

# CLIXTRAB

The combination of surge protection and terminal blocks

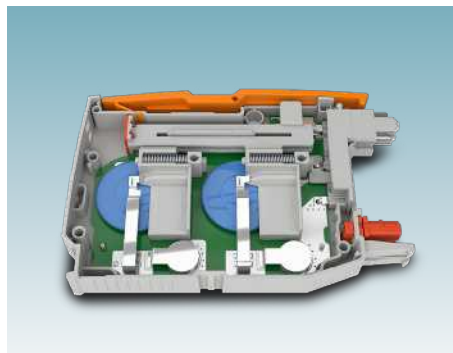
# Lightning protection for safety-relevant systems satisfies the latest railway directives

The CLIXTRAB family was designed for use in safety-relevant applications. The combination of terminal block and surge protection plug provides safe and space-saving protection for your system. Comprehensive diagnostic and remote signaling options enable easy maintenance.



## Easy handling

CLIXTRAB enables easy installation due to the combination of Push-in terminal blocks and pluggable surge protection.



## No influence on signal circuits

No impermissible influence on signal circuits due to the circuit breaker free of leakage current.



## Fast error identification

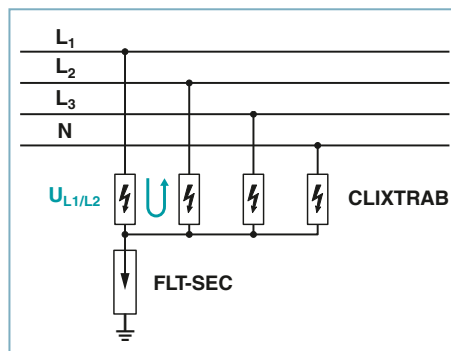
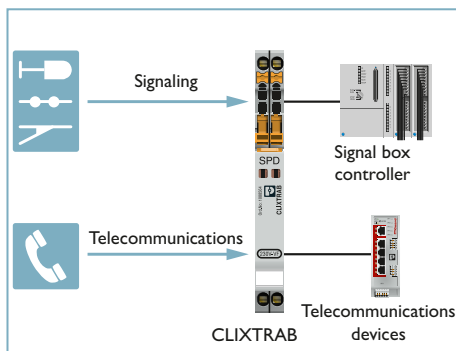
Quick and easy diagnostics with mechanical status indicator and optional remote signaling for integration into digital infrastructures.

## The comprehensive solution for your control cabinet

The CLIXTRAB product family is part of COMPLETE line. COMPLETE line is a system comprised of coordinated hardware and software products, consulting services, and system solutions that help you optimize your processes in control cabinet building. Engineering, purchasing, installation, and operation become significantly easier for you.



**COMPLETE line**



### Application all-rounder

CLIXTRAB is the perfect product for all typical telecommunications- and control and safety applications.

### Powerful

CLIXTRAB is suitable for applications such as point drives with 3~400 V AC. The maximum continuous current is 10 A.

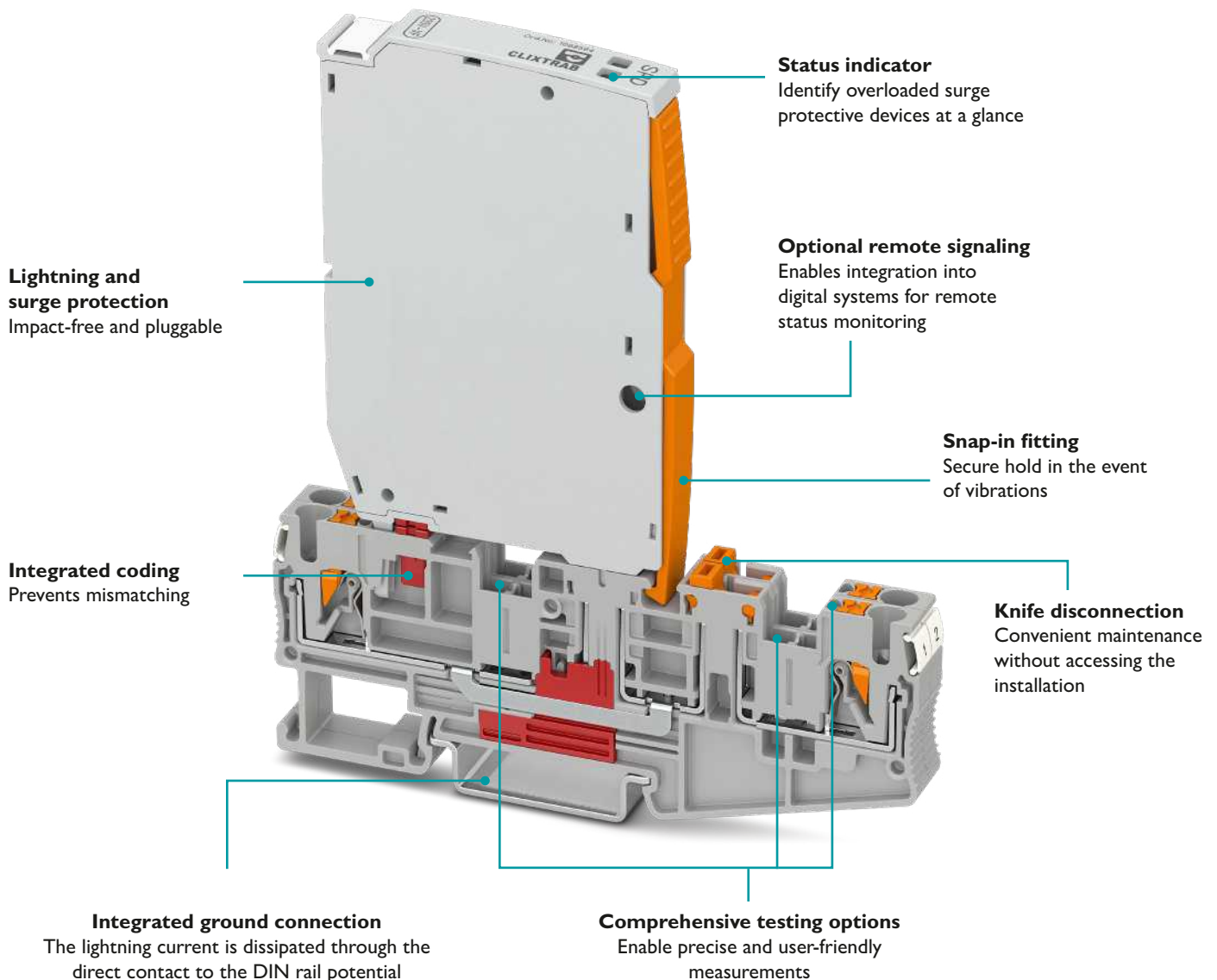
### Future-proof

CLIXTRAB satisfies international standards and directives, such as the DB RIL 819.0808 railway directive.

# CLIXTRAB – main advantages

## Did you know?

Rail transport operators and the railway industry worldwide have intensified their activities for the digitalization of the railway infrastructure. This applies not only in the construction of new systems, but also for the modernization and renovation of existing systems. Deutsche Bahn (DB) has also taken this development into account in the latest version of the DB RIL 819.0808 directive (Lightning and surge protection of control and safety technology systems). New systems for DB must be planned strictly in accordance with this directive. RIL 819.0808 is also used globally as the basis for future decisions. In addition to the standard requirements placed on the control and safety technology, the possibility of integration into the digital infrastructure was also something that was considered during the development of CLIXTRAB. This option enables the implementation of remote diagnostics and preventive maintenance concepts.



## CLIXTRAB – cross-industry use

CLIXTRAB is versatile and can be used in various industries. Overload protection ensures constant availability, and thus enables use in safety-relevant systems. In addition to protecting the railway infrastructure, the product family also provides overvoltage protection for other areas with special requirements in terms of availability and safety, such as the process industry.

CLIXTRAB fits perfectly into the surge protection portfolio. CLIXTRAB and TERMITRAB complete can be installed in the same system on a DIN rail because the optional remote signaling is identical for both product families. Products from the CLIXTRAB and TERMITRAB complete families thus provide reliable protection against lightning currents and overvoltages for applications with a voltage range from 5 V to 400 V. The base element is a CLIPLINE complete terminal block. Therefore, the products integrate seamlessly into the connection technology installation.



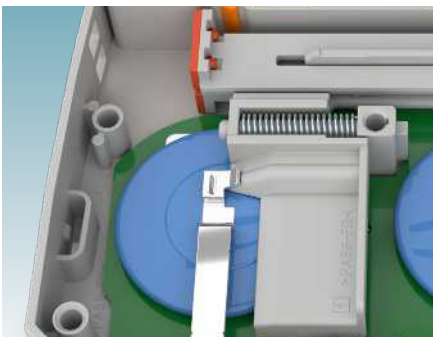
Example selection of target industries for the use of CLIXTRAB

## Overload protection and remote signaling

CLIXTRAB features a mechanical disconnect device as overload protection. In the event of overload, the device ensures that faulty components are disconnected from the mode of protection – without auxiliary energy. It is easy to identify faulty protective plugs, as the overload protection is connected to the visual status indicator.

Visual remote signaling is also possible in addition to indication on the plug. The optional remote signaling modules simplify error diagnostics since regular on-site testing is not possible for all components, especially in distributed structures. The status of the surge protective devices is transferred to subsequent systems via a floating contact.

Monitoring is easily incorporated in the control center technology, and it transfers the status to the control room. Targeted maintenance can be performed easily and efficiently.



Mechanical disconnect device for constant availability



Integration into digital infrastructures using the remote signaling set



Direct transmission of the status to the control room

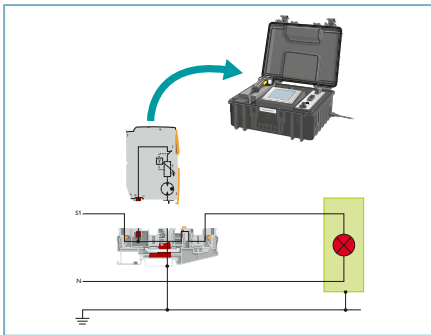
# CLIXTRAB – testing options and operating principle

## Simplified maintenance activities, current measurement of the signal circuit, and interruption-free replacement

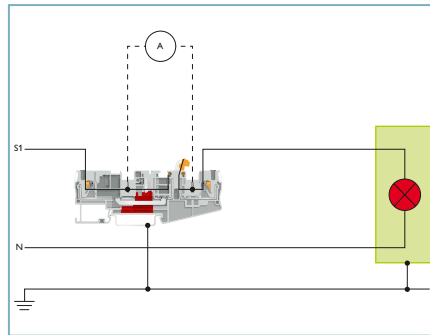
CLIXTRAB includes several features that will make maintenance work much easier. The terminal block's integrated knife disconnection can be used to disconnect the signal circuit without accessing the signal lines. This function is not just useful for maintenance work or troubleshooting, but also during startup. When the knife

disconnection is opened, it is very easy to perform a measurement of the operating current or the insulation. Testing the lightning and surge protective devices at regular intervals is not only recommended, but indeed prescribed in many areas of application. Due to the surge protection plug, which can

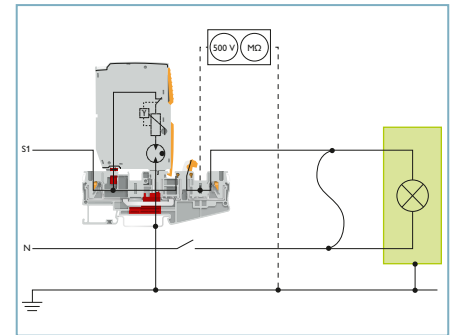
be removed and inserted without causing any interruption, the signal lines in the terminal block remain untouched. System availability is maintained while the plug is being tested or replaced.



Testing the surge protection plug using CHECKMASTER 2



Current loop measurement



Dielectric test

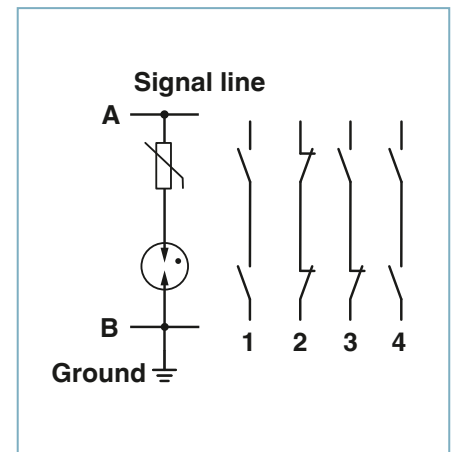
## No impermissible influence on signal circuits due to the surge protection

The surge protection in signal technology systems must ensure impact-free behavior in terms of the signal lines. Surge protective devices consisting of the series connection of a metal oxide varistor (MOV) and gas discharge tube (GDT) guarantee this and reliably prevent leakage currents from exerting any impermissible influence on signals. In the diagram opposite, the signal voltage and the potential superimposed transient overvoltages are between the potentials A and B. The high or low-resistance states of the components (MOV and GDT) are symbolized by the switch positions (1–4).

Under operating-voltage conditions, varistors are highly resistive and gas discharge tubes are insulating. Impermissible currents cannot flow (1). In the event of transient overvoltages between signal lines and to ground, for example due to a lightning strike, the highly insulating gas path of the GDT first becomes conductive. The overvoltage causes a current to flow through the varistor and is limited to the appropriate voltage protection level without

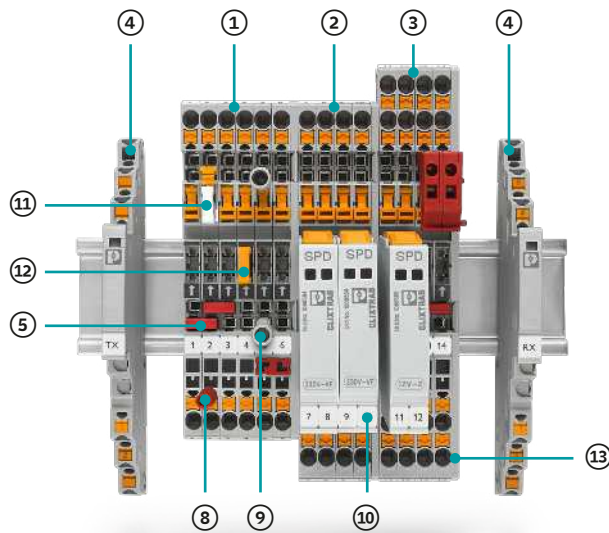
short-circuiting the signal voltage. The energy is discharged to ground and the sensitive electronics inside the signal box are protected (2). When the overvoltage pulse ends, the voltage drops back to the signal or operating voltage. This means that the varistor has a high resistance and is current-free (3) and the gas line is insulating (4). Under rated discharge conditions, this operation can be performed hundreds of times without any change in the insulating behavior or the overvoltage protection behavior.

The circuit thus effectively limits overvoltages permanently and reliably rules out interference between signals and a short circuit to ground.











Operating principle of the circuit illustrated by an equivalent circuit diagram

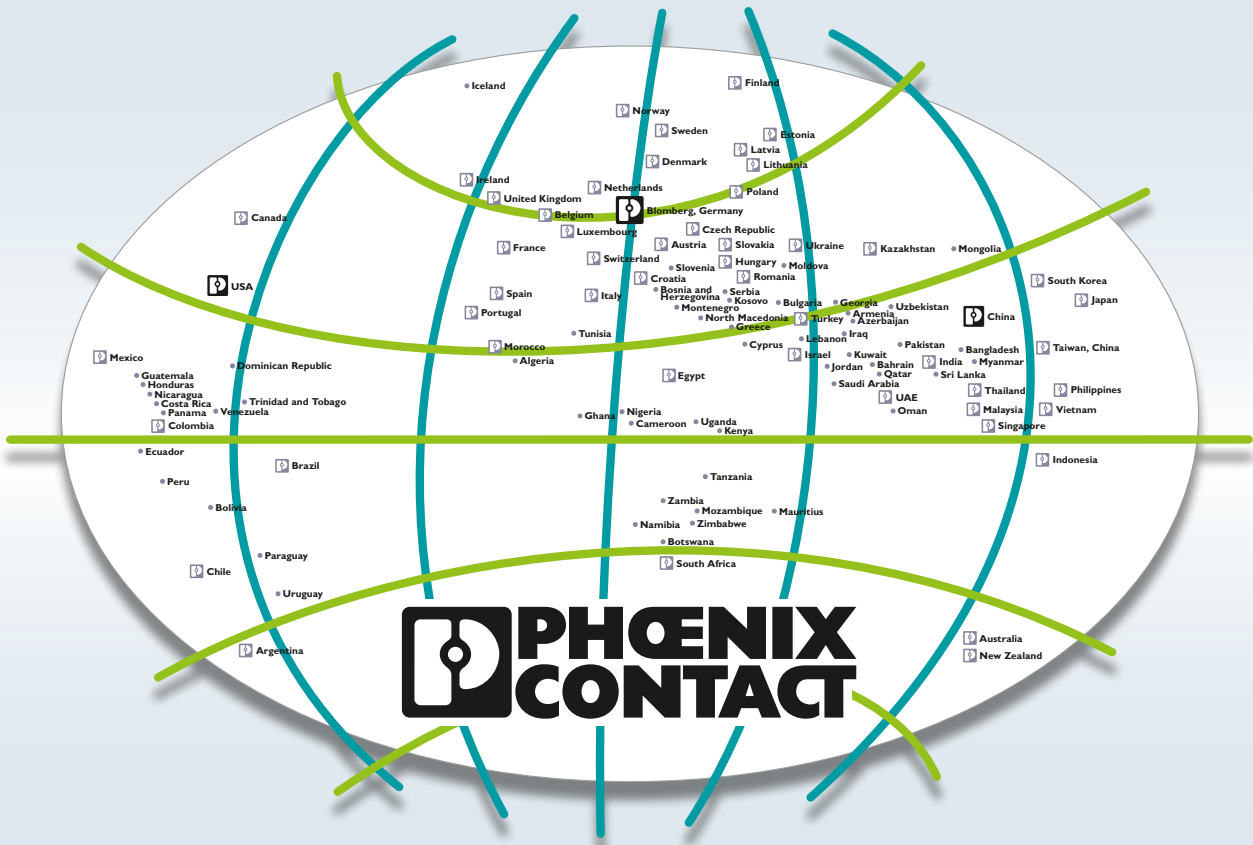
# CLIXTRAB – product list



## CHECKMASTER 2

CHECKMASTER 2 is a test device for testing the correct function of various Phoenix Contact surge protective devices.

Product portfolio					
Surge protection plugs	Technical data	Type	Item no.		
	$U_C = 264 \text{ V AC}^* / 230 \text{ V DC}$ $I_N = 10 \text{ A AC} / 10 \text{ A DC}$ * Suitable for 3~400 V AC grids	CLT-10P/2-VF-230V-I-P	1088564		
		CLT-20P/4-VF-230V-I-P	1088567		
		$U_C = 10 \text{ V AC} / 15 \text{ V DC}$ $I_N = 600 \text{ mA AC} / 600 \text{ mA DC}$	CLT-10P/2-2-12V-I-P	1088569	
		$U_C = 21 \text{ V AC} / 30 \text{ V DC}$ $I_N = 200 \text{ mA AC} / 200 \text{ mA DC}$	CLT-10P/2-2-24V-I-P	1088570	
	$U_C = 53 \text{ V AC} / 75 \text{ V DC}$ $I_N = 200 \text{ mA AC} / 200 \text{ mA DC}$	CLT-10P/2-2-60V-I-P	1088573		
Terminal blocks	Technical data	Type	Item no.	No.	
	Conductor cross-section: 0.14 mm <sup>2</sup> ... 4 mm <sup>2</sup> Current / voltage: 20 A / 400 V	PT 2,5-MT-CLT	1087698	①	
		PT 2,5-TWIN-MT-CLT	1251104	②	
		PT 2,5-QUATTRO-MT-CLT	1251103	③	
Accessories	Item description	Type	Item no.	No.	
	Transmitter remote signaling module	TTC-6-FMTX-PT	1193565	④	
	Receiver remote signaling module	TTC-6-FMRX-PT	1193571		
	Plug-in bridges	FBS 2-5	3030161	⑤	
	Test device	CHECKMASTER 2	2905256	⑥	
	Test device adapter	CM 2-PA-CLT	1183360	⑦	
	Test plug	PS-5	3030983	⑧	
	Test adapter	PAI-4	3030925	⑨	
	Marking material	ZBF 5:UNBEDRUCKT	0808642	⑩	
	Switching lock	S-MT	3247954	⑪	
	Grounding connector	P-DI	3036783	⑫	
	Terminal block cover	D-PT 2,5-MT-CLT	1088502	⑬	
		D-PT 2,5-TWIN-MT-CLT	1251102	⑬	
		D-PT 2,5-QUATTRO-MT-CLT	1251101	⑬	



## Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented products and solutions for the electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network reaching across more than 100 countries with over 20,000 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide range of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. This especially applies to the target markets of energy, infrastructure, industry, and mobility.

You can find your local partner at

[phoenixcontact.com](https://www.phoenixcontact.com)