HERMI®

Power of Nature, Supremacy of Knowledge

Surge Protection

ISSUE 9

WWW.HERMI-SOLUTIONS.COM

POWER OF NATURE, SUPREMACY OF KNOWLEDGE

HERMI®

The Hermi company is renowned as a high-tech business both in Slovenia and abroad, which has built its standing with the highest quality of products and solutions for comprehensive external and internal protection against the effects of lightning and overvoltage, cable trays and mounting systems for photovoltaics.

Surge Protection

ISSUE 9

WWW.HERMI-SOLUTIONS.COM

AN INNOVATIVE COMPANY WITH ITS OWN MANUFACTURE WITH A FOCUS ON THE CUSTOMER'S NEEDS

We are an innovation-oriented company which through its development and own production of products offers comprehensive customised solutions of the highest quality. The sales programme under the Hermi brand comprises top-quality lightning protection, surge protection, cable trays and mounting systems. The HERMI product range is the result of the company's commitment to development and continuous professional progress. With its long-term vision oriented to customers and business partners, the company strategically develops its innovative offer which stands out for its flexibility and versatility of use. We are proud to offer multiple solutions from our production range at a single point. Hereby, we assure our clients comprehensive expert technical support, timely delivery, and support with technical documentation.

> We upgrade our business operations each year. This means that we must be better than the year before. The world keeps turning! And not only our competition is not sleeping, the expectations of our customers also grow each day. Our and also my focus is always to be a step ahead of our customers!
>
> *– Miran Rauter, Director*

OUR MISSION AND VISION: years-long experience and innovative solutions to satisfy the needs of our customers

We use our knowledge, experiences and innovative ideas to fulfil needs and wishes of our customers for high quality products. Using state-of-the-art technology we develop and produce the protection programme which sets new standards protecting the lives of individuals and property. Our own innovations help us to adjust the programme of cable trays and cable ladders to individual needs with type-adjusted elements. Our mounting systems programme provides simple assembly to our customers.

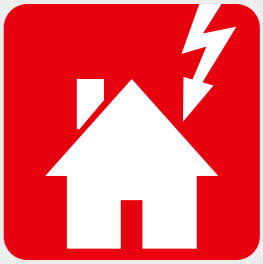
Through innovations and expertise we will continue to develop our Hermi trademark which is a result of over thirty years of successful operation. We have achieved a competitive advantage of a comprehensive, external and internal lightning protection and quality and advanced production of cable and mounting systems, and thus we will in particular focus on challenges of internationalisation of our operation. We wish to become a leading provider of external and internal lightning protection, cable trays and cable ladders and own professional solutions, increase our market share in other European countries and focus on countries beyond Europe's borders.

OUR STRATEGY: an innovative, competitive and comprehensive range

We attain the goals and vision of the company through innovative products, a competitive range of products, excellent technical support and efficiency and rapidness of execution. Our advantage is that we are in constant contact with contractors, investors and end-users who are aware of the importance of quality products.

PRODUCTION PROGRAMME AND ACTIVITIES of the Hermi company

Under our own Hermi® brand we provide manufacture, sales and assembly of:



LIGHTNING PROTECTION

SURGE PROTECTION

CABLE TRAYS

MOUNTING SYSTEMS

We also offer comprehensive expert technical support and consultations.

Standards and collaboration with industry

The Hermi product programme and trade mark are protected. All our products comply with strict national standards which are harmonised with European and international standards. We have successfully conducted tests and obtained all required international certificates.
In the field of quality assurance and development of our products we cooperate with various institutions and work within the scope of relevant standards. Our collaboration with industry is very significant since it helps us develop innovations and make progress in the industry.

Our knowledge, long experience and innovative ideas enable us to fulfil the needs and wishes of our customers to have quality products for lightning and surge protection. In the field of production of cable trays and ladders we provide the highest quality which has already been recognised by design engineers, contractors and end-users. The quality of E90 cable trays is proven by successful tests of fire resistance in a certified test laboratory.

QUALITY OF HERMI® PRODUCTS IS CONFIRMED BY INTERNATIONAL AND NATIONAL INDEPENDENT CERTIFICATION AUTHORITIES

- Expert evaluation of the Milan Vidmar Electric Power Research Institute
- Certificate of the Institute for the Electricity and Energy
- Certificate of the School of Electrical Engineering of the University of Belgrade
- Certificate of the Institute for Health Protection and Safety at Work
- Recommendations for roof coverings
- Production according to the German standard DIN 4102-12:1998 for fire resistance of cable paths

Company's milestones

1985
The beginning
In 1985, Herman Rauter started his own company as an electrician. He focused on electrical measurements including the measurement of lightning protection installations since they were mostly poorly maintained. Fires caused by lightning were a frequent event causing great material damage. Herman Rauter saw a challenge in this: how to rebuild lightning protection with materials that would be durable and at the same time cheaper than those offered by the market.

1992
Development of imperceptible and discreet lightning protection
Up to 1992 he developed new, simple products made of corrosion-resistant materials with the aim of making a lightning protection on a building imperceptible and discreet and compliant with applicable standards.

1993
Presentation of imperceptible lightning protection at an international trade fair
In cooperation with Bramac, an established roof tiles manufacturer, Herman presented his programme at the Celje International Trade Fair. In this way, architects and investors in particular were introduced to the quality and aesthetic advantages of the Hermi lightning protection programme.

1994
A new beginning in Celje
The relocation of production from Velenje to Celje contributed to the expansion of the production range.

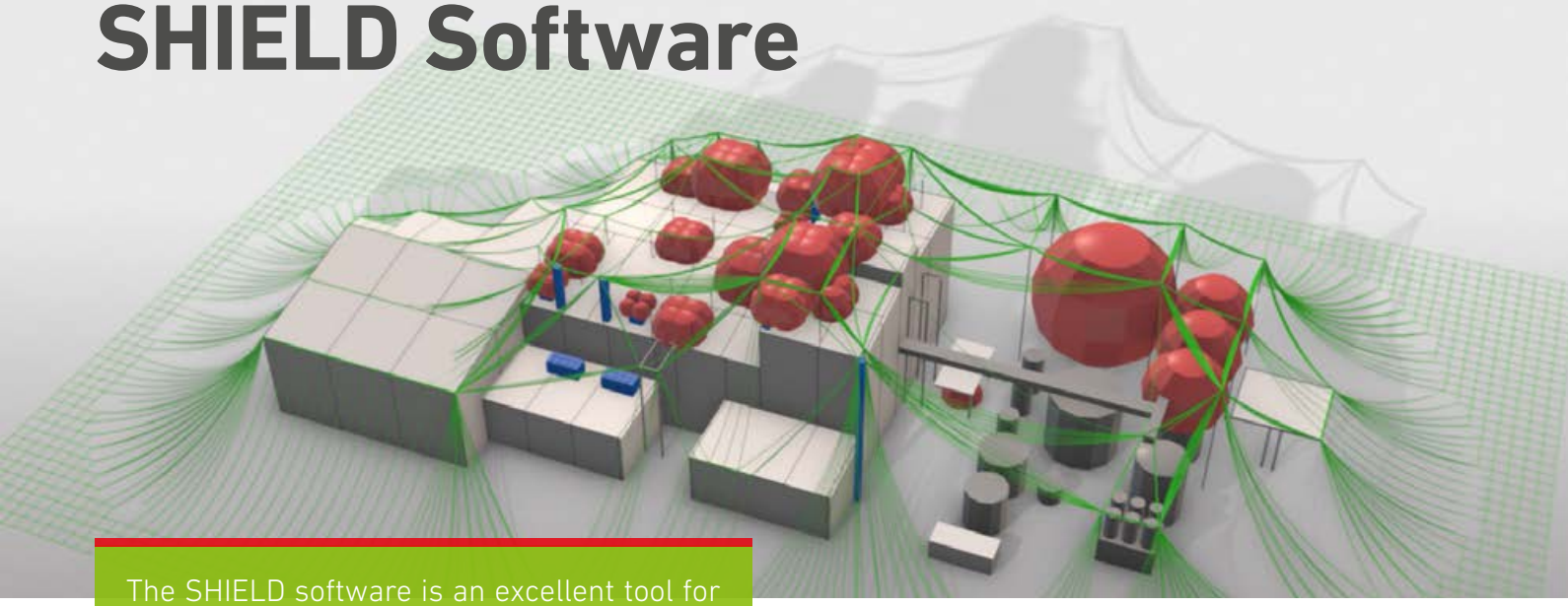
1997
Comprehensive range for our customers
In addition to lightning protection equipment, we also offered designing and consultations to our customers. Thus, the production, sales, installation and design of Hermi® imperceptible lightning protection have been formulated into a complete, comprehensive range. We were successful with our competitive advantage — our customers were provided complete professional solution for lightning protection.

2001
Expansion of production and development of the SHIELD design program
The existing building was extended and thus we improved the conditions for production and operation. Herman Rauter partnered with the profession, and they jointly developed the SHIELD computer program in order to help designers and contribute to a more effective, faster and better design of lightning and surge protection systems. The existing building was extended and thus we improved the conditions for production and operation. Herman Rauter partnered with the profession, and they jointly developed the SHIELD computer program in order to help designers and contribute to a more effective, faster and better design of lightning and surge protection systems.

2002
New generation and expansion beyond the borders of Slovenia
After restructuring the company as a limited liability company, Herman Rauter appointed his son Miran Rauter, BEc, as its director, who developed alongside his father both commercially and professionally. That year, a new branch abroad was opened — in neighbouring Croatia.

2003
Further expansion to foreign markets
A new company in a foreign market was established, namely in Bosnia and Herzegovina.

SHIELD Software



The SHIELD software is an excellent tool for planning since it enables a calculation of the required protection or its optimisation and prepares an inventory of the needed material.

We are authors of software for the design and control of lightning protection installations and the range of surge protection – Shield. The Shield program is designed in cooperation with the University of Maribor, Faculty of Electrical Engineering and Computer Science.

Shield was developed to facilitate the work of designers and contribute to optimally efficient, rapid and quality solutions of designing lightning and surge protection against lightning strikes.

Expert workshops are also organised within the scope of the program where we instruct designers, other professional and interested public in a short period of time on how to use the Shield program, which they receive free of charge after the workshop ends.

> The Hermi company strives for development and we have therefore already started to work on a new software which will further facilitate the work of designers

2006
New commercial building and continuation of expansion to foreign markets
Due to the expansion of production, we built a new commercial building to conduct sales and storage of products. A company was established in Serbia.

2007
Expansion of the range of products for surge protection systems
We introduced the HERMI surge protection. Thus we managed to achieve that customers select all elements for external and internal surge protection at a single point.

2008
New markets
We actively entered new markets – Romania, Russia, Bulgaria, Kosovo and Macedonia.

2009
Production automation and international product certification
We put a lot of energy and means into modernising and automating production and developing new products made according to European and international standards and harmonised national standards. Our products successfully underwent testing and obtained all required international certificates – also pursuant to IEC and EN standards.

2011
New commercial-production building in Celje
We built a new commercial-production building in Celje, as it was easier for us to implement the production plans and to meet the growing market demands.

2012
New commercial-production building in Croatia
We finished the construction of a new commercial-production building in Croatia, in the vicinity of Zagreb.

2013
New markets
We established a company in Romania – Hermi Protection srl. At the same time we started to be active in the Austrian and Hungarian markets too. We crossed the EU borders with projects in Saudi Arabia and other Arab States of the Gulf.

2015
30th anniversary of business operation and awarded tradition
We celebrated 30 years of operation and received the award of the Chamber of Commerce and Industry of the Republic of Slovenia. Miran Rauter, the company director, received the award for outstanding achievements in the field of economic and entrepreneurial achievements for 2015.

2017
Expansion of production and technological development
Due to increased production, we built a new facility and thus provided space for new and technologically sophisticated machines.

2018
Expansion to the north
We founded a company in Austria and also entered the German market.

>
The future
Over the next few years we plan to build our own commercial buildings in all the countries where we already have our companies. We plan to expand our operation to those European markets where we are not present yet.
We look to the future full of optimism – led by our goal to always be a step ahead of our customers

SURGE PROTECTION

Protection which effectively protects the electrical installations and equipment in the building is called surge protection – protection of electrical installations and data lines against overvoltages.

Correctly installed surge protection does not protect the building against a direct lightning strike, but only electrical installations in it. Hermi surge protection provides quality protection of your devices with three levels of surge protecting elements. We produce surge protection for low-voltage electrical installations, photovoltaic systems, IT systems, computer networks, video system and coaxial cables for high-frequency applications.

PROTECTION OF SUPPLY SYSTEMS AND EQUIPMENT UP TO 1000 V

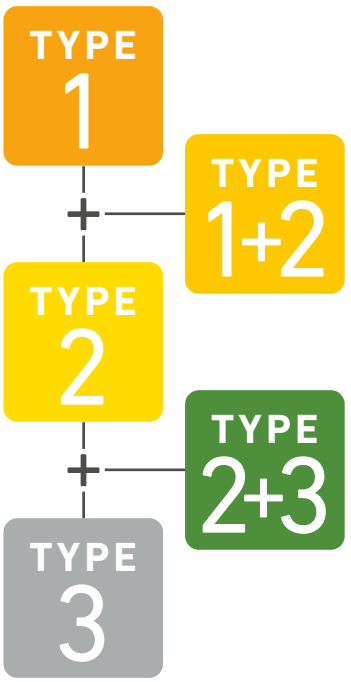
SURGE ARRESTER TYPES

TYPE 1
To be installed in the main switchboard in building with protection systems against lightning. Can discharge very high lightning currents.
Should be used as part of lightning protection system.

TYPE 2
To be installed in the main power distribution switchboard. Discharges currents from indirect lightning strikes, inductive and conductive overvoltage and switching transients.
Should always be used.

TYPE 3
Intended for protection of individual devices.
Very low discharge capacity.
Installed as a supplement to other surge protective devices:

- *Used in Types 1+2+3 combinations in industrial facilities where a lightning protection system is in place*
- *Used in Type 2+3 combinations where there is no lightning protection system*

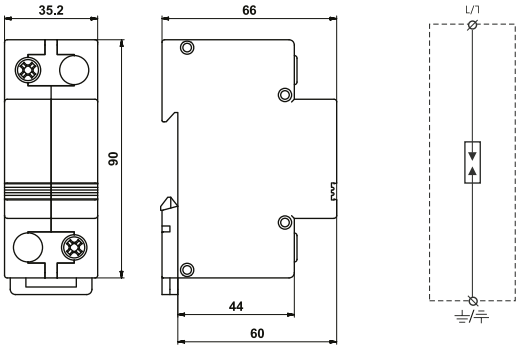


Lightning Arrester TYPE 1

TYPE 1

SPARK GAP

TYPE 1 / CLASS I / CE



PZH R1 255/50, PZH R1 440/50

PZH R1* is a lightning arrester according to standard EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of multiple non-exhausting spark gaps. Its parameters enable usage in buildings with a considerable level of protection LPL I, such as big industrial complexes and properties of particular importance – hospitals, banks, power plants or buildings with explosion danger. The device is to be installed on the interface of LPZ 0 – LPZ 1 zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. the electric power substation, electrometer or the main distribution boards.

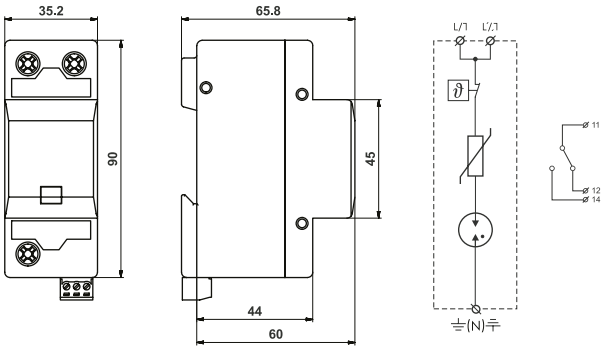
TYPE		PZH R1 255/50	PZH R1 440/50
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1, CLASS I	
Max. continuous operating voltage	U_C	255 V AC	440 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	50 kA	
Charge	Q	25 As	
Specific energy	W/R	600 kJ/Ω	
Nominal discharge current for class II test (8/20)	I_n	50 kA	
Voltage protection level at I_{imp}	U_p	< 2 kV	< 2,5 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s	581 V/5 s
Response time	t_A	< 100 ns	
Follow current interrupt rating	I_{fi}	3 kA_{rms}	
Max. back-up fuse		500 A gL/gG	
Short-circuit withstand capability 500 A gl/gG	I_p	25 kA_{rms}	
LPZ		0-1	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40°C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)	
The mounting method / operating position		DIN rail 35 mm / any	
Lifetime		min. 100 000 h	
Weight		235 g	
Article number		**77 10 970**	**77 10 950**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / CE



PZH R1 255/25G, PZH R1 255/25G S

PZH R1 25G* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

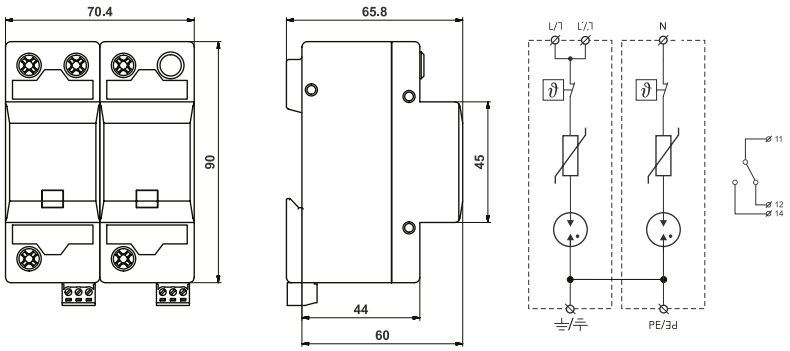
TYPE		**PZH R1 255/25G, PZH R1 255/25G S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		250 g
Article number		**77 10 462, 77 10 466 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



PZH R1 255/25G/2+0, PZH R1 255/25G/2+0 S

PZH R1 25G* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

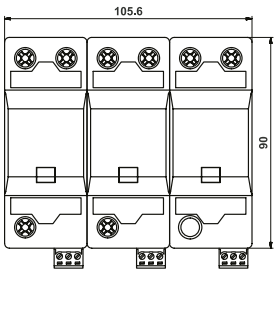
TYPE		**PZH R1 255/25G/2+0, PZH R1 255/25G/2+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		500 g
Article number		**77 10 463, 77 10 467 (S)**

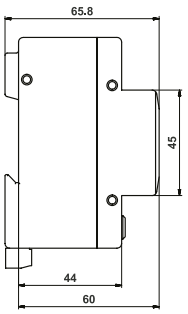
Lightning and Surge Arrester TYPE 1+2

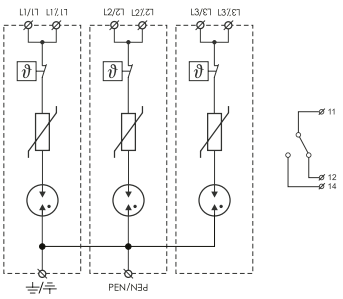
TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-C / CE







PZH R1 255/25G/3+0, PZH R1 255/25G/3+0 S

PZH R1 25G* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

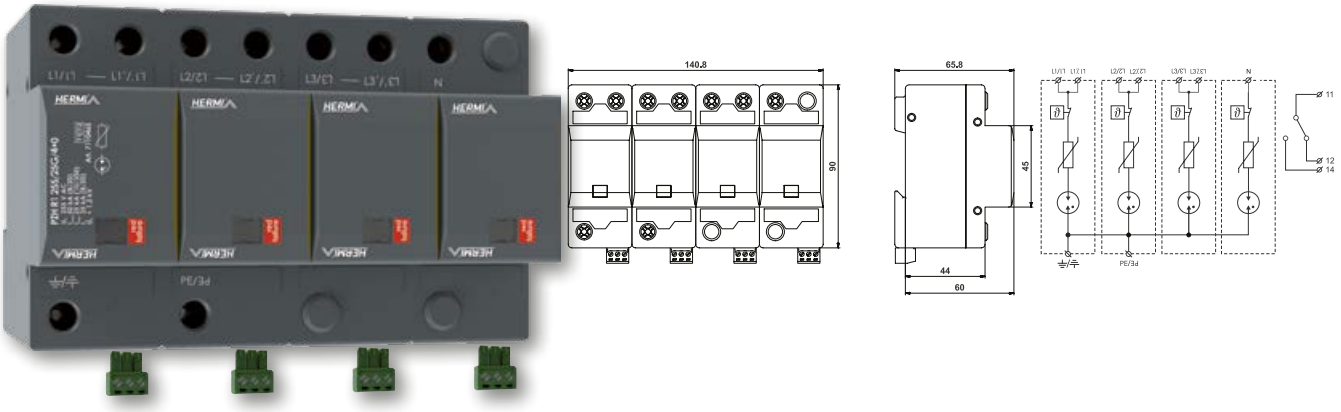
TYPE		**PZH R1 255/25G/3+0, PZH R1 255/25G/3+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	75 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		750 g
Article number		**77 10 464, 77 10 468 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



PZH R1 255/25G/4+0, PZH R1 255/25G/4+0 S

PZH R1 25G* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

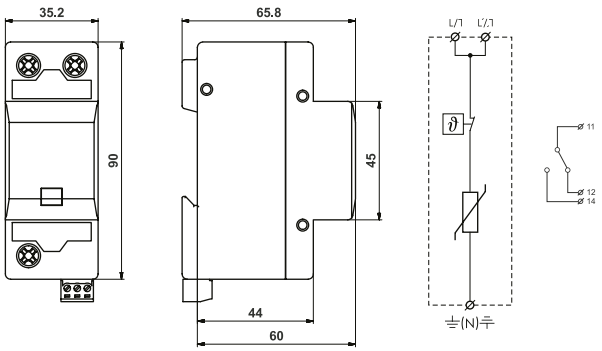
TYPE		**PZH R1 255/25G/4+0, PZH R1 255/25G/4+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		1000 g
Article number		**77 10 465, 77 10 469 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / CE



PZH R1 275/25, PZH R1 275/25 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

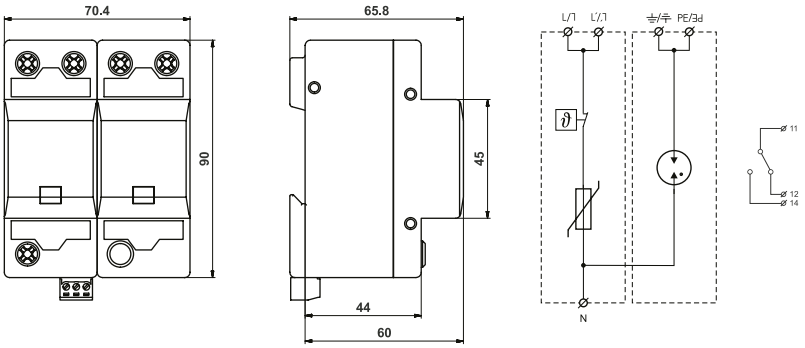
TYPE		**PZH R1 275/25, PZH R1 275/25 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 AgL/gG
Max. back-up fuse („V" connection)		125 AgL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		300 g
Article number		**77 10 450, 77 10 456 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



PZH R1 275/25/1+1, PZH R1 275/25/1+1 S

PZH R1* is a lightning and surge arrester combined with gas discharge tube according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and gas discharge tube that ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

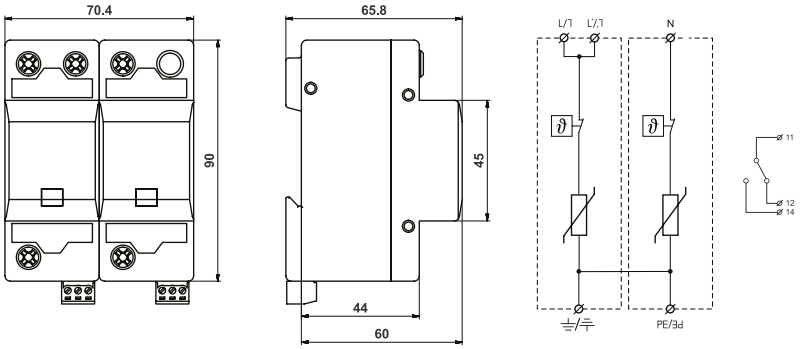
TYPE		**PZH R1 275/25/1+1, PZH R1 275/25/1+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350) L/N	I_{imp}	25 kA
Charge L/N	Q	12,5 As
Specific energy	W/R	156 kJ/Ω - 625 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	50 kA
Charge N/PE	Q	25 kA
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		460 g
Article number		**77 10 451, 77 10 457 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-S / CE



PZH R1 275/25/2+0, PZH R1 275/25/2+0 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

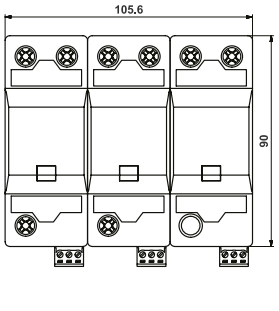
TYPE		**PZH R1 275/25/2+0, PZH R1 275/25/2+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		600 g
Article number		**77 10 452, 77 10 458 (S)**

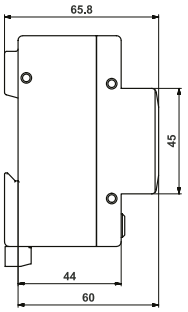
Lightning and Surge Arrester TYPE 1+2

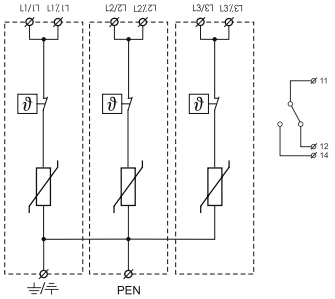
TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-C / CE







PZH R1 275/25/3+0, PZH R1 275/25/3+0 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

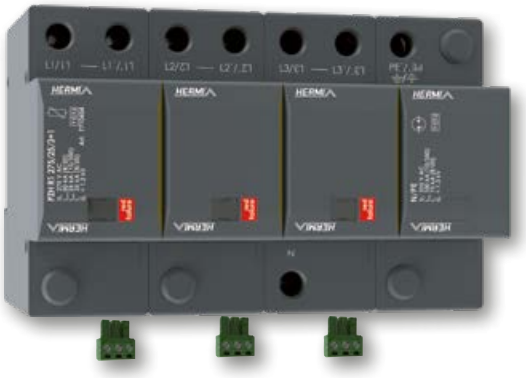
TYPE		**PZH R1 275/25/3+0, PZH R1 275/25/3+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	75 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		900 g
Article number		**77 10 453, 77 10 459 (S)**

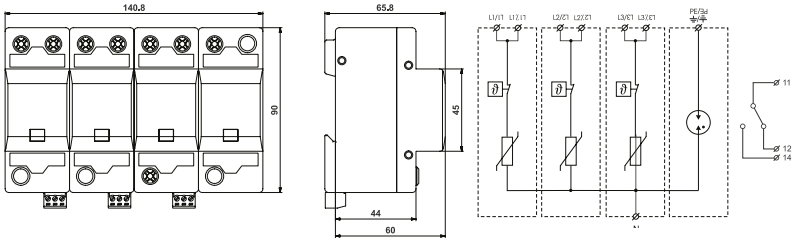
Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE





PZH R1 275/25/3+1, PZH R1 275/25/3+1 S

PZH R1* is a lightning and surge arrester combined with gas discharge tube according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and gas discharge tube that ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

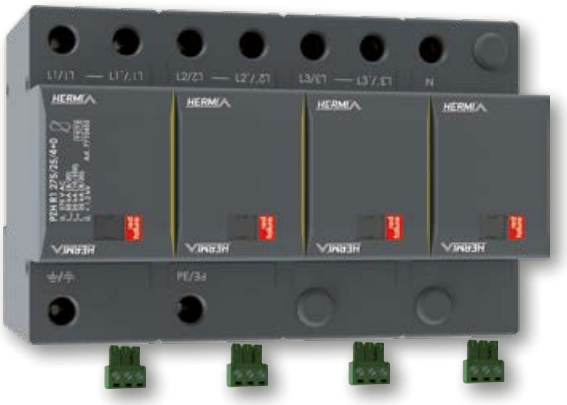
TYPE		**PZH R1 275/25/3+1, PZH R1 275/25/3+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350) L/N	I_{imp}	25 kA
Charge L/N	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	100 kA
Charge N/PE	Q	50 As
Nominal discharge current for class I test N/PE	W/R	2500 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	150 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		1125 g
Article number		**77 10 454, 77 10 460 (S)**

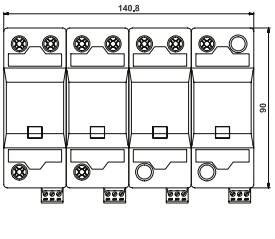
Lightning and Surge Arrester TYPE 1+2

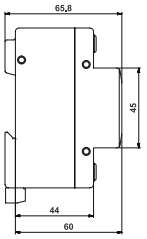
TYPE 1+2

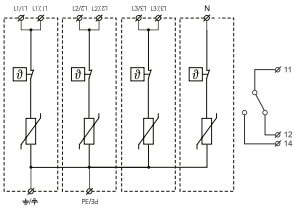
VARISTOR

TYPE 1+2 / CLASS I+II / TN-S / CE









PZH R1 275/25/4+0, PZH R1 275/25/4+0 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

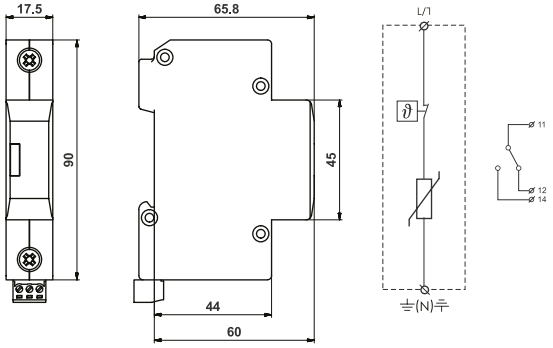
TYPE		**PZH R1 275/25/4+0, PZH R1 275/25/4+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V" connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2 (solid) - 25 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		1200 g
Article number		**77 10 455, 77 10 461 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / CE



PZH R1 275/12,5, PZH R1 275/12,5 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

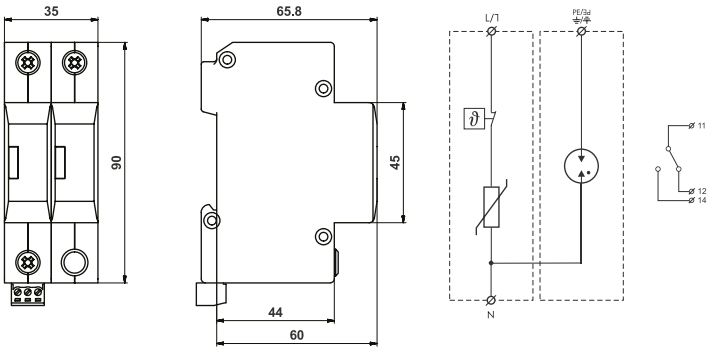
TYPE		**PZH R1 275/12,5, PZH R1 275/12,5 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ...+70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		140 g
Article number		**77 10 058, 77 10 007**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



PZH R1 275/12,5/1+1, PZH R1 275/12,5/1+1 S

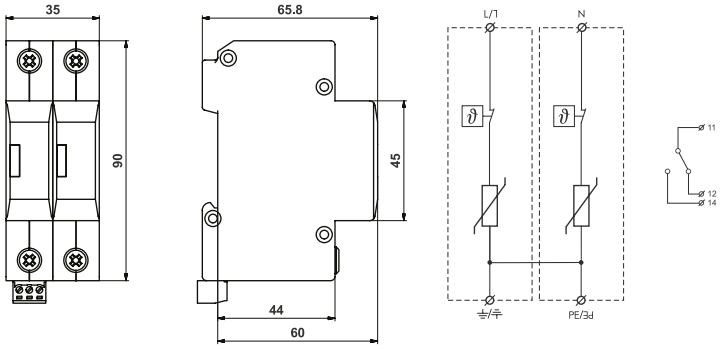
PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

TYPE		**PZH R1 275/12,5/1+1, PZH R1 275/12,5/1+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	25 kA
Charge N/PE	Q	12,5 As
Nominal discharge current for class I test N/PE	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	30 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		212 g
Article number		**77 10 059, 77 10 023 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / CE



PZH R1 275/12,5/2+0, PZH R1 275/12,5/2+0 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

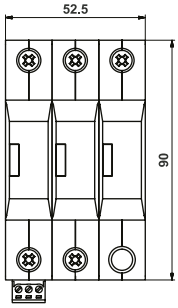
TYPE		**PZH R1 275/12,5/2+0, PZH R1 275/12,5/2+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		280 g
Article number		**77 10 060, 77 10 026**

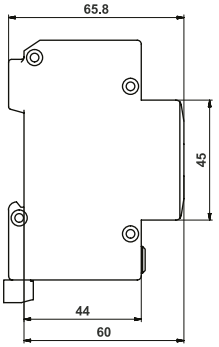
Lightning and Surge Arrester TYPE 1+2

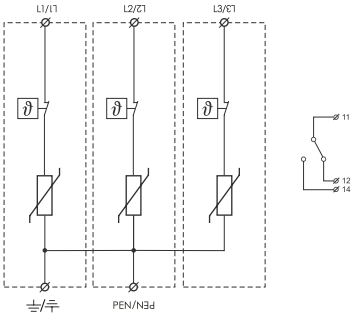
TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-C / CE







PZH R1 275/12,5/3+0, PZH R1 275/12,5/3+0 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

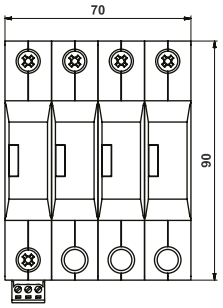
TYPE		**PZH R1 275/12,5/3+0, PZH R1 275/12,5/3+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	37,5 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		420 g
Article number		**77 10 062, 77 10 038 (S)**

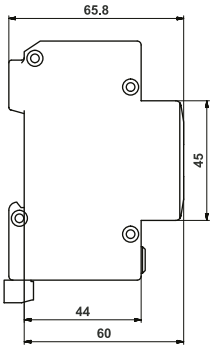
Lightning and Surge Arrester TYPE 1+2

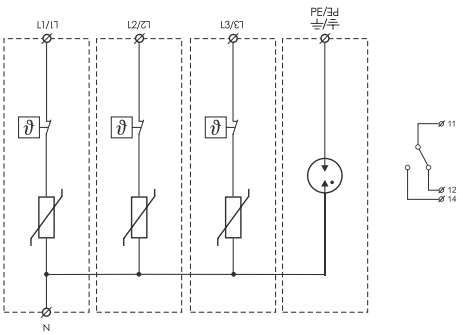
TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE







PZH R1 275/12,5/3+1, PZH R1 275/12,5/3+1 S

PZH R1* is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

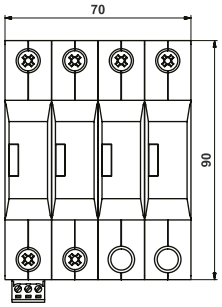
TYPE		**PZH R1 275/12,5/3+1, PZH R1 275/12,5/3+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	50 kA
Charge N/PE	Q	25 As
Nominal discharge current for class I test N/PE	W/R	625 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		536 g
Article number		**77 10 063, 77 10 039 (S)**

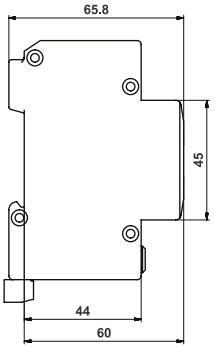
Lightning and Surge Arrester TYPE 1+2

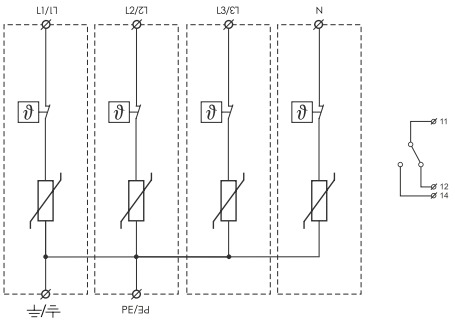
TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-S / CE







PZH R1 275/12,5/4+0, PZH R1 275/12,5/4+0 S

PZH R1* range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

TYPE		**PZH R1 275/12,5/4+0, PZH R1 275/12,5/4+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		560 g
Article number		**77 10 065, 77 10 051 (S)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

Application table

TYPE	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{IMP} (KA)	U_C (V) AC/DC	MODE OF PROTECTION
PZH R1 75/12,5 / PZH R1 75/12,5 S	**77 10 211 / 77 10 217**	1	100	1	1+0	12,5	75 / 100	L/N, L/PEN, L/PE
PZH R1 150/12,5 / PZH R1 150/12,5 S	**77 10 251 / 77 10 257**	1	110	1	1+0	12,5	150 / 200	L/N, L/PEN, L/PE
PZH R1 275/12,5 / PZH R1 275/12,5 S	**77 10 058 / 77 10 007**	1	140	1	1+0	12,5	275 / 350	L/N, L/PEN, L/PE
PZH R1 320/12,5 / PZH R1 320/12,5 S	**77 10 301 / 77 10 307**	1	234	1	1+0	12,5	320 / 420	L/N, L/PEN, L/PE
PZH R1 385/12,5 / PZH R1 385/12,5 S	**77 10 321 / 77 10 327**	2	234	1	1+0	12,5	385 / 505	L/N, L/PEN, L/PE
PZH R1 440/12,5 / PZH R1 440/12,5 S	**77 10 333 / 77 10 339**	2	236	1	1+0	12,5	440 / 585	L/N, L/PEN, L/PE
PZH R1 600/12,5 / PZH R1 600/12,5 S	**77 10 345 / 77 10 351**	3	330	1	1+0	12,5	600 / 825	L/N, L/PEN, L/PE
PZH R1 850/12,5 / PZH R1 850/12,5 S	**77 10 357 / 77 10 363**	3	385	1	1+0	12,5	850 / 1170	L/N, L/PEN, L/PE
PZH R1 255/25 GDT	**77 30 051**	1	72	1	0+1	25	255	N/PE
PZH R1 255/50 GDT	**77 30 052**	1	116	1	0+1	50	255	N/PE
PZH R1 255/80 GDT	**77 30 052**	1	134	1	0+1	80	255	N/PE
PZH R1 255/100 GDT	**77 30 054**	2	228	1	0+1	100	255	N/PE

RECOMMENDED SETS FOR TN-C SYSTEM	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{TOTAL} (KA) (10/350)	APPLICATION
PZH R1 275/12,5 / PZH R1 275/12,5 S	**77 10 058 / 77 10 007**	1	140	1	1+0	12,5	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/3+0 / PZH R1 275/12,5/3+0 S	**77 10 062 / 77 10 038**	3	420	3	3+0	37,5	
RECOMMENDED SETS FOR TN-S SYSTEM							
PZH R1 275/12,5/2+0 / PZH R1 275/12,5/2+0 S	**77 10 060 / 77 10 026**	2	280	2	2+0	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/4+0 / PZH R1 275 /12,5/4+0 S	**77 10 065 / 77 10 051**	4	560	4	4+0	50	
RECOMMENDED SETS FOR TN-S AND TT SYSTEMS							
PZH R1 275/12,5/1+1 / PZH R1 275/12,5/1+1 S	**77 10 059 / 77 10 023**	2	256	2	1+1	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/3+1 / PZH R1 275/12,5/3+1 S	**77 10 063 / 77 10 039**	4	536	4	3+1	50	

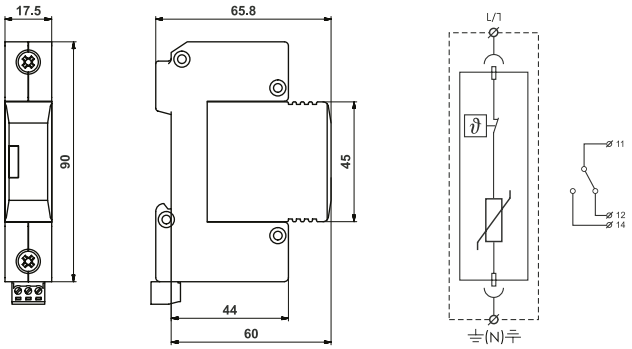
TE - diving unit (17,5 mm)

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / CE



PZH R1 275/12,5 M, PZH R1 275/12,5 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

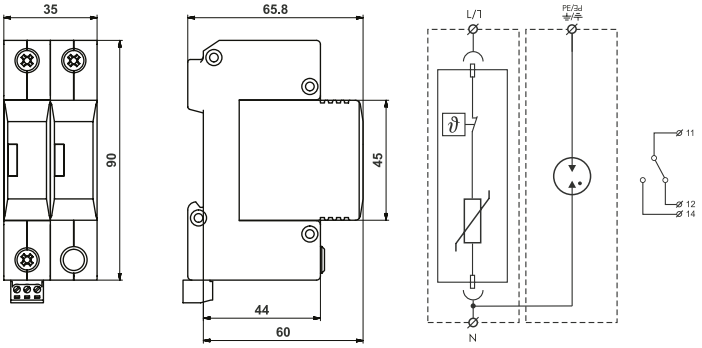
TYPE		**PZH R1 275/12,5 M, PZH R1 275/12,5 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		140 g
Article number		**77 16 080 (S), 77 16 090 (MS)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



PZH R1 275/12,5/1+1 M, PZH R1 275/12,5/1+1 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

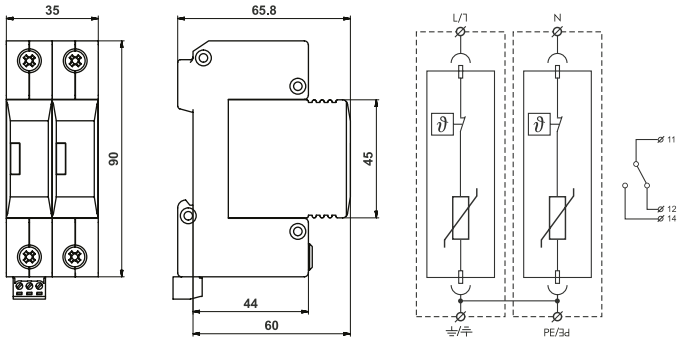
TYPE		**PZH R1 275/12,5/1+1 M, PZH R1 275/12,5/1+1 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	25 kA
Charge N/PE	Q	12,5 As
Nominal discharge current for class I test N/PE	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	30 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		215 g
Article number		**77 16 081 (M), 77 16 091 (MS)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-S / CE



PZH R1 275/12,5/2+0 M, PZH R1 275/12,5/2+0 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

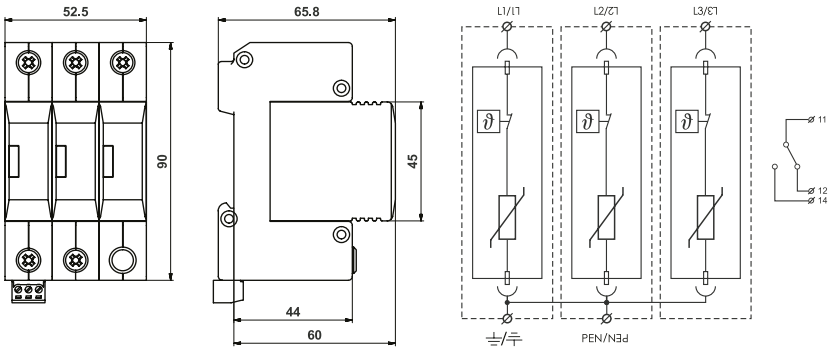
TYPE		**PZH R1 275/12,5/2+0 M, PZH R1 275/12,5/2+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		280 g
Article number		**77 16 082 (M), 77 16 092 (MS)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-C / CE



PZH R1 275/12,5/3+0 M, PZH R1 275/12,5/3+0 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

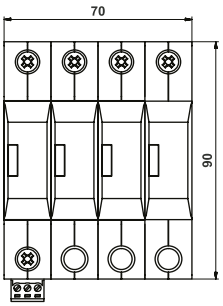
TYPE		**PZH R1 275/12,5/3+0 M, PZH R1 275/12,5/3+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	37,5 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C...+70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		420 g
Article number		**77 16 083 (M), 77 16 093 (MS)**

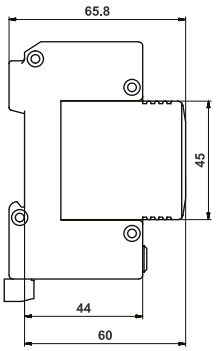
Lightning and Surge Arrester TYPE 1+2

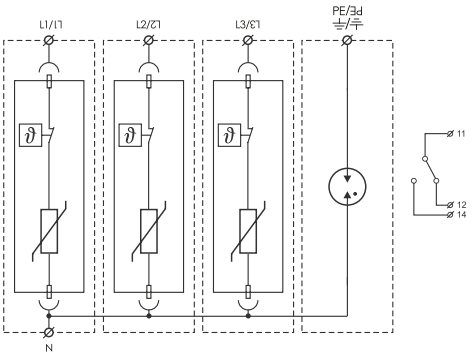
TYPE 1+2

VARISTOR + GAS DISCHARGE TUBE

TYPE 1+2 / CLASS I+II / TN-S / TT / CE







PZH R1 275/12,5/3+1 M, PZH R1 275/12,5/3+1 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

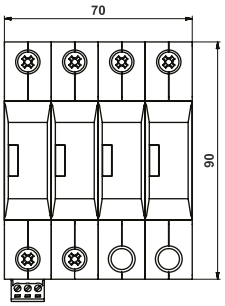
TYPE		**PZH R1 275/12,5/3+1 M, PZH R1 275/12,5/3+1 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	50 kA
Charge N/PE	Q	25 As
Nominal discharge current for class I test N/PE	W/R	625 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	50 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		536 g
Article number		**77 16 084 (M), 77 16 094 (SM)**

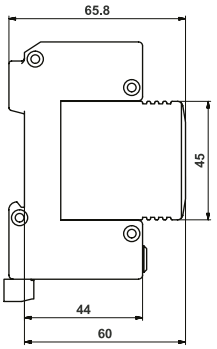
Lightning and Surge Arrester TYPE 1+2

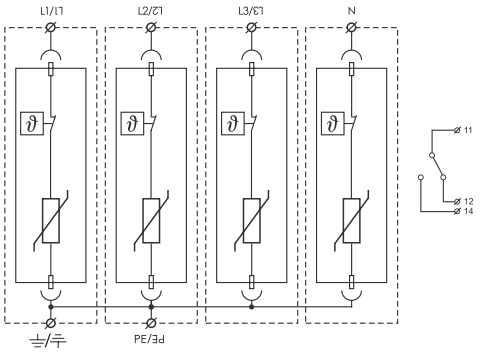
TYPE 1+2

VARISTOR

TYPE 1+2 / CLASS I+II / TN-S / CE







PZH R1 275/12,5/4+0 M, PZH R1 275/12,5/4+0 MS

PZH R1*M is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

TYPE		**PZH R1 275/12,5/4+0 M, PZH R1 275/12,5/4+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		560 g
Article number		**77 16 085 (M), 77 16 095 (MS)**

Lightning and Surge Arrester TYPE 1+2

TYPE 1+2

Application table

TYPE	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{IMP} (KA)	U_C (V) AC/DC	MODE OF PROTECTION
PZH R1 275/12,5 M / PZH R1 275/12,5 MS	**77 16 080 / 77 16 090**	1	140	1	1+0	12,5	275 / 350	L/N, L/PEN, L/PE
PZH R1 255/25 GDT	**77 30 051**	1	73	1	0+1	25	255	N/PE
PZH R1 255/50 GDT	**77 30 052**	1	116	1	0+1	50	255	N/PE
PZH R1 255/80 GDT	**77 30 052**	1	134	1	0+1	80	255	N/PE

RECOMMENDED SETS FOR TN-C SYSTEM	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{TOTAL} (KA) (10/350)	APPLICATION
PZH R1 275/12,5 M / PZH R1 275/12,5 MS	**77 16 080 / 77 16 090**	1	140	1	1+0	12,5	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/3+0 M / PZH R1 275/12,5/3+0 MS	**77 16 083 / 77 16 093**	3	420	3	3+0	37,5	
RECOMMENDED SETS FOR TN-S SYSTEM							
PZH R1 275/12,5/2+0 M / PZH R1 275/12,5/2+0 MS	**77 16 082 / 77 16 092**	2	280	2	2+0	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/4+0 M / PZH R1 275/12,5/4+0 MS	**77 16 085 / 77 16 095**	4	560	4	4+0	50	
RECOMMENDED SETS FOR TN-S AND TT SYSTEMS							
PZH R1 275/12,5/1+1 M / PZH R1 275/12,5/1+1 MS	**77 16 081 / 77 16 091**	2	256	2	1+1	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
PZH R1 275/12,5/3+1 M / PZH R1 275/12,5/3+1 MS	**77 16 084 / 77 16 094**	4	536	4	3+1	50	
SPARE MODULE							
PZH R1 275/12,5 Module	**77 16 086**		92				

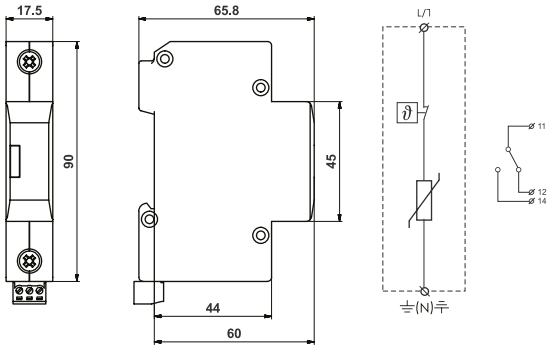
TE - diving unit (17,5 mm)

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / CE



PZH R2 275/50, PZH R2 275/50 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

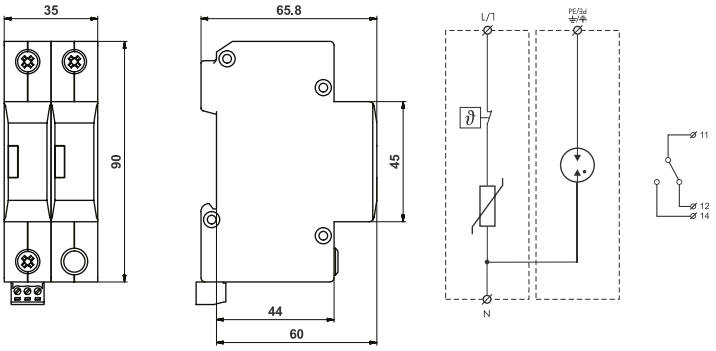
TYPE		**PZH R2 275/50, PZH R2 275/50 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		96 g
Article number		**77 24 527, 77 24 520 (S)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR + GAS DISCHARGE TUBE

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



PZH R2 275/50/1+1, PZH R2 275/50/1+1 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

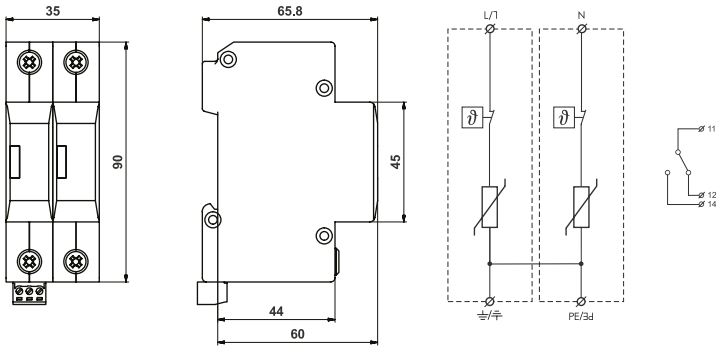
TYPE		**PZH R2 275/50/1+1, PZH R2 275/50/1+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		174 g
Article number		**77 24 528, 77 24 521 (S)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-S / CE



PZH R2 275/50/2+0, PZH R2 275/50/2+0 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

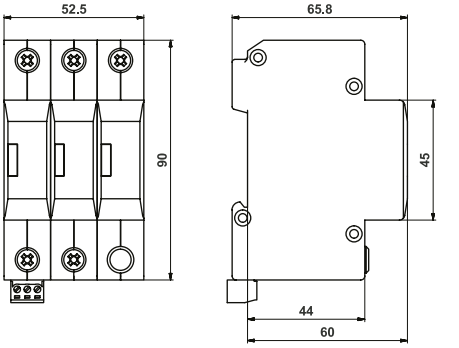
TYPE		**PZH R2 275/50/2+0, PZH R2 275/50/2+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		192 g
Article number		**77 24 529, 77 24 522 (S)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-C / CE



PZH R2 275/50/3+0, PZH R2 275/50/3+0 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

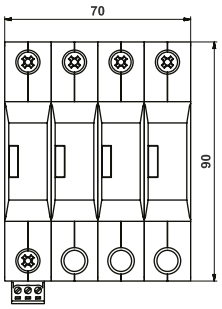
TYPE		**PZH R2 275/50/3+0, PZH R2 275/50/3+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		288 g
Article number		**77 24 530, 77 24 523 (S)**

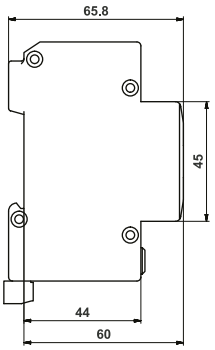
Surge Arrester TYPE 2+3

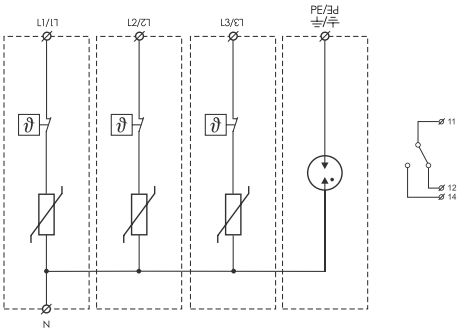
TYPE 2+3

VARISTOR + GAS DISCHARGE TUBE

TYPE 2+3 / CLASS II+III / TN-S / TT / CE







PZH R2 275/50/3+1, PZH R2 275/50/3+1 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

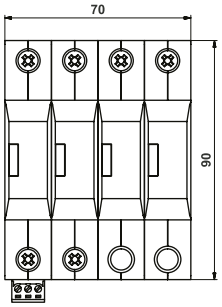
TYPE		**PZH R2 275/50/3+1, PZH R2 275/50/3+1 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		366 g
Article number		**77 24 531, 77 24 524 (S)**

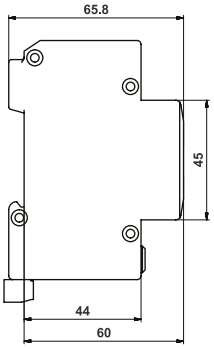
Surge Arrester TYPE 2+3

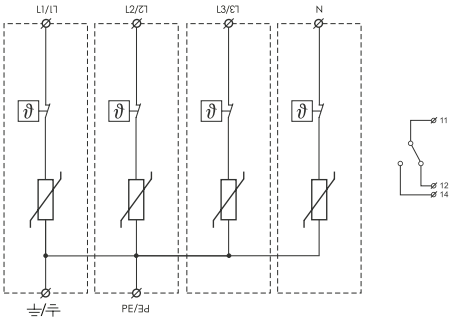
TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-S / CE







PZH R2 275/50/4+0, PZH R2 275/50/4+0 S

PZH R2* is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

TYPE		**PZH R2 275/50/4+0, PZH R2 275/50/4+0 S**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		384 g
Article number		**77 24 532, 77 24 525 (S)**

Surge Arrester TYPE 2+3

TYPE 2+3

Application table

TYPE	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{MAX} (KA)	U_c (V) AC/DC	MODE OF PROTECTION
PZH R2 75/40 / PZH R2 75/40 S	**77 24 501 / 77 24 507**	1	80 / 86	1	1+0	40	75 / 100	L/N, L/PEN, L/PE
PZH R2 150/40 / PZH R2 150/40 S	**77 24 533 / 77 24 539**	1	84 / 92	1	1+0	40	150 / 200	L/N, L/PEN, L/PE
PZH R2 275/50 / PZH R2 275/50 S	**77 24 527 / 77 24 520**	1	93 / 96	1	1+0	50	275 / 350	L/N, L/PEN, L/PE
PZH R2 320/50 / PZH R2 320/50 S	**77 24 545 / 77 24 551**	1	98 / 100	1	1+0	50	320 / 420	L/N, L/PEN, L/PE
PZH R2 385/40 / PZH R2 385/40 S	**77 24 557 / 77 24 563**	1	95 / 102	1	1+0	40	385 / 505	L/N, L/PEN, L/PE
PZH R2 440/40 / PZH R2 440/40 S	**77 24 569 / 77 24 575**	1	103 / 110	1	1+0	40	440 / 585	L/N, L/PEN, L/PE
PZH R2 600/40 / PZH R2 600/40 S	**77 24 581 / 77 24 587**	1	109 / 110	1	1+0	40	600 / 825	L/N, L/PEN, L/PE
PZH R2 720/40 / PZH R2 720/40 S	**77 24 601 / 77 24 607**	1	116 / 118	1	1+0	40	720 / 1060	L/N, L/PEN, L/PE
PZH R2 850/40 / PZH R2 850/40 S	**77 24 613 / 77 24 619**	1	122 / 124	1	1+0	40	850 / 1170	L/N, L/PEN, L/PE
PZH R2 255/20 GDT	**77 30 050**	1	76	1	0+1	50	255	N/PE

RECOMMENDED SETS FOR TN-C SYSTEM	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{MAX} (KA)	APPLICATION
PZH R2 275/50 / PZH R2 275/50 S	**77 24 527 / 77 24 520**	1	93 / 96	1	1+0	50	Secondary switchboard, control box
PZH R2 275/50/3+0 / PZH R2 275/50/3+0 S	**77 24 530 / 77 24 523**	3	279 / 288	3	3+0	50	Secondary switchboard, control box
RECOMMENDED SETS FOR TN-S SYSTEM							
PZH R2 275/50/2+0 / PZH R2 275/50/2+0 S	**77 24 529 / 77 24 522**	2	192 / 192	2	2+0	50	Secondary switchboard, control box
PZH R2 275/50/4+0 / PZH R2 275/50/4+0 S	**77 24 532 / 77 24 525**	4	384 / 385	4	4+0	50	Secondary switchboard, control box
RECOMMENDED SETS FOR TN-S AND TT SYSTEMS							
PZH R2 275/50/1+1 / PZH R2 275/50/1+1 S	**77 24 528 / 77 24 521**	2	174 / 174	2	1+1	50	Secondary switchboard, control box
PZH R2 275/50/3+1 / PZH R2 275/50/3+1 S	**77 24 531 / 77 24 524**	4	366 / 367	4	3+1	50	Secondary switchboard, control box

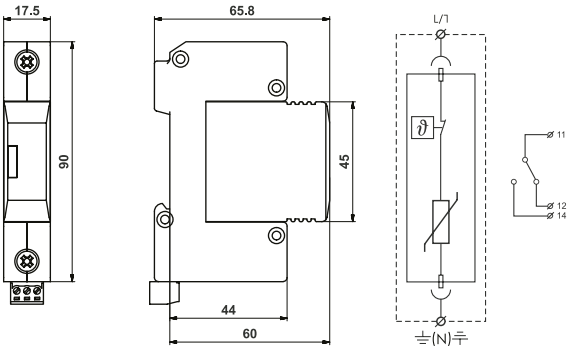
TE - diving unit (17,5 mm)

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / CE



PZH R2 275/50 M, PZH R2 275/50 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

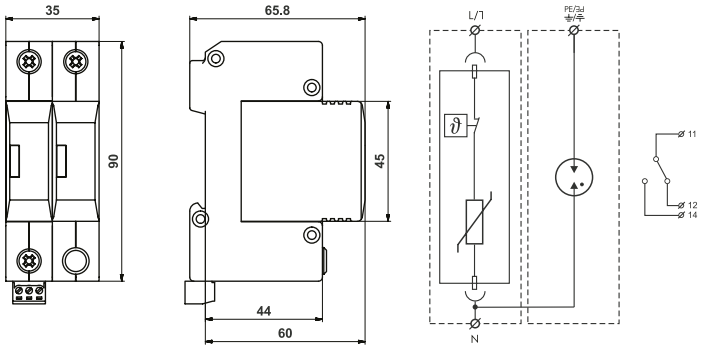
TYPE		**PZH R2 275/50 M, PZH R2 275/50 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,25 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		90 g
Article number		**77 27 080 (M), 77 27 090 (MS)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR + GAS DISCHARGE TUBE

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



PZH R2 275/50/1+1 M, PZH R2 275/50/1+1 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

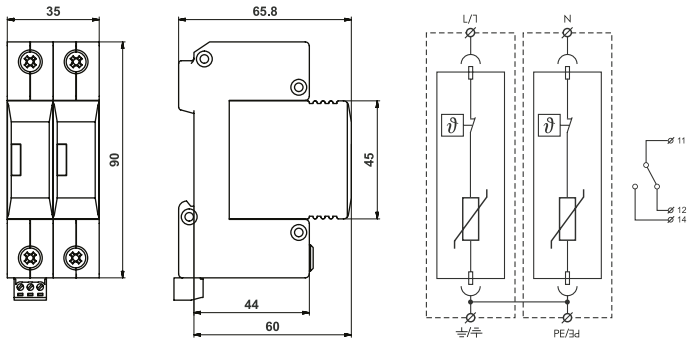
TYPE		**PZH R2 275/50/1+1 M, PZH R2 275/50/1+1 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		166 g
Article number		**77 27 081 (M), 77 27 091 (MS)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-S / CE



PZH R2 275/50/2+0 M, PZH R2 275/50/2+0 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

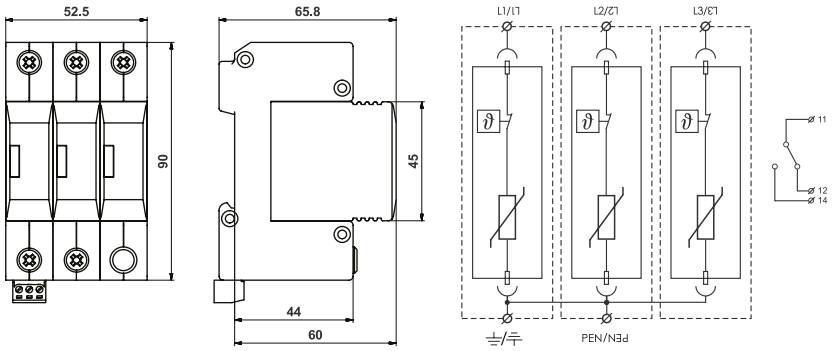
TYPE		**PZH R2 275/50/2+0 M, PZH R2 275/50/2+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		180 g
Article number		**77 27 082 (M), 77 27 092 (MS)**

Surge Arrester TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-C / CE



PZH R2 275/50/3+0 M, PZH R2 275/50/3+0 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

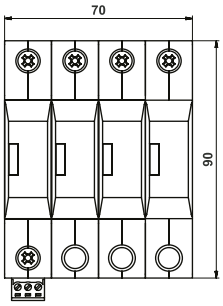
TYPE		**PZH R2 275/50/3+0 M, PZH R2 275/50/3+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		270 g
Article number		**77 27 083 (M), 77 27 093 (MS)**

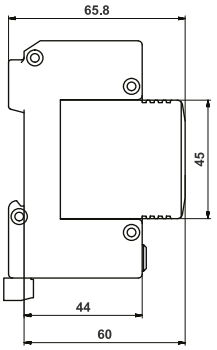
Surge Arrester TYPE 2+3

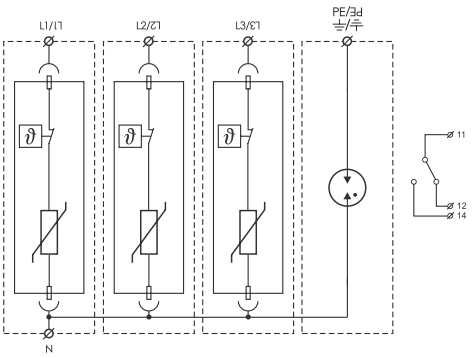
TYPE 2+3

VARISTOR + GAS DISCHARGE TUBE

TYPE 2+3 / CLASS II+III / TN-S / TT / CE







PZH R2 275/50/3+1 M, PZH R2 275/50/3+1 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

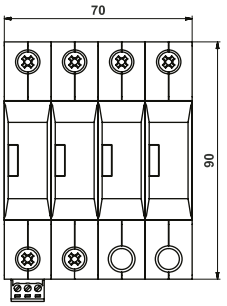
TYPE		**PZH R2 275/50/3+1 M, PZH R2 275/50/3+1 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		346 g
Article number		**77 27 084 (M), 77 27 094 (MS)**

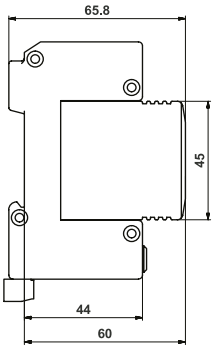
Surge Arrester TYPE 2+3

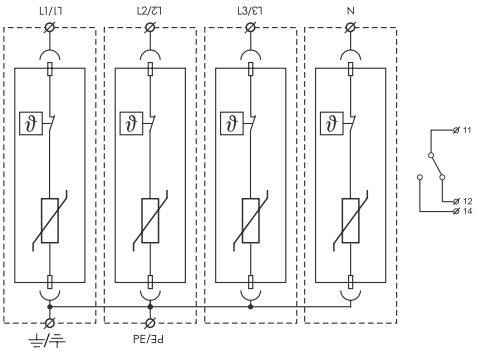
TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN-S / CE







PZH R2 275/50/4+0 M, PZH R2 275/50/4+0 MS

PZH R2*M is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

TYPE		**PZH R2 275/50/4+0 M, PZH R2 275/50/4+0 MS**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA_{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm^2 (solid) - 16 mm^2 (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		360 g
Article number		**77 27 085 (M), 77 27 095 (MS)**

Surge Arrester TYPE 2+3

TYPE 2+3

Application table

TYPE	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{MAX} (KA)	U_c (V) AC/DC	MODE OF PROTECTION
PZH R2 75/40 M / PZH R2 75/40 MS	**77 27 180 / 77 27 181**	1	78 / 82	1	1+0	40	75 / 100	L/N, L/PEN, L/PE
PZH R2 150/40 M / PZH R2 150/40 MS	**77 27 182 / 77 27 183**	1	82 / 85	1	1+0	40	150 / 200	L/N, L/PEN, L/PE
PZH R2 275/50 M / PZH R2 275/50 MS	**77 27 080 / 77 27 090**	1	85 / 89	1	1+0	50	275 / 350	L/N, L/PEN, L/PE
PZH R2 320/50 M / PZH R2 320/50 MS	**77 27 184 / 77 27 185**	1	80 / 90	1	1+0	50	320 / 420	L/N, L/PEN, L/PE
PZH R2 385/40 M / PZH R2 385/40 MS	**77 27 186 / 77 27 187**	1	92 / 100	1	1+0	40	385 / 505	L/N, L/PEN, L/PE
PZH R2 440/40 M / PZH R2 440/40 MS	**77 27 188 / 77 27 189**	1	98 / 106	1	1+0	40	440 / 585	L/N, L/PEN, L/PE
PZH R2 255/20 GDT	**77 30 050**	1	74	1	0+1	50	255	N/PE

RECOMMENDED SETS FOR TN-C SYSTEM	ART. NO.	TE	WEIGHT (G)	NO. OF POLES	CONNECTION	I_{MAX} (KA)	APPLICATION
PZH R2 275/50 M / PZH R2 275/50 MS	**77 27 080 / 77 27 090**	1	85 / 89	1	1+0	50	Secondary switchboard, control box
PZH R2 275/50/3+0 M / PZH R2 275/50/3+0 MS	**77 27 083 / 77 27 093**	3	255 / 267	3	3+0	50	Secondary switchboard, control box
RECOMMENDED SETS FOR TN-S SYSTEM							
PZH R2 275/50/2+0 M / PZH R2 275/50/2+0 MS	**77 27 082 / 77 27 092**	2	180 / 182	2	2+0	50	Secondary switchboard, control box
PZH R2 275/50/4+0 M / PZH R2 275/50/4+0 MS	**77 27 085 / 77 27 095**	4	360 / 360	4	4+0	50	Secondary switchboard, control box
RECOMMENDED SETS FOR TN-S SYSTEM							
PZH R2 275/50/1+1 M / PZH R2 275/50/1+1 MS	**77 27 081 / 77 27 091**	2	165 / 167	2	1+1	50	Secondary switchboard, control box
PZH R2 275/50/3+1 M / PZH R2 275/50/3+1 MS	**77 27 084 / 77 27 094**	4	330 / 347	4	3+1	50	Secondary switchboard, control box
SPARE MODULE							
PZH R2 75/40 Module	**77 27 190**						
PZH R2 150/40 Module	**77 27 191**						
PZH R2 275/50 Module	**77 27 086**						
PZH R2 320/50 Module	**77 27 192**						
PZH R2 385/40 Module	**77 27 193**						
PZH R2 440/40 Module	**77 27 194**						

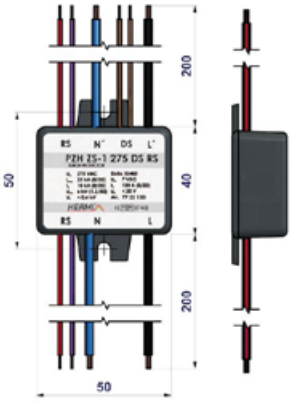
TE - diving unit (17,5 mm)

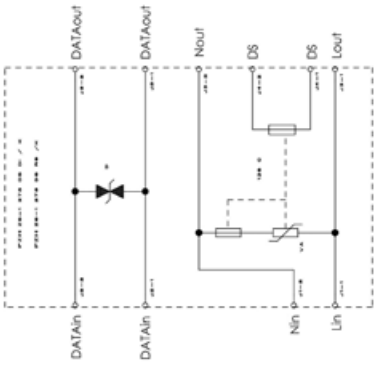
Surge arrester for LED lighting protection TYPE 2+3

TYPE 2+3

VARISTOR

TYPE 2+3 / CLASS II+III / TN / CE





PZH ZS-1 275 DS RS, PZH ZS-1 275 DS DI

PZH ZS-1 275 DS RS and PZH ZS-1 275 DS DI are surge arresters Type 2+3 (TYPE 3 protects the device only to 5m lead) according to IEC EN 61643-11 and IEC EN 62305 designed for LED lighting protection for installations largely e.g. in tunnels, properties and premises, street lights etc. Efficiently protect both the input supply voltage and the data communication lines for the remote control of lighting fixture (protocol RS485 eventually DALI (DI)). Both types are equipped with the internal disconnecting signal contacts (DS), which are activated when the inbuilt varistor overheats above 136°C. The way to connect to a given application is by the pull-wire terminals.

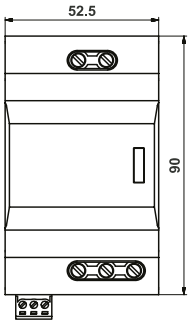
TYPE		PZH ZS-1 275 DS RS (IP40) PZH ZS-1 275 DS RS (IP65)	PZH ZS-1 275 DS DI (IP40) PZH ZS-1 275 DS DI (IP65)
Test class according to IEC EN 61643-11			
Nominal voltage	U_N	230 V AC	
Max. continuous operating voltage	U_C	275 V AC	
Max. discharge current (8/20)	I_{max}	25 kA	
Nominal discharge current (8/20)	I_n	10 kA	
Combined impulse	U_{OC}	6 kV	
Voltage protection level at I_n	U_P	< 0,65 kV	
Voltage protection level at U_{OC}	U_P	< 0,6 kV	
Response time	t_A	< 25 ns	
Max. backup fuse		6 A	
Temporary overvoltage TOV	U_T	335V/5 s	
Lifetime		min. 100.000 h	
Fault indication (DS)		potential free contact max. 230 V AC/0,5 A 230VAC/0,5 A	
IP40		standard	
IP65		only on special request	
Operating temperature range	ϑ	-40°C ... +70 °C	
Data part			
– max. continous operating voltage	U_C	7 VDC	28 VDC
- max. discharge current	I_{FSM}	200 A/8,3 ms	200 A/8,3 ms
- nominal discharge current (8/20)	I_n	100 A	100 A
- voltage protection level at I_n	U_P	<20 V	<40 V
- protocol of data transmission		RS 485	DALI
Weight	m	55 g	
Length of supply lead	l	200 mm (conductor 1,5 mm^2 and conductor 0,35 mm^2)	
Recommended working/position		any	
Mounting on		wall mounted or plate mounted by two screws Ø = 4 mm	
Article number		**77 32 150 (IP40), 77 32 154 (IP65)**	**77 32 152 (IP40), 77 32 155 (IP65)**

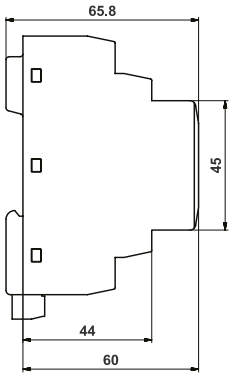
Surge arrester TYPE 3

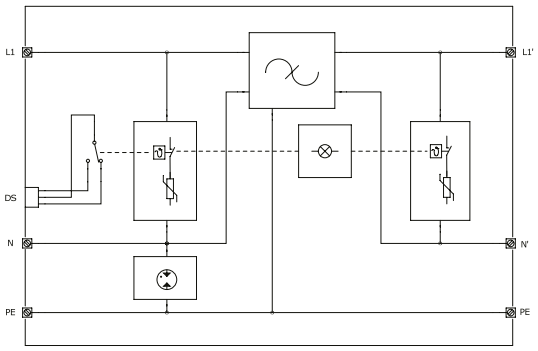
TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / TN-C-S / TN-S / CE







PZH R3 HF10 S, PZH R3 HF16 S

PZH R3* S is a two-stage surge arrester. A high-frequency filter is integrated between these two stages. The PZH R3* S includes an upgraded thermal fuse which ensures the timely disconnection of the PZH R3* S from the mains supply when the varistor overheats and prevents the PZH R3* S from any damage. The activation of the thermal fuse is signalled by an integrated light indication with the possibility of using the switch contact for remote monitoring (S) to signal the fault. By using a new design of the thermal fuse, the protective voltage level is 100 V lower than the previous series of filters produced. PZH R3* S is a two-port surge arrester type T3 tested according to the standard EN 61643-11 ed.2 (IEC 61643-11: 2011). According to EN 62305 ed.2 (IEC 62305: 2010) it is to be installed at the interface of LPZ 2 - LPZ 3 zones where it limits the induced overvoltage and residual overvoltage in power lines. PZH R3* S is installed on a 35 mm DIN rail with a metal clip.

Manufacturer's recommendation: PZH R3* S is to be installed as close as possible to the protected device (max. 5 m). In front of PZH R3* S must be installed a lightning arrester T1 and surge arrester T2 from Hermi.

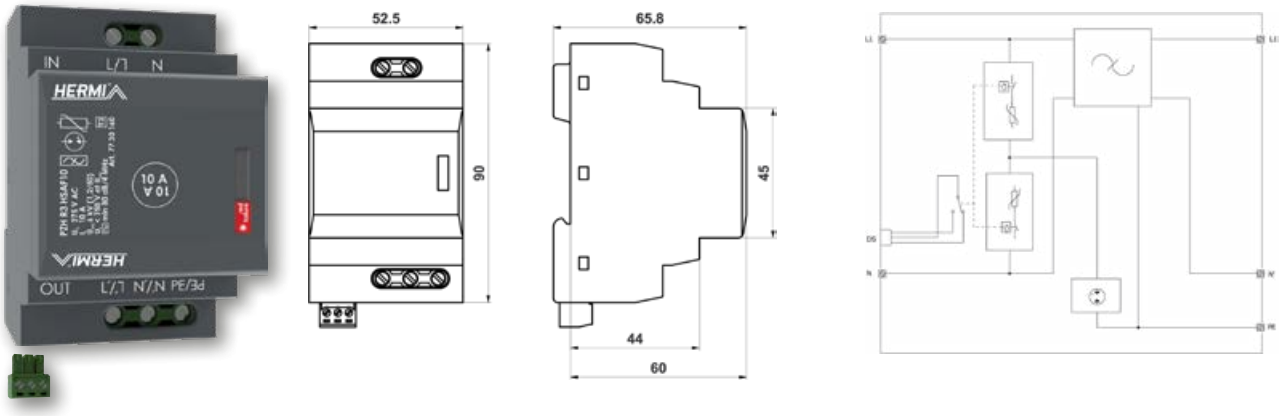
TYPE		PZH R3 HF10 S	PZH R3 HF16 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYP 3, CLASS III	
System		TN-C-S, TN-S	
Max. continuous operating voltage	U_C	275 V AC	
Rated load current	I_L	10 A	16 A
Combined impulse	U_{OC}	6 kV (L/N, L/PE); 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_p	< 750 V (L/N); < 1 kV (L/PE); < 1,5 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n	3 kA (L/N, L/PE); 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T	337 V/5 s (L/N); 1200 V/0,2 s (N/PE)	
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz; min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 2,2 W	< 3,5 W
Back-up fuse		10 A	16 A
LPZ		2-3	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +55 °C	
Cross-section of the connected conductors (at tightening moment of clamps 0.5 Nm)		2,5 - 4 mm²	
The mounting method / operating position		DIN rail 35 mm / any	
Failure signalisation		light off - ok / light on - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime		min. 100 000 h	
Weight		180 g	
Article number		**77 30 170**	**77 30 171**

Surge arrester TYPE 3

TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / TN-C-S / TN-S / CE



PZH R3 HSAF10, PZH R3 HSAF10 S, PZH R3 HSAF16, PZH R3 HSAF16 S

PZH R3 HSAF* (Hermi Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. PZH R3 HSAF* contains an improved thermal fuse which ensures timely disconnection of the PZH R3 HSAF* from the power grid during overheating and thus prevents damage to the PZH R3 HSAF*. Activation of the thermal fuse is signalled by an integral indicator light with the option to utilize its switching contact for remote fault signalling (S). Due the new design of the thermal fuse, the protective voltage level is 100 V lower than in the previous series of filters. The PZH R3 HSAF* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH R3 HSAF* are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the PZH R3 HSAF* as close to the device to be protected as possible (no further than 5 m). A Hermi T1 and T2 lightning and surge arrester must be installed before the PZH R3 HSAF*.

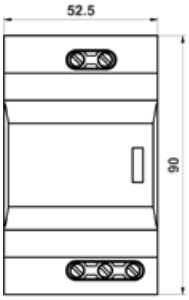
TYPE		PZH R3 HSAF10, PZH R3 HSAF10 S	PZH R3 HSAF16, PZH R3 HSAF16 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III	
System		TN-C-S, TN-S	
Max. continuous operating voltage	U_C	275 V AC	
Rated load current	I_L	10 A	16 A
Combined impulse	U_{OC}	4 kV (L/N, L/PE); 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_P	< 750 V (L/N); < 1 kV (L/PE); < 1,5 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n	3 kA (L/N, L/PE); 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T	337 V/5 s (L/N); 1200 V/0,2 s (N/PE)	
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz; min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 2,2 W	< 3,5 W
Back-up fuse		10 A	16 A
LPZ		2-3	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +55 °C	
Cross-section of the connected conductors		2,5 - 4 mm^2	
Tightening moment of clamps		0,5 Nm	
The mounting method / operating position		DIN rail 35 mm / any	
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm^2)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime		min. 100 000 h	
Weight		180 g	
Article number		**77 30 160, 77 30 170 (S)**	**77 30 161, 77 30 171 (S)**

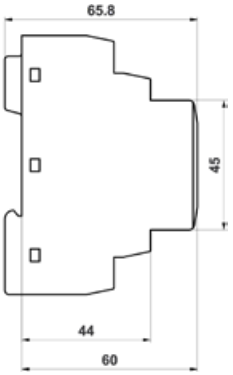
Surge arrester TYPE 3

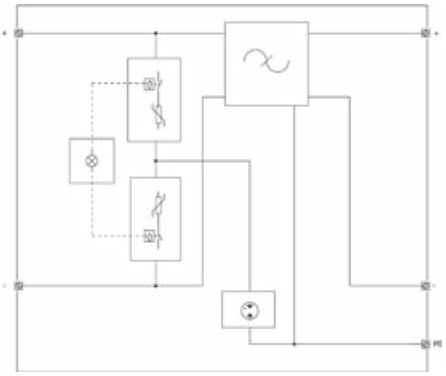
TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / DC / CE







PZH R3 HSAF16/*VDC

PZH R3 HSAF16/*VDC is a surge arrester with integrated high-frequency filter designed for DC power supply systems. PZH R3 HSAF16/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the PZH R3 HSAF16/*VDC. Activation of the thermal fuse is signalled by an integral indicator light. The PZH R3 HSAF16/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH R3 HSAF16/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the PZH R3 HSAF16/*VDC as close to the device to be protected as possible (no further than 5 m). There must be Hermi's lightning and surge arrester T1 and T2 installed before the PZH R3 HSAF16/*VDC.

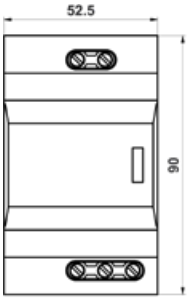
TYPE		PZH R3 HSAF 16/6VDC	PZH R3 HSAF 16/12VDC	PZH R3 HSAF 16/24VDC	PZH R3 HSAF 16/48VDC	PZH R3 HSAF 16/60VDC	PZH R3 HSAF 16/120VDC	PZH R3 HSAF 16/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III						
System					DC			
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n			2 kA			3 kA	
Rated load current	I_L				16 A			
Combined impulse	U_{OC}			4 kV			6 kV	
Voltage protection level at U_{OC} (+/-)	U_P	< 350 V	< 350 V	< 400 V	< 500 V	< 550 V	< 900 V	< 1300 V
Voltage protection level at U_{OC} (+-/PE)		< 300 V				< 400 V	< 600 V	< 800 V
Response time	t_A	< 25 ns (+/-) < 100 ns (+-/PE)						
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding temp. 20 °C		< 3,5 W						
Back-up fuse		16 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		2,5 - 4 mm² Cu						
The mounting method / operating position		DIN rail 35 mm / any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Lifetime		min. 100 000 h						
Weight	m				180 g			
Article number		**77 30 142**	**77 30 143**	**77 30 144**	**77 30 145**	**77 30 146**	**77 30 147**	**77 30 148**

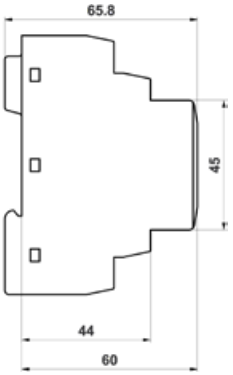
Surge arrester TYPE 3

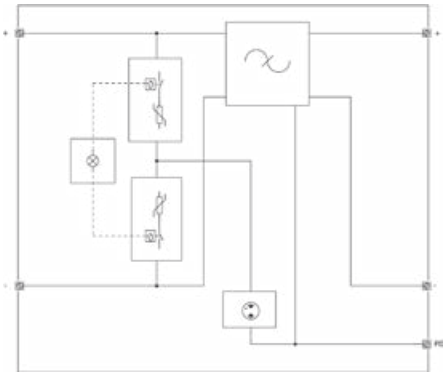
TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / DC / CE







PZH R3 HSAF10/*VDC

PZH R3 HSAF10/*VDC is a surge arrester with integrated high-frequency filter designed for DC power supply systems. PZH R3 HSAF10/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the PZH R3 HSAF10/*VDC. Activation of the thermal fuse is signalled by an integral indicator light. The PZH R3 HSAF10/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH R3 HSAF10/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the PZH R3 HSAF10/*VDC as close to the device to be protected as possible (no further than 5 m). There must be Hermi's lightning and surge arrester T1 and T2 installed before the PZH HSAF10/*VDC.

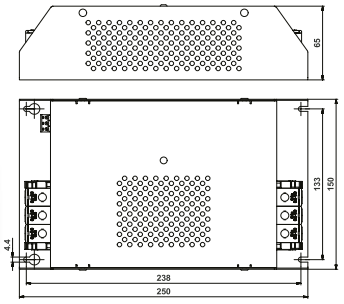
TYPE		PZH R3 HSAF 10/6VDC	PZH R3 HSAF 10/12VDC	PZH R3 HSAF 10/24VDC	PZH R3 HSAF 10/48VDC	PZH R3 HSAF 10/60VDC	PZH R3 HSAF 10/120VDC	PZH R3 HSAF 10/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III						
System					DC			
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n	2 kA					3 kA	
Rated load current	I_L	10 A						
Combined impulse	U_{OC}	4 kV					6 kV	
Voltage protection level at U_{OC} (+/-)	U_P	< 350 V	< 350 V	< 400 V	< 500 V	< 550 V	< 900 V	< 1300 V
Voltage protection level at U_{OC} (+-/PE)		< 300 V				< 400 V	< 600 V	< 800 V
Response time	t_A	< 25 ns (+/-) < 100 ns (+-/PE)						
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding temp. 20 °C		< 2,2 W						
Back-up fuse		10 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		1,5 - 4 mm² Cu						
The mounting method / operating position		DIN rail 35 mm / any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Lifetime		min. 100 000 h						
Weight	m	165 g						
Article number		**77 30 149**	**77 30 150**	**77 30 157**	**77 30 158**	**77 30 159**	**77 30 162**	**77 30 163**

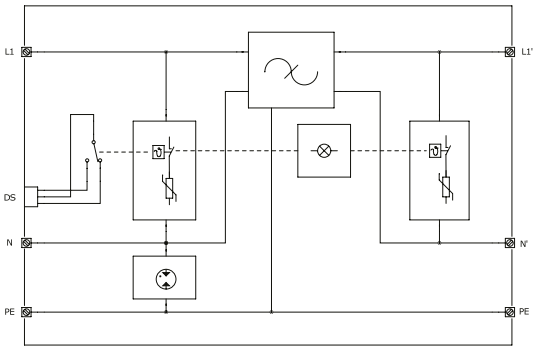
Surge arrester TYPE 3

TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / TN-C-S / TN-S / CE





PZH R3 HF32 S, 50 S, 63 S, 80 S, 125 S, 160 S

PZH R3* S is a two-stage surge arrester. A high-frequency filter is integrated between these two stages. The PZH R3* S includes an upgraded thermal fuse which ensures the timely disconnection of the PZH R3* S from the mains supply when the varistor overheats and prevents the PZH R3* S from any damage. The activation of the thermal fuse is signalled by an integrated light indication with the possibility of using the switch contact for remote monitoring (S) to signal the fault. PZH R3* S is a two-port surge arrester type T3 tested according to the standard EN 61643-11 ed.2 (IEC 61643-11: 2011). According to EN 62305 ed.2 (IEC 62305: 2010) it is to be installed at the interface of LPZ 2 - LPZ 3 zones where it limits the induced overvoltage and residual overvoltage in power lines. PZH R3* S is installed to the switchboard base by four screws.

Manufacturer's recommendation: PZH R3* S is to be installed as close as possible to the protected device (max. 5 m). In front of PZH R3* S must be installed a lightning arrester T1 and surge arrester T2 from Hermi.

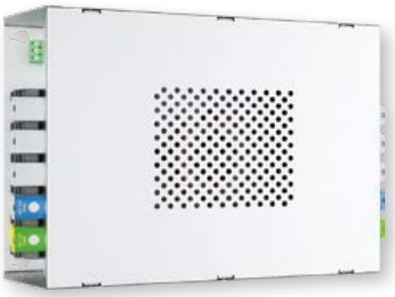
TYPE		PZH R3 HF32 S	PZH R3 HF50 S	PZH R3 HF63 S	PZH R3 HF80 S	PZH R3 HF125 S	PZH R3 HF160 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYP 3, CLASS III					
System		TN-C-S, TN-S					
Max. continuous operating voltage	U_C	275 V AC					
Rated load current	I_L	32 A	50 A	63 A	80 A	125 A	160 A
Combined impulse	U_{OC}	6 kV (L/N, L/PE); 10 kV (N/PE)					
Voltage protection level at U_{OC}	U_p	< 850 V (L/N); < 1,5 kV (L/PE); < 1,2 kV (N/PE)					
Nominal discharge current I_n (8/20)	I_n	3 kA (L/N, L/PE); 5 kA (N/PE)					
Temporary overvoltage (TOV)	U_T	337 V/5 s (L/N); 1200 V/0,2 s (N/PE)					
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)					
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz; min. 40 dB (0,15 ÷ 30 MHz)					
Power loss at winding temp. 20 °C		< 4 W	< 7 W	< 9 W	< 12 W	< 20 W	
Back-up fuse		32 A	50 A	63 A	80 A	125 A	160 A
LPZ		2-3					
Housing material		Metal plate 1 mm					
Degree of protection of enclosure		IP20					
Operating temperature range	ϑ	-40 °C ... +55 °C					
Cross-section of the connected conductors		10 mm²		16 mm²	25 mm²	35 mm²	50 mm²
Tightening moment of clamps		3 Nm				10 Nm	
The mounting method / operating position		By screws M4 on chassis / any					
Failure signalisation		light off - ok / light on - fault					
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A					
Lifetime		min. 100 000 h					
Weight		720 g	1450 g	1450 g	1520 g	1780 g	1830 g
Article number		**77 30 172**	**77 30 173**	**77 30 174**	**77 30 175**	**77 30 176**	**77 30 177**

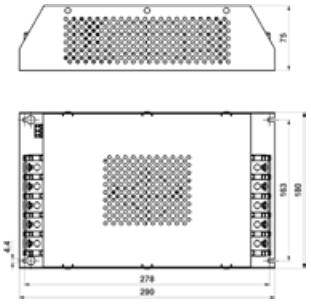
Surge arrester TYPE 3

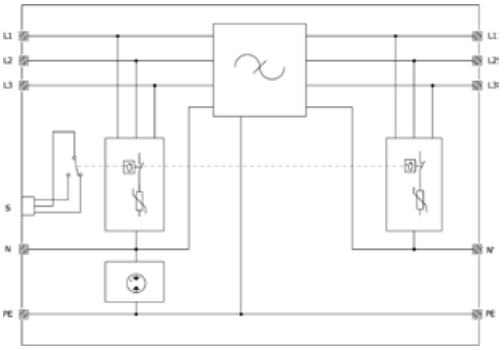
TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 2+3 / CLASS II+III / TN-C-S / TN-S / CE







PZH R3 HSAF3/63 S/40

PZH R3 HSAF3/63 S/40 (Hermi Surge Arrester Filter) is a two-stage surge arrester. A high-frequency filter is integrated between these two stages. The PZH R3 HSAF3/63 S/40 includes an upgraded thermal fuse, which ensures the timely disconnection of the PZH R3 HSAF3/63 S/40 from the main supply when the varistor overheats and prevents the PZH R3 HSAF3/63 S/40 from any damage. The activation of the thermal fuse is signalled by an integrated light indication with the possibility of using the switch contact for remote monitoring (S) to signal the fault. PZH R3 HSAF3/63 S/40 is a two-port surge arrester Type T2+T3 tested according to standards IEC 61643-11:2011 and EN 55017 (CISPR 17:2011). According to EN 62305 ed.2 (IEC 62305:2010) it is to be installed at the interface of LPZ 1 - LPZ 3 zones, where it limits the induced overvoltage and residual overvoltage in power lines. PZH R3 HSAF3/63 S/40 is installed to the switchboard base by four screws.

Manufacturer's recommendation: PZH R3 HSAF3/63 S/40 is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning and surge arrester from Hermi must be installed in front of PZH R3 HSAF3/63 S/40A.

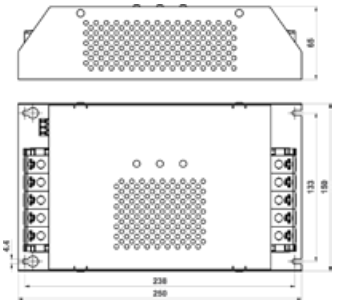
TYPE		**PZH R3 HSAF3/63 S/40**
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-C-S, TN-S
Max. continuous operating voltage	U_C	3 x 320 / 550 V AC
Rated load current	I_L	63 A
Combined impulse	U_{OC}	6 kV (L/N, L/PE); 10 kV (N/PE)
Voltage protection level at U_{OC}	U_P	< 950 V (L/N); < 1,5 kV (L/PE); < 1,3 kV (N/PE)
Nominal discharge current I_n (8/20)	I_n	20 kA (L/N, L/PE); 50 kA (N/PE)
Voltage protection level at I_n	U_P	< 1,2 kV (L/N); < 1,9 kV (L/PE); < 1,5 kV (N/PE)
Maximum discharge current (8/20)	I_{max}	40 kA (L/N, L/PE)
Temporary overvoltage (TOV)	U_T	387 V/5 s (L/N); 1200 V/0,2 s (N/PE)
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz; min. 40 dB (0,15 ÷ 30 MHz)
Power loss at winding temp. 20 °C		< 12 W
Back-up fuse		63 A
LPZ		1-3
Housing material		Metal plate 1 mm
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +55 °C
Cross-section of the connected conductors		16 mm²
Tightening moment of clamps		3 Nm
The mounting method / operating position		By screws M4 on chassis / any
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight		2500 g
Article number		**77 30 183**

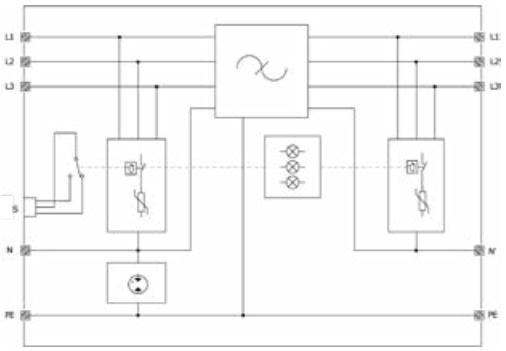
Surge arrester TYPE 3

TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / TN-C-S / TN-S / CE





PZH R3 HSAF3/32 S, /50 S, /63 S

PZH R3 HSAF3* S (Hermi Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. The PZH R3 HSAF3* S contains an improved thermal fuse, which ensures timely disconnection of the PZH R3 HSAF3* S from the power grid during overheating and thus prevents damage to the PZH R3 HSAF3* S. Activation of the thermal fuse is signalled by an integral indicator light (each phase is signalled separately) with the option to utilize its switching contact for remote fault signalling (S). The PZH R3 HSAF3* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH HSAF* S is mounted on the main board of a switchboard using four bolts.

Manufacturer's recommendation: PZH R3 HSAF3* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from HERMI must be installed in front of PZH HSAF3*S.

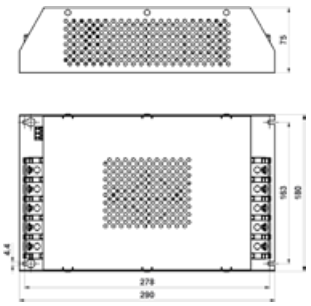
TYPE		PZH R3 HSAF3/32 S	PZH R3 HSAF3/50 S	PZH R3 HSAF3/63 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III		
System		TN-C-S, TN-S		
Max. continuous operating voltage	U_C		3 x 275 / 480 V AC	
Rated load current	I_L	32 A	50 A	63 A
Combined impulse	U_{OC}	6 kV (L/N, L/PE); 10 kV (N/PE)		
Voltage protection level at U_{OC}	U_p	< 850 V (L/N); < 1,5 kV (L/PE); < 1,2 kV (N/PE)		
Nominal discharge current I_n (8/20)	I_n	3 kA (L/N, L/PE); 5 kA (N/PE)		
Temporary overvoltage (TOV)	U_T	1200 V/0,2 s (N/PE); 1200 V/0,2 s (N/PE)		
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)		
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz; min. 40 dB (0,15 ÷ 30 MHz)		
Power loss at winding temp. 20 °C		< 8 W	< 9 W	< 12 W
Back-up fuse		32 A	50 A	63 A
LPZ		2-3		
Housing material		Metal plate 1 mm		
Degree of protection of enclosure		IP20		
Operating temperature range	ϑ	-40 °C ... +55 °C		
Cross-section of the connected conductors		10 mm²		16 mm²
Tightening moment of clamps		3 Nm		
The mounting method / operating position		By screws M4 on chassis / any		
Failure signalisation		light off - ok / light on - fault		
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A		
Lifetime		min. 100 000 h		
Weight		1700 g	1800 g	1800 g
Article number		**77 30 190**	**77 30 191**	**77 30 192**

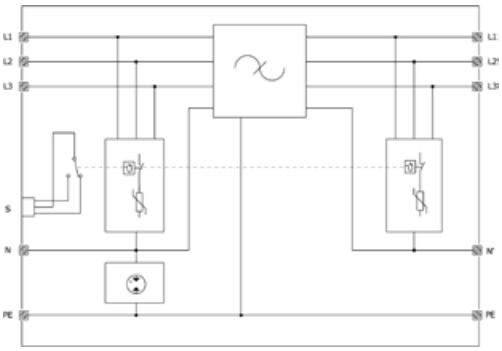
Surge arrester TYPE 3

TYPE 3

VARISTOR & EMC / EMI FILTER

TYPE 3 / CLASS III / TN-C-S / TN-S / CE





PZH R3 HSAF3/80 S, /125 S, /160 S

The PZH R3 HSAF3* S (Hermi Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. The PZH R3 HSAF3* S contains an improved thermal fuse, which ensures timely disconnection of the PZH R3 HSAF3* S from the power grid during overheating and thus prevents damage to the PZH R3 HSAF3* S. Activation of the thermal fuse is signalled by an integral indicator light (each phase is signalled separately) with the option to utilize its switching contact for remote fault signalling (S). The PZH R3 HSAF3* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH R3 HSAF* S is mounted on the main board of a switchboard using four bolts.

Manufacturer's recommendation: PZH R3 HSAF3* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hermi must be installed in front of PZH R3 HSAF3*S.

TYPE		PZH R3 HSAF3/80 S	PZH R3 HSAF3/125 S	PZH R3 HSAF3/160 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)			TYPE 3, CLASS III	
System			TN-C-S, TN-S	
Max. continuous operating voltage	U_C		3 x 275 / 480 V AC	
Rated load current	I_L	80 A	125 A	160 A
Combined impulse	U_{OC}		6 kV (L/N, L/PE); 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_P		< 850 V (L/N); < 1,5 kV (L/PE); < 1,2 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n		3 kA (L/N, L/PE); 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T		337 V/5 s (L/N); 1200 V/0,2 s (N/PE)	
Response time	t_A		< 25 ns (L/N); < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)			min. 80 dB at 4 MHz	
			min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 15 W	< 20 W	< 25 W
Back-up fuse		80 A	125 A	160 A
LPZ			2-3	
Housing material			Metal plate 1 mm	
Degree of protection of enclosure			IP20	
Operating temperature range	ϑ		-40 °C ... +55 °C	
Cross-section of the connected conductors		25 mm²	35 mm²	50 mm²
Tightening moment of clamps			10 Nm	
The mounting method / operating position			By screws M4 on chassis / any	
Failure signalisation			light off - ok / light on - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)			AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime			min. 100 000 h	
Weight		1950 g	2820 g	2820 g
Article number		**77 30 193**	**77 30 194**	**77 30 195**

Surge arrester TYPE 3

TYPE 3

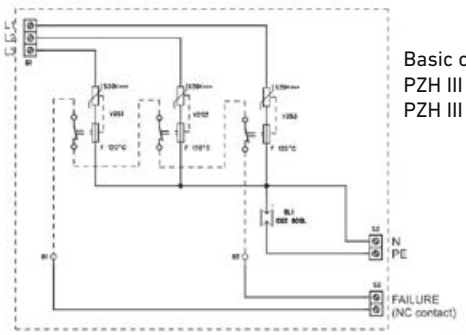
VARISTOR

TYPE 3 / CLASS III / TN-S / TN-C / TT / CE

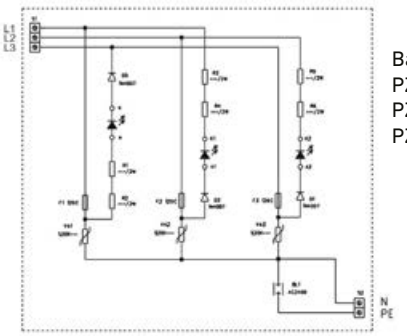
PZH III V 3+1/275/5, PZH III V 3+1/275/5 S

PZH III V 3+1 is a three-phase surge arrester type 3 according to EN 61643-11 suitable for use in TNS, TNC and TT systems. These are parallel devices intended for protection of electronic appliances against impulse surge. All varistors in PZH III V 3+1device are fitted with thermal fuses to prevent short and also permanent overloading. PZH III V 3+1 units are to be connected as near to the protected electronic appliance as possible. The right function of PZH III V 3+1/275/5, PZH III V 3+1/480/5 and PZH III V 3+1/600/5 devices is indicated by three green LED diodes. The function failure of PZH III V 3+1/275/5 S, and PZH III V 3+1/480/5 S devices is indicated by target disconnection of mechanical thermal fuses which react to varistors overheating above c. 120°C. If one of the three thermal fuses reacts, the non-potential contact FAILURE disconnects at the same time (in case of S version only).

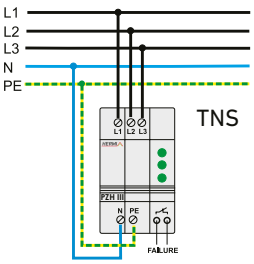
TYPE		PZH III V 3+1/275/5	PZH III V 3+1/275/5 S
Nominal voltage	U_N	230 V AC	
Max. continuous operating voltage	U_C	275 V AC	
Nominal discharge current I_n(8/20)	I_n	3 kA (L/N, L/PE); 5 kA (N/PE)	
Combined impulse	U_{OC}	6 kV (L/N,L/PE); 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_P	1,5 kV (L/N); <1,5 kV (L/PE); < 1,5 kV (N / PE)	
Power loss at winding temp. 20°C		<0,1 W	
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)	
Recommended backup fuse		16 A	
Failure signalisation		light on - ok / light off - failure	pushed in - ok / pushed out - failure
Lifetime		min. 100 000 h	
Weight		140 g	250 g
Article number		**77 30 105**	**77 30 106**

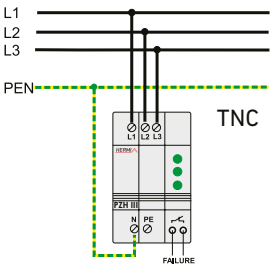


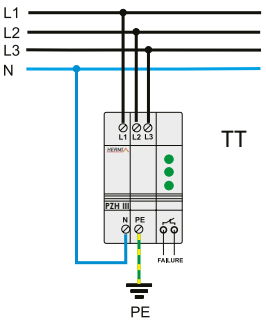
Basic circuit diagram of
PZH III V 3+1/275/5 S,
PZH III V 3+1/480/5 S



Basic circuit diagram of
PZH III V 3+1/275/5,
PZH III V 3+1/480/5,
PZH III V 3+1/600/5







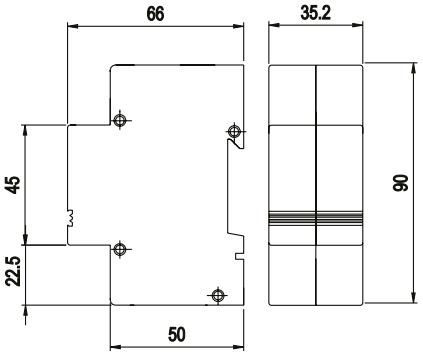
Recommended connection of
PZH III V 3+1/275/5,
PZH III V 3+1/480/5,
PZH III V 3+1/600/5

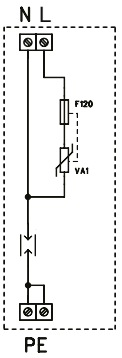
Surge arrester TYPE 3

TYPE 3

VARISTOR

TYPE 3 / CLASS III / TN-S / TN-C / CE

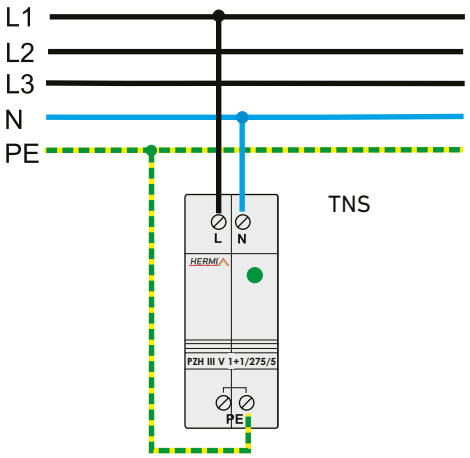


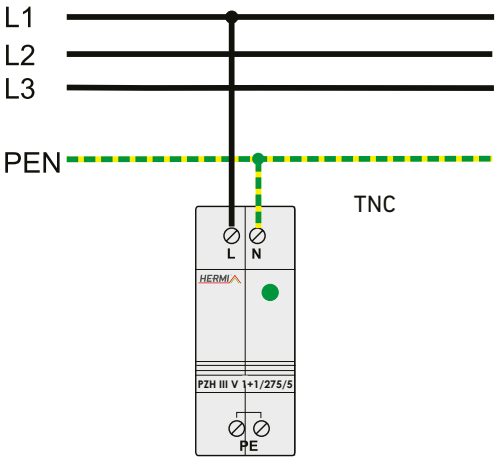


PZH III V 1+1/275/5

PZH III V 1+1/275/5 is a single-phase surge arrester type 3 according to EN 61643-11 suitable for TNS and TNC systems. It is designed for universal application for protection of all electrical appliances connected to L.V. supply system against impulse surge effects. It is possible to supply this arrester for different nominal voltage (different from 230V/50Hz) on a special demand. The func tion failure of varistor is indicated by target disconnection of mechanical thermal fuse which react to varistor overheating above c. 120°C.

TYPE		**PZH III V 1+1/275/5**
Nominal voltage	U_N	230 V AC
Max. continuous operating voltage	U_C	275 V AC
Nominal discharge current I_n(8/20)	I_n	3 kA (L/N, L/PE); 5 kA(N/PE)
Combined impulse	U_{OC}	6 kV (L/N, L/PE); 10 kV (N/PE)
Voltage protection level at U_{OC}	U_P	<1 kV (L/N); <1,2 kV (L/PE); < 1,2 kV (N / PE)
Power loss at winding temp. 20°C		<0,5 W
Response time	t_A	< 25 ns (L/N); < 100 ns (L/PE, N/PE)
Recommended backup fuse		16 A
Temporary overvoltage (TOV)	U_T	335V/5 s (L/N); 1200+U_0/200 ms (L/PE)
Failure signalisation		pushed in - ok / pushed out - failure
Lifetime		min. 100 000 h
Weight		100 g
Article number		**77 32 030**





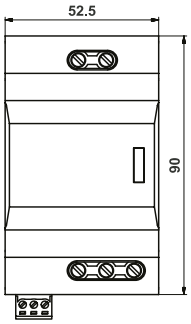
Recommended connection of PZH III V 1+1/275/5

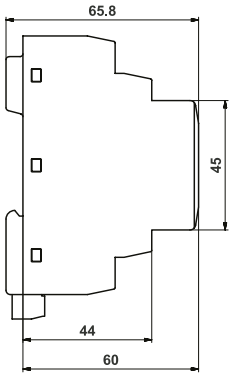
Surge arrester TYPE 3

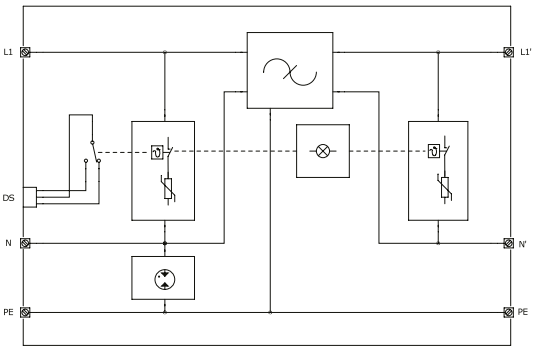
TYPE 3

VARISTOR + GAS DISCHARGE TUBE

TYPE 3 / CLASS III / DC / CE







PZH R3 HSAD16/*VDC, PZH R3 HSAD16/*VDC S

PZH R3 HSAD16/*VDC is a surge arrester designed for DC power supply systems. PZH R3 HSAD16/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the PZH R3 HSAD16/*VDC. Activation of the thermal fuse is signalled by an integral indicator light with the option to utilize its switching contact for remote fault signalling (S). The PZH R3 HSAD16/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. PZH R3 HSAD16/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the PZH R3 HSAD16/*VDC as close to the device to be protected as possible (no further than 5 m). There must be HERMI's lightning and surge arrester T1 and T2 installed before the PZH HSAD16/*VDC.

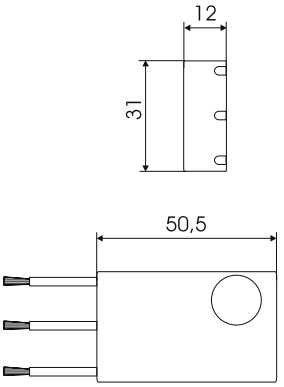
TYPE		PZH R3 HSAD 16/6VDC	PZH R3 HSAD 16/12VDC	PZH R3 HSAD 16/24VDC	PZH R3 HSAD 16/48VDC	PZH R3 HSAD 16/60VDC	PZH R3 HSAD 16/120VDC	PZH R3 HSAD 16/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYP 3, CLASS III						
System		DC						
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n	2 kA					3 kA	
Rated load current	I_L	16 A						
Combined impulse	U_{OC}	4 kV					6 kV	
Voltage protection level at U_{OC} (+/-)	U_P	< 200 V	< 200 V	< 250 V	< 300 V	< 350 V	< 500 V	< 800 V
Voltage protection level at U_{OC} (+-/PE)	I_n	< 600 V					< 800 V	< 1500 V
Response time	t_A	< 25 ns (+/-); < 100 ns (+-/PE)						
Back-up fuse		16 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		2,5 - 4 mm² Cu						
The mounting method / operating position		DIN rail 35 mm / any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A						
Lifetime		min. 100 000 h						
Weight		95 g						
Article number		**77 30 250 77 30 283 (S)**	**77 30 251 77 30 284 (S)**	**77 30 252 77 30 285 (S)**	**77 30 253 77 30 286 (S)**	**77 30 254, 77 30 287 (S)**	**77 30 255, 77 30 288 (S)**	**771 30 256, 77 30 289 (S)**

Surge arrester TYPE 3

TYPE 3

VARISTOR

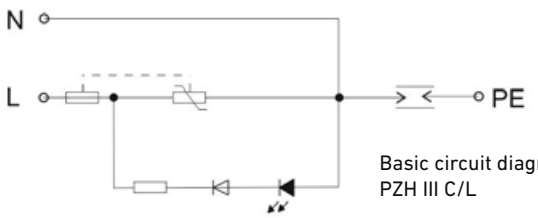
TYPE 3 / CLASS III / TN-S / CE



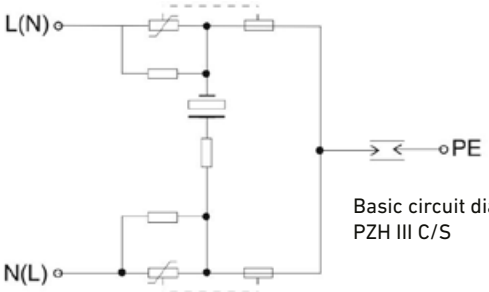
PZH III C/L, PZH III C/S

PZH III C/S, PZH III C/L are surge arresters type 3 according to EN 61643-11 and IEC 61643-1 designed for installation into electrical installation systems, e.g.: cable ducts and flush-mounted sockets as an additional protection. These devices are suitable supplements of socket distribution which are protected by PZH protector. The right function of PZH III C/L type is indicated by green LED diode. When the indicator is off, the device must be replaced or technically checked. PZH III C/S contains an acoustic fault indicator (buzzer).

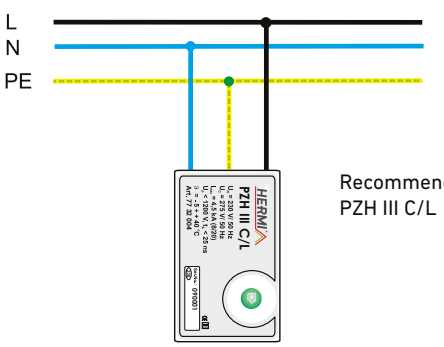
TYPE		PZH III C/L	PZH III C/S
Nominal voltage	U_N	230 V AC	
Max. continuous operating voltage	U_C	275 V AC	
Nominal discharge current I_n(8/20)	I_n	3 kA (L/N, L/PE) 5 kA (L/PE)	
Combined impulse	U_{OC}	6 kV (L/N, L/PE) 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_P	< 1 kV (L/N); < 1,2 kV (L/PE); < 1,2 kV (N/PE)	< 1,3 kV (L/N); < 1 kV (L/PE); < 1 kV (N/PE)
Power loss at winding temp. 20°C		<0,5 W	
Response time	t_A	<25 ns (L/N); < 100 ns(L/PE, N/PE)	
Recommended backup fuse		16 A	
Temporary overvoltage (TOV)	U_T	335V /5 S (L/N); 12000V +UO/200 ms(L/PE)	
Failure signalisation		light on - ok / light off - failure	inbuilt siren
Lifetime		min. 100 000 h	
Weight		20 g	30 g
Article number		**77 32 004**	**77 32 006**



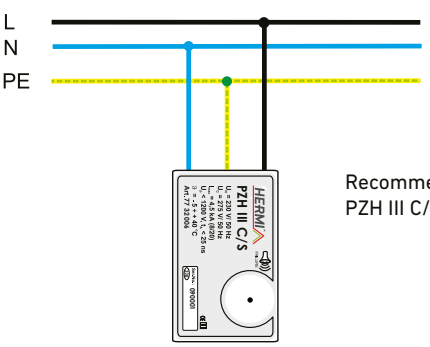
Basic circuit diagram of PZH III C/L



Basic circuit diagram of PZH III C/S



Recommended connection of PZH III C/L



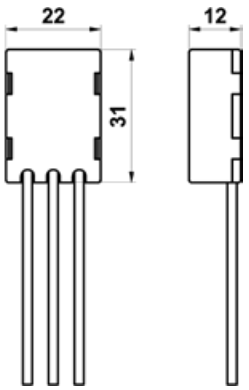
Recommended connection of PZH III C/S

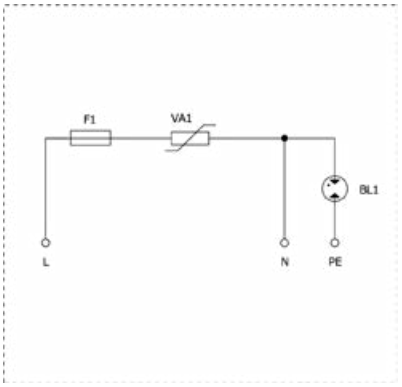
Surge arrester TYPE 3

TYPE 3

VARISTOR

TYPE 3 / CLASS III / TN-S / CE



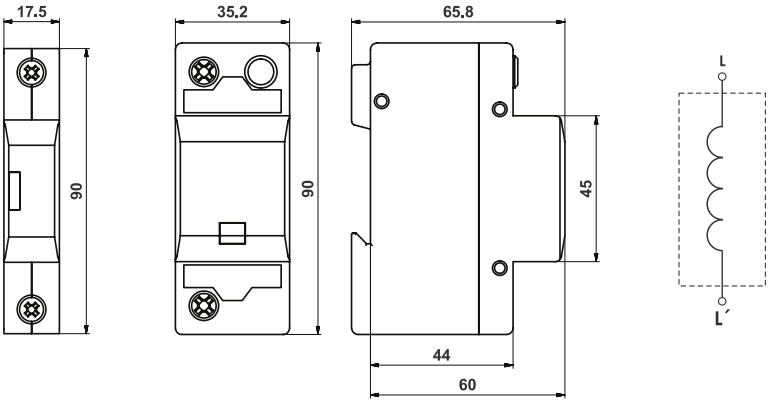


PZH R3 HSAA-1G

PZH R3 HSAA-1G - surge arrester Type 3 according to IEC 61643-11: 2011 and EN 61643-11: 2012 intended for LED luminaires used primarily for tunnel lighting, building lighting and street lighting as an additional protection. The method of connection in given applications is by cable inlets. The position of the applied HERMI SPD can be horizontal, vertical, rotated by 90 and 180 degrees and this function does not affect SPD function or specified parameters. Type 3 protects the device only up to 5 m of electric line.

TYPE		**PZH R3 HSAA-1G**
Test class according to IEC EN 61643-11		TYPE 3, CLASS III
Nominal voltage	U_N	230 V AC
Max. continuous operating voltage	U_C	275 V AC
Nominal discharge current I_n(8/20)	I_n	5 kA (L/N), L(N)/PE)
Combined impulse	U_{OC}	10 kV (L/N, L(N)/PE)
Voltage protection level at U_{OC}	U_P	< 1,2 kV (L/N); < 1,5 kV (L(N)/PE)
Response time	t_A	<25 ns (L/N); < 100 ns(L/PE, N/PE)
Back-up fuse		16 A
Temporary overvoltage (TOV)	U_T	337V / 5 s (L/N)
LPZ		2-3
Housing material		Polyamid PA6, UL 94 V-0
Protection type		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Lifetime		min. 100 000 h
Weight		15 g
Article number		**77 32 009**

Decoupling inductors

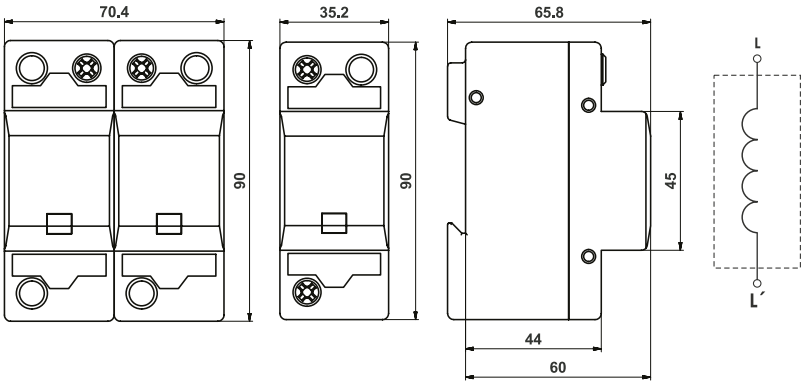


PZH L16, PZH L16/15, PZH L32, PZH L32/15

Decoupling inductors are intended for rated load currents within the range of 16 and 32A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC 1024-1 and IEC EN 61643-11, especially in the places where there is no adequate distance between the arresters (e.g. when there are two successive arrester types placed in one switchboard). If the energy coordination of surge protection is not achieved, the lightning current impulse can damage some arrester type of the protection cascade. If there is at least 5m distance between two successive arrester types (in case of two successive arrester types in two different switchboards), this section impedance can be considered as adequate.

TYPE		PZH L16	PZH L16/15	PZH L32	PZH L32/15
Nominal voltage	U_N	500 V AC			
Rated load current	I_L	16 A		32 A	
Inductance	L	6 µ H ± 10%	15 µH ± 10%	6 µ H ± 10%	15 µ H ± 10%
DC resistance		< 0,01 Ω			
Housing material		Polyamid PA6, UL 94 V-0			
Protection type		IP20			
Operating temperature range	J	-40 °C ... +70 °C			
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		6 mm²		10 mm²	
Max. back-up fuse		16 A		32 A	
Lifetime		min. 100 000 h			
Weight		141 g	157 g	157 g	330 g
Article number		**77 30 400**	**77 30 401**	**77 30 402**	**77 30 403**

Decoupling inductors

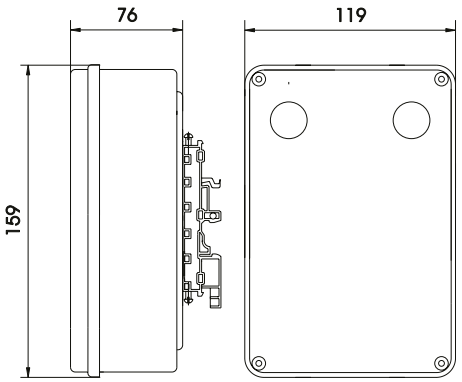


PZH L63, PZH L63/15, PZH L80

Decoupling inductors are intended for rated load currents within the range of 63 and 80A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC 1024-1 and IEC EN 61643-11, especially in the places where there is no adequate distance between the arresters (e.g. when there are two successive arrester types placed in one switchboard). If the energy coordination of surge protection is not achieved, the lightning current impulse can damage some arrester type of the protection cascade. If there is at least 5m distance between two successive arrester types (in case of two successive arrester types in two different switchboards), this section impedance can be considered as adequate.

TYPE		PZH L63	PZH L63/15	PZH L80
Nominal voltage	U_N	500 V AC		
Rated load current	I_L	63 A		80 A
Inductance	L	6 µH ± 10%	15 µ H ± 10%	4 µ H ± 10%
DC resistance		< 0,01 Ω		
Housing material		Polyamid PA6, UL 94 V-0		
Protection type		IP20		
Operating temperature range	J	-40 °C ... +70 °C		
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		16 mm²		25 mm²
Max. back-up fuse		63 A		80 A
Lifetime		min. 100 000 h		
Weight		360 g	630 g	360 g
Article number		**77 30 404**	**77 30 405**	**77 30 406**

Decoupling inductors



PZH L120

Decoupling inductors are intended for rated load current of 120A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC 1024-1 and IEC EN 61643-11, especially in the places where there is no adequate distance between the arresters (e.g. when there are two successive arrester types placed in one switchboard). If the energy coordination of surge protection is not achieved, the lightning current impulse can damage some arrester type of the protection cascade. If there is at least 5m distance between two successive arrester types (in case of two successive arrester types in two different switchboards), this section impedance can be considered as adequate.

TYPE		**PZH L120**
Nominal voltage	U_N	500 V AC
Nominal current	I_N	120 A
Inductance	L	6 µ H ± 10%
DC resistance		< 0,01 Ω
Housing material		Polyamid PA6, UL 94 V-0
Protection type		IP20
Operating temperature range	J	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm^2
Max. back-up fuse		120 A
Lifetime		min. 100 000 h
Weight		1153 g
Article number		**77 30 120**

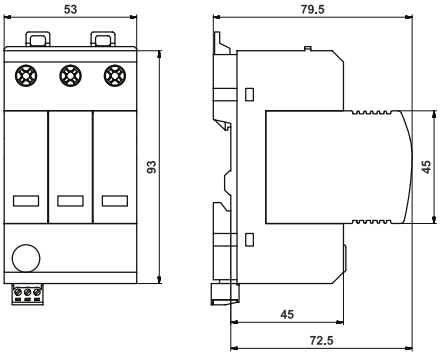
PROTECTION OF PHOTOVOLTAIC SYSTEMS

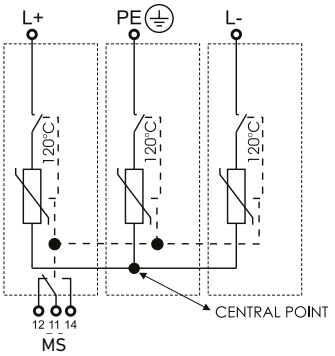
Lightning and surge arrester TYPE 1 + 2

TYPE 1+2

VARISTOR

TYPE 1 + 2 / CLASS I + II / CE





PZH R1 PV/600/7 M, PZH R1 PV/600/7 MS

PZH R1 PV is a lightning and surge arrester type 1+2 according to EN 61643-11 and IEC 61643-11 and UTE C 61-740-51. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0-2 (according to IEC EN 62305) for equipotential bonding of positive and negative busbars of photovoltaic systems and elimination of transient overvoltage that originates during the atmospheric discharges or switching processes. Particular varistor sectors, connected between the terminals L+, L- and PE, are equipped with internal disconnectors, which are activated when the varistors fail (overheat). Operational status indication of these disconnectors is partly visual (discoloration of the signal field) and partly remote monitoring (by potential free change over contacts – only MS types).
The marking **M** specifies a type of construction with removable module.

TYPE		**PZH R1 PV/600/7 M, PZH R1 PV/600/7 MS**
Test class according to IEC EN 61643-11 and EN 50539-11		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_{cpv}	600 V DC
Open circuit voltage of PV generator	U_{OCSTC}	$U_{OCSTC} < U_{CPV}/1,2 = 500$ V
Short circuit withstand	I_{SCPV}	100 A
Lightning impulse current (10/350)	I_{imp}	7 kA
- charge	Q	3,5 As
- specific energy	W/R	12 kJ/Ω
Application		L+/L-, L+/PE, L-/PE
Max. discharge current (8/20)	I_{max}	40 kA
Nominal discharge current (8/20)	I_n	20 kA
Voltage protection level at I_n	U_P	< 2,6 kV
Response time	t_A	< 25 ns
LPZ		0-2
Housing material		Polyamid PA6, UL94 V-0
Protection type		IP20
Operating temperature range	J	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid)
		16 mm² (wire)
Mounting on		DIN rail 35 mm
Failure signalisation		green - ok / red - failure
Potential free signal contact (MS) (recommended cross-section of remote monitoring max.1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Weight		300 g
Lifetime		min.100 000 h
Article number		**77 16 070 (M), 77 16 071 (MS)**

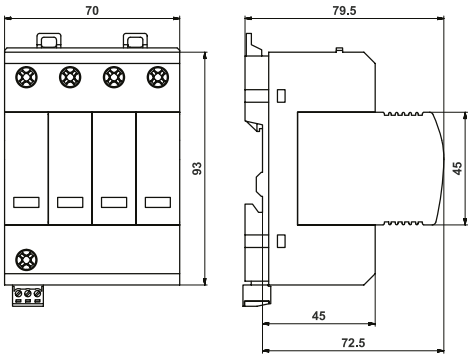
VARISTOR-BASED SPARE MODULE		**PZH R1 PV/600/7 MODULE**
Article number		**77 16 072**

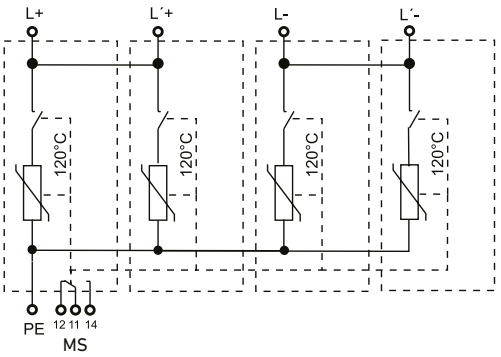
Lightning and surge arrester TYPE 1 + 2

TYPE 1+2

VARISTOR

TYPE 1 + 2 / CLASS I + II / CE





PZH R1 PV/800/7 M, PZH R1 PV/1000/7 M, PZH R1 PV/800/7 MS, PZH R1 PV/1000/7 MS

PZH R1 PV are the lightning and surge arresters type 1+2 according to EN 61643-11 and IEC 61643-11 and UTE C 61-740-51. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0-2 (according to IEC EN 62305) for equipotential bonding of positive and negative busbars of photovoltaic systems and elimination of transient overvoltage that originates during the atmospheric discharges or switching processes. Particular varistor sectors, connected between the terminals L+, L- and PE, are equipped with internal disconnectors, which are activated when the varistors fail (overheat). Operational status indication of these disconnectors is partly visual (discoloration of the signal field) and partly remote monitoring (by potential free change over contacts – only MS types).
The marking **M** specifies a type of construction with removable module.

TYPE		PZH R1 PV/800/7 M, PZH R1 PV/800/7 MS	PZH R1 PV/1000/7 M, PZH R1 PV/1000/7 MS
Test class according to IEC EN 61643-11 and EN 50539-11		TYPE 1+2, CLASS I+II	
Max. continuous operating voltage	U_{cpv}	800 V DC	1050 V DC
Open circuit voltage of PV generator	U_{OCSTC}	$U_{OCSTC} < U_{CPV}/1,2 = 730$ V	$U_{OCSTC} < U_{CPV}/1,2 = 875$ V
Short circuit withstand	I_{SCPV}	100 A	
Lightning impulse current (10/350)	I_{imp}	6,5 kA	
- charge	Q	3,25 As	
- specific energy	W/R	10 kJ/Ω	
Application		L+/L-, L+/PE, L-/PE	L+/L-, L+/PE, L-/PE
Max. discharge current (8/20)	I_{max}	40 kA	
Nominal discharge current (8/20)	I_n	15 kA	
Voltage protection level at I_n (L+/L-)	U_P	< 3,3 kV	< 3,8 kV
Voltage protection level at I_n (L/PE)	U_P	< 1,65 kV	< 1,9 kV
Response time	t_A	< 25 ns	
LPZ		0-2	
Housing material		Polyamid PA6, UL94 V-0	
Protection type		IP20	
Operating temperature range	ϑ	-40°C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid)	
		16 mm² (wire)	
Mounting on		DIN rail 35 mm	
Failure signalisation		green - ok / red - failure	
Potential free signal contact (MS) (recommended cross-section of remote monitoring max.1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Weight		390 g	400 g
Lifetime		min. 100 000 h	
Article number		**77 16 073 (M), 77 16 074 (MS)**	**77 16 076 (M), 77 16 077 (MS)**

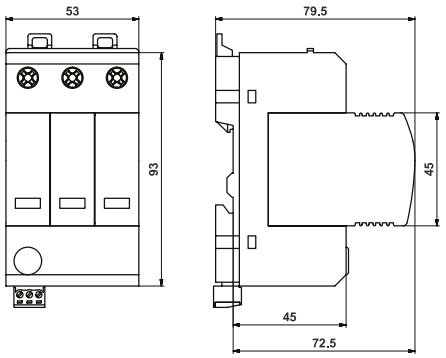
VARISTOR-BASED SPARE MODULE		PZH R1 PV/800/7 MODULE	PZH R1 PV/1000/7 MODULE
Article number		**77 16 075**	**77 16 078**

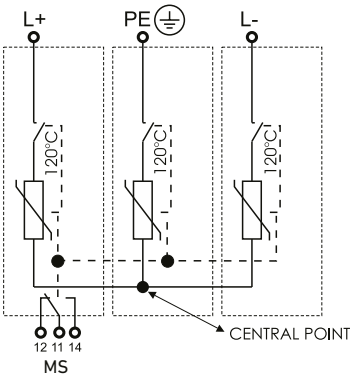
Surge arrester TYPE 2

TYPE 2

VARISTOR

TYPE 2 / CLASS II / CE





PZH R2 PV/600/40 M, PZH R2 PV/800/40 M, PZH R2 PV/1000/40 M, PZH R2 PV/600/40 MS, PZH R2 PV/800/40 MS, PZH R2 PV/1000/40 MS

PIIIM PV are the lightning and surge arresters type 2 according to EN 61643-11 and IEC 61643-11 and UTE C 61-740-51. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 (according to IEC EN 62305) for equipotential bonding of positive and negative busbars of photovoltaic systems and elimination of transient overvoltage that originates during the atmospheric discharges or switching processes. Particular varistor sectors, connected between the terminals L+, L- and PE, are equipped with internal disconnectors, which are activated when the varistors fail (overheat). Operational status indication of these disconnectors is partly visual (discoloration of the signal field) and partly remote monitoring (by potential free change over contacts – only MS types).
The marking **M** specifies a type of construction with removable module.

TYPE		PZH R2 PV/600/40 M, PZH R2 PV/600/40 MS	PZH R2 PV/800/40 M, PZH R2 PV/800/40 MS	PZH R2 PV/1000/40 M, PZH R2 PV/1000/40 MS
Test class according to IEC EN 61643-11 and EN 50539-11		TYPE 2, CLASS II		
Max. continuous operating voltage	U_{cpv}	600 V DC	870 V DC	1050 V DC
Open circuit voltage of PV generator	U_{OCSTC}	$U_{OCSTC} < U_{CPV}/1,2 = 500$ V	$U_{OCSTC} < U_{CPV}/1,2 = 730$ V	$U_{OCSTC} < U_{CPV}/1,2 = 875$ V
Short circuit withstand	I_{SCPV}	100 A		
Application		L+/L-, L+/PE, L-/PE		
Max. discharge current (8/20)	I_{max}	40 kA		
Nominal discharge current (8/20)	I_n	20 kA	15 kA	
Voltage protection level at I_n	U_P	< 2,6 kV	< 3,3 kV	< 3,8 kV
Response time	t_A	< 25 ns		
LPZ		1-2		
Housing material		Polyamid PA6, UL94 V-0		
Protection type		IP20		
Operating temperature range	ϑ	-40°C ... +70 °C		
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid)		
		16 mm² (wire)		
Mounting on		DIN rail 35 mm		
Failure signalisation		green - ok / red - failure		
Potential free signal contact (MS) (recommended cross-section of remote monitoring max.1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A		
Weight		270 g		420 g
Lifetime		min.100 000 h		
Article number		**77 27 060 (M), 77 27 061 (MS)**	**77 27 056 (M), 77 27 059 (MS)**	**77 27 054 (M), 77 27 058 (MS)**

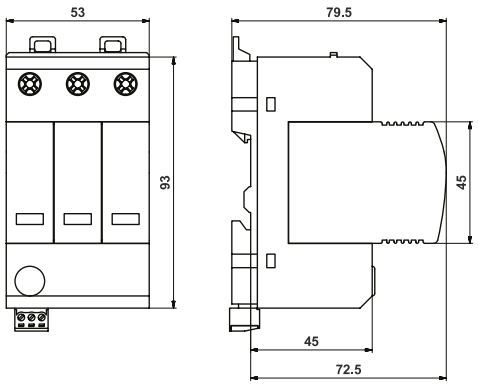
VARISTOR-BASED SPARE MODULE		PZH R2 PV/600/40 MODULE	PZH R2 PV/800/40 MODULE	PZH R2 PV/1000/40 MODULE
Article number		**77 27 062**	**77 27 068**	**77 27 055**

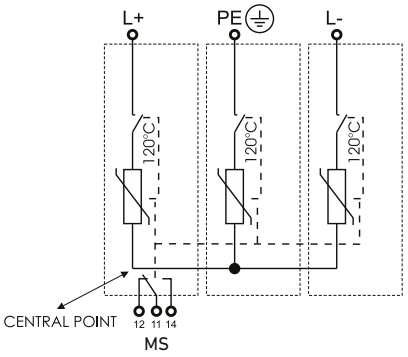
Surge arrester TYPE 2

TYPE 2

VARISTOR

TYPE 2 / CLASS II / CE





PZH R2 PV/200/40 M, PZH R2 PV/200/40 MS

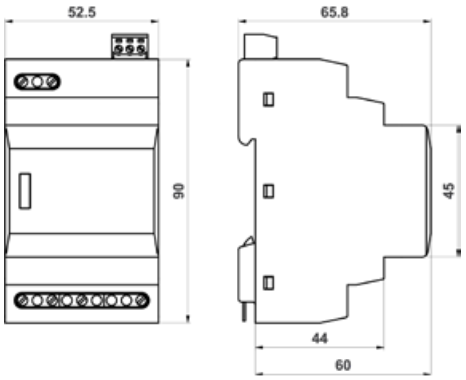
PIIIM PV are the lightning and surge arresters type 2 according to IEC EN 61643-11 and EN 50539-11. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 (according to IEC EN 62305) for equipotential bonding of positive and negative busbars of photovoltaic systems and elimination of transient overvoltage that originates during the atmospheric discharges or switching processes. Particular varistor sectors, are equipped with internal disconnectors, which are activated when the varistors fail (overheat). Operational status indication of these disconnectors is partly visual (discoloration of the signal field) and partly remote monitoring (by potential free change over contacts – only MS types). The marking **M** specifies a type of construction with removable module.

TYPE		**PZH R2 PV/200/40 M, PZH R2 PV/200/40 MS**
Test class according to IEC EN 61643-11 and EN 50539-11		TYPE 2, CLASS II
Max. continuous operating voltage	U_{cpv}	200 V DC
Open circuit voltage of PV generator	U_{OCSTC}	$U_{OCSTC} < U_{CPV}/1,2 = 167$ V DC
Short circuit withstand	I_{SCWPV}	100 A
Application		L+/L-, L+/PE, L-/PE
Max. discharge current (8/20)	I_{max}	40 kA
Nominal discharge current (8/20)	I_n	20 kA
Voltage protection level at I_n	U_P	< 800 V
Response time	t_A	< 25 ns
LPZ		1-2
Housing material		Polyamid PA6, UL94 V-0
Protection type		IP20
Operating temperature range	J	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid)
		16 mm² (wire)
Mounting on		DIN rail 35 mm
Failure signalisation		green - ok / red - failure
Potential free signal contact (MS) (recommended cross-section of remote monitoring max.1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Weight		190 g
Lifetime		min.100 000 h
Article number		**77 27 071 (M), 77 27 073 (MS)**

VARISTOR-BASED SPARE MODULE	**PZH R2 PV/200/40 MODULE**
Article number	**77 27 065**

Voltage and Frequency Protector

AC / IP20 / CE



PZH HUF 003

This voltage & frequency protector is recommended for use in AC parts of photovoltaic systems or other types of AC electrical installations. After connecting the PZH HUF to the monitored system and after the initialization of its internal electronics, the in-built switching contact for external contactor control closes. Subsequently, there is a continuous monitoring of two basic variables connected to the AC power supply system (specifically, voltage and frequency) and in case of deviation from the preset values, this contact opens and consequently the external contactor is dropped. In this way, it is possible to immediately disconnect all protected devices from the monitored AC network.

PZH HUF 003 is suitable for use in three-phase or in one-phase applications since reconfiguration of measuring mode is made automatically by in-built microprocessor. The basic working limits of overvoltage / undervoltage / frequency and basic response time are set by producer. Alternative changes to these limits at the customer may only be performed by an authorized person (service technician) after connecting to the PC.

TYPE		**PZH HUF 003**
Supply voltage	U_N	3x400/230 V/50 Hz (three-phase mode) or 230 V/50 Hz (single-phase mode)
Supply voltage fluctuation range		± 20 %
Power consumption	P	< 0,5 VA
Basic setting of working parameters by manufacturer*		Voltage ~ 230 V ± 10 % Frequency 50 Hz ± 1 % Response time 0,1 s Time of re-attaching 20 min.
Possible range of working parameters adjustment		Voltage ~ 184 ÷ 275 V Frequency 45 ÷ 55 Hz Response time 0,1 ÷ 2 s Time of re-attaching 10 s ÷ 20 min.
Output		Switching contact ~ 250V/1A for control of external contactor
Measuring accuracy		< 1 %
Possibility changes of working parameters		By delivered software PZH HUF MONITOR and TTL port
Operating temperature range	J	- 10 ... + 55 °C
Mounting on		DIN rail 35 mm
Housing		IP20
Weight	m	145 g
Article number		**77 70 408**

* Note: further settings are possible on the basis of specification, according to the connection conditions of the electricity distributor

Communication HUF → PC

PZH HUF 003 is equipped with series interface TxD and RxD. Therefore it is necessary for communication with PC to use a USB → TTL convertor, with galvanic isolation. The supplied PZH HUF MONITOR software application (operating under Windows) will find the correct serial port when it is started and gives the user the following options:

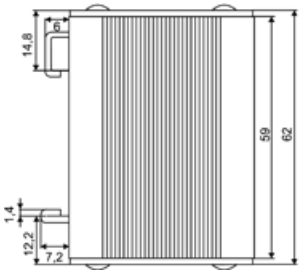
- to observe actual voltage values at all line wires of connected phases
- to observe actual frequency of connected AC network

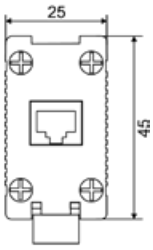
The necessary communication converter to the PC can also be the subject of delivery based on a special order if the customer specifies the hardware of his PC.

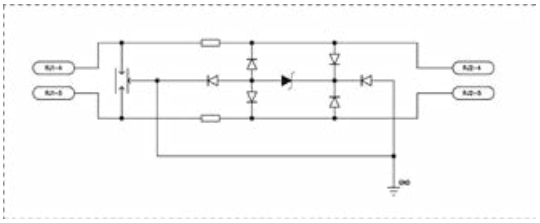
SURGE PROTECTION DEVICES FOR IT SYSTEMS

IT Systems

LPZ 1-2 / IP20 / CE







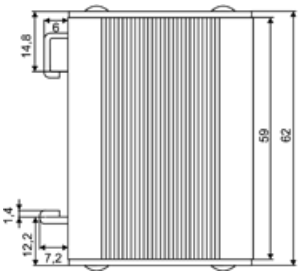
PZH HT-VDSL

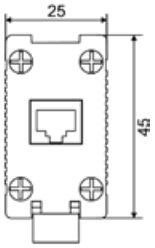
PZH Hermi Transmition-VDSL is designed to protect telecommunication lines, which transmit the VDSL technology. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. I_{max}= 2 kA. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 according to EN 62305.

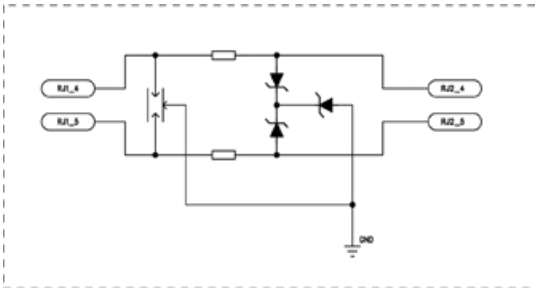
TYPE		**PZH HT-VDSL**
Number of protected pairs		1
Connector type		RJ45
Nominal voltage	U_N	120 V
Max. continuous operating voltage	U_C	144 V
Rated load current	I_L	100 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA
C2 Nominal discharge current (8/20)	I_n	1 kA
C2 Voltage protection level at I_n	U_P	200 V
C3 Voltage protection level at 1kV/µs	U_P	150 V
Response time	t_A	< 30 ns
Data rate		10 MBit/s
Series impedance per line		1,5 - 10 Ω
Parasitic capacitance	C	1,5 nF
LPZ		1-2
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Recommended cable cross-section		0,3 mm²
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 000**

IT Systems

LPZ 1-2-3 / IP20 / CE







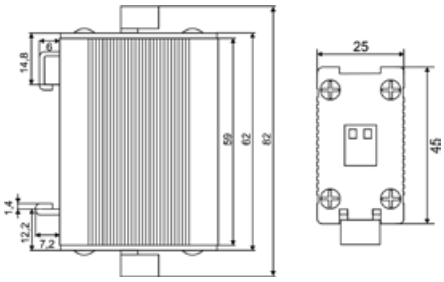
PZH HT-TEL

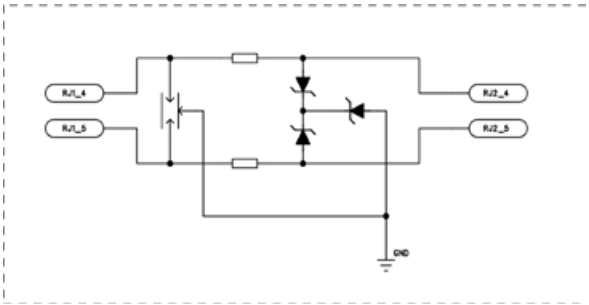
PZH Hermi Transmition-TEL is designed to protect telecommunications equipment. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. I_{max} = 2 kA. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2-3 according to EN 62305.

TYPE		**PZH HT-TEL**
Number of protected pairs		1
Connector type		RJ45
Nominal voltage	U_N	170 V
Max. continuous operating voltage	U_C	204 V
Rated load current	I_L	100 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA
C2 Nominal discharge current (8/20)	I_n	1 kA
C2 Voltage protection level at I_n (8/20)	U_P	500 V
C3 Voltage protection level at 1kV/µs	U_P	290 V
Response time	t_A	< 30 ns
Data rate		1 MBit/s
Series impedance per line		2,2 Ω
Parasitic capacitance	C	1,5 nF
LPZ		3
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 003**

IT Systems

LPZ 1-2 / IP20 / CE





PZH HT-DATA 1/*, PZH HT-NV 1/*/0,5

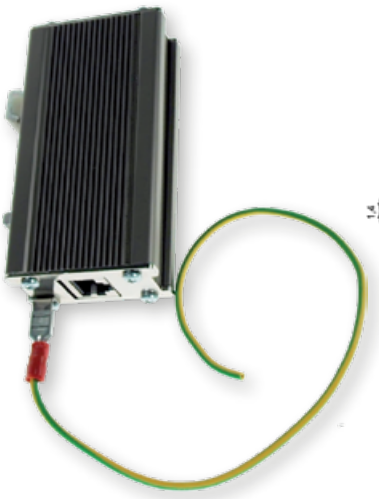
Hermi Transmition - Data is designed to protect transmission of information signals and Hermi Transmition-NV to protect links of power supply lines. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. I_{max}=10kA. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 according to EN 62305.

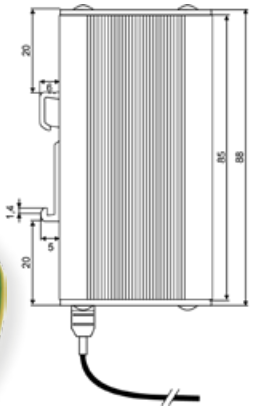
TYPE		PZH HT-DATA 1/6	PZH HT-DATA 1/12	PZH HT-DATA 1/24	PZH HT-DATA 1/48	PZH HT-DATA 1/T
Number of protected pairs				1		
Connector type				Two-pole, screw type, slip-on terminal block DEGSON 2EDGK- 5.08		
Nominal voltage	U_N	6 V	12 V	24 V	48 V	170 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,6 V	57,6 V	204 V
Rated load current	I_L			100 mA		
C2 Max. discharge current (8/20)	I_{max}			10 kA		
C2 Nominal discharge current (8/20)	I_n			1 kA		
C2 Voltage protection level at I_n (8/20)	U_P	15 V	28 V	64 V	160 V	500 V
C3 Voltage protection level at 1kV/µs	U_P	9 V	18 V	34 V	66 V	290 V
Response time	t_A			< 30 ns		
Data rate				1 MBit/s		
Series impedance per line				2,2 Ω		
Parasitic capacitance	C			1,5 nF		
LPZ				1-2		
Protection type				IP20		
Operating temperature range	ϑ			-40°C ÷ + 80°C		
Recommended cable cross-section				0,25 - 1,5 mm²		
Category tested acc. to IEC 61643:21-2000				A2, B2, C2, C3, D1		
Article number		**77 57 005**	**77 57 006**	**77 57 007**	**77 57 008**	**77 57 009**

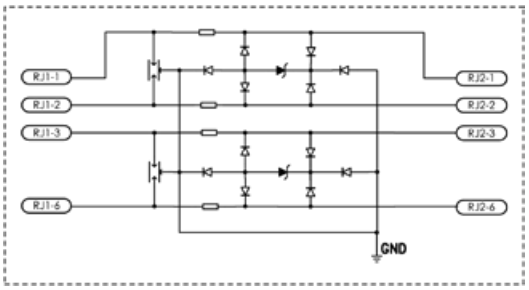
TYPE		PZH HT-NV 1/6/0,5	PZH HT-NV 1/12/0,5	PZH HT-NV 1/24/0,5	PZH HT-NV 1/48/0,5
Number of protected pairs			1		
Connector type			Two-pole, screw type, slip-on terminal block DEGSON 2EDGK- 5.08		
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,6 V	57,6 V
Rated load current	I_L		0,5 A		
D1 Lightning impulse current (10/350)	I_{imp}		5 kA		
D1 Lightning impulse current (10/350) line/PE	I_{imp}		2,5 kA		
C2 Max. discharge current (8/20)	I_{max}		10 kA		
C2 Nominal discharge current (8/20)	I_n		1 kA		
C2 Voltage protection level at I_n (8/20)	U_P	15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs	U_P	9 V	18 V	34 V	66 V
Response time	t_A		< 30 ns		
Data rate			1 MBit/s		
Insert inductance			4,7 µH		
LPZ			1-2		
Protection type			IP20		
Operating temperature range	ϑ		-40°C ÷ + 80°C		
Parasitic capacitance	C		1,5 nF		
Recommended cable cross-section			0,25 - 1,5 mm²		
Category tested acc. to IEC 61643:21-2000			A2, B2, C2, C3, D1		
Article number		**77 57 010**	**77 57 011**	**77 57 012**	**77 57 013**

IT Systems

LPZ 1-2 / IP20 / CE



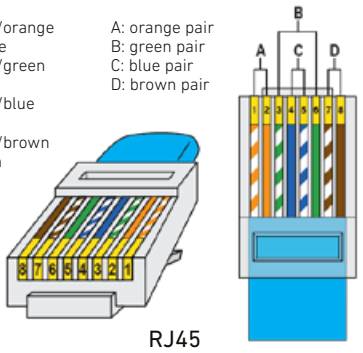




Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

SURGE PROTECTION DEVICES FOR IT SYSTEMS

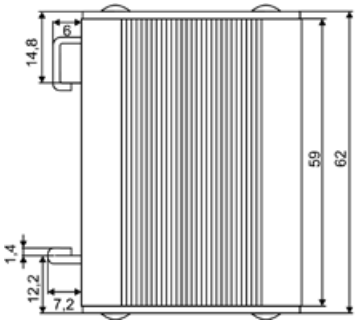
PZH HT-NET 2/100 5cat

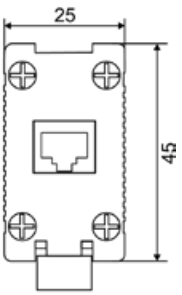
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 5. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

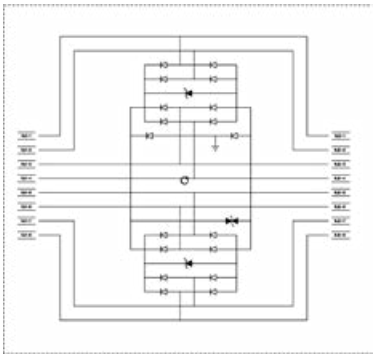
TYPE		PZH HT-NET 2/100 5CAT
Number of protected pairs		2
Connector type input/output		RJ45/RJ45
Nominal voltage	U_N	6 V
Max. continuous operating voltage	U_C	7,2 V
Rated load current	I_L	300 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA
C2 Nominal discharge current (8/20)	I_n	1 kA
C3 Voltage protection level at 1kV/µs	U_p	< 10 V
Data rate		max. 100 Mbit/s
Max. attenuation		< 0,4 dB (at 100 MHz)
Near-end crosstalk		> 40 dB (at 100 MHz)
Return loss		< 14 dB (at 100 MHz)
Series impedance per line		2,2 Ω
Response time	t_A	< 25 ns
Parasitic capacitance	C	<42 pF
LPZ		1-2
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 015**

IT Systems

LPZ 2-3 / IP20 / CE



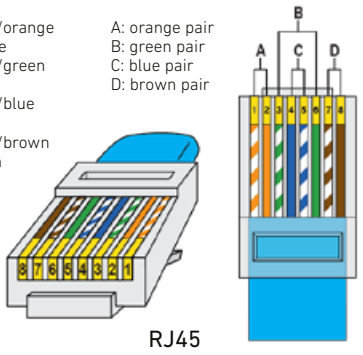




Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

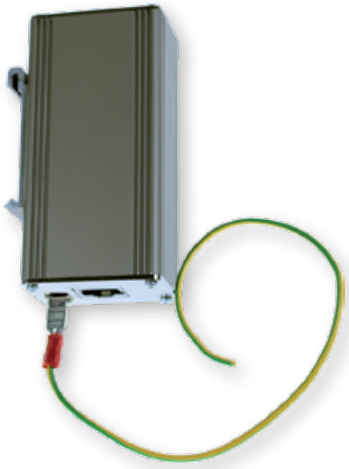
PZH HT-NET 4/100 5cat

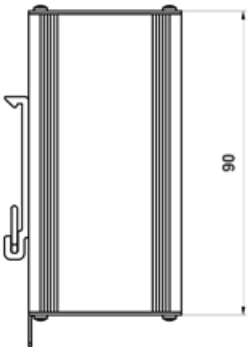
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 5. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 2-3 according to EN 62305.

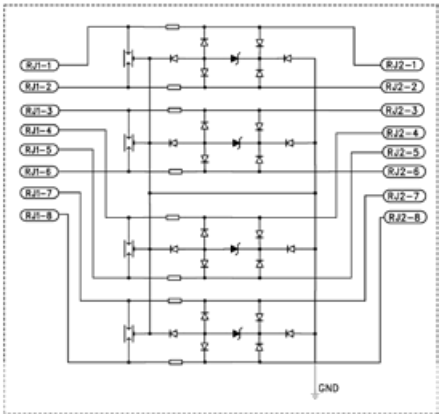
TYPE		PZH HT-NET 4/100 5CAT
Number of protected pairs		4
Connector type		RJ45/RJ45
Nominal voltage	U_N	6 V
Max. continuous operating voltage	U_C	7,2 V
Rated load current	I_L	300 mA
C2 Nominal discharge current (8/20)	I_n	20 A
C3 Voltage protection level at 1kV/µs	U_P	10 V
Response time	t_A	< 25 ns
Data rate		max. 100 MBit/s
Parasitic capacitance	C	47 pF
LPZ		2-3
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 014**

IT Systems

LPZ 1-2 / IP20 / CE



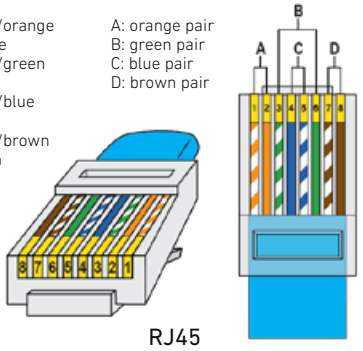




Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

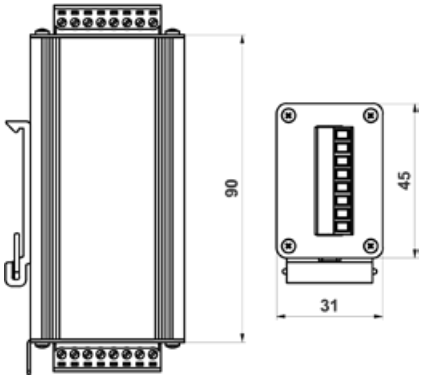
PZH HT-NET 5Ecat/RJ

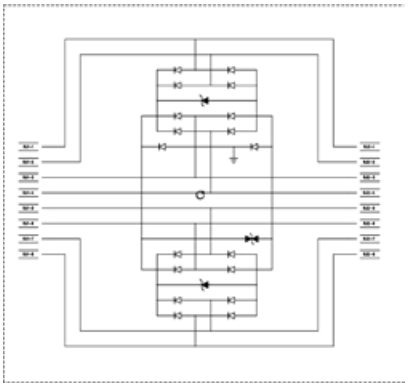
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 5. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

TYPE		PZH HT-NET 5ECAT/RJ
Number of protected pairs		4
Connector type input/output		RJ45/RJ45
Nominal voltage	U_N	48 V
Max. continuous operating voltage	U_C	57,6 V
Rated load current	I_L	300 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA
C2 Nominal discharge current (8/20)	I_n	1 kA
C3 Voltage protection level at 1kV/µs	U_p	< 80 V
Data rate		max. 250 Mbit/s
Series impedance per line		2,2 Ω
Response time	t_A	< 25 ns
Parasitic capacitance	C	< 42 pF
LPZ		1-2
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 017**

IT Systems

LPZ 1-2 / IP20 / CE





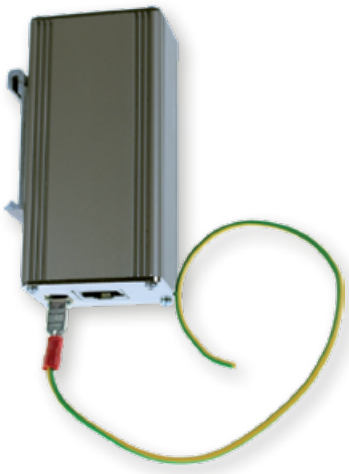
PZH HT-NET 5Ecat/D

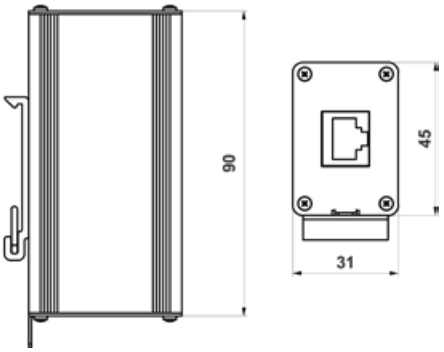
These surge protection devices intended for computer networks are specially designed for protection and faultless data transmission within the 5th category computer networks. They protect the input circuit network cards against damage caused by overvoltage effects within the LPZ concept at the boundaries of LPZ 1-2 according to EN 62305 ed.2. It is recommended to use these protective devices at the input of the protected equipment.
PZH HT-NET 5Ecat/D are available in a version with screw terminals or screwless terminal block.

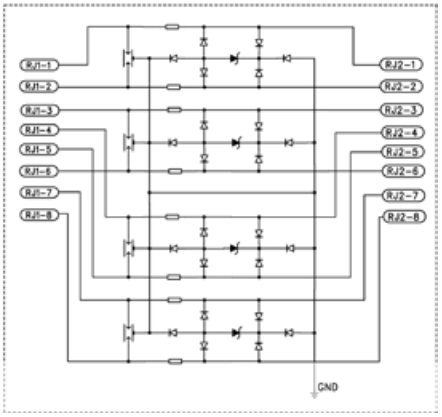
TYPE		**PZH HT-NET 5ECAT/D**
Number of protected pairs		4
Connector type input/output		Screw / screwless terminal (DEGSON)
Nominal voltage	U_N	48 V
Max. continuous operating voltage	U_C	57,6 V
Rated load current	I_L	300 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA
C2 Nominal discharge current (8/20)	I_n	1 A
C3 Voltage protection level at 1kV/µs	U_P	< 80 V
Data rate		max. 250 Mbit/s
Series impedance per line		2,2 Ω
Response time	t_A	< 25 ns
Parasitic capacitance	C	< 42 pF
LPZ		1-2
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 018**

IT Systems

LPZ 1-2-3 / IP20 / CE



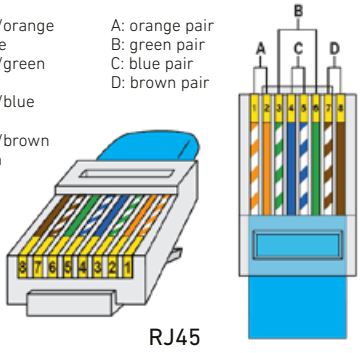




Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

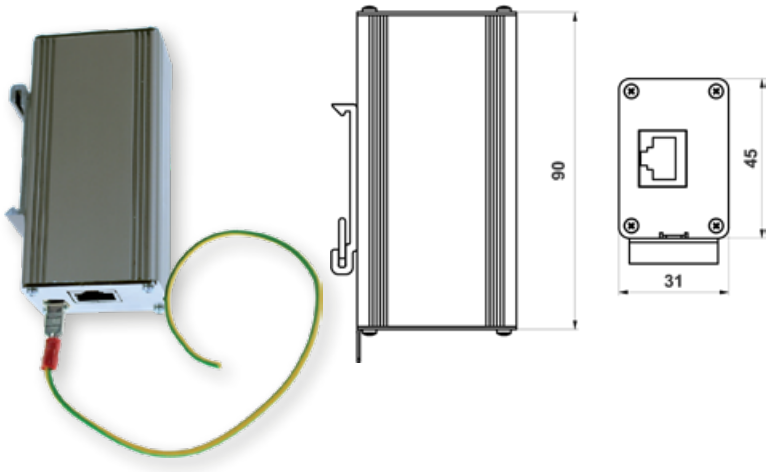
PZH HT-NET PoE 6cat

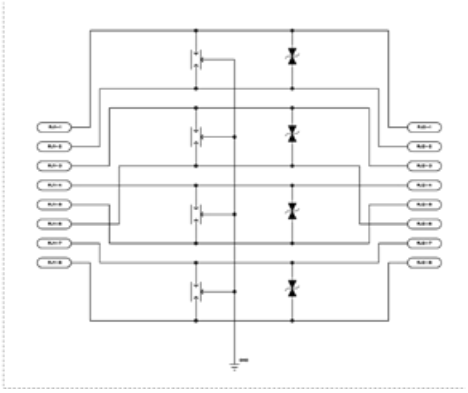
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 6. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2-3 according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

TYPE		PZH HT-NET POE 6CAT
Connector type		RJ45/RJ45
Max. continuous operating voltage(DC)	U_C	58 V
Max. continuous operating voltage(AC)	U_C	41 V
Rated load current	I_L	1 A
C2 Max. discharge current line/PE (8/20)	I_{max}	2 kV/ 1 kA
C1 Nominal discharge current line/line (8/20)	I_n	300 V/ 150 A
C3 Voltage protection level at 1kV/µs	U_P	< 120 V
Voltage protection level line/line	U_P	< 150 V (1,2/50 µs 2kV)
Voltage protection level line/PE	U_P	< 700 V (1,2/50 µs 2kV)
Max. frequency		max. 500 MHz
Protection type		IP20
Operating temperature range	ϑ	-40°C ÷ + 70°C
LPZ		1-2-3
Category tested acc. to IEC 61643:21-2000		C1, C2, C3
Approvals and certifications		Cat. 6A/EA, ISO/IEC 11801
PoE		IEEE 802.3af
Article number		**77 57 101**

IT Systems

LPZ 1-2-3 / IP20 / CE

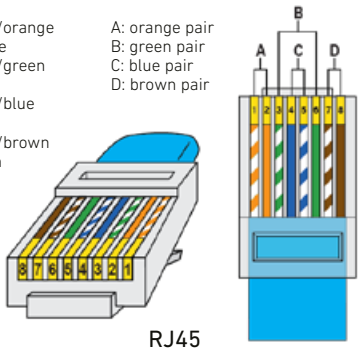




Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

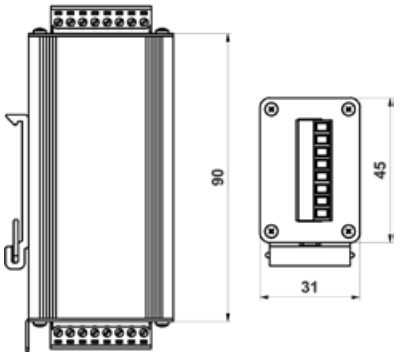
PZH HT-NET PoE+ 6cat 802.3at

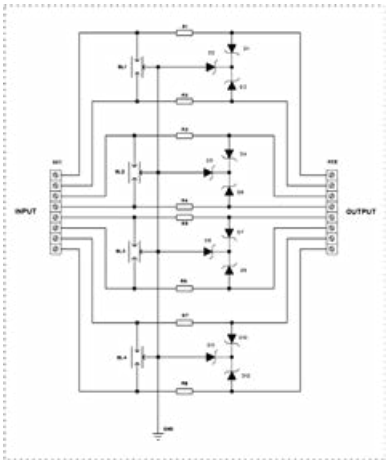
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 6. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2-3 according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

TYPE		PZH HT-NET POE+ 6CAT 802.3AT
Connector type		RJ45/RJ45
Max. continuous operating voltage(DC)	U_C	58 V
Max. continuous operating voltage(AC)	U_C	41 V
Rated load current	I_L	1 A
C2 Max. discharge current line/PE (8/20)	I_{max}	2 kV/ 1 kA
C1 Nominal discharge current line/line (8/20)	I_n	300 V/ 150 A
C3 Voltage protection level at 1kV/µs	U_P	< 120 V
Voltage protection level line/line	U_P	< 150 V (1,2/50 µs 2kV)
Voltage protection level line/PE	U_P	< 700 V (1,2/50 µs 2kV)
Max. frequency		max. 500 MHz
Protection type		IP20
Operating temperature	ϑ	-40°C ÷ + 70°C
LPZ		1-2-3
Tested acc. to IEC 61643:21-2000		C1, C2, C3
Approvals and certifications		Cat. 6A/EA, ISO/IEC 11801
PoE		IEEE 802.3af
Article number		**77 57 102**

IT Systems

LPZ 0-3 / IP20 / CE





PZH HT-D 4/*, PZH HT-NV 4/*/0,5

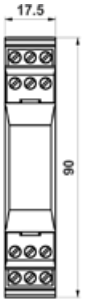
Hermi Transmition is designed to protect transmission of information signals and Hermi Transmition-NV for protection of supply lines. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0-3 according to EN 62305 ed.2

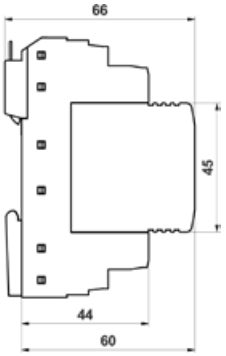
TYPE		PZH HT-D 4/6	PZH HT-D 4/12	PZH HT-D 4/24	PZH HT-D 4/48
Number of protected pairs		4			
Connector type		Eight-pole, screw / screwless type, slip-on terminal block			
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,6 V	57,6 V
Rated load current	I_L	10 0 mA			
C2 Nominal discharge current (8/20)	I_n	1 kA			
C2 Voltage protection level at I_n (8/20)	U_P	15 V	28 V	64 V	160 V
C3 Voltage protection level at 1kV/µs	U_P	9 V	18 V	34 V	66 V
Response time	t_A	< 30 ns			
Data rate		1 MBit/s			
Series impedance per line		2,2 Ω			
Parasitic capacitance	C	1,5 nF			
LPZ		0-3			
Protection type		IP20			
Operating temperature range	ϑ	-40°C ÷ + 70°C			
Recommended cable cross-section		0,25 - 1,5 mm²			
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1			
Article number		**77 35 003**	**77 35 004**	**77 35 005**	**77 35 006**

TYPE		PZH HT-NV 4/6/0,5	PZH HT-NV 4/12/0,5	PZH HT-NV 4/24/0,5	PZH HT-NV 4/48/0,5
Number of protected pairs		4			
Connector type		Eight-pole, screw / screwless type, slip-on terminal block			
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,6 V	57,6 V
Rated load current	I_L	0,5 A			
C2 Nominal discharge current (8/20)	I_n	1 kA			
C2 Voltage protection level at I_n (8/20)	U_P	15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs	U_P	9 V	18 V	34 V	66 V
Response time	t_A	< 30 ns			
Data rate		1 MBit/s			
Insert inductance		4,7 µH			
LPZ		0-3			
Protection type		IP20			
Operating temperature range	ϑ	-40°C ÷ + 70°C			
Parasitic capacitance	C	1,5 nF			
Recommended cable cross-section		0,25 - 1,5 mm²			
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1			
Article number		**77 35 007**	**77 35 008**	**77 35 009**	**77 35 010**

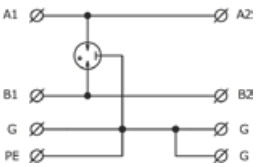
IT Systems

LPZ 1-2-3 / IP20 / CE

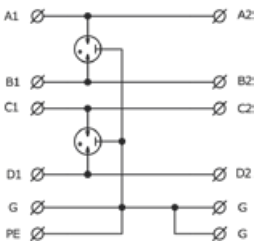




PZH HDT1/A



PZH HDT2/A



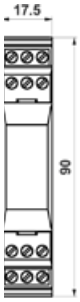
PZH HDT*/A

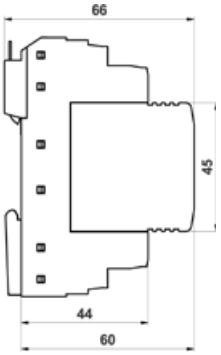
PZH HDT*/A is a range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 5 A.
1st stage is solved by using three-pole gas discharge tubes. The number of protected pairs is optional (1-2). PZH HDT*/A is produced for nominal operating voltage of 48 V.

TYPE / **NUMBER OF PROTECTED PAIRS**	**1**	**PZH HDT1/A**
	2	**PZH HDT2/A**
Nominal voltage	U_N	48 V
Max. continuous operating voltage	U_C	57,6 V
Max. continuous operating voltage	I_L	5 A
C1 Nominal discharge current (8/20 µs)	I_n	1 kA
C1 Voltage protection level at I_n line/PE	U_P	320 V
C1 Voltage protection level at I_n line/line	U_P	240 V
C2 Nominal discharge current (8/20 µs)	I_n	15 kA
C2 Voltage protection level at I_n line/PE	U_P	450 V
C2 Voltage protection level at I_n line/line	U_P	270 V
C3 Voltage protection level at 1kV/µs	U_P	300 V
Response time	t_A	<30 ns
D1 Max. lightning impulse current (10/350 µs)	I_{imp}	5 kA
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}	2,5 kA
Parasitic capacitance	C	1,5 nF
Recommended cable cross-section		0,25 - 1,5 mm²
Tested acc. to EN 61643-21		C1, C2, C3, D1
Article number		**77 56 000 (1), 77 56 001 (2)**

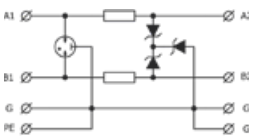
IT Systems

LPZ 1-2-3 / IP20 / CE

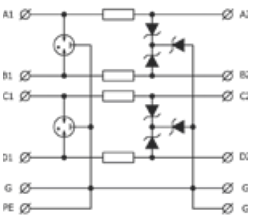




PZH HDT1/B



PZH HDT2/B



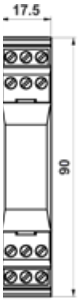
PZH HDT*/*B

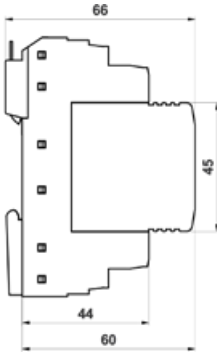
PZH HDT*/*B is a complex range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 0,5 A.
1st stage is solved by using three-pole gas discharge tubes, 2nd stage by using transils. The number of protected pairs is optional (1-2). PZH HDT/*B is produced for nominal operating voltage within the range of 6V - 48 V.

TYPE / **NUMBER OF PROTECTED PAIRS**		**1**	**PZH HDT1/6B**	**PZH HDT1/12B**	**PZH HDT1/24B**	**PZH HDT1/48B**
		2	**PZH HDT2/6B**	**PZH HDT2/12B**	**PZH HDT2/24B**	**PZH HDT2/48B**
Nominal voltage	U_N		6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C		7,2 V	14,4 V	28,8 V	57,6 V
Max. continuous operating voltage	I_L		0,5 A			
C1 Nominal discharge current (8/20 µs)	I_n		1 kA			
C1 Voltage protection level at I_n line/PE	U_P		180 V	250 V	350 V	450 V
C1 Voltage protection level at I_n line/line	U_P		30 V	50 V	65 V	80 V
C2 Nominal discharge current (8/20 µs)	I_n		15 kA			
C2 Voltage protection level at I_n line/PE	U_P		350 V	450 V	550 V	600 V
C2 Voltage protection level at I_n line/line	U_P		40 V	55 V	70 V	120 V
C3 Voltage protection level at 1kV/µs line/PE	U_P		15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs line/line	U_P		10 V	18 V	40 V	70 V
D1 Max. lightning impulse current (10/350 µs)	I_{imp}		5 kA			
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}		2,5 kA			
Response time	t_A		< 30 ns			
Series impedance per line			0,8 Ω			
Parasitic capacitance	C		1,5 nF			
Recommended cable cross-section			0,25 - 1,5 mm²			
Tested acc. to EN 61643-21			C1, C2, C3, D1			
Article number			**77 56 002 (1)** **77 56 006 (2)**	**77 56 003 (1)** **77 56 007 (2)**	**77 56 004 (1)** **77 56 008 (2)**	**77 56 005 (1)** **77 56 009 (2)**

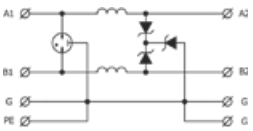
IT Systems

LPZ 1-2-3 / IP20 / CE

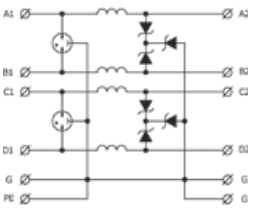




PZH HDTNV1*/B



PZH HDTNV2*/B



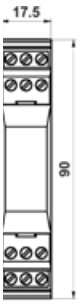
PZH HDTNV*/*B

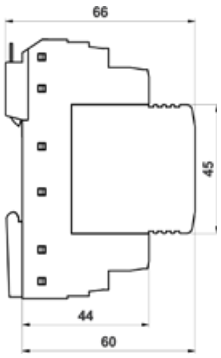
PZH HDTNV*/*B is a complex range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 1,5 A.
1st stage is solved by using three-pole gas discharge tubes, 2nd stage by using transils. The number of protected pairs is optional (1-2). PZH HDTNV*/*B is produced for nominal operating voltage within the range of 6V - 48 V.

TYPE / **NUMBER OF PROTECTED PAIRS**	**1** **2**	**PZH HDTNV1/6B** **PZH HDTNV2/6B**	**PZH HDTNV1/12B** **PZH HDTNV2/12B**	**PZH HDTNV1/24B** **PZH HDTNV2/24B**	**PZH HDTNV1/48B** **PZH HDTNV2/48B**
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,8 V	57,6 V
Max. continuous operating voltage	I_L	1,5 A			
C1 Nominal discharge current (8/20 µs)	I_n	1 kA			
C1 Voltage protection level at I_n line/PE	U_P	180 V	250 V	350 V	450 V
C1 Voltage protection level at I_n line/line	U_P	30 V	50 V	65 V	80 V
C2 Nominal discharge current (8/20 µs)	I_n	15 kA			
C2 Voltage protection level at I_n line/PE	U_P	350 V	450 V	550 V	600 V
C2 Voltage protection level at I_n line/line	U_P	40 V	55 V	70 V	120 V
C3 Voltage protection level at 1kV/µs line/PE	U_P	15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs line/line	U_P	10 V	18 V	40 V	70 V
D1 Max. lightning impulse current (10/350 µs)	I_{imp}	5 kA			
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}	2,5 kA			
Response time	t_A	< 30 ns			
Series impedance per line		2,2 µH			
Parasitic capacitance	C	1,5 nF			
Recommended cable cross-section		0,25 - 1,5 mm²			
Tested acc. to EN 61643-21		C1, C2, C3, D1			
Article number		**77 56 010 (1)** **77 56 014 (2)**	**77 56 011 (1)** **77 56 015 (2)**	**77 56 012 (1)** **77 56 016 (2)**	**77 56 013 (1)** **77 56 017 (2)**

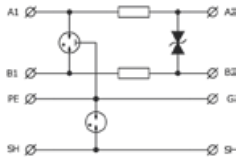
IT Systems

LPZ 1-2-3 / IP20 / CE

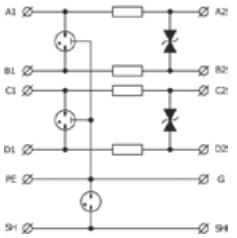




PZH HDT1*/C



PZH HDT2*/C

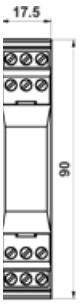


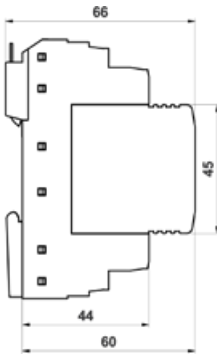
PZH HDT*/*C

PZH HDT*/*C is a complex range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 0,5 A.
1st stage is solved by using three-pole gas discharge tubes, 2nd stage by using transils. The number of protected pairs is optional (1-2). PZH HDT*/*C is produced for nominal operating voltage within the range of 6V - 48 V.

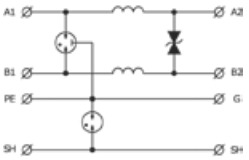
TYPE / **NUMBER OF PROTECTED PAIRS**	**1** **2**	**PZH HDT1/6C** **PZH HDT2/6C**	**PZH HDT1/12C** **PZH HDT2/12C**	**PZH HDT1/24C** **PZH HDT2/24C**	**PZH HDT1/48C** **PZH HDT2/48C**
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,8 V	57,6 V
Max. continuous operating voltage	I_L	0,5 A			
C1 Nominal discharge current (8/20 µs)	I_n	1 kA			
C1 Voltage protection level at I_n line/PE	U_P	180 V	250 V	350 V	500 V
C1 Voltage protection level at I_n line/line	U_P	30 V	50 V	65 V	90 V
C2 Nominal discharge current (8/20 µs)	I_n	15 kA			
C2 Voltage protection level at I_n line/PE	U_P	350 V	450 V	550 V	600 V
C2 Voltage protection level at I_n line/line	U_P	40 V	55 V	70 V	120 V
C3 Voltage protection level at 1kV/µs line/PE	U_P	15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs line/line	U_P	10 V	18 V	40 V	70 V
D1 Max. lightning impulse current (10/350 µs)	I_{imp}	5 kA			
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}	2,5 kA			
Response time	t_A	< 30 ns			
Series impedance per line		2,2 Ω			
Parasitic capacitance	C	1,5 nF			
Recommended cable cross-section		0,25 - 1,5 mm²			
Tested acc. to EN 61643-21		C1, C2, C3, D1			
Article number		**77 56 018 (1)** **77 56 022 (2)**	**77 56 019 (1)** **77 56 023 (2)**	**77 56 020 (1)** **77 56 024 (2)**	**77 56 021 (1)** **77 56 025 (2)**

IT Systems

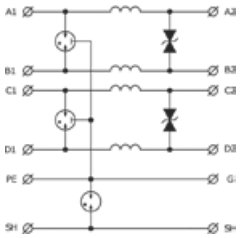




PZH HDTNV1*/C



PZH HDTNV2*/C



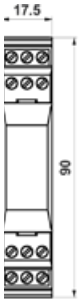
PZH HDTNV*/*C

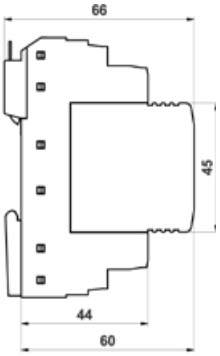
PZH HDTNV*/*C is a complex range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 1,5 A.
1st stage is solved by using three-pole gas discharge tubes, 2nd stage by using transils. The number of protected pairs is optional (1-2). PZH HDTNV*/*C is produced for nominal operating voltage within the range of 6V - 48 V.

TYPE / **NUMBER OF PROTECTED PAIRS**	**1** **2**	**PZH HDTNV1/6C** **PZH HDTNV2/6C**	**PZH HDTNV1/12C** **PZH HDTNV2/12C**	**PZH HDTNV1/24C** **PZH HDTNV2/24C**	**PZH HDTNV1/48C** **PZH HDTNV2/48C**
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,8 V	57,6 V
Max. continuous operating voltage	I_L	1,5 A			
C1 Nominal discharge current (8/20 µs)	I_n	1 kA			
C1 Voltage protection level at I_n line/PE	U_P	180 V	250 V	350 V	500 V
C1 Voltage protection level at I_n line/line	U_P	30 V	50 V	65 V	90 V
C2 Nominal discharge current (8/20 µs)	I_n	15 kA			
C2 Voltage protection level at I_n line/PE	U_P	350 V	450 V	550 V	600 V
C2 Voltage protection level at I_n line/line	U_P	40 V	55 V	70 V	120 V
C3 Voltage protection level at 1kV/µs line/PE	U_P	15 V	28 V	64 V	85 V
C3 Voltage protection level at 1kV/µs line/line	U_P	10 V	18 V	40 V	70 V
D1 Max. lightning impulse current (10/350 µs)	I_{imp}	5 kA			
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}	2,5 kA			
Response time	t_A	< 30 ns			
Series impedance per line		2,2 µH			
Parasitic capacitance	C	1,5 nF			
Recommended cable cross-section		0,25 - 1,5 mm²			
Tested acc. to EN 61643-21		C1, C2, C3, D1			
Article number		**77 56 026 (1)** **77 56 030 (2)**	**77 56 027 (1)** **77 56 031 (2)**	**77 56 028 (1)** **77 56 032 (2)**	**77 56 029 (1)** **77 56 033 (2)**

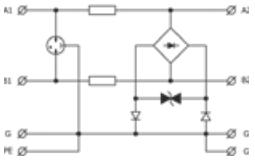
IT Systems

LPZ 1-2-3 / IP20 / CE

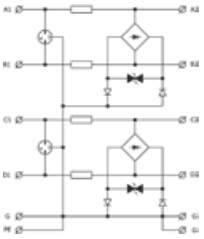




PZH HDT1/D



PZH HDT2/D

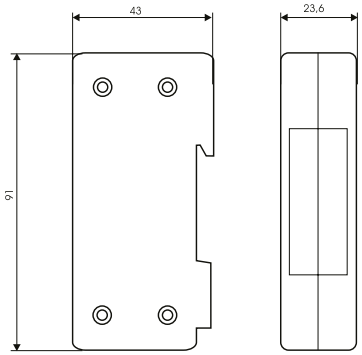


PZH HDT*/D

PZH HDT*/D is a complex range of surge protection devices designed for the protection of data, communication, measuring and control lines against surge effects. These devices are recommended for use at the boundaries of LPZ 1-2-3 lightning protection zones according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to EN 61643-21. The rated load current of individual protected lines I_L = 0,5 A.
1st stage is solved by using three-pole gas discharge tubes, 2nd stage by using transils. The number of protected pairs is optional (1-2). PZH HDT*/D is produced for nominal operating voltage within the range of 6V - 48 V.

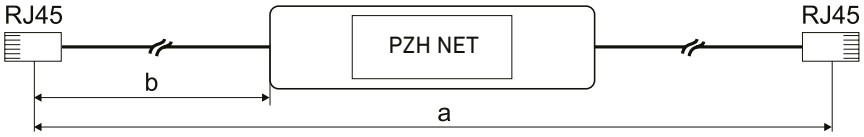
TYPE / **NUMBER OF PROTECTED PAIRS**	**1** **2**	**PZH HDT1/6D** **PZH HDT2/6D**	**PZH HDT1/12D** **PZH HDT2/12D**	**PZH HDT1/24D** **PZH HDT2/24D**	**PZH HDT1/48D** **PZH HDT2/48D**
Nominal voltage	U_N	6 V	12 V	24 V	48 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	28,8 V	57,6 V
Max. continuous operating voltage	I_L	0,5 A			
C1 Nominal discharge current (8/20 µs)	I_n	1 kA			
C1 Voltage protection level at I_n line/PE	U_P	180 V	250 V	350 V	500 V
C1 Voltage protection level at I_n line/line	U_P	70 V	80 V	150 V	220 V
C2 Nominal discharge current (8/20 µs)	I_n	15 kA			
C2 Voltage protection level at I_n line/PE	U_P	110 V	130 V	180 V	260 V
C2 Voltage protection level at I_n line/line	U_P	85 V	100 V	165 V	240 V
C3 Voltage protection level at 1kV/µs	U_P	45 V	50 V	50 V	70 V
D1 Max. lightning impulse current (10/350 µs)	I_{imp}	5 kA			
D1 Lightning impulse current (10/350 µs) line/PE	I_{imp}	2,5 kA			
Response time	t_A	< 30 ns			
Series impedance per line		0,8 Ω			
Parasitic capacitance	C	1,5 nF			
Recommended cable cross-section		0,25 - 1,5 mm²			
Tested acc. to EN 61643-21		C1, C2, C3, D1			
Article number		**77 56 034 (1)** **77 56 038 (2)**	**77 56 035 (1)** **77 56 039 (2)**	**77 56 036 (1)** **77 56 040 (2)**	**77 56 037 (1)** **77 56 041 (2)**

IT Systems



PZH NET 4/250M 6cat

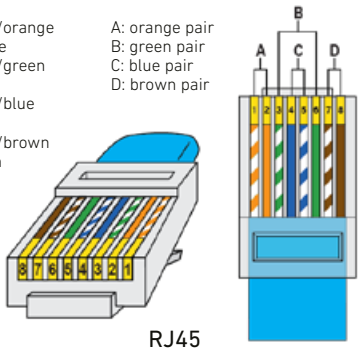
PZH NET 4/250M 6 cat is designed to protect 5E/6 data and communications lines. All protected lines are equipped with Transient Voltage Suppressor Diode which eliminates common mode and differential mode surge effects during computer networks operation.
PZH NET 4/250M 6cat consists of a plastic box and patch cords which are terminated with RJ45 connectors. Required length of patch cords (a, b) is to be specified by customer.



Connection of RJ45 pins acc. to EIA/TIA 568, type B

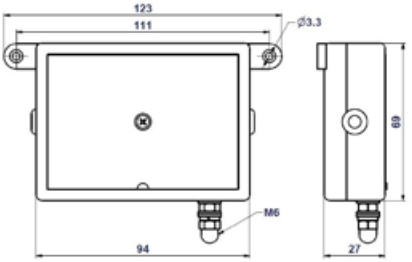
1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair



TYPE		PZH NET 4/250M 6CAT	4PZH NET 4/250M 6CAT/48V
Number of protected pairs		4	4
Nominal voltage	U_N	6 V	48 V
Max. continuous operating voltage	U_C	7,2 V	56 V
Nominal current	I_L	200 mA	200 mA
Mode of protection		line-line, line-G(PE)	line-line, line-G(PE)
Frequency handling		250 MHz	250 MHz
C2 Nominal discharge current (8/20) line/line	I_n	20 A	150 A
C2 Nominal discharge current (8/20) line/G(PE)	I_n	20 A	2 kA
C2 Voltage potection level at I_n line/line	U_p	-	< 190 V
C2 Voltage potection level at I_n line/G(PE)	U_p	-	< 600 V
C3 Voltage potection level at I_n line/line at 1 kV/ms	U_p	< 15 V	< 145 V
C3 Voltage potection level at I_n line/G(PE) at 1 kV/ms	U_p	< 15 V	< 500 V
Insertion loss for 250 MHz		< 3 dB	< 2 dB
Parasitic capacitance line/line	c	max. 5 pF	max. 160 pF
Parasitic capacitance line-G(PE)	c	max. 5 pF	max. 260 pF
Operating temperature range	ϑ	- 20 ÷ + 60 °C	- 20 ÷ + 60 °C
Mounting on		DIN rail 35 mm	DIN rail 35 mm
Input/Otput, pinning		RJ45/RJ45, 1/2, 3/6, 4/5, 7/8	RJ45/RJ45, 1/2, 3/6, 4/5, 7/8
Length of patch cords		acc. to customer's specification, a+b < 3 m	acc. to customer's specification, a+b < 3 m
Grounding method		trough DIN rail 35 mm by special metal clip on the back side of box	
Housing material		POLYAMID PA6	POLYAMID PA6
Colour		grey	grey
Category tested acc. to		IEC 61643-21	IEC 61643-21
Approvals and certifications		Cat. 6, ISO/IEC 11801	Cat. 6, ISO/IEC 11801
Article number		**77 45 034**	**77 45 037**

IT Systems

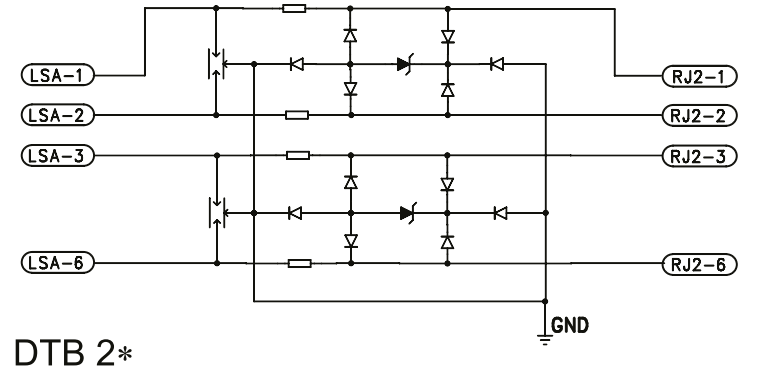


DTB 2/100M 5cat, DTB 4/100M 5cat, PZH NET 1.2. RJ/RJ

These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 5. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1 and higher according to EN62305. It is recommended to use these protection devices at the input of protected equipment.

Models:

DTB*/100M 5cat is suitable for mounting on a wall. DTB 2/100M 5cat protects two pairs and DTB 4/100M 5cat protects four pairs of conductors. PZH NET 1.2RJ/RJ protects one line with two protected pairs. It is supplyed in a plastic housing enabling bolt fastening on a wall. Alternatively, it can be attached to the protected appliance with a double-sided tape. Connectors RJ45 are at the input and output side of the device.

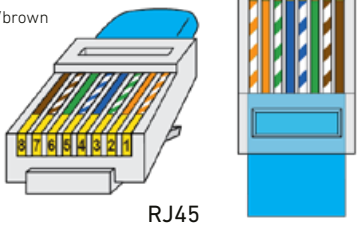


DTB 2*

Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

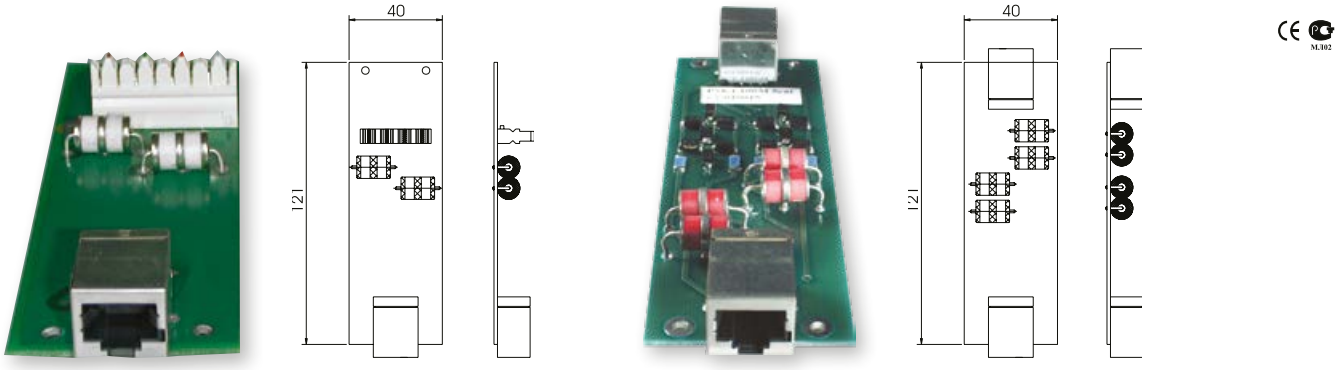
A: orange pair
B: green pair
C: blue pair
D: brown pair



RJ45

TYPE		DTB 2/100M 5CAT	DTB 4/100M 5CAT	PZH NET 1,2 RJ/RJ
Number of protected pairs		2	4	2
Input/Output		RJ45/RJ45	RJ45/RJ45	RJ45/RJ45
Nominal voltage	U_N	6 V	6 V	6 V
Max. continuous operating voltage	U_C	7,2 V	7,2 V	7,2 V
Nominal current	I_N	300 mA	300 mA	300 mA
C2 Max. discharge current (8/20)	I_{max}	2 kA	2 kA	-
C2 Nominal discharge current (8/20)	I_n	1 kA	1 kA	20 A
Voltage protection level at In (8/20)	U_p	10 V	10 V	25 V
Voltage protection level at 1kV/ms	U_p	< 10 V	< 10 V	< 10 V
Data rate		max. 100 Mbit/s	max. 100 Mbit/s	max. 100 Mbit/s
Max. attenuation		< 0,4 dB (at 100 MHz)	< 0,4 dB (at 100 MHz)	< 0,4 dB (at 100 MHz)
Near-end crosstalk		> 40 dB (at 100 MHz)	> 40 dB (at 100 MHz)	> 40 dB (at 100 MHz)
Return loss		< 14 dB (at 100 MHz)	< 14 dB (at 100 MHz)	< 14 dB (at 100 MHz)
Series impedance per line		1,5 Ω	1,5 Ω	1,5 Ω
Characteristic impedance		100 Ω	100 Ω	100 Ω
Response time	t_A	< 25 ns	< 25 ns	< 25 ns
Parasitic capacitance	C	<42 pF	<42 pF	<47 pF
Operating temperature range	ϑ	-40°C ÷ + 80°C	-40°C ÷ + 80°C	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	A2, B2, C2, C3, D1	A2, B2, C2, C3, D1
Article number		**77 45 107**	**77 45 109**	**77 45 020**

IT Systems



PZH PSK 2/100M 5 cat, PZH PSK 4/100M 5 cat

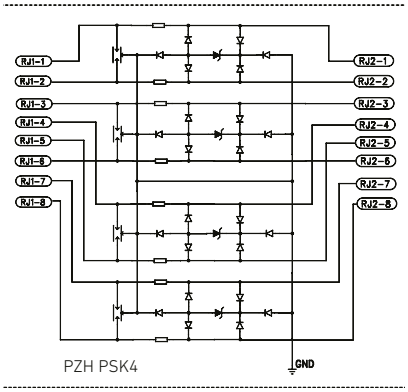
These surge protection devices intended for computer networks are specially designed for securing a faultless data transfer within computer networks category 5. They protect input electronic circuits of network cards against damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1 and higher according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

Models:

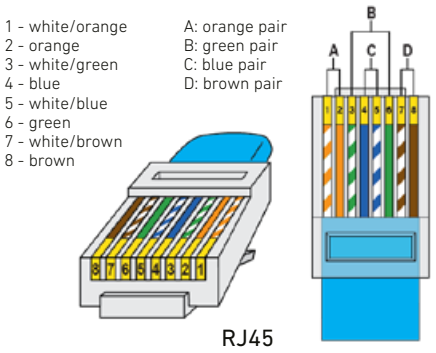
PZH PSK*/100M 5cat is a printed circuit board intended for mounting into PSK 10 which is appropriate for installation into 19" rackmounts.

PZH PSK 2/100M 5cat designed for protection of two pairs has LSA-PLUS connector at the input side and RJ45 connector at the output side.

PZH PSK 4/100M 5cat designed for protection of four pairs has RJ45 connector at the input and output sides.

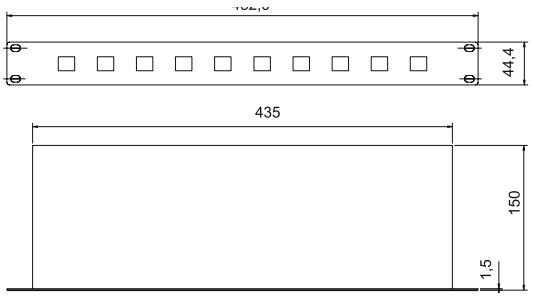


Connection of RJ45 pins acc. to EIA/TIA 568, type B

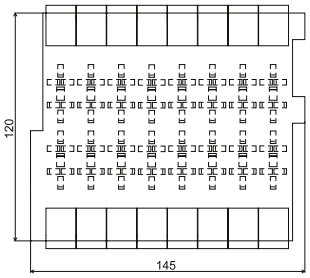


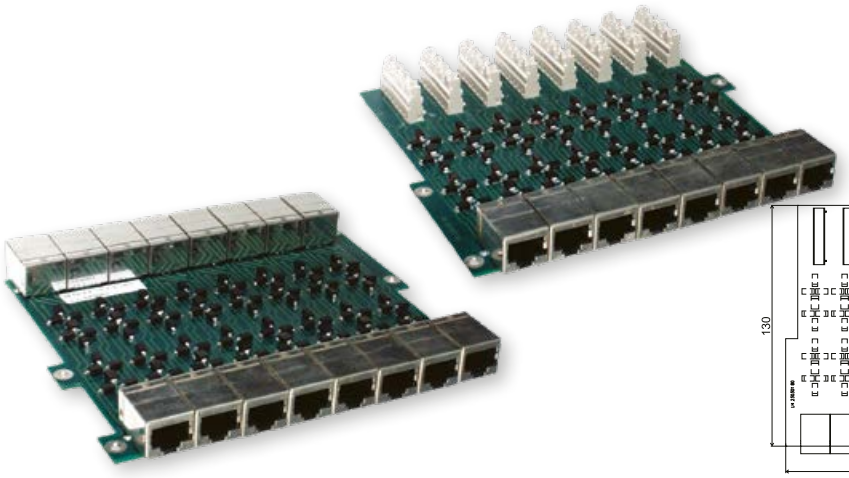
TYPE		PZH PSK 2/100M 5CAT	PZH PSK 4/100M 5CAT
Number of protected pairs		2	4
Input/Output		LSA-PLUS/RJ45	RJ45/RJ45
Nominal voltage	U_N	6 V	6 V
Max. continuous operating voltage	U_C	7,2 V	7,2 V
Nominal current	I_N	300 mA	300 mA
C2 Max. discharge current (8/20)	I_{max}	10 kA	2 kA
C2 Nominal discharge current (8/20)	I_n	1 kA	1 kA
Voltage protection level at I_n (8/20)	U_P	10 V	10 V
Voltage protection level at 1kV/ms	U_P	< 10 V	< 10 V
Response time	t_A	< 25 ns	< 25 ns
Parasitic capacitance	C	< 42 pF	< 42 pF
Operating temperature range	ϑ	-40°C ÷ + 80°C	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	A2, B2, C2, C3, D1
Article number		**77 45 011**	**77 45 012**

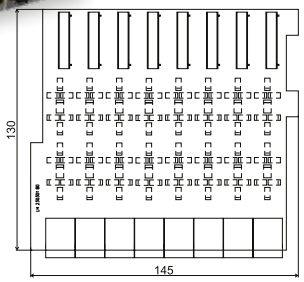
PZH PSK 10 is a metal panel suitable for fitting in 19" rackmounts. It is possible to mount up to 10 pieces of PZH PSK*/100M 5cat into this panel.



IT Systems







PZH NET 8.4 RJ/RJ, PZH NET 8.4 LSA/RJ

PZH NET is a complex range of protection devices specially designed for faultless data transfers within computer networks category 5. They protect the input electronic circuits of network cards against a damage caused by surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1 and higher according to EN 62305. It is recommended to use these protection devices at the input of protected equipment.

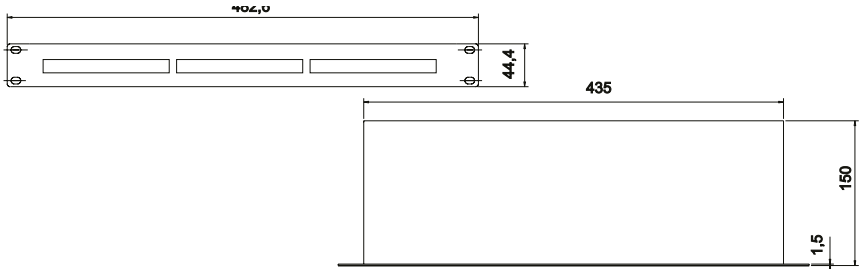
Models:

PZH NET 8.4 RJ/RJ designed for protection of eight lines with four protected pairs has RJ45 connectors at the input and output sides of the device.

PZH NET 8.4 LSA/RJ designed for protection of eight lines with four protected pairs has LSA-PLUS connectors at the input side and RJ45 connectors at the output side of the device.

TYPE		PZH NET 8,4 RJ/RJ	PZH NET 8,4 LSA/RJ
Number of protected pairs		8	8
No. of protected pairs per line		4	4
Input/Output		RJ45/RJ45	LSA-PLUS/RJ45
Nominal voltage	U_N	6 V	6 V
Max. continuous operating voltage	U_C	7,2 V	7,2 V
Nominal current	I_N	300 mA	300 mA
C2 Nominal discharge current (8/20)	I_n	20 A	20 A
Voltage protection level at I_n (8/20)	U_P	25 V	25 V
Voltage protection level at 1kV/ms	U_P	< 10 V	< 10 V
Data rate		max. 100 Mbit/s	max. 100 Mbit/s
Max. attenuation		< 0,4 dB (at 100 MHz)	< 0,4 dB (at 100 MHz)
Near-end crosstalk		> 40 dB (at 100 MHz)	> 40 dB (at 100 MHz)
Return loss		< 14 dB (at 100 MHz)	< 14 dB (at 100 MHz)
Series impedance per line		1,5 Ω	1,5 Ω
Characteristic impedance		100 Ω	100 Ω
Response time	t_A	< 25 ns	< 25 ns
Parasitic capacitance	C	< 47 pF	< 47 pF
Operating temperature range	ϑ	-40°C ÷ + 80°C	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	A2, B2, C2, C3, D1
Article number		**77 45 021**	**77 45 022**

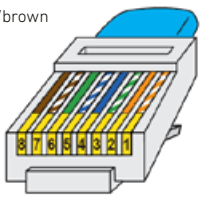
PZH PSK 24 is a metal panel suitable for fitting in 19" rackmounts. It is possible to mount up to 3 pieces of PZH NET 8.4 RJ/RJ into this panel.

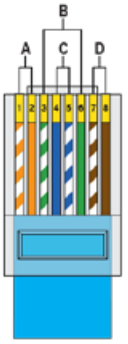


Connection of RJ45 pins acc. to EIA/TIA 568, type B

1 - white/orange
2 - orange
3 - white/green
4 - blue
5 - white/blue
6 - green
7 - white/brown
8 - brown

A: orange pair
B: green pair
C: blue pair
D: brown pair

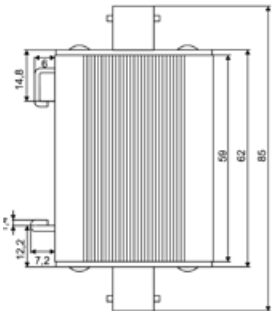


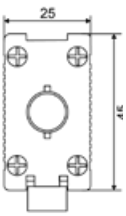


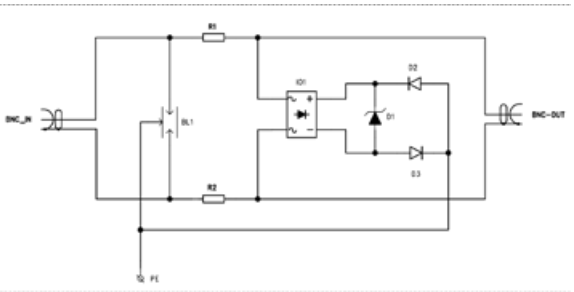
RJ45

IT Systems

LPZ 1-2-3 / IP20 / CE







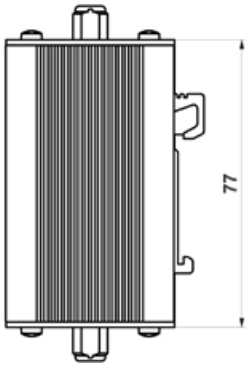
PZH HT-CCTV 6, PZH HT-CCTV 12

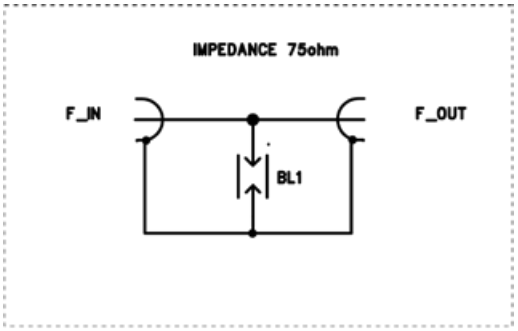
Hermi Transmition-CCTV is designed to protect video transmission equipment, which process the transferred video signal. The casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance. I_{max} = 5 kA. It is recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2-3 according to EN 62305.

TYPE		PZH HT-CCTV 6	PZH HT-CCTV 12
Number of protected pairs		1	
Connector type		BNC (F/F, F/M)	
Nominal voltage	U_N	6 V	12 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V
Rated load current	I_L	300 mA	
C2 Max. discharge current (8/20)	I_{max}	5 kA	
C2 Nominal discharge current I_n (8/20)	I_n	1 kA	
C2 Voltage protection level at I_n	U_P	22 V	44 V
C3 Voltage protection level at 1kV/µs	U_P	10 V	20 V
Response time	t_A	< 30 ns	
Data rate		10 MBit/s	
Parasitic capacitance	C	< 27 pF	
Series impedance per line	R	10 Ω	
LPZ		2-3	
Protection type		IP20	
Operating temperature range	ϑ	-40°C - +80°C	
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	
Article number		**77 57 001**	**77 57 002**

IT Systems

LPZ 1-2 / IP20 / CE



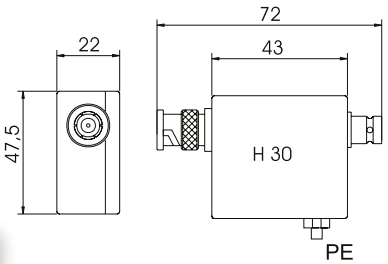


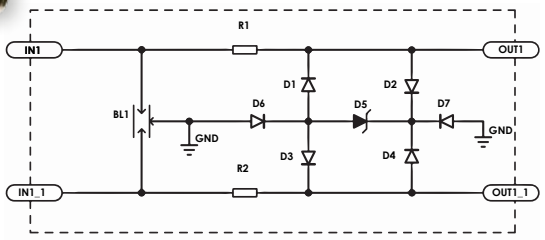
PZH HT-SAT

PZH Hermi Transmition-SAT is designed to protect satellite equipment. Casing of this protector is made out of light alloy, which ensures high mechanical and thermal resistance.

TYPE		PZH HT-SAT
Connector type		F
Max. continuous operating voltage	U_C	72 V
Rated load current	I_N	0,5 A
D1 Max. lightning impulse current (10/350)	I_{imp}	2 kA
C2 Max. discharge current (8/20)	I_{max}	10 kA
C2 Nominal discharge current (8/20)	I_n	5 kA
Voltage protection level at 1kV/µs	U_P	500 V
Frequency range		0-2 GHz
Max. transmission power capacity		50 W
Insertion loss		< 0,5 dB
Return loss		> 20 dB
Characteristic impedance		75 W
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1
Article number		**77 57 004**

IT Systems

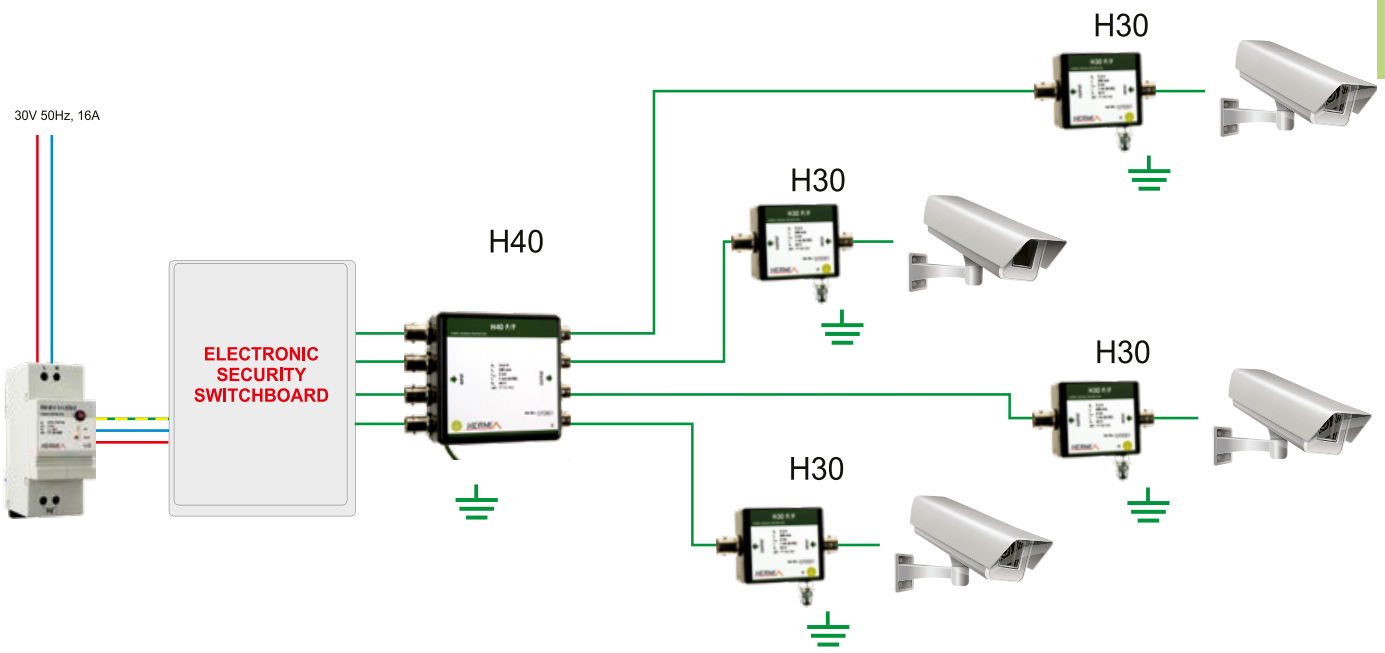




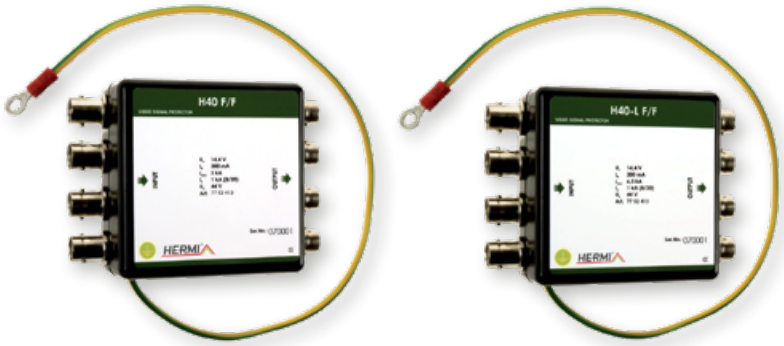
H30, H30-L

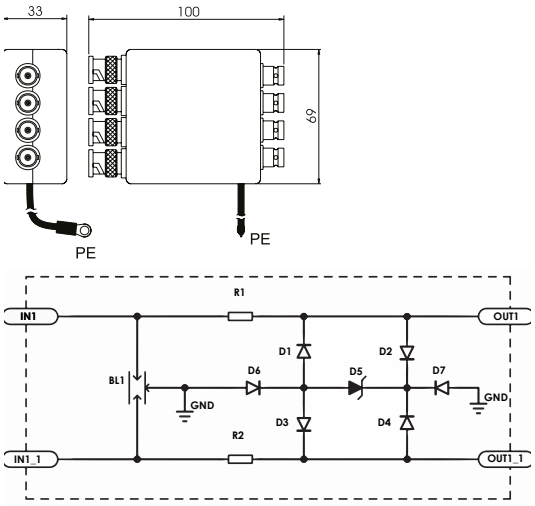
H30 and H30-L are designed for coaxial lines protection of 50W or 75W against induced surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1according to EN 62305.
These devices are mainly used for protection of cameras and video signal concentrators. They are applicable to security and fire systems. H30-L version is equipped with more efficient nonlinear elements to reach higher discharge current up to 6,5kA (8/20).

TYPE		H30/6	H30/12	H30-L/6	H30-L/12
Number of protected pairs		1	1	1	1
Connector type		BNC (F/F, F/M)	BNC (F/F, F/M)	BNC (F/F, F/M)	BNC (F/F, F/M)
Nominal voltage	U_N	6 V	12 V	6 V	12 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	7,2 V	14,4 V
Nominal current	I_N	300 mA	300 mA	300 mA	300 mA
C2 Max. discharge current (8/20)	I_{max}	5 kA	5 kA	6,5 kA	6,5 kA
C2 Nominal discharge current (8/20)	I_n	1 kA	1 kA	1 kA	1 kA
Voltage protection level at I_n (8/20)	U_P	22 V	44 V	22 V	44 V
Voltage protection level at 1kV/ms	U_P	10 V	20 V	10 V	20 V
Response time	t_A	< 30 ns	< 30 ns	< 30 ns	< 30 ns
Parasitic capacitance	C	< 27 pF	< 27 pF	< 27 pF	< 27 pF
Series impedance per line		10 Ω	10 Ω	10 Ω	10 Ω
Operating temperature range	ϑ	-40°C ÷ + 80°C	-40°C ÷ + 80°C	-40°C ÷ + 80°C	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	A2, B2, C2, C3, D1	A2, B2, C2, C3, D1	A2, B2, C2, C3, D1
Article number		**77 52 310**	**77 52 312**	**77 52 300**	**77 52 313**



IT Systems

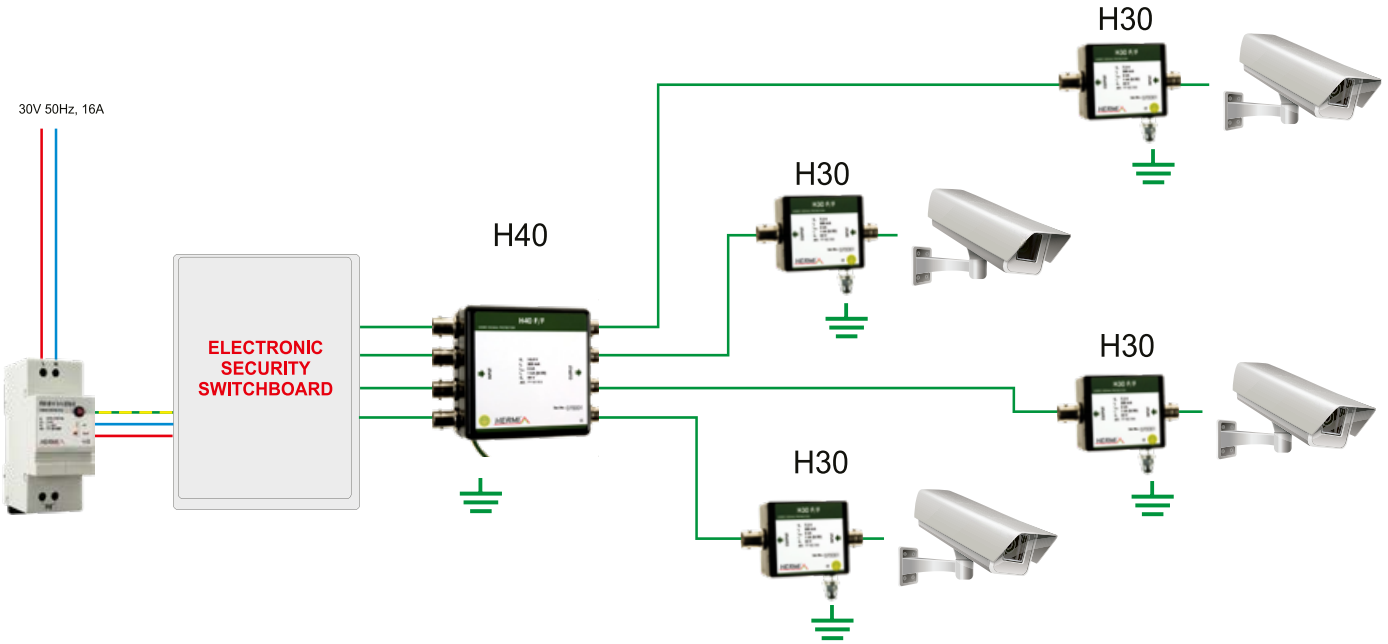




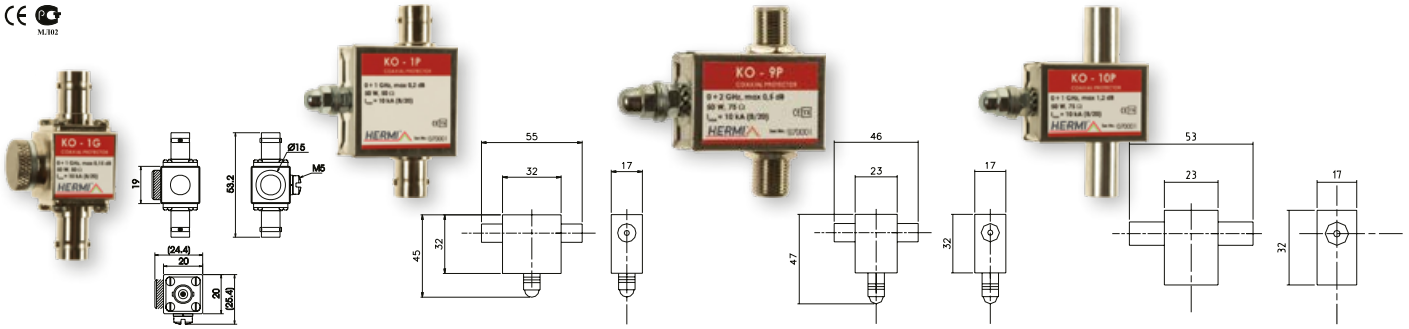
H40, H40-L

H40 and H40-L are designed for coaxial lines protection of 50W or 75W against induced surge effects in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1 according to EN 62305.
These devices are especially used for protection of cameras and video signal concentrators. They are applicable to security and fire systems. H40-L version is equipped with more efficient nonlinear elements to reach higher discharge current up to 6,5kA (8/20).

TYPE		H40/6	H40/12	H40-L/6	H40-L/12
Number of protected pairs		4	4	4	4
Connector type		BNC (F/F, F/M)	BNC (F/F, F/M)	BNC (F/F, F/M)	BNC (F/F, F/M)
Nominal voltage	U_N	6 V	12 V	6 V	12 V
Max. continuous operating voltage	U_C	7,2 V	14,4 V	7,2 V	14,4 V
Nominal current	I_N	300 mA	300 mA	300 mA	300 mA
C2 Max. discharge current (8/20)	I_{max}	5 kA	5 kA	6,5 kA	6,5 kA
C2 Nominal discharge current (8/20)	I_n	1 kA	1 kA	1 kA	1 kA
Voltage protection level at I_n (8/20)	U_P	22 V	44 V	22 V	44 V
Voltage protection level at 1kV/ms	U_P	10 V	20 V	10 V	20 V
Response time	t_A	< 30 ns	< 30 ns	< 30 ns	< 30 ns
Parasitic capacitance	C	< 47 pF	< 47 pF	< 47 pF	< 47 pF
Series impedance per line		10 Ω	10 Ω	10 Ω	10 Ω
Operating temperature range	ϑ	-40°C ÷ + 80°C	-40°C ÷ + 80°C	-40°C ÷ + 80°C	-40°C ÷ + 80°C
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1	A2, B2, C2, C3, D1	A2, B2, C2, C3, D1	A2, B2, C2, C3, D1
Article number		**77 52 410**	**77 52 412**	**77 52 400**	**77 52 413**



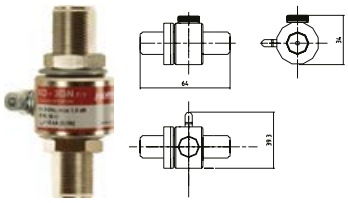
IT Systems

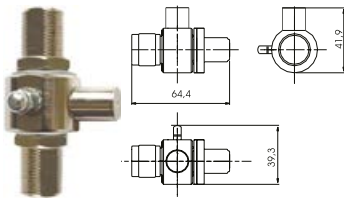


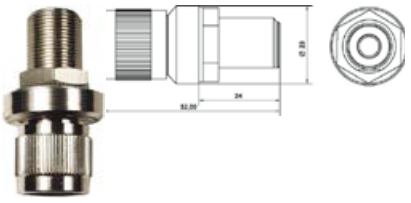
KO*G, KO*P, KO-9P, KO-10P

KO* is an innovated coaxial high-frequency protection range designed for protection of equipment connected to an aerial system by means of coaxial cables. Special gas discharge tubes with maximum discharge current I_{max} (8/20) = 10kA (or 20 kA in case of KO-5GN) ensure a reliable protection of the receiving and transmitting systems even against a lightning stroke nearby. Hermi company offers a wide range of coaxial protectors for various connector types and transmission power grades enabling usage in many applications. These coaxial protectors are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ $0_{A(B)}$ -1 and higher according to EN 62305.

TYPE		KO-1G	KO-2G	KO-1P	KO-2P	KO-9P	KO-10P
Connector type		BNC	BNC	BNC	BNC	F	TV
Max. continuous operating voltage	U_C	72 V	200 V	72 V	200 V	72 V	72 V
Nominal current	I_N	2,5 A	2,5 A	2,5 A	2,5 A	0,5 A	0,5 A
D1 Max. lightning impulse current (10/350)	I_{imp}	2 kA	2 kA	2 kA	2,5 A	2 kA	2 kA
C2 Max. discharge current (8/20)	I_{max}	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20)	I_n	5 kA	5 kA	5 kA	5 kA	5 kA	5 kA
Voltage protection level at 1kV/ms	U_P	500 V	600 V	500 V	600 V	500 V	500 V
Frequency range		0-1 GHz	0-1 GHz	0-1 GHz	0-1 GHz	0-2 GHz	0-1 GHz
Max. transmission power capacity		50 W	400 W	50 W	400 W	50 W	50 W
Insertion loss		< 0,2 dB	< 0,2 dB	< 0,2 dB	< 0,2 dB	< 0,5 dB	< 1,2 dB
Return loss		> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB
Characteristic impedance		50 Ω	50 Ω	50 Ω	50 Ω	75 Ω	75 Ω
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1					
Article number		**77 55 001**	**77 55 002**	**77 55 007**	**77 55 015**	**77 55 016**	**77 55 017**





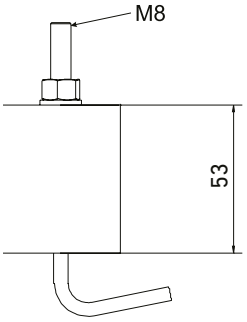


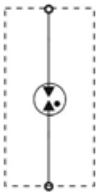
KO*GN, KO-5GN, KO-6GN

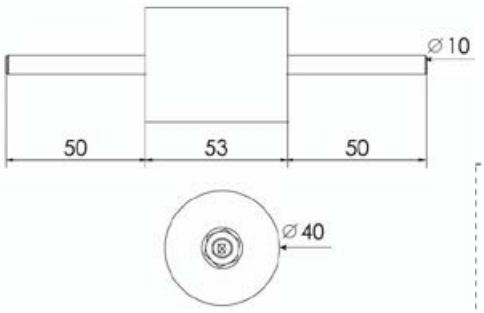
TYPE		KO-3GN (F/F)	KO-3GN (F/M)	KO-4GN (F/F)	KO-4GN (F/M)	KO-5GN (F/F)	KO-5GN (F/M)	KO-6GN (F/M)
Connector type		N	N	N	N	N	N	N
Max. continuous operating voltage	U_C	72 V	72 V	200 V	200 V	-	-	135 V
Nominal current	I_N	5 A	5 A	5 A	5 A	-	-	5 A
D1 Max. lightning impulse current (10/350)	I_{imp}	2 kA	2 kA	2 kA	2 kA	5 kA	5 kA	1 kA
C2 Max. discharge current (8/20)	I_{max}	10 kA	10 kA	10 kA	10 kA	20 kA	20 kA	10 kA
C2 Nominal discharge current (8/20)	I_n	5 kA	5 kA	5 kA	5 kA	10 kA	10 kA	5 kA
Voltage protection level at 1kV/ms	U_P	500 V	500 V	600 V	600 V	<2 V	<2 V	< 500 V
Frequency range		0-3 GHz	0-3 GHz	0-3 GHz	0-3 GHz	5-5,4 GHz	5-5,4 GHz	0-5,8 GHz
Max. transmission power capacity		50 W	50 W	400 W	400 W	200 W	200 W	50 W
Insertion loss		< 1,5 dB	< 1,5 dB	< 1,5 dB	< 1,5 dB	< 0,2 dB	< 0,2 dB	< 0,2 dB
Return loss		> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB
Characteristic impedance		50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Category tested acc. to IEC 61643:21-2000		A2, B2, C2, C3, D1						
Article number		**77 55 018**	**77 55 019**	**77 55 020**	**77 55 021**	**77 55 024**	**77 55 025**	**77 55 026**

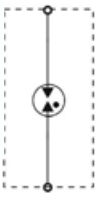
EQUIPOTENTIAL BONDING

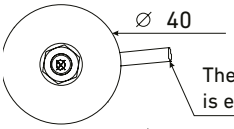
Equipotential Bonding











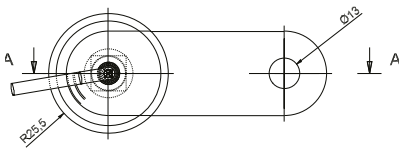
The length of the flexible connecting cable is 200mm and it is ended with a loop GPH12 of diameter 13mm.

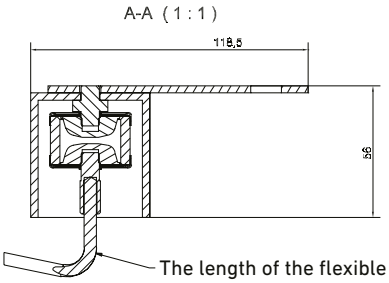
PZH HGS 100, PZH HGS 100 EB

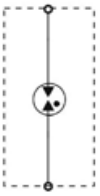
HGS100 and HGS100 EB are a separating high power gas discharge tubes intended for equipotential bonding of an installation parts of buildings, which are not interconnected. In case of origin of p.d. (potential diference) between those parts, the high power gas discharge tube ignites and interconnects both parts for a transient time (typical value of internal resistance at startup of HGS100 is 0,001 ÷ 0,002 Ω).
Recommended installation is inside of the buildings, outdoors, in the damp rooms as well as in the subterraneous areas.
For lightning protection equipotential bonding in accordance with IEC 61024-1 as well as for the use in IT - installations in accordance with IEC 60364-5-54.

TYPE		PZH HGS 100	PZH HGS 100 EB
DC - Sparkover voltage	U_{aw}	400 ÷ 650 V DC	400 ÷ 650 V DC
AC -Sparkover voltage	$U_{W/AC}$	275 ÷ 450 V AC	275 ÷ 450 V AC
Rated AC withstand voltage (50 Hz)		250 V	250 V
Impulse sparkover voltage at 5 kV/µs - for 99% of measured values (wave 1,2/50 µs, 6 kV)		<1 kV	<1 kV
Max. impulse discharge current (8/20)	I_{max}	150 kA	150 kA
Normal impulse discharge current (8/20)	I_n	75 kA	75 kA
Max. lightning impulse current (10/350)	I_{imp}	100 kA	100 kA
Charge	Q	50 As	50 As
Specific energy	W/R	2500kJ/Ω	2500kJ/Ω
Insulation resistance at 100 V DC	R_i	>1 GΩ	>1 GΩ
Capacitance at 1 MHz	C	5 pF	5 pF
Casing		corundum/binary resin with an external steel coat, resistant to climatic effects	
Lifetime		min. 100.000 h	min. 100.000 h
Weight		320 g	320 g
Article number		**77 10 005**	**77 10 009**

Equipotential Bonding







The length of the flexible connecting cable is 200mm and it is ended with a loop GPH12 of diameter 13mm.

PZH HGS 100 Ex

HGS100 Ex - Separating high power gas discharge tube HGS100 Ex for use in explosion hazards areas. It is intended for equipotential bonding of the installation parts of buildings or technological entities which are not interconnected operationaly. In case of p.d. (potential difference) origin between those parts, the high power gas discharge tube ignites and interconnects both parts for a transient time (typical value of internal resistance at startup of HGS100 Ex is 0,001÷ 0,002Ω).
Recommended installation is inside of the buildings, outdoors, in the damp rooms as well as in the subterraneous areas.
It is an explosion-proof gas discharge tube with flexible connecting cable for equipotential bonding acc. to IEC 61024-1 and also for the use in IT installations acc. to IEC 60364-5-54. It complies with EN 50014 and EN 50028 standards. It is recommended for insulated flanges and insulated screw joints bridging in cathodic protected parts of industrial technology.

TYPE		**PZH HGS 100 EX**
EC - Type examination cetificate		II 2G Ex mb II T6 II 2G Ex mb D 21 T80oC
Classs of lightning impulse current strength acc. to EN 50164-3		FTZU 04 ATEX 0255X
DC - Sparkover voltage	U_{aw}	400 ÷ 650 V DC
AC -Sparkover voltage	$U_{W/AC}$	275 ÷ 400 V AC
Rated AC withstand voltage (50 Hz)		250 V
Impulse sparkover voltage at 5 kV/µs - for 99% of measured values(wave 1,2/50 µs, 6 kV)	U_{rimp}	< 1 kV
Max. impulse discharge current(8/20)	I_{max}	150 kA
Max. lightning impulse current(10/350)	I_{imp}	100 kA
Charge	Q	50 As
Specific energy	W/R	2500 kJ/Ω
Insulation resistance at 100 V DC	R_i	>1 GΩ
Capacitance at 1 MHz	C	5 pF
Casing		corundum/binary resin with an external steel coat, resistant to climatic effects
Lifetime		min. 100.000 h
Weight		535 g
Article number		**77 10 004**

INDEX

ART. NO.	ITEM	PAGE NO.
77 24 607	PZH R2 720/40 S	43
77 24 613	PZH R2 850/40	43
77 24 619	PZH R2 850/40 S	43
77 27 054	PZH R2 PV/1000/40 M	73
77 27 055	PZH R2 PV/1000/40 Module	73
77 27 056	PZH R2 PV/800/40 M	73
77 27 058	PZH R2 PV/1000/40 MS	73
77 27 059	PZH R2 PV/800/40 MS	73
77 27 060	PZH R2 PV/600/40 M	73
77 27 061	PZH R2 PV/600/40 MS	73
77 27 062	PZH R2 PV/600/40 Module	73
77 27 065	PZH R2 PV/200/40 Module	74
77 27 068	PZH R2 PV/800/40 Module	73
77 27 071	PZH R2 PV/200/40 M	74
77 27 073	PZH R2 PV/200/40 MS	74
77 27 080	PZH R2 275/50 M	45,51
77 27 081	PZH R2 275/50/1+1 M	46,51
77 27 082	PZH R2 275/50/2+0 M	47,51
77 27 083	PZH R2 275/50/3+0 M	48,51
77 27 084	PZH R2 275/50/3+1 M	49,51
77 27 085	PZH R2 275/50/4+0 M	50,51
77 27 086	PZH R2 275/50 Module	51
77 27 090	PZH R2 275/50 MS	45,51
77 27 091	PZH R2 275/50/1+1 MS	46,51
77 27 092	PZH R2 275/50/2+0 MS	47,51
77 27 093	PZH R2 275/50/3+0 MS	48,51
77 27 094	PZH R2 275/50/3+1 MS	49,51
77 27 095	PZH R2 275/50/4+0 MS	50,51
77 27 180	PZH R2 75/40 M	51
77 27 181	PZH R2 75/40 MS	51
77 27 182	PZH R2 150/40 M	51
77 27 183	PZH R2 150/40 MS	51
77 27 184	PZH R2 320/50 M	51
77 27 185	PZH R2 320/50 MS	51
77 27 186	PZH R2 385/40 M	51
77 27 187	PZH R2 385/40 MS	51
77 27 188	PZH R2 440/40 M	51
77 27 189	PZH R2 440/40 MS	51
77 27 190	PZH R2 75/40 Module	51
77 27 191	PZH R2 150/40 Module	51
77 27 192	PZH R2 320/50 Module	51
77 27 193	PZH R2 385/40 Module	51
77 27 194	PZH R2 440/40 Module	51
77 30 050	PZH R2 255/20 GDT	43,51
77 30 051	PZH R1 255/25 GDT	27,35
77 30 052	PZH R1 255/50 GDT	27,35
77 30 054	PZH R1 255/100 GDT	27
77 30 105	PZH III V 3+1/275/5	61
77 30 106	PZH III V 3+1/275/5 S	61

ART. NO.	ITEM	PAGE NO.
77 30 120	PZH L120	68
77 30 170	PZH R3 HF10 S	53,54
77 30 171	PZH R3 HF16 S	53,54
77 30 172	PZH R3 HF32 S	57
77 30 173	PZH R3 HF50 S	57
77 30 174	PZH R3 HF63 S	57
77 30 175	PZH R3 HF80 S	57
77 30 176	PZH R3 HF125 S	57
77 30 177	PZH R3 HF160 S	57
77 30 400	PZH L16	66
77 30 401	PZH L16/15	66
77 30 402	PZH L32	66
77 30 403	PZH L32/15	66
77 30 404	PZH L63	67
77 30 405	PZH L63/15	67
77 30 406	PZH L80	67
77 32 004	PZH III C/L	64
77 32 006	PZH III C/S	64
77 32 030	PZH III V 1+1/275/5	62
77 45 011	PZH PSK 2/100M 5cat	95
77 45 012	PZH PSK 4/100M 5cat	95
77 45 020	PZH NET 1,2 RJ/RJ	94
77 45 021	PZH NET 8,4 RJ/RJ	96
77 45 022	PZH NET 8,4 LSA/RJ	96
77 45 034	PZH NET 4/250M 6cat	93
77 45 037	4PZH NET 4/250M 6cat/48V	93
77 45 107	DTB 2/100M 5cat	94
77 45 109	DTB 4/100M 5cat	94
77 52 300	H30-L/6	99
77 52 310	H30/6	99
77 52 312	H30/12	99
77 52 313	H30-L/12	99
77 52 400	H40-L/6	100
77 52 410	H40/6	100
77 52 412	H40/12	100
77 52 413	H40-L/12	100
77 55 001	KO-1G	101
77 55 002	KO-2G	101
77 55 007	KO-1P	101
77 55 015	KO-2P	101
77 55 016	KO-9P	101
77 55 017	KO-10P	101
77 55 018	KO-3GN (F/F)	101
77 55 019	KO-3GN (F/M)	101
77 55 020	KO-4GN (F/F)	101
77 55 021	KO-4GN (F/M)	101
77 55 024	KO-5GN (F/F)	101
77 55 025	KO-5GN (F/M)	101
77 55 026	KO-6GN (F/M)	101

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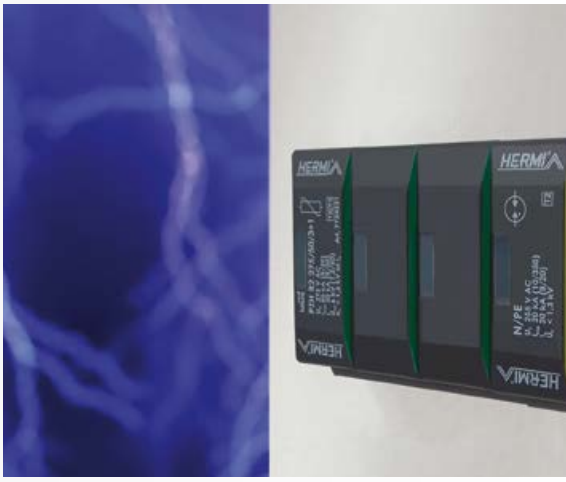
LIGHTNING PROTECTION

Lightning protection installation protects a building against direct lightning strikes. Only correctly positioned lightning protection conductors on a building are intended to conduct lightning current, not damaging the building. By installing lightning protection we successfully protect a building against mechanical damage or fire.
Hermi lightning protection systems have low, standard fasteners adapted to all types of roof coverings and are creatively adjusted to the architecture of the building. They are made of durable materials – stainless steel, copper or aluminium – and provide the highest level of protection against damages caused by lightning strikes.

SURGE PROTECTION



Protection which effectively protects the electrical installations and equipment in the building is called surge protection – protection of electrical installations and data lines against overvoltages.
Correctly installed surge protection does not protect the building against a direct lightning strike, but only electrical installations in it.
Hermi surge protection provides quality protection of your devices with three levels of surge protecting elements. We produce surge protection for low-voltage electrical installations, photovoltaic systems, IT systems, computer networks, video system and coaxial cables for high-frequency applications.

CABLE TRAYS AND CABLE LADDERS

They are made of quality materials which provide sustainable and quality cable paths. The range includes many options and colours depending on the environment and investor's wishes. We also offer fire-resistant E90 cable trays.
They are distinguished for their simple, quick and efficient installation, quality coupling, rounded tray edges, type covers, sophisticated system of perforation, wide selection of standard elements, different thickness of metal sheet, precise and careful production and ingenious shape.
The highlight of the range are cable trays and cable ladders made of acid-resistant stainless steel which are suitable for use in the most demanding conditions.

MOUNTING SYSTEMS

HERMI mounting systems are designed for rapid, simple and efficient installation of structures. The sub-structure of a solar power station encompasses load bearing construction profiles, roof fasteners and connecting/mounting profiles. The joining of elements is performed using screw connections which provide the adjustment of sub-structure or levelling of uneven parts of the roof.
Elements are made of quality stainless steel and aluminium.

HERMI®

Power of Nature, Supremacy of Knowledge

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