

AC/DC and DC/DC converters



MDD, GLS, GSS, NG, NT

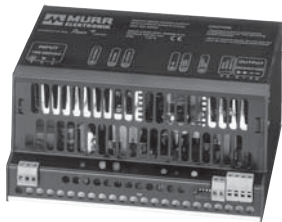
AC/DC and DC/DC converters.

Regulated or adjustable with touch protection.

If a stable DC voltage is required and an AC voltage or unsmoothed DC voltage are available, it is possible to use the AC/DC and DC/DC converters from Murrelektronik.

Output current range: 0.3...20 A

from page 4.8.1



MPD

Primary switch mode DC/DC converters with galvanic separation.

All units are touch protected, overload and short-circuit protected and can be snapped on to DIN-rail.

Input voltage: 48/110/220/600 V DC

Output voltage: 24 V DC SELV

22...28 V DC adjustable

Output current: 3/5/10/20 A

from page 4.8.5

Rectifier modules



NG

Rectifier modules.

If a transformer is already in place, which is supplying the necessary AC voltage for an application, then it is possible to use a smoothing power supply without transformer.

On this rectifier module are situated an LED status indicator, a fuse and the smoothing capacitors.

Output current range: 2.6...10 A

page 4.8.7

DC/DC converters, switched mode
with galvanic separation

Touch protected to EN 60529 (IP20)

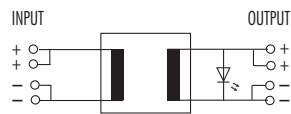
MDD
Input 24 V DC
Output 24 V DC

MDD
Input 24 V DC
Output 12 V DC

MDD
Input 24 V DC
Output 5 V DC



Circuit diagram



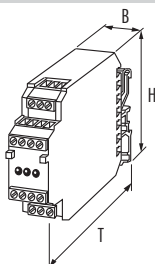
Ordering data	Art.-No.	Art.-No.	Art.-No.
Output data			
24 V DC/0.3 A 7 W	85655		
12 V DC/0.7 A 8 W		85656	
5 V DC/1.5 A 7.5 W			85657

Input	
Input voltage	24 V DC
Input current	0.6 A
Input fuse (external)	2.0 A T

Output			
Output voltage	24 V DC SELV ± 2 %	12 V DC SELV ± 2 %	5 V DC SELV ± 2 %
Max. output current	0.3 A	0.7 A	1.5 A
Ripple	< 0.2 % eff		
Output fuse	short-circuit and overload protected, restart after overload by sensor supply removal		

General data	
Guidelines	EN 61204-3
Test voltage input/output	4 kV AC
Temperature range	0...+50 °C, no condensation
Mounting method	DIN-rail mounting to EN 60715 (TH35 resp. G32)
Weight	0.12 kg
Dimensions	H x B x T
	75 x 22.5 x 102 mm

Dimension drawing



Notes

**DC/DC converters,
switched mode**

with galvanic separation

**Touch protected to
EN 60529 (IP20)**

MDD

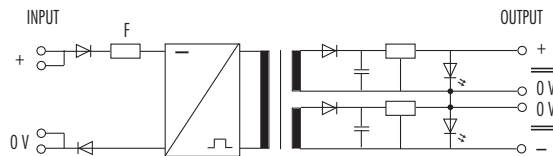
Input 24 V DC
Output ± 10 V DC

MDD

Input 24 V DC
Output ± 15 V DC



Circuit diagram



Ordering data

	Output data	Art.-No.	Art.-No.
± 10 V DC / 2 x 250 mA	5 W	85658	
± 15 V DC / 2 x 250 mA	7 W		85659

Input

Input voltage	24 V DC
Input current	0.85 A
Input fuse (external)	2.0 A T

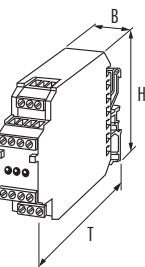
Output

Output voltage	± 10 V DC SELV $\pm 5\%$	± 15 V DC SELV $\pm 5\%$
Max. output current	2 x 250 mA	
Ripple	< 0.2 % eff	
Output fuse	short-circuit and overload protected, restart after overload by sensor supply removal	

General data

Guidelines	EN 61204-3
Test voltage input/output	4 kV AC
Temperature range	0...+50 °C, no condensation
Mounting method	DIN-rail mounting to EN 60715 (TH35 resp. G32)
Weight	0.12 kg
Dimensions	H x B x T
	75 x 22.5 x 102 mm

Dimension drawing



Notes

Converters/rectifier modules

**DC/DC converters
AC/DC converters**

**Touch protected to
EN 60529 (IP20)**

GLS

Input 24 V DC
Output regulated
5 V DC



GSS

Input 24 V DC
Output switched mode
5 V DC



NG

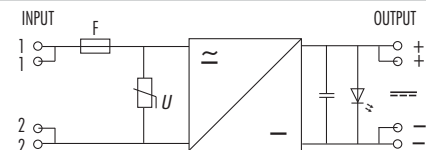
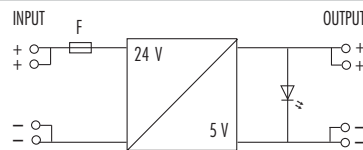
Input 24 V AC
Output regulated
24 V DC



NT

Input 24 V AC
Output adjustable
via potentiometer

Circuit diagram



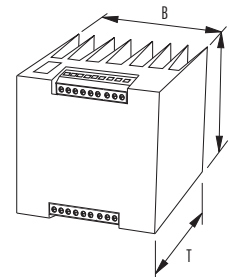
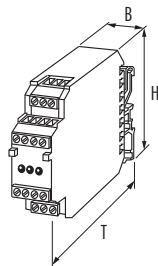
Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Output data				
5 V DC/1.2 A 6 W	85600			
5 V DC/ 4 A 20 W		85650		
24 V DC/3.5 A 84 W			85740	
5...35 V DC/3.5 A 122 W				85660

Input	24 V DC +10% - 15%	15...40 V DC	22...28 V AC; 26...40 V DC	10...32 V AC; 12...42 V DC
Input voltage	24 V DC +10% - 15%	15...40 V DC	22...28 V AC; 26...40 V DC	10...32 V AC; 12...42 V DC
Input current	1.2 A	1 A (at 24 V DC: 4 A)	3.5 A	max. 3 A
Frequency	—		50/60 Hz	
Input fuse	2.0 A T		4.0 A T	6.3 A T

Output	5 V DC SELV ± 5%	4 A	24 V DC SELV ± 3%	5...35 V DC SELV (U _{OUTmax} = U _N - 5 V)
Output voltage	5 V DC SELV ± 5%	4 A	24 V DC SELV ± 3%	5...35 V DC SELV (U _{OUTmax} = U _N - 5 V)
Max. output current	1.2 A	4 A	3.5 A	
Ripple	< 0.2 % eff		< 0.3 % eff	< 0.3 V _{SS}
Output fuse	short-circuit protected		not short-circuit protected	short-circuit protected

General data	-20...+60 °C, no condensation			
Temperature range	-20...+60 °C, no condensation			
Mounting method	DIN-rail mounting to EN 60715 (TH35 resp. G32)			
Weight	0.2 kg	0.13	0.8 kg	
Dimensions	H x B x T	75 x 45 x 102 mm	75 x 22.5 x 102 mm	90 x 90 x 130 mm 90 x 90 x 110 mm

Dimension drawing



Notes

**DC/DC converters
primary switched mode**

with galvanic separation

**Short-circuit and overload
protected**

**Touch protected to
EN 60529 (IP20)**

MPD

Input voltage
40...60 V DC

MPD

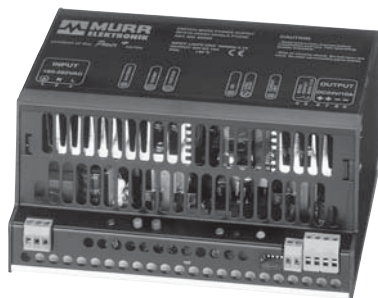
Input voltage
70...160 V DC

MPD

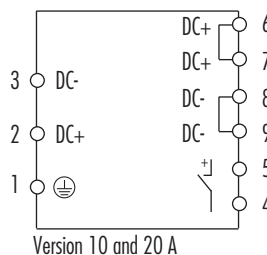
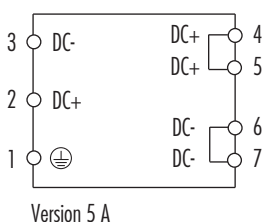
Input voltage
100...160 V DC

MPD

Input voltage
100...160 V DC

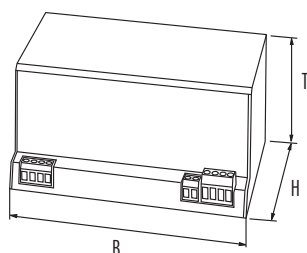


Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Output data				
24 V DC/ 5 A		857710		
24 V DC/10 A			857688	
24 V DC/20 A	857691			857689

Input				
Input voltage	40...60 V DC	70...160 V DC	100...160 V DC	
Input current	11.2 A (48 V DC)	1.35 A (110 V DC)	2.5 A (110 V DC)	4.9 A (110 V DC)
Inrush current 1 ms	no	< 10 A	no	no
Primary fusing	max. 35 A	10 A	10 A	16 A
Output				
Output voltage SELV	24 V DC, ± 1 %; 22...28 adjustable	24 V DC, + 3 -1 %	24 V DC, ± 1 %; 22...28 adjustable	
Nominal output current	20 A (60 °C); 24 A (40 °C)	5 A (60 °C); 6 A (40 °C)	10 A (60 °C); 12 A (40 °C)	20 A (60 °C); 24 A (40 °C)
Efficiency	0.9	0.85	0.89	0.9
Mains failure bridging	> 2.5 ms (48 V DC)	> 10 ms (110 V DC)	> 3 ms (110 V DC)	
Ripple; Spikes	< 20 mV eff; < 100 mV ss			
Protection	short-circuit and overload protected, switch off at phase failure, pre-warning and switching off when overloaded ¹⁾ , alarm signal with relay contact ¹⁾			
LED-indicator	green LED in operation, red LED shut down ¹⁾ , yellow LED pre-warning of overloaded or high temperature ¹⁾			
Parallel usage/serial usage	yes/yes	no/yes	yes/yes	
Alarm output ^{1) 2)}	electr. relay max. 60 V DC/ 0.2 A, collective alarm for all faults and pre-warnings, quit via green reset button			
Test stop button ¹⁾	for test purposes, the secondary voltage can be switched off short term with the test stop button			
General data				
Guidelines	EN 60950-1, EN 61204-3, EN 55022 B			
Temperature range	0...+60 °C			
Relative humidity	30...90 %, no condensation			
Mounting method	DIN-rail mounting to EN 60715 (TH35), additional plate for screw mounting Art.-No. 89500			
Dimension drawing (mm)				



	H x B x T	Weight
5 A	132 x 110 x 72	0.8 kg
10 A	132 x 198 x 101	1.7 kg
20 A	132 x 243 x 123	2.5 kg

Notes
¹⁾ Units from 10 A onwards. Other versions on request.
²⁾ Units decoupling through diode block at parallel usage.

**DC/DC converters
primary switched mode**

with galvanic separation

**Short-circuit and overload
protected**

**Touch protected to
EN 60529 (IP20)**

MPD

Input voltage
120...300 V DC

MPD

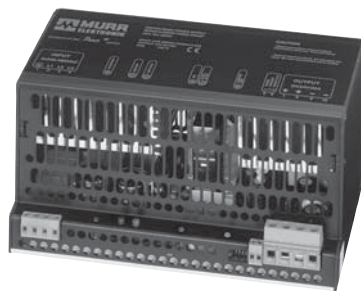
Input voltage
115...300 V DC

MPD

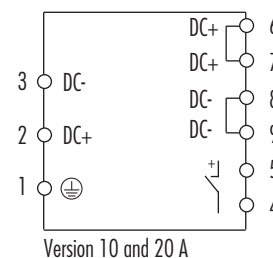
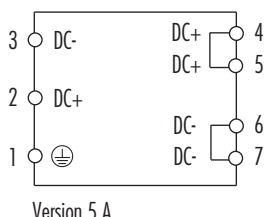
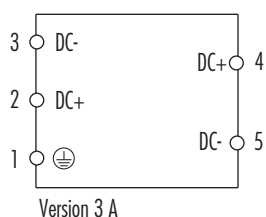
Input voltage
200...300 V DC

MPD

Input voltage
200...300 V DC



Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.	
Output data					
24 V DC/ 3 A	857687				
24 V DC/ 5 A		857651			
24 V DC/10 A			857652		
24 V DC/20 A				857653	
Input					
Input voltage	120...300 V DC	115...300 V DC	200...300 V DC		
Input current (220 V DC)	0.39 A	0.63 A	1.2 A	2.4 A	
Inrush current 1ms	< 10 A		no		
Primary fusing	10 A			16 A	
Output					
Output voltage SELV	24 V DC, +3 -1 %	24 V DC, +3 -1 %	24 V DC, ± 1 %; 22...28 adjustable		
Nominal output current	3 A (60 °C); 3.5 A (40 °C)	5 A (60 °C); 6 A (40 °C)	10 A (60 °C); 12 A (40 °C)	20 A (60 °C); 24 A (40 °C)	
Efficiency	0.84	0.85	0.89	0.9	
Mains failure bridging	> 30 ms (220 V DC)		> 10 ms (245 V DC)	> 15 ms (245 V DC)	
Ripple; Spikes	< 20 mV eff; < 100 mV ss				
Protection	short-circuit and overload protected, switch off at phase failure ¹⁾ , alarm signal with relay contact ¹⁾				
LED-indicator	green LED in operation, red LED shut down ¹⁾ , yellow LED pre-warning and switching off when overloaded ¹⁾				
Parallel usage/serial usage	no/yes		yes/yes		
Alarm output ^{1) 2)}	electr. relay max. 60 V DC/ 0.2 A, collective alarm for all faults and pre-warnings, quit via green reset button				
Test stop button ¹⁾	for test purposes, the secondary voltage can be switched off short term with the test stop button				
General data					
Guidelines	EN 60950-1, EN 61204-3, EN 55022 B				
Temperature range	0...+60 °C				
Relative humidity	30...90 %, no condensation				
Mounting method	DIN-rail mounting to EN 60715 (TH35), additional plate for screw mounting Art.-No. 89500				
Dimension drawing (mm)					
			H x B x T	Weight	
			3 A	132 x 75 x 71	0.6 kg
			5 A	132 x 110 x 72	0.8 kg
			10 A	132 x 198 x 101	1.7 kg
			20 A	132 x 243 x 123	2.5 kg
Notes					
	¹⁾ Units from 10 A onwards. Other versions on request.				
	²⁾ Units decoupling through diode block at parallel usage.				

Rectifier modules, single-phase

Touch protected to EN 60529 (IP20)

NG 2
max. 2.6 A

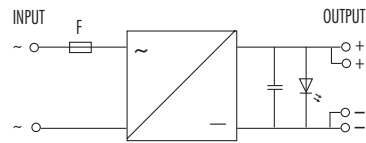


NG 5
max. 5 A

NG 10
max. 10 A



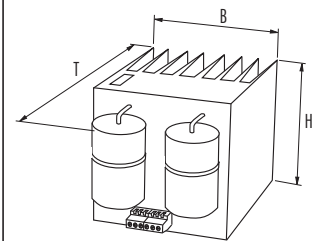
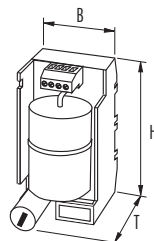
Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
Output data			
24 V DC/ 2.6 A	85700		
24 V DC/ 5 A		85710	
24 V DC/ 10 A			85730

Input			max. 29 V AC
Input voltage	max. 41 V AC		
Input current	rel. output current		
Frequency	50/60 Hz (or extra using for DC)		
Input fuse	3.15 A T (5 x 20 mm)	8 A T (5 x 20 mm)	16 A T (5 x 20 mm)
Output			
Output voltage	24 V DC SELV (at U_E approx. 21 V AC)		
Max. output current	2.6/ ¹⁾ 1.8 A	5/ ¹⁾ 4 A	10 A
Ripple	< 5 % eff		
Output fuse	-		
Output filter	smoothed with smoothing capacitor and LED		
General data			
Temperature range	-20...+60 °C		
Mounting method	DIN-rail mounting to EN 60715 (TH35)		
Weight	0.2 kg		0.8 kg
Dimensions	H x B x T	86 x 45 x 65 mm	90 x 90 x 135 mm

Dimension drawing



Notes	¹⁾ max. current shown at $\vartheta_{U}=60\text{ °C}$
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