

DC/DC converter

Switch mode
with galvanic separation

IP20 Protection

Touch-protected (VBG 4)

MDD

Input 24 V DC

Output 24 V DC

MDD

Input 24 V DC

Output 12 V DC

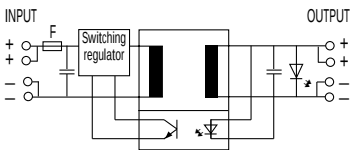
MDD

Input 24 V DC

Output 5 V DC



Circuit diagram



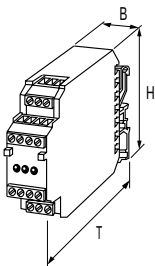
Ordering data		Art.-No.	Art.-No.	Art.-No.
Output rating				
24 V DC/0,3 A	7 W	85655		
12 V DC/0,7 A	8 W		85656	
5 V DC/1,5 A	7,5 W			85657

Technical data	Input	
Input voltage	24 V DC ±20 %	
Input current	0,6 A	
Input fuse (external)	2,0 A tr	

Technical data	Output			
Output voltage	24 V DC $\pm$ 2 %	12 V DC $\pm$ 2 %	5 V DC $\pm$ 2 %	
Max. output current	0,3 A	0,7 A	1,5 A	
Effective ripple	< 0,2 %			
Output fuse	short-circuit and overload protected			
Output suppression	—			

General data				
Test voltage input-output/ guidelines		4 kV AC, EMC tested to VDE 0871 B		
Temperature range		0...+50 °C		
Mounting method		DIN-rail mounting to EN 50022 or 50035		
Weight		0,12 kg		
Dimensions	H x B x T	75 x 22,5 x 102 mm		

Dimension drawing



Notes	
In order to guarantee heat dissipation by convection, the unit must be mounted in the position shown, on the back panel. Re-start after overloading is achieved by removing the input voltage.	

DC/DC Converter

Switch mode
with galvanic separation

IP20 Protection

Touch-protected (VBG 4)

MDD

Input 24 V DC

Output ± 10 V DC

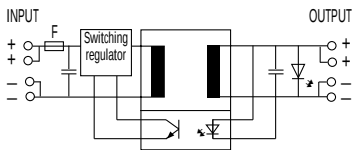
MDD

Input 24 V DC

Output ± 15 V DC

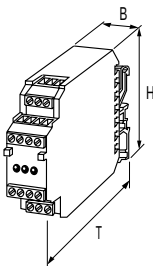


Circuit diagram



Ordering data		Art.-No.	Art.-No.
Output rating			
± 10 V DC/ 2 x 250 mA	5 W	85658	
± 15 V DC/ 2 x 250 mA	7 W		85659
Technical data		Input	
Input voltage		24 V DC ± 20 %	
Input current		0,6 A	
Input fuse (external)		2,0 A tr	
Technical data		Output	
Output voltage		± 10 V DC; ± 5 %	± 15 V DC; ± 5 %
Max. output current		2 x 250 mA	
Effective ripple		< 0,2 %	
Output fuse		short-circuit and overload protected	
Output suppression		—	
General data		Test voltage input-output/ guidelines	
		4 kV AC, EMC tested to VDE 0871 B	
		Temperature range	
		0...+50 °C	
		Mounting method	
		DIN-rail mounting to EN 50022 or 50035	
		Weight	
		0,12 kg	
Dimensions	H x B x T	75 x 22,5 x 102 mm	

Dimension drawing



Notes

In order to guarantee heat dissipation by convection, the unit must be mounted in the position shown, on the back panel.
Re-start after overlaoding is achieved by removing the input voltage.

DC/DC Converter AC/DC Converter

Touch-protected (VBG 4)



GLS

Input 24 V DC
Output linear regulated
5 V DC



GSS

Input 24 V DC
Output switch mode
5 V DC



NG

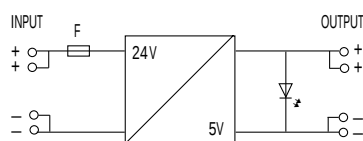
Input 24 V AC
Output linear regulated
24 V DC



NT

Input 24 V DC
Output adjustable
via potentiometer

Circuit diagram



Ordering data

	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Output rating				
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

Technical data

Input

Input voltage	24 V DC +10 % -15 %	15...40 V DC	22...28 V AC; 26...40 V DC	12...42 V DC; 10...32 V AC
Input current	1,2 A	1 A (at 24 V: 4 A)	3,5 A	max. 3 A
Frequency			50/60 Hz	50/60 Hz
Input fuse	2,0 A	2,0 A	4,0 A	6,3 A

Technical data

Output

Output voltage	5 V DC $\pm 5\%$	5 V DC $\pm 5\%$	24 V DC $\pm 3\%$	5...35 V DC ($U_{OUTmax.} = U_{IN} - 5 V$)
Max. output current	1,2 A	4 A	3,5 A	3,5 A
Effective ripple	< 0,2 %		< 0,3 %	0,3 V _{pp}
Output fuse	short-circuit protected		not short-circuit protected	short-circuit protected

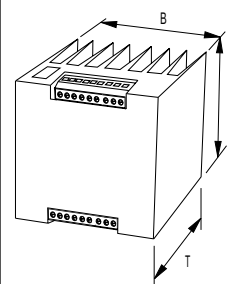
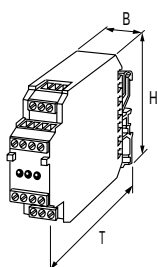
Output suppression

—

General data

Test voltage	—			
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mounting to EN 50022			
Weight	0,3 kg	0,3 kg	0,8 kg	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 110 mm

Dimension drawing



Notes

In order to guarantee heat dissipation by convection, the unit must be mounted in the position shown, on the back panel.

DC/DC Converter

Primary switch mode
with galvanic separation

Touch-protected IP20

Short-circuit and overload
protected



MPD

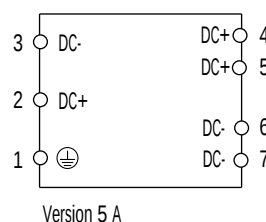
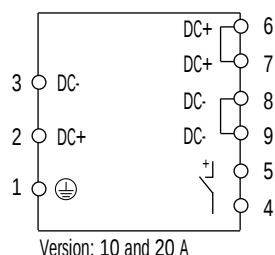
Input voltage 48 V DC



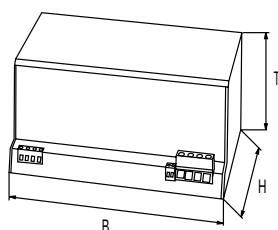
MPD

Input voltage 110 V DC

Circuit diagram



Ordering data		Art.-No.	Art.-No.
	Output rating		
24 V DC/ 3 A	72 W		
24 V DC/ 5 A	120 W		857710
24 V DC/ 10 A	240 W		857688
24 V DC/ 20 A	480 W	857691	857689
Technical data	Input		
Input voltage	40...60 V DC	70...145/ 100...170/ 100...170 V DC	
Input current	11,2 A (48 V)	1,3 A/ 2,4 A/ 4,8 A (110 V)	
Inrush	no inrush current	< 10 A/ no inrush current/ no inrush current	
Input fuse	max. 35 A	10 A/ 10 A/ 16 A	
Technical data	Output		
Output voltage	22...28 V DC adjustable to an accuracy of ± 1%	24 V DC (+3; −1 %)/ 22...28 V DC/ 22...28 V DC (±1 %)	
Nominal output current	20 A, 24 A at 40°C	5 A, 10 A, 20 A	
Efficiency	0,9	0,85/ 0,9/ 0,9	
Mains failure bridging	6 msec. (55 V)	10 msec. / 20 msec. / 20 msec. (130 V)	
Ripple	< 20 mV rms; < 100 mV ss		
Protection	overload and short-circuit protected, switch off at phase failure, pre-warning and switch off when overload ¹⁾ , alarm signal with relay contact ¹⁾		
LED indicator	LED green in operation, LED red shut down ¹⁾ , LED yellow pre-warning of overload or high temp. ¹⁾		
Parallel usage ¹⁾	max. 3 units, minimum load 5% of I _{nominal}		
Alarm output ^{1) 2)}	relay contact max. 60 V DC/0.2 A, collective alarm for all faults and pre-warnings, quit via the green reset button		
Test insulation voltage	4 kV AC		
General data			
Guidelines	EN 60950, EN 50081-1, EN 50082-2, ENV 50142 2kV/4kV, EN 55011B		
Temperature range/relative humidity	0...+60 °C/ 30...90 %, no condensation		
Mounting method	DIN-rail mounting to EN 50022, additional plate for screw mounting Art.-No. 89500		
Test stop button ¹⁾	for test purposes, the secondary voltage can be switched off short term with the test stop button		
Dimension drawing			



	H x B x T	Weight
5 A	132 x 110 x 71	0,8 kg
10 A	132 x 200 x 101	1,7 kg
20 A	132 x 245 x 133	2,4 kg

Notes

²⁾ If units are used in parallel decoupling of units via diode block. In order to guarantee heat dissipation by convection, the unit must be mounted horizontally on a vertical back panel. ¹⁾ Units from 10 A upwards. Other versions on request.

DC/DC Converter

Primary switch mode
with galvanic separation

Touch-protected IP20

Short-circuit and overload
protected



MPD

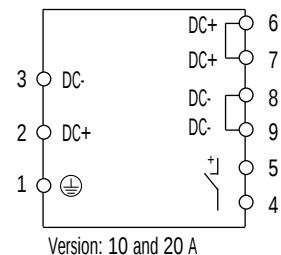
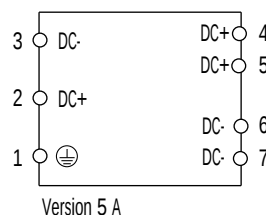
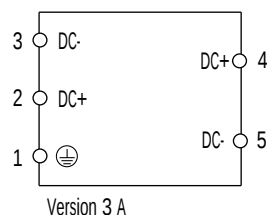
Input voltage 220 V DC



MPD

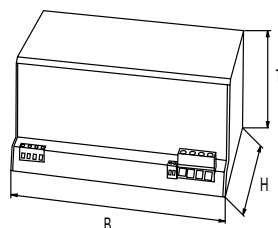
Input voltage 600 V DC

Circuit diagram



Ordering data		Art.-No.	Art.-No.
	Output rating		
24 V DC/ 3 A	72 W	857687	
24 V DC/ 5 A	120 W	857651	
24 V DC/ 10 A	240 W	857652	85075
24 V DC/ 20 A	480 W	857653	85077
Technical data		Input	
Input voltage		120...300/ 115...300/200...300/ 200...300 V DC	500...780 V DC
Input current		0,4 A/ 0,63 A/ 1,2 A/ 2,4 A/ (220 V)	0,45 A/ 0,89 A (600 V)
Inrush		< 10 A/ < 10 A/ no inrush current/ no inrush current	< 20 A
Input fuse		10 A/ 10 A/ 10 A/16 A	3,15 A
Technical data		Output	
Output voltage		24 V/ 24 V (+3; −1 %)/ 22...28 V/ 22...28 V DC (±1 %)	22...28 V DC (±1 %)
Nominal output current		3 A/ 5A/ 10 A/ 20 A	10 A/ 20 A
Efficiency		0,84/ 0,85/ 0,9/ 0,9	0,9
Mains failure bridging		80 msec./ 80 msec./ 12 msec./15 msec. (245 V)	10 msec. (600 V)
Ripple		< 20 mV rms; < 100 mV ss	
Protection		overload and short-circuit protected, switch off at phase failure, pre-warning and switch off when overload ¹⁾ , alarm signal with relay contact. ¹⁾	
Status indicator		LED green in operation, LED red shut down ¹⁾ , LED yellow pre-warning of overload or high temp. ¹⁾	
Parallel usage ¹⁾		max. 3 units, minimum load 5% of I _{nominal}	
Alarm output ^{1) 2)}		relay contact max. 60 V DC/0.2 A, collective alarm for all faults and pre-warnings, quit via the green reset button	
Test insulation voltage		4 kV AC	
General data			
Guidelines		EN 60950, EN 50081-1, EN 50082-2, ENV 50142 2kV/4kV, EN 55011B	
Temperature range/relative humidity		0...+60 °C/ 30...90 %, no condensation	
Mounting method		DIN-rail mounting to EN 50022, additional plate for screw mounting Art.-No. 89500	
Test stop button ¹⁾		for test purposes, the secondary voltage can be switched off short term with the test stop button	
Dimension drawing			

Dimension drawing



	H x B x T	Weight
3 A	132 x 75 x 71	0,6 kg
5 A	132 x 110 x 71	0,8 kg
10 A	132 x 200 x 101	1,7 kg
20 A	132 x 245 x 133	2,4 kg

Notes

²⁾ If units are used in parallel decoupling of units via diode block. In order to guarantee heat dissipation by convection, the unit must be mounted horizontally on a vertical back panel. ¹⁾ Units from 10 A upwards. Other versions on request.