

- Economical protection of multi core signal lines
- Interface-specific units, e.g. TTY, RS 485
- Unit for 24 V power supply of a PLC



Compact protection for terminal equipment, with screwable terminal connections for multi core lines for DIN rail mounting.

BLITZDUCTOR® VT is a family of compact surge arresters in modular terminal blocks and includes different types of enclosures. Most of the arresters

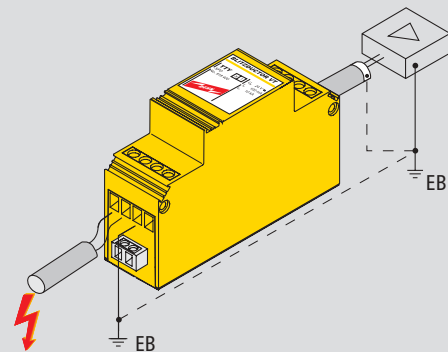
protect 4-wire signal lines or special applications. The equipment is earthed via a screw terminal.



BVT Enclosure family

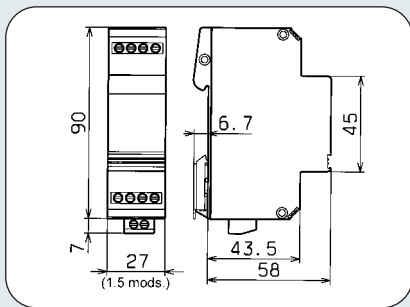
The enclosure concept of BLITZDUCTOR® VT is variable. According to the application, the arresters can be distinguished as follows:

- Width 1.5 mods., 4 protected signal lines
- Width 1.5 mods., 2 protected lines for 24 V dc
- Width 3 mods., 6 protected lines for RS 485/422

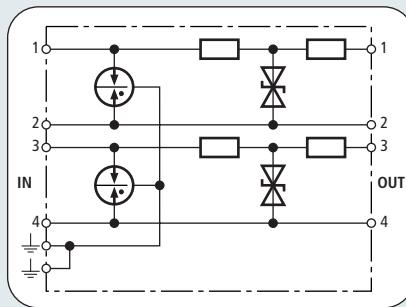


Connection

The earth connection has to be performed with a terminal, not via the DIN rail snap-in unit. The direct equipotential bonding to the terminal system can be established with the second clamping range of the double terminal.



Dimension drawing BVT TTY



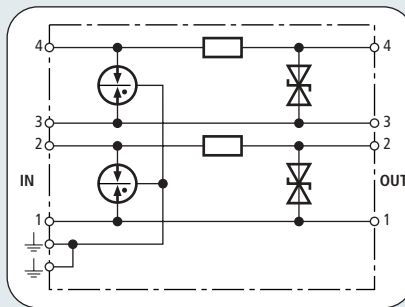
The resistances at the circuit output protect optocoupler and protective diodes in the terminal equipment against overloads.



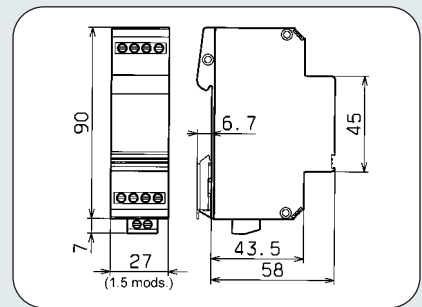
- Simultaneous protection of two TTY loops
- Additional decoupling to the terminal equipment
- For use according to the lightning protection zones concept at boundaries  $O_B - 2$  and higher

Because of the additional decoupling resistances at the output, only few loadable diodes in the terminal equipment are integrated into the energy coordination of the protection levels. This is especially important for optocoupler interfaces.

BVT TTY 24	
Nominal voltage $U_N$	24 V
Max. continuous dc voltage $U_C$	26.8 V
Max. continuous ac voltage $U_C$	18.9 V
Nominal current $I_L$	0.1 A
C2 Total nominal discharge current (8/20) $I_n$	10 kA
C2 Nominal discharge current (8/20) per line $I_n$	10 kA
Voltage protection line-line at $I_n$ C2 $U_p$	$\leq 65$ V
Voltage protection level line-PG at $I_n$ C2 $U_p$	$\leq 700$ V
Voltage protection level line-line at 1 kV/ $\mu$ s C3 $U_p$	$\leq 36$ V
Voltage protection level line-PG at 1 kV/ $\mu$ s C3 $U_p$	$\leq 600$ V
Coordination characteristics KK	X/1
Series impedance per line	(per pair) 17.2 Ohm
Bandwidth line-line $f_G$	8 MHz
Parasitic capacitance line-line C	$\leq 1$ nF
Response time line-line $t_a$	$\leq 1$ ns
Response time line-PG $t_a$	$\leq 100$ ns
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail acc. to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.08 - 2.5 mm <sup>2</sup>
Cross-sectional area, flexible	0.08 - 2.5 mm <sup>2</sup>
Tightening torque (terminal)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	VDE 0845-2, IEC 61643-21
Approvals, Certifications	CSA
<b>Ordering information</b>	
Type	BVT TTY 24
Part No.	918 400
Packing unit	1 pc(s)



Protection circuit, free of leakage currents to earth, energy-coordinated with simple decoupling.



Dimension drawing BVT MTTY

- Economical compact protection
- For use according to the lightning protection zones concept at boundaries  $O_B - 1$  and higher

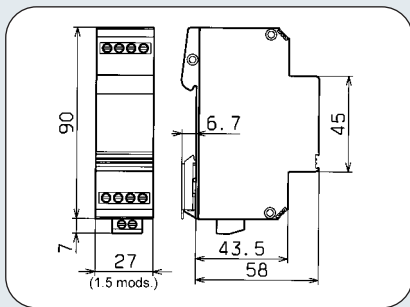
Surge arrester for two floating two-core conductors. Unbalanced use of the decoupling impedance.

**BVT MTTY 24**

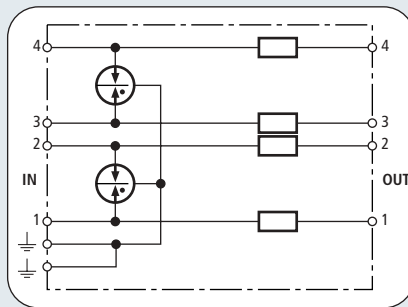
Nominal voltage $U_N$	24 V
Max. continuous dc voltage $U_C$	26.8 V
Max. continuous ac voltage $U_C$	18.9 V
Nominal current $I_L$	0.1 A
C2 Total nominal discharge current (8/20) $I_n$	20 kA
C2 Nominal discharge current (8/20) per line $I_n$	10 kA
Voltage protection line-line at $I_n$ C2 $U_p$	$\leq 65$ V
Voltage protection level line-PG at $I_n$ C2 $U_p$	$\leq 700$ V
Voltage protection level line-line at 1 kV/ $\mu$ s C3 $U_p$	$\leq 36$ V
Voltage protection level line-PG at 1 kV/ $\mu$ s C3 $U_p$	$\leq 600$ V
Coordination characteristics KK	X/1
Series impedance per line	(per pair) 2.2 Ohm
Bandwidth line-line $f_G$	10 MHz
Parasitic capacitance line-line C	$\leq 1$ nF
Response time line-line $t_a$	$\leq 100$ ns
Response time line-PG $t_a$	$\leq 1$ ns
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail acc. to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.08 - 2.5 mm <sup>2</sup>
Cross-sectional area, flexible	0.08 - 2.5 mm <sup>2</sup>
Tightening torque (terminal)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	VDE 0845-2, IEC 61643-21

**Ordering information**

Type	BVT MTTY 24
Part No.	918 407
Packing unit	1 pc(s)



Dimension drawing BVT GS



The decoupling at the output allows the following energy-coordinated use of protective diodes without considering the cable length.



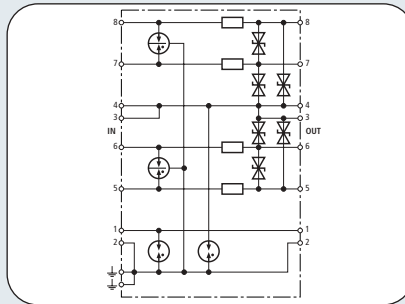
- Quad protection with gas discharge tubes
- Decoupling integrated
- For use according to the lightning protection zones concept at boundaries  $O_B - 1$  and higher

Compact surge arrester for four lines with integrated decoupling resistors at the output of the equipment. This allows energy coordination with downstream diode arresters DCO RK E ... and FS.

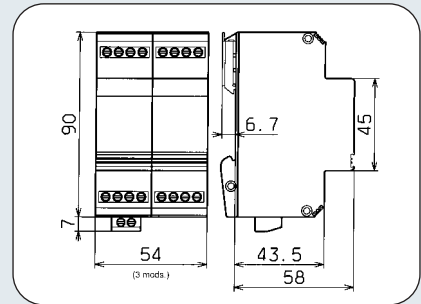
BVT GS 110	
Nominal voltage $U_N$	110 V
Max. continuous dc voltage $U_C$	170 V
Max. continuous ac voltage $U_C$	130 V
Nominal current $I_L$	0.25 A
C2 Total nominal discharge current (8/20) $I_n$	10 kA
C2 Nominal discharge current (8/20) per line $I_n$	10 kA
Voltage protection line-line at $I_n$ C2 $U_p$	$\leq 800$ V
Voltage protection level line-PG at $I_n$ C2 $U_p$	$\leq 600$ V
Voltage protection level line-line at $1 \text{ kV}/\mu\text{s}$ C3 $U_p$	$\leq 800$ V
Voltage protection level line-PG at $1 \text{ kV}/\mu\text{s}$ C3 $U_p$	$\leq 600$ V
Coordination characteristics KK	X/∞
Series impedance per line	10 Ohm
Bandwidth line-line $f_G$	18 MHz
Parasitic capacitance line-line C	$\leq 10$ pF
Response time line-line $t_a$	$\leq 100$ ns
Response time line-PG $t_a$	$\leq 100$ ns
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail acc. to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.08 - 2.5 mm <sup>2</sup>
Cross-sectional area, flexible	0.08 - 2.5 mm <sup>2</sup>
Tightening torque (terminal)	0.5 Nm
Earthing via	screw terminal
Enclosure material	Thermoplastic UL 94 V-0
Colour	yellow
Test standards	VDE 0845-2, IEC 61643-21
Approvals, Certifications	CSA
<b>Ordering information</b>	
Type	BVT GS 110
Part No.	918 403
Packing unit	1 pc(s)



- Connections for 4 bus lines and SG
- Direct and indirect shield earthing
- For use according to the lightning protection zones concept at boundaries 0<sub>B</sub> – 2 and higher



Circuiting diodes to a common reference point leads to a low protection level between the signal lines.



Dimension drawing BVT RS485

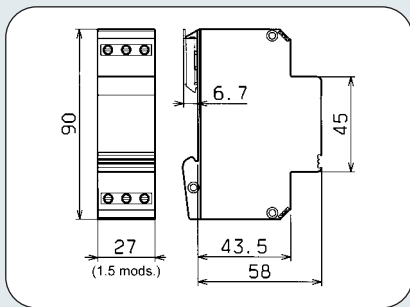
Surge arrester for many applications, e.g. for balanced 4-wire interfaces RS 485/422 or temperature sensors. Optionally direct or indirect shield earthing and connection of a signal ground (SG).

### BVT RS485 5

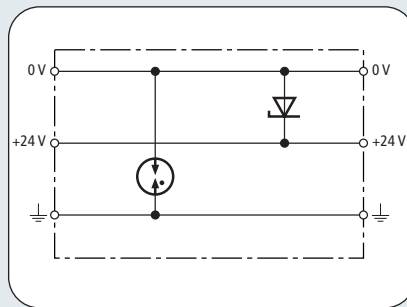
Nominal voltage $U_N$	5 V
Max. continuous dc voltage $U_C$	6 V
Max. continuous ac voltage $U_C$	4.2 V
Nominal current $I_L$	0.5 A
C2 Total nominal discharge current (8/20) $I_n$	10 kA
C2 Nominal discharge current (8/20) per line $I_n$	10 kA
Voltage protection line-line at $I_n$ C2 $U_p$	$\leq 20$ V
Voltage protection level line-PG at $I_n$ C2 $U_p$	$\leq 700$ V
Voltage protection level line-line at 1 kV/ $\mu$ s C3 $U_p$	$\leq 8.5$ V
Voltage protection level line-PG at 1 kV/ $\mu$ s C3 $U_p$	$\leq 600$ V
Coordination characteristics KK	X/1
Series impedance per line	1.8 Ohm
Bandwidth line-line $f_G$	1.7 MHz
Parasitic capacitance line-line C	$\leq 5$ nF
Response time line-line $t_a$	$\leq 1$ ns
Response time line-PG $t_a$	$\leq 100$ ns
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail acc. to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.08 - 2.5 mm <sup>2</sup>
Cross-sectional area, flexible	0.08 - 2.5 mm <sup>2</sup>
Tightening torque (terminal)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	VDE 0845-2, IEC 61643-21
Approvals, Certifications	CSA

### Ordering information

Type	BVT RS485 5
Part No.	918 401
Packing unit	1 pc(s)



Dimension drawing BVT AD



As a unipolar diode is used, negative operating voltages are not permissible.



- EMC protection for PLC 24 V power supplies
- Especially low protection level
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Quickly responding surge protection, for e.g. Siemens SPS S7-300 with dc power supply. Especially, if an electromagnetically rough environment has to be expected and conventional varistor-based arresters do not limit sharply enough.

BVT AD 24	
Nominal voltage $U_N$	24 V
Max. continuous dc voltage $U_C$	35 V
Nominal current $I_L$	10 A
C2 Total nominal discharge current (8/20) $I_n$	2 kA
C2 Nominal discharge current (8/20) per line $I_n$	1 kA
Voltage protection line-line at $I_n$ C2 $U_p$	$\leq 70$ V
Voltage protection level line-PG at $I_n$ C2 $U_p$	$\leq 700$ V
Voltage protection level line-line at 1 kV/ $\mu$ s C3 $U_p$	$\leq 50$ V
Voltage protection level line-PG at 1 kV/ $\mu$ s C3 $U_p$	$\leq 700$ V
Parasitic capacitance line-line C	$\leq 7$ nF
Parasitic capacitance line-PG C	$\leq 10$ pF
Response time line-line $t_a$	$\leq 1$ ns
Response time line-PG $t_a$	$\leq 100$ ns
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail acc. to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.5 - 4.0 mm <sup>2</sup>
Cross-sectional area, flexible	0.5 - 4.0 mm <sup>2</sup>
Tightening torque (terminal)	0.8 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	VDE 0845-2, IEC 61643-21
Approvals, Certifications	CSA

Ordering information	
Type	BVT AD 24
Part No.	918 402
Packing unit	1 pc(s)