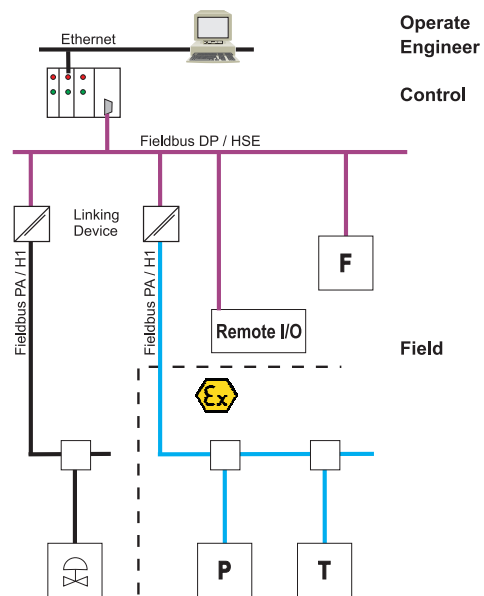

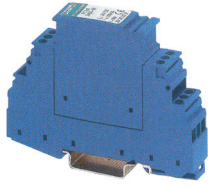




# Fieldbus accessories



### Overvoltage / surge protection

- For 2-wire fieldbus cable
- Non Ex (Hazardous) applications
- Ex (Hazardous) applications

| <b>Overvoltage protection for 2-wire fieldbus cable</b>     |  |  |
|---|--|--|
|   | <br>M00690  | <br>M00691  |
|   | <b>NGV210-NO<br/>NGV211-NO</b>   | <b>NGV210-EX<br/>NGV211-EX</b>   |
| Application   | Overvoltage protection device for <u>two</u> separate floating signal circuits (PROFIBUS PA, FOUNDATION Fieldbus-H1), consisting of a base element NGV210-NO and a plug-in module NGV211-NO. A fine protection element guarantees a low voltage threshold in conjunction with fast response between the corresponding cores. The high surge arresting capacity is achieved by using gas-filled surge voltage arresters from each wire to the common reference potential. | Overvoltage protection device for <u>two</u> separate intrinsically safe floating signal circuits (PROFIBUS PA, FOUNDATION Fieldbus-H1), consisting of a base element NGV210-EX and a plug-in module NGV211-EX. According to EN 60079-14, the installation site is Ex zone 1 and 2. The signal circuits may reach into Ex zone 0. The protective circuits comply with international standards such as EN 50 020, DIN EN 50 020, VDE 0170/0171 part 7: 1996-04 as well as DIN VDE 0165 and TRBF 100 by creating a respect distance of 500 V to all metal installations and other intrinsically safe circuits. |
| Internet  | <a href="http://www.abb.com/fieldbus">www.abb.com/fieldbus</a>   | <a href="http://www.abb.com/fieldbus">www.abb.com/fieldbus</a>   |
| Temperature range   | -40 ... 85 °C  | -40 ... 85 °C  |
| Inflammability class in acc. with UL 94                     | V0   | V0   |
| Type of protection  | IP 20  | IP 20  |
| Approval  | EMV-89/336/EWG, UL/C-UL  | EMV-89/336/EWG, UL/C-UL, ATEX  |
| Explosion protection  | –  | II 1GD EEx ia IIC T4 ... T6  |
| FISCO approval  | –  | Not for passive components   |
| Physics   | MBP-LP, IEC 61158, 2-wire  | MBP-IS, IEC 61158, 2-wire  |
| Nominal voltage $U_N$                                       | 24 V AC  | 24 V DC  |
| Max. permitted voltage $U_C$                                | 40 V DC / 28 V AC  | 30 V DC / 21 V AC  |
| Direct lightning impulse current $I_{imp}$ (10/350) $\mu$ s | Per path: 2,5 kA   | Per path: 2,5 kA   |
| Nominal current $I_N$ at 40 °C                              | Max. 450 mA  | Max. 325 mA  |
| Nominal discharge surge current $I_N$ (8/20) $\mu$ s        | Core-core / core-(PE): 10 kA / 10 kA   | Core-core / core-(PE): 10 kA / 10 kA   |
| Max. discharge current $I_{max}$ (8/20) $\mu$ s             | Core-(PE): 20 kA   | Core-(PE): 20 kA   |
| Output voltage limitation at 1 kV/ $\mu$ s                  | Core-core / core-(PE): $\leq 55$ V / $\leq 450$ V  | Core-core / core-(PE): $\leq 45$ V / $\leq 1$ kV   |
| Residual voltage at $I_N$                                   | Core-core / core-(PE): $\leq 55$ V / $\leq 450$ V  | Core-core / core-(PE): $\leq 45$ V / –   |
| Response time $t_A$   | Core-core / core-(PE): $\leq 1$ ns / $\leq 100$ ns   | Core-core / core-(PE): $\leq 1$ ns / $\leq 100$ ns   |
| Resistance per path   | 1-2 / 5-6 / 7-8 / 11-12: 2.2 $\Omega$  | 1-2 / 5-6 / 7-8 / 11-12: 2.2 $\Omega$  |
| Base element  | For mounting on top hat rail, with gas-filled surge arrester between connections 3/4 (PE) and 9/10   | For mounting on top hat rail   |
| Base element and plug-in module                             | 2-channels   | 2-channels   |
| Total dimension   | W / H / L: 17.5 / 66 / 90 mm   | W / H / L: 17.5 / 66 / 90 mm   |
| Connection data for cable<br>solid / stranded / AWG         | 0.2 ... 4 mm <sup>2</sup> / 0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12  | 0.2 ... 4 mm <sup>2</sup> / 0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12  |

| <b>Surge protection for 2-wire fieldbus cable</b> |  |  |
|---|--|--|
|   | <br>M00692                      | <br>M00693  |
|   | <b>NGV220-NO</b>   | <b>NGV220-EX</b>   |
| Application                                       | Surge protection for cable gland mounting (PROFIBUS PA, FOUNDATION Fieldbus-H1), M20 x 1.5, standard, 1-channel. | Surge protection for cable gland mounting (PROFIBUS PA, FOUNDATION Fieldbus-H1), M20 x 1.5, Ex(Haz.) mounting, 1-channel.<br>Hint:<br>Surge protection is permitted only for ATEX intrinsically safe devices which will be installed in zone 1 or 2. Measuring circuit of these devices with surge protection can also be used for zone 0 if allowed in the ATEX approval of this device type. |
| Internet  | <a href="http://www.abb.com/fieldbus">www.abb.com/fieldbus</a>   | <a href="http://www.abb.com/fieldbus">www.abb.com/fieldbus</a>   |
| Operating temperature range                       | -40 ... 80 °C  | -40 ... 80 °C  |
| Enclosure material                                | V2A  | V2A  |
| Type of protection                                | IP 67  | IP 67  |
| Approvals   | CE, GOST   | CE, GOST, 09ATEX0122 X   |
| Explosion protection                              | -  | II 2(1)G Ex ia IIC T4 ... T6   |
| FISCO approval                                    | -  | Not for passive components   |
| Physics   | MBP-LP, IEC 61158, 2-wire  | MBP-IS, IEC 61158, 2-wire  |
| Nominal voltage $U_N$                             | 24 V   | 24 V   |
| Max. continuous voltage $U_C$                     | 34.8 V DC / 24.5 V AC  | 34.8 V DC / 24.5 V AC  |
| Max. $U_i / I_i$ (Input) acc. to EN 50020         | -  | 30 V / 0.5 A   |
| Capacitance                                       | Core-core/core-PG: $\leq 400$ pF / $\leq 20$ pF  | Core-core/core-PG: $\leq 850$ pF / $\leq 15$ pF  |
| Nominal current $I_N$                             | 0.5 A  | 0.5 A  |
| C2 Nominal discharge current $I_N$ (8/20) $\mu$ s | Total / per core: 10 kA / 10 kA  | Total / per core: 10 kA / 5 kA   |
| C2 Nominal discharge current $I_N$ (8/20) $\mu$ s | shielding-PG: 20 kA  | -  |
| Voltage protection level at 1 kV/ $\mu$ s C3      | Core-core / core-PG: $\leq 50$ V / $\leq 500$ V  | Core-core / core-PG: $\leq 49$ V / $\leq 1$ kV   |
| Voltage protection level at $I_N$ C2              | Core-core / core-PG: $\leq 65$ V / $\leq 650$ V  | Core-core / core-PG: $\leq 55$ V / $\leq 1,1$ kV   |
| Response time $t_A$                               | Core-core / core-PG: $\leq 1$ ns / $\leq 100$ ns   | Core-core / core-PG: $\leq 1$ ns / $\leq 100$ ns   |
| Series impedance per line                         | 2.2 $\Omega$   | 1.8 $\Omega$   |
| Mounting of field / connection                    | M20 x 1.5 female thread / screw  | M20 x 1.5 female thread / screw  |
| Mounting of device side / connection              | M20 x 1.5 male thread / connecting leads<br>1.5 mm <sup>2</sup> , length 200 mm                                  | M20 x 1.5 male thread / connecting leads<br>1.5 mm <sup>2</sup> , length 200 mm  |
| Total dimension                                   | W / H / L: 27 / 71 / 27 mm   | W / H / L: 27 / 71 / 27 mm   |
| Cross-section area for field<br>solid / flexible  | 0.08 ... 2.5 mm <sup>2</sup> / 0.08 ... 1.5 mm <sup>2</sup>  | 0.08 ... 2.5 mm <sup>2</sup> / 0.08 ... 1.5 mm <sup>2</sup>  |
| Earthing by                                       | Enclosure  | Enclosure  |

## Ordering information

| Overvoltage protection for 2-wire fieldbus cable<br>(PROFIBUS PA, FOUNDATION Fieldbus H1)  | Catalog No.      |
|--|------------------|
| <b>NGV210-NO</b> (2839224)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Overvoltage protection - Basic element for NGV211-NO with gas conductor<br>top-hat rail mounting, IP 20, 2-channel  | 63615-9890180    |
| <b>NGV211-NO</b> (2838283)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Overvoltage protection - Cartridge for signal loops operated at zero ground<br>potential, IP 20, 2-channel<br>$U_N$ 24 V AC, $I_N \leq 450$ mA  | 63615-9890181    |
| <b>NGV210-EX</b> (2839279)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Overvoltage protection - Basic element for NGV211-EX for the Ex (Haz.) area<br>top-hat rail mounting, IP 20, 2-channel  | 63615-9890182    |
| <b>NGV211-EX</b> (2838225)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Overvoltage protection - Cartridge for EEx ia circuits, IP 20, 2-channel<br>$U_N$ 24 V DC, $I_N \leq 325$ mA  | 63615-9890183    |
| <b>NGV220-NO</b> (929941)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Surge protection for cable gland mounting, M20 x 1.5,<br>IP 67, 1-channel<br>$U_N$ 24 V DC, $I_N \leq 500$ mA  | 1) 63615-7964116 |
| <b>NGV220-EX</b> (929960)<br>For 2-wire fieldbus cable (PROFIBUS PA, FOUNDATION Fieldbus-H1)<br>Surge protection for cable gland mounting, M20 x 1.5,<br>for Ex ia circuits, IP 67, 1-channel<br>$U_N$ 24 V DC, $I_N \leq 500$ mA,<br>Hint:<br>Surge protection is permitted only for ATEX <u>intrinsically safe</u> devices which will be installed in zone 1 or 2.<br>Measuring circuit of these devices with surge protection can also be used for zone 0 if allowed in the ATEX<br>approval of this device type. | 1) 63615-7964115 |

1) Device as well useable for 4 ... 20 mA technique  
 Not useable for ABB Field device types: FXE4000, FV4000, FS4000.







# Contact us

## **ABB Automation Products GmbH**

Borsigstr. 2  
63755 Alzenau  
Germany

Phone: +49 551 905-534  
Fax: +49 551 905-555

**[www.abb.com](http://www.abb.com)**

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