# VARIOSUB D-SUB 15
# Contact Inserts, Sleeve Housings

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, IP67 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 IP67 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.

An internal metal sleeve and shroud on the panel mounting base provide optional EMC protection.

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 15 format enable 15 data lines up to 0.35 $mm^2$ conductor cross section or 10 lines with 0.5 $mm^2$ conductor cross section 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.

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# VARIOSUB D-SUB 15
# Contact Inserts
# Screw Connection



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Male contact inserts,**<br>with PCB and 15 x MPT 0,5 screw connections | **VS-15-ST-DSUB/15-MPT-0,5** | **16 88 07 8** | 10 |
| **Female contact inserts,**<br>with PCB and 15 x MPT 0,5 screw connections | **VS-15-BU-DSUB/15-MPT-0,5** | **16 88 09 4** | 10 |

| **Technical data** | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion force per signal contact | [N] | ≤ 3.3 |
| Extraction force per signal contact | [N] | ≤ 2.2 |
| Insertion/withdrawal cycles | | ≥ 200 |
| **Material and surfaces** | | |
| Insulating body | | PBTP |
| Contact material | | Cu alloy |
| Contact surface | | Ni/Au |
| **Electrical data** | | |
| Max. amperage | [A] | 1 |
| Operating voltage | [V] | 63 |
| Contact resistance per contact pair | [mΩ] | ≤ 2.5 |
| Insulation resistance | [MΩ] | ≥ 5000 |
| **Thermal and climatice data** | | |
| Temperature range | [°C] | - 20 to + 80 |

# VARIOSUB D-SUB 15
# Contact Inserts
# Solder Connection



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Male contact inserts,**<br>solder connection,<br>15-pos., with straight solder pins, with hole | **VS-15-ST-DSUB-EG** | **16 88 87 4** | 10 |
| **Female contact inserts,**<br>solder connection,<br>15-pos., with straight solder pins, with hole | **VS-15-BU-DSUB-EG** | **16 88 88 7** | 10 |
| **Male contact inserts,**<br>solder connection,<br>15-pos., with angled solder pins, with thread | **VS-15-ST-DSUB-ER** | **16 88 08 1** | 10 |
| **Female contact inserts,**<br>solder connection,<br>15-pos., with angled solder pins, with thread | **VS-15-BU-DSUB-ER** | **16 88 12 0** | 10 |

| **Technical data** | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion force per signal contact | [N] | ≤ 3.3 |
| Extraction force per signal contact | [N] | ≤ 2.2 |
| Insertion/withdrawal cycles | | ≥ 200 |
| **Material and surfaces** | | |
| Insulating body | | PBTP |
| Contact material | | Cu alloy |
| Contact surface | | Ni/Au |
| **Electrical data** | | |
| Max. amperage | [A] | 1 |
| Operating voltage | [V] | 63 |
| Contact resistance per contact pair | [mΩ] | ≤ 2.5 |
| Insulation resistance | [MΩ] | ≥ 5000 |
| **Thermal and climatice data** | | |
| Temperature range | [°C] | - 55 to + 125 |

# VARIOSUB D-SUB 15
# Contact Inserts
# Flat-Ribbon Cable Connection



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Male contact inserts,** flat-ribbon cable connection, 15-pos., with holes | **VS-15-ST-DSUB-FK** | **16 88 89 0** | 10 |
| **Female contact inserts,** flat-ribbon cable connection, 15-pos., with holes | **VS-15-BU-DSUB-FK** | **16 88 90 0** | 10 |

| **Technical data** | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion force per signal contact | [N] | ≤ 3.3 |
| Extraction force per signal contact | [N] | ≤ 2.2 |
| Insertion/withdrawal cycles | | ≥ 200 |
| **Material and surfaces** | | |
| Insulating body | | PBTP |
| Contact material | | Cu alloy |
| Contact surface | | Ni/Au |
| **Electrical data** | | |
| Max. amperage | [A] | 1 |
| Operating voltage | [V] | 63 |
| Contact resistance per contact pair | [mΩ] | ≤ 2.5 |
| Insulation resistance | [MΩ] | ≥ 5000 |
| **Thermal and climatice data** | | |
| Temperature range | [°C] | - 55 to + 125 |

# VARIOSUB D-SUB 15
# Contact Inserts
# Crimp Connection



| Description | | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|---|
| **Male contact carrier,**<br>crimp contact carriers,<br>15-pos., with thread | | **VS-15-ST-DSUB-CD-G** | **16 88 91 3** | 10 |
| **Female contact carrier,**<br>crimp contact carriers,<br>15-pos., with thread | | **VS-15-BU-DSUB-CD-G** | **16 88 92 6** | 10 |
| **Male contact carrier,**<br>crimp contact carriers,<br>15-pos., with holes | | **VS-15-ST-DSUB-CD-B** | **16 88 93 9** | 10 |
| **Female contact carrier,**<br>crimp contact carriers,<br>15-pos., with holes | | **VS-15-BU-DSUB-CD-B** | **16 88 94 2** | 10 |
| **Accessories** | | | | |
| **Turned male crimp contacts,**<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** | 30 |
| **Turned female crimp contacts,**<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** | 30 |

| Technical data | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion force per signal contact | [N] | ≤ 3.3 |
| Extraction force per signal contact | [N] | ≤ 2.2 |
| Insertion/withdrawal cycles | | ≥ 200 |
| **Electrical data** | | |
| Max. amperage | [A] | 1 |
| Operating voltage | [V] | 63 |
| Insulation resistance | [MΩ] | ≥ 5000 |
| **Thermal and climatice data** | | |
| Temperature range | [°C] | - 55 to + 125 |

# VARIOSUB D-SUB 15 Contact Inserts with High Current Contacts Solder Connection



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Male contact carrier,** for power contacts, 3-pos. | **VS-15-ST-DSUB-3P** | **16 88 20 1** | 10 |
| **Female contact carrier,** for power contacts, 3-pos. | **VS-15-BU-DSUB-3P** | **16 88 21 4** | 10 |
| **Accessories** | | | |
| **Male power contact for 20 A,** with U-groove solder connection | **VS-ST-LK-3,6/22,4/2,6** | **16 88 24 3** | 30 |
| **Female power contact for 20 A,** with U-groove solder connection | **VS-BU-LK-3,6/22,8/2,6** | **16 88 25 6** | 30 |
| **Male power contact for 40 A,** with U-groove solder connection | **VS-ST-LK-3,6/22,4/4,6** | **16 88 26 9** | 30 |
| **Female power contact for 40 A,** with U-groove solder connection | **VS-BU-LK-3,6/22,8/4,6** | **16 88 27 2** | 30 |

| Technical data | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion/withdrawal cycles | | ≥ 500 |
| **Material and surfaces** | | |
| 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 |
| **Electrical data** | | |
| 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] | $10^{16}$ |
| Specific internal insulation resistance | [KV/mm] | 50 |
| **Thermal and climatice data** | | |
| 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 15
# Contact Inserts with High Current and Signal Contacts
# Solder Connection



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Male contact carrier,**<br>for 2 power contacts,<br>with 5 signal contacts, U-groove solder connection | **VS-15-ST-DSUB-2P-5S** | **16 88 22 7** | 10 |
| **Female contact carrier,**<br>for 2 power contacts,<br>with 5 signal contacts, U-groove solder connection | **VS-15-BU-DSUB-2P-5S** | **16 88 23 0** | 10 |

**Accessories**

| | | | |
|---|---|---|---|
| **Male power contact for 20 A,**<br>with U-groove solder connection | **VS-ST-LK-3,6/22,4/2,6** | **16 88 24 3** | 30 |
| **Female power contact for 20 A,**<br>with U-groove solder connection | **VS-BU-LK-3,6/22,8/2,6** | **16 88 25 6** | 30 |
| **Male power contact for 40 A,**<br>with U-groove solder connection | **VS-ST-LK-3,6/22,4/4,6** | **16 88 26 9** | 30 |
| **Female power contact for 40 A,**<br>with U-groove solder connection | **VS-BU-LK-3,6/22,8/4,6** | **16 88 27 2** | 30 |

**Technical data**

| | | |
|---|---|---|
| **Mechanical data** | | |
| Insertion/withdrawal cycles | | ≥ 500 |
| **Material and surfaces** | | |
| 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 |
| **Electrical data** | | |
| Max. amperage, signal contacts | [A] | 5 |
| Max. amperage, power contacts | [A] | 20 or 40 |
| Operating voltage | [V] | 125 |
| **Thermal and climatice data** | | |
| 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 15
# Sleeve Housings



| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Plastic sleeve housing,**<br>with Push-Pull locking for panel mounting base,<br>with 2 inclined PG11 lamellar screw connections,<br>with 2 screws for fastening the contact inserts | **VS-15-T-2PG11** | **16 88 05 2** | 5 |
| **Accessories** | | | |
| **PG 11 cap nut** with seal<br>for conductor diameters from 3-7mm<br>for conductor diameters from 5-10mm | <br>**VS-PG11 (3-7)**<br>**VS-PG11 (5-10)** | <br>**16 88 11 7**<br>**16 88 10 4** | <br>5 |
| **Cover cap,**<br>for vacant PG11 screw connections | **VC-PG 11 BS** | **16 88 14 6** | 10 |
| **Coding profile,**<br>made of red plastic, mounted in the panel mounting base and sleeve housing (4 profiles for each plug connector), see Fig. 1 | **CP-HCC 4** | **16 00 02 7** | 100 |
| **Marker labels,**<br>for snapping in | **ZBN 18: UNBEDRUCKT** | **28 09 12 8** | 10 |
| **EMC internal sleeve,**<br>with connection clamp and screw for contacting 2 conductor screens | **VS-15-TI-2EMV** | **16 88 06 5** | 5 |
| **Protective cover**,<br>for covering the contact insert in the panel mounting frame or sleeve housing | **VS-15-SD** | **18 87 09 9** | 5 |

| Technical data | | |
|---|---|---|
| Insulation material | | PA |
| Inflammability class acc. to UL 94 | | V0 |
| Degree of protection | | IP67 |
| Temperature range | [°C] | - 20 to + 80 |

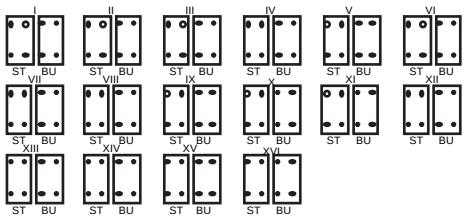
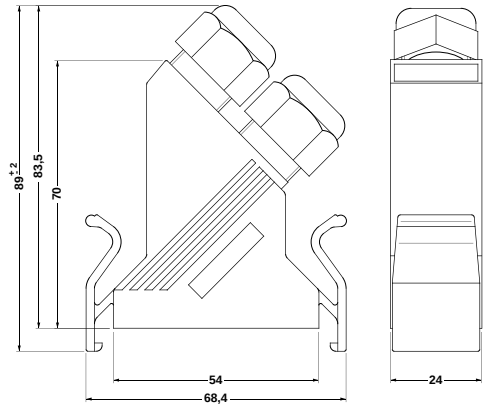



**Figure 1: Coding for housings with one contact insert**



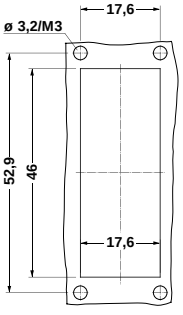

**VS-15-T...**

# VARIOSUB D-SUB 15
# Panel Mounting Frames

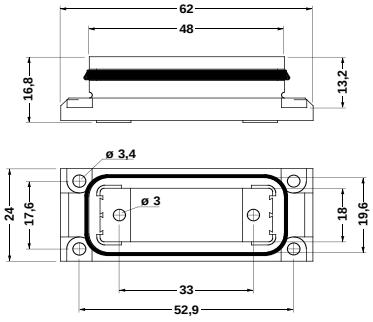


| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Plastic panel mounting frame,**<br>with radially-acting profile gasket mounted, with enclosed self-adhesive flat gasket (without mounting screws) | **VS-15-A** | **16 88 03 6** | 5 |
| **Accessories** | | | |
| **EMC shroud,**<br>for contacting a D-SUB contact insert on the mounting side with the outer wall of the housing | **VS-15-A-EMV-S** | **16 88 04 9** | 5 |
| **Protective cover**,<br>for covering the contact insert in the panel mounting frame or sleeve housing | **VS-15-SD** | **18 87 09 9** | 5 |

| **Technical data** | | |
|---|---|---|
| Insulation material | | PA |
| Inflammability class acc. to UL 94 | | V0 |
| Degree of protection | | IP67 |
| Temperature range | [°C] | - 20 to + 80 |




**Panel cutout: VS-15-A**




**VS-15-A**

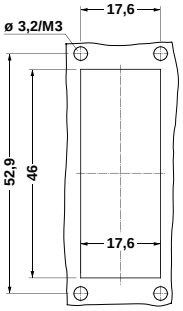
# VARIOSUB D-SUB 15
# Panel Mounting Frames with Gender Changer



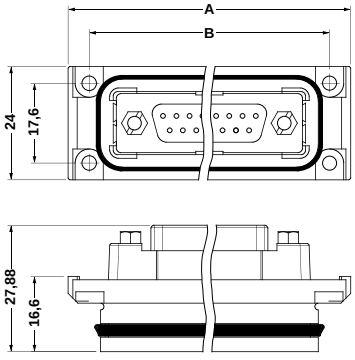
**The illustration shows the 9-pos. version**

| Description | | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|---|
| **Panel mounting frame,** with gender changer | Female / Female | **VS-15-A-GC-BU/BU** | **16 89 71 8** | 5 |
| **Panel mounting frame,** with gender changer | Male / Male | **VS-15-A-GC-ST/ST** | **16 89 72 1** | 5 |

| **Technical data** | | |
|---|---|---|
| Insulation material | | PA |
| Inflammability class acc. to UL 94 | | V0 |
| Degree of protection | | IP67 |
| Temperature range | [°C] | - 20 to + 80 |




**Panel cutout: VS-15-A-GC...**




| | VS-15-A-GC… |
|---|---|
| **A [mm]** | 62.3 |
| **B [mm]** | 52.9 |

**Dimensional drawing: VS-15-A-GC…**

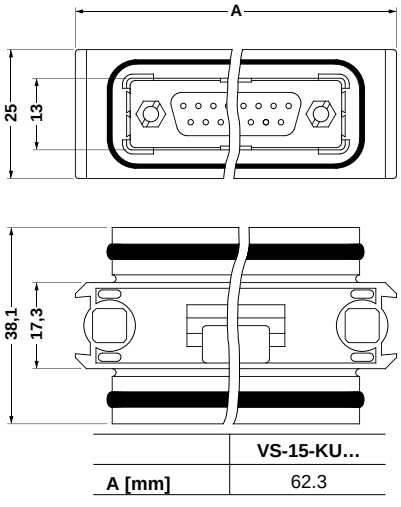
# VARIOSUB D-SUB 15
# Couplings



**The illustration shows the 9-pos. version**

| Description | | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|---|
| **Coupling,** 15-pos., | Female / Female | **VS-15-KU-BU/BU** | **16 89 65 3** | 5 |
| **Coupling,** 15-pos. | Male / Male | **VS-15-KU-ST/ST** | **16 89 66 6** | 5 |

| **Technical data** | | |
|---|---|---|
| Insulation material | | PA |
| Inflammability class acc. to UL 94 | | V0 |
| Degree of protection | | IP67 |
| Temperature range | [°C] | - 20 to + 80 |




| | VS-15-KU… |
|---|---|
| **A [mm]** | 62.3 |

**Dimensional drawing: VS-15-KU…**

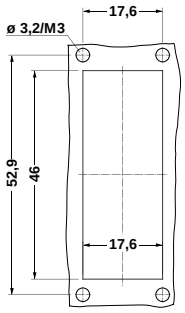
# VARIOSUB D-SUB 15
# Plug Connector Sets



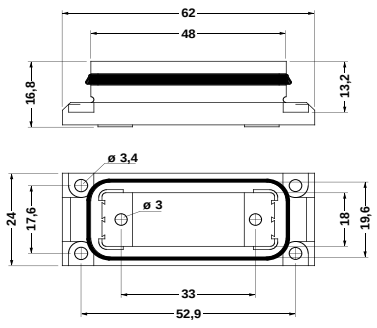


| Description | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| **Set VARIOSUB D-SUB 15, standard version**<br>for D-SUB 15 contact inserts, with Push-Pull locking, IP67 | **VS-15-SET-STD** | **16 89 12 9** | 1 |
| **Set VARIOSUB D-SUB 15, EMC version**<br>for D-SUB 15 contact inserts, with Push-Pull locking, IP67 | **VS-15-SET-EMV** | **16 89 13 2** | 1 |
| **Accessories** | | | |
| **Protective cover**,<br>for covering the contact insert in the panel mounting frame or sleeve housing | **VS-15-SD** | **18 87 09 9** | 5 |

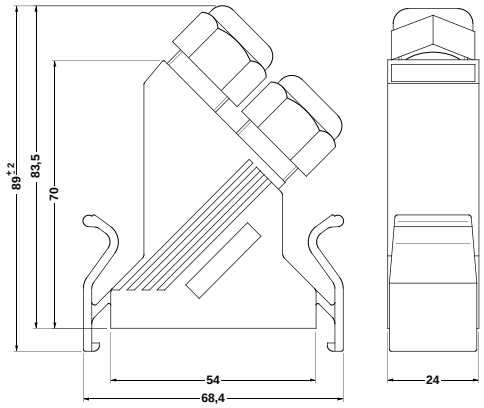
| **Technical data** | | |
|---|---|---|
| Insulation material | | PA |
| Inflammability class acc. to UL 94 | | V0 |
| Degree of protection | | IP67 |
| Temperature range | [°C] | - 20 to + 80 |




**Panel cutout of panel mounting frame**




**Dimensions: Panel mounting frame**

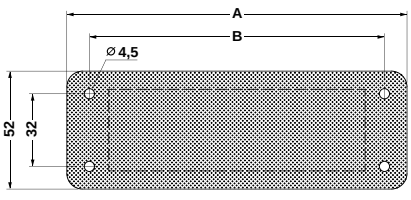



**Dimensions: Sleeve housing**

# VARIOSUB Accessories, Adapter Plates



| Description | | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|---|
| **VARIOSUB adapter plates,**<br>reinforced, including adapter frame and protective cover | 1 x VS15<br>1 x VS15, 1 x RJ 45/IP67 | **VS-ADP16-VS15**<br>**VS-ADP24-VS15/RJ45** | **16 52 14 3**<br>**16 52 18 5** | 1 |
| **Accessories** | | | | |
| **Hand punch pliers,**<br>pliers for punching tool | | **VS-LWZH** | **18 89 51 4** | 1 |
| **Square punch,**<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**



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