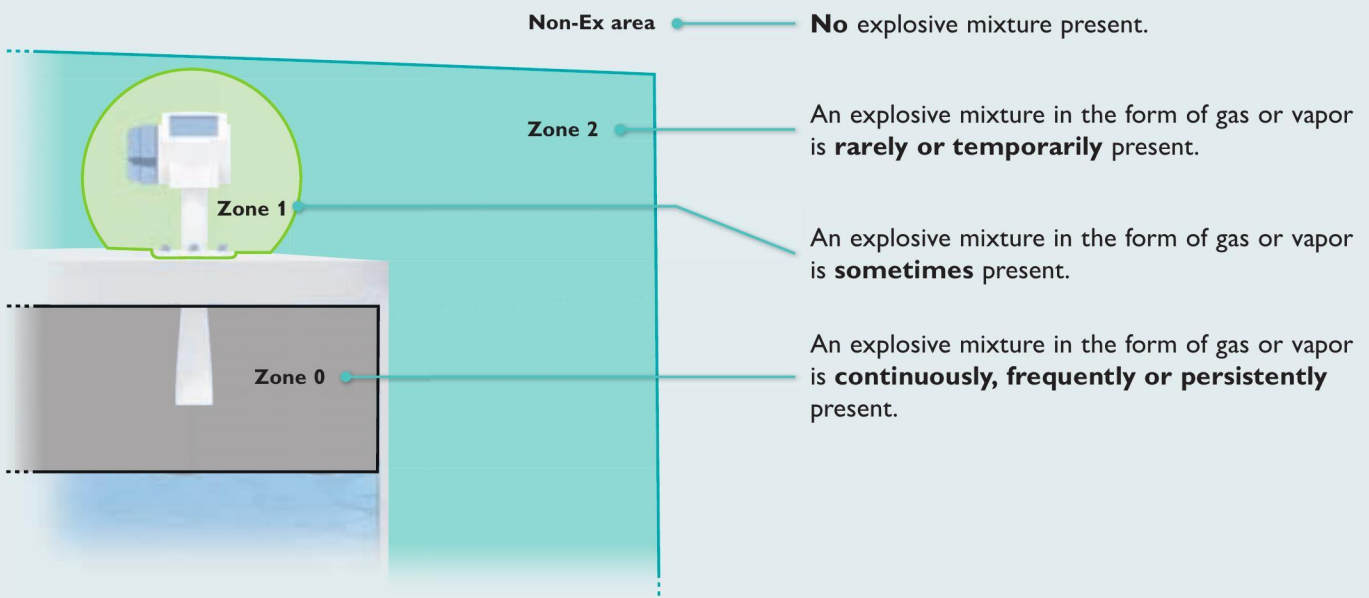
For the first time, the PLUGTRAB PT-IQ Ex protective devices have made it possible to install protective devices with multi-stage monitoring and remote signaling directly in Ex zone 2. The intrinsically safe protective circuits can be installed in areas up to Ex zone 0.

Your advantage: you can check the status of your protective devices directly on site or in the control room, even in intrinsically safe areas. You can replace the modules before a failure occurs.



Benefit from all the advantages of the surge protection system, even in the Ex area. You can monitor up to ten PT-IQ Ex surge protective devices via a central controller.

## Ex zone classification





# Order overview: Surge protection products

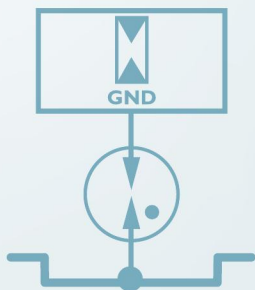
The intelligent PLUGTRAB PT-IQ surge protection can be used in a variety of applications thanks to the different switching and voltage variants.

Depending on the application, you can choose between a direct and indirect ground connection. PLUGTRAB PT-IQ is available with push-in connection technology, which is quick to wire, or with the classic screw connection.

Regardless of the connection technology, the protective devices make contact when snapped on to the DIN rail in a way that is resistant to surge currents.

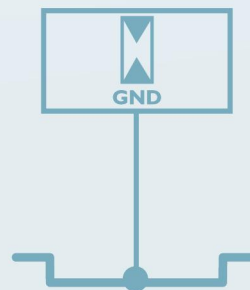
## Protection for the Ex area

Suitable protective devices that can be installed in Ex zone 2 are also available for intrinsically safe signal circuits. The safe cables can of course be laid into Ex zone 0.



### Indirect grounding

With the **PT-IQ-...+F-...** **PT** and **PT-IQ-...+F-...** **UT protection modules**, the connection terminal blocks for the shield or the reference potential are indirectly connected to the metal mounting foot and thereby the DIN rail via a gas-filled surge arrester.




### Direct grounding

With the **PT-IQ-...-PT** and **PT-IQ-...-UT protection modules**, the connection terminal blocks for the shield or the reference potential are directly connected to the DIN rail via the metal mounting foot.



## Surge protection with push-in and screw connection technology

### Controller for power supply and remote signaling

	2801296	PT-IQ-PTB-PT	-	-	Push-in connection
	2800768	PT-IQ-PTB-UT	-	-	Screw connection

### Protection for two conductors

#### Indirect grounding

#### Direct grounding


<p>Binary switching signals</p>  	2801244	PT-IQ-2X1+F-5DC-PT	2801243	PT-IQ-2X1-5DC-PT	Push-in connection
	2801246	PT-IQ-2X1+F-12DC-PT	2801245	PT-IQ-2X1-12DC-PT	
	2801248	PT-IQ-2X1+F-24DC-PT	2801247	PT-IQ-2X1-24DC-PT	
	2801250	PT-IQ-2X1+F-48DC-PT	2801249	PT-IQ-2X1-48DC-PT	Screw connection
	2800779	PT-IQ-2X1+F-5DC-UT	2800778	PT-IQ-2X1-5DC-UT	
	2800781	PT-IQ-2X1+F-12DC-UT	2800780	PT-IQ-2X1-12DC-UT	
	2800788	PT-IQ-2X1+F-24DC-UT	2800787	PT-IQ-2X1-24DC-UT	
	2800790	PT-IQ-2X1+F-48DC-UT	2800789	PT-IQ-2X1-48DC-UT	



### Protection for four conductors


#### Indirect grounding

#### Direct grounding

<p>Binary switching signals</p>  	2801268	PT-IQ-4X1+F-5DC-PT	2801267	PT-IQ-4X1-5DC-PT	Push-in connection
	2801272	PT-IQ-4X1+F-24DC-PT	2801271	PT-IQ-4X1-24DC-PT	
	2801216	PT-IQ-4X1+F-5DC-UT	2801215	PT-IQ-4X1-5DC-UT	Screw connection
	2800983	PT-IQ-4X1+F-24DC-UT	2800982	PT-IQ-4X1-24DC-UT	

Protection for one double wire		Indirect grounding		Direct grounding		
Standard signals 0...10 V 0/4...20 mA  		2801252	PT-IQ-1X2+F-5DC-PT	2801251	PT-IQ-1X2-5DC-PT	Push-in connection
		2801254	PT-IQ-1X2+F-12DC-PT	2801253	PT-IQ-1X2-12DC-PT	
		2801256	PT-IQ-1X2+F-24DC-PT	2801255	PT-IQ-1X2-24DC-PT	
		2801258	PT-IQ-1X2+F-48DC-PT	2801257	PT-IQ-1X2-48DC-PT	
		2800792	PT-IQ-1X2+F-5DC-UT	2800791	PT-IQ-1X2-5DC-UT	Screw connection
		2800975	PT-IQ-1X2+F-12DC-UT	2800793	PT-IQ-1X2-12DC-UT	
		2800977	PT-IQ-1X2+F-24DC-UT	2800976	PT-IQ-1X2-24DC-UT	
		2800979	PT-IQ-1X2+F-48DC-UT	2800978	PT-IQ-1X2-48DC-UT	

Protection for two double wires		Indirect grounding		Direct grounding		
Standard signals 0...10 V 0/4...20 mA  		2801260	PT-IQ-2X2+F-5DC-PT	2801259	PT-IQ-2X2-5DC-PT	Push-in connection
		2801264	PT-IQ-2X2+F-24DC-PT	2801263	PT-IQ-2X2-24DC-PT	
		2801266	PT-IQ-2X2+F-48DC-PT	2801265	PT-IQ-2X2-48DC-PT	
		2800809	PT-IQ-2X2+F-5DC-UT	2800807	PT-IQ-2X2-5DC-UT	Screw connection
		2800981	PT-IQ-2X2+F-24DC-UT	2800980	PT-IQ-2X2-24DC-UT	
		2800987	PT-IQ-2X2+F-48DC-UT	2800986	PT-IQ-2X2-48DC-UT	

Data technology		Indirect grounding		Direct grounding		
		2801287	PT-IQ-3-PB+F-PT	2801286	PT-IQ-3-PB-PT	Push-in connection
		2801289	PT-IQ-3-HF+F-12DC-PT	2801288	PT-IQ-3-HF-12DC-PT	
		2801292	PT-IQ-5-HF+F-5DC-PT	2801291	PT-IQ-5-HF-5DC-PT	
		2801295	PT-IQ-5-HF+F-12DC-PT	2801293	PT-IQ-5-HF-12DC-PT	
		2800994	PT-IQ-3-PB+F-UT	2800785	PT-IQ-3-PB-UT	Screw connection
		2800995	PT-IQ-3-HF+F-12DC-UT	2800786	PT-IQ-3-HF-12DC-UT	
		2800798	PT-IQ-5-HF+F-5DC-UT	2800797	PT-IQ-5-HF-5DC-UT	
		2800801	PT-IQ-5-HF+F-12DC-UT	2800799	PT-IQ-5-HF-12DC-UT	



## Intelligent surge protection for the Ex area

### Controller for power supply and remote signaling

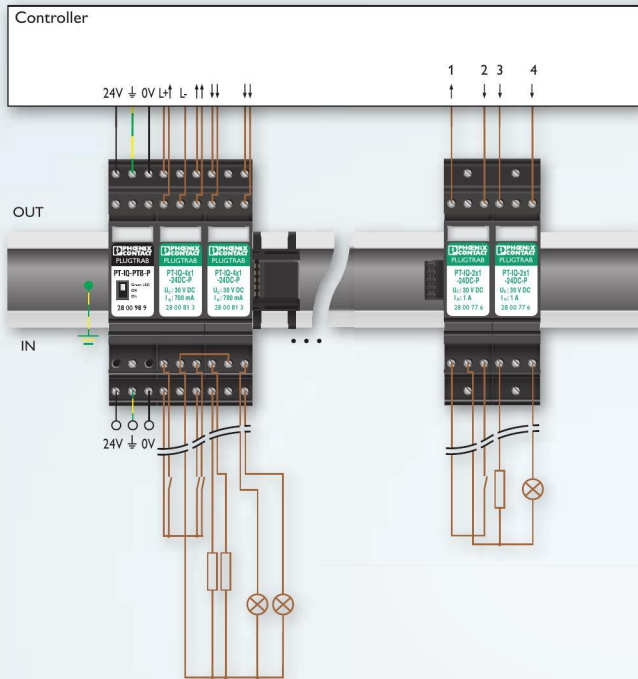
		2800768	PT-IQ-PTB-UT	-	-
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Protection for one double wire	Indirect grounding	Direct grounding
<p>Standard signals 0...10 V 0/4...20 mA</p> 	-	<p>2801512 PT-IQ-1X2-EX-24DC-UT</p>

Protection for two double wires	Indirect grounding	Direct grounding
<p>Standard signals 0...10 V 0/4...20 mA</p> 	-	<p>2801513 PT-IQ-2X2-EX-24DC-UT</p>

Necessary accessories: partition plates	For flat DIN rails (7.5 mm)	For isolated DIN rails
<p>Partition plates for maintaining the minimum distance of 50 mm between the controller and Ex protection modules.</p>	<p>2905023 PT-IQ-EX-L-PP</p>	<p>2905024 PT-IQ-EX-H-PP</p>

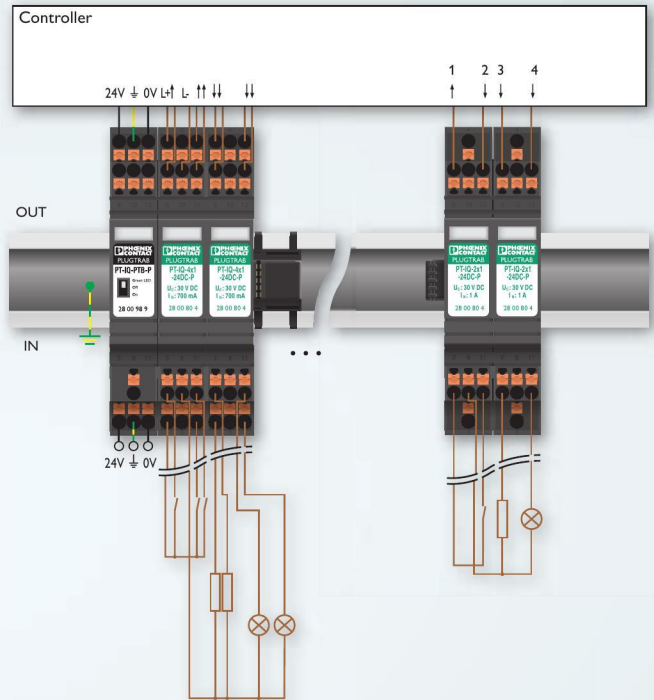
# Application examples with various connection technologies



Protection of one binary signal input and actuator circuit with PLUGTRAB PT-IQ, floating reference potential (negative pole).

Material:  
 1 x PT-IQ PTB-UT  
 Order No. 2800989  
 n x PT-IQ 4x1+F-24DC-UT  
 Order No. 2800983

Material:  
 n x PT-IQ 2x1+F-24DC-UT  
 Order No. 2800788

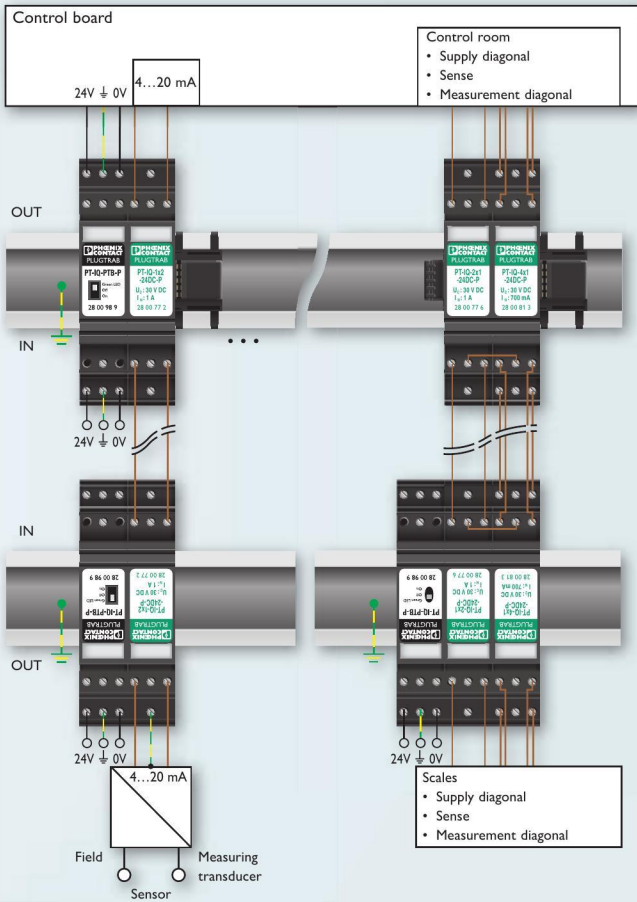


Protection of one binary signal input and actuator circuit with PLUGTRAB PT-IQ, grounded reference potential (negative pole).

Material:  
 1 x PT-IQ PTB-PT  
 Order No. 2801296  
 n x PT-IQ 4x1+F-24DC-PT  
 Order No. 2801271

Material:  
 n x PT-IQ 2x1+F-24DC-PT  
 Order No. 2801247

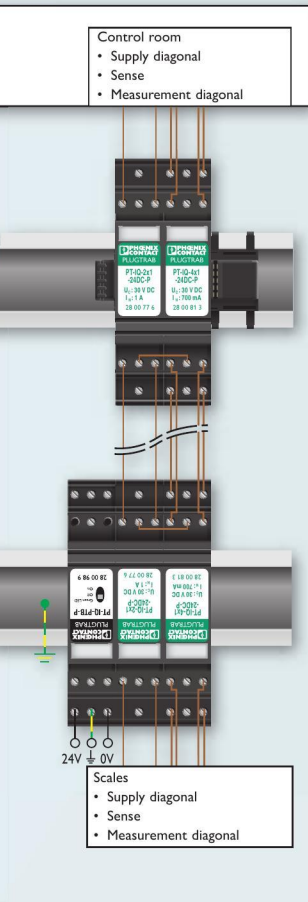




Protection of one analog measurement with PLUGTRAB PT-IQ.

Material:

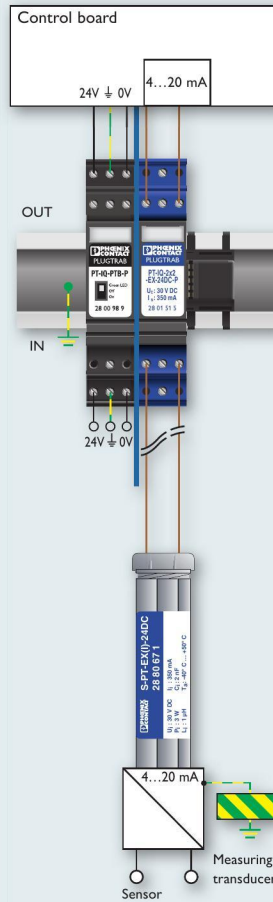
- 2 x PT-IQ-PTB-UT  
Order No. 2800989
- 2 x PT-IQ-1x2-24DC-UT  
Order No. 2800976



Protection of one 6-wire measurement with PLUGTRAB PT-IQ.

Material:

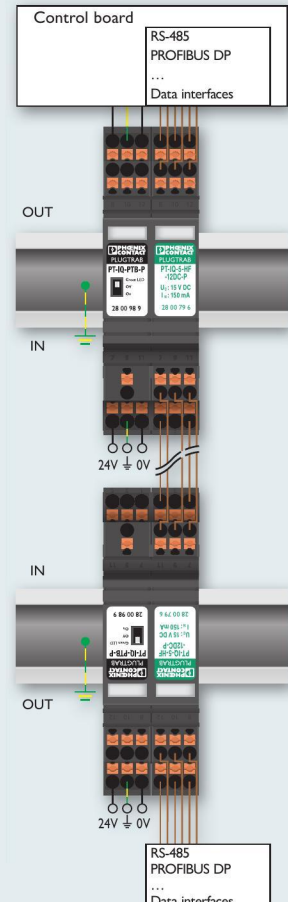
- 1 x PT-IQ-PTB-UT  
Order No. 2800989
- 2 x PT-IQ-4x1+F-24DC-UT  
Order No. 2800983
- 2 x PT-IQ-2x1+F-24DCUT  
Order No. 2800788



Protection of one analog measurement in the intrinsically safe area with PLUGTRAB PT-IQ-Ex and SURGETRAB.

Material:

- 1 x PT-IQ-PTB-UT  
Order No. 2800989
- 1 x PT-IQ-EX-L-PP  
Order No. 2905023
- 1 x PT-IQ-1x2-EX-24DC-UT  
Order No. 2801512
- 1 x S-PT-EX(I)-24DC  
Order No. 2880671



Protection of data cables, e.g., an RS-485 interface with PLUGTRAB PT-IQ.

Material:

- 2 x PT-IQ-PTB-PT  
Order No. 2801296
- 2 x PT-IQ-5-HF-12DC-PT  
Order No. 2801293

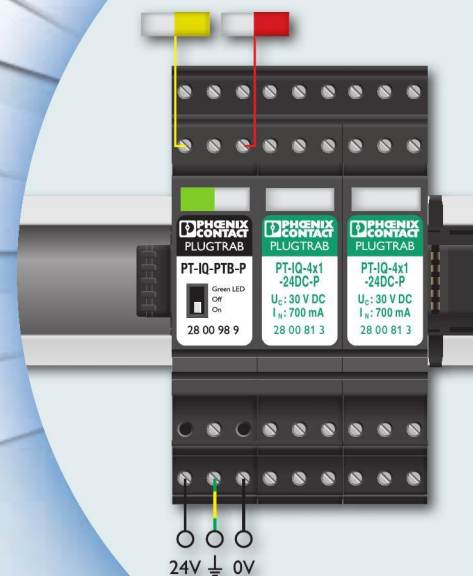
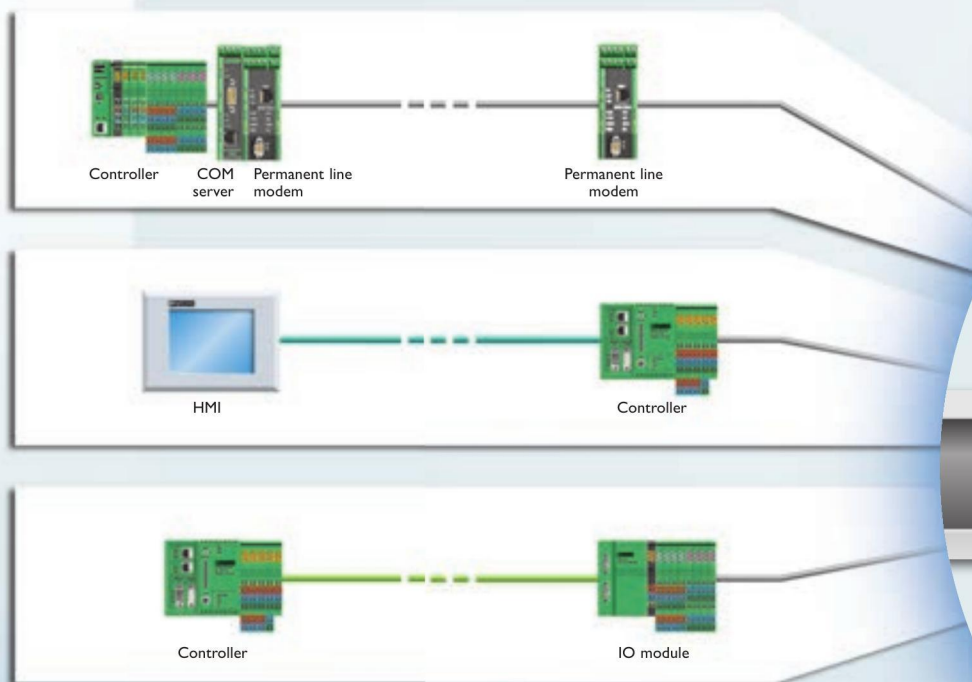
# Surge protection – perfectly equipped for remote monitoring

TRABTECH surge protective devices with remote indication contacts are ideal for integration into all remote indication concepts. Phoenix Contact offers solutions for this from a single source.

## Everything from a single source

In addition to professional surge protection, Phoenix Contact also offers innovative solutions for the most diverse transmission technologies.

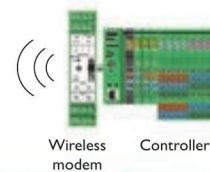
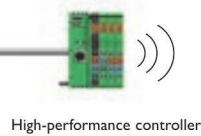
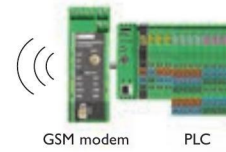
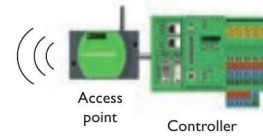
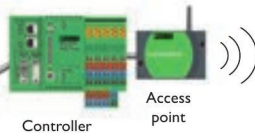
### Wired transmission technologies







## Wireless transmission technologies





Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

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## Product range

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- Controllers
- Electronics housing
- Electronic switchgear and motor control
- Fieldbus components and systems
- Functional safety
- HMIs and industrial PCs
- I/O systems
- Industrial communication technology
- Industrial Ethernet
- Installation and mounting material
- Lighting and signaling
- Marking and labeling
- Measurement and control technology
- Modular terminal blocks
- Monitoring
- PCB terminal blocks and PCB connectors
- Power supply units and UPS
- Protective devices
- Relay modules
- Sensor/actuator cabling
- Software
- Surge protection and interference filters
- System cabling for controllers
- Tools
- Wireless data communication

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