UPS SYSTEMS / BUFFER / REDUNDANCY MODULES

- **Stable power supply**
- **Protection of processes**
- **Increase of machine availability**

UPS MODULE OR BUFFER MODULE ON THE BASIS OF CAPACITORS?

The UPS module Emparro ACCUcontrol is the right solution if a longer power failure have to be bridged without having to deal with failures and downtimes in production. Thanks to the externally connected lead battery, even a bridging time of several hours is possible.

Emparro Cap works based on ultra condensers, is maintenance-free for its entire service life and is the right solution if a certain amount of power is required to shut machines and control systems down in a structured manner.

Project matrix

	Seconds		Minutes						Hours			
Load current	**1**	**16**	**1**	**2**	**5**	**10**	**15**	**30**	**1**	**3**	**5**	**10**
0.5 A	●	●	●	●	●	●	●	●	●	●	●	●
1 A	●	●	●	●	●	●	●	●	●	●	●	●
2 A	●	●	●	●	●	●	●	●	●	●	●	●
5 A	●	●	●	●	●	●	●	●	●	●	●	
10 A	●	●	●	●	●	●	●	●	●			
15 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
- ● Emparro ACCUControl 20 A
- ● Emparro ACCUControl 40 A

UPS systems / Buffer / Redundancy modules

UPS systems
- Predictive Maintenance
- Mini USB for connection to an industrial PC

Page 1.3.1

Buffer modules
- Maintenance-free ultra capacitors
- Buffer time more than 1 second at full load of 20 A
- Metal housing

Page 1.3.2

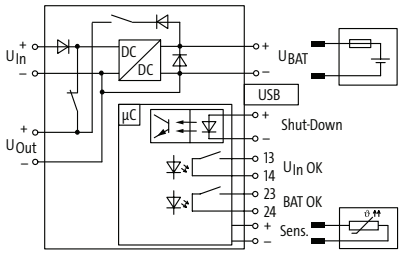
Buffer modules
- Maintenance-free ultra capacitors

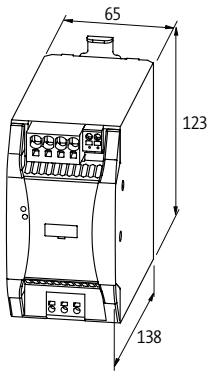
Page 1.3.3

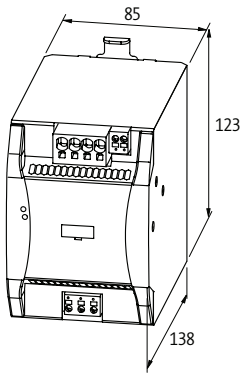
Redundancy modules

Page 1.3.6

UPS systems	Emparro® ACCUcontrol	Emparro® ACCUcontrol
Approvals: c UL us Listed		
Circuit diagram		
Order Data	**Art-No.**	**Art-No.**
24 V DC/20 A	**85414**	
24 V DC/40 A		**85415**
Technical Data		
Sensor type	KTY 81-210 (Art.No. 89600)	
Battery type	Lead battery (max. 40 Ah, sealed)	
Input		
Input voltage	21.6...30 V DC (buffer operation)	
Input current	max. 23 A	max. 43 A
Loading current	2 A	
Output		
Output voltage	27.7...19.2 V DC	
Output current	max. 20 A	max. 40 A
Control inputs		
Input voltage shutdown (SH)	24 V DC (6...45 V DC), potential free	
Control outputs		
Battery (BAT OK)	min. 5 V DC, 1 mA; max. 30 V DC, 100 mA	
Input voltage (Uin OK)	min. 5 V DC, 1 mA; max. 30 V DC, 100 mA	
General data		
Connection	Push-In Spring clamp terminals, Mini-USB	
Mounting method	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)	
Temperature range	-25...+45 °C	
Dimension drawing		
Notes		
	The required batteries can be found at the end of chapter 1.3.	

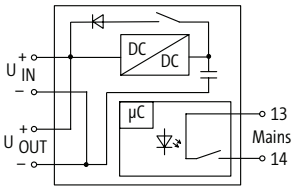


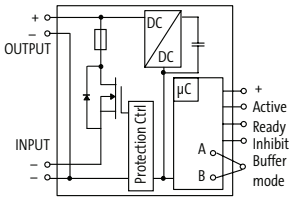


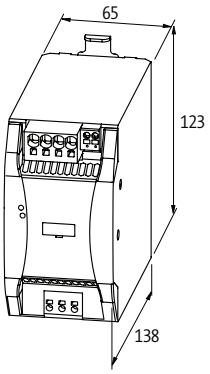


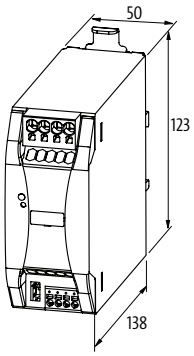
UPS-SYSTEMS / BUFFER- / REDUNDANCY MODULES

Buffer modules	Emparro® Cap 20/24 1.0s 1.0 s (20 A); 40 s (1 A)	Emparro® Cap 20/48 0.1s 0.1 s (20 A); 2 s (1 A)
Approvals: c UL us Listed		
Circuit diagram		
Order Data	**Art-No.**	**Art-No.**
24 V DC/20 A	**85458**	
48 V DC/20 A		**85459**
Input		
Input voltage	21.6...26.4 V DC	46...56 V DC (SELV/PELV)
Input current	20 A	60 mA
Inrush current	max. 25 A	–
Protection of voltage spikes	–	max. 72 V DC
Loading time	max. 75 s	20...45 s
Loading current	max. 3 A	max. 500 mA
Output		
Output voltage	25.5...19 V DC ±2%	48 V DC (46...56 V DC)
Output current	max. 20 A	
Current limit	65 A	26 A
Buffer time	1.0 s (20 A); 40 s (1 A)	0.1 s (20 A); 2 s (1 A)
Parallel circuit	possible	
Ripple	–	max. 200 mV p-p
General data		
Standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-3, EN 55022 B
Mounting method	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)	DIN-rail mountable TH35 (EN 60715)
Efficiency	90%	99%
Temperature range	-40...+60 °C (storage temperature -40...+60 °C)	-25...+60 °C, ...+70 °C derating (storage temperature -40...+85 °C)
Dimension drawing		
Notes		

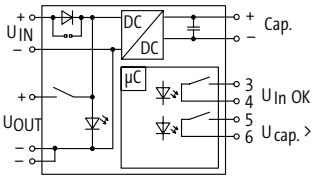


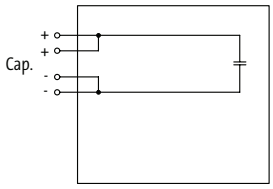


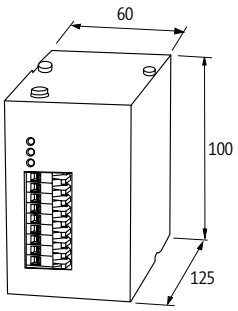


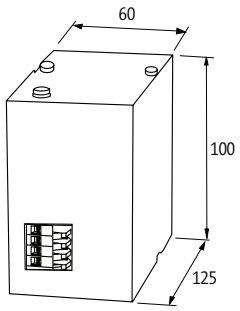


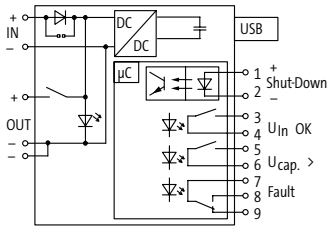
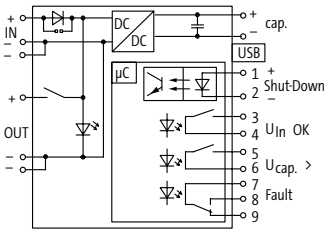
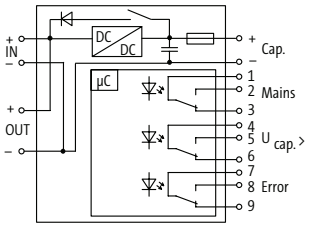
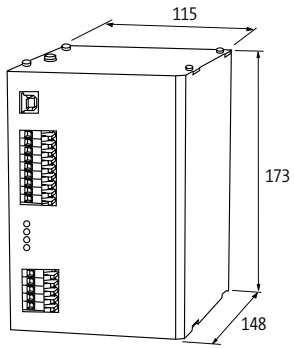
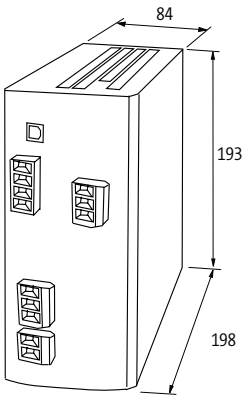
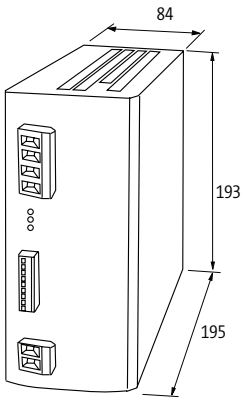
Buffer modules	MB Cap Ultra 3/24 7s 7 s (3 A); 21 s (1 A)	MB Cap Ultra expansion module 3/24 12s 12 s (3 A); 36 s (1 A)
Approvals: c UL us Listed		
Circuit diagram		
Order Data	**Art-No.**	**Art-No.**
24 V DC/3 A	**85460**	use with Art.-No. 85460 **85462**
Input		
Input voltage	20.4...26.4 V DC	0...26.4 V DC
Input current	3 A	
Loading time	min. 25 s	–
Output		
Output voltage	23 V DC ±2%	0...26.4 V DC
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	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Efficiency	90%	
Temperature range	-20...+60 °C (storage temperature -20...+60 °C)	
Dimension drawing		
Notes		









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 3.6s 3.6 s (40 A); 170 s (1 A)
Approvals: c 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...29 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/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
Mounting method	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)		
Efficiency	90%		
Temperature range	-20...+60 °C (storage temperature -20...+60 °C)		
Dimension drawing			
Notes			

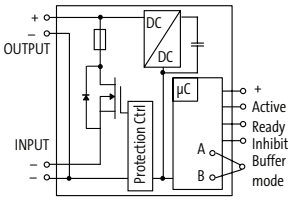
Buffer modules

MB Cap 20/24 0.2s

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

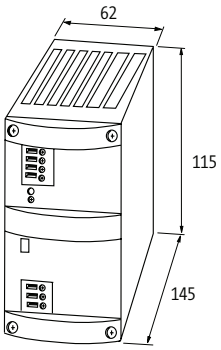
Approvals: cULus Listed

Circuit diagram

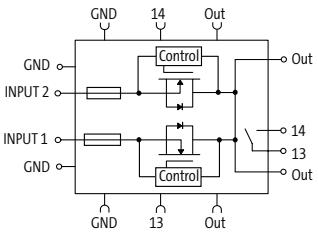
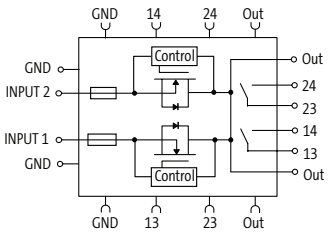
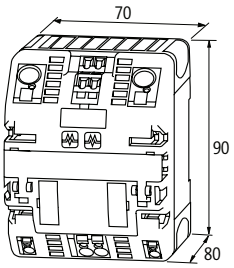


Order Data		Art-No.
24 V DC/20 A		85394
Input		
Input voltage	23...30 V DC (SELV/PELV)	
Input current	85 mA	
Protection of voltage spikes	max. 35 V DC	
Loading time	20...45 s	
Loading current	max. 500 mA	
Output		
Output voltage	24 V DC (22...28 V DC)	
Output current	max. 20 A (+70 °C)	
Current limit	26 A	
Buffer time	0.2 s (20 A); 4 s (1 A)	
Ripple	max. 200 mV p-p	
Parallel circuit	possible	
General data		
Standards	EN 61000-6-2, EN 61000-6-3, EN 55022 B, EN 60950-1, SELV	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Efficiency	95%	
Temperature range	0...+70 °C (storage temperature -25...+85 °C)	

Dimension drawing



Notes

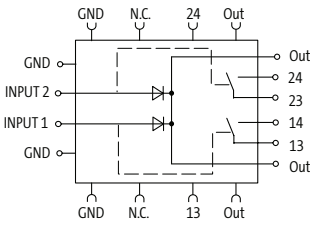
Redundancy modules	MB Redundancy Balance 2 × 20/24	MB Redundancy Balance 2 × 20/24 Auto-Balancing (50/50)
Approvals: cULus Listed, DNV-GL		
Circuit diagram		
		
Order Data	**Art-No.**	**Art-No.**
24 V DC/2 × 20 A/1 × 40 A	**85495**	**85496**
Input		
Input voltage	24 V DC (18...30 V DC)	
Input current	2 × 20 A	
Total current	max. 40 A	
Invers-polarity protection	max. 30 V DC	
Auto-Balancing (50/50)	no	yes
Output		
Output voltage	24 V DC (18...30 V DC)	
Output current	26 A (-25...+40 °C)	
LED display	LED (red/green)	
Parallel usage/serial usage	2 units: 40 A (-25...+60 °C); 52 A (-25...+40 °C)/-	
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%	
Connection	Spring clamp terminals	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)	
Dimension drawing		
		
Notes		

Redundancy modules

MB Diode

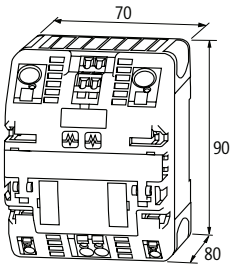
Approvals: c UL us Listed

Circuit diagram



Order Data		Art-No.
24 V DC/2 × 20 A/1 × 40 A		85396
Input		
Input voltage	24 V DC (21...30 V DC)	
Input current	2 × 20 A/1 × 40 A	
Total current	max. 40 A	
Invers-polarity protection	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 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%	
Connection	Spring clamp terminals	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Temperature range	-25...+55 °C (storage temperature -25...+85 °C)	

Dimension drawing



Notes

UPS-SYSTEMS / BUFFER- / REDUNDANCY MODULES

Accessories			Art-No.
	**Lead battery** 1.2 Ah 96×69×105 mm/2 kg	for Emparro® ACCUcontrol	**89550**
	**Lead battery** 7 Ah 115×174.5×159 mm/2.32 kg	for Emparro® ACCUcontrol	**89552**
	**Lead battery** 12 Ah 115×240.5×159 mm/3.7 kg	for Emparro® ACCUcontrol	**89553**
	**Lead battery** 17 Ah 170×155×182 mm/18 kg	for Emparro® ACCUcontrol	**89554**
	**Lead battery** 24 Ah 137×335×200 mm/20 kg	for Emparro® ACCUcontrol	**89555**