

## VARIOSUB D-SUB 9 Contact Inserts, Sleeve Housings

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VARIOSUB is a range of plug connectors specially designed for signal and data technology in an industrial environment with high degrees of protection, temperatures and mechanical stress. The range is characterized by the simple Push-Pull locking mechanism, use of conventional D-SUB contact inserts, IP 67 protection and EMC protection.

The VARIOSUB housings offer the space and time-saving Push-Pull locking, which snaps in with a noticeable click. Two integrated lamellar cable screw connections for cable diameters of 3-10 mm provide high cable strain relief.

When locked, the housings fulfill the requirements of IP 67 protection, and require only little operating force thanks to a special profile gasket.

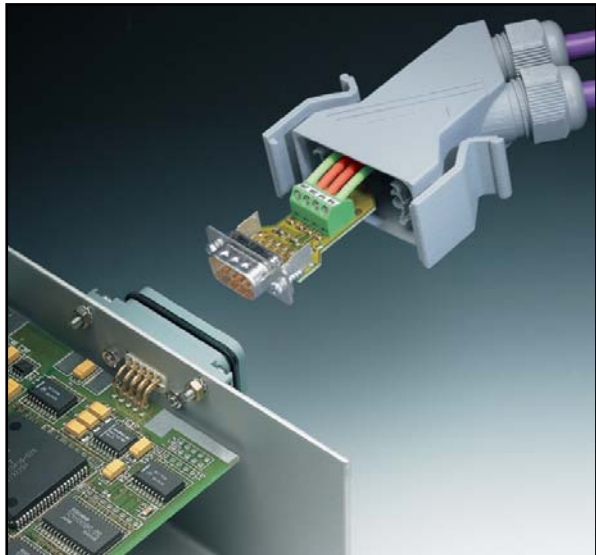
Red snap-in profiles offer up to 16 coding possibilities to avoid incorrect plugging. Marker labeling is also provided for.

Simple logistics due to the small number of individual components and high functionality of the housings help to save costs and increase availability. Mounting flanges on the panel mounting base accept the contact inserts. This allows internal and external wall mounting of the contact inserts.

The male and female inserts in D-SUB 9 format enable 9 data lines and the cable shield to be connected. The connection points are clearly numbered. This facilitates any start-up under field conditions.

Industrial connectors are available for the sleeve and mounting side. They are made with screw connection, for soldering onto printed circuit boards, with a flat-ribbon cable connection and for crimp contacts.

For currents up to 40 A or in combination with signal lines, two versions are available as male and female connectors. The use of these plug connectors saves space on the inside of the device. The contacts are equipped with U-grooves for manual solder connection and cover the maximum possible cross section range.



# VARIOSUB D-SUB 9

## Contact Inserts

### Screw Connection



| Description   | Type                     | Order No.    | Pcs./Pkt. |
|---|--------------------------|--------------|-----------|
| <b>Male contact inserts,</b><br>with PCB and 10 x MPT 0,5 screw connections   | VS-09-ST-DSUB/10-MPT-0,5 | 16 88 37 9   | 10        |
| <b>Female contact inserts,</b><br>with PCB and 10 x MPT 0,5 screw connections | VS-09-BU-DSUB/10-MPT-0,5 | 16 88 39 5   | 10        |
| <b>Technical data</b>   |                          |              |           |
| <b>Mechanical data</b>  |                          |              |           |
| Insertion force per signal contact  | [N]                      | ≤ 3.3        |           |
| Extraction force per signal contact   | [N]                      | ≤ 2.2        |           |
| Insertion/withdrawal cycles   |                          | ≥ 200        |           |
| <b>Material and surfaces</b>  |                          |              |           |
| Insulating body   |                          | PBTP         |           |
| Contact material  |                          | Cu alloy     |           |
| Contact surface   |                          | Ni/Au        |           |
| <b>Electrical data</b>  |                          |              |           |
| Max. amperage   | [A]                      | 1            |           |
| Operating voltage   | [V]                      | 63           |           |
| Contact resistance per contact pair   | [mΩ]                     | ≤ 2.5        |           |
| Insulation resistance   | [MΩ]                     | ≥ 5000       |           |
| <b>Thermal and climatic data</b>  |                          |              |           |
| Temperature range   | [°C]                     | - 20 to + 80 |           |

# VARIOSUB D-SUB 9

## Contact Inserts

### Solder Connection



| Description  | Type             | Order No.     | Pcs./Pkt. |
|--|------------------|---------------|-----------|
| <b>Male contact inserts,</b><br>solder connection,<br>with straight solder pins, with hole   | VS-09-ST-DSUB-EG | 16 88 79 3    | 10        |
| <b>Female contact inserts,</b><br>solder connection,<br>with straight solder pins, with hole | VS-09-BU-DSUB-EG | 16 88 80 3    | 10        |
| <b>Male contact inserts,</b><br>solder connection,<br>with angled solder pins, with thread   | VS-09-ST-DSUB-ER | 16 88 38 2    | 10        |
| <b>Female contact inserts,</b><br>solder connection,<br>with angled solder pins, with thread | VS-09-BU-DSUB-ER | 16 88 40 5    | 10        |
| <b>Technical data</b>  |                  |               |           |
| <b>Mechanical data</b>   |                  |               |           |
| Insertion force per signal contact   | [N]              | ≤ 3.3         |           |
| Extraction force per signal contact  | [N]              | ≤ 2.2         |           |
| Insertion/withdrawal cycles  |                  | ≥ 200         |           |
| <b>Material and surfaces</b>   |                  |               |           |
| Insulating body  |                  | PBTP          |           |
| Contact material   |                  | Cu alloy      |           |
| Contact surface  |                  | Ni/Au         |           |
| <b>Electrical data</b>   |                  |               |           |
| Max. amperage  | [A]              | 1             |           |
| Operating voltage  | [V]              | 63            |           |
| Contact resistance per contact pair  | [mΩ]             | ≤ 2.5         |           |
| Insulation resistance  | [MΩ]             | ≥ 5000        |           |
| <b>Thermal and climatic data</b>   |                  |               |           |
| Temperature range  | [°C]             | - 55 to + 125 |           |

# VARIOSUB D-SUB 9

## Contact Inserts

### Flat-Ribbon Cable Connection



| Description   | Type             | Order No.     | Pcs./Pkt. |
|---|------------------|---------------|-----------|
| <b>Male contact inserts,</b><br>flat-ribbon cable connection,<br>with holes   | VS-09-ST-DSUB-FK | 16 88 81 6    | 10        |
| <b>Female contact inserts,</b><br>flat-ribbon cable connection,<br>with holes | VS-09-BU-DSUB-FK | 16 88 92 9    | 10        |
| <b>Technical data</b>   |                  |               |           |
| <b>Mechanical data</b>  |                  |               |           |
| Insertion force per signal contact  | [N]              | ≤ 3.3         |           |
| Extraction force per signal contact   | [N]              | ≤ 2.2         |           |
| Insertion/withdrawal cycles   |                  | ≥ 200         |           |
| <b>Material and surfaces</b>  |                  |               |           |
| Insulating body   |                  | PBTP          |           |
| Contact material  |                  | Cu alloy      |           |
| Contact surface   |                  | Ni/Au         |           |
| <b>Electrical data</b>  |                  |               |           |
| Max. amperage   | [A]              | 1             |           |
| Operating voltage   | [V]              | 63            |           |
| Contact resistance per contact pair   | [mΩ]             | ≤ 2.5         |           |
| Insulation resistance   | [MΩ]             | ≥ 5000        |           |
| <b>Thermal and climatic data</b>  |                  |               |           |
| Temperature range   | [°C]             | - 55 to + 125 |           |

# VARIOSUB D-SUB 9

## Contact Inserts

### Crimp Connection



| Description  | Type                   | Order No.                                      | Pcs./Pkt.                |
|--|------------------------|--|--------------------------|
| <b>Male contact carrier,</b><br>crimp contact carriers,<br>with thread   | VS-09-ST-DSUB-CD-G     | 16 88 83 2                                     | 10                       |
| <b>Female contact carrier,</b><br>crimp contact carriers,<br>with thread | VS-09-BU-DSUB-CD-G     | 16 88 84 5                                     | 10                       |
| <b>Male contact carrier,</b><br>crimp contact carriers,<br>with holes    | VS-09-ST-DSUB-CD-B     | 16 88 85 8                                     | 10                       |
| <b>Female contact carrier,</b><br>crimp contact carriers,<br>with holes  | VS-09-BU-DSUB-CD-B     | 16 88 86 1                                     | 10                       |
| <b>Accessories</b>   |                        |  |                          |
| <b>Turned male crimp contacts,</b><br>surface gold-plated                | AWG 24-20<br>AWG 28-24 | VS-ST-CD-1,0/14,8/0,5<br>VS-ST-CD-1,0/14,8/0,2 | 16 88 96 8<br>16 88 97 1 |
| <b>Turned female crimp contacts,</b><br>surface gold-plated              | AWG 24-20<br>AWG 28-24 | VS-BU-CD-1,0/14,4/0,5<br>VS-BU-CD-1,0/14,4/0,2 | 16 88 98 4<br>16 88 99 7 |
| <b>Technical data</b>  |                        |  |                          |
| <b>Mechanical data</b>   |                        |  |                          |
| Insertion force per signal contact                                       | [N]                    | ≤ 3.3  |                          |
| Extraction force per signal contact                                      | [N]                    | ≤ 2.2  |                          |
| Insertion/withdrawal cycles  |                        | ≥ 200  |                          |
| <b>Electrical data</b>   |                        |  |                          |
| Max. amperage  | [A]                    | 1  |                          |
| Operating voltage  | [V]                    | 63   |                          |
| Insulation resistance  | [MΩ]                   | ≥ 5000   |                          |
| <b>Thermal and climatic data</b>   |                        |  |                          |
| Temperature range  | [°C]                   | - 55 to + 125                                  |                          |

# VARIOSUB D-SUB 9

## Contact Inserts with High Current Contacts

### Solder Connection



| Description  | Type                  | Order No.               | Pcs./Pkt. |
|--|-----------------------|-------------------------|-----------|
| <b>Male contact carrier,</b><br>for power contacts, 2-pos.               | VS-09-ST-DSUB-2P      | 16 88 41 8              | 10        |
| <b>Female contact carrier,</b><br>for power contacts, 2-pos.             | VS-09-BU-DSUB-2P      | 16 88 42 1              | 10        |
| <b>Accessories</b>   |                       |                         |           |
| <b>Male power contact for 20 A,</b><br>with U-groove solder connection   | VS-ST-LK-3,6/22,4/2,6 | 16 88 24 3              | 30        |
| <b>Female power contact for 20 A,</b><br>with U-groove solder connection | VS-BU-LK-3,6/22,8/2,6 | 16 88 25 6              | 30        |
| <b>Male power contact for 40 A,</b><br>with U-groove solder connection   | VS-ST-LK-3,6/22,4/4,6 | 16 88 26 9              | 30        |
| <b>Female power contact for 40 A,</b><br>with U-groove solder connection | VS-BU-LK-3,6/22,8/4,6 | 16 88 27 2              | 30        |
| <b>Technical data</b>  |                       |                         |           |
| <b>Mechanical data</b>   |                       |                         |           |
| Insertion/withdrawal cycles  |                       | ≥ 500                   |           |
| <b>Material and surfaces</b>   |                       |                         |           |
| Insulating body  |                       | PBTP GV (UL 94 V0)      |           |
| Housing  |                       | Steel                   |           |
| Housing surface  |                       | Tin-plated              |           |
| Contact material   |                       | Cu alloy                |           |
| Contact surface  |                       | 0.8 μm gold over nickel |           |
| <b>Electrical data</b>   |                       |                         |           |
| Max. amperage, power contacts  | [A]                   | 20 or 40                |           |
| Operating voltage  | [V]                   | 125                     |           |
| Contact resistance per contact pair                                      | [mΩ]                  | ≤ 2.5                   |           |
| Insulation resistance  | [MΩ]                  | ≥ 5000                  |           |
| Specific contact resistance  | [Ωcm]                 | 10 <sup>16</sup>        |           |
| Specific internal insulation resistance                                  | [KV/mm]               | 50                      |           |
| <b>Thermal and climatic data</b>   |                       |                         |           |
| Temperature range  | [°C]                  | - 20 to + 80            |           |

**Note:**

The power contacts must be ordered separately since they are not included in the scope of supply of the contact carriers of combi contact inserts. One female and one male contact each must be mounted in the VS-09-ST-DSUB-2P and VS-09-BU-DSUB-2P contact carriers.

# VARIOSUB D-SUB 9

## Contact Inserts with High Current and Signal Contacts

### Solder Connection



| Description  | Type                  | Order No.               | Pcs./Pkt. |
|--|-----------------------|-------------------------|-----------|
| <b>Male contact carrier,</b><br>for 1 power contact,<br>with 4 signal contacts, U-groove solder connection   | VS-09-ST-DSUB-1P-4S   | 16 89 00 6              | 10        |
| <b>Female contact carrier,</b><br>for 1 power contact,<br>with 4 signal contacts, U-groove solder connection | VS-09-BU-DSUB-1P-4S   | 16 89 01 9              | 10        |
| <b>Accessories</b>   |                       |                         |           |
| <b>Male power contact for 20 A,</b><br>with U-groove solder connection                                       | VS-ST-LK-3,6/22,4/2,6 | 16 88 24 3              | 30        |
| <b>Female power contact for 20 A,</b><br>with U-groove solder connection                                     | VS-BU-LK-3,6/22,8/2,6 | 16 88 25 6              | 30        |
| <b>Male power contact for 40 A,</b><br>with U-groove solder connection                                       | VS-ST-LK-3,6/22,4/4,6 | 16 88 26 9              | 30        |
| <b>Female power contact for 40 A,</b><br>with U-groove solder connection                                     | VS-BU-LK-3,6/22,8/4,6 | 16 88 27 2              | 30        |
| <b>Technical data</b>  |                       |                         |           |
| <b>Mechanical data</b>   |                       |                         |           |
| Insertion/withdrawal cycles  |                       | ≥ 500                   |           |
| <b>Material and surfaces</b>   |                       |                         |           |
| Insulating body  |                       | PBTP GV (UL 94 V0)      |           |
| Housing  |                       | Steel                   |           |
| Housing surface  |                       | Tin-plated              |           |
| Contact material   |                       | Cu alloy                |           |
| Contact surface  |                       | 0.8 µm gold over nickel |           |
| <b>Electrical data</b>   |                       |                         |           |
| Max. amperage, signal contacts   | [A]                   | 5                       |           |
| Max. amperage, power contacts  | [A]                   | 20 or 40                |           |
| Operating voltage  | [V]                   | 125                     |           |
| <b>Thermal and climatic data</b>   |                       |                         |           |
| Temperature range  | [°C]                  | - 20 to + 80            |           |

**Note:**  
The power contacts must be ordered separately since they are not included in the scope of supply of the contact carriers of combi contact inserts.

# VARIOSUB D-SUB 9 Sleeve Housings



| Description   | Type  | Order No.  | Pcs./Pkt.  |
|---|---|--|--|
| <p><b>Plastic sleeve housing,</b><br/>with Push-Pull locking for panel mounting base,<br/>with 2 inclined M 16 lamellar screw connections,<br/>with 2 screws for fastening the contact inserts</p>  | <b>VS-09-T-2M16</b>   | <b>16 88 35 3</b>  | 5  |
| <b>Accessories</b>  |   |  |  |
| <p><b>M 16 cap nut with seal</b><br/>for conductor diameters from 3-7mm<br/>for conductor diameters from 5-10mm</p> <p><b>Cover cap,</b><br/>for vacant PG11 screw connections</p> <p><b>Coding profile,</b><br/>made of red plastic, mounted in the panel mounting base and sleeve housing (4 profiles for each plug connector), see Fig. 1</p> <p><b>Marker labels,</b><br/>for snapping in</p> <p><b>Protective cover,</b><br/>for covering the contact insert in the panel mounting frame or sleeve housing</p> | <p><b>VS-M16 (3-6)</b><br/><b>VS-M16 (5-9)</b></p> <p><b>Q-PROT 9/11</b></p> <p><b>CP-HCC 4</b></p> <p><b>ZBN 18: UNBEDRUCKT</b></p> <p><b>VS-09-SD</b></p> | <p><b>16 88 45 0</b><br/><b>16 88 44 7</b></p> <p><b>16 70 23 5</b></p> <p><b>16 00 02 7</b></p> <p><b>28 09 12 8</b></p> <p><b>18 87 08 6</b></p> | <p>5</p> <p>10</p> <p>100</p> <p>10</p> <p>5</p> |
| <b>Technical data</b>   |   |  |  |
| Insulation material   | PA  |  |  |
| Inflammability class acc. to UL 94  | V0  |  |  |
| Degree of protection  | IP 67   |  |  |
| Temperature range   | - 20 to + 80  |  |  |

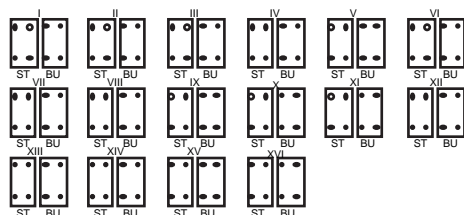
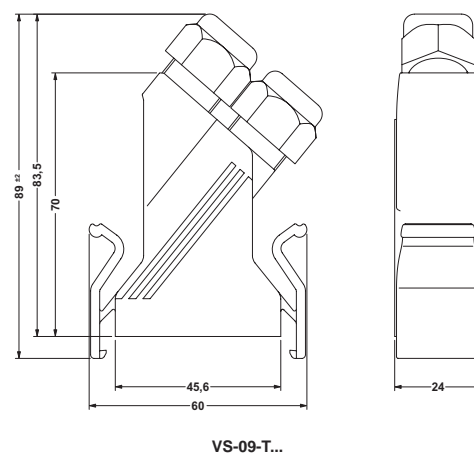


Figure 1: Coding for housings with one contact insert



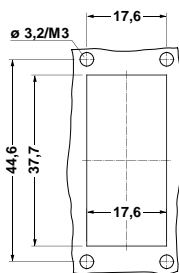
VS-09-T...



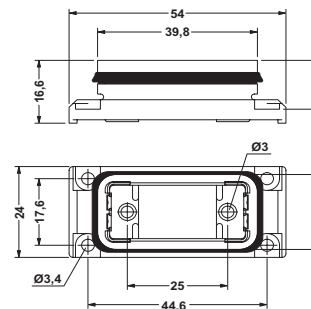
# VARIOSUB D-SUB 9 Panel Mounting Frames



| Description  | Type          | Order No.  | Pcs./Pkt. |
|--|---------------|------------|-----------|
| <b>Plastic panel mounting frame,</b><br>with radially-acting profile gasket mounted, with enclosed self-adhesive flat gasket (without mounting screws) | VS-09-A       | 16 88 36 6 | 5         |
| <b>Accessories</b>   |               |            |           |
| <b>EMC shroud,</b><br>for contacting a D-SUB contact insert on the mounting side with the outer wall of the housing                                    | VS-09-A-EMV-S | 16 88 46 3 | 5         |
| <b>Protective cover,</b><br>for covering the contact insert in the panel mounting frame or sleeve housing  | VS-09-SD      | 18 87 08 6 | 5         |
| <b>Technical data</b>  |               |            |           |
| Insulation material  | PA            |            |           |
| Inflammability class acc. to UL 94   | V0            |            |           |
| Degree of protection   | IP 67         |            |           |
| Temperature range  | - 20 to + 80  |            |           |



Panel cutout: VS-09-A-GC...

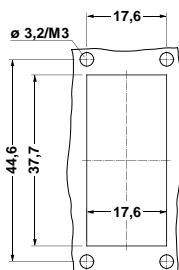


VS-09-A

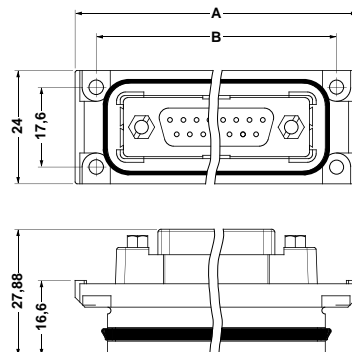
# VARIOSUB D-SUB 09 Panel Mounting Frames with Gender Changer



| Description                                      |                 | Type                    | Order No.         | Pcs./Pkt. |
|--|-----------------|-------------------------|-------------------|-----------|
| <b>Panel mounting frame, with gender changer</b> | Female / Female | <b>VS-09-A-GC-BU/BU</b> | <b>16 89 69 5</b> | 5         |
| <b>Panel mounting frame, with gender changer</b> | Male / Male     | <b>VS-09-A-GC-ST/ST</b> | <b>16 89 70 5</b> | 5         |
| <b>Technical data</b>                            |                 |                         |                   |           |
| Insulation material                              |                 |                         | PA                |           |
| Inflammability class acc. to UL 94               |                 |                         | V0                |           |
| Degree of protection                             |                 |                         | IP 67             |           |
| Temperature range                                | [°C]            |                         | - 20 to + 80      |           |



Panel cutout: VS-09-A-GC...



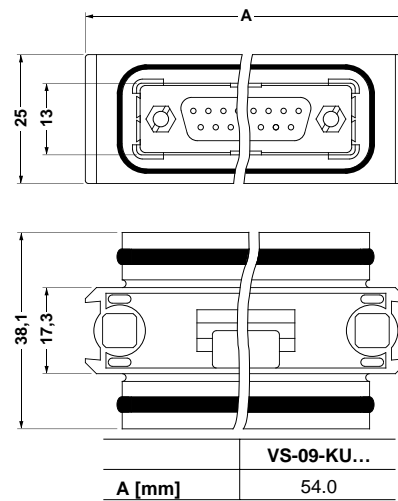
|               | VS-09-A-GC... |
|---------------|---------------|
| <b>A [mm]</b> | 54.0          |
| <b>B [mm]</b> | 44.6          |

Dimensional drawing: VS-09-A-GC...

# VARIOSUB D-SUB 09 Couplings



| Description                                    | Type                  | Order No.         | Pcs./Pkt. |
|--|-----------------------|-------------------|-----------|
| <b>Coupling,</b><br>9-pos.,<br>Female / Female | <b>VS-09-KU-BU/BU</b> | <b>16 89 63 7</b> | <b>5</b>  |
| <b>Coupling,</b><br>9-pos.,<br>Male / Male     | <b>VS-09-KU-ST/ST</b> | <b>16 89 64 0</b> | <b>5</b>  |
| <b>Technical data</b>                          |                       |                   |           |
| Insulation material                            |                       | PA                |           |
| Inflammability class acc. to UL 94             |                       | V0                |           |
| Degree of protection                           |                       | IP 67             |           |
| Temperature range                              | [°C]                  | - 20 to + 80      |           |



Dimensional drawing: VS-09-KU...

# VIARIOSUB D-SUB 9 Plug Connector Sets



## Description

**Set VARIOSUB D-SUB 9, standard version**  
for D-SUB 9 contact inserts, with Push-Pull locking, IP 67

**Set VARIOSUB D-SUB 9, EMC version**  
for D-SUB 9 contact inserts, with Push-Pull locking, IP 67

## Accessories

**Protective cover,**  
for covering the contact insert in the panel mounting frame  
or sleeve housing

## Technical data

Insulation material

Inflammability class acc. to UL 94

Degree of protection

Temperature range

[°C]

## Type

## Order No.

## Pcs./Pkt.

VS-09-SET-STD

16 89 14 5

1

VS-09-SET-EMV

16 89 15 8

1

VS-09-SD

18 87 08 6

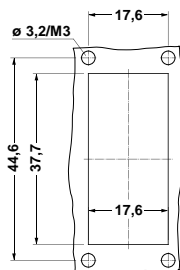
5

PA

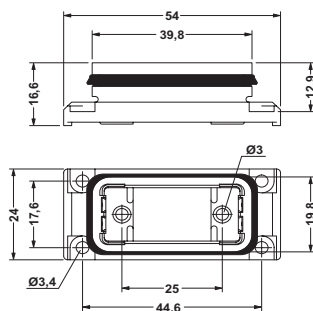
V0

IP 67

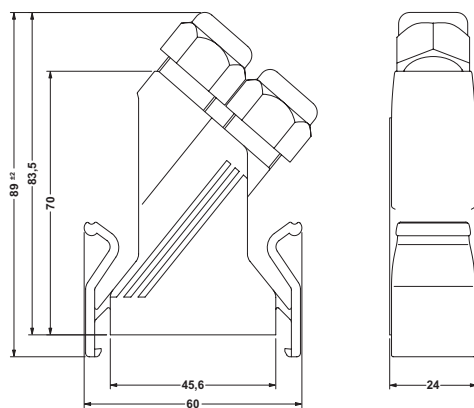
- 20 to + 80



Panel cutout: VS-09-A-GC...



Dimensions: Panel mounting frame

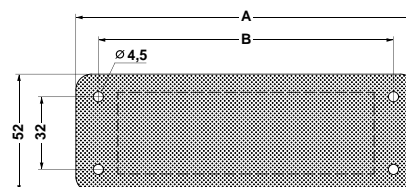


Dimensions: Sleeve housing

# VARIOSUB Accessories, Adapter Plates



| Description   | Type   | Order No.   | Pcs./Pkt. |
|---|--|---|-----------|
| <b>VARIOSUB adapter plates,</b><br>reinforced, including adapter frame and<br>protective cover<br>1 x VS 09<br>2 x VS 09<br>1 x VS 09, 1 x RJ 45/IP67 | <b>VS-ADP16-VS09</b><br><b>VS-ADP24-VS09/VS09</b><br><b>VS-ADP24-VS09/RJ45</b> | <b>16 52 13 0</b><br><b>16 52 16 9</b><br><b>16 52 17 2</b> | 1         |
| <b>Accessories</b>  |  |   |           |
| <b>Hand punch pliers,</b><br>pliers for punching tool   | VS-LWZH  | 18 89 51 4  | 1         |
| <b>Square punch,</b><br>punching tool for cutting out the panel mounting frame  | VS-LWZH/24,6/20,1  | 16 89 52 7  | 1         |



| Type         | A   | B   |
|--------------|-----|-----|
| VS-ADP 16... | 123 | 103 |
| VS-ADP 24... | 150 | 130 |

Table of dimensions for VS-ADP... adapter plates

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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