

## General

The heart of a primary switch unit is the test insulator. The concept equals, smooths and highly frequenced the primary voltage, which will be transformed and stabilized into a lower secondary voltage. A compact form and less weight is an advantage.

Higher demand for the power supply technology in automation, sensor and artoric technology requires new solutions. The problem of not reliable power supply causes a higher risk. Exactly defined voltage levels come to a bad end. To meet those requirements, the use of a regulated power supply is unavoidable.

Designed for the world-wide use, the MCS and MPS units have all the important and required international approvals.

MCS allows usage in applications where space is at a premium.

MPS exceeds all expectations. Extensive standards, such as PLC and automation systems, are now available for these power supply units.

Further information about primary switch modes single phase is located in chapter 4.5 . . .

**Valid for units, which don't meet the EN 61000-3-2 guideline.**

## Attention

This unit was designed for application in industrial environment (closed energy networks) and do not fulfills the requirements of the EN61000-3-2: 1995 + A1 + A2 + A14/2000 regarding harmonic.

The power supply may only be connected to public energy networks

- If the total measured power is greater than 1 kW
- If the total input current per conductor exceeds 16 A
- If the measured power is under 75 W (in the future 50 W) and does not have loads for illumination.

## Notice

At parallel operation should be considered the sum of the individual power measurements

- If the unit is supplied with less then 220 V (neutral outgoing connection)

This restrictions are valid from January 1, 2001 in all European countries. Other countries can also make use of these.

## Primary switch mode



### MCS with PFC (EN 61000-3-2)

Primary switch mode power supply for demanding applications. The units are touch protected, overload and short-circuit protected. Snap on to DIN-rail, small units for limited space requirements.

Input voltage: 3 x 400 V AC resp. wide voltage input (3 x 360 . . . 550 V AC)

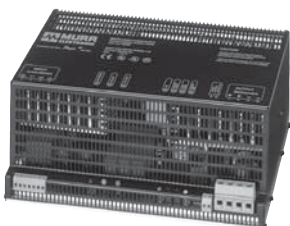
Output voltage: 24 . . . 28 V DC adjustable

Output current: 10/ 20/ 40 A

PIP - *Power* +

For industrial use is also available a version without PFC.

from page 4.6.2



### MPS

Primary switch mode power supply for demanding applications and integrated UPS function.

The units are touch protected, overload and short-circuit protected. DIN-rail mountable.

Input voltage: 3 x 400 V AC resp. wide voltage input (3 x 360 . . . 550 V AC)

Output voltage: 22 . . . 28 V DC adjustable

Output current: 10/ 20/ 40 A

PIP - *Power* +

from page 4.6.5

# Primary switch mode – three-phase

**Stabilized output voltage**

**Short-circuit and overload protected**

**Wide voltage input**

**Touch protected to EN 60529 (IP20)**

**PIP-*Power*<sup>+</sup>**

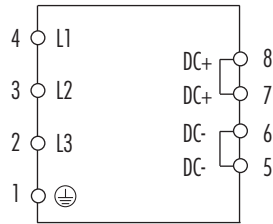
**Approvals:**

## MCS with PFC

Input voltage 3 x 360...550 V AC



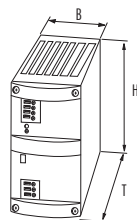
### Circuit diagram



Ordering data	Art.-No.	Art.-No.
Output rating		
24 V DC/ 5 A	<b>857814</b>	
24 V DC/10 A		<b>85071</b>

Input		
Input voltage	3 x 360...550 V AC	3 x 360...550 V AC
Input current	3 x 0.33 A	3 x 0.65 A
Inrush current	< 15 A	
Input fuse	3 x 2 A	
Frequency	50/60 Hz	
Output		
Output voltage	24 V DC SELV, ± 1 %; 24...28 V adjustable	24 V DC SELV, ± 1 %; 24...28 V adjustable
Nominal output current	5 A (60 °C); 6 A (40 °C)	10 A (60 °C); 12 A (40 °C)
Efficiency	0.9	
Mains failure bridging	> 25 ms (400 V AC)	> 11 ms (500 V AC)
Ripple	< 20 mV eff	
Spikes	< 100 ms	
Protection	short-circuit and overload protected	
LED-indicator	green LED for output voltage	
Switch off mode choosable	front sided bridging link (self activating re-start or definite shutoff)	
Parallel usage/Serial usage	yes/yes	
General data		
Guidelines	EN 60950-1, EN 61204-3, EN 55022 B	
Temperature range	0...+60 °C	
Relative humidity	5...95 %, no condensation	
Mounting method	DIN-rail mounting to EN 60715 (TH35)	
Weight	1.3 kg	
Dimensions	H x B x T x TA <sup>1)</sup>	127 x 68 x 178 x 20 <sup>1)</sup> mm

### Dimension drawing



<sup>1)</sup> TA = terminal depth

### Notes

MCS primary switch mode meets EN 61000-3-2 guideline.

Primary switch mode – three-phase

# Primary switch mode – three-phase

**Stabilized output voltage**

**Short-circuit and overload protected**

**Wide voltage input**

**Touch protected to EN 60529 (IP20)**

**PIP-*Power*** <sup>+</sup>

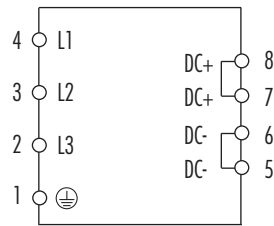
**Approvals:**

## MCS with PFC

Input voltage 3 x 360...550 V AC

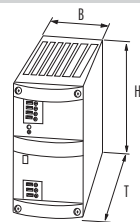


### Circuit diagram



Ordering data		Art.-No.	Art.-No.
	Output rating		
24 V DC/20 A	480 W	<b>85072</b>	
24 V DC/40 A	960 W		<b>85099</b>
<b>Input</b>			
Input voltage	3 x 360...550 V AC	3 x 360...550 V AC	
Input current	3 x 1.2 A	3 x 1.7 A	
Inrush current	< 20 A	no	
Input fuse	3 x 3 A	3 x 4 A	
Frequency	50/60 Hz		
<b>Output</b>			
Output voltage	24 V DC SELV, ± 1 %; 24...28 V adjustable		
Nominal output current	20 A (60 °C); 24 A (40 °C)	40 A (60 °C); 48 A (40 °C)	
Efficiency	0.9	0.91	
Mains failure bridging	> 12 ms (400 V AC)	typ. 8 ms (440 V AC)	
Ripple	< 20 mV eff		
Spikes	< 100 ms	< 150 mV ss	
Protection	short-circuit and overload protected		
LED-indicator	green LED for output voltage		
Switch off mode choosable	front sided bridging link (self activating re-start or definite shutoff)		
Parallel usage/Serial usage	yes/yes		
<b>General data</b>			
Guidelines	EN 60950-1, EN 61204-3, EN 55022 B		
Temperature range	0...+60 °C		
Relative humidity	5...95 %, no condensation		
Mounting method	screw mounting M 4, 4 pieces, <input type="checkbox"/> 60 x 197 mm	screw mounting M 4, 4 pieces, <input type="checkbox"/> 81 x 230 mm	
Weight	2.3 kg		4.5 kg
Dimensions	H x B x T x TA <sup>1)</sup>	209 x 84 x 227 x 20 <sup>1)</sup> mm	242 x 106 x 270 mm

### Dimension drawing



<sup>1)</sup> TA = terminal depth

### Notes

MCS primary switch mode meets EN 61000-3-2 guideline.

# Primary switch mode – three-phase

**Stabilized output voltage**

**Short-circuit and overload protected**

**Wide voltage input**

**Touch protected to EN 60529 (IP20)**

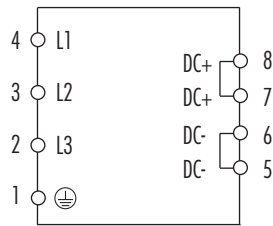
**PIP-*Power*+**

## MCS

Input voltage 3 x 340...460 V AC



### Circuit diagram



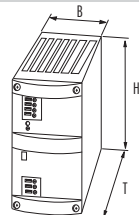
Ordering data		Art.-No.	Art.-No.
	Output rating		
24 V DC/10 A	240 W	<b>85095</b>	
24 V DC/20 A	480 W		<b>85097</b>

Input	
Input voltage	3 x 340...460 V AC
Input current	3 x 0.7 A
Inrush current	< 25 A
Input fuse	3 x 4 A
Frequency	50/60 Hz

Output	
Output voltage	24 V DC SELV, ± 1 %; 24...28 V adjustable
Nominal output current	10 A
Efficiency	0.9
Mains failure bridging	> 10 ms (400 V AC)
Ripple	< 20 mV eff
Spikes	< 100 ms
Protection	short-circuit and overload protected
LED-indicator	green LED for output voltage
Switch off mode choosable	front sided bridging link (self activating re-start or definite shutoff)
Parallel usage/Serial usage	yes/yes

General data	
Guidelines	EN 60950-1, EN 61204-3, EN 55011 A
Temperature range	0...+60 °C
Relative humidity	30...90 %, no condensation
Mounting method	DIN-rail mounting to EN 60715 (TH35)
Weight	1.2 kg
Dimensions	H x B x T
	127 x 68 x 160 mm
	2.1 kg
	170 x 84 x 201 mm

### Dimension drawing



Notes	
	Mounting adapter for side mounting see page 4.9.2

# Primary switch mode – three-phase

**Stabilized output voltage**

**Short-circuit and overload protected**

**Wide voltage input**

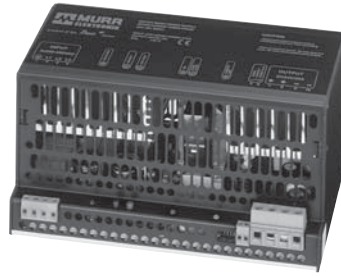
**Touch protected to EN 60529 (IP20)**

**PIP-*Power*+**

**Approvals:**

## MPS 10

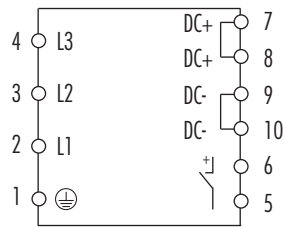
Input voltage 3 x 340...460 V AC



## MPS 20

Input voltage 3 x 340...460 V AC

### Circuit diagram



### Ordering data

Output rating	Art.-No.	Art.-No.
24 V DC/10 A 240 W	<b>85065</b>	
24 V DC/20 A 480 W		<b>85067</b>

### Input

Input voltage	3 x 340...460 V AC	
Input current	3 x 0.42 A	3 x 0.84 A
Inrush current	no	
Frequency	50/60 Hz	
Input fuse	max. 10 A	

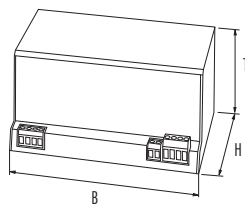
### Output

Output voltage	24 V DC SELV, $\pm 1\%$ ; 22...28 V adjustable	
Nominal output current	10 A (60 °C); 12 A (40 °C)	20 A (60 °C); 24 A (40 °C)
Efficiency	0.9	
Mains failure bridging	> 3 ms (400 V AC)	
Ripple, Spikes	< 20 mV eff; < 100 mV ss	
Protection	short-circuit and overload, switch off at phase failure, pre-warning and switching off when overloaded, signaling over alarm output	
Phase monitoring	switch off when phase is lost	
LED-indicator	green LED in operation, red LED shut down, yellow LED, pre-warning of overload or high temperature	
Parallel usage/Serial usage	yes/yes	
Alarm output <sup>1)</sup>	relay contact max. 60 V DC/ 0.2 A; collective alarm for all faults and pre-warnings, quit via green reset button	
Test stop button	for test purposes, secondary voltage can be switched off short term via test stop button	

### General data

Guidelines	EN 60950-1, EN 61204-3, EN 55022 B	
Temperature range	0...+60 °C	
Relative humidity	30...90 %, no condensation	
Mounting method	DIN-rail mounting to EN 60715 (TH35), additional plate for screw mounting Art.-No. 89500	
Weight	1.7 kg	2.4 kg
Dimensions H x B x T	132 x 198 x 97 mm	132 x 243 x 123 mm

### Dimension drawing



### Notes

MPS primary switch mode meets EN 61000-3-2 guideline.  
<sup>1)</sup> If units used in parallel decoupling of units via diode block. UPS components see page 4.9.3

Primary switch mode – three-phase

# Primary switch mode – three-phase

**Stabilized output voltage**

**Short-circuit and overload protected**

**Wide voltage input**

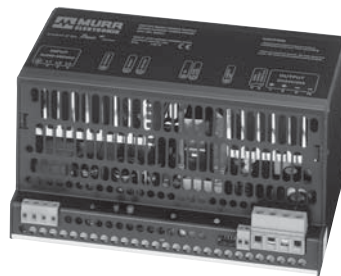
**Touch protected to EN 60529 (IP20)**

**PIP- Power +**

**Approvals:** US Listed

## MPS 10

Input voltage 3 x 360...550 V AC

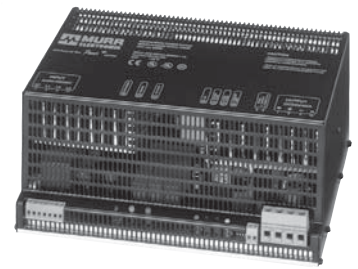


## MPS 20

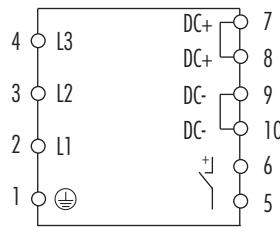
Input voltage 3 x 360...550 V AC

## MPS 40

Input voltage 3 x 360...550 V AC

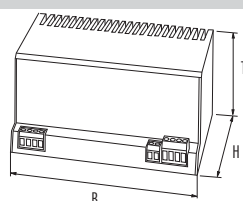


### Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
Output rating			
24 V DC/10 A	240 W	<b>85066</b>	
24 V DC/20 A	480 W		<b>85068</b>
24 V DC/40 A	960 W		<b>85069</b>
Technical data	Input		
Input voltage	3 x 360...550 V AC	3 x 360...550 V AC	3 x 360...550 V AC
Input current	3 x 0.41 A	3 x 0.84 A	3 x 1.7 A
Inrush current	no		
Frequency	50/60 Hz		
Input fuse	max. 10 A		
Output			
Output voltage	24 V DC SELV, ± 1 %; 22...28 V adjustable		
Nominal output current	10 A (60 °C); 12 A (40 °C)	20 A (60 °C); 24 A (40 °C)	40 A (60 °C); 48 A (40 °C)
Efficiency	0.9		0.91
Mains failure bridging	> 3 ms (400 V AC)		
Ripple, Spikes	< 20 mV eff; < 100 mV ss		
Protection	short-circuit and overload , switch off at phase failure, pre-warning and switching off when overloaded, signaling over alarm output		
Phase monitoring	switch off when phase is lost		
LED-indicator	green LED in operation, red LED shut down, yellow LED pre-warning of overload or high temperature		
Parallel usage/Serial usage	yes/yes		
Alarm output <sup>1)</sup>	relay contact max. 60 V DC/ 0.2 A; collective alarm for all faults and pre-warnings, quit via green reset button		
Test stop button	for test purposes, secondary voltage can be switched off short term via test stop button		
General data			
Guidelines	EN 60950-1, EN 61204-3, EN 55022 B		
Temperature range	0...+60 °C		
Relative humidity	30...90 %, no condensation		
Mounting method	DIN-rail mounting to EN 60715 (TH35); additional plate for screw mounting Art.-No. 89500		DIN-rail is also delivered <sup>2)</sup>
Weight	1.8 kg	2.4 kg	5.8 kg
Dimensions H x B x T	132 x 198 x 97 mm	132 x 243 x 123 mm	193 x 282 x 132 mm

### Dimension drawing



### Notes

MPS primary switch mode meets EN 61000-3-2 guideline. UPS components see page 4.9.3

<sup>1)</sup> If units used in parallel decoupling of units via diode block. <sup>2)</sup> Right angle foot brackets for screw mounting Art.-No. 89504.