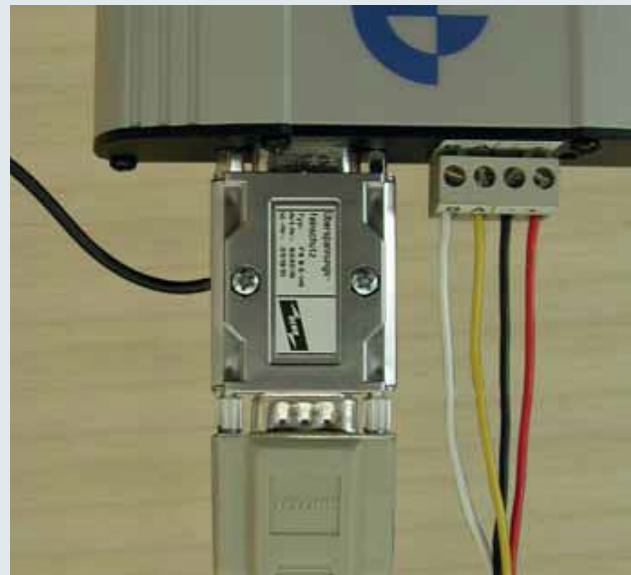


- Surge arrester with D-SUB connection for easy retrofitting
- 9-pole, 15-pole or 25-pole shielded types
- Arrester with single-stage (FS) or two-stage (USD) protective circuit



Surge arrester, D-Sub socket/pin version.
Alternative pinning available on request for the USD series.

The surge arresters are available in a shielded enclosure with D-Sub socket/pin version. The UNC threaded screws of the FS surge arresters for the protection of terminal equipment can be exchanged as required. The thread is thus situated either on the pin or socket side, depending on the

application. In switchgear cabinets, the powerful USD surge arrester can be snapped onto the DIN rail. Special types with other pinning or circuits are also available.



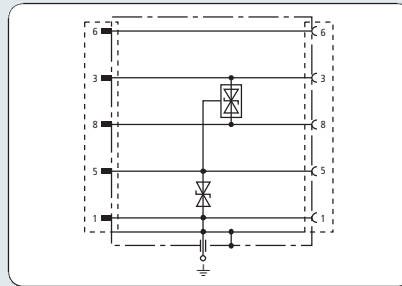
9-pole, 15-pole and 25-pole
FS surge arrester

The surge arresters are available in three different designs covering the most frequent applications. Thanks to their compact dimensions, they can be easily integrated into the cabling.

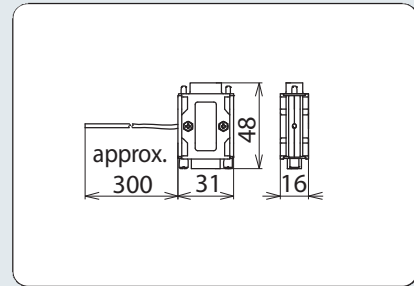


9-pole, 15-pole and 25-pole
USD surge arrester

USD surge arresters can be snapped onto a DIN rail which discharges the overvoltage. Three plug-in types are available.



Basic circuit diagram FS 9E PB



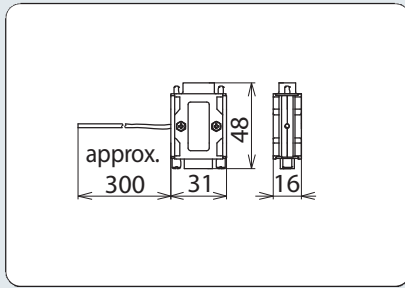
Dimension drawing FS 9E PB

- Adapted to Profibus-DP
- Transmission up to 12 MBit/s
- For installation in conformity with the lightning protection zones concept at the boundaries from 1 – 2 and higher

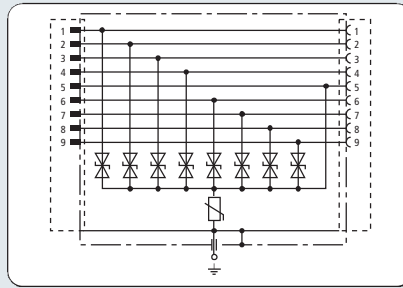
Surge arrester for Profibus-DP. 9-pin D-SUB version, pin 6 unprotected for the programming interface.

Type	FS 9E PB 6
Part No.	924 017
SPD class	TYPE 4P1
Nominal voltage (U_N)	6 V
Max. continuous operating d.c. voltage (U_C)	7 V
C1 Nominal discharge current (8/20 μ s) line-line (I_n)	0.2 kA
C1 Nominal discharge current (8/20 μ s) line-SG (I_n)	0.2 kA
C1 Nominal discharge current (8/20 μ s) SG-PG (I_n)	0.4 kA
Voltage protection level line-line for I_n C1 (U_p)	≤ 32 V
Voltage protection level line-SG for I_n C1 (U_p)	≤ 32 V
Voltage protection level SG-PG for I_n C1 (U_p)	≤ 25 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_C)	≤ 25 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 25 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Cut-off frequency (f_C)	90 MHz
Capacitance line-line (C)	25 pF
Capacitance line-SG (C)	35 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-SUB (2 threaded screws 4/40 UNC)
Connection (input/output)	D-SUB 9 plug / D-SUB 9 socket
Pinning	line: 3/8, SG: 5, PG: 1, 6: unprotected
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting lead	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST





Dimension drawing FS 9E HS



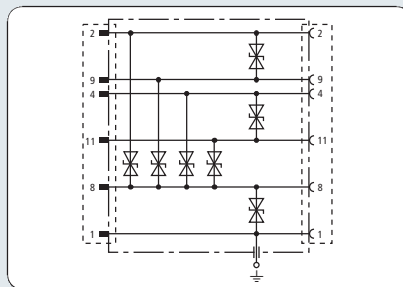
Basic circuit diagram FS 9E HS



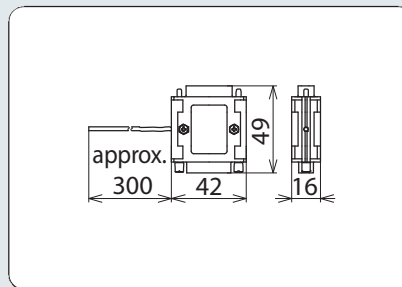
- All pins protected
- Low voltage protection level
- For installation in conformity with the lightning protection zones concept at the boundaries from 1 – 2 and higher

Surge arrester for V-24 interfaces with handshake. 9-pin D-SUB version.

Type	FS 9E HS 12
Part No.	924 019
SPD class	TYPE 4 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_C)	15 V
C1 Nominal discharge current (8/20 μ s) line-SG (I_n)	0.1 kA
C1 Nominal discharge current (8/20 μ s) SG-PG (I_n)	0.1 kA
Voltage protection level line-SG for I_n C1 (U_p)	≤ 24 V
Voltage protection level SG-PG for I_n C1 (U_p)	≤ 200 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 21 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 130 V
Cut-off frequency (f_c)	10 MHz
Capacitance line-SG (C)	700 pF
Capacitance SG-PG (C)	350 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-SUB (2 threaded screws 4/40 UNC)
Connection (input/output)	D-SUB 9 plug / D-SUB 9 socket
Pinning	line: 1/2/3/4/6/7/8/9, SG: 5
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting lead	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST



Basic circuit diagram FS 15E



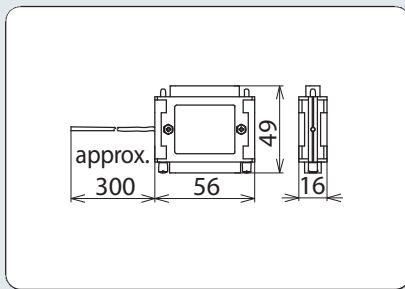
Dimension drawing FS 15E

- For four-wire interfaces
- Low voltage protection level
- For installation in conformity with the lightning protection zones concept at the boundaries from 1 – 2 and higher

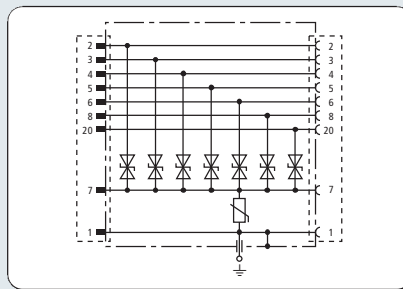
Surge arrester for RS422, V.11 interfaces (two pairs to common SG). 15-pin D-SUB version.

Type	FS 15E 5
Part No.	924 016
SPD class	TYPE 4 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	8 V
C1 Nominal discharge current (8/20 μ s) line-SG (I_N)	0.2 kA
C1 Nominal discharge current (8/20 μ s) SG-PG (I_N)	0.6 kA
Voltage protection level line-line for I_N C1 (U_p)	≤ 18 V
Voltage protection level line-SG for I_N C1 (U_p)	≤ 16 V
Voltage protection level SG-PG for I_N C1 (U_p)	≤ 18 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_C)	≤ 11 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 11 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 11 V
Cut-off frequency (f_c)	4 MHz
Capacitance line-line (C)	1500 pF
Capacitance line-SG (C)	1600 pF
Capacitance line-PG (C)	1200 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-SUB (2 threaded screws 4/40 UNC)
Connection (input/output)	D-SUB 15 plug / D-SUB 15 socket
Pinning	line: 2/9, 4/11, SG: 8, PG: 1
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting lead	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST





Dimension drawing FS 25E HS



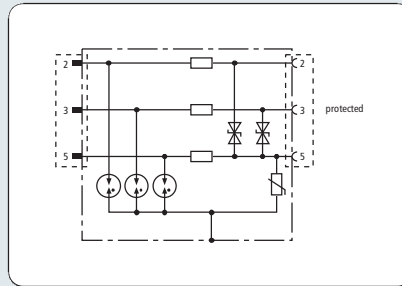
Basic circuit diagram FS 25E HS



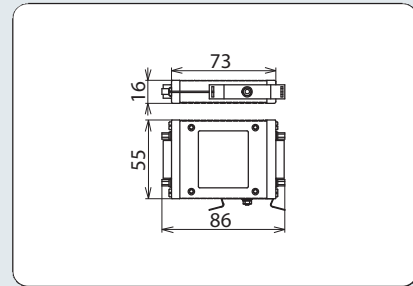
- All lines interconnected
- Low voltage protection level
- For installation in conformity with the lightning protection zones concept at the boundaries from 1 – 2 and higher

Surge arrester for V.24 interfaces with handshake. 25-pin D-SUB version.

Type	FS 25E HS 12
Part No.	924 018
SPD class	TYPE 4 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_C)	15 V
C1 Nominal discharge current (8/20 μ s) line-SG (I_n)	0.1 kA
C1 Nominal discharge current (8/20 μ s) SG-PG (I_n)	0.1 kA
Voltage protection level line-SG for I_n C1 (U_p)	≤ 24 V
Voltage protection level SG-PG for I_n C1 (U_p)	≤ 200 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 21 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 130 V
Cut-off frequency (f_c)	10 MHz
Capacitance line-SG (C)	700 pF
Capacitance SG-PG (C)	350 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-SUB (2 threaded screws 4/40 UNC)
Connection (input/output)	D-SUB 25 plug / D-SUB 25 socket
Pinning	line: 2/3/4/5/6/8/20, SG: 7, other lines are unprotected
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting lead	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST



Basic circuit diagram USD 9 V24



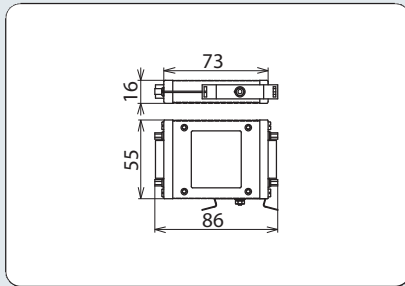
Dimension drawing USD 9 V24

- Plug-in surge arrester with two-stage protective circuit
- For installation in conformity with the lightning protection zones concept at the boundaries from $0_B - 2$ and higher

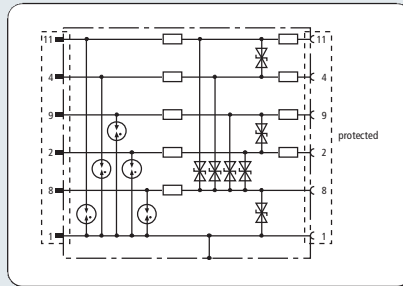
Energy-coordinated two-stage arrester for V.24 interfaces. 9-pin D-SUB version.

Type	USD 9 V24 S B
Part No.	924 061
SPD class	TYPE 2 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_C)	12.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	7.5 kA
Voltage protection level line-SG for I_n C2 (U_p)	≤ 22 V
Voltage protection level SG-PG for I_n C2 (U_p)	≤ 330 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 220 V
Series impedance per line	15 ohms
Operating temperature range	-40°C...+80°C
For mounting on	D-SUB or 35 mm DIN rails acc. to EN 60715
Connection (input/output)	D-SUB 9 plug / D-SUB 9 socket
Pinning	line: 2/3, SG: 5
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST





Dimension drawing USD 15 V11



Basic circuit diagram USD 15 V11

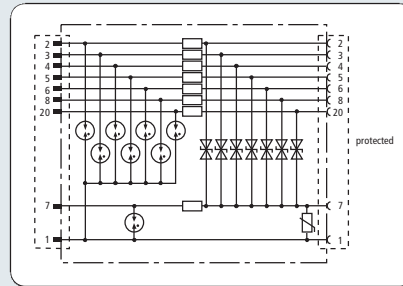


Energy-coordinated two-stage arrester for RS422, V.11 interfaces with diode protective circuit at the input. 15-pin D-SUB version.

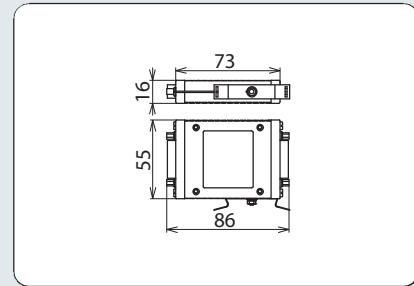
- Plug-in surge arrester with two-stage protective circuit
- Integrated decoupling of the protective circuit with regard to the terminal equipment
- For installation in conformity with the lightning protection zones concept at the boundaries from $O_B - 2$ and higher

Type	USD 15 V11 S B
Part No.	924 051
SPD class	TYPE 2 P1
Nominal voltage (U_N)	8 V
Max. continuous operating d.c. voltage (U_C)	8.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	7.5 kA
Voltage protection level line-line/line-SG C2 (U_p)	≤ 15 V
Voltage protection level SG-PG for I_n C2 (U_p)	≤ 20 V
Voltage protection level line-line/line-SG at 1 kV/ μ s C3 (U_p)	≤ 11 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 15 V
Series impedance per line	37 ohms
Operating temperature range	-40°C...+80°C
For mounting on	D-SUB or 35 mm DIN rails acc. to EN 60715
Connection (input/output)	D-SUB 15 plug / D-SUB 15 socket
Pinning	line: 2/9/4/11, SG: 8, PG: 1
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST





Basic circuit diagram USD 25 V24



Dimension drawing USD 25 V24

- Plug-in surge arrester with two-stage protective circuit
- For installation in conformity with the lightning protection zones concept at the boundaries from $0_B - 2$ and higher

Energy-coordinated two-stage arrester for V.24 interfaces with handshake. 25-pin D-SUB version.

Type	USD 25 V24 HS S B
Part No.	924 046
SPD class	TYPE 2 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_C)	12.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_N)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_N)	7.5 kA
Voltage protection level line-SG for I_N C2 (U_p)	≤ 27 V
Voltage protection level SG-PG/line-PG for I_N C2 (U_p)	≤ 330 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 220 V
Series impedance per line	15 ohms
Operating temperature range	-40°C...+80°C
Connection (input/output)	D-SUB 25 plug / D-SUB 25 socket
Pinning	line: 2/3/4/5/6/8/20, SG: 7, PG: 1
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

