# Short-circuit proof PCB transformer
# **VB**

BLOCK Website


## General Data

| |
|---|
| Rated input voltage 230 Vac |
| Rated output voltage 6 - 2 x 24 Vac |
| Rated power 0,35 - 3,2 VA |
| Insulation class B |
| Maximum ambient temperature 70 °C (VB 3,2 max. 50 °C) |
| Efficiency up to 58 % |
| Degree of protection IP 00 |

## Advantages

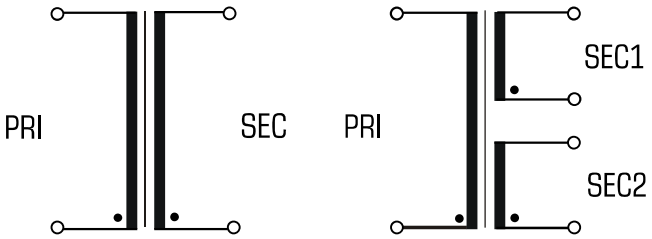
| |
|---|
| Minimum size at high output |
| Inherently short-circuit proof |
| Also with dual output voltage for series or parallel connection |
| Designed for high ambient temperatures |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting material |

## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

VDE, UL 5085-1/-2, CSA 22.2 No.66

# Short-circuit proof PCB transformer
# VB

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Electrical data

| Typ | VB 0,35/1/.. | VB 0,35/2/.. | VB 0,5/1/.. | VB 0,5/2/.. | VB 1,0/1/.. | VB 1,0/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VB 0,35/1/6<br>9 Vac: VB 0,35/1/9<br>12 Vac: VB 0,35/1/12<br>15 Vac: VB 0,35/1/15<br>18 Vac: VB 0,35/1/18<br>24 Vac: VB 0,35/1/24 | 2x6 Vac: VB 0,35/2/6<br>2x8 Vac: VB 0,35/2/8<br>2x9 Vac: VB 0,35/2/9<br>2x12 Vac: VB 0,35/2/12<br>2x15 Vac: VB 0,35/2/15*<br>2x18 Vac: VB 0,35/2/18*<br>2x24 Vac: VB 0,35/2/24* | 6 Vac: VB 0,5/1/6<br>8 Vac: VB 0,5/1/8<br>9 Vac: VB 0,5/1/9<br>12 Vac: VB 0,5/1/12<br>15 Vac: VB 0,5/1/15<br>18 Vac: VB 0,5/1/18<br>24 Vac: VB 0,5/1/24 | 2x6 Vac: VB 0,5/2/6<br>2x8 Vac: VB 0,5/2/8<br>2x9 Vac: VB 0,5/2/9<br>2x12 Vac: VB 0,5/2/12<br>2x15 Vac: VB 0,5/2/15*<br>2x18 Vac: VB 0,5/2/18*<br>2x24 Vac: VB 0,5/2/24* | 6 Vac: VB 1,0/1/6<br>8 Vac: VB 1,0/1/8<br>9 Vac: VB 1,0/1/9<br>12 Vac: VB 1,0/1/12<br>15 Vac: VB 1,0/1/15<br>18 Vac: VB 1,0/1/18<br>24 Vac: VB 1,0/1/24 | 2x6 Vac: VB 1,0/2/6<br>2x8 Vac: VB 1,0/2/8<br>2x9 Vac: VB 1,0/2/9<br>2x12 Vac: VB 1,0/2/12<br>2x15 Vac: VB 1,0/2/15*<br>2x18 Vac: VB 1,0/2/18*<br>2x24 Vac: VB 1,0/2/24* |
| Rated Power | 0,35 VA | 0,35 VA | 0,5 VA | 0,5 VA | 1 VA | 1 VA |
| No-load voltage (app. x factor) | 1.80 | 1.80 | 1.80 | 1.80 | 1.40 | 1.40 |
| No-load loss (typ.) | 1.30 W | 1.30 W | 1.10 W | 1.10 W | 0.90 W | 0.90 W |
| Efficiency | 30.0 % | 30.0 % | 40.0 % | 40.0 % | 55.0 % | 55.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof PCB transformer
# VB

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Electrical data

| Typ | VB 1,2/1/.. | VB 1,2/2/.. | VB 1,5/1/.. | VB 1,5/2/.. | VB 2,0/1/.. | VB 2,0/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VB 1,2/1/6<br>8 Vac: VB 1,2/1/8<br>9 Vac: VB 1,2/1/9<br>12 Vac: VB 1,2/1/12<br>15 Vac: VB 1,2/1/15<br>18 Vac: VB 1,2/1/18<br>24 Vac: VB 1,2/1/24 | 2x6 Vac: VB 1,2/2/6<br>2x8 Vac: VB 1,2/2/8<br>2x9 Vac: VB 1,2/2/9<br>2x12 Vac: VB 1,2/2/12<br>2x15 Vac: VB 1,2/2/15*<br>2x18 Vac: VB 1,2/2/18*<br>2x24 Vac: VB 1,2/2/24* | 6 Vac: VB 1,5/1/6<br>8 Vac: VB 1,5/1/8<br>9 Vac: VB 1,5/1/9<br>12 Vac: VB 1,5/1/12<br>15 Vac: VB 1,5/1/15<br>18 Vac: VB 1,5/1/18<br>24 Vac: VB 1,5/1/24 | 2x6 Vac: VB 1,5/2/6<br>2x8 Vac: VB 1,5/2/8<br>2x9 Vac: VB 1,5/2/9<br>2x12 Vac: VB 1,5/2/12<br>2x15 Vac: VB 1,5/2/15*<br>2x18 Vac: VB 1,5/2/18*<br>2x24 Vac: VB 1,5/2/24* | 6 Vac: VB 2,0/1/6<br>8 Vac: VB 2,0/1/8<br>9 Vac: VB 2,0/1/9<br>12 Vac: VB 2,0/1/12<br>15 Vac: VB 2,0/1/15<br>18 Vac: VB 2,0/1/18<br>24 Vac: VB 2,0/1/24 | 2x6 Vac: VB 2,0/2/6<br>2x8 Vac: VB 2,0/2/8<br>2x9 Vac: VB 2,0/2/9<br>2x12 Vac: VB 2,0/2/12<br>2x15 Vac: VB 2,0/2/15*<br>2x18 Vac: VB 2,0/2/18*<br>2x24 Vac: VB 2,0/2/24* |
| Rated Power | 1,2 VA | 1,2 VA | 1,5 VA | 1,5 VA | 2 VA | 2 VA |
| No-load voltage (app. x factor) | 1.35 | 1.35 | 1.45 | 1.45 | 1.60 | 1.60 |
| No-load loss (typ.) | 1.00 W | 1.00 W | 1.00 W | 1.00 W | 1.95 W | 1.95 W |
| Efficiency | 57.0 % | 57.0 % | 57.0 % | 57.0 % | 43.0 % | 43.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof PCB transformer
# VB

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Electrical data

| Typ | VB 2,3/1/.. | VB 2,3/2/.. | VB 2,8/1/.. | VB 2,8/2/.. | VB 3,2/1/.. | VB 3,2/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VB 2,3/1/6<br>8 Vac: VB 2,3/1/8<br>9 Vac: VB 2,3/1/9<br>12 Vac: VB 2,3/1/12<br>15 Vac: VB 2,3/1/15<br>18 Vac: VB 2,3/1/18<br>24 Vac: VB 2,3/1/24 | 2x6 Vac: VB 2,3/2/6<br>2x8 Vac: VB 2,3/2/8<br>2x9 Vac: VB 2,3/2/9<br>2x12 Vac: VB 2,3/2/12<br>2x15 Vac: VB 2,3/2/15*<br>2x18 Vac: VB 2,3/2/18*<br>2x24 Vac: VB 2,3/2/24* | 6 Vac: VB 2,8/1/6<br>8 Vac: VB 2,8/1/8<br>9 Vac: VB 2,8/1/9<br>12 Vac: VB 2,8/1/12<br>15 Vac: VB 2,8/1/15<br>18 Vac: VB 2,8/1/18<br>24 Vac: VB 2,8/1/24 | 2x6 Vac: VB 2,8/2/6<br>2x8 Vac: VB 2,8/2/8<br>2x9 Vac: VB 2,8/2/9<br>2x12 Vac: VB 2,8/2/12<br>2x15 Vac: VB 2,8/2/15*<br>2x18 Vac: VB 2,8/2/18*<br>2x24 Vac: VB 2,8/2/24* | 6 Vac: VB 3,2/1/6<br>8 Vac: VB 3,2/1/8<br>9 Vac: VB 3,2/1/9<br>12 Vac: VB 3,2/1/12<br>15 Vac: VB 3,2/1/15<br>18 Vac: VB 3,2/1/18<br>24 Vac: VB 3,2/1/24 | 2x6 Vac: VB 3,2/2/6<br>2x8 Vac: VB 3,2/2/8<br>2x9 Vac: VB 3,2/2/9<br>2x12 Vac: VB 3,2/2/12<br>2x15 Vac: VB 3,2/2/15*<br>2x18 Vac: VB 3,2/2/18*<br>2x24 Vac: VB 3,2/2/24* |
| Rated Power | 2,3 VA | 2,3 VA | 2,8 VA | 2,8 VA | 3,2 VA | 3,2 VA |
| No-load voltage (app. x factor) | 1.60 | 1.60 | 1.80 | 1.80 | 1.70 | 1.70 |
| No-load loss (typ.) | 1.20 W | 1.20 W | 0.90 W | 0.90 W | 0.80 W | 0.80 W |
| Efficiency | 52.0 % | 52.0 % | 57.0 % | 57.0 % | 53.0 % | 53.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 70 °C | 70 °C | 70 °C | 70 °C | 50 °C | 50 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 130 | VDE=B, UL=class 130 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof PCB transformer
# VB

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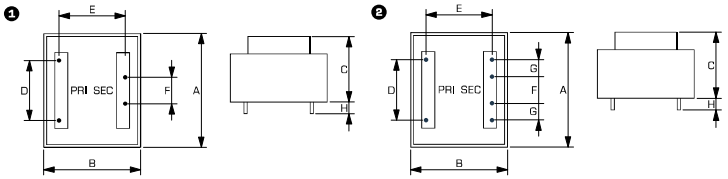
Mechanical data

| Typ | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VB 0,35/1/.. | Pins for printed circuit boards | 0.6 mm | EE 20/6,1 | 0.02 kg | 1 | 22 | 22.7 | 15 | 15 | 15 | 5 | - | 5 |
| VB 0,35/2/.. | Pins for printed circuit boards | 0.6 mm | EE 20/6,1 | 0.02 kg | 2 | 22 | 22.7 | 15 | 15 | 15 | 5 | 5 | 5 |
| VB 0,5/1/.. | Pins for printed circuit boards | 0.6 mm | EE 20/10,5 | 0.04 kg | 1 | 22 | 22.7 | 19 | 15 | 15 | 5 | - | 5 |
| VB 0,5/2/.. | Pins for printed circuit boards | 0.6 mm | EE 20/10,5 | 0.04 kg | 2 | 22 | 22.7 | 19 | 15 | 15 | 5 | 5 | 5 |
| VB 1,0/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/10,5 | 0.07 kg | 1 | 32.3 | 27.3 | 21.8 | 20 | 20 | 10 | - | 5 |
| VB 1,0/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/10,5 | 0.07 kg | 2 | 32.3 | 27.3 | 21.8 | 20 | 20 | 10 | 5 | 5 |
| VB 1,2/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/12,5 | 0.08 kg | 1 | 32.3 | 27.3 | 23.8 | 20 | 20 | 10 | - | 5 |
| VB 1,2/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/12,5 | 0.08 kg | 2 | 32.3 | 27.3 | 23.8 | 20 | 20 | 10 | 5 | 5 |
| VB 1,5/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/12,5 | 0.08 kg | 1 | 32.3 | 27.3 | 23.8 | 20 | 20 | 10 | - | 5 |
| VB 1,5/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/12,5 | 0.08 kg | 2 | 32.3 | 27.3 | 23.8 | 20 | 20 | 10 | 5 | 5 |
| VB 2,0/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/15,5 | 0.10 kg | 1 | 32.3 | 27.3 | 26.8 | 20 | 20 | 10 | - | 5 |
| VB 2,0/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/15,5 | 0.10 kg | 2 | 32.3 | 27.3 | 26.8 | 20 | 20 | 10 | 5 | 5 |
| VB 2,3/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/18,0 | 0.11 kg | 1 | 32.3 | 27.3 | 29 | 20 | 20 | 10 | - | 5 |
| VB 2,3/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/18,0 | 0.11 kg | 2 | 32.3 | 27.3 | 29 | 20 | 20 | 10 | 5 | 5 |
| VB 2,8/1/.. | Pins for printed circuit boards | 0.8 mm | EI 30/23,0 | 0.14 kg | 1 | 32.3 | 27.3 | 34 | 20 | 20 | 10 | - | 5 |
| VB 2,8/2/.. | Pins for printed circuit boards | 0.8 mm | EI 30/23,0 | 0.14 kg | 2 | 32.3 | 27.3 | 34 | 20 | 20 | 10 | 5 | 5 |
| VB 3,2/1/.. | Pins for printed circuit boards | 0.8 mm | EI 38/16,5 | 0.17 kg | 1 | 41 | 35 | 30.8 | 20 | 25 | 10 | - | 5 |
| VB 3,2/2/.. | Pins for printed circuit boards | 0.8 mm | EI 38/16,5 | 0.17 kg | 2 | 41 | 35 | 30.8 | 20 | 25 | 10 | 5 | 5 |

## Dimension pictures



# Short-circuit proof PCB transformer
# **AVB**

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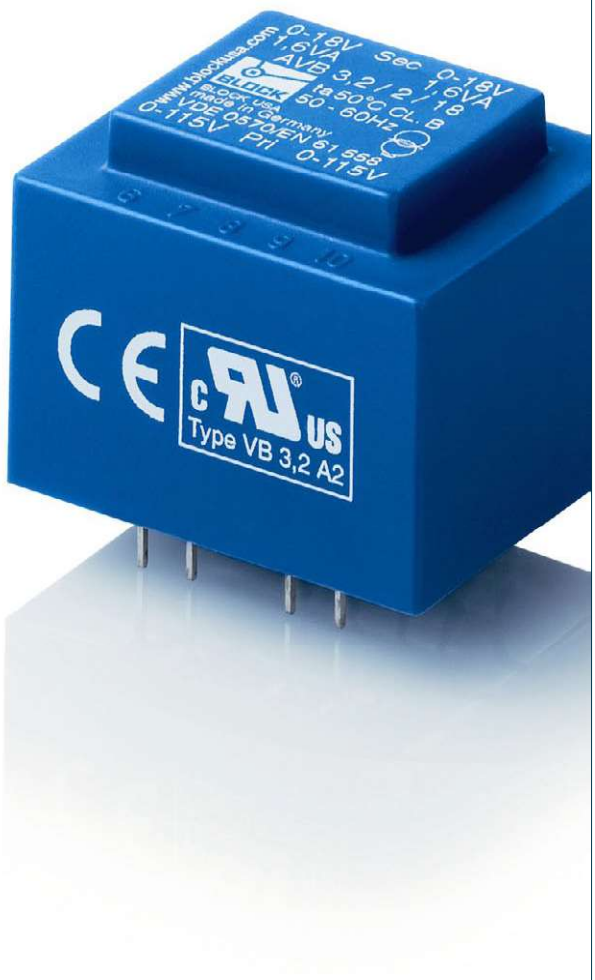



## General Data

| |
|---|
| Rated input voltage 2 x 115 Vac |
| Rated output voltage 6 - 2 x 24 Vac |
| Rated power 0.35 - 3.2 VA |
| Insulation class B |
| Maximum ambient temperature 70 °C (AVB 3,2 max. 50 °C) |
| Efficiency up to 59 % |
| Degree of protection IP 00 |

## Advantages

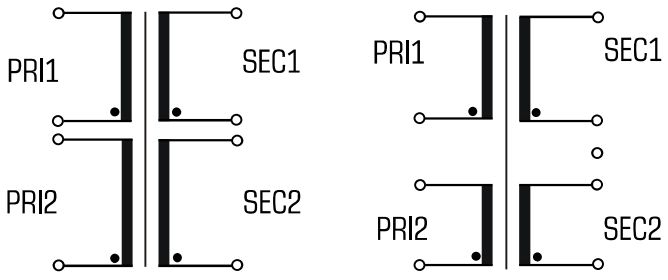
| |
|---|
| Minimum size at high output |
| Inherently short-circuit proof |
| Dual input voltage for series or parallel connection |
| Also with dual output voltage for series or parallel connection |
| Designed for high ambient temperatures |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting and hood material |

## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As a safety transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

UL 5085-1/-2, CSA 22.2 No.66

# Short-circuit proof PCB transformer
# AVB

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Electrical data

| Typ | AVB 0,35/2/.. | AVB 0,5/2/.. | AVB 1,0/2/.. | AVB 1,5/2/.. | AVB 2,0/2/.. | AVB 2,3/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 2x6 Vac: AVB 0,35/2/6<br>2x9 Vac: AVB 0,35/2/9<br>2x12 Vac: AVB 0,35/2/12<br>2x18 Vac: AVB 0,35/2/18*<br>2x24 Vac: AVB 0,35/2/24* | 2x6 Vac: AVB 0,5/2/6<br>2x8 Vac: AVB 0,5/2/8<br>2x9 Vac: AVB 0,5/2/9<br>2x12 Vac: AVB 0,5/2/12<br>2x15 Vac: AVB 0,5/2/15*<br>2x18 Vac: AVB 0,5/2/18*<br>2x24 Vac: AVB 0,5/2/24* | 2x6 Vac: AVB 1,0/2/6<br>2x9 Vac: AVB 1,0/2/9<br>2x12 Vac: AVB 1,0/2/12<br>2x15 Vac: AVB 1,0/2/15<br>2x18 Vac: AVB 1,0/2/18*<br>2x24 Vac: AVB 1,0/2/24* | 2x6 Vac: AVB 1,5/2/6<br>2x8 Vac: AVB 1,5/2/8<br>2x9 Vac: AVB 1,5/2/9<br>2x12 Vac: AVB 1,5/2/12<br>2x15 Vac: AVB 1,5/2/15<br>2x18 Vac: AVB 1,5/2/18*<br>2x24 Vac: AVB 1,5/2/24* | 2x12 Vac: AVB 2,0/2/12 | 2x6 Vac: AVB 2,3/2/6<br>2x9 Vac: AVB 2,3/2/9<br>2x12 Vac: AVB 2,3/2/12<br>2x15 Vac: AVB 2,3/2/15<br>2x18 Vac: AVB 2,3/2/18*<br>2x24 Vac: AVB 2,3/2/24* |
| Rated Power | 0,35 VA | 0,5 VA | 1 VA | 1,5 VA | 2 VA | 2,3 VA |
| No-load voltage (app. x factor) | 1.80 | 1.80 | 1.32 | 1.39 | 1.43 | 1.43 |
| No-load loss (typ.) | 1.30 W | 1.10 W | 0.90 W | 1.00 W | 0.90 W | 0.90 W |
| Efficiency | 30.0 % | 40.0 % | 55.0 % | 57.0 % | 43.0 % | 59.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer<br>*Mains transformer | Safety isolating transformer<br>*Mains transformer | Safety isolating transformer<br>*Mains transformer | Safety isolating transformer<br>*Mains transformer | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer |
| **Approvals** | | | | | | |
| Approvals | cURus | cURus | cURus | cURus | cURus | cURus |
| **Environment** | | | | | | |
| Ambient temperature max. | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof | inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof PCB transformer
# AVB

BLOCK Website

Electrical data

| Typ | AVB 2,3/2/.. | AVB 3,2/2/.. |
|---|---|---|
| **Input** | | |
| Rated input voltage | 2 x 115 Vac | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | |
| **Rated output voltage: Order no.** | 2x8 Vac: AVB 2,3/2/8 | 2x6 Vac: AVB 3,2/2/6<br>2x9 Vac: AVB 3,2/2/9<br>2x12 Vac: AVB 3,2/2/12<br>2x15 Vac: AVB 3,2/2/15<br>2x18 Vac: AVB 3,2/2/18<br>2x24 Vac: AVB 3,2/2/24* |
| Rated Power | 2,3 VA | 3,2 VA |
| No-load voltage (app. x factor) | 1.43 | 1.57 |
| No-load loss (typ.) | 0.90 W | 1.00 W |
| Efficiency | 59.0 % | 58.0 % |
| **Standards** | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer |
| **Approvals** | | |
| Approvals | cURus | cURus |
| **Environment** | | |
| Ambient temperature max. | 70 °C | 50 °C |
| **Safety and protection** | | |
| Type | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 |
| Safety class (prepared) | II | II |
| Short circuit strength | inherently short-circuit proof | inherently short-circuit proof |
| **Order numbers** | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** |

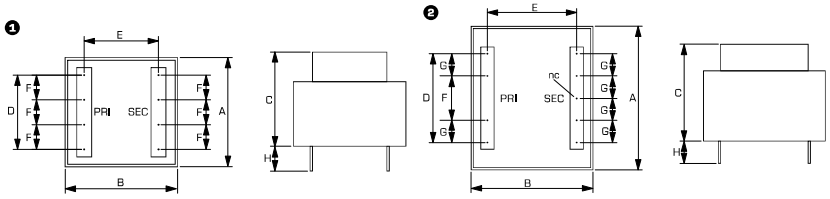
# Short-circuit proof PCB transformer
# AVB

BLOCK Website

Mechanical data

| Typ | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AVB 0,35/2/.. | Pins for printed circuit boards | 0.6 | EE 20/6,1 | 0.02 kg | 1 | 22 | 22.7 | 15 | 15 | 15 | 5 | - | 5 |
| AVB 0,5/2/.. | Pins for printed circuit boards | 0.6 | EE 20/10,5 | 0.04 kg | 1 | 22 | 22.7 | 19 | 15 | 15 | 5 | - | 5 |
| AVB 1,0/2/.. | Pins for printed circuit boards | 0.8 | EI 30/10,5 | 0.07 kg | 2 | 32.3 | 27.3 | 21.8 | 20 | 20 | 10 | 5 | 5 |
| AVB 1,5/2/.. | Pins for printed circuit boards | 0.8 | EI 30/12,5 | 0.08 kg | 2 | 32.3 | 27.3 | 23.8 | 20 | 20 | 10 | 5 | 5 |
| AVB 2,0/2/.. | Pins for printed circuit boards | 0.8 | EI 30/15,5 | 0.10 kg | 2 | 32.3 | 27.3 | 26.8 | 20 | 20 | 10 | 5 | 5 |
| AVB 2,3/2/.. | Pins for printed circuit boards | 0.8 | EI 30/18 | 0.10 kg | 2 | 32.3 | 27.3 | 29 | 20 | 20 | 10 | 5 | 5 |
| AVB 2,3/2/.. | Pins for printed circuit boards | 0.8 | EI 30/18 | 0.11 kg | 2 | 32.3 | 27.3 | 39 | 20 | 20 | 10 | 5 | 5 |
| AVB 3,2/2/.. | Quick connect terminals | 0.6 x 0.8 | EI 38/16,5 | 0.17 kg | 2 | 41 | 35 | 30.8 | 20 | 25 | 10 | 5 | 5 |

## Dimension pictures



# PCB transformer
# **VC**

BLOCK Website


## General Data

- Rated input voltage 230 Vac
- Rated output voltage 6 - 2 x 24 Vac
- Rated power 3,2 - 16 VA
- Insulation class B
- Maximum ambient temperature 40 - 60 °C
- Efficiency up to 76 %
- Degree of protection IP 00

## Advantages

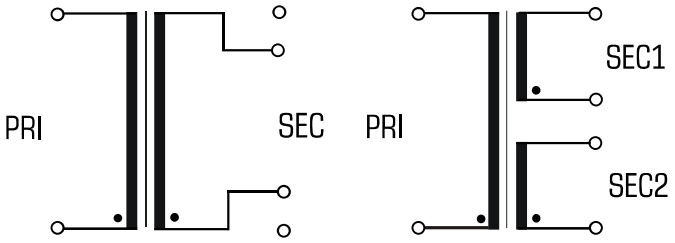
- Minimum size at high output
- Also with dual output voltage for series or parallel connection
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Self-extinguishing potting material

## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As a safety transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample applications




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

VDE, UL 5085-1/-2, CSA 22.2 No.66

# PCB transformer
# VC

BLOCK Website

Electrical data

| Typ | VC 3,2/1/... | VC 3,2/2/... | VC 5,0/1/... | VC 5,0/2/... | VC 10/1/... | VC 10/2/... |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VC 3,2/1/6<br>8 Vac: VC 3,2/1/8<br>9 Vac: VC 3,2/1/9<br>12 Vac: VC 3,2/1/12<br>15 Vac: VC 3,2/1/15<br>18 Vac: VC 3,2/1/18<br>24 Vac: VC 3,2/1/24 | 2x6 Vac: VC 3,2/2/6<br>2x8 Vac: VC 3,2/2/8<br>2x9 Vac: VC 3,2/2/9<br>2x12 Vac: VC 3,2/2/12<br>2x15 Vac: VC 3,2/2/15<br>2x18 Vac: VC 3,2/2/18*<br>2x24 Vac: VC 3,2/2/24* | 6 Vac: VC 5,0/1/6<br>8 Vac: VC 5,0/1/8<br>9 Vac: VC 5,0/1/9<br>12 Vac: VC 5,0/1/12<br>15 Vac: VC 5,0/1/15<br>18 Vac: VC 5,0/1/18<br>24 Vac: VC 5,0/1/24 | 2x6 Vac: VC 5,0/2/6<br>2x8 Vac: VC 5,0/2/8<br>2x9 Vac: VC 5,0/2/9<br>2x12 Vac: VC 5,0/2/12<br>2x15 Vac: VC 5,0/2/15<br>2x18 Vac: VC 5,0/2/18<br>2x24 Vac: VC 5,0/2/24* | 6 Vac: VC 10/1/6<br>8 Vac: VC 10/1/8<br>9 Vac: VC 10/1/9<br>12 Vac: VC 10/1/12<br>15 Vac: VC 10/1/15<br>18 Vac: VC 10/1/18<br>24 Vac: VC 10/1/24 | 2x6 Vac: VC 10/2/6<br>2x8 Vac: VC 10/2/8<br>2x9 Vac: VC 10/2/9<br>2x12 Vac: VC 10/2/12<br>2x15 Vac: VC 10/2/15<br>2x18 Vac: VC 10/2/18<br>2x24 Vac: VC 10/2/24* |
| Rated Power | 3,2 VA | 3,2 VA | 5 VA | 5 VA | 10 VA | 10 VA |
| No-load voltage (app. x factor) | 1.50 | 1.50 | 1.25 | 1.25 | 1.25 | 1.25 |
| No-load loss (typ.) | 1.00 W | 1.00 W | 1.50 W | 1.50 W | 1.60 W | 1.60 W |
| Efficiency | 60.0 % | 60.0 % | 68.0 % | 68.0 % | 74.0 % | 74.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 60 °C | 60 °C | 50 °C | 50 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# PCB transformer
# VC

BLOCK Website

Electrical data

| Typ | VC 16/1/... | VC 16/2/... |
|---|---|---|
| **Input** | | |
| Rated input voltage | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | |
| **Rated output voltage: Order no.** | 6 Vac: VC 16/1/6<br>8 Vac: VC 16/1/8<br>9 Vac: VC 16/1/9<br>12 Vac: VC 16/1/12<br>15 Vac: VC 16/1/15<br>18 Vac: VC 16/1/18<br>24 Vac: VC 16/1/24 | 2x6 Vac: VC 16/2/6<br>2x8 Vac: VC 16/2/8<br>2x9 Vac: VC 16/2/9<br>2x12 Vac: VC 16/2/12<br>2x15 Vac: VC 16/2/15<br>2x18 Vac: VC 16/2/18<br>2x24 Vac: VC 16/2/24* |
| Rated Power | 16 VA | 16 VA |
| No-load voltage (app. x factor) | 1.24 | 1.24 |
| No-load loss (typ.) | 1.80 W | 1.80 W |
| Efficiency | 76.0 % | 76.0 % |
| **Standards** | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | |
| Approvals | cURus, VDE | cURus, VDE |
| **Environment** | | |
| Ambient temperature max. | 40 °C | 40 °C |
| **Safety and protection** | | |
| Type | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 |
| Safety class (prepared) | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** |

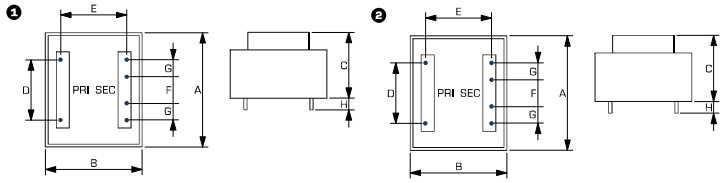
# PCB transformer
# VC

BLOCK Website

## Mechanical data

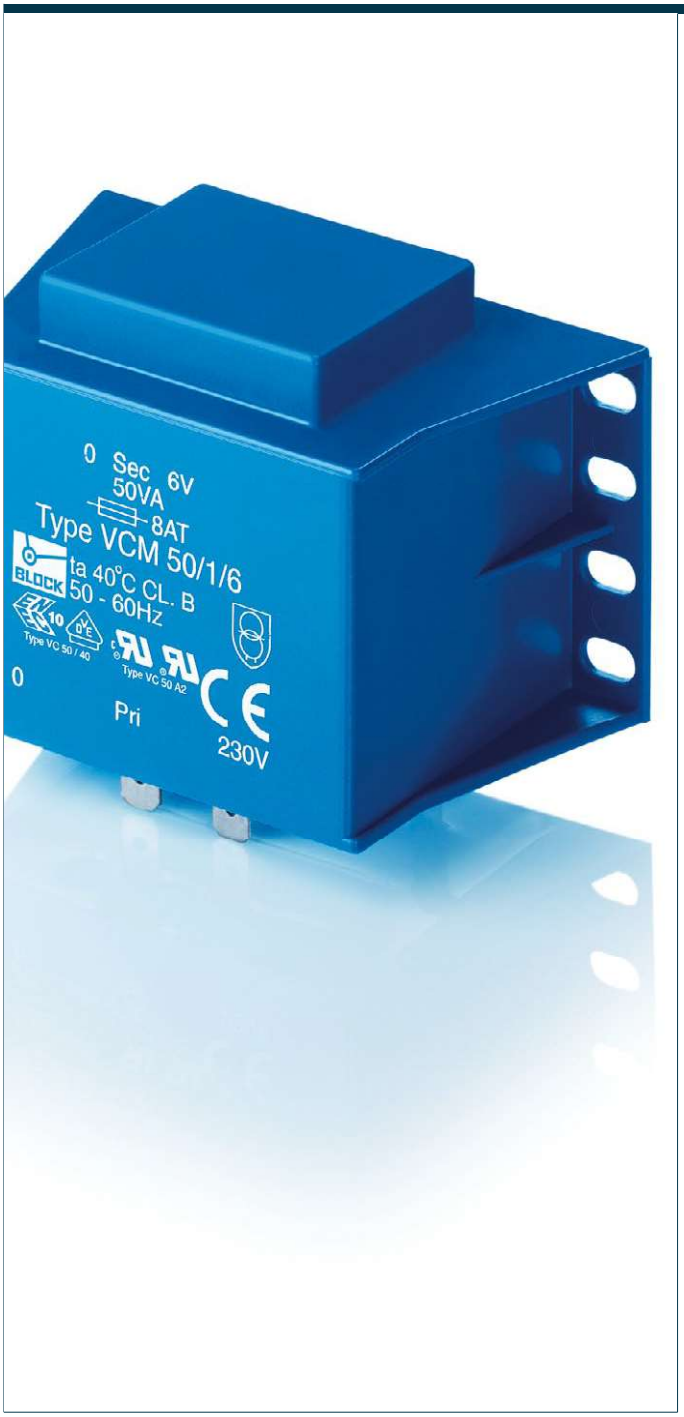
| Typ | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VC 3,2/1/... | Pins for printed circuit boards | 0.8 mm | EI 38/13,5 | 0.15 kg | 1 | 41 | 35 | 28.1 | 20 | 25 | 10 | 5 | 5 |
| VC 3,2/2/... | Pins for printed circuit boards | 0.8 mm | EI 38/13,5 | 0.15 kg | 2 | 41 | 35 | 28.1 | 20 | 25 | 10 | 5 | 5 |
| VC 5,0/1/... | Pins for printed circuit boards | 0.8 mm | EI 42/14,8 | 0.19 kg | 1 | 44 | 37 | 33 | 25 | 25 | 15 | 5 | 5 |
| VC 5,0/2/... | Pins for printed circuit boards | 0.8 mm | EI 42/14,8 | 0.19 kg | 2 | 44 | 37 | 33 | 25 | 25 | 15 | 5 | 5 |
| VC 10/1/... | Pins for printed circuit boards | 0.8 mm | EI 48/16,8 | 0.28 kg | 1 | 51 | 43 | 34.6 | 25 | 27.5 | 15 | 5 | 7 |
| VC 10/2/... | Pins for printed circuit boards | 0.8 mm | EI 48/16,8 | 0.28 kg | 2 | 51 | 43 | 34.6 | 25 | 27.5 | 15 | 5 | 7 |
| VC 16/1/... | Pins for printed circuit boards | 0.8 mm | EI 54/18,8 | 0.42 kg | 1 | 57 | 48 | 39 | 30 | 30 | 20 | 5 | 7.5 |
| VC 16/2/... | Pins for printed circuit boards | 0.8 mm | EI 54/18,8 | 0.42 kg | 2 | 57 | 48 | 39 | 30 | 30 | 20 | 5 | 7.5 |

## Dimension pictures



# PCB transformer, mountable
# **VCM**

BLOCK Website




## General Data

- Rated input voltage 230 Vac
- Rated output voltage 6 - 2 x 24 Vac
- Rated power 5 - 50 VA
- Insulation class B
- Maximum ambient temperature 40 - 50 °C
- Efficiency up to 87 %
- Degree of protection IP 00

## Advantages

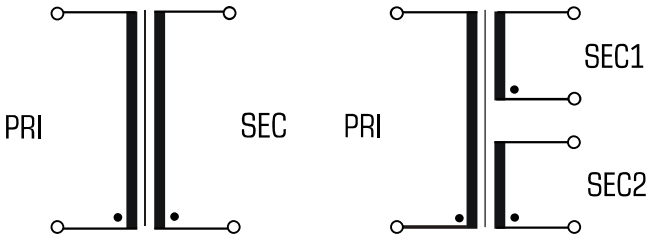
- Minimum size at high output
- Also with dual output voltage for series or parallel connection
- Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation
- Self-extinguishing potting material
- Additional mounting option with tabs on the housing

## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Isolating transformer
to: VDE 0570 Part 2-4, DIN EN 61558-2-4, EN 61558-2-4, IEC 61558-2-4, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Part 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

VDE, UL 5085-1/-2, CSA 22.2 No.66

# PCB transformer, mountable
# VCM

BLOCK Website

Electrical data

| Typ | VCM 5,0/1/.. | VCM 5,0/2/.. | VCM 10/1/.. | VCM 10/2/.. | VCM 16/1/.. | VCM 16/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VCM 5,0/1/6<br>8 Vac: VCM 5,0/1/8<br>9 Vac: VCM 5,0/1/9<br>12 Vac: VCM 5,0/1/12<br>15 Vac: VCM 5,0/1/15<br>18 Vac: VCM 5,0/1/18<br>24 Vac: VCM 5,0/1/24 | 2x6 Vac: VCM 5,0/2/6<br>2x8 Vac: VCM 5,0/2/8<br>2x9 Vac: VCM 5,0/2/9<br>2x12 Vac: VCM 5,0/2/12<br>2x15 Vac: VCM 5,0/2/15<br>2x18 Vac: VCM 5,0/2/18<br>2x24 Vac: VCM 5,0/2/24* | 6 Vac: VCM 10/1/6<br>8 Vac: VCM 10/1/8<br>9 Vac: VCM 10/1/9<br>12 Vac: VCM 10/1/12<br>15 Vac: VCM 10/1/15<br>18 Vac: VCM 10/1/18<br>24 Vac: VCM 10/1/24 | 2x6 Vac: VCM 10/2/6<br>2x8 Vac: VCM 10/2/8<br>2x9 Vac: VCM 10/2/9<br>2x12 Vac: VCM 10/2/12<br>2x15 Vac: VCM 10/2/15<br>2x18 Vac: VCM 10/2/18<br>2x24 Vac: VCM 10/2/24* | 6 Vac: VCM 16/1/6<br>8 Vac: VCM 16/1/8<br>9 Vac: VCM 16/1/9<br>12 Vac: VCM 16/1/12<br>15 Vac: VCM 16/1/15<br>18 Vac: VCM 16/1/18<br>24 Vac: VCM 16/1/24 | 2x6 Vac: VCM 16/2/6<br>2x8 Vac: VCM 16/2/8<br>2x9 Vac: VCM 16/2/9<br>2x12 Vac: VCM 16/2/12<br>2x15 Vac: VCM 16/2/15<br>2x18 Vac: VCM 16/2/18<br>2x24 Vac: VCM 16/2/24* |
| Rated Power | 5 VA | 5 VA | 10 VA | 10 VA | 16 VA | 16 VA |
| No-load voltage (app. x factor) | 1.25 | 1.25 | 1.25 | 1.25 | 1.24 | 1.24 |
| No-load loss (typ.) | 1.50 W | 1.50 W | 1.60 W | 1.60 W | 1.80 W | 1.80 W |
| Efficiency | 68.0 % | 68.0 % | 74.0 % | 74.0 % | 76.0 % | 76.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 50 °C | 50 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** |

# PCB transformer, mountable
# VCM

BLOCK Website

Electrical data

| Typ | VCM 25/1/.. | VCM 25/2/.. | VCM 36/1/.. | VCM 36/2/.. | VCM 50/1/.. | VCM 50/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: VCM 25/1/6<br>8 Vac: VCM 25/1/8<br>9 Vac: VCM 25/1/9<br>12 Vac: VCM 25/1/12<br>15 Vac: VCM 25/1/15<br>18 Vac: VCM 25/1/18<br>24 Vac: VCM 25/1/24 | 2x6 Vac: VCM 25/2/6<br>2x8 Vac: VCM 25/2/8<br>2x9 Vac: VCM 25/2/9<br>2x12 Vac: VCM 25/2/12<br>2x15 Vac: VCM 25/2/15<br>2x18 Vac: VCM 25/2/18<br>2x24 Vac: VCM 25/2/24* | 6 Vac: VCM 36/1/6<br>8 Vac: VCM 36/1/8<br>9 Vac: VCM 36/1/9<br>12 Vac: VCM 36/1/12<br>15 Vac: VCM 36/1/15<br>18 Vac: VCM 36/1/18<br>24 Vac: VCM 36/1/24 | 2x6 Vac: VCM 36/2/6<br>2x8 Vac: VCM 36/2/8<br>2x9 Vac: VCM 36/2/9<br>2x12 Vac: VCM 36/2/12<br>2x15 Vac: VCM 36/2/15<br>2x18 Vac: VCM 36/2/18<br>2x24 Vac: VCM 36/2/24** | 6 Vac: VCM 50/1/6<br>8 Vac: VCM 50/1/8<br>9 Vac: VCM 50/1/9<br>12 Vac: VCM 50/1/12<br>15 Vac: VCM 50/1/15<br>18 Vac: VCM 50/1/18<br>24 Vac: VCM 50/1/24 | 2x6 Vac: VCM 50/2/6<br>2x8 Vac: VCM 50/2/8<br>2x9 Vac: VCM 50/2/9<br>2x12 Vac: VCM 50/2/12<br>2x15 Vac: VCM 50/2/15<br>2x18 Vac: VCM 50/2/18<br>2x24 Vac: VCM 50/2/24** |
| Rated Power | 25 VA | 25 VA | 36 VA | 36 VA | 50 VA | 50 VA |
| No-load voltage (app. x factor) | 1.12 | 1.12 | 1.11 | 1.11 | 1.09 | 1.09 |
| No-load loss (typ.) | 2.50 W | 2.50 W | 2.60 W | 2.60 W | 3.80 W | 3.80 W |
| Efficiency | 82.0 % | 82.0 % | 83.0 % | 83.0 % | 87.0 % | 87.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>**isolating transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>**isolating transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** | **see output voltage** |

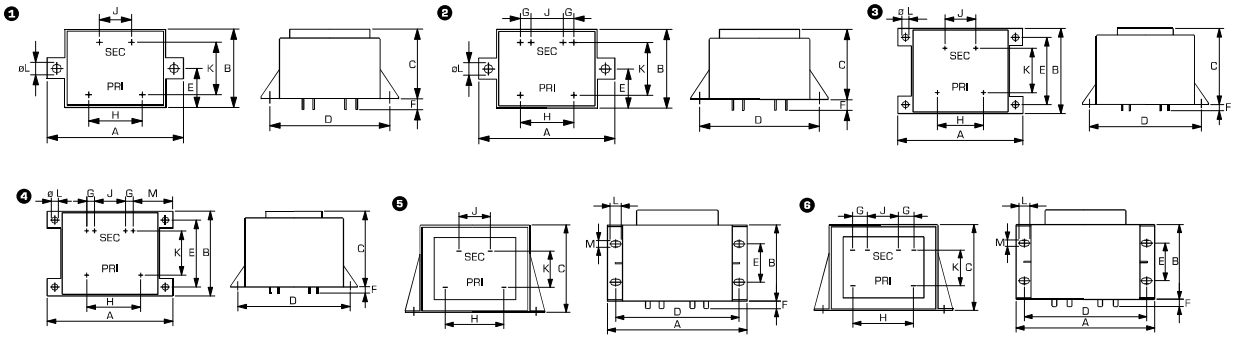
# PCB transformer, mountable
# VCM

BLOCK Website

Mechanical data 30

| Typ | Fixing method | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VCM 5,0/1/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 1 | 64 | 37 | 32.3 | 55 | 18.5 | 5 | - | 25 | 15 | 25 | 4.2 | - |
| VCM 5,0/2/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 2 | 64 | 37 | 32.3 | 55 | 18.5 | 5 | 5 | 25 | 15 | 25 | 4.2 | - |
| VCM 10/1/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 1 | 69 | 42.2 | 34.6 | 60 | 21.1 | 5 | - | 25 | 15 | 27.5 | 4.2 | - |
| VCM 10/2/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 2 | 69 | 42.2 | 34.6 | 60 | 21.1 | 5 | 5 | 25 | 15 | 27.5 | 4.2 | - |
| VCM 16/1/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 3 | 75.2 | 47.1 | 39 | 65 | 37.5 | 5 | - | 30 | 20 | 30 | 4.2 | - |
| VCM 16/2/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 4 | 75.2 | 47.1 | 39 | 65 | 37.5 | 5 | 5 | 30 | 20 | 30 | 4.2 | 23.3 |
| VCM 25/1/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 60/25,5 | 0.61 kg | 3 | 81.2 | 55 | 49.2 | 72.5 | 43.5 | 6.5 | - | 30 | 20 | 32.5 | 4.2 | - |
| VCM 25/2/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 60/25,5 | 0.61 kg | 4 | 81.2 | 55 | 49.2 | 72.5 | 43.5 | 6.5 | 5 | 30 | 20 | 32.5 | 4.2 | 26 |
| VCM 36/1/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 66/23,0 | 0.75 kg | 3 | 87.2 | 60 | 48.5 | 77.5 | 47.5 | 5 | - | 35 | 25 | 35 | 4.2 | - |
| VCM 36/2/.. | Fixing points on the case | Pins for PCB | 0.8 mm | EI 66/23,0 | 0.75 kg | 4 | 87.2 | 61 | 48.5 | 77.5 | 47.5 | 5 | 5 | 35 | 20 | 35 | 4.2 | 31 |
| VCM 50/1/.. | Fixing points on the case | Quick connect terminals | PRI 4.8 x 0.8 mm, SEC 6.3 x 0.8 mm | EI 66/34,5 | 0.99 kg | 5 | 94 | 61 | 58.5 | 82 | 37.5 | 9 | - | 35 | 15 | 35 | 8.3 | 4.8 |
| VCM 50/2/.. | Fixing points on the case | Quick connect terminals | PRI 4.8 x 0.8 mm, SEC 6.3 x 0.8 mm | EI 66/34,5 | 0.99 kg | 6 | 94 | 61 | 58.5 | 82 | 37.5 | 9 | 10 | 35 | 15 | 35 | 8.3 | 4.8 |

## Dimension pictures



# PCB transformer
## VR

BLOCK Website


## General Data

| |
|---|
| Rated input voltage 230 Vac |
| Rated output voltage 8 - 2 x 18 Vac |
| Rated power 4,5 - 30 VA |
| Insulation class B |
| Maximum ambient temperature 40 °C |
| Efficiency up to 84 % |
| Degree of protection IP 00 |

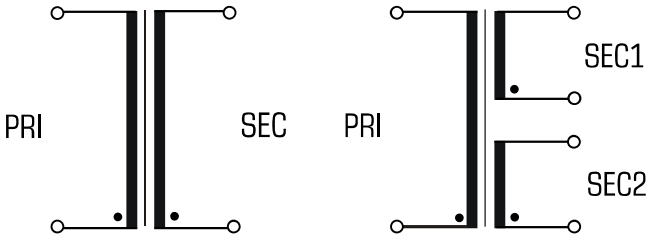
## Advantages

| |
|---|
| Minimum size at high output |
| Also with double output voltage for series or parallel connection |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting material |
| Space saving installation thanks to additional screw mounting in the base plate |

## Applications

Safety transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

VDE, UL 5085-1/-2, CSA 22.2 No.66

# PCB transformer
# VR

BLOCK Website

## Electrical data

| Typ | VR 4,5/1/.. | VR 4,5/2/.. | VR 7,5/1/.. | VR 7,5/2/.. | VR 13/1/.. | VR 13/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 8 Vac: VR 4,5/1/8<br>9 Vac: VR 4,5/1/9<br>12 Vac: VR 4,5/1/12<br>15 Vac: VR 4,5/1/15<br>18 Vac: VR 4,5/1/18<br>24 Vac: VR 4,5/1/24 | 2x8 Vac: VR 4,5/2/8<br>2x9 Vac: VR 4,5/2/9<br>2x12 Vac: VR 4,5/2/12<br>2x15 Vac: VR 4,5/2/15<br>2x18 Vac: VR 4,5/2/18 | 8 Vac: VR 7,5/1/8<br>9 Vac: VR 7,5/1/9<br>12 Vac: VR 7,5/1/12<br>15 Vac: VR 7,5/1/15<br>18 Vac: VR 7,5/1/18<br>24 Vac: VR 7,5/1/24 | 2x8 Vac: VR 7,5/2/8<br>2x9 Vac: VR 7,5/2/9<br>2x12 Vac: VR 7,5/2/12<br>2x15 Vac: VR 7,5/2/15<br>2x18 Vac: VR 7,5/2/18 | 8 Vac: VR 13/1/8<br>9 Vac: VR 13/1/9<br>12 Vac: VR 13/1/12<br>15 Vac: VR 13/1/15<br>18 Vac: VR 13/1/18<br>24 Vac: VR 13/1/24 | 2x8 Vac: VR 13/2/8<br>2x9 Vac: VR 13/2/9<br>2x12 Vac: VR 13/2/12<br>2x15 Vac: VR 13/2/15<br>2x18 Vac: VR 13/2/18 |
| Rated Power | 4,5 VA | 4,5 VA | 7,5 VA | 7,5 VA | 13 VA | 13 VA |
| No-load voltage (app. x factor) | 1.27 | 1.27 | 1.18 | 1.18 | 1.19 | 1.19 |
| No-load loss (typ.) | 1.50 W | 1.50 W | 1.30 W | 1.30 W | 1.30 W | 1.30 W |
| Efficiency | 69.0 % | 69.0 % | 76.0 % | 76.0 % | 78.0 % | 78.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# PCB transformer
# VR

BLOCK Website

Electrical data

| Typ | VR 22/1/.. | VR 22/2/.. | VR 30/1/.. | VR 30/2/.. |
|---|---|---|---|---|
| **Input** | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | |
| **Rated output voltage: Order no.** | 8 Vac: VR 22/1/8<br>9 Vac: VR 22/1/9<br>12 Vac: VR 22/1/12<br>15 Vac: VR 22/1/15<br>18 Vac: VR 22/1/18<br>24 Vac: VR 22/1/24 | 2x8 Vac: VR 22/2/8<br>2x9 Vac: VR 22/2/9<br>2x12 Vac: VR 22/2/12<br>2x15 Vac: VR 22/2/15<br>2x18 Vac: VR 22/2/18 | 8 Vac: VR 30/1/8<br>9 Vac: VR 30/1/9<br>12 Vac: VR 30/1/12<br>15 Vac: VR 30/1/15<br>18 Vac: VR 30/1/18<br>24 Vac: VR 30/1/24 | 2x8 Vac: VR 30/2/8<br>2x9 Vac: VR 30/2/9<br>2x12 Vac: VR 30/2/12<br>2x15 Vac: VR 30/2/15<br>2x18 Vac: VR 30/2/18 |
| Rated Power | 22 VA | 22 VA | 30 VA | 30 VA |
| No-load voltage (app. x factor) | 1.15 | 1.15 | 1.11 | 1.11 |
| No-load loss (typ.) | 2.40 W | 2.40 W | 2.50 W | 2.50 W |
| Efficiency | 80.0 % | 80.0 % | 84.0 % | 84.0 % |
| **Standards** | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Approvals** | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 | VDE=B, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# PCB transformer
# VR

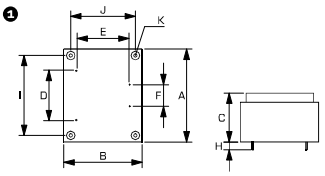
BLOCK Website

Mechanical data 30

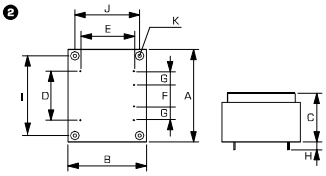
| Typ | Fixing method | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VR 4,5/1/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 1 | 44 | 37 | 33 | 25 | 25 | 15 | - | 5 | 35 | 28 | 2.5 |
| VR 4,5/2/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 2 | 44 | 37 | 33 | 25 | 25 | 15 | 5 | 5 | 35 | 28 | 2.5 |
| VR 7,5/1/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 1 | 51 | 43 | 36 | 25 | 27.5 | 15 | - | 5 | 40 | 32 | 2.5 |
| VR 7,5/2/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 2 | 51 | 43 | 36 | 25 | 27.5 | 15 | 5 | 5 | 40 | 32 | 2.5 |
| VR 13/1/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 1 | 56 | 47 | 40 | 30 | 30 | 20 | - | 5 | 47.5 | 37.5 | 2.5 |
| VR 13/2/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 2 | 56 | 47 | 40 | 30 | 30 | 20 | 5 | 5 | 47.5 | 37.5 | 2.5 |
| VR 22/1/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 60/21 | 0.57 kg | 1 | 64 | 54 | 46 | 30 | 32.5 | 10 | - | 5 | 52.5 | 40 | 2.5 |
| VR 22/2/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 60/21 | 0.57 kg | 2 | 64 | 54 | 46 | 30 | 32.5 | 10 | 10 | 5 | 52.5 | 40 | 2.5 |
| VR 30/1/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 60/30,5 | 0.78 kg | 1 | 64 | 54 | 55 | 30 | 32.5 | 10 | - | 5 | 52.5 | 40 | 2.5 |
| VR 30/2/.. | Additional fixing by self-tapping screws | Pins for PCB | 0.8 mm | EI 60/30,5 | 0.78 kg | 2 | 64 | 54 | 55 | 30 | 32.5 | 10 | 10 | 5 | 52.5 | 40 | 2.5 |

## Dimension pictures

1




2



# Short-circuit proof PCB transformer
**PT**

BLOCK Website




## General Data

| |
|---|
| Rated input voltage 230 Vac |
| Rated output voltage 6 - 2 x 24 Vac |
| Rated power 4,5 - 30 VA |
| Insulation class E |
| Maximum ambient temperature 40 °C |
| Efficiency up to 83 % |
| Degree of protection IP 00 |

## Advantages

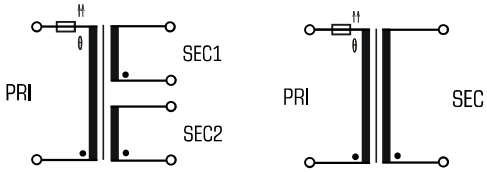
| |
|---|
| Minimum size at high output |
| Integrated overload protection using PTC in the input |
| Also with dual output voltage for series or parallel connection |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting material |
| Space saving installation thanks to additional screw mounting in the base plate |

## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

Safety transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

VDE, UL 5085-1/-2, CSA 22.2 No.66

# Short-circuit proof PCB transformer
# PT

BLOCK Website

Electrical data

| Typ | PT 4,5/1/.. | PT 4,5/2/.. | PT 7,5/1/.. | PT 7,5/2/.. | PT 13/1/.. | PT 13/2/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 6 Vac: PT 4,5/1/6<br>8 Vac: PT 4,5/1/8<br>9 Vac: PT 4,5/1/9<br>12 Vac: PT 4,5/1/12<br>15 Vac: PT 4,5/1/15<br>18 Vac: PT 4,5/1/18<br>24 Vac: PT 4,5/1/24 | 2x6 Vac: PT 4,5/2/6<br>2x8 Vac: PT 4,5/2/8<br>2x9 Vac: PT 4,5/2/9<br>2x12 Vac: PT 4,5/2/12<br>2x15 Vac: PT 4,5/2/15<br>2x18 Vac: PT 4,5/2/18<br>2x24 Vac: PT 4,5/2/24* | 6 Vac: PT 7,5/1/6<br>8 Vac: PT 7,5/1/8<br>9 Vac: PT 7,5/1/9<br>12 Vac: PT 7,5/1/12<br>15 Vac: PT 7,5/1/15<br>18 Vac: PT 7,5/1/18<br>24 Vac: PT 7,5/1/24 | 2x6 Vac: PT 7,5/2/6<br>2x8 Vac: PT 7,5/2/8<br>2x9 Vac: PT 7,5/2/9<br>2x12 Vac: PT 7,5/2/12<br>2x15 Vac: PT 7,5/2/15<br>2x18 Vac: PT 7,5/2/18<br>2x24 Vac: PT 7,5/2/24* | 6 Vac: PT 13/1/6<br>8 Vac: PT 13/1/8<br>9 Vac: PT 13/1/9<br>12 Vac: PT 13/1/12<br>15 Vac: PT 13/1/15<br>18 Vac: PT 13/1/18<br>24 Vac: PT 13/1/24 | 2x6 Vac: PT 13/2/6<br>2x8 Vac: PT 13/2/8<br>2x9 Vac: PT 13/2/9<br>2x12 Vac: PT 13/2/12<br>2x15 Vac: PT 13/2/15<br>2x18 Vac: PT 13/2/18<br>2x24 Vac: PT 13/2/24* |
| Rated Power | 4,5 VA | 4,5 VA | 7,5 VA | 7,5 VA | 13 VA | 13 VA |
| No-load voltage (app. x factor) | 1.32 | 1.32 | 1.21 | 1.21 | 1.23 | 1.23 |
| No-load loss (typ.) | 1.50 W | 1.50 W | 1.30 W | 1.30 W | 1.30 W | 1.30 W |
| Efficiency | 65.0 % | 65.0 % | 65.0 % | 65.0 % | 73.0 % | 73.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof PCB transformer
# PT

BLOCK Website

Electrical data

| Typ | PT 22/1/.. | PT 22/2/.. | PT 30/1/.. | PT 30/2/.. |
|---|---|---|---|---|
| **Input** | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | |
| **Rated output voltage: Order no.** | 6 Vac: PT 22/1/6<br>8 Vac: PT 22/1/8<br>9 Vac: PT 22/1/9<br>12 Vac: PT 22/1/12<br>15 Vac: PT 22/1/15<br>18 Vac: PT 22/1/18<br>24 Vac: PT 22/1/24 | 2x6 Vac: PT 22/2/6<br>2x8 Vac: PT 22/2/8<br>2x9 Vac: PT 22/2/9<br>2x12 Vac: PT 22/2/12<br>2x15 Vac: PT 22/2/15<br>2x18 Vac: PT 22/2/18 | 6 Vac: PT 30/1/6<br>8 Vac: PT 30/1/8<br>9 Vac: PT 30/1/9<br>12 Vac: PT 30/1/12<br>15 Vac: PT 30/1/15<br>18 Vac: PT 30/1/18<br>24 Vac: PT 30/1/24 | 2x6 Vac: PT 30/2/6<br>2x8 Vac: PT 30/2/8<br>2x9 Vac: PT 30/2/9<br>2x12 Vac: PT 30/2/12<br>2x15 Vac: PT 30/2/15<br>2x18 Vac: PT 30/2/18 |
| Rated Power | 22 VA | 22 VA | 30 VA | 30 VA |
| No-load voltage (app. x factor) | 1.19 | 1.19 | 1.13 | 1.13 |
| No-load loss (typ.) | 2.40 W | 2.40 W | 2.30 W | 2.30 W |
| Efficiency | 77.0 % | 77.0 % | 83.0 % | 83.0 % |
| **Standards** | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Approvals** | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II |
| Short circuit strength | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof |
| **Order numbers** | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

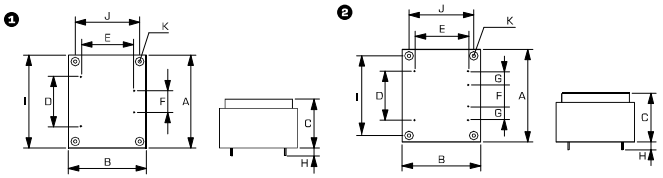
# Short-circuit proof PCB transformer
# PT

BLOCK Website

Mechanical data

| Typ | Terminals | Pin (ø) | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PT 4,5/1/.. | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 1 | 44 | 37 | 33 | 25 | 25 | 15 | - | 5 | 35 | 28 | 2.5 |
| PT 4,5/2/.. | Pins for PCB | 0.8 mm | EI 42/14,8 | 0.19 kg | 2 | 44 | 37 | 33 | 25 | 25 | 15 | 5 | 5 | 35 | 28 | 2.5 |
| PT 7,5/1/.. | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 1 | 51 | 43 | 36 | 25 | 27.5 | 15 | - | 7 | 40 | 32 | 2.5 |
| PT 7,5/2/.. | Pins for PCB | 0.8 mm | EI 48/16,8 | 0.28 kg | 2 | 51 | 43 | 36 | 25 | 27.5 | 15 | 5 | 7 | 40 | 32 | 2.5 |
| PT 13/1/.. | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 1 | 56 | 47 | 40 | 30 | 30 | 20 | - | 7 | 47.5 | 37.5 | 2.5 |
| PT 13/2/.. | Pins for PCB | 0.8 mm | EI 54/18,8 | 0.42 kg | 2 | 56 | 47 | 40 | 30 | 30 | 20 | 5 | 7 | 47.5 | 37.5 | 2.5 |
| PT 22/1/.. | Pins for PCB | 0.8 mm | EI 60/21 | 0.57 kg | 1 | 64 | 54 | 46 | 30 | 32.5 | 10 | - | 7 | 52.5 | 40 | 2.5 |
| PT 22/2/.. | Pins for PCB | 0.8 mm | EI 60/21 | 0.57 kg | 2 | 64 | 54 | 46 | 30 | 32.5 | 10 | 10 | 7 | 52.5 | 40 | 2.5 |
| PT 30/1/.. | Pins for PCB | 0.8 mm | EI 60/30,5 | 0.78 kg | 1 | 64 | 54 | 55 | 30 | 32.5 | 10 | - | 7 | 52.5 | 40 | 2.5 |
| PT 30/2/.. | Pins for PCB | 0.8 mm | EI 60/30,5 | 0.78 kg | 2 | 64 | 54 | 55 | 30 | 32.5 | 10 | 10 | 7 | 52.5 | 40 | 2.5 |

## Dimension pictures



# PCB transformer
# EP

BLOCK Website


## General Data

- Rated input voltage 230 Vac
- Rated output voltage 2 x 6 - 2 x 15 Vac
- Rated power 4,5 - 35 VA
- Insulation class E
- Maximum ambient temperature 40 °C
- Efficiency up to 79 %
- Degree of protection IP 00

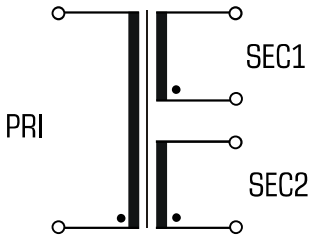
## Advantages

- Minimum size at high output
- Double output voltage for series or parallel connection
- Very good moisture protection and low noise thanks to vacuum impregnation
- Contact protected on the circuit board thanks to covered solder pin strips
- Stable connection technology with injected round wire soldering pins
- Additional mounting option with holes in the core

## Applications

Safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

EAC

# PCB transformer
# EP

BLOCK Website

Electrical data

| Typ | EP 4,5/.. | EP 7,5/.. | EP 13/.. | EP 18/.. | EP 28/.. | EP 35/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 2x15 Vac: EP 4,5/15 | 2x6 Vac: EP 7,5/6<br>2x9 Vac: EP 7,5/9<br>2x12 Vac: EP 7,5/12 | 2x12 Vac: EP 13/12<br>2x15 Vac: EP 13/15 | 2x12 Vac: EP 18/12<br>2x15 Vac: EP 18/15 | 2x12 Vac: EP 28/12<br>2x15 Vac: EP 28/15 | 2x9 Vac: EP 35/9<br>2x12 Vac: EP 35/12 |
| Rated Power | 4.5 VA | 7.5 VA | 13.0 VA | 18.0 VA | 28.0 VA | 35.0 VA |
| No-load voltage (app. x factor) | 1.51 | 1.38 | 1.28 | 1.16 | 1.18 | 1.15 |
| No-load loss (typ.) | 1.90 W | 2.00 W | 2.20 W | 2.70 W | 2.70 W | 3.90 W |
| Efficiency | 56.0 % | 62.0 % | 67.0 % | 72.0 % | 77.0 % | 79.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Open type | Open type | Open type | Open type | Open type | Open type |
| Insulation class | E | E | E | E | E | E |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| Overload protection | Typ PTC 890 (Accessory - available on request) | Typ PTC 880 (Accessory - available on request) | Typ PTC 872 (Accessory - available on request) | Typ PTC 860 (Accessory - available on request) | Typ PTC 850 (Accessory - available on request) | Typ PTC 850 (Accessory - available on request) |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

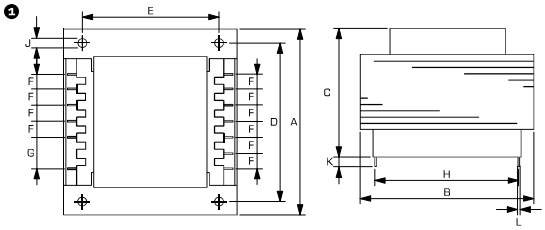
# PCB transformer
# EP

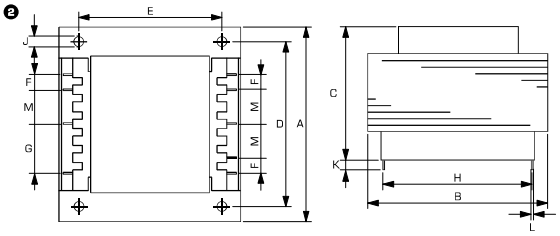
BLOCK Website

## Mechanical data

| Typ | Fixing method | Terminals | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EP 4,5/.. | Holes in the core package | Pins for PCB | EI 42/14,8 | 0.16 kg | 2 | 42 | 35.5 | 30 | 35 | 28 | 5 | 12.5 | 25 | 3.5 | 4 | 0.8 | 7.5 |
| EP 7,5/.. | Holes in the core package | Pins for PCB | EI 48/16,5 | 0.25 kg | 1 | 48 | 43 | 35 | 40 | 32 | 5 | 10 | 27.5 | 3.5 | 4 | 0.8 | - |
| EP 13/.. | Holes in the core package | Pins for PCB | EI 54/18,8 | 0.35 kg | 1 | 54 | 45 | 40 | 45 | 36 | 5 | 10 | 30 | 3.5 | 4 | 0.8 | - |
| EP 18/.. | Holes in the core package | Pins for PCB | EI 60/21 | 0.48 kg | 1 | 60 | 50 | 43 | 50 | 40 | 5 | 10 | 32.5 | 3.5 | 4 | 0.8 | - |
| EP 28/.. | Holes in the core package | Pins for PCB | EI 60/30 | 0.66 kg | 1 | 60 | 50 | 53 | 50 | 40 | 5 | 10 | 32.5 | 3.5 | 4 | 0.8 | - |
| EP 35/.. | Holes in the core package | Pins for PCB | EI 66/30,5 | 0.80 kg | 1 | 66 | 55 | 55 | 55 | 44 | 5 | 10 | 35 | 4.5 | 4 | 0.8 | - |

## Dimension pictures



# OVERVIEW
# LOW PROFILE TRANSFORMERS

| Type | Featurea | Rated input voltage | Rated output voltage | 2.0 VA | 4.0 VA | 6.0 VA | 8.0 VA | 10.0 VA | 12.0 VA | 14.0 VA | 18.0 VA | 24.0 VA | 30.0 VA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FL | Double input voltage, ta 40 °C | 2 x 115 Vac | 2 x 5 - 2 x 24 Vac | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ |
| FLD | Short-circuit proof, double input voltage, ta 40 °C | 2 x 115 Vac | 2 x 6 - 2 x 18 Vac | | ■ | ■ | | | ■ | | ■ | ■ | |
| FLE | Short-circuit proof | 230 Vac | 2 x 6 - 2 x 18 Vac | | ■ | ■ | | | ■ | | ■ | ■ | |

| 35.0 VA | 42.0 VA | 48.0 VA | 52.0 VA | Page |
|---|---|---|---|---|
| | ■ | | ■ | 278 |
| ■ | | ■ | | 282 |
| ■ | | | | 286 |

# Low profile transformer
# FL

BLOCK Website


## General Data

| |
|---|
| Rated input voltage 2 x 115 Vac |
| Rated output voltage 2 x 5 - 2 x 24 Vac |
| Rated power 2 - 52 VA |
| Insulation class E |
| Maximum ambient temperature 40 °C |
| Efficiency up to 81 % |
| Degree of protection IP 00 |

## Advantages

| |
|---|
| Minimum size at high output |
| Low height |
| Dual input voltage for series or parallel connection |
| Dual output voltage for series or parallel connection |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting material |

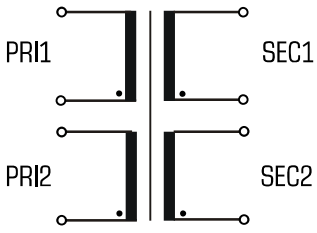
## Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As an isolating transformer for the safe electrical isolation of the input and output sides. The transformer may be used to set up protective separation as a protective measure in accordance with VDE 0100.

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Isolating transformer
to: VDE 0570 Part 2-4, DIN EN 61558-2-4, EN 61558-2-4, IEC 61558-2-4, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Part 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

## Approvals

ENEC 10 (VDE), UL 5085-1/-2, CSA 22.2 No.66

# Low profile transformer
# FL

BLOCK Website

Electrical data

| Typ | FL 2/.. | FL 4/.. | FL 6/.. | FL 8/.. | FL 10/.. | FL 14/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 2x5 Vac: FL 2/5<br>2x6 Vac: FL 2/6<br>2x8 Vac: FL 2/8<br>2x9 Vac: FL 2/9<br>2x12 Vac: FL 2/12<br>2x15 Vac: FL 2/15<br>2x24 Vac: FL 2/24* | 2x6 Vac: FL 4/6<br>2x8 Vac: FL 4/8<br>2x9 Vac: FL 4/9<br>2x12 Vac: FL 4/12<br>2x15 Vac: FL 4/15<br>2x18 Vac: FL 4/18<br>2x24 Vac: FL 4/24* | 2x5 Vac: FL 6/5<br>2x6 Vac: FL 6/6<br>2x8 Vac: FL 6/8<br>2x9 Vac: FL 6/9<br>2x12 Vac: FL 6/12<br>2x15 Vac: FL 6/15<br>2x18 Vac: FL 6/18<br>2x24 Vac: FL 6/24* | 2x6 Vac: FL 8/6<br>2x8 Vac: FL 8/8<br>2x9 Vac: FL 8/9<br>2x12 Vac: FL 8/12<br>2x15 Vac: FL 8/15<br>2x18 Vac: FL 8/18<br>2x24 Vac: FL 8/24* | 2x5 Vac: FL 10/5<br>2x6 Vac: FL 10/6<br>2x8 Vac: FL 10/8<br>2x9 Vac: FL 10/9<br>2x12 Vac: FL 10/12<br>2x15 Vac: FL 10/15<br>2x18 Vac: FL 10/18<br>2x24 Vac: FL 10/24* | 2x5 Vac: FL 14/5<br>2x6 Vac: FL 14/6<br>2x8 Vac: FL 14/8<br>2x9 Vac: FL 14/9<br>2x12 Vac: FL 14/12<br>2x15 Vac: FL 14/15<br>2x18 Vac: FL 14/18<br>2x24 Vac: FL 14/24* |
| Rated Power | 2 VA | 4 VA | 6 VA | 8 VA | 10 VA | 14 VA |
| No-load voltage (app. x factor) | 1.35 | 1.35 | 1.35 | 1.22 | 1.32 | 1.28 |
| No-load loss (typ.) | 0.60 W | 0.90 W | 1.20 W | 1.30 W | 1.10 W | 1.20 W |
| Efficiency | 66.0 % | 66.0 % | 69.0 % | 76.0 % | 72.0 % | 74.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) |
| **Approvals** | | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Low profile transformer
# FL

BLOCK Website

Electrical data

| Typ | FL 18/.. | FL 24/.. | FL 30/.. | FL 42/.. | FL 52/.. |
|---|---|---|---|---|---|
| **Input** | | | | | |
| Rated input voltage | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | |
| **Rated output voltage: Order no.** | 2x5 Vac: FL 18/5<br>2x6 Vac: FL 18/6<br>2x8 Vac: FL 18/8<br>2x9 Vac: FL 18/9<br>2x12 Vac: FL 18/12<br>2x15 Vac: FL 18/15<br>2x18 Vac: FL 18/18<br>2x24 Vac: FL 18/24* | 2x5 Vac: FL 24/5<br>2x6 Vac: FL 24/6<br>2x8 Vac: FL 24/8<br>2x9 Vac: FL 24/9<br>2x12 Vac: FL 24/12<br>2x15 Vac: FL 24/15<br>2x18 Vac: FL 24/18<br>2x24 Vac: FL 24/24* | 2x5 Vac: FL 30/5<br>2x6 Vac: FL 30/6<br>2x8 Vac: FL 30/8<br>2x9 Vac: FL 30/9<br>2x12 Vac: FL 30/12<br>2x15 Vac: FL 30/15<br>2x18 Vac: FL 30/18<br>2x24 Vac: FL 30/24** | 2x5 Vac: FL 42/5<br>2x6 Vac: FL 42/6<br>2x8 Vac: FL 42/8<br>2x9 Vac: FL 42/9<br>2x12 Vac: FL 42/12<br>2x15 Vac: FL 42/15<br>2x18 Vac: FL 42/18<br>2x24 Vac: FL 42/24** | 2x5 Vac: FL 52/5<br>2x6 Vac: FL 52/6<br>2x8 Vac: FL 52/8<br>2x9 Vac: FL 52/9<br>2x12 Vac: FL 52/12<br>2x15 Vac: FL 52/15<br>2x18 Vac: FL 52/18<br>2x24 Vac: FL 52/24** |
| Rated Power | 18 VA | 24 VA | 30 VA | 42 VA | 52 VA |
| No-load voltage (app. x factor) | 1.22 | 1.20 | 1.17 | 1.16 | 1.12 |
| No-load loss (typ.) | 1.50 W | 1.60 W | 1.70 W | 3.50 W | 4.00 W |
| Efficiency | 77.0 % | 77.0 % | 81.0 % | 81.0 % | 81.0 % |
| **Standards** | | | | | |
| Classification | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer<br>*Mains transformer<br>(without VDE mark) | Safety isolating transformer<br>**isolating transformer<br>(without VDE mark) | Safety isolating transformer<br>**isolating transformer<br>(without VDE mark) | Safety isolating transformer<br>**isolating transformer<br>(without VDE mark) |
| **Approvals** | | | | | |
| Approvals | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE | cURus, VDE |
| **Environment** | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 | VDE=E, UL=class 105 |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II |
| Short circuit strength | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof | non-short-circuit proof |
| **Order numbers** | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

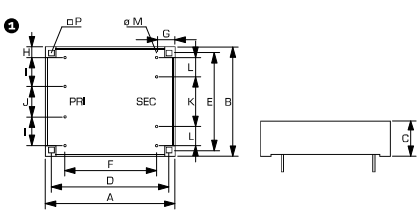
# Low profile transformer
## FL

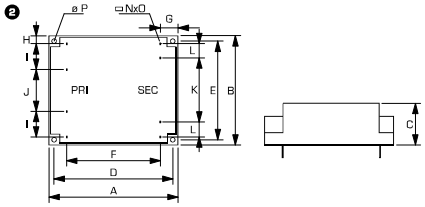
BLOCK Website

Mechanical data 30

| Typ | Terminals | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FL 2/.. | Pins for PCB | UI 30/5,5 | 0.12 kg | 1 | 53 | 44 | 17.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FL 4/.. | Pins for PCB | UI 30/7,5 | 0.15 kg | 1 | 53 | 44 | 19.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FL 6/.. | Pins for PCB | UI 30/10,5 | 0.18 kg | 1 | 53 | 44 | 22.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FL 8/.. | Pins for PCB | UI 30/16,5 | 0.25 kg | 1 | 53 | 44 | 28.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FL 10/.. | Pins for PCB | UI 39/8 | 0.28 kg | 1 | 68 | 57 | 22.8 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FL 14/.. | Pins for PCB | UI 39/10,2 | 0.32 kg | 1 | 68 | 57 | 24.4 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FL 18/.. | Pins for PCB | UI 39/13,5 | 0.38 kg | 1 | 68 | 57 | 27.6 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FL 24/.. | Pins for PCB | UI 39/17 | 0.45 kg | 1 | 68 | 57 | 31.4 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FL 30/.. | Pins for PCB | UI 39/21 | 0.53 kg | 1 | 68 | 57 | 35.8 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FL 42/.. | Pins for PCB | UI 48/17 | 0.72 kg | 2 | 83.5 | 70 | 39 | 75 | 60 | 53.5 | 15 | 6.5 | 15 | 27 | 37 | 10 | - | 0.5 | 1 | 3.1 |
| FL 52/.. | Pins for PCB | UI 48/26 | 0.98 kg | 2 | 86.5 | 70 | 49 | 75 | 60 | 53.5 | 16.5 | 6.5 | 15 | 27 | 37 | 10 | - | 0.5 | 1 | 3.1 |

## Dimension pictures



# Short-circuit proof low profile transformer
# **FLD**

BLOCK Website


## General Data

| |
|---|
| Rated input voltage 2 x 115 Vac |
| Rated output voltage 2 x 6 - 2 x 18 Vac |
| Rated power 4 - 48 VA |
| Insulation class E |
| Maximum ambient temperature 40 °C |
| Efficiency up to 79 % |
| Degree of protection IP 00 |

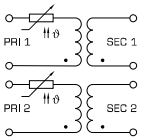
## Advantages

| |
|---|
| Minimum size at high output |
| Low height |
| Integrated overload protection using PTC in the input |
| Double input voltage for series or parallel connection |
| Double output voltage for series or parallel connection |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDensiFill resin encapsulation |
| Self-extinguishing potting material |

## Applications

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Circuit Diagram




## Standards

Safety isolating transformer
to: VDE 0570 Part 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6

## Approvals

VDE (EN 61347)

# Short-circuit proof low profile transformer
# FLD

BLOCK Website

Electrical data

| Typ | FLD 4/.. | FLD 6/.. | FLD 12/.. | FLD 18/.. | FLD 24/.. | FLD 35/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 2x6 Vac: FLD 4/6<br>2x8 Vac: FLD 4/8<br>2x9 Vac: FLD 4/9<br>2x12 Vac: FLD 4/12<br>2x15 Vac: FLD 4/15<br>2x18 Vac: FLD 4/18 | 2x6 Vac: FLD 6/6<br>2x8 Vac: FLD 6/8<br>2x9 Vac: FLD 6/9<br>2x12 Vac: FLD 6/12<br>2x15 Vac: FLD 6/15<br>2x18 Vac: FLD 6/18 | 2x6 Vac: FLD 12/6<br>2x8 Vac: FLD 12/8<br>2x9 Vac: FLD 12/9<br>2x12 Vac: FLD 12/12<br>2x15 Vac: FLD 12/15<br>2x18 Vac: FLD 12/18 | 2x6 Vac: FLD 18/6<br>2x8 Vac: FLD 18/8<br>2x9 Vac: FLD 18/9<br>2x12 Vac: FLD 18/12<br>2x15 Vac: FLD 18/15<br>2x18 Vac: FLD 18/18 | 2x6 Vac: FLD 24/6<br>2x8 Vac: FLD 24/8<br>2x9 Vac: FLD 24/9<br>2x12 Vac: FLD 24/12<br>2x15 Vac: FLD 24/15<br>2x18 Vac: FLD 24/18 | 2x6 Vac: FLD 35/6<br>2x8 Vac: FLD 35/8<br>2x9 Vac: FLD 35/9<br>2x12 Vac: FLD 35/12<br>2x15 Vac: FLD 35/15<br>2x18 Vac: FLD 35/18 |
| Rated Power | 4 VA | 6 VA | 12 VA | 18 VA | 24 VA | 35 VA |
| No-load voltage (app. x factor) | 1.37 | 1.33 | 1.31 | 1.30 | 1.25 | 1.20 |
| No-load loss (typ.) | 0.80 W | 1.30 W | 1.80 W | 2.00 W | 2.90 W | 3.20 W |
| Efficiency | 70.0 % | 72.0 % | 73.0 % | 75.0 % | 75.0 % | 78.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Approvals** | | | | | | |
| Approvals | ENEC 10 (VDE) | ENEC 10 (VDE) | ENEC 10 (VDE) | ENEC 10 (VDE) | ENEC 10 (VDE) | ENEC 10 (VDE) |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | E | E | E | E | E | E |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof low profile transformer
# FLD

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Electrical data

| Typ | FLD 48/.. |
|---|---|
| **Input** | |
| Rated input voltage | 2 x 115 Vac |
| Rated frequency | 50 - 60 Hz |
| **Output** | |
| **Rated output voltage: Order no.** | 2x6 Vac: FLD 48/6<br>2x8 Vac: FLD 48/8<br>2x9 Vac: FLD 48/9<br>2x12 Vac: FLD 48/12<br>2x15 Vac: FLD 48/15<br>2x18 Vac: FLD 48/18 |
| Rated Power | 48 VA |
| No-load voltage (app. x factor) | 1.20 |
| No-load loss (typ.) | 4.50 W |
| Efficiency | 79.0 % |
| **Standards** | |
| Classification | Safety isolating transformer |
| **Approvals** | |
| Approvals | ENEC 10 (VDE) |
| **Environment** | |
| Ambient temperature max. | 40 °C |
| **Safety and protection** | |
| Type | Encapsulated |
| Insulation class | E |
| Protection index | IP 00 |
| Safety class (prepared) | II |
| Short circuit strength | non-inherently short-circuit proof |
| **Order numbers** | |
| **Order Number** | **see rated output voltage** |

# Short-circuit proof low profile transformer
# FLD

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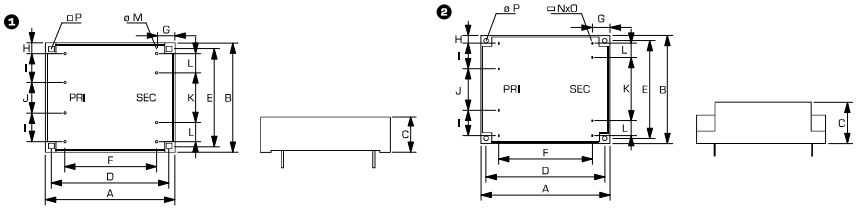
Mechanical data

| Typ | Terminals | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLD 4/.. | Pins for printed circuit boards | UI 30/10,5 | 0.18 kg | 1 | 53 | 44 | 22.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FLD 6/.. | Pins for printed circuit boards | UI 30/16,5 | 0.25 kg | 1 | 53 | 44 | 28.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 10 | 15 | 25 | 5 | 0.8 | - | - | 2.5 |
| FLD 12/.. | Pins for printed circuit boards | UI 39/13,5 | 0.37 kg | 1 | 68 | 57 | 27.6 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLD 18/.. | Pins for printed circuit boards | UI 39/17,0 | 0.45 kg | 1 | 68 | 57 | 31.4 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLD 24/.. | Pins for printed circuit boards | UI 39/21,0 | 0.53 kg | 1 | 68 | 57 | 35.8 | 62.5 | 50 | 45 | 11.5 | 5.5 | 15 | 16 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLD 35/.. | Pins for printed circuit boards | UI 48/17,0 | 0.74 kg | 2 | 83.5 | 70 | 39 | 75 | 60 | 53.5 | 15 | 6.5 | 15 | 27 | 37 | 10 | - | 0.5 | 1 | 3 |
| FLD 48/.. | Pins for printed circuit boards | UI 48/26,0 | 1.02 kg | 2 | 86.5 | 70 | 49 | 75 | 60 | 53 | 17 | 6.5 | 15 | 27 | 37 | 10 | - | 0.5 | 1 | 3 |

## Dimension pictures



# Short-circuit proof low profile transformer
# **FLE**

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## General Data

| |
|---|
| Rated input voltage 230 Vac |
| Rated output voltage 2 x 6 - 2 x 18 Vac |
| Rated power 4 - 35 VA |
| Insulation class E |
| Maximum ambient temperature 40 °C |
| Efficiency up to 78 % |
| Degree of protection IP 00 |

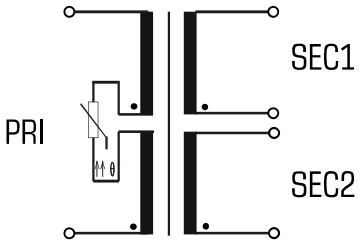
## Advantages

| |
|---|
| Minimum size at high output |
| Low height |
| Integrated overload protection using PTC in the input |
| Double output voltage for series or parallel connection |
| Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDenseFill resin encapsulation |
| Self-extinguishing potting material |

## Applications

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

## Sample application




## Standards

Safety isolating transformer
to: VDE 0570 Part 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6

## Approvals

VDE

# Short-circuit proof low profile transformer
# FLE

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Electrical data

| Typ | FLE 4/.. | FLE 6/.. | FLE 12/.. | FLE 18/.. | FLE 24/.. | FLE 35/.. |
|---|---|---|---|---|---|---|
| **Input** | | | | | | |
| Rated input voltage | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac | 230 Vac |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| **Output** | | | | | | |
| **Rated output voltage: Order no.** | 2x6 Vac: FLE 4/6<br>2x8 Vac: FLE 4/8<br>2x9 Vac: FLE 4/9<br>2x12 Vac: FLE 4/12<br>2x15 Vac: FLE 4/15<br>2x18 Vac: FLE 4/18 | 2x6 Vac: FLE 6/6<br>2x8 Vac: FLE 6/8<br>2x9 Vac: FLE 6/9<br>2x12 Vac: FLE 6/12<br>2x15 Vac: FLE 6/15<br>2x18 Vac: FLE 6/18 | 2x6 Vac: FLE 12/6<br>2x8 Vac: FLE 12/8<br>2x9 Vac: FLE 12/9<br>2x12 Vac: FLE 12/12<br>2x15 Vac: FLE 12/15<br>2x18 Vac: FLE 12/18 | 2x6 Vac: FLE 18/6<br>2x8 Vac: FLE 18/8<br>2x9 Vac: FLE 18/9<br>2x12 Vac: FLE 18/12<br>2x15 Vac: FLE 18/15<br>2x18 Vac: FLE 18/18 | 2x6 Vac: FLE 24/6<br>2x8 Vac: FLE 24/8<br>2x9 Vac: FLE 24/9<br>2x12 Vac: FLE 24/12<br>2x15 Vac: FLE 24/15<br>2x18 Vac: FLE 24/18 | 2x6 Vac: FLE 35/6<br>2x8 Vac: FLE 35/8<br>2x9 Vac: FLE 35/9<br>2x12 Vac: FLE 35/12<br>2x15 Vac: FLE 35/15<br>2x18 Vac: FLE 35/18 |
| Rated Power | 4 VA | 6 VA | 12 VA | 18 VA | 24 VA | 35 VA |
| No-load voltage (app. x factor) | 1.37 | 1.33 | 1.31 | 1.30 | 1.25 | 1.20 |
| No-load loss (typ.) | 0.80 W | 1.30 W | 1.80 W | 2.00 W | 2.90 W | 3.20 W |
| Efficiency | 70.0 % | 72.0 % | 73.0 % | 75.0 % | 75.0 % | 78.0 % |
| **Standards** | | | | | | |
| Classification | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer | Safety isolating transformer |
| **Approvals** | | | | | | |
| Approvals | VDE | VDE | VDE | VDE | VDE | VDE |
| **Environment** | | | | | | |
| Ambient temperature max. | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C | 40 °C |
| **Safety and protection** | | | | | | |
| Type | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated | Encapsulated |
| Insulation class | E | E | E | E | E | E |
| Protection index | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 | IP 00 |
| Safety class (prepared) | II | II | II | II | II | II |
| Short circuit strength | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof | non-inherently short-circuit proof |
| **Order numbers** | | | | | | |
| **Order Number** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** | **see rated output voltage** |

# Short-circuit proof low profile transformer
# FLE

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## Mechanical data

| Typ | Terminals | Core type | Weight | Dimension picture (in mm) | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLE 4/.. | Pins for PCB | UI 30/10,5 | 0.18 kg | 1 | 53 | 44 | 22.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 35 | 25 | 5 | 0.8 | - | - | 2.5 |
| FLE 6/.. | Pins for PCB | UI 30/16,5 | 0.25 kg | 1 | 53 | 44 | 28.6 | 47.5 | 37.5 | 35 | 9 | 4.5 | 35 | 25 | 5 | 0.8 | - | - | 2.5 |
| FLE 12/.. | Pins for PCB | UI 39/13,5 | 0.37 kg | 1 | 68 | 57 | 27.6 | 62.5 | 50 | 45 | 11.5 | 5.5 | 46 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLE 18/.. | Pins for PCB | UI 39/17,0 | 0.45 kg | 1 | 68 | 57 | 31.4 | 62.5 | 50 | 45 | 11.5 | 5.5 | 46 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLE 24/.. | Pins for PCB | UI 39/21 | 0.53 kg | 1 | 68 | 57 | 35.8 | 62.5 | 50 | 45 | 11.5 | 5.5 | 46 | 26 | 10 | 0.8 | - | - | 2.5 |
| FLE 35/.. | Pins for PCB | UI 48/17,0 | 0.74 kg | 2 | 83.5 | 70 | 39 | 75 | 60 | 53.5 | 15 | 6.5 | 57 | 37 | 10 | - | 0.5 | 1 | 3 |

## Dimension pictures