



# Terminal Block Application Guide for Instrumentation

# FAQs

## Terminal Blocks for connecting Field Instrumentation in Process applications

### **Why use terminal blocks to connect instrumentation devices to the control unit?**

Instrumentation is used throughout a process plant. Long distances and high signal volume make it impractical to connect signal channels directly to control units or I/O modules. Using terminal blocks, signals can be collected and bundled in junction boxes and marshalling cabinets throughout the plant, then wired to the DCS in the control room.

### **What connection functions are needed?**

The most common function is feed-through: signals are connected from one wire to another. Fast-blow fuses or other current limiting devices can be integrated into the terminal block to protect the control system I/O modules from field wiring faults. Disconnect terminal blocks with integral test plugs are used for test and measurement purposes during commissioning and ongoing maintenance.

### **Why provide fusing with terminal blocks?**

Fusing protects the control unit and instrumentation from damage caused by short circuits or wiring faults in the field. Signal channels on control I/O modules have fuse protection as a standard feature. Fused terminal blocks provide additional protection, and are preferred because access and handling for maintenance and fuse changing is more convenient, and limits unnecessary contact with the control unit.

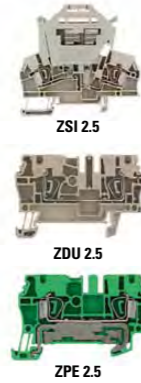
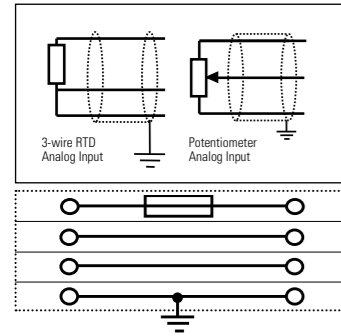
### **Why is a disconnect function included on a terminal block?**

The disconnect function is often required to open individual signal circuits for digital I/Os. For analog signals, disconnect terminal blocks are used for test and measurement during field commissioning and maintenance.

### **What typical connection configurations are used?**

Connection configuration is dependent on the type of signal and the field instrumentation. The positive (+) signal is wired to a fuse or disconnect block, and the neutral wire is connected to a feed-through terminal block. There is one terminal block per wire, resulting in two terminal blocks per signal loop. Three terminal blocks may be needed if the shield wire is also connected to a separate PE ground block. Other configurations use two or more circuits in one multi-level terminal block, and provide options that include a pluggable interface to the I/O modules.

### 3-Wire Inputs



#### Selection Criteria:

- 4 terminal blocks per channel
- Width/channel: 23.2mm
- 3 wire/channel + shield

#### Features:

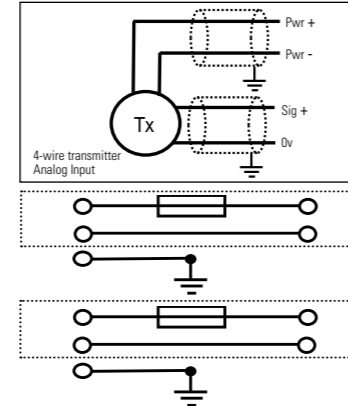
- **Screwless and fast connection technology**
- Hinged fuse holder
- Top wire entry

Option 1: Fused		
Description	Width	Part No.
ZSI 2.5	7.9mm	1616400000
ZDU 2.5 (x 2)	10.2mm	1608510000
ZPE 2.5	5.1mm	1608640000
<b>Total Width</b>	23.2mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
ZTR 2.5	5.1mm	1831280000
ZDU 2.5 (x 2)	10.2mm	1608510000
ZPE 2.5	5.1mm	1608640000
<b>Total Width</b>	20.4mm	

Accessories		
Description	Width	Part No.
End plate: ZAP TW1	2.0mm	1608740000
Jumper: ZQV 2.5/10		1608940000
End bracket: ZEW 35	6.0mm	9540000000
Marker: WS 12/5		1609860000

### 4-Wire Inputs



#### Selection Criteria:

- 2 terminal blocks per channel/busbar for shield
- Width/channel: 16mm
- 4 wire/channel + 2 shield

#### Features:

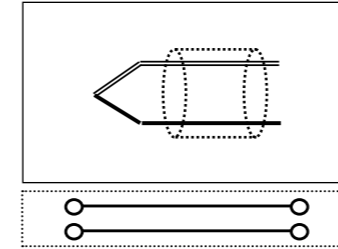
- High wiring density
- Hinged fuse holder
- Cable clad shield connection with KLBÜ

Option 1: Fused		
Description	Width	Part No.
KDKS 1/35 DB (x 2)	16mm	9532440000
KLBÜ		See Catalog 1, Section G
<b>Total Width</b>	16mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WDK 2.5/TR-DU (x 2)	10.2mm	1247290000
KLBÜ		See Catalog 1, Section G
<b>Total Width</b>	10.2mm	

Accessories		
Description	Width	Part No.
End plate: KDKS: AP KDKS	1.5mm	9532470000
End plate: WDK: 2.5/TR-DU	1.5mm	1839850000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/5		1609860000

### Thermocouple



#### Selection Criteria:

- 1 terminal block pair per channel/busbar for shield
- Width/channel: 10.2mm
- 2 wire/channel

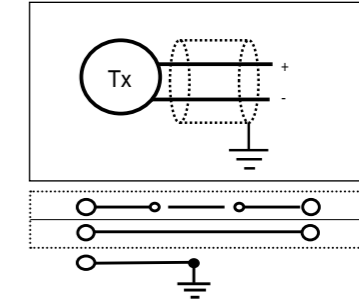
#### Features:

- Good cable visibility
- Thermocouple materials
- WDU design

Feedthrough		
Description	Width	Part No.
WDU 2.5/TC TYP K	10.2mm	1024100000
WDU 2.5/TC TYP T	10.2mm	1024200000
WDU 2.5/TC TYP J	10.2mm	1024300000
WDU 2.5/TC TYP SR	10.2mm	1024400000
WDU 2.5/TC TYP B	10.2mm	1033700000
WDU 2.5/TC TYP E	10.2mm	1033300000
WDU 2.5/TC TYP N	10.2mm	1041500000

Accessories		
Description	Width	Part No.
End plate: WAP 2.5-10	1.5mm	1050000000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/5		1609860000

### 2-Wire Inputs with Test Point



#### Selection Criteria:

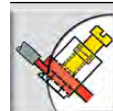
- 2 terminal blocks per channel/busbar for shield
- Width/channel: 10.1mm
- 2 wire/channel

#### Features:

- **Disconnect/Test Point included**
- Best cable visibility
- Enforced short-circuit function [WTL 4/2]
- Busbar shield connection

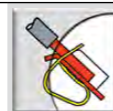
Disconnect (non-fused)		
Description	Width	Part No.
WTL 4/2 STB	6mm	1881650000
WDU 4	6.1mm	1020100000
<b>Total Width</b>	12.1mm	

Accessories		
Description	Width	Part No.
Test adapter/disconnector: WTA8 Green		1915480000
End plate: AP WTL 4/2	2.0mm	1881640000
End plate: WAP 2.5-10	1.5mm	1050000000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/6		1609900000



#### W-Series screw type connections offer:

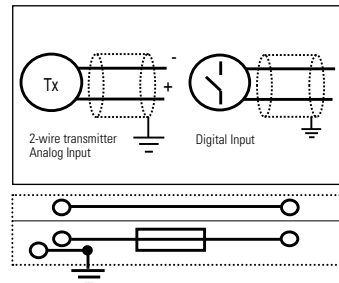
- Galvanic isolation through a steel screw clamp
- Copper current bar for low resistance and electrical function
- Vibration-proof connection, maintenance free and gas-tight connection
- Highest contact force available.



#### Z-Series tension clamp connections offer:

- High quality stainless steel for optimum contact force
- Copper current bar guarantees minimum electrical resistance
- Gas-tight contact zone and 100% vibration-resistant clamping technology
- Timesaving fast wire connections.

## 2-Wire Inputs



WMF 2.5 FU PE SW



WMF 2.5 DI PE StB

### Selection Criteria:

- 2 terminal blocks per channel
- Width/channel: 10.2mm
- 2 wire/channel + shield

### Features:

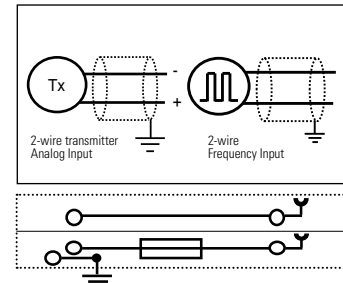
- Good cable visibility
- Hinged fuse holder
- One design for many functions
- Integrated PE

Option 1: Fused		
Description	Width	Part No.
WMF 2.5	5.1mm	1143070000
WMF 2.5 FU PE SW	5.1mm	1163040000
<b>Total Width</b>	10.2mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WMF 2.5	5.1mm	1143070000
WMF 2.5 DI PE StB	5.1mm	1167340000
<b>Total Width</b>	10.2mm	

Accessories		
Description	Width	Part No.
End plate: AP WMF 2.5	1.5mm	1142990000
Jumper: ZQV 2.5N/10		1608940000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/5		1609860000

## 2-Wire Input with Pluggable Interface



WMF 2.5 FU BLZ PE SW



WMF 2.5 DI BLZ PE

### Selection Criteria:

- 2 terminal blocks per channel
- Width/channel: 10.2mm
- 2 wire/channel + shield

### Features:

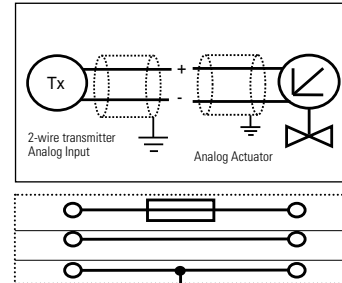
- **Pluggable cable interface**
- Good cable visibility
- Hinged fuse holder
- Integrated PE

Option 1: Fused		
Description	Width	Part No.
WMF 2.5 BLZ	5.1mm	1143050000
WMF 2.5 FU BLZ PE SW	5.1mm	1162820000
<b>Total Width</b>	10.2mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WMF 2.5 BLZ	5.1mm	1143050000
WMF 2.5 DI BLZ PE	5.1mm	1143010000
<b>Total Width</b>	10.2mm	

Accessories		
Description	Width	Part No.
End plate: WBB WMF 2.5 BLZ	1.5mm	1142980000
Jumper: ZQV 2.5N/10		1608940000
End bracket: WEW 35/2	8.0mm	1061200000
Connector: BLZP 5.08/90 8-pole Orange		1948060000
Marker: WS 12/5		1609860000

## 2-Wire Inputs/Outputs



WDU 4



WPE 4

### Selection Criteria:

- 3 terminal blocks per channel
- Width/channel: 20.1mm
- 2 wire/channel + shield

### Features:

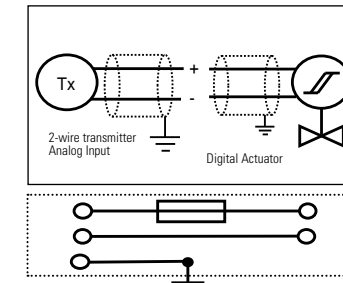
- Best cable visibility
- Hinged fuse holder
- Robust design

Option 1: Fused		
Description	Width	Part No.
WSI 6	7.9mm	1011000000
WDU 4	6.1mm	1020100000
WPE 4	6.1mm	1010100000
<b>Total Width</b>	20.1mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WTR 4 StB	6.1mm	7910210000
WDU 4	6.1mm	1020100000
WPE 4	6.1mm	1010100000
<b>Total Width</b>	18.3mm	

Accessories		
Description	Width	Part No.
End plate: WAP 2.5-10	1.5mm	1050000000
Jumper: WQV 2.5/10		1608940000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/6		1609900000

## 2-Wire Inputs/Outputs



+SIHA 3/G20

### Selection Criteria:

- **1 terminal block per channel**
- Width/channel: 5.1mm
- 2 wire/channel + shield

### Features:

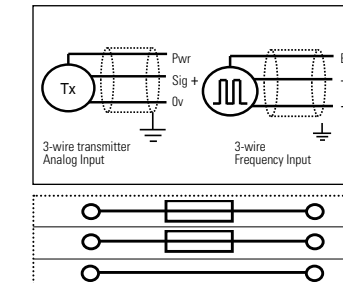
- Highest wiring density
- Pluggable fuse holder
- Integrated PE

Option 1: Fused		
Description	Width	Part No.
WDK 2.5/TR-DU-PE o.TNHE	5.1mm	1833640000
+ SIHA 3/G20		7921560000
<b>Total Width</b>	5.1mm	

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WDK 2.5/TR-DU-PE	5.1mm	1247420000
<b>Total Width</b>	5.1mm	

Accessories		
Description	Width	Part No.
End plate: WAP WDK 2.5N/TR-DU	1.5mm	1839850000
Jumper: WQV 2.5/10		1608940000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/5		1609860000

## 3-Wire Inputs



WDU 2.5



WPE 2.5

### Selection Criteria:

- 4 terminal blocks per channel
- Width/channel: 20.4mm
- 3 wire/channel + shield

### Features:

- Good cable visibility
- Pluggable fuse holder
- One housing design

Option 1: Fused		
Description	Width	Part No.
WTR 2.5 o.TNHE* (x 2)	10.2mm	8731700000
WDU 2.5	5.1mm	1020000000
WPE 2.5	5.1mm	1010000000
<b>Total Width</b>	20.4mm	

\* + SIHA 3/G20, 7921560000

Option 2: Disconnect (non-fused)		
Description	Width	Part No.
WTR 2.5 (x 2)	10.2mm	1855610000
WDU 2.5	5.1mm	1020000000
WPE 2.5	5.1mm	1010000000
<b>Total Width</b>	20.4mm	

Accessories		
Description	Width	Part No.
End plate: WAP 2.5-10	1.5mm	1050000000
Jumper: ZQV 2.5N/10		1608940000
End bracket: WEW 35/2	8.0mm	1061200000
Marker: WS 12/5		1609860000



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- Galvanic isolation through a steel screw clamp
- Copper current bar for low resistance and electrical function
- Vibration-proof connection, maintenance free and gas-tight connection
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- High quality stainless steel for optimum contact force
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- Gas-tight contact zone and 100% vibration-resistant clamping technology
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**Weidmuller is the leading manufacturer of components for electrical connection technology to transmit energy, signals and data. The Weidmuller product portfolio ranges from terminal blocks, PCB connectors and terminals, protected components, Industrial Ethernet components, I/O components and relay sockets to power supplies and overvoltage protection modules suitable for all applications. Assemble Services, marking solutions with a variety of tools and software systems, round off the range. As an OEM supplier, the company sets global standards in the field of electrical connection technology.**

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