



BUFFER MODULES / REDUNDANCY MODULES

- Stable power supply
- Safe processes
- Increased machine availability

SAFE, INTELLIGENT, COST EFFECTIVE

Murrelektronik offers a wide range of buffer modules that bridge voltage fluctuations for **38 seconds at 10 A** or up to **several minutes at 1 A**. They are equipped with ultra capacitors instead of lead batteries like conventional uninterruptible power systems (UPS). This makes sure they are maintenance-free and cost-effective because you never have to change the batteries in Murrelektronik's buffer modules.

Overview of Buffer Modules

Load Current	Seconds								Minutes						
	0.2	0,5	1	3.6	4	7	16	21	38	1	2	4	3	5	6
1 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
5 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- MB Cap 20 A/0.2 s
- MB Cap Ultra 3 A/7 s
- MB Cap Ultra 10 A/38 s
- Emparro Cap 20 A/1.0 s
- MB Cap Ultra 20 A/16 s
- MB Cap Ultra 40 A/3.6 s

To ensure that machines run at maximum capacity, power supply systems are often designed redundantly with two power supply units. Murrelektronik's redundancy modules decouple independent power supply units and generate a redundant 24 V DC control voltage.

Buffer Modules / Redundancy Modules



Buffer Modules

- Maintenance-free ultra capacitors

Page 1.4.1



Redundancy Modules

- Active
- Passive

Page 1.4.4

BUFFER MODULES / REDUNDANCY MODULES

Buffer modules

MB Cap Ultra 3/24 7s

7 s (3 A); 21 s (1 A)



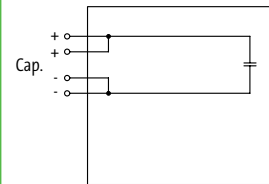
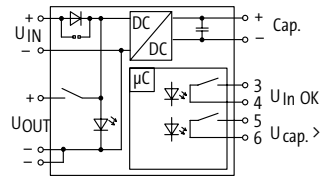
MB Cap Ultra expansion module 3/24 12s

12 s (3 A); 36 s (1 A)



Approvals: UL^{us}
Listed

Circuit diagram



Order Data

24 V DC/3 A

Art-No.

85460

use with Art.-Nr. 85460

Art-No.

85462

Input

Input voltage

20.4...26.4 V DC

Input current

3 A

Loading time

min. 25 s

Output

Output voltage

23 V DC $\pm 2\%$

Output current

max. 3 A (+60 °C)

Buffer time

7 s (3 A); 21 s (1 A)

12 s (3 A); 36 s (1 A)

General data

Standards

(EN 60950), (EN 50178) SELV/PELV

Temperature range

-20...+60 °C (storage temperature -20...+60 °C)

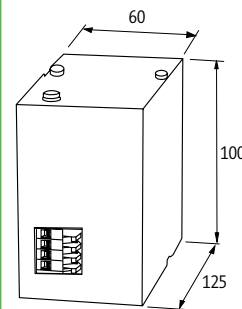
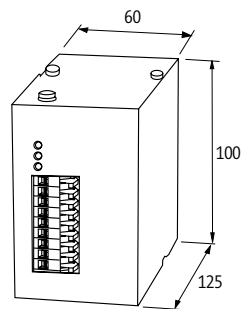
Mounting method

DIN-rail mountable TH35 (EN 60715)

Efficiency

90 %

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES

Buffer modules

MB Cap Ultra 10/24 38s

38 s (10 A); 380 s (1 A)



MB Cap Ultra 20/24 16s

16 s (20 A); 320 s (1 A)



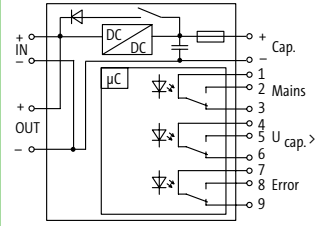
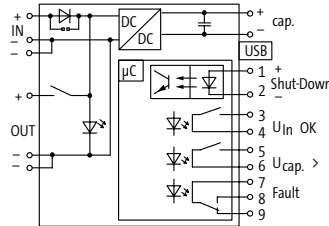
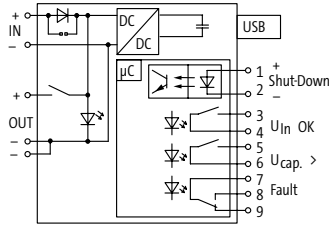
MB Cap Ultra 40/24 170s

3.6 s (40 A); 170 s (1 A)

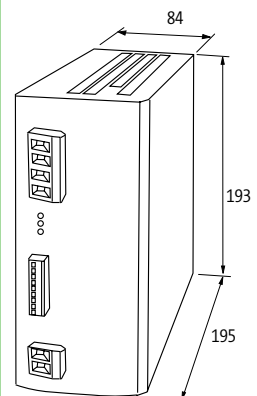
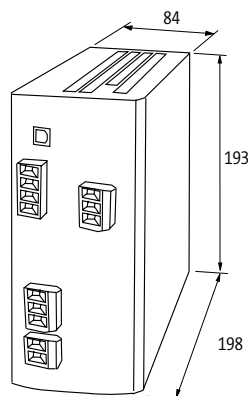
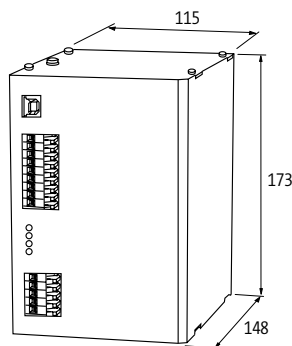


Approvals: UL US Listed

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/10 A	85467		
24 V DC/20 A		85468	
24 V DC/40 A			85469
Input			
Input voltage	10.5...15 V DC; 24...27 V DC	24...26.4 V DC	21.6...26.4 V DC
Input current	10 A	20 A	40 A
Inrush current	max. 35 A/2 ms	max. 36.5 A	
Loading time	typ. 100 s; max. 210 s	typ. 40 s; max. 500 s	typ. 140 s; max. 300 s
Output			
Output voltage	11.3 V DC ±4 %; 23.3 V DC ±2 %	23.3 V DC ±2 %	25.5...19 V DC ±2 %
Output current	max. 10 A (+60 °C)	max. 20 A (+60 °C)	max. 40 A (+60 °C)
Buffer time	38 s (10 A); 380 s (1 A)	16 s (20 A); 320 s (1 A)	3.6 s (40 A); 170 s (1 A)
General data			
Standards	(EN 60950), (EN 50178) SELV/PELV	(EN 60950-1), (EN 61204-3), (EN 55011 A)	(EN 61000-6-2), (EN 61000-6-4)
Temperature range	-20...+60 °C (storage temperature -20...+60 °C)		
Mounting method	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)		
Efficiency	90 %		
Dimension drawing			



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Notes

Buffer modules / Redundancy Modules

BUFFER MODULES / REDUNDANCY MODULES

Buffer modules

MB Cap 20/24 4s

0.2 s (20 A); 4 s (1 A)

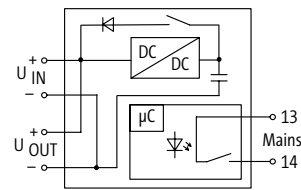
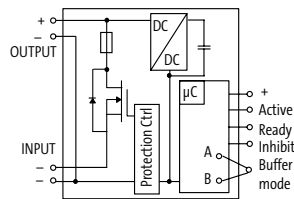


Emparro Cap 20/24 40s

1.0 s (20 A); 40 s (1 A)



Circuit diagram



Order Data

24 V DC/20 A

cULus

Art-No.

85394

Art-No.

85458

Input

Input voltage

23...30 V DC (SELV/PELV)

Input current

85 mA

Inrush current

–

Protection of voltage spikes

max. 35 V DC

Loading time

20...45 s

Loading current

max. 500 mA

Output

Output voltage

24 V DC, 22...28 V DC

Output current

max. 20 A (+70 °C)

Current limit

26 A

Buffer time

–

Ripple

max. 200 mV rms

Parallel circuit

possible

General data

Standards

(EN 61000-6-2), (EN 61000-6-3), (EN 55022) category B, (EN 60950-1) SELV

Temperature range

0...+70 °C (storage temperature -25...+85 °C)

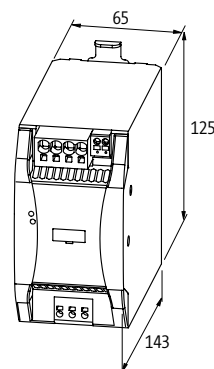
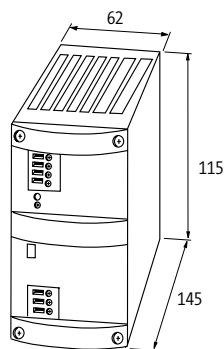
Mounting method

DIN-rail mountable TH35 (EN 60715)

Efficiency

95 %

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES

Redundancy modules

MB Redundancy Balance 2 × 20/24

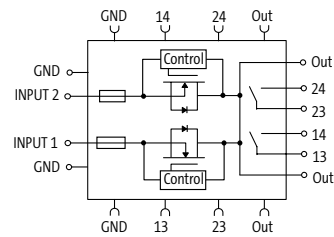
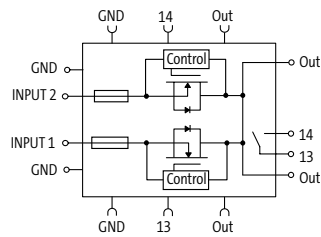
MB Redundancy Balance 2 × 20/24

Auto-Balancing (50/50)



Approvals:  

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC / 2 × 20 A / 1 × 40 A	85495	85496

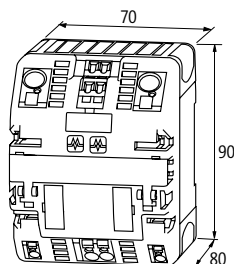
Accessories	Art-No.
Bridge system 10 pcs.	9000-41034-0000001
Bridge system VE 1	9000-41034-0000002
Label plates	996067

Input		
Input voltage	24 V DC (18...30 V DC)	
Input current	2 × 20 A	
Total current	max. 40 A	
Protection against reverse polarization	max. 30 V DC	
Auto-Balancing (50/50)	no	yes

Output		
Output voltage	24 V DC (18...30 V DC)	
Output current (40 A)	(-25...+60 °C) continuous	
Output current (52 A)	(-25...+40 °C)	(-25...+40 °C) without balance
Output current (26 A)	(-25...+40 °C) for redundancy operation	
LED display	LED (red/green)	
Alarm output	potential free (relay contact) for input voltage	potential free (relay contact) for input voltage / load distribution

General data	
Standards	(EN 61000-6-2), (EN 61000-6-3)
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)
Relative humidity	5...95 %, no condensation
Efficiency	99.5 %
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)
Connection	Spring clamp terminals
Mounting method	DIN-rail mountable TH35 (EN 60715)

Dimension drawing




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Notes

BUFFER MODULES / REDUNDANCY MODULES

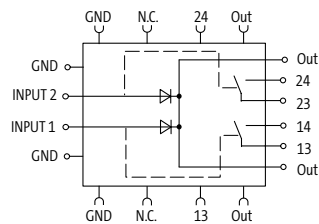
Redundancy modules

MB Diode

Approvals:  **UL** US
Listed



Circuit diagram



Order Data

24 V DC / 2 × 20 A / 1 × 40 A

Art-No.

85396

Accessories

Bridge system 10 pcs.

9000-41034-0000001

Bridge system VE 1

9000-41034-0000002

Label plates

996067

Input

Input voltage 24 V DC (21...30 V DC)

Input current 2 × 20 A / 1 × 40 A

Total current max. 40 A

Protection against reverse polarization Internal protection against reverse polarization up to 60 V DC

Auto-Balancing (50/50) no

Output

Output voltage 24 V DC (21...30 V DC)

Output current 20 A (-25...+55 °C); 40 A (-25...+40 °C)

Overload at 20 A +50 % for 4 s

LED display LED (green)

Alarm output potential free alarm output per channel (relay contact)

General data

Standards (EN 61000-6-2), (EN 61000-6-3)

Bridging concept two sides, with spring clamp terminals or bridge set (max. 40 A)

Relative humidity 5...95 %, no condensation

Power loss U (approx. 0.5 V) × I

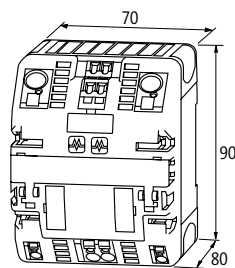
Efficiency 97 %

Temperature range -25...+55 °C (20 A); -25...+40 °C (40 A); (storage temperature -25...+85 °C)

Connection Spring clamp terminals

Mounting method DIN-rail mountable TH35 (EN 60715)

Dimension drawing



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Notes