MURR ELEKTRONIK

stay connected

- Efficient
- Reliable
- Rugged
- Solution-oriented

POWER SUPPLIES

Switch-Mode Power Supplies, Electronic Circuit Protection and Accessories

DID YOU KNOW...?

FACTS ABOUT MURRELEKTRONIK

- Founded in 1975 by Franz Hafner
- Family-owned and operated company
- More than 2,700 employees worldwide
- Representatives in more than 50 countries
- 5 Production facilities
- Over 1 million articles in stock

THE EMPARRO SYSTEM – A PERFECT MATCH

- Filter, power supply unit and UPS module
- Cutting edge technology
- Consistent handling
- Uniform design
- Optimum EMC compatibility
- Maximum system availability

MURR ELEKTRONIK
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THE CORE OF YOUR CONTROL CABINET

The switch-mode power supply is the core of your control cabinet – and Murrelektronik's power supply units are the perfect regulators.

Our focus is to provide consistant, constant output voltages for your system – independent of how much input voltage fluctuates. We provide you with the most reliable solutions for almost any application, for example: in the machine tool building industry, in the processing industry or in the shipbuilding industry. Our wide product range of power supply units designed with cutting edge technology make sure that you have the best product for your requirements.

Our certified, in-house test center ensures that our switch-mode power supplies are well-engineered and operate perfectly. Our power supply units have many approvals and feature a wide input voltage range, which makes them suitable for global applications. We are represented all over the world with branch offices and distributors: You can buy our products in over 40 countries.

MURRELEKTRONIK'S POWER SUPPLY SYSTEMS

- Comprehensive product range with switch-mode power supplies, transformers, buffer and UPS modules, redundancy modules, electronic circuit protection and much more
- High flexibility with the right model for your requirements
- 100 % compatible
- For global applications
- Our system specialists will help you create your perfect power supply system
- Durable units ensures system availability

Functions	Eco-Power	Eco-Rail-2	Emparro® 1~	Emparro® 3~	Emparro67
Screw terminal	x	x			
Spring clamp terminal			x	x	
Pluggable terminal					
Connector					x
DIN rail mounting		x	x	x	
Screw connection			x	x	x
Full power up to 40 °C	x	x	x	x	x
Full power up to 60 °C			x	x	x
20 % more power up to 45°C			x	x	
50 % Power boost			x	x	x
Derating up to 55 °C	x	x			
Derating up to 70 °C			x	x	x
Automatic wide voltage input 90...265 V	x¹	x¹	x		x
Automatic wide voltage input 360...520 V				x	
Parallel connection			x	x	
Series connection	x	x	x	x	x
AC and DC input			x	x	x
Coated PCB			x	x	
UL		x	x	x	
DNV-GL			x	x	
Alarm contact			x	x	
IO-Link					x¹
IP67					x
Integrated electronic circuit protection (Mico)					x¹

¹ some models

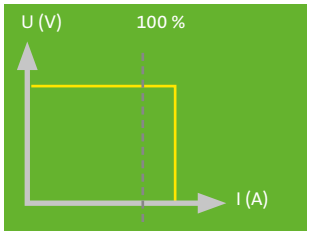
Product Selection	Output						
Single-phase input	12 V	0,85...1 A					
		2,5 A					
		4,5...5 A					
		6 A					
		10 A			85434*		
	24 V	0,6 A	85150				
		1,3 A	85151	85131			
		2,5 A	85152	85132			
		4,0 A					9000-11112-1962020
		4,2...5 A	85153	85133	85440*		
		7,5 A	85154				
		8 A					9000-11112-2062020
		10 A	85155	85135	85441*		85676*
		20 A		85137	85442*		
	48 V	2,5 A			85437*		
		5 A			85438*		
		10 A			85439*		
3-phase input	24 V	5 A				85690*	
		10 A				85691*	
		20 A				85692*	
		40 A				85693*	
	30,5 V	4 A				85383	

* other versions available

CONTINUAL SHORT CIRCUIT AND OVERLOAD PROTECTION

Switch-mode power supplies have different power-down characteristics that make sure the unit's electronics are protected when overloads or short circuits occur. Murrelektronik's power supply units features the following characteristics:

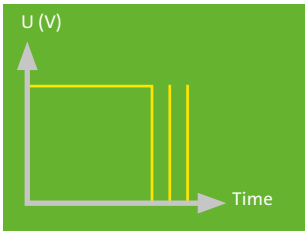
CURRENT-LIMITER



EMPARRO, ECO-RAIL-2* AND ECO-POWER*

- Starts large loads reliably
- Limited function in case of error
- PowerBoost function

HICCUP MODE/ AUTO RESTART

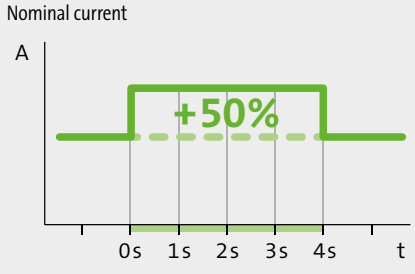


ECO-RAIL-2* AND ECO-POWER*

- Powers down in case of error
- Restarts automatically when error is fixed

* Diagram applies to models several

POWER BOOST FUNCTION



The Current Limiter and Power Limiter functions are excellent for starting capacitive loads. Units with these features do not simply switch off, but they reduce the voltage or provide a higher inrush current with the PowerBoost function.

Before changing over into this protected mode, many of Murrelektronik's power supplies provide an over current four times larger than the nominal current for a few milliseconds. This is another great advantage.

EMPARRO® 1~

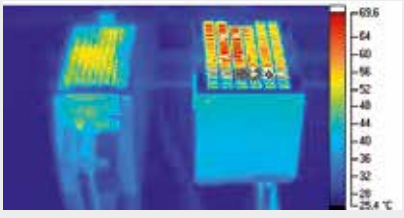
PREMIUM POWER

It is our goal to develop new, efficient power supply units. Each percentage of efficiency saves you money and significantly increases machine availability. The degree of efficiency directly influences size, service life and temperature sensitivity of a power supply. A rough estimate is that if a device's temperature is increased by 10 °C/50 °F, the life of the power supply is reduced by half!

An example, your 24 V/10 A unit has an efficiency of 85 %, which corresponds to power loss of 15 % or 26 W. With an efficiency of 95 %, the power loss is instantly reduced by a third: 12 W.

The higher the efficiency the lower the heat generation and the smaller the unit can be.

EMPARRO VS. STANDARD POWER SUPPLY



1-phase

– short-circuit and overload-protected

– Power boost 150 %

– Parallel connection possible

	Emparro® OUTPUT: 12...15 VDC Current: 10 A	**Emparro®** OUTPUT: 24...28 VDC Current: 5 A	**Emparro®** OUTPUT: 24...28 VDC Current: 10 A	**Emparro®** OUTPUT: 24...28 VDC Current: 20 A
				
Ordering data	**Art. No.**	**Art. No.**	**Art. No.**	**Art. No.**
For mounting rail	**85434**	**85440**	**85441**	**85442**
Fastening with screws	**85712**	**85702**	**85703**	**85704**
Coated PCB		**9000-11112-0921111**	**9000-11112-1221111**	**9000-11112-1421111**
Input				
Input voltage	85...265 VAC/90...250 VDC			
Input current	1.2 A (100 V AC); 0.6 A (240 V AC)	1.3 A (100 V AC); 0.61 A (240 V AC)	2.6 A (100 V AC); 1.1 A (240 V AC)	5.2 A (100 V AC); 2.2 A (240 V AC)
Inrush current after 1 ms	max. 10 A (230 V AC)	max. 5.5 A (230 V AC)	max. 13 A (230 V AC)	max. 23 A (230 V AC)
Output				
Output voltage	12...15 V DC adjustable	24...28 V DC adjustable		
Power boost	150 % for 5 seconds / 120 % continuous			
Efficiency	up to 95 %			
Device protection	short-circuit and overload-protected (output), Current Limiter			
General data				
Holdup time	> 30 ms at 100 V AC			
LED display	LED green/red			
Temperature range	-40...+60 °C without derating /60...70 °C Derating (storage temperature –40 ... +85 °C)			
Mounting method	snaps on to the mounting rail TH35 (EN 60715)/with screw fastening			
Dimensions (W x H x D)	123 x 50 x 138 mm	123 x 50 x 138 mm	123 x 65 x 167 mm	138 x 85 x 182 mm
Other	Relay alarm contact for short-circuit, overload and overtemperature			

1-phase

– short-circuit and overload-protected

– Power boost 150 %

– Parallel connection possible

	Emparro® OUTPUT: 48...56 VD C Current: 2.5 A	**Emparro®** OUTPUT: 48...56 VD C Current: 5 A	**Emparro®** OUTPUT: 48...56 VD C Current: 10 A	**Emparro HD** OUTPUT: 24...28 VD C Current: 10 A
				
Ordering data	**Art. No.**	**Art. No.**	**Art. No.**	**Art. No.**
For mounting rail	**85437**	**85438**	**85439**	
Fastening with screws	**85722**	**85723**	**85724**	**85449**
Coated PCB			**87439**	
Input				
Input voltage	85...265 VAC/90...250 VDC			
Input current	1.2 A (100 V AC); 0.6 A (240 V AC)	2.6 A (100 V AC); 1.1 A (240 V AC)	5.1 A (100 V AC); 2.4 A (240 V AC)	2.6 A (100 V AC); 1.1 A (240 V AC)
Inrush current after 1 ms	max. 3.5 A (230 V AC)	max. 5.5 A (230 V AC)	max. 11 A (230 V AC)	max. 7 A (230 V AC)
Output				
Output voltage	48...56 V DC adjustable			24...28 V DC adjustable
Power boost	150 % for 5 seconds / 120 % continuous			
Efficiency	up to 95 %			
Device protection	short-circuit and overload-protected (output), Current Limiter			
General data				
Holdup time	> 30 ms at 100 V AC			> 30 ms bei 100 V AC
LED display	LED green/red			
Temperature range	-40...+60 °C without derating /60...70 °C Derating (storage temperature -40 ... +85 °C)			
Mounting method	snaps on to the mounting rail TH35 (EN 60715)/with screw fastening			
Dimensions (W x H x D)	123 x 50 x 138 mm	123 x 65 x 138 mm	123 x 85 x 167 mm	111 x 179 x 45 mm
Other	Relay alarm contact for short-circuit, overload and overtemperature			

EMPARRO HD – HEAVY DUTY

Perfect for extreme ambient conditions – The Emparro HD switch-mode power supply is designed for use in particularly tough environments to guarantee a reliable supply of electricity.

The preferred application areas for Emparro HD are areas in which power supply units may be installed in a control cabinet, but are still exposed to a variety of external influences, for example on spreaders (lifting equipment for moving containers), construction cranes, and systems of internal conveyor technology.

The Power Supply units are often found on movable parts and are exposed to high induction voltages or weather elements, like extreme temperatures and high air humidity.

EMPARRO® 3~

PREMIUM POWER

- **Maximum reliability**
  - MTBF of 1,000,000 hours
  - Integrated gas discharge valve protects from interference pulses
  - Up to 95 % efficiency rating
- **Optimum performance**
  - Permanently overload protected – up to 20 %
  - Power and hyper boost functions for starting high loads
- **Space saving**

– 2-/3-phase

– Short-circuit and overload protected

– Alarm contact

	Emparro® OUTPUT: 24...28 VDC Current: 5 A	Emparro® OUTPUT: 24...28 VDC Current: 10 A
		
Ordering data	**Art. No.**	**Art. No.**
For mounting rail	**85690**	**85691**
Fastening with screws	**85695**	**85696**
Coated PCB	**87690**	**87691**
Input		
Input voltage	3 × 324...572 V AC/450...745 V DC	
Input current	0.45 A (3 × 360 V AC); 0.3 A (3 × 500 V AC)	0.75 A (3 × 360 V AC); 0.55 A (3 × 500 V AC)
Inrush current after 1 ms	max. 9.5 A (3 × 500 V AC)	max. 9.0 A (3 × 500 V AC)
Output		
Output voltage	adjustable 24 V DC (SELV), ±1%; 24...28 V	
Power Boost	Iout N × 150% (min. 5 s)	
Efficiency	92.5% (3 × 400 V AC); 91.8% (3 × 480 V AC)	93.7% (3 × 400 V AC); 93.2% (3 × 480 V AC)
Device protection	Short-circuit and overload protected, permanently by 20 % (to 45 °C)	
General data		
Holdup time	min. 25 ms (3 × 360 V AC); 5 A (24 V DC)	min. 45 ms (3 × 500 V AC); 10 A (24 V DC)
LED display	LED (green): OK; LED (red): overload, overheating or short-circuit	
Temperature range	-40...+70 °C, ...+70 °C Derating (storage temperature -40...+85 °C)	
Mounting method	Push-In spring clamp terminals	
Dimensions (W x H x D)	123 x 50 x 138 mm	123 x 65 x 138 mm

– 2-/3-phase

– Short-circuit and overload protected

– Alarm contact

Emparro®
OUTPUT: 24...28 VD C
Current: 20 A

Emparro®
OUTPUT: 24...28 VD C
Current: 40 A

Ordering data	**Art. No.**	**Art. No.**
For mounting rail	**85692**	**85693**
Fastening with screws	**85697**	**85698**
Coated PCB	**87692**	**87693**
Input		
Input voltage	3 × 324...572 V AC/450...745 V DC	3 × 324...572 V AC/480...745 V DC
Input current	1.3 A (3 × 360 V AC); 1.0 A (3 × 500 V AC)	2.3 A (3 × 360 V AC); 1.6 A (3 × 500 V AC)
Inrush current after 1 ms	max. 13 A (3 × 500 V AC)	max. 14 A (3 × 500 V AC)
Output		
Output voltage	adjustable 24 V DC (SELV), ±1%; 24...28 V	
Power boost	Iout N × 150% (min. 5 s)	
Efficiency	94.8% (3 × 400 V AC); 94.5% (3 × 480 V AC)	93.7% (3 × 400 V AC); 93.5% (3 × 480 V AC)
Device protection	Short-circuit and overload protected, permanently by 20 % (to 45 °C)	
General data		
Holdup time	min. 40 ms (3 × 500 V AC)	
LED display	LED (green): OK; LED (red): overload, overheating or short-circuit	
Temperature range	-40...+70 °C, ...+70 °C Derating (storage temperature -40...+85 °C)	
Mounting method	Push-In spring clamp terminals	
Dimensions (W x H x D)	123 x 65 x 167 mm	138 x 109 x 182 mm

AS-INTERFACE

THE LATEST EMPARRO® VERSION HAS BEEN DESIGNED FOR USE IN AS INTERFACE APPLICATIONS WITH AN OPERATING VOLTAGE OF 30.5 V.

The Emparro® switch-mode power supply for AS interface applications rounds off this portfolio. The Emparro® 3-phase switch-mode power supply for AS interface applications offers the same high efficiency as all the other Emparro® switch-mode power supplies. The use of three phases brings about a considerable simplification as the structure becomes more transparent. Three-phase switch-mode power supplies are thus very attractive for AS interface applications and Emparro® is the clear first choice.

An advantage in the installation: The Emparro® 3-phase for AS interface applications is extremely compact and only occupies 50 mm on the DIN rail. Push-in connection terminals make connecting cable installation tool-free. No separate decoupling component is required since the Emparro® 3-phase switch-mode power supplies for AS interface applications separate data from power.

3-phase operation primary switch mode

– Short-circuit and overload-protected (current limiter)

– Power boost 150 %

Emparro
120 W

Ordering data	Current	Art. No.
30...32 V DC	4 A	**85383**
Input		
Input voltage	3 × 324...572 V AC/450...745 V DC	
Input current	0.45 A (3 × 360 V AC)	
Inrush current after 1 ms	max. 9.5 A	
Output		
Output voltage	adjustable 30.5 V DC (SELV), ±1% ; 30...32 V	
Power boost	Io ut N × 150% (min. 5 s)	
Degree of efficiency	up to 92.5%	
Device protection	short-circuit and overload-protected, permanent by 20% (up to 45 °C)	
Output circuit	Filter according to AS interface specification	
General data		
MTBF	> 1,000,000 h at 40°	
Holdup time	min. 20 ms (3 × 360 V AC); 5 A (24 V DC)	
LED display	LED green/red	
Standards	EN 60950-1, EN 61204-3, EN 61000-3-2, SEMI F47	
Temperature range	-40...+70 °C, ...+70 °C Derating (storage temperature -40...+85 °C)	
Mounting method	snaps onto the mounting rail T H35 (EN 60715)	
Dimensions (H x W x D)	123 x 50 x 138 mm	
Other	Relay alarm contact for short circuit, overload and overtemperature	

EMPARRO67

POWER SUPPLY DIRECTLY NEXT TO THE LOAD

Emparro67 power supply units are specially designed for applications outside the control cabinet. They withstand extreme environmental conditions and can be installed directly in the field, next to the loads.

Power loss is reduced to a minimum, because the voltage is converted from 230 V AC to 24 V DC directly at the load. Therefore, the energy costs are reduced and smaller cabinets can be used.

DECENTRALIZED INSTALLATION

- Low power loss
- High efficiency of up to 94.2%
- Active PFC
- Ambient temperature up to 85 °C
- Extremely rugged, fully potted IP67 housing
- Contact-safe installation even under full load
- Very flat, compact design

Single-phase, primary switch mode

– short-circuit and overload-protected (current limiter)

– Power boost 150 %

c UL us Listed

	Emparro67 96 W		**Emparro67** 192 W	
				
Ordering data	**Current**	**Art. No.**	**Current**	**Art. No.**
	4 A	**9000-11112-1962020**	8 A	**9000-11112-2062020**
Input				
Input voltage	90...265 V AC/V DC			
Input current	0.5 A at 240 V AC		0.9 A at 240 V AC	
Inrush current after 1 ms	< 9 A		< 7 A	
Output				
Output voltage	24.1 V DC ± 2 %			
Power boost	150 % for 4 seconds			
Degree of efficiency	up to 92.3 %		up to 94.2 %	
Device protection	short-circuit and overload-protected (output), current limiter			
General data				
Holdup time	> 45 ms at 230 V AC		> 35 ms at 230 V AC	
Standards	EN 60950-1, EN 61204-3, EN 55011 B, EN 61000-3-2			
Temperature range	–25...+60 °C (storage temperature –40...+85 °C)/with derating up to 85 °C			
Mounting method	Screw fastening			
Dimensions (H × W × D)	140 × 109 × 51 mm		175 × 109 × 51 mm	

EMPARRO67 HYBRID

A NEW DIMENSION OF DECENTRALIZED POWER SUPPLY

The innovative Emparro67 Hybrid power supply unit is an all-rounder with many powerful features:

It not only relocates power supply from the control cabinet to the industrial field, but it also monitors currents using two integrated channels for 24 VDC electronic circuit protection, thus ensuring high operational reliability. An IO-Link interface permits extensive and transparent communication.

- Decentralized power supply
- IO-Link interface provides extensive diagnostics
- Integrated electronic circuit protection

Single-phase, primary switch mode

– short-circuit and overload-protected (current limiter)

c UL us Listed IO-Link

Emparro67 Hybrid
240 W

Ordering data	Current	Art. No.
	10 A	85676
Input		
Input voltage	90...265 V AC/V DC	
Input current	1.1 A at 230 V AC	
Inrush current after 1 ms	< 7 A	
PFC	Active	
Connection	7/8" 3-pole, male	
Output		
Output voltage	24.1 V DC ± 2 %	
MICO outputs	2 outputs, 2-pole-switching	
Output current	max. 8 A / channel, max. 10 A total	
Degree of efficiency	up to 93.8 %	
Switch-on capacitance	20,000 µF / channel	
Connection	7/8" 5-pole, female	
Device protection	short-circuit and overload-protected (output), current limiter	
IO-Link		
Parameter	ON/OFF; tripping current setting, output voltage setting and many more	
Diagnostics	Output voltage, alarm, life cycle and many more	
Connection	M12, plug	
General data		
Holdup time	> 20 ms at 230 V AC	
Standards	EN 60950-1, EN 61204-3, EN 55022, EN 61000-3-2	
MTBF	430,000 h	
Temperature range	–25...+50 °C (storage temperature –40...+85 °C)	
Mounting method	Screw fastening	
Dimensions (H × W × D)	212 × 109 × 51 mm	

ECO-RAIL-2

ECO-RAIL-2: FOCUS ON THE ESSENTIALS

Eco-Rail-2 power supply units offer manufacturers of machinery and control cabinets the possibility to supply power to their consumers flexibly and economically. These units provide basic functionality and help to monitor the overall costs in the control cabinet.

ECO-RAIL-2 HIGHLIGHTS

- Cost efficiency through an excellent price-performance ratio
- Worldwide use, UL certified
- Flexibility due to the range of versions and adjustable output voltage
- Excellent holdup time up to 130 milliseconds
- Practical handling during installation and commissioning

ECO-POWER

ECO-POWER
POWER SUPPLIES – CONVINCING EFFICIENCY

The power supplies of the Eco-Power series meet all basic requirements of power supplies – and their efficiency is convincing. They feature a slim and compact design. The cooling is based on convection. This makes the power supplies from the Eco-Power series particularly suitable for applications in compact installations and customers' machines. Eco-Power units are available in models from 0.6 to 10 A.

ECO-POWER HIGHLIGHTS

- Solid perforated housing allows optimum heat dissipatio
- Output voltage adjustable from 21.6 to 26.4 V
- Cooling by convection
- Full power with ambient temperatures up to 40° C (105° F)
- Derating up to temperatures of 55° C (130° F)
- Allow operation in series connection
- Flat and compact design
- Easily adjustable wide voltage input
- Screw terminals (IP00) with touch protection

ECO-RAIL-2

Single-phase

– short-circuit and overload-protected

	Eco-Rail-2 OUTPUT: 23...28 V DC Current: 1.3 A	Eco-Rail-2 OUTPUT: 23...28 V DC Current: 2.5 A	Eco-Rail-2 OUTPUT: 23...28 V DC Current: 5 A
			
Ordering data	**Art. No.**	**Art. No.**	**Art. No.**
24 V DC	**85131**	**85132**	**85133**
Input			
Input voltage	100...240 V AC		
Input current	0.7 A (100 V AC); 0.4 A (240 V AC)	1.3 A (100 V AC); 0.6 A (240 V AC)	2.4 A (100 V AC); 1.2 A (240 V AC)
Inrush current after 1 ms	max. 10 A (230 V AC)	max. 20 A (230 V AC)	
Output			
Output voltage	adjustable 24 V DC ±1%; 23...28 V		
Output current	1.3 A (+40 °C); 1.0 A (+55 °C)	2.5 A (+40 °C); 2.0 A (+55 °C)	5 A (+40 °C); 4 A (+55 °C)
Efficiency	83% (115 V AC); 84% (230 V AC)	84% (115 V AC); 85% (230 V AC)	87% (115 V AC); 88% (230 V AC)
Unit protection	Short-circuit and overload protected		
Parallel operation/serial operation	no/yes (max. 2 units)		
General data			
Standards	EN 60950-1, EN 61204-3, EN 61000-3-2		
Temperature range	0...+40 °C, ...+55 °C derating (storage temperature -20...+85 °C)		
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Dimensions (W x H x D)	125 x 50 x 72 mm	125 x 50 x 84 mm	125 x 50 x 123 mm
Connection	Screw terminals		

Single-phase

– short-circuit and overload-protected

	Eco-Rail-2 OUTPUT: 23...28 V DC Current: 10 A	Eco-Rail-2 OUTPUT: 23...28 V DC Current: 20 A
		
Ordering data	**Art. No.**	**Art. No.**
24 V DC	**85135**	**85137**
Input		
Input voltage	90...132 V AC/173...264 V AC	
Input current	4.3 A (100 V AC); 2.1 A (240 V AC)	7.8 A (100 V AC); 4.0 A (200 V AC)
Inrush current after 1 ms	max. 18 A (230 V AC)	max. 40 A (230 V AC)
Output		
Output voltage	adjustable 24 V DC ±1%; 23...28 V	
Output current	10 A (+40 °C); 7.5 A (+55 °C)	20 A (+40 °C); 16 A (+55 °C)
Efficiency	86% (115 V AC); 87% (230 V AC)	89% (115 V AC); 90% (230 V AC)
Unit protection	Short-circuit and overload protected	
Parallel operation/serial operation	no/yes (max. 2 units)	
General data		
Standards	EN 60950-1, EN 61204-3, EN 61000-3-2	
Temperature range	0...+40 °C, ...+55 °C derating (storage temperature -20...+85 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Dimensions (W x H x D)	125 x 68 x 125 mm	124 x 105 x 124 mm
Connection	Screw terminals	

ECO-POWER

Single-phase operation primary switch mode	Eco-Power Current: 0,6 A / 15 W	Eco-Power Current: 1,3 A / 30 W	Eco-Power Current: 2,5 A / 60 W	Eco-Power Current: 5,0 A / 120 W
				
Ordering data	**Art. No.**	**Art. No.**	**Art. No.**	**Art. No.**
24 V DC	**85150**	**85151**	**85152**	**85153**
Input				
Nominal voltage	90...264 V AC			
Input current	0.3 A (115 V AC); 0.2 A (230 V AC)	0.7 A (115 V AC); 0.4 A (230 V AC)	1.2 A (115 V AC); 0.5 A (230 V AC)	2.4 A (115 V AC); 1.0 A (230 V AC)
Inrush current	max. 20 A			
Output				
Adjustable output voltage	24 V DC (SELV) ± 1 %; 21.6...26.4 V DC			
Nominal output current	0.6 A (+40 °C); 0.5 A (+50 °C)	1.3 A (+40 °C); 1.04 A (+50 °C)	2.5 A (+40 °C); 2.0 A (+50 °C)	5.0 A (+40 °C); 4.0 A (+50 °C)
Efficiency	85 % (115 V AC); 87 % (230 V AC)	85 % (115 V AC); 85 % (230 V AC)	85 % (115 V AC); 87 % (230 V AC)	86 % (115 V AC); 87 % (230 V AC)
Device protection	short-circuit and overload-protected (Hiccup mode)			
Parallel operation/serial operation	no/yes, max. 2 devices			
General data				
Standards	EN 60950-1, EN 61204-3, EN 55011 B			
Temperature range	0...+40 °C, to +50 °C derating (storage temperature -20...+85 °C)			
Mounting method	screw fastening, M3			
Dimensions (W x H x D)	36 x 105 x 77 mm		40 x 135 x 98 mm	41 x 164 x 98 mm

Single-phase operation primary switch mode	Eco-Power Current: 7,5 A / 180 W	Eco-Power Current: 10 A / 240 W
		
Ordering data	**Art. No.**	**Art. No.**
24 V DC	**85154**	**85155**
Input		
Nominal voltage	90...132 V AC, 180...264 V AC	
Input current	3.4 A (115 V AC); 1.9 A (230 V AC)	4.6 A (115 V AC); 2.8 A (230 V AC)
Inrush current	max. 20 A	max. 25 A
Output		
Adjustable output voltage	24 V DC (SELV) ± 1 %; 21.6...26.4 V DC	
Nominal output current	7.5 A (+40 °C); 6.0 A (+50 °C)	10 A (+40 °C); 8.0 A (+50 °C)
Degree of efficiency	85 % (115 V AC); 86 % (230 V AC)	84 % (115 V AC); 85 % (230 V AC)
Device protection	short-circuit and overload-protected (current limiter)	
Parallel operation/serial operation	no/yes, max. 2 devices	
General data		
Standards	EN 60950-1, EN 61204-3, EN 55011 B	
Temperature range	0...+40 °C, to +50 °C derating (storage temperature -20...+85 °C)	
Mounting method	screw fastening, M3	screw connection, M4
Dimensions (W x H x D)	50 x 205 x 100 mm	50 x 230 x 115 mm

MICO — ELECTRONIC CIRCUIT PROTECTION

SAFE AND WELL DISTRIBUTED

Combine your power supplies with MICO, the intelligent power distribution system.

MICO is the intelligent power distribution module from Murrelektronik for 24 V DC and 48 V DC. It monitors currents, indicates when approaching the maximum load and ensures machine availability.
Our suggestion: Combine your power supplies with MICO. You can choose between **Mico Pro®** for modular requirements, **MICO+** with channels that can be switched off and a digital signal with a 90 % warning, **MICO CLASSIC** with adjustable current ranges, **MICO BASIC** with preset nominal currents and **MICO FUSE** with sockets for glass tube fuses.

MICO modules with **NEC Class 2 approval** are available to design load circuits with limited energy, in a simple and cost effective way.

MICO+ 24 V	Description	Adjustable voltage ranges	Art. No.
	MICO+ 4.4, 4-channel**	1, 2, 3, 4 A	9000-41084-0100400
	MICO+ 4.6, 4-channel	1, 2, 4, 6 A	9000-41084-0100600
	MICO+ 4.10, 4-channel	4, 6, 8, 10 A	9000-41084-0401000
MICO Classic 24 V	**Description**	**Adjustable voltage ranges**	**Art. No.**
	MICO Classic 2.4, 2-channel**	1, 2, 3, 4 A	9000-41042-0100400
	MICO Classic 2.6, 2-channel	1, 2, 4, 6 A	9000-41042-0100600
	MICO Classic 2.10, 2-channel	4, 6, 8, 10 A	9000-41042-0401000
	MICO Classic 4.4, 4-channel**	1, 2, 3, 4 A	9000-41034-0100400
	MICO Classic 4.6, 4-channel*	1, 2, 4, 6 A	9000-41034-0100600
	MICO Classic 4.10, 4-channel*	4, 6, 8, 10 A	9000-41034-0401000
	MICO Classic 4.4.10 Actuator-Sensor 4-channel	2x 1, 2, 3, 4, 2x 4, 6, 8, 10 A	9000-41034-0101000
	MICO Classic 4.10 Speed-Start 4-channel	4, 6, 8, 10 A	9000-41034-0401005
MICO Basic 24 V	**Description**	**Pre-fixed voltage ranges**	**Art. No.**
	MICO Basic 4.2, 4-channel**	2 A	9000-41064-0200000
	MICO Basic 4.4, 4-channel**	4 A	9000-41064-0400000
	MICO Basic 4.6, 4-channel*	6 A	9000-41064-0600000
	MICO Basic 8.2, 8-channel**	2 A	9000-41068-0200000
	MICO Basic 8.4, 8-channel**	4 A	9000-41068-0400000
	MICO Basic 8.6, 8-channel*	6 A	9000-41068-0600000
	MICO Basic 5.2/3.6, 8-channel**	5x2 A ; 3x6 A	9000-41068-0200600
	MICO Basic 2.1/3.2/3.4	2x1 A ; 3x2 A ; 3x4 A	9000-41068-0100304
MICO+ 48 V	**Description**	**Adjustable voltage ranges**	**Art. No.**
	MICO+ 4.4, 4-channel**	1, 2, 3, 4 A	9000-42084-0100400
	MICO+ 4.6, 4-channel	1, 2, 4, 6 A	9000-42084-0100600
MICO Fuse 0...250 V	**Description**	**Miscellaneous**	**Art. No.**
	MICO Fuse 24 LED	Delivery without fuses, with LED display and signal contact, 24 V DC	9000-41078-0600001
	MICO Fuse 250	Delivery without fuses, Universal versions ranging from 0...250 V AC/DC	9000-41078-0600002
Note			

* With DNV-GL approval For more information, see the **onlinehop.murrelektronik.com** or request our main catalog.
** With NEC Class 2 approval

MICO PRO®

CURRENT MONITORING MODULARIZED

Mico Pro® is the new and innovative current monitoring system from Murrelektronik. The modular system enables you to adapt systems precisely to suit specific applications – offering a favorable cost-benefit ratio while also being economical in their use of space.

The patented tripping process assures optimum machine availability. An additional benefit: an integrated concept for potential distribution that significantly declutters the switch cabinet wiring.

Mico Pro® signals limit loads and switches defective channels off in a targeted manner to prevent total system crashes, and to assure a high level of machine availability.

The tripping process has been patented, and follows the rule: “as late as possible, as early as necessary”.

Power module		Description	Art. No.
	Mico Pro PM 24 V DC/40 A	Power module, max. 40 A	9000-41190-0000000

Modules with pre-fixed tripping current		Number of channels	Tripping current (pre-fixed)	Art. No.
	Mico Pro fix 1.2	1	2 A	9000-41011-0200000
	Mico Pro fix 1.4	1	4 A	9000-41011-0400000
	Mico Pro fix 1.6	1	6 A	9000-41011-0600000
	Mico Pro fix 1.8	1	8 A	9000-41011-0800000
	Mico Pro fix 1.10	1	10 A	9000-41011-1000000
	Mico Pro fix 1.16	1	16 A	9000-41011-1600000
	Mico Pro fix 2.2	2	2 A	9000-41012-0200000
	Mico Pro fix 2.4	2	4 A	9000-41012-0400000
	Mico Pro fix 2.6	2	6 A	9000-41012-0600000
	Mico Pro fix 4.2	4	2 A	9000-41014-0200000
	Mico Pro fix 4.4	4	4 A	9000-41014-0400000
	Mico Pro fix 4.6	4	6 A	9000-41014-0600000

MICO PRO®

MICO PRO® STANDS FOR:

- **Modularity**
  – precise right down to the last channel
- **Integrated potential distribution concept**
  – significantly simplifies switch cabinet wiring
- **Practical handling**
  – assembly without tools
- **Diagnostics**
  – on the module or via the PLC
- **Channel-specific switching**
  – replaces the coupling level

Modules with adjustable tripping current		Number of channels	Tripping current (flexible adjustment)	Art. No.
	Mico Pro flex 1.10	1	1-2-3-4-5-6-7-8-9-10 A	**9000-41091-0101000**
	Mico Pro flex 1.20	1	11-12-13-14-15-16-17-18-19-20 A	**9000-41091-1102000**
	Mico Pro flex 2.10	2	1-2-3-4-5-6-7-8-9-10 A	**9000-41092-0101000**
	Mico Pro flex 4.10	4	1-2-3-4-5-6-7-8-9-10 A	**9000-41094-0101000**

Accessories		Description	Art. No.
	Mico Pro PD2x12	Potential distributors, 2x 12 potentials, max 20 A	**9000-41000-0000212**
	Mico Pro PD2x6	Potential distributors, 2x 6 potentials, max 20 A	**9000-41000-0002206**
	Mico Pro Plug-In link 2x blue	Continuous jumper max. 40 A, 500 mm length	**9000-41190-0000000**
	Mico Pro Plug-In link 2x red	Continuous jumper max. 40 A, 500 mm length	**9000-41000-0000001**
	Mico Pro Plug-In link 1x blue 1x red	Continuous jumper max. 40 A, 500 mm length	**9000-41000-0000002**
	Identification label	5x10 mm, white, 64 units	**996078**

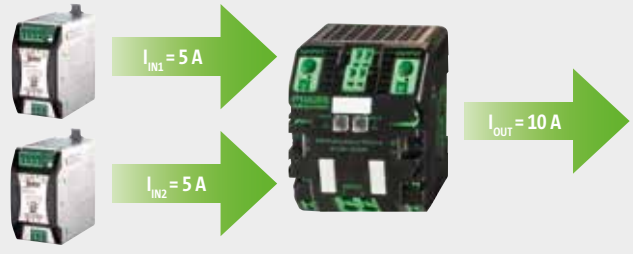
THE REDUNDANCY MODULES

STOCK UP ON SAFETY!

Having the highest machine availability is an important subject. That's why power supply systems are often redundantly designed, with two power supply units. Murrelektronik's redundancy modules decouple two independent power supply units and generate redundant 24 V DC control voltages.

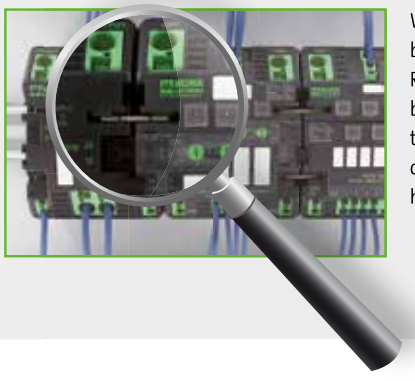
MB Redundancy Balance ensures automatic 50:50 balancing of power between the two units. For example: if the required load current is 10 A, this cabinet component ensures that both units supply 5 A. If one of the two power supply units fails, the other can continue to work because it is decoupled. The only condition is that each unit is in the position to supply the nominal current of the load.

FOR EVEN LOAD OF BOTH POWER SUPPLY UNITS IN ACCORDANCE



2 x power supply unit 24 V / 10 A MB Redundancy Balance

SIMPLE CONNECTION



With the integrated bridging system, MB Redundancy Balance can be directly combined with the electronic load circuit control module MICO, without requiring wiring work.

Ordering data	MB Diode	Art. No.	MB Redundany Basic	Art. No.	MB Redundancy Balance	Art. No.
24 V DC		85396		85495		85496
Input						
Nominal voltage	24 V DC					
Voltage range	21...30 V DC		18...30 V DC			
Nominal current	2 x 20 A / 1x 40 A		2 x 20 A			
Total current	max. 40 A		max. 52 A			
Polarity	int. protection against reverse polarity up to 60 V DC		int. protection against reverse polarity up to 30 V DC			
Output						
Nominal output current	20 A (-25...+55 °C); 40 A (-25...+40 °C)		40 A (-25...+60 °C); 52 A (-25...+40 °C)			
Status display	1 LED per channel					
Signal output (potential-free)	input voltages		input voltages		input voltages / load distribution	
General data						
Connecting type	Spring clamp terminal					
Standards	EN 61000-6-2, EN 61000-6-3					
Bridging concept	both sides using spring clamp terminal or bridge set					
Degree of efficiency	> 97 %		> 99.5 %			
Mounting method	snaps on to the mounting rail TH 35 (EN 60715)					
Approvals	UL					

MB CAP — BUFFER MODULES

STABLE POWER SUPPLY. SAFE PROCESSES.

Murrelektronik's MB Cap Ultra modules are buffer modules that ensure a stable power supply, guaranteeing secure industrial processes. They store energy and bridge voltage fluctuations of up to 38 seconds at 10 A, or for several minutes at 1 A, thanks to maintenance-free ultra capacitors.

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	Buffer time Seconds									Minutes							
current	0.1	0.2	0.5	1	3.6	4	7	16	21	38	1	2	4	3	5	6	7
1 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
3 A	●	●	●	●	●	●	●	●	●	●	●	●					
5 A	●	●	●	●	●	●	●	●	●	●	●						
10 A	●	●	●	●	●	●	●	●	●	●							
20 A	●	●	●	●	●	●	●	●									
40 A	●	●	●	●	●												

- MB Cap 20/24 A, 0,2 sec | 85394
- MB Cap Ultra 3/24 A, 7 sec | 85460
- MB Cap Ultra 10/24 A, 38 sec | 85467
- Emparro Cap 20/24 A, 1,0 sec | 85458
- MB Cap Ultra 20/24 A, 16 sec | 85468
- MB Cap Ultra 40/24 A, 3,6 sec | 85469
- Emparro Cap 20/48 A, 0,1 sec | 85459

MB Cap 20/24 200ms	Description	Art. No.
	Nominal voltage: 23...30 V DC, output voltage: 22...28 V DC, max. output current: 20 A Buffer time: 0.2 sec/20 A, 4 sec/1 A	85394
	Nominal voltage: 23...30 V DC, output voltage: 22...28 V DC, max. output current: 20 A Buffer time: 0.2 sec/20 A, 4 sec/1 A, Coated PCB	85184
MB Cap Ultra 3/24 7s	**Description**	**Art. No.**
	Nominal voltage: 24 V DC, output voltage: 24 V DC, max. output current: 3 A Buffer time: 7 sec/3 A, 21 sec/1 A	85460
	MB Cap Ultra expansion module 3/24 12s Nominal voltage: 24 V DC, output voltage: 24 V DC, max. output current: 3 A Buffer time: 12 sec/3 A, 36 sec/1 A	85462
MB Cap Ultra 10/24 38s	**Description**	**Art. No.**
	Nominal voltage: 12 V/24 V DC, output voltage: 12 V/24 V DC, max. output current: 10 A Buffer time: 38 sec/10 A, > 6 min/1 A	85467
	The MB Cap Ultra Control software and the manual are available for download under www.murrelektronik.com	
Emparro Cap 20/24 1.0s	**Description**	**Art. No.**
	Nominal voltage: 24 V DC, output voltage: 24 V DC, max. output current: 20 A Buffer time: 1.0 sec/20 A	85458
MB Cap Ultra 20/24 16s	**Description**	**Art. No.**
	Nominal voltage: 24 V DC, output voltage: 24 V DC, max. output current: 20 A Buffer time: 16 sec/20 A, > 5 min/1 A	85468
	The MB Cap Ultra Control software and the manual are available for download under www.murrelektronik.com	
MB Cap Ultra 40/24 3.6s	**Description**	**Art. No.**
	Nominal voltage: 24 V DC, output voltage: 24 V DC, max. output current: 40 A Buffer time: 3.6 sec/40 A, 170 sec/1 A	85469
Emparro Cap 20/48 0.1s	**Description**	**Art. No.**
	Nominal voltage 48 V DC, output voltage: 48 V DC, max. output current 20A Buffer time: 0.1 sec/20A, 2.5 sec/1A	85459

EMPARRO ACCUCONTROL

KEEPING MACHINES RUNNING

The UPS module Emparro ACCUcontrol supplements the powerful Emparro power supply system. If there is a power failure, it switches to battery mode without interrupting power, thus preventing machine downtimes. Investment in a UPS system frequently pays for itself after the first failure is prevented.

External lead batteries with a capacity of up to 40 Ah ensure a long-lasting autonomy time. Emparro ACCUcontrol can be assembled without a tool and is maintenance-free.
The 20-A version is only 65 millimeters wide and therefore takes up very little space in the control cabinet.

RELIABLE POWER SUPPLY IN CASE OF MALFUNCTION

- Avoid machine downtimes in case of a power outage
- Maximum service life due to temperature-controlled battery charging
- High operating reliability due to comprehensive control and diagnostic options
- Prevent data loss using the shutdown function for IPCs

UPS-System

– up to 40 Ah

– comprehensive diagnostics

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Emparro ACCUcontrol

Emparro ACCUcontrol

Ordering data	Current	Art. No.	Current	Art. No.
	20 A	**85414**	40 A	**85415**
Input				
Input voltage	21.6...30 V DC (buffer operation)			
Input current	max. 23 A		max. 43 A	
Charging current	2 A			
Output				
Output voltage	27.2...19.2 V DC			
Output current	max. 20 A		max. 40 A	
Control inputs				
Inputput voltage (SH)	24 V DC (6...45 V DC), potential free			
Control outputs				
Battery (BAT OK)	min. 5 VDC, 1 mA; max. 30 V DC, 100 mA			
Inputput voltage (UIN OK)	min. 5 VDC, 1 mA; max. 30 V DC, 100 mA			
General data				
Connecting type	> Push-In Spring clamp terminal, Mini-USB			
Mounting method	Snaps onto mounting rails TH35-7.5/TH 35-15 (EN 60715)			
Temperature range	–25...+45 °C			
Dimensions (W x H x D)	123 × 65 × 138 mm		123 × 85 × 138 mm	

Predictive Maintenance

Get informed before failure

Emparro ACCUcontrol permanently monitors the internal resistance of connected batteries. If limits are exceeded, the device gives a warning signal over an alarm contact. The battery replacement can then be scheduled for the next maintenance period. This predictive information prevents unplanned failures from happening and keeps you from having to send service technicians into the field for small jobs.

Maximum life time

The cooler, the better

Batteries perform better and they live longer in cooler temperatures. As a result, Emparro ACCUcontrol can charge batteries based on temperature. The charging voltage is adapted to the ambient temperature. This feature allows you to achieve maximum battery life, even in a high temperature environment.tures.

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**

TRANSFORMERS WITH MULTI-VOLTAGE INPUT

STOCK UP ON SAFETY!

A switch-mode power supply unit doesn‘t match your requirements? Murrelektronik‘s transformers or rectified power supplies offer another option!

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

The new Murrelektronik transformers with multi-voltage input are suitable for worldwide use. They feature a flexible selection of input voltages and can be adapted to the different mains voltages by simple bridging. The same transformer can be used for any machine, worldwide. A total of eleven different input voltages from 208 to 550 Volts are pre-configured.

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

Power	Input	Output	Art. No.
25 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86140**
40 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86141**
63 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86142**
100 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86143**
160 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86144**
250 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86145**
320 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86146**
400 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86147**
500 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86148**
630 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86149**
800 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86150**
1000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86151**
1600 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86152**
2000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86153**
2500 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86154**
3000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86155**
4000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86156**
5000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86157**
6300 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86158**
8000 VA	208/230/380/400/420/440/460/480/500/525/550 V AC	2 x 115 V AC	**86159**

SAFETY TRANSFORMERS

MTS	Power	Input	Output	Art. No.
	40 VA	230/400 V AC	24 V AC	**86340**
	63 VA	230/400 V AC	24 V AC	**86341**
	100 VA	230/400 V AC	24 V AC	**86342**
	160 VA	230/400 V AC	24 V AC	**86343**
	250 VA	230/400 V AC	24 V AC	**86345**
	40 VA	230/400 V AC ± 15 V	24 V AC	**86360**
	63 VA	230/400 V AC ± 15 V	24 V AC	**86361**
	100 VA	230/400 V AC ± 15 V	24 V AC	**86362**
	160 VA	230/400 V AC ± 15 V	24 V AC	**86363**
	250 VA	230/400 V AC ± 15 V	24 V AC	**86365**
MST	**Power**	**Input**	**Output**	**Art. No.**
	320 VA	230/400 V AC	24 V AC	**86326**
	400 VA	230/400 V AC	24 V AC	**86327**
	500 VA	230/400 V AC	24 V AC	**86328**
	630 VA	230/400 V AC	24 V AC	**86329**
	800 VA	230/400 V AC	24 V AC	**86330**
	1000 VA	230/400 V AC	24 V AC	**86331**
MET	**Power**	**Input**	**Output**	**Art. No.**
	500 VA	230 V AC ± 5 V	24 V AC	**86023**
	630 VA	230 V AC ± 5 V	24 V AC	**86033**
	800 VA	230 V AC ± 5 V	24 V AC	**86043**
	1000 VA	230 V AC ± 5 V	24 V AC	**86053**
	500 VA	400 V AC ± 5 V	24 V AC	**86024**
	630 VA	400 V AC ± 5 V	24 V AC	**86034**
	800 VA	400 V AC ± 5 V	24 V AC	**86044**
	1000 VA	400 V AC ± 5 V	24 V AC	**86054**
MTL	**Power**	**Input**	**Output**	**Art. No.**
	25 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86450**
	40 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86451**
	63 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86452**
	100 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86453**
	160 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86454**
	250 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86455**
	320 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86456**
	400 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86457**
	630 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86463**
	1000 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86464**
	1600 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86465**
	2500 VA	230/400 V AC ± 15 V	2 x 24 V AC	**86466**

CONTROL AND ISOLATION TRANSFORMERS

MTS	Power	Input	Output	Art. No.
	40 VA	230/400 V AC	230 V AC	**86346**
	63 VA	230/400 V AC	230 V AC	**86347**
	100 VA	230/400 V AC	230 V AC	**86348**
	160 VA	230/400 V AC	230 V AC	**86349**
	250 VA	230/400 V AC	230 V AC	**86351**
	40 VA	230/400 V AC ± 15 V	230 V AC	**86366**
	63 VA	230/400 V AC ± 15 V	230 V AC	**86367**
	100 VA	230/400 V AC ± 15 V	230 V AC	**86368**
	160 VA	230/400 V AC ± 15 V	230 V AC	**86369**
	250 VA	230/400 V AC ± 15 V	230 V AC	**86371**

MST	Power	Input	Output	Art. No.
	320 VA	230/400 V AC	230 V AC	**86306**
	400 VA	230/400 V AC	230 V AC	**86307**
	500 VA	230/400 V AC	230 V AC	**86308**
	630 VA	230/400 V AC	230 V AC	**86309**
	800 VA	230/400 V AC	230 V AC	**86310**
	1000 VA	230/400 V AC	230 V AC	**86311**

MET	Power	Input	Output	Art. No.
	500 VA	230 V AC ± 5 %	230 V AC	**86020**
	630 VA	230 V AC ± 5 %	230 V AC	**86030**
	800 VA	230 V AC ± 5 %	230 V AC	**86040**
	1000 VA	230 V AC ± 5 %	230 V AC	**86050**
	1500 VA	230 V AC ± 5 %	230 V AC	**86060**
	2000 VA	230 V AC ± 5 %	230 V AC	**86070**
	3000 VA	230 V AC ± 5 %	230 V AC	**86090**
	4000 VA	230 V AC ± 5 %	230 V AC	**86110**
	5000 VA	230 V AC ± 5 %	230 V AC	**86130**
	500 VA	400 V AC ± 5 %	230 V AC	**86021**
	630 VA	400 V AC ± 5 %	230 V AC	**86031**
	800 VA	400 V AC ± 5 %	230 V AC	**86041**
	1000 VA	400 V AC ± 5 %	230 V AC	**86051**
	1500 VA	400 V AC ± 5 %	230 V AC	**86061**
	2000 VA	400 V AC ± 5 %	230 V AC	**86071**
	3000 VA	400 V AC ± 5 %	230 V AC	**86091**
	4000 VA	400 V AC ± 5 %	230 V AC	**86111**
	5000 VA	400 V AC ± 5 %	230 V AC	**86131**

MTL	Power	Input	Output	Art. No.
	25 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86470**
	40 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86471**
	63 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86472**
	100 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86473**
	160 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86474**
	250 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86475**
	320 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86476**
	400 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86477**
	630 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86483**
	1000 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86484**
	1600 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86485**
	2500 VA	230/400 V AC ± 15 V	2 x 115 V AC oder 1 x 230 V AC	**86486**

NOTES

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