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System solutions for power supply

- EMC filters
- Transformers
- Power supply units
- Primary switch mode power supplies
- Intelligent power distribution
- Buffering
- Redundancy systems

POWER SUPPLY SYSTEM SOLUTIONS
FROM A SINGLE SOURCE

TRANSFORMER

- Single-phase or 2-phase
- Control and isolation transformers
- From 30 to 5000 VA as standard
- Approvals and voltages for worldwide deployment (UL & CE)
- Customized variants, quickly and reliable, including 3-phase and above 5000 VA

EMC FILTERS

- Single-phase or 3-phase
- 2-, 3- and 4-wire technology
- One-stage and 2-stage
- 1...180 A

TRANSFORMERS POWER SUPPLIES

- Single-phase, 2-phase, 3-phase
- Output currents from 70 mA to 60 A available
- Approvals and voltages for worldwide deployment (UL)
- Flexible variants can be supplied at short notice in accordance with your specifications

AC VOLTAGE

SUPPRESSED AC VOLTAGE

SMOOTHED DC VOLTAGE

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From simple transformers to buffered, redundant and intelligent power distribution, Murrelektronik is your competent system partner...

PRIMARY SWITCH MODE POWER SUPPLIES

- Single-phase, 2-phase, 3-phase
- Large input voltage range
- From 0.6 to 40 A available
- Approvals and voltages for worldwide deployment (UL, CSA, DeviceNet, NEC Class 2)
- AS-Interface variants

REDUNDANCY AND BUFFERING MODULES

- Direct current buffered for at least 200 ms
- Redundancy by means of de-coupled connection of two power supply units

MICO

- Provides reliable fire protection
- Prevents dangerous overcurrents
- Space reduction of up to 30 %
- Easy to bridge
- Universal for all popular current ranges
- Status indicator with layout assistance

REGULATED DC VOLTAGE

BUFFERED AND REDUNDANT DC VOLTAGE

COMPLETLY SAFE DC VOLTAGE

TRANSFORMERS

MTS 40...250 VA • 40°C (104°F) • IP20
MST 320...1000 VA • 40°C (104°F) • IP20

- 1-phase or 2-phase control and isolation transformers
- Approvals for worldwide deployment (UL)
- Integrated combination base for screw attachment or DIN rail mounting, therefore easy and rapid installation
- Optional ± 15 V primary tapping
- 230 or 400 V input, therefore reducing storage costs

MTL 25...320 VA • 60°C (140°F) • IP20

- 1-phase or 2-phase control and isolation transformers
- Ambient temperature of up to 60°C, therefore extended deployment range and safety reserves
- ± 15 V tapping, making it possible to compensate for saturation voltage
- Approvals for worldwide deployment
- Transformer with LED operating indicator
- Integrated bridging system allows output voltages to be connected in series and in parallel
- PE and OV can also be bridged
- Name plate integrated in housing
- Integrated combination base for screw attachment or DIN rail mounting, therefore easy and rapid installation

MET 500...5000 VA • 60°C (140°F) (up to 1500 VA) • IP20

- 1-phase or 2-phase control and isolation transformers
- Ambient temperature of up to 60°C, therefore extended deployment range and safety reserves
- ± 5 % tapping, making it possible to compensate for saturation voltage
- Approvals for worldwide deployment

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TRANSFORMER POWER SUPPLIES

MEN 1...24 A • 60°C (140°F)

- Single-phase or 2-phase power supply units with smoothed output voltage
- Variants with DIN rail mounting are available up to 5 A
- Ambient temperature of up to 60°C, therefore extended deployment range and safety reserves
- Continuous additional power, 20 % extra power at 40 °C (104 °F) ambient temperature
- Approvals for worldwide deployment
- 115/230 or 230/400 V input voltage, therefore reduced storage costs
- ± 10 V or ± 15 V tapping for voltage adaptation

MPL 5...60 A • 55°C (130°F)

- 3-phase power supply units with smoothed output voltage
- Approvals for worldwide deployment
- Key-hole mounting, therefore easy installation
- ± 5 % tapping for voltage adaptation
- Variants with wide voltage range of 3 x 208 to 520 V AC reduce number of versions that need to be stocked

MTPS 0.5...10 A • 60°C (140°F) • IP20

- Single-phase or 2-phase power supply units with smoothed output voltage
- Ambient temperature of up to 60°C, therefore extended deployment range and safety reserves
- 230/400 V input voltage, therefore reduced storage costs
- ± 15 V tapping for voltage adaptation
- Identical design to our MTL transformers
- Primary and secondary side LED indicator

INFORMATION

Single-phase or 2-phase control and isolation transformers in power range of 30 to 5000 VA are available as standard. We provide you with maximum flexibility by means of approvals and voltages for worldwide deployment.
Customized versions are manufactured quickly and reliably in accordance with your specifications.

PRIMARY SWITCH MODES

NEW

ECO-POWER 0.6...10 A • 50°C (122° F) • IP20

- Single-phase
- Wide voltage input that is easily adjustable
- Full power up to 40° C (104° F) ambient temperature
- Adjustable output voltage
- Flat and compact design
- Strong, perforated housing allows optimum heat dissipation
- Convection cooling
- Screw terminals with touch protection
- Series connection operation possible

NEW

ECO-RAIL 1.3...10 A • 55°C (131° F) • IP20

- Single-phase
- Wide voltage input that is easily adjustable
- Full power up to 40° C (104° F) ambient temperature
- Adjustable output voltage
- Slim, book-like design saves space
- Two mounting options
- Pluggable screw terminals
- Series connection operation possible
- UL approved for worldwide use

MCS-B EVOLUTION 0.6...10 A • 70°C (158°F) • IP20

- Single-phase
- With wide voltage input for worldwide use
- Full power at 55°C ambient temperature and 230 V AC input voltage
- Slimline book design saves space
- Spacer for optimum air circulation
- Parallel and serial usage possible
- Additional model with DeviceNet and NEC Class2 approval

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PRIMARY SWITCH MODES

NEW

EVOLUTION 5...40 A • 70°C (158°F) • IP20

- 2-phase and 3-phase
- Nominal input voltage range of 3 x 360...520 V AC or 480...745 V DC
- Full power at 55°C ambient temperature
- Extra-Power function for 4 seconds 50 % additional power
- Compact design, good cooling
- Two-colored LED display
- Adjustable output voltage
- Convenient DIN rail mounting
- For parallel and series connection
- cCSAus approvals for the world market

MCS 2.5...40 A • 60°C (140°F) • IP20

- Single, 2-phase and 3-phase
- For universal applications, worldwide
- Full power up to 60°C ambient temperature
- Continuous additional power, 20 % extra power at 40° C ambient temperature
- Slimline book design saves space
- Selectable restart
- Parallel and serial usage possible
- Additional model with DeviceNet certification
- UL approval for worldwide use

BUFFER MODULES

MB Cap Ultra 10/24 38s

- Buffer time 38 s at 10 A load
- 12 or 24 V input-/output voltage
- Signal contact and USB interface
- Safe, intelligent shutdown of industrial PCs
- Shutdown parameters selectable by software
- Intelligent, automatic re-start of industrial PCs after shutdown
- Lifetime maintenance-free - without battery
- Spring clamp terminals for tool-less wiring

MB Cap Ultra 3/24 7s

- Buffer time 7 s at 3A load
- 24 V input-/output voltage
- Signal contact
- Safe shutdown of PLC
- Lifetime maintenance-free - without battery
- Spring clamp terminals for tool-less wiring

MB Cap Ultra Extension Module 3/24 12s

- Extension of systems by buffer time 12 s at 3A load per module
- 24 V input-/output voltage
- cascading of several extension modules increases system flexibility
- problem-free extension of existing systems
- quick, tool-less wiring due to spring clamp terminals

MB Cap 20/24 0.2s

- Buffer time of 200 ms at 20 A
- Maintenance-free means no operating costs
- Bridges 80 % of all mains failures
- Enough time for a safe shutdown of loads
- Buffered and unbuffered loads possible
- Selectable buffer behavior
- Removable terminals allow pre-wiring
- Unlimited parallel connection
- Two-color LED
- Small size features low width and low volume
- 2 signal contacts

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REDUNDANCY MODULE

NEW

MB DIODE 2x 20 A or 1x 40 A • 55°C (131° F) • IP20

- Compact housing
- Spring clamp technology
- Proven bridge system (same as MICO)
- Clear labels available
- 2 integrated diodes for decoupling 2 power supply units up to 20 A or one power supply unit up to 40 A
- One potential-free alarm signal per input
- Each input with LED indicator

INTELLIGENT POWER DISTRIBUTION

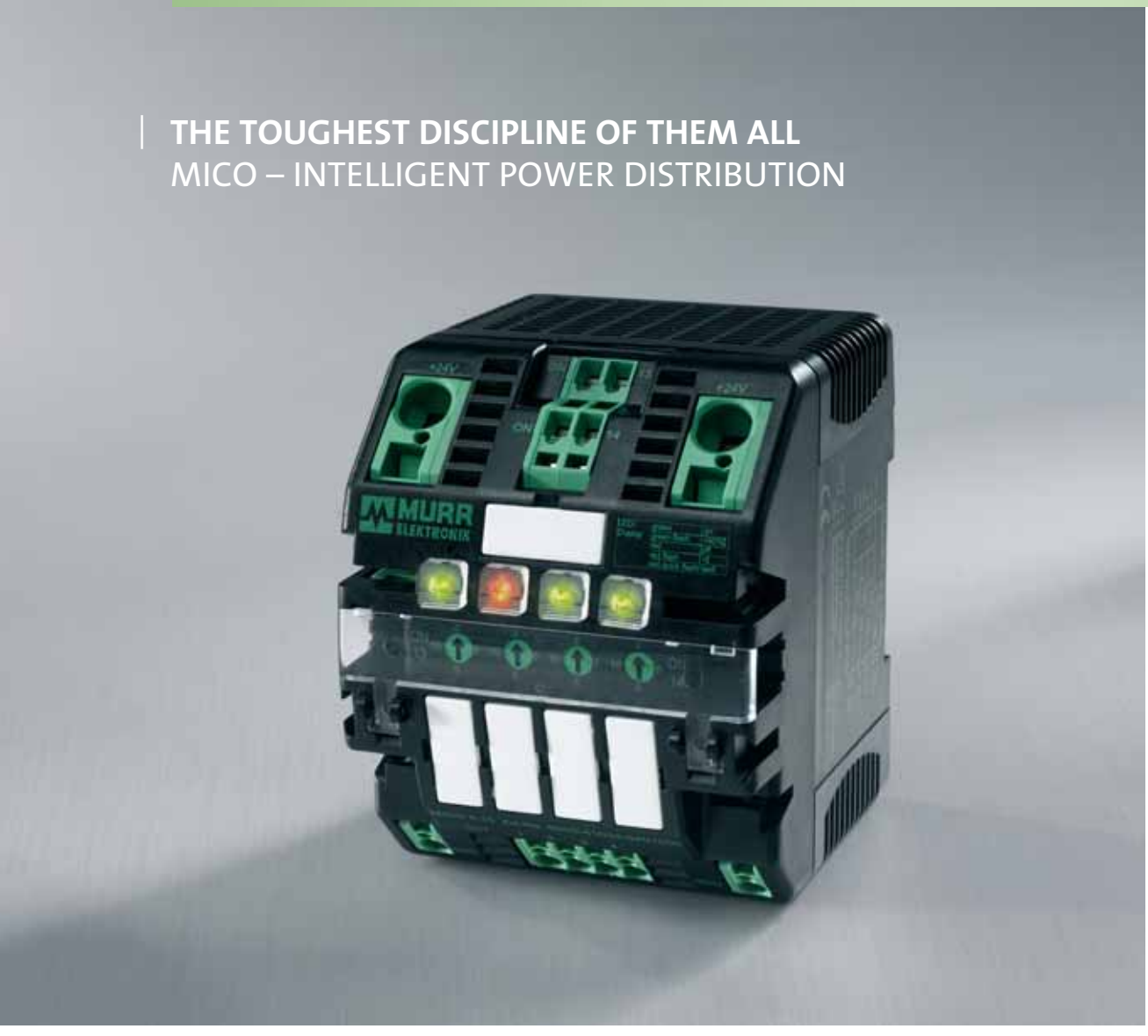
MICO 1...10 A • 55°C (130°F) • IP20

- Provides safe fire protection
- Saves 30 % space
- Reduces inrush currents
- Stores operating states
- Quick and safe shutdown of overcurrents
- Clear status indication by LED
- Bridge system for quick and safe assembly
- 4 channels
- In addition GL approval for shipbuilding industry, wind power stations, or offshore applications

MICO 1...10 A • 55°C (130°F) • IP20

- Provides safe fire protection
- Saves 30 % space
- Reduces inrush currents
- Stores operating states
- Quick and safe shutdown of overcurrents
- Clear status indication by LED
- Bridge system for quick and safe assembly
- 2 channels
- For capacitive loads of up to 20,000 µF

THE TOUGHEST DISCIPLINE OF THEM ALL
MICO – INTELLIGENT POWER DISTRIBUTION



The power supply is the heart of every control cabinet. In past years, many advances have been made in this field. Rectified power supply units are more frequently replaced by primary switch power supply units. This provides many advantages, however, it also requires consistent and targeted protection of the system.

MICO is the right solution for this problem. MICO, from Murrelektronik, is an intelligent power distribution system: It monitors currents, indicates when approaching the maximum load, and detects over-stress. This facilitates troubleshooting and secures machine availability. MICO is also available as two channel version – for an even more efficient system structure.

	Z or A circuit breaker	C-circuit breaker	MICO
Capacitive Loads	Disconnects	Connects	**Connects**
Short circuits	Disconnects	Remains On	**Disconnects**
Excess Current	Delayed Switching	Delayed Switching	**Switches Directly**

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MICO supports high capacitive loads, detects overloads during operation, and shuts down safely. MICO monitors each current path regarding the selected current range. When a maximum load of 90 % is reached, the LED will start flashing – a visual alarm. If the selected current range is exceeded, the affected current path will be switched off. The LED starts flashing red. The service technician can now see, at a glance, where the fault occurred. This state will be stored and maintained even if power is lost and the machine is powered up again.

MICO modules are equipped with four or two (for the new 2-channel MICO) bridgeable channels, so that they can be easily and quickly connected via a bridging system. Thanks to MICO‘s integrated alarm output, no complex efforts for connecting auxiliary contacts are necessary. In order to obtain a group alarm, it’s possible to connect a cable to the first and to the final module.

Compared to a solution with circuit breakers, the implementation of MICO saves up to 30 % space in the control cabinet. The new slim design 2-channel MICO allows even more application-friendly solutions: with two, six, or 10 channels connected. This makes the 2-channel MICO an important expansion of the complete system.

ADVANTAGES & CUSTOMER BENEFITS

- Saves up to 30 % space
- Universal for all standard current ranges (adjustable in four steps)
- Low power loss
- Vibration-proof spring clamp terminals
- Status indication with LEDs that flash at 90 % rated current
- No current limiting during operation, fast switching off acc. to EN 61131-2
- Group alarm output with potential-free contact
- Proven bridge system for quick connection of additional MICOs or MB Diodes
- Modules clearly labeled
- UL-, cCSAus, and GL approvals for worldwide use

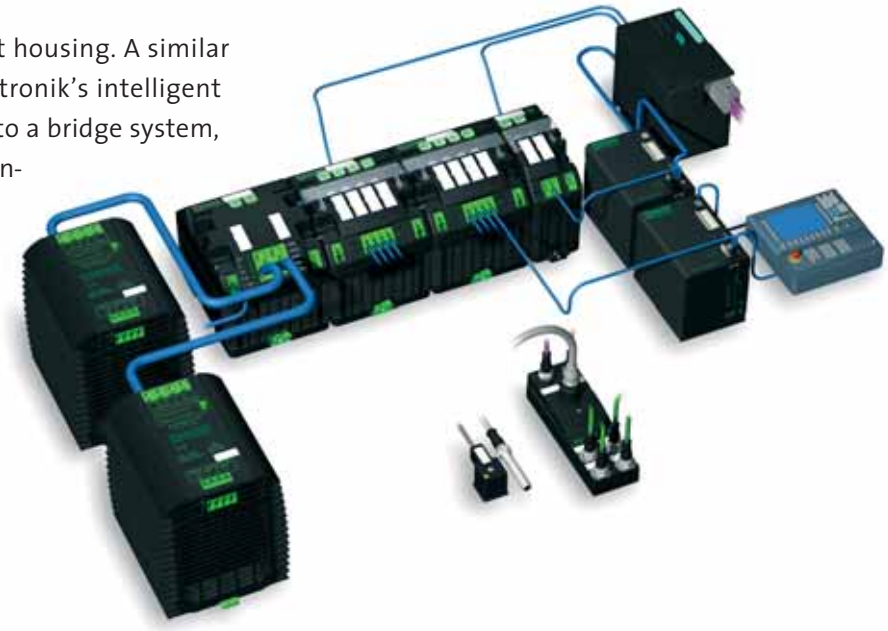
MB DIODE
ELIMINATE DOWNTIME

Machine failure can cause high costs. In order to prevent this, electrical engineers take extensive measures to increase the reliability of their machines and installations. Murrelektronik can help prevent this with the new redundancy module: MB Diode.

MB Diode decouples with power supply units. If a power supply fails, this module will integrate a connected spare power supply unit without interrupting operation. In the sense of a redundant design, all power supply units are integrated into the supply system through one or several modules of the MB diode series.

The redundancy module from Murrelektronik does not only provide an immediate solution, it also reports the problem to the control with integrated signal contacts. In addition, the failure is indicated via LEDs located directly at the MB diode module.

MB Diode is contained in a compact housing. A similar housing is used for MICO, Murrelektronik's intelligent power distribution system. Thanks to a bridge system, several redundancy modules can be connected together or to MICO modules. This considerably reduces wiring work. Spring clamp terminals can be easily connected to cables with wide diameters.



VALUABLE ADVANTAGES

- Compact housing
- Vibration-proof spring clamp terminals
- Proven bridge system (same as MICO) for quick connection of additional MICOs or MB Diodes
- Modules clearly labeled
- 2 integrated diodes for decoupling 2 power supply units up to 20 A or one power supply unit up to 40 A
- One potential-free alarm signal per input allows remote diagnostics
- Each input with LEDs for status indication directly at the module

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MB CAP AND MB CAP ULTRA
SIMPLE AND SAFE BUFFERING

MB Cap is a buffer module that meets all the requirements of industrial and commercial 24 VDC power supplies.

Since power-distribution systems are becoming increasingly more complex, voltage drops are occurring with greater frequency. The effects are well known - manufacturing processes must be restarted, systems reconfigured, rejects disposed of, and workers and machines must make up for lost production time. This is why is higher system availability is becoming increasingly important.

MB Cap solves this problem safely, reliably, and inexpensively! MB Cap is easily integratable in both new and existing power supply systems. Signal contacts can communicate optimally with any environment. Even without auxiliary devices, it is possible to split load groups in protected and unprotected sections. In many cases, few loads connected to a 24 V DC circuit actually need to be buffered. By splitting up the loads, a much longer buffering time is available in the protected area. If the buffering time of 200 ms at 20 A is insufficient, any number of devices can be connected in parallel without the need for additional installations. With additional product advantages such as low width, clear signaling, and application-optimized operating modes, MB Cap sets new standards in terms of buffering 24 VDC power supplies.

With MB Cap Ultra Murrelektronik offers an innovative product range of buffer modules that feature – contrary to conventional UPS – integrated ultra capacitors instead of conventional lead batteries. This makes MB Cap Ultra lifetime maintenance-free and the use of MB Cap Ultra is very cost-efficient, because compared to conventional solutions it does neither require maintenance nor additional costs, respectively change of batteries.

GREAT CUSTOMER BENEFITS

- Maintenance-free – no operating costs
- Bridges almost all mains failures completely
- Buffered and unbuffered loads are possible, allowing very long buffer times, e.g. for safe SPC shutdown
- Unlimited parallel connectivity for flexible extension of buffer times
- Up to four LEDs per module, for clear diagnostics
- Signal contacts for status indication and for easy connection to the total system
- USB interface for parametrization of shutdowns (via MB Cap Ultra Control software)

EMC FILTERS

MEF 1/1 10…20 A • IP20

- Single-phase and one-stage
- DIN-rail mounting, therefore easy and quick installation
- Colored PE terminal
- Up to 250 V

MEF 3/1 AND MEF 3/2 8…180 A • IP20

- Three-phase
- One-stage or two-stage
- Compact design
- Up to 3 x 600 V

OTHER PRODUCTS IN THE FIELD OF POWER SUPPLY SOLUTIONS

AC/DC AND DC/DC CONVERTER

AC/DC and DC/DC converters, controlled or adjustable, in touch protected version.
Output current: 0.3…20 A

MPD

DC/DC converter, primary switched with galvanic separation.
Output current: 3…20 A

RECTIFIER MODULES

Including fuses, supply indicators and smoothing capacitors.
Output current: 2.6…10 A

NLS

Linear regulated power supplies with good stability and low ripple.
Output current: 70 mA…4 A

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MURRELEKTRONIK IS YOUR SYSTEM PARTNER

From the control cabinet...

- **Power supply**
- **Interference suppression**
- **Processing**

...via the interface...

- **Service**
- **Permanently conducted and connected**

...passive or...

- **Connect**
- **Distribute**

...active into the field

- **IP20**
- **IP67**
- **AS-Interface**

TRANSFORMERS (Input voltage: 230 + 400 V AC)

MT STANDARD	24 V AC	230 V AC
MTS 40 VA	86340	86346
MTS 63 VA	86341	86347
MTS 100 VA	86342	86348
MTS 160 VA	86343	86349
MTS 250 VA	86345	86351
MST 320 VA	86326	86306
MST 400 VA	86327	86307
MST 500 VA	86328	86308
MST 630 VA	86329	86309
MST 1000 VA	86331	86311

(Input voltage: 230 + 400 V AC)

MT PREMIUM	24 V AC	2 x 24 V AC	230 V AC	2 x 115 V AC
MTL 25 VA		86450		86470
MTL 40 VA		86451		86471
MTL 63 VA		86452		86472
MTL 100 VA		86453		86473
MTL 160 VA		86454		86474
MTL 250 VA		86455		86475
MTL 320 VA		86456		86476
MET 500VA	86024 *		86021 *	
MET 630VA	86034 *		86031 *	
MET 800VA	86044 *		86041 *	
MET 1000VA	86054 *		86051 *	

(further types up to 5000 VA), * (Ue = 400 V AC, 230 V AC s. main catalog)

POWER SUPPLY UNITS (Input voltage: 1-/2-phase 230/400 V AC)

1-/2-phase	MEN	1-/2-phase	MTPS
1 A	85349	0.5 A	85400
2.5 A	85350	1 A	85401
5 A	85351	2 A	85402
7.5 A	85357	4 A	85403
10 A	85352	6 A	85404
15 A	85353	10 A	85405
20 A	85354		

(Input voltage: 3-phase 3x 400 V AC)

3-phase	MPL
5 A	85921
7.5 A	85923
10 A	85925
15 A	85927
20 A	85929
25 A	85931
30 A	85933

3-phase	MPL
40 A	85935
50 A	85937
60 A	85939

PRIMARY SWITCH MODES (Input voltage: 1-phase 100...265 V AC)

1-phase	Eco-Power	Eco-Rail	MCS-B Evolution	MCS
5 V / 3 A			85371	
5 V / 6 A				85041
12 V / 1 A			85372	
12 V / 2.5 A			85373	
12 V / 5 A				85040
24 V / 0.6 A	85150		85160	
24 V / 1.3 A	85151	85301	85161	
24 V / 2.5 A	85152	85302	85162	85064
24 V / 3 A				85060
24 V / 4 A NEC Class 2, DeviceNet			85176	
24 V / 5 A	85153	85303	85163	85061
24 V / 5 A 2-phase Ue 340...470 V				857725
24 V / 7.5 A	85154		85164	
24 V / 10 A	85155	85305	85165	85062
24 V / 10 A DeviceNet				85177
24 V / 10 A 2-phase Ue 340...470 V				857726
24 V / 20 A				85063
30.5 V / 4 A for AS-Interface			85381	
30.5 V / 4 A for AS-Interface			85382 (with EFD)	

(Input voltage: 3-phase 3 x 324...572 V AC or 3x 360...550 V AC)

3-phase	Evolution	MCS
24 V / 5 A	85000 (2-phase/3-phase)	857814
24 V / 10 A	85001 (2-phase/3-phase)	85071
24 V / 20 A	85002 (2-phase/3-phase)	85072
24 V / 40 A	85004 (2-phase/3-phase)	85099

BUFFER MODULE (Input voltage 24 V DC)

	MB CAP	MB CAP ULTRA	MB DIODE
Variants	85394 (200 ms / 20 A)	85467 (10 A/38 s)	85396 (2x20 A or 1x 40 A)
Variants		85460 (3 A/7 s)	
Variants		85462 (Add-on Modul 3 A/12 s)	

MICO (24 V DC)

2-channel	MICO 2.4 (1A/2A/3A/4A)	MICO 2.6 (1A/2A/4A/6A)	MICO 2.10 (4A/6A/8A/10A)
Variants	9000-41042-0100400	9000-41042-0100600	9000-41042-0401000
4-channel	**MICO 4.4** (1A/2A/3A/4A)	**MICO 4.6** (1A/2A/4A/6A)	**MICO 4.10** (4A/6A/8A/10A)
Variants	9000-41034-0100400	9000-41034-0100600	9000-41034-0401000
Accessories	**VE 1**	**VE 10**	
Bridging set	9000-41034-0000002	9000-41034-0000001	
Shortened pushbutton (4 buttons)	9000-41034-0000003		

REPRESENTED WORLDWIDE

- Argentina
- Australia
- Austria
- Belgium
- Brasil
- Bulgaria
- Canada
- Chile
- China
- Croatia
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Great Britain
- Hungary
- India
- Italy
- Japan
- Kenya
- Netherlands
- Norway
- Pakistan
- Poland
- Portugal
- Romania
- Singapore
- Slovak Republic
- Slovenia
- South Africa
- South Korea
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Turkey
- United Arab Emirates
- USA
- Vietnam

All addresses are listed at → **www.murrelektronik.com**

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