

Low profile transformer
FL



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
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
Coil shell in 2-chamber technology
Self-extinguishing potting material

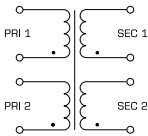
Applications

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.

Circuit Diagram



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

Certifications



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



Low profile transformer FL

Electrical data	Type	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 2x6 Vac: FL 2/6 2x8 Vac: FL 2/8 2x9 Vac: FL 2/9 2x12 Vac: FL 2/12 2x15 Vac: FL 2/15 2x18 Vac: FL 2/18 2x24 Vac: FL 2/24*	2x5 Vac: FL 4/5 2x6 Vac: FL 4/6 2x8 Vac: FL 4/8 2x9 Vac: FL 4/9 2x12 Vac: FL 4/12 2x15 Vac: FL 4/15 2x18 Vac: FL 4/18 2x24 Vac: FL 4/24*	2x5 Vac: FL 6/5 2x6 Vac: FL 6/6 2x8 Vac: FL 6/8 2x9 Vac: FL 6/9 2x12 Vac: FL 6/12 2x15 Vac: FL 6/15 2x18 Vac: FL 6/18 2x24 Vac: FL 6/24*	2x5 Vac: FL 8/6 2x6 Vac: FL 8/8 2x8 Vac: FL 8/9 2x12 Vac: FL 8/12 2x15 Vac: FL 8/15 2x18 Vac: FL 8/18 2x24 Vac: FL 8/24*	2x5 Vac: FL 10/5 2x6 Vac: FL 10/6 2x8 Vac: FL 10/8 2x9 Vac: FL 10/9 2x12 Vac: FL 10/12 2x15 Vac: FL 10/15 2x18 Vac: FL 10/18 2x24 Vac: FL 10/24*	2x5 Vac: FL 14/5 2x6 Vac: FL 14/6 2x8 Vac: FL 14/8 2x9 Vac: FL 14/9 2x12 Vac: FL 14/12 2x15 Vac: FL 14/15 2x18 Vac: FL 14/18 2x24 Vac: FL 14/24*
	Rated Power	2.0 VA	4.0 VA	6.0 VA	8.0 VA	10.0 VA	14.0 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 %	66 %	69 %	76 %	72 %	74 %
Standards	Classification	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)
Approvals	Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, 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
	Class of Insulation System	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	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage

1.1

1.2

1.3

1.4

1.5



Low profile transformer

FL

Electrical data	Type	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 2x6 Vac: FL 18/6 2x8 Vac: FL 18/8 2x9 Vac: FL 18/9 2x12 Vac: FL 18/12 2x15 Vac: FL 18/15 2x18 Vac: FL 18/18 2x24 Vac: FL 18/24*	2x5 Vac: FL 24/5 2x6 Vac: FL 24/6 2x8 Vac: FL 24/8 2x9 Vac: FL 24/9 2x12 Vac: FL 24/12 2x15 Vac: FL 24/15 2x18 Vac: FL 24/18 2x24 Vac: FL 24/24*	2x5 Vac: FL 30/5 2x6 Vac: FL 30/6 2x8 Vac: FL 30/8 2x9 Vac: FL 30/9 2x12 Vac: FL 30/12 2x15 Vac: FL 30/15 2x18 Vac: FL 30/18 2x24 Vac: FL 30/24*	2x5 Vac: FL 42/5 2x6 Vac: FL 42/6 2x8 Vac: FL 42/8 2x9 Vac: FL 42/9 2x12 Vac: FL 42/12 2x15 Vac: FL 42/15 2x18 Vac: FL 42/18 2x24 Vac: FL 42/24**	2x5 Vac: FL 52/5 2x6 Vac: FL 52/6 2x8 Vac: FL 52/8 2x9 Vac: FL 52/9 2x12 Vac: FL 52/12 2x15 Vac: FL 52/15 2x18 Vac: FL 52/18 2x24 Vac: FL 52/24**
	Rated Power	18.0 VA	24.0 VA	30.0 VA	42.0 VA	52.0 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 %	77 %	81 %	81 %	81 %
Standards						
Classification	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer **isolating transformer (without VDE mark)	Safety isolating transformer **isolating transformer (without VDE mark)	Safety isolating transformer **isolating transformer (without VDE mark)	
Approvals						
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	
Environment						
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	
Safety and protection						
Type	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated	
Class of Insulation System	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	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	refer to rated output voltage	



Low profile transformer
FL

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 printed circuit boards	UI 30/5,5	0.12 kg		53	44	17.6	47.5	37.5	35	9	4.5	10	15	25	5	0.8	-	-	2.5			
FL 4/..	Pins for printed circuit boards	UI 30/7,5	0.15 kg		53	44	19.6	47.5	37.5	35	9	4.5	10	15	25	5	0.8	-	-	2.5			
FL 6/..	Pins for printed circuit boards	UI 30/10,5	0.18 kg		53	44	22.6	47.5	37.5	35	9	4.5	10	15	25	5	0.8	-	-	2.5			
FL 8/..	Pins for printed circuit boards	UI 30/16,5	0.25 kg		53	44	28.6	47.5	37.5	35	9	4.5	10	15	25	5	0.8	-	-	2.5			
FL 10/..	Pins for printed circuit boards	UI 39/8	0.28 kg		68	57	22.8	62.5	50	45	11.5	5.5	15	16	26	10	0.8	-	-	2.5			
FL 14/..	Pins for printed circuit boards	UI 39/10,2	0.32 kg		68	57	24.4	62.5	50	45	11.5	5.5	15	16	26	10	0.8	-	-	2.5			
FL 18/..	Pins for printed circuit boards	UI 39/13,5	0.38 kg		68	57	27.6	62.5	50	45	11.5	5.5	15	16	26	10	0.8	-	-	2.5			
FL 24/..	Pins for printed circuit boards	UI 39/17	0.45 kg		68	57	31.4	62.5	50	45	11.5	5.5	15	16	26	10	0.8	-	-	2.5			
FL 30/..	Pins for printed circuit boards	UI 39/21	0.53 kg		68	57	35.8	62.5	50	45	11.5	5.5	15	16	26	10	0.8	-	-	2.5			
FL 42/..	Pins for printed circuit boards	UI 48/17	0.72 kg		83.5	70	39	75	60	53.5	15	6.5	15	27	37	10	-	0.5	1	3.1			
FL 52/..	Pins for printed circuit boards	UI 48/26	0.98 kg		86.5	70	49	75	60	53.5	16.5	6.5	15	27	37	10	-	0.5	1	3.1			

Dimension pictures

