

Murrelektronik

Control Transformers

With Multi-Voltage Input



stay connected



86143



86158

Murrelektronik's transformers offer another option to switch-mode power supplies.

Plant and system manufacturers with international customers are familiar with the problem of different mains voltages. The new Murrelektronik transformers with multi-voltage inputs can handle input voltages from 208V to 550V. This is ideal for companies who have customers all over the world.

The new Murrelektronik transformers with multi-voltage inputs feature a flexible selection of input voltages and can be adapted to the different mains voltages using simple quick-connect jumpers. A total of eleven different input voltages are pre-configured.

The new Murrelektronik transformers are available with two times 115V or – with series connection – 230V. This makes it possible to conveniently handle the various operating voltages of the machines.

Features

- Tool-free quick-connect primary/secondary jumpers (below 3kVA)
- Electrostatic shield
- Finger-safe terminal connections
- Panel mount (convenient keyhole slots, 1.6kVA and below)
- DIN-rail mounting clips (100 & 160VA units)
- Resin impregnated under vacuum
- Operating temperature range -20°C (-4°F) to +40°C (104°F)
- Global agency approvals
- 1 year warranty

Agency Approvals



Murrelektronik Control Transformers Selection Guide

Part Number	Price	Volt-Amp Rating (VA)	CE Volt-Amp (VA)	Primary Voltage (VAC) (50/60 Hz)	Secondary Voltage (VAC) (Nominal)	Output Current (Amps) 120/230 VAC	Impedance %		Total Head Dissipation (Watts)	Weight lb [kg]	Drawing
							VA	%Z			
86143	\$85.00	100	100	208/230/380/400/420/440/460/480/500/525/550	2 x 115VAC 115x230 VAC	0.86 / 0.43	100	7.40	7.2	4.6 [2.1]	PDF
86144	\$97.00	160	160			1.4 / 0.7	160	7.70	10	6.4 [2.9]	PDF
86145	\$113.00	250	250			2.18 / 1.09	250	5.60	12.8	8.8 [4.0]	PDF
86147	\$151.00	400	400			3.48 / 1.74	400	4.50	17	13.9 [6.3]	PDF
86148	\$188.00	500	500			4.34 / 2.17	500	4.05	30	18.5 [8.4]	PDF
86149	\$215.00	630	630			5.48 / 2.74	630	3.50	25	20.9 [9.5]	PDF
86150	\$252.00	800	800			7.0 / 3.5	800	3.44	42	29.8 [13.5]	PDF
86151	\$284.00	1000	1000			8.7 / 4.35	1000	3.44	68	29.8 [13.5]	PDF
86152	\$391.00	1600	1600			13.9 / 6.95	1600	1.92	50	45.2 [20.5]	PDF
86153	\$518.00	2000	2000			17.4 / 8.7	2000	2.15	62	60.6 [27.5]	PDF
86154	\$660.00	2500	2500			21.6 / 10.8	2500	1.80	33	58.0 [26.3]	PDF
86155	\$792.00	3000	3000			26 / 13	3000	2.70	34	65.0 [29.5]	PDF
86156	\$908.00	4000	4000			34.8 / 17.4	4000	2.10	57	75.0 [34.0]	PDF
86157	\$1,000.00	5000	5000			43.4 / 21.7	5000	1.86	67	82.7 [37.5]	PDF
86158	\$1,370.00	6300	6300			54.8 / 27.4	6300	2.20	29	103.6 [47.0]	PDF

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Murrelektronik Control Transformers Specifications (Electrical)				
Part Number	86143	86144	86145	86147
Nominal Voltage (VAC)	208 / 230 / 380 / 400 / 420 / 440 / 460 / 480 / 500 / 525 / 550			
Vector Group	III0			
Nominal Current (AAC)	0.57 / 0.52 / 0.31 / 0.30 / 0.28 / 0.27 / 0.26 / 0.25 / 0.24 / 0.23 / 0.22	0.96 / 0.87 / 0.53 / 0.50 / 0.48 / 0.45 / 0.43 / 0.42 / 0.40 / 0.38 / 0.36	1.36 / 1.23 / 0.74 / 0.71 / 0.67 / 0.64 / 0.61 / 0.59 / 0.57 / 0.54 / 0.51	2.12 / 1.92 / 1.16 / 1.10 / 1.05 / 1.00 / 0.96 / 0.92 / 0.88 / 0.84 / 0.80
Tappings	–	–	–	–
Nominal Frequency	50/60 Hz			
Inrush Current (Max) (AAC)	9.9 / 8.95 / 5.42 / 5.15 / 4.9 / 4.68 / 4.48 / 4.29 / 4.12 / 3.92 / 3.74	14.20 / 12.84 / 7.77 / 7.38 / 7.03 / 6.71 / 6.42 / 6.15 / 5.91 / 5.63 / 5.37	26.0 / 23.5 / 14.2 / 13.5 / 12.9 / 12.3 / 11.8 / 11.3 / 10.8 / 10.3 / 9.8	38 / 34 / 21 / 20 / 19 / 18 / 17 / 16 / 16 / 15 / 14
Short-Circuit Current (AAC)	7.6 / 6.87 / 4.16 / 3.95 / 3.76 / 3.59 / 3.44 / 3.29 / 3.16 / 3.01 / 2.87	12.50 / 11.30 / 6.84 / 6.50 / 6.19 / 5.91 / 5.65 / 5.42 / 5.20 / 4.95 / 4.73	25.0 / 22.6 / 13.7 / 13.0 / 12.4 / 11.8 / 11.3 / 10.8 / 10.4 / 9.9 / 9.5	47 / 43 / 26 / 24 / 23 / 22 / 21 / 20 / 20 / 19 / 18
Short-Circuit Voltage	7.4%	7.7%	5.6%	4.5%
Idle Current (Max) (AAC)	0.16 / 0.14 / 0.09 / 0.08 / 0.08 / 0.08 / 0.07 / 0.07 / 0.07 / 0.06 / 0.06	0.32 / 0.29 / 0.18 / 0.17 / 0.16 / 0.15 / 0.14 / 0.14 / 0.13 / 0.13 / 0.12	0.24 / 0.22 / 0.13 / 0.12 / 0.12 / 0.11 / 0.11 / 0.1 / 0.1 / 0.1 / 0.09	0.26 / 0.24 / 0.14 / 0.14 / 0.13 / 0.12 / 0.12 / 0.11 / 0.11 / 0.10 / 0.10
Nominal Losses (At Load CosΦ=1)	17W	29W	31W	41W
Idle Losses	7.2 W	10W	12.8 W	17W
Efficiency (At Load CosΦ=1)	86%	85%	89%	91%
Output 115VAC				
Nominal Voltage (VAC)	115	115	115	115
No-Load Voltage (VAC)	125	126.5	123	121
Nominal Current (AAC)	0.86	1.4	2.18	3.48
Nominal Power (VA) (Acc. to EN 61558)	100	160	250	400
Nominal Power (VA) (According to UL)	100	144	225	360
Duty Cycle	100%	100%	100%	100%
Output 230VAC				
Nominal Voltage (VAC)	230	230	230	230
No-Load Voltage (VAC)	250	253	246	242
Nominal Current (AAC)	0.43	0.7	1.09	1.74
Nominal Power (VA) (Acc. to EN 61558)	100	160	250	400
Nominal Power (VA) (According to UL)	100	144	225	360
Duty Cycle	100%	100%	100%	100%
Output 2 x 115VAC				
Nominal Voltage (VAC)	2 X 115	2 X 115	2 X 115	2 X 115
No-Load Voltage (VAC)	2 X 125	2 X 126.5	2 X 123	2 X 121
Nominal Current (AAC)	2 X 0.43	2 X 0.7	2 X 1.09	2 X 1.74
Nominal Power (VA) (Acc. to EN 61558)	2 X 50	2 X 80	2 X 125	2 X 200
Nominal Power (VA) (Acc. to UL)	2 X 50	2 X 72	2 X 112.5	2 X 180
Duty Cycle	100%	100%	100%	100%
Output				
Total Instantaneous Power (At CosΦ=0.5) (VA)	227	360	610	1036
Maximum Total Power (Acc. to EN 61558) (VA)	100	160	250	400
Maximum Total Power (Acc. to UL) (VA)	100	144	225	360
Insulation Class				
Acc. to EN 61558	B			
Acc. to UL 508	ISC Class 105 (A)			

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Murrelektronik Control Transformers Specifications (Electrical, continued)				
Part Number	86148	86149	86150	86151
Nominal Voltage (VAC)	208 / 230 / 380 / 400 / 420 / 440 / 460 / 480 / 500 / 525 / 550			
Vector Group	III0			
Nominal Current (AAC)	2.8 / 2.5 / 1.5 / 1.4 / 1.4 / 1.3 / 1.3 / 1.2 / 1.2 / 1.2 / 1.1	3.30 / 2.98 / 1.81 / 1.72 / 1.63 / 1.56 / 1.49 / 1.43 / 1.37 / 1.31 / 1.25	4.2 / 3.8 / 2.3 / 2.2 / 2.1 / 2.0 / 1.9 / 1.8 / 1.8 / 1.7 / 1.6	5.3 / 4.8 / 2.9 / 2.7 / 2.6 / 2.5 / 2.4 / 2.3 / 2.2 / 2.1 / 2.0
Tappings	–	–	–	–
Nominal Frequency	50/60 Hz			
Inrush Current (Max) (AAC)	81 / 73 / 44 / 42 / 40 / 38 / 37 / 35 / 34 / 32 / 31	60 / 54 / 33 / 31 / 30 / 28 / 27 / 26 / 25 / 24 / 23	96 / 87 / 53 / 50 / 48 / 45 / 43 / 42 / 40 / 38 / 36	77 / 70 / 42 / 40 / 38 / 36 / 35 / 33 / 32 / 31 / 29
Short-Circuit Current (AAC)	68 / 62 / 37 / 35 / 34 / 32 / 31 / 29 / 28 / 27 / 26	93 / 84 / 51 / 48 / 46 / 44 / 42 / 40 / 39 / 37 / 35	123 / 111 / 67 / 64 / 61 / 58 / 56 / 53 / 51 / 49 / 47	154 / 139 / 84 / 80 / 76 / 73 / 70 / 67 / 64 / 61 / 58
Short-Circuit Voltage	4.05 %	3.5 %	3.44 %	3.44 %
Idle Current (Max) (AAC)	1.10 / 0.99 / 0.60 / 0.57 / 0.54 / 0.52 / 0.50 / 0.48 / 0.46 / 0.44 / 0.42	0.36 / 0.33 / 0.2 / 0.19 / 0.18 / 0.17 / 0.16 / 0.16 / 0.15 / 0.14 / 0.14	0.72 / 0.65 / 0.39 / 0.37 / 0.36 / 0.34 / 0.33 / 0.31 / 0.30 / 0.29 / 0.27	0.7 / 0.6 / 0.4 / 0.4 / 0.4 / 0.3 / 0.3 / 0.3 / 0.3 / 0.3 / 0.3
Nominal Losses (At Load CosΦ=1)	59W	54W	79W	91W
Idle Losses	30W	25W	42W	68W
Efficiency (At Load CosΦ=1)	89%	92%	91%	91%
Output 115VAC				
Nominal Voltage (VAC)	115	115	115	115
No-Load Voltage (VAC)	120.5	120	120	119.5
Nominal Current (AAC)	4.34	5.48	7.0	8.7
Nominal Power (VA) (Acc. to EN 61558)	500	630	800	1000
Nominal Power (VA) (According to UL)	450	568	720	900
Duty Cycle	100%	100%	100%	100%
Output 230VAC				
Nominal Voltage (VAC)	230	230	230	230
No-Load Voltage (VAC)	241	240	240	239
Nominal Current (AAC)	2.17	2.74	3.5	4.35
Nominal Power (VA) (Acc. to EN 61558)	500	630	800	1000
Nominal Power (VA) (According to UL)	450	568	720	900
Duty Cycle	100%	100%	100%	100%
Output 2 x 115VAC				
Nominal Voltage (VAC)	2 X 115	2 X 115	2 X 115	2 X 115
No-Load Voltage (VAC)	2 X 120.5	2 X 120	2 X 120	2 X 119.5
Nominal Current (AAC)	2 X 2.17	2 X 2.74	2 X 3.5	2 X 4.35
Nominal Power (VA) (Acc. to EN 61558)	2 X 250	2 X 315	2 X 400	2 X 500
Nominal Power (VA) (Acc. to UL)	2 X 225	2 X 284	2 X 360	2 X 450
Duty Cycle	100%	100%	100%	100%
Output				
Total Instantaneous Power (At CosΦ=0.5) (VA)	1462	1807	2448	2800
Maximum Total Power (Acc. to EN 61558) (VA)	500	630	800	1000
Maximum Total Power (Acc. to UL) (VA)	450	568	720	900
Insulation Class				
Acc. to EN 61558	B			
Acc. to UL 508	ISC Class 105 (A)			

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Murrelektronik Control Transformers Specifications (Electrical, continued)				
Part Number	86152	86153	86154	86155
Nominal Voltage (VAC)	208 / 230 / 380 / 400 / 420 / 440 / 460 / 480 / 500 / 525 / 550			
Vector Group	III0			
Nominal Current (AAC)	8.8 / 8.0 / 4.8 / 4.6 / 4.4 / 4.2 / 4.0 / 3.8 / 3.7 / 3.5 / 3.3	10.2 / 9.2 / 5.5 / 5.3 / 5.0 / 4.8 / 4.6 / 4.4 / 4.2 / 4.0 / 3.9	12.50 / 11.30 / 6.84 / 6.50 / 6.19 / 5.91 / 5.65 / 5.42 / 5.20 / 4.95 / 4.73	14.9 / 13.5 / 8.2 / 7.7 / 7.4 / 7.0 / 6.7 / 6.5 / 6.2 / 5.9 / 5.6
Tappings	-	-	-	-
Nominal Frequency	50/60 Hz			
Inrush Current (Max) (AAC)	182 / 165 / 100 / 95 / 90 / 86 / 82 / 79 / 76 / 72 / 69	179 / 162 / 98 / 93 / 89 / 85 / 81 / 78 / 74 / 71 / 68	363 / 328 / 199 / 189 / 180 / 172 / 164 / 157 / 151 / 144 / 137	273 / 247 / 149 / 142 / 135 / 129 b / 123 / 118 / 114 / 108 / 104
Short-Circuit Current (AAC)	460 / 416 / 252 / 239 / 228 / 217 / 208 / 199 / 191 / 182 / 174	473 / 428 / 259 / 246 / 234 / 224 / 214 / 205 / 197 / 187 / 179	670 / 606 / 367 / 348 / 332 / 317 / 303 / 290 / 279 / 265 / 253	553 / 500 / 303 / 288 / 274 / 261 / 250 / 240 / 230 / 219 / 209
Short-Circuit Voltage	1.92 %	2.15 %	1.8 %	2.7 %
Idle Current (Max) (AAC)	2.1 / 1.9 / 1.2 / 1.1 / 1.0 / 1.0 / 1.0 / 0.9 / 0.9 / 0.8 / 0.8	0.74 / 0.67 / 0.41 / 0.38 / 0.37 / 0.35 / 0.33 / 0.32 / 0.31 / 0.29 / 0.28	2.12 / 1.92 / 1.16 / 1.10 / 1.05 / 1.00 / 0.96 / 0.92 / 0.88 / 0.84 / 0.80	0.44 / 0.4 / 0.24 / 0.23 / 0.22 / 0.21 / 0.2 / 0.19 / 0.18 / 0.17 / 0.17
Nominal Losses (At Load CosΦ=1)	84W	113W	113W	140W
Idle Losses	50W	62W	33W	34W
Efficiency (At Load CosΦ=1)	95%	95%	95%	95.5%
Output 115VAC				
Nominal Voltage (VAC)	115	115	115	115
No-Load Voltage (VAC)	116.5	118	116	119
Nominal Current (AAC)	13.9	17.4	21.6	26
Nominal Power (VA) (Acc. to EN 61558)	1600	2000	2500	3000
Nominal Power (VA) (According to UL)	1440	1600	2000	2640
Duty Cycle	100%	100%	100%	100%
Output 230VAC				
Nominal Voltage (VAC)	230	230	230	230
No-Load Voltage (VAC)	233	236	232	238
Nominal Current (AAC)	6.95	8.7	10.8	13
Nominal Power (VA) (Acc. to EN 61558)	1600	2000	2500	3000
Nominal Power (VA) (According to UL)	1440	1600	2000	2640
Duty Cycle	100%	100%	100%	100%
Output 2 x 115VAC				
Nominal Voltage (VAC)	2 X 115	2 X 115	2 X 115	2 X 115
No-Load Voltage (VAC)	2 X 116.5	2 X 118	2 X 116	2 X 119
Nominal Current (AAC)	2 X 6.95	2 X 8.7	2 X 10.8	2 X 13
Nominal Power (VA) (Acc. to EN 61558)	2 X 800	2 X 1000	2 X 1250	2 X 1500
Nominal Power (VA) (Acc. to UL)	2 X 720	2 X 800	2 X 1000	2 X 1320
Duty Cycle	100%	100%	100%	100%
Output				
Total Instantaneous Power (At CosΦ=0.5) (VA)	6340	6470	9260	9860
Maximum Total Power (Acc. to EN 61558) (VA)	1600	2000	2500	3000
Maximum Total Power (Acc. to UL) (VA)	1440	1600	2000	2640
Insulation Class				
Acc. to EN 61558	B			
Acc. to UL 508	ISC Class 105 (A)			

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Murrelektronik Control Transformers Specifications (Electrical, continued)			
Part Number	86156	86157	86158
Nominal Voltage (VAC)	208 / 230 / 380 / 400 / 420 / 440 / 460 / 480 / 500 / 525 / 550		
Vector Group	lii0		
Nominal Current (AAC)	20.0 / 18.3 / 11.1 / 10.5 / 10.0 / 9.6 / 9.1 / 8.8 / 8.4 / 8.0 / 7.7	25.4 / 22.8 / 13.8 / 13.1 / 12.4 / 11.9 / 11.3 / 11.1 / 10.9 / 10.0 / 9.6	31.0 / 28.0 / 17.0 / 16.1 / 15.4 / 14.7 / 14.0 / 13.4 / 12.9 / 12.3 / 11.7
Tappings	—	—	—
Nominal Frequency	50/60 Hz		
Inrush Current (Max) (AAC)	372 / 336 / 204 / 193 / 184 / 176 / 168 / 161 / 155 / 147 / 141	378 / 342 / 207 / 197 / 187 / 179 / 171 / 164 / 157 / 150 / 143	585 / 529 / 320 / 304 / 290 / 277 / 265 / 254 / 243 / 232 / 220
Short-Circuit Current (AAC)	960 / 868 / 525 / 499 / 475 / 454 / 434 / 416 / 399 / 380 / 367	1362 / 1232 / 746 / 708 / 675 / 644 / 616 / 590 / 567 / 540 / 515	1433 / 1296 / 784 / 745 / 710 / 677 / 648 / 621 / 596 / 568 / 542
Short-Circuit Voltage	2.1 %	1.86%	2.2 %
Idle Current (Max) (AAC)	0.99 / 0.90 / 0.54 / 0.51 / 0.49 / 0.47 / 0.45 / 0.43 / 0.41 / 0.39 / 0.38	1.7 / 1.5 / 0.9 / 0.9 / 0.8 / 0.8 / 0.7 / 0.7 / 0.7 / 0.7 / 0.7	0.48 / 0.43 / 0.26 / 0.25 / 0.24 / 0.23 / 0.22 / 0.21 / 0.20 / 0.19 / 0.18
Nominal Losses (At Load Cos ϕ =1)	162W	196W	206W
Idle Losses	57W	67W	29W
Efficiency (At Load Cos ϕ =1)	96%	96%	97%
Output 115VAC			
Nominal Voltage (VAC)	115	115	115
No-Load Voltage (VAC)	118	117.7	118
Nominal Current (AAC)	34.8	43.4	54.8
Nominal Power (VA) (Acc. to EN 61558)	4000	5000	6300
Nominal Power (VA) (According to UL)	3400	4000	5040
Duty Cycle	100%	100%	100%
Output 230VAC			
Nominal Voltage (VAC)	230	230	230
No-Load Voltage (VAC)	236	235.4	236
Nominal Current (AAC)	17.4	21.7	27.4
Nominal Power (VA) (Acc. to EN 61558)	4000	5000	6300
Nominal Power (VA) (According to UL)	3400	4000	5040
Duty Cycle	100%	100%	100%
Output 2 x 115VAC			
Nominal Voltage (VAC)	2 x 115	2 x 115	2 x 115
No-Load Voltage (VAC)	2 x 118	2 x 117.7	2 x 118
Nominal Current (AAC)	2 x 17.4	2 x 21.7	2 x 27.4
Nominal Power (VA) (Acc. to EN 61558)	2 x 2000	2 x 2500	2 x 3150
Nominal Power (VA) (Acc. to UL)	2 x 1700	2 x 2000	2 x 2520
Duty Cycle	100%	100%	100%
Output			
Total Instantaneous Power (At Cos ϕ =0.5) (VA)	13440	21354	22187
Maximum Total Power (Acc. to EN 61558) (VA)	4000	5000	6300
Maximum Total Power (Acc. to UL) (VA)	3400	4000	5040
Insulation Class			
Acc. to EN 61558	B		
Acc. to UL 508	ISC Class 105 (A)		

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Murrelektronik Control Transformers Specifications (Electrical, continued)					
	86143	86144	86145	86147	86148
Input Protection					
Recommended External Circuit Breaker For Short-Circuit Protection Or Current Limiting Fuses Such As Class CC and J	208V: 3RV2811-0GD10	208V: 3RV2811-0JD10	208V: 3RV2811-1AD10	208V: 3RV2811-1CD10	208V: 3RV2811-1ED10
	230V: 3RV2811-0GD10	230V: 3RV2811-0JD10	230V: 3RV2811-0KD10	230V: 3RV2811-1BD10	230V: 3RV2811-1CD10
	380V: 3RV2811-0DD10	380V: 3RV2811-0GD10	380V: 3RV2811-0HD10	380V: 3RV2811-0KD10	380V: 3RV2811-1AD10
	400V: 3RV2811-0DD10	400V: 3RV2811-0FD10	400V: 3RV2811-0HD10	400V: 3RV2811-0KD10	400V: 3RV2811-1AD10
	420V: 3RV2811-0DD10	420V: 3RV2811-0FD10	420V: 3RV2811-0HD10	420V: 3RV2811-0KD10	420V: 3RV2811-1AD10
	440V: 3RV2811-0DD10	440V: 3RV2811-0FD10	440V: 3RV2811-0HD10	440V: 3RV2811-0JD10	440V: 3RV2811-1AD10
	460V: 3RV2811-0DD10	460V: 3RV2811-0FD10	460V: 3RV2811-0GD10	460V: 3RV2811-0JD10	460V: 3RV2811-1AD10
	480V: 3RV2811-0CD10	480V: 3RV2811-0FD10	480V: 3RV2811-0GD10	480V: 3RV2811-0JD10	480V: 3RV2811-0KD10
	500V: 3RV2811-0CD10	500V: 3RV2811-0ED10	500V: 3RV2811-0GD10	500V: 3RV2811-0JD10	500V: 3RV2811-0KD10
	525V: 3RV2811-0CD10	525V: 3RV2811-0ED10	525V: 3RV2811-0GD10	525V: 3RV2811-0JD10	525V: 3RV2811-0KD10
	550V: 3RV2811-0CD10	550V: 3RV2811-0ED10	550V: 3RV2811-0GD10	550V: 3RV2811-0HD10	550V: 3RV2811-0KD10
Internal Device Protection	NA	NA	NA	NA	NA
Output Protection					
Recommended External Protection Device For Overload and Short-Circuit Protection	115V: 3RV2811-0JD10	115V: 3RV2811-1AD10	115V: 3RV2811-1CD10	115V: 3RV2811-1ED10	115V: 3RV2811-1FD10
	230V: 3RV2811-0FD10	230V: 3RV2811-0HD10	230V: 3RV2811-0KD10	230V: 3RV2811-1BD10	230V: 3RV2811-1CD10
	2x 115V: 2x 3RV2811-0FD10	2x 115V: 2x 3RV2811-0HD10	2x 115V: 2x 3RV2811-0KD10	2x 115V: 2x 3RV2811-1BD10	2x 115V: 2x 3RV2811-1CD10
Internal Protection Device					
Dielectric Strength Type Test Voltage According To IEC 61558					
Input - Output	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC
Input - PE	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC
Output - PE	2.5 kVAC	2.5 kVAC	2.5 kVAC	2.5 kVAC	2.5 kVAC
Output-Output	1.7 kVAC	1.7 kVAC	1.6 kVAC	1.6 kVAC	1.6 kVAC
Dielectric Strength Type Test Voltage According to UL 5085					
Input - Output	3.0 kVAC	3.0 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Input - PE	3.0 kVAC	3.0 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Output - PE	1.8 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC
Output-Output	1.8 kVAC	1.8 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC

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Murrelektronik Control Transformers Specifications (Electrical, continued)					
	86149	86150	86151	86152	86153
Input Protection					
Recommended External Circuit Breaker For Short-Circuit Protection Or Current Limiting Fuses Such As Class CC and J	208V: 3RV2811-1DD10 230V: 3RV2811-1DD10 380V: 3RV2811-1BD10 400V: 3RV2811-1BD10 420V: 3RV2811-1AD10 440V: 3RV2811-1AD10 460V: 3RV2811-1AD10 480V: 3RV2811-1AD10 500V: 3RV2811-1AD10 525V: 3RV2811-1AD10 550V: 3RV2811-1AD10	208V: 3RV2811-1FD10 230V: 3RV2811-1ED10 380V: 3RV2811-1CD10 400V: 3RV2811-1CD10 420V: 3RV2811-1CD10 440V: 3RV2811-1CD10 460V: 3RV2811-1BD10 480V: 3RV2811-1BD10 500V: 3RV2811-1BD10 525V: 3RV2811-1BD10 550V: 3RV2811-1BD10	208V: 3RV2811-1GD10 230V: 3RV2811-1FD10 380V: 3RV2811-1DD10 400V: 3RV2811-1DD10 420V: 3RV2811-1DD10 440V: 3RV2811-1CD10 460V: 3RV2811-1CD10 480V: 3RV2811-1CD10 500V: 3RV2811-1CD10 525V: 3RV2811-1CD10 550V: 3RV2811-1CD10	208V: 3RV2811-1JD10 230V: 3RV2811-1HD10 380V: 3RV2811-1FD10 400V: 3RV2811-1FD10 420V: 3RV2811-1FD10 440V: 3RV2811-1FD10 460V: 3RV2811-1ED10 480V: 3RV2811-1ED10 500V: 3RV2811-1ED10 525V: 3RV2811-1ED10 550V: 3RV2811-1ED10	208V: 3RV2811-1JD10 230V: 3RV2811-1JD10 380V: 3RV2811-1GD10 400V: 3RV2811-1GD10 420V: 3RV2811-1FD10 440V: 3RV2811-1FD10 460V: 3RV2811-1FD10 480V: 3RV2811-1FD10 500V: 3RV2811-1FD10 525V: 3RV2811-1ED10 550V: 3RV2811-1ED10
Internal Device Protection	NA	NA	NA	NA	NA
Output Protection					
Recommended External Protection Device For Overload and Short-Circuit Protection	115V: 3RV2811-1GD10 230V: 3RV2811-1DD10 2x 115V: 2x 3RV2811-1DD10	115V: 3RV2811-1HD10 230V: 3RV2811-1ED10 2x 115V: 2x 3RV2811-1ED10	115V: 3RV2811-1JD10 230V: 3RV2811-1FD10 2x 115V: 2x 3RV2811-1FD10	115V: 3RV2811-4AD10 230V: 3RV2811-1HD10 2x 115V: 2x 3RV2811-1HD10	115V: 3RV2821-4BD10 230V: 3RV2811-1JD10 2x 115V: 2x 3RV2811-1JD10
Internal Protection Device	NA	NA	NA	NA	NA
Dielectric Strength Type Test Voltage According To IEC 61558					
Input - Output	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC
Input - PE	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC
Output - PE	2.5 kVAC	2.5 kVAC	2.5 kVAC	2.4 kVAC	2.4 kVAC
Output-Output	1.6 kVAC	1.6 kVAC	1.6 kVAC	1.6 kVAC	1.6 kVAC
Dielectric Strength Type Test Voltage According to UL 5085					
Input - Output	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Input - PE	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Output - PE	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC
Output-Output	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC

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Control Transformers

With Multi-Voltage Input



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Murrelektronik Control Transformers Specifications (Electrical, continued)					
	86154	86155	86156	86157	86158
Input Protection					
Recommended External Circuit Breaker For Short-Circuit Protection Or Current Limiting Fuses Such As Class CC and J	208V: 3RV2811-1KD10	208V: 3RV2811-4AD10	208V: 3RV2821- 4CD10	208V: 3RV1742-5ED10	208V: 3RV1742-5FD10
	230V: 3RV2811-1KD10	230V: 3RV2811-4AD10	230V: 3RV2821- 4CD10	230V: 3RV2821-4CD10	230V: 3RV2821-5ED10
	380V: 3RV2811-1HD10	380V: 3RV2811-1JD10	380V: 3RV2811-1KD10	380V: 3RV2811-4AD10	380V: 3RV2821-4BD10
	400V: 3RV2811-1HD10	400V: 3RV2811-1HD10	400V: 3RV2811-1KD10	400V: 3RV2811-4AD10	400V: 3RV2821-4BD10
	420V: 3RV2811-1GD10	420V: 3RV2811-1HD10	420V: 3RV2811-1JD10	420V: 3RV2811-1KD10	420V: 3RV2821-4BD10
	440V: 3RV2811-1GD10	440V: 3RV2811-1HD10	440V: 3RV2811-1JD10	440V: 3RV2811-1KD10	440V: 3RV2811-4AD10
	460V: 3RV2811-1GD10	460V: 3RV2811-1HD10	460V: 3RV2811-1JD10	460V: 3RV2811-1KD10	460V: 3RV2811-4AD10
	480V: 3RV2811-1GD10	480V: 3RV2811-1HD10	480V: 3RV2811-1JD10	480V: 3RV2811-1KD10	480V: 3RV2811-4AD10
	500V: 3RV2811-1GD10	500V: 3RV2811-1GD10	500V: 3RV2811-1JD10	500V: 3RV2811-1KD10	500V: 3RV2811-4AD10
	525V: 3RV2811-1FD10	525V: 3RV2811-1GD10	525V: 3RV2811-1HD10	525V: 3RV2811-1JD10	525V: 3RV2811-1KD10
	550V: 3RV2811-1FD10	550V: 3RV2811-1GD10	550V: 3RV2811-1HD10	550V: 3RV2811-1JD10	550V: 3RV2811-1KD10
Internal Device Protection	NA	NA	NA	NA	NA
Output Protection					
Recommended External Protection Device For Overload and Short-Circuit Protection	115V: 3RV2821-4CD10	115V: 3RV1742-5ED10	115V: 3RV1742- 5FD10	115V: 3RV1742- 5HD10	115V: 3RV1742- 5LD10
	230V: 3RV2811-1KD10 2x 115V: 2x 3RV2811-1KD10	230V: 3RV2811-4AD10 2x 115V: 2x 3RV2811-4AD10	230V: 3RV2821- 4BD10 2x 115V: 2x 3RV2821- 4BD10	230V: 3RV2821- 4CD10 2x 115V: 2x 3RV2821- 4CD10	230V: 3RV1742- 5ED10 2x 115V: 2x 3RV1742- 5ED10
Internal Protection Device	NA	NA	NA	NA	NA
Dielectric Strength Type Test Voltage According To IEC 61558					
Input - Output	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC	6.3 kVAC
Input - PE	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC	3.2 kVAC
Output - PE	2.4 kVAC	2.4 kVAC	2.4 kVAC	2.4 kVAC	2.4 kVAC
Output-Output	1.5 kVAC	1.6 kVAC	1.6 kVAC	1.6 kVAC	1.6 kVAC
Dielectric Strength Type Test Voltage According to UL 5085					
Input - Output	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Input - PE	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC	4.8 kVAC
Output - PE	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC
Output-Output	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC	3.0 kVAC

Murrelektronik

Control Transformers

With Multi-Voltage Input



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Murrelektronik Control Transformers Specifications (Mechanical)

Part Number	86143	86144	86145	86147	86148	86149	86150	86151	86152	86153	86154	86155	86156	86157	86158
Protection Class	According to EN 61558: 1														
Protection Degree	EN 61558 IP00		EN 61558 IP00 EN 60529 IP20 EN 61558 IP00 EN 60529 IP20												
Core Weight (kg)	NA	NA	NA	NA	NA	NA	NA	8.9	15.1	20.1	14.9	17.1	20.5	22.9	24.9
Core Type	NA	NA	NA	NA	NA	NA	NA	Fe	Fe	Fe	Fe	Fe	Fe	Fe	Fe
Winding Weight (kg)	NA	NA	NA	NA	NA	NA	NA	3.4	4.2	6.1	9.8	11.0	12.4	14.4	21.5
Winding Type	NA	NA	NA	NA	NA	NA	NA	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu
Total Weight (kg)	2.1	2.9	4.0	6.3	8.4	9.5	13.5	13.5	20.5	27.5	26.3	29.5	34.0	37.5	47.0
Cooling	Natural convection														
Mounting and Fitting															
Fastening	4x M4		4xM5			4xM6				4xM8					
Suitable for DIN-Rail (Acc. to EN 60715)	Yes (TH 35)		NA												
Input Terminals															
Tightening Torque (Recommended Tool Size 0.8x4.0 mm)		0.6 N•m (±0.1) [5.3 lbf•in (±0.9)]										1.7 N•m (±0.1) [14.6 lbf•in (±0.9)]			
Conductor Size	Solid	0.25-6 mm² (24-10AWG)										0.2-10 mm² (24-8 AWG)			
	Stranded	0.25-4 mm² (24-12AWG)										0.2-6 mm² (24-12AWG)			
	Stranded w/ferrule	0.25-4 mm² (24-12AWG)										0.25-6 mm² (24-12AWG)			
Stripping Length		10mm [0.39 in]													
Wire Temperature Class		>70°C													
Terminal Type		Screw connection + male FastOn 6.3 x 0.8 mm [0.25 in]										Screw connection			
PE Terminals															
Tightening Torque (PH2 / 1.0x6.0 mm Recommended Tool Size)		1.5 N•m (±0.1) [13.3 lbf•in (±0.9)]												0.7 N•m (±0.1) [6.2 lbf•in (±0.9)]	
Conductor Size	Solid	0.25 - 6mm² (24-10AWG)										0.2-4 mm² (24-12 AWG)			
	Stranded	0.25 - 4mm² (24-12AWG)										0.25-2.5 mm² (24-14 AWG)			
	Stranded w/ferrule	0.25 - 4mm² (24-12AWG)										0.25-6 mm² (24-12 AWG)			
Stripping Length		10mm [0.39 in]												9mm	
Wire Temperature Class		>70°C													
Terminal Type		Screw connection													
Output Terminals 115VAC															
Tightening Torque (Recommended Tool Size 0.8x4.0 mm)		0.6 N•m (±0.1) [5.3 lbf•in (±0.9)]										1.7 N•m (±0.1) [14.6 lbf•in (±0.9)]			
Conductor Size	Solid	0.25 - 6mm² (24-10AWG)										0.2-10 mm² (24-8 AWG)			
	Stranded	0.25 - 4mm² (24-12AWG)										0.2-6 mm² (24-12 AWG)			
	Stranded w/ferrule	0.25 - 4mm² (24-12AWG)										0.25-6 mm² (24-12 AWG)			
Stripping Length		10mm [0.39 in]													
Wire Temperature Class		>70°C													
Terminal Type		Screw connection + male FastOn 6.3 x 0.8 mm [0.25 in]										Screw connection			

Murrelektronik

Control Transformers

With Multi-Voltage Input



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Murrelektronik Control Transformers Specifications (Mechanical, continued)															
Part Number	86143	86144	86145	86147	86148	86149	86150	86151	86152	86153	86154	86155	86156	86157	86158
Output Terminals 230VAC															
Tightening Torque (Recommended Tool Size 0.8x4.0 mm)		 0.6 N•m (±0.1) [5.3 lbf•in (±0.9)]										1.7 N•m (±0.1) [14.6 lbf•in (±0.9)]			
Conductor Size	Solid	0.25 - 6mm² (24-10AWG)										0.2-10 mm² (24-8 AWG)			
	Stranded	0.25 - 4mm² (24-12AWG)										0.2-6 mm² (24-12 AWG)			
	Stranded w/ferrule	0.25 - 4mm² (24-12AWG)										0.25-6 mm² (24-12 AWG)			
Stripping Length		10mm [0.39 in]													
Wire Temperature Class		>70°C													
Terminal Type		Screw connection + male FastOn 6.3 x 0.8 mm [0.25 in]										Screw connection			
Output Terminals 2x115VAC															
Tightening Torque (Recommended Tool Size 0.8x4.0 mm)		 0.6 N•m (±0.1) [5.3 lbf•in (±0.9)]										1.7 N•m (±0.1) [14.6 lbf•in (±0.9)]			
Conductor Size	Solid	0.25 - 6mm² (24-10AWG)										0.2-10 mm² (24-8 AWG)			
	Stranded	0.25 - 4mm² (24-12AWG)										0.2-6 mm² (24-12 AWG)			
	Stranded w/ferrule	0.25 - 4mm² (24-12AWG)										0.25-6 mm² (24-12 AWG)			
Stripping Length		10mm [0.39 in]													
Wire Temperature Class		>70°C													
Terminal Type		Screw connection + male FastOn 6.3 x 0.8 mm [0.25 in]										Screw connection			

Murrelektronik

Control Transformers

With Multi-Voltage Input



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Murrelektronik Control Transformers Specifications (Environmental)

Ambient Temperature	-20°C (-4°F) to +40°C (104°F)																				
Ambient Temperature (Acc. to UL)	-20°C (-4°F) to +40°C (104°F)																				
Storage Temperature	-30°C (-22°F) to +80°C (176°F)																				
Relative Humidity	5 to 95%																				
Maximum Altitude	5000m [16,404ft]																				
Altitude Derating (>1000m)	<table border="1"> <caption>Altitude Derating Data</caption> <thead> <tr> <th>Altitude (m)</th> <th>Output power in % of nominal power</th> </tr> </thead> <tbody> <tr><td>1000</td><td>100</td></tr> <tr><td>1500</td><td>99</td></tr> <tr><td>2000</td><td>98</td></tr> <tr><td>2500</td><td>96</td></tr> <tr><td>3000</td><td>94</td></tr> <tr><td>3500</td><td>91</td></tr> <tr><td>4000</td><td>88</td></tr> <tr><td>4500</td><td>84</td></tr> <tr><td>5000</td><td>80</td></tr> </tbody> </table>	Altitude (m)	Output power in % of nominal power	1000	100	1500	99	2000	98	2500	96	3000	94	3500	91	4000	88	4500	84	5000	80
Altitude (m)	Output power in % of nominal power																				
1000	100																				
1500	99																				
2000	98																				
2500	96																				
3000	94																				
3500	91																				
4000	88																				
4500	84																				
5000	80																				
Overvoltage Category (Acc. to EN 61558)	OVC 3																				
Pollution Degree (Acc. to EN 61558)	P3																				
MTBF (Acc. to DIN EIN 61709:1999-01; SN 29500; DIN EN ISO 13849-1:2008-12)	>20,000,000 h @ 40°C																				
Vacuum Impregnated	Yes																				
Approvals																					
EU Declaration of Conformity EMC Directive 2014/30/EU LVD Directive 2014/35/EU WEEE 2012/19/EU RoHS Directive Exemption 6(c) Reach China RoHS II UKCA EAC UL Recognized DNV-GL																					
Standards																					
EN 61558-1	Safety of transformers, reactors, power supply units and combinations thereof - Part 1: General requirements and tests																				
EN 61558-2-4	Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers																				
EN 62041	Transformers, power supplies, reactors and similar products - EMC requirements; Category 0																				
UL 5085-1, UL 5085-2 CSA C22.2 No. 66-1-06, CSA C22.2 No. 66-2-06	File: E182075; Category: XPTQ2/8 (General Purpose)																				

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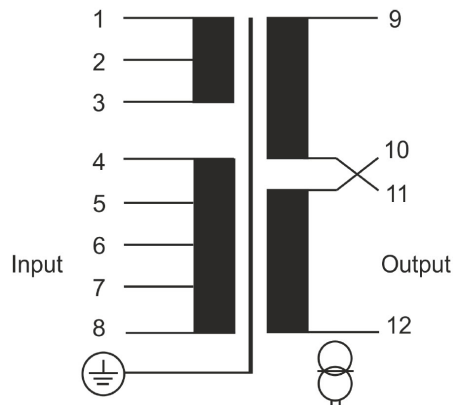
Control Transformers

With Multi-Voltage Input



stay connected

Wiring

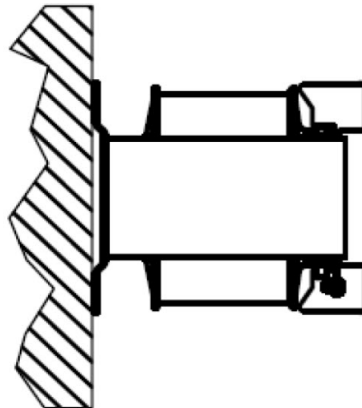
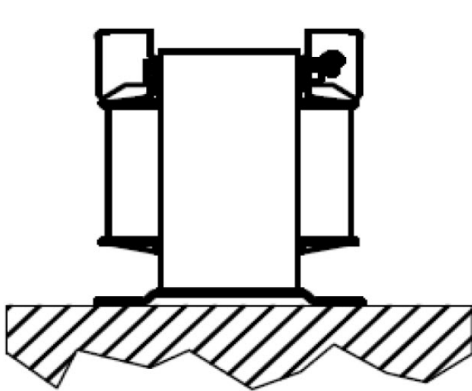


Connection Table				
	Voltage	In (A)	Connect to	Jumper
Input	208	5.3	1-2	1+4 / 3+7
	230*	4.8	5-7	1+4 / 3+7
	380	2.9	1-6	2+5
	400	2.7	1-6	2+4
	420	2.6	1-6	3+5
	440	2.5	1-6	3+4
	460	2.4	1-7	2+4
	480	2.3	1-7	3+5
	500	2.2	1-7	3+4
	525	2.1	1-8	3+5
	550	2.0	1-8	3+4
Output	2 x 115	4.4	9-11 / 10-12	—
	115	8.7	9-12	9+10 / 11+12
	230	4.4	9-12	10+11

* Factory Preset

Mounting Position

Standing on the floor or perpendicular to the wall



Clearance

