

## /// Socket, push-in terminals, panel mount

Sockets for extreme reliability, within long endurance applications and harsh environments

### V33 Socket



#### Description

The V33 is a panel/flush mount relay socket. The V33 socket has a base with two highly reliable push-in terminals per relay contact, so looping/daisy chaining can be done on the socket and no external connector or terminal is needed.

Solid and stranded wires with ferrules can be inserted without using a tool or pressing a lever. Wires up to 3.3 mm<sup>2</sup> can be inserted. This quick & easy wiring method saves up to 75% wiring time. Pinning on the socket complies with pinning on the relay.

To prevent fault relay placement the socket can be equipped with mechanical keying to accept only designated identical keyed relays.

#### Application

The V33 relay socket is suitable for general railway and industry applications with a space saving design. Installation and replacement of relays is made easy and cost saving. No maintenance is required for the user.

Suitable for all railway and industry D- & D-U relay series.

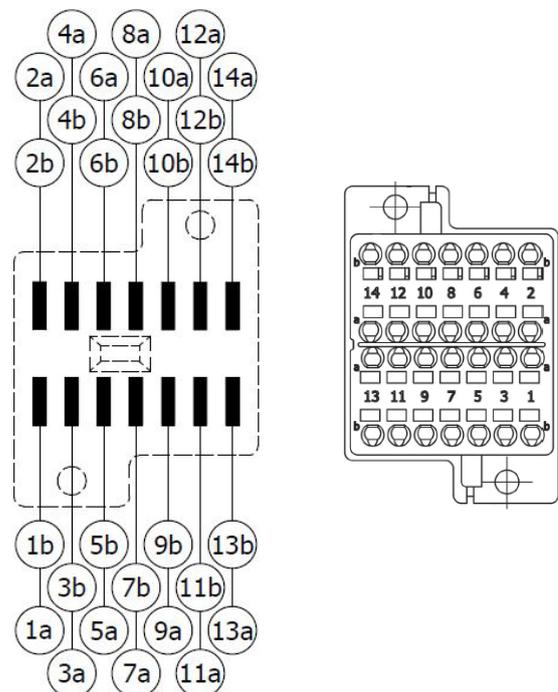
#### Features

- Panel / flush mount
- Very compact solution
- Sturdy push-in terminals
- Solid and stranded wires with ferrules can be inserted easily without using a tool
- Stranded wires without ferrules can be inserted with a flat-bladed screwdriver
- Twin connection per relay contact
- Large wires up to 3.3 mm<sup>2</sup> (AWG 12)
- High density matrix of relay/sockets possible, horizontal and vertical stacked
- Suitable for all railway and industry D- & D-U relay series
- Easy & quick installation (up to 75% reduction of wiring time)
- Positive mechanical keying
- Trifurcated female receiver for tight grip relay pin
- Clear terminal ID

#### Connection diagram

Top view (relay side)

Bottom view (wiring side)



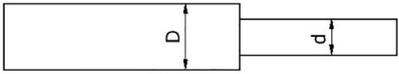
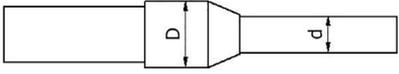
#### Railway compliancy

EN 50155  
IEC 60571  
EN 45545-2  
NF F16-101/102  
NF F 62-002  
IEC 61373

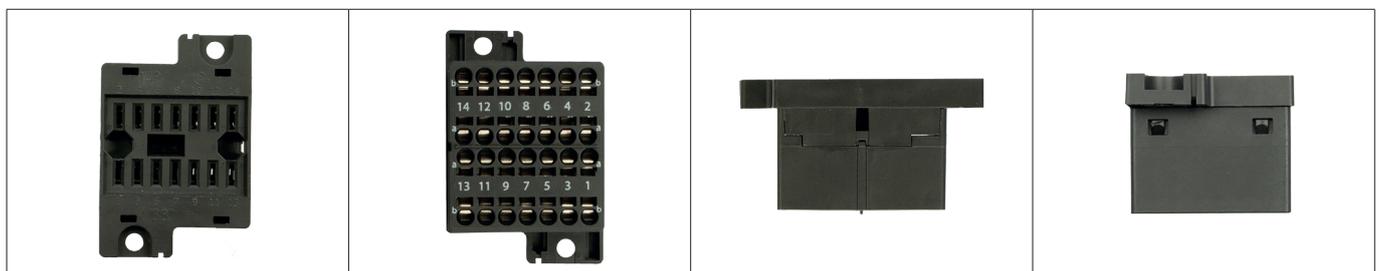
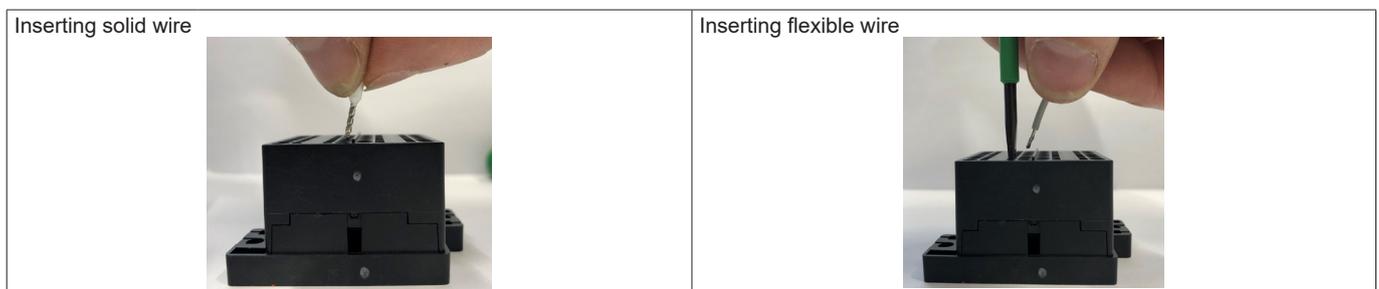
#### Industry compliancy

EN 60947-5-1  
IEC 61810  
REACH  
RoHS

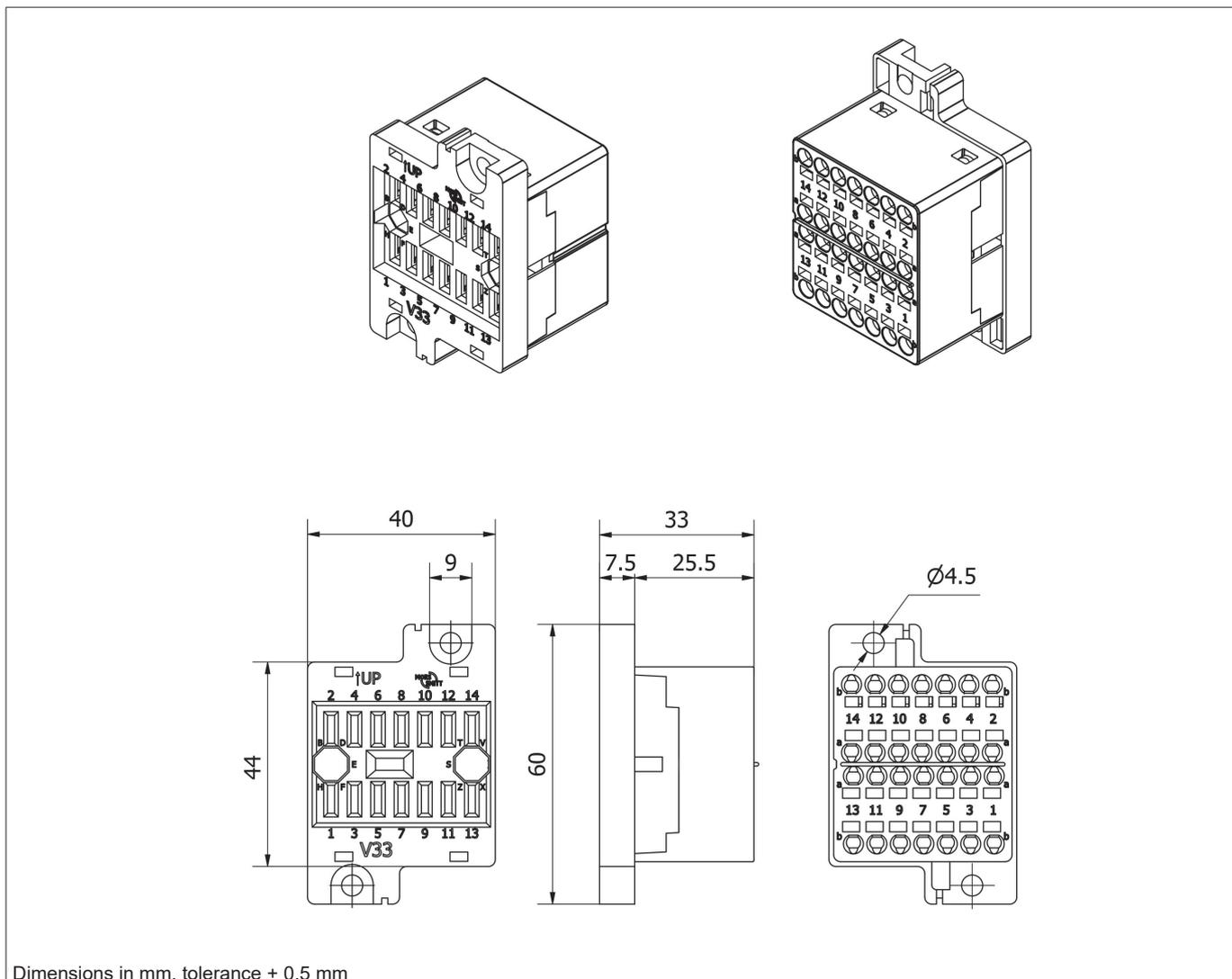
**Technical specifications**

|                                   |  |   |
|-----------------------------------|--|---|
| Contact rating                    |  | 10 A  |
| Dielectric strength               | IEC 50155  | 2500 V, 50 Hz, 1 min  |
| Protecting category               | IEC 60529  | IP40 (with relay), back side IP20   |
| Mounting                          |  | Panel mounting  |
| Max. ambient temperature          |  | 80 °C   |
| Weight                            |  | 66 g  |
| Dimensions                        |  | 60 x 40 x 33 mm (depth is 25.5 mm from front of panel)  |
| Connection                        | <p>Connection technology</p> <p>Insulated conductor</p>  <p>Insulated conductor with insulated ferrule</p>  <p>Solid conductor</p> <p>Fine-stranded conductor</p> <p>Fine-stranded conductor; with insulated ferrule</p> <p>Fine-stranded conductor; without insulated ferrule</p> <p>Wire stripping length</p> <p>Pole No.</p> <p>Total number of connection points</p> | <p>Push-in (stranded wire without ferrule: spring clamp)</p> <p>Wires with insulation diameter max. 4.25 mm (D) and conductor diameter max. 2.05 mm (d)</p> <p>0.08 - 2.5 mm<sup>2</sup> / 28 - 12 AWG</p> <p>0.14 - 2.5 mm<sup>2</sup> / 28 - 12 AWG</p> <p>0.14 - 1.5 mm<sup>2</sup></p> <p>0.25 - 2.5 mm<sup>2</sup></p> <p>9 - 10 mm / 0.35 - 0.39 inch</p> <p>14</p> <p>28</p> |
| Material                          |  | Housing polyamide 66, 30% glass (EN 45545-2: HL3 for requirements R22, R23, R26)  |
| Max. torque value mounting screws |  | 2.5 Nm (M4 screw)   |
| Accessories                       |  | A104 Key receptable   |
| Recommended tooling               |  | Flat screw driver with isolated shaft, blade 3.5 x 0.5 mm or 3.5 x 0.6 mm   |
| Angle of insertion tooling        |  | 90° +/- 5° from insertion surface   |

Remark: in Q4 2021 the V33 is improved. For information about the V33 previous version, contact Mors Smitt.



## Dimensions



Dimensions in mm, tolerance  $\pm 0.5$  mm

## Railway compliancy

|                |  |
|----------------|--|
| EN 50155       | Railway applications - Rolling stock - Electronic equipment  |
| IEC 60571      | Railway applications - Electronic equipment used on rolling stock  |
| NF F16-101/102 | Railway rolling stock - Fire behavior  |
| EN 45545-2     | Railway applications - Fire protection on railway vehicles<br>Part 2: Requirements for fire behavior of materials and components |
| NF F 62-002    | Railway rolling stock - On-off contact relays and fixed connections  |
| IEC 61373      | Railway applications - Rolling stock equipment - Shock and vibration tests   |

## Industry compliancy

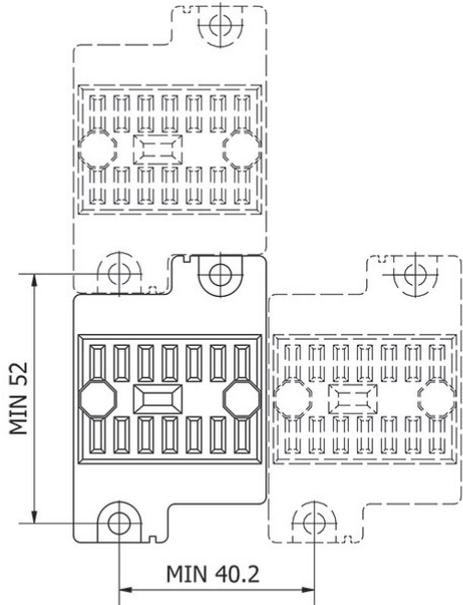
|   |  |
|---|--|
| EN 60947-5-1  | Electromechanical control circuit devices and switching elements                                       |
| IEC 61810   | Electromechanical elementary relays  |
| EU Directive 2011/65/EU<br>EU Directive 2011/863/EU | EU directives on the use of certain hazardous substances in electrical and electronic equipment (RoHS) |
| EU Directive 1907/2006                              | Registration, Evaluation and Authorization of Chemicals (REACH)  |

**Socket  
V33**

Tri-furcated female receiver for tight grip relay pin



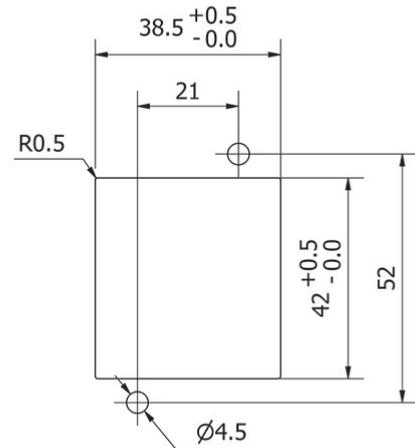
Optimum use of space



MIN 52

MIN 40.2

Minimal pattern distance



$38.5^{+0.5}_{-0.0}$

21

R0.5

$42^{+0.5}_{-0.0}$

52

$\varnothing 4.5$

Panel cut-out

Example high density relay module with V33 sockets

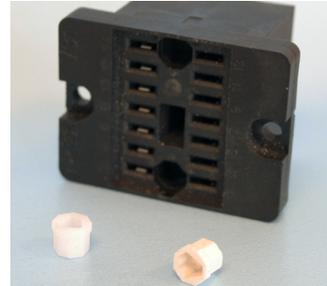


backside (wiring side)



**Socket  
V33**

**Mechanical keying relay and socket (optional)**



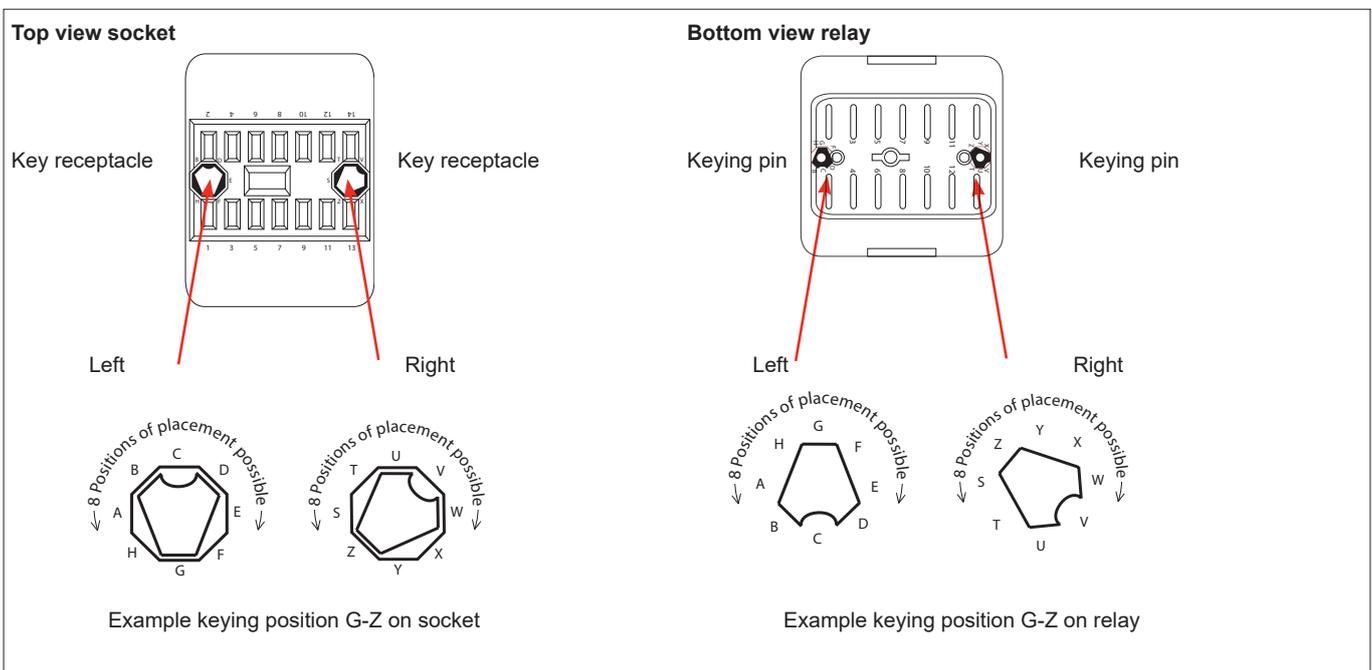
**Function:**

- To prevent wrong installation
- To prevent damage to equipment
- To prevent unsafe situations

Using keyed relays and sockets prevents a relay is inserted in a wrong socket. For example it prevents that a 24 VDC relay is put in a 110 VDC circuit. Positive discrimination is possible per different function, coil voltage, timing, monitoring, safety and non-safety.

The D relay keying option provides  $8 \times 8 = 64$  possibilities. Upon ordering the customer simply indicates the need for the optional keying. Mors Smitt will assign a code to the relay and fix the pins into the relay. The sockets are supplied with loose key receptacles. Inserting the keys into the socket is very simple and self explanatory.

Remark: Sockets and relay shown are examples.



## Installation and inspection

### Installation

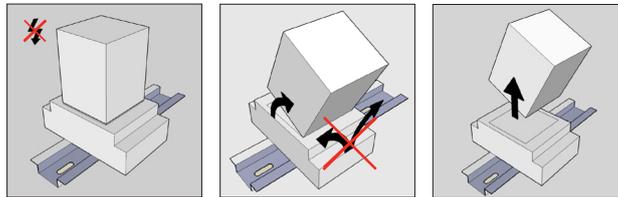
Before installation or working on the relay: disconnect the power supply first! (no hot swapping)

Install socket and connect wiring according to the terminal identification. Plug relay into the socket ensuring there is no gap between the bottom of relay and the socket. Reverse installation into the socket is not possible due to the mechanical blocking snap-lock feature.

No external retaining clip needed as the 'snap-lock' will hold the relay into the socket under all circumstances and mounting directions (according shock & vibration requirements IEC 61373, Category I, Class B, Body mounted). If regulations require external retaining clips, these are available as well

### Warning!

- To remove relays from the socket, employ up and down lever movements. Sideway movement may cause damage to the coil wires.



When plugging the relay into the socket, the female trifurcated receivers will automatically cut through the corrosion on the pins and guarantee a reliable connection.

### Inspection

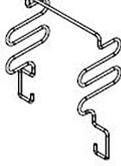
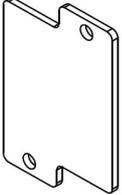
If the socket does not work after inspection of the correct wiring and relay connection, replace the unit with a similar model.

When returning products for investigation, please provide all information on the RMA form. Send defective products back to the manufacturer for repair or replacement. Normal wear and tear or external causes are excluded from warranty.

RMA procedure: See [www.morssmitt.com](http://www.morssmitt.com)

## Socket V33

### Ordering codes

|  |  |   |   |   |
|--|--|---|---|---|
| <br>V33 | <br>V88 | <br>A104 | <br>A030 | <br>A033 |
|         |  |   |   |   |

Remark: In Q4 2021 the V33 and V88 sockets are renewed and have new article numbers. For more information contact Mors Smitt.

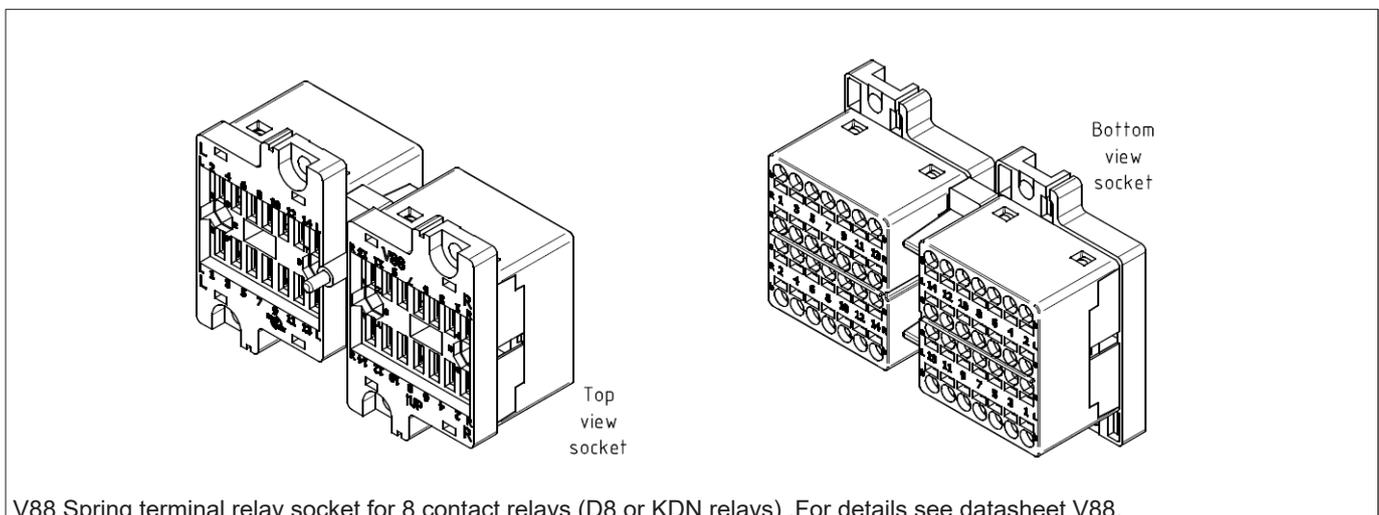
| Article no. | Code | Description   |
|-------------|------|---|
| 338000670   | V33  | Spring terminal relay socket                            |
| 338001710   | V88  | Spring terminal relay socket for 8 contact relays       |
| 378690100   | A104 | Key receptacle (2 necessary per V33 socket)             |
| 560484013   | A030 | Retaining clip for D- & DU-relays series of 53 mm high* |
| 560484014   | A033 | Retaining clip for D- & DU-relays series of 76 mm high* |
| 560882058   | -    | Blanking plate V33 socket                               |

\*Only necessary when regulations require as no external retaining clip needed as the 'snap-lock' will hold the relay into the socket under all circumstances and mounting directions.

#### Order examples:

|                 |   |
|-----------------|---|
| V33             | Socket without keying   |
| V33 code AS     | Socket with keying AS (two A104 key receptacles are inserted in position AS in the factory)           |
| V33 and 2x A104 | Socket without keying and 2 separate A104 key receptacles, to be inserted in correct position by user |

### V88 socket



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 **Over 10 million Mors Smitt relays in use in applications worldwide!**

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