



Measuring converters

Institut "Mihajlo Pupin"-
Automatika doo Beograd
Tel: +381 11 6771017
Fax: +381 116782885

Volgina 15
11060 Beograd
automatika@pupin.rs
info@pupin.rs



ISO/IEC 27001
TA420173002128
EN ISO 9001
TA270173002127

TUV AUSTRIA CERT 61018

MPU DC

Measuring Converter (DC/DC)

MPU DC is an amplifier with galvanic separation between the input electrical measuring signal and the output signal. The block is used in measuring, monitoring or control systems in order to increase the system reliability and to eliminate the electromagnetic interferences. The module contains a DC / DC converter for the block power supply for the galvanic isolation between the input and the output, which is based on Σ - Δ modulation, thus achieving the mutual galvanic isolation of all three electric circuits: input, output and power supply. The applied modulation provides a high class of signal transmission accuracy.



1	MEASURING VOLTAGE DC
2	
3	- AUXILIARY POWER
4	+ SUPPLY 24VDC
5	
6	MEASURING VOLTAGE DC
7	
8	+ OUTPUT (mA)
9	- OUTPUT (mA)
10	
11	



	Power Supply	Input	Output
1	24 V _{DC}	0 – 60 mV _{DC}	0 – 5 mA
2	20 – 60 V _{DC}	0 – 100 mV _{DC}	0 – 10 mA
3	48 V _{DC}	0 – 10 V _{DC}	0 – 20 mA
4	110 V _{DC}	0 – 100 V _{DC}	4 – 20 mA
5	100 – 240 V _{DC/AC}	0 – 40 V _{DC}	0 – 10 V
6	230 V _{AC}	± 60 mV _{DC}	± 5 mA
7	/	± 500 V _{DC}	± 10 mA
8	/	/	± 20 mA
9	/	/	/
0	per request	per request	per request

Technical Data

Consumption:	< 2W
Transmission accuracy:	> 0,5% of full range
Influence of ambient temperature on accuracy:	< 0,01%/°C
Rated frequency:	500KHz
Working temperature:	-10 - 50 °C
Storage temperature:	-20 - 70 °C
Input impedance:	50kΩ
Permitted voltage of the galvanic isolation:	500VDC
Dimensions with the base:	LxDxH = 75x37x100mm
Installation method:	DIN on rail

MPU DC type is defined on desired combinations from the table:

Power.Supply.Input.Output, for example:

MPU DC 1.3.4 has a 24VDC power supply, an input voltage in the range from 0 to 10VDC, and the output current in the range from 4 to 20mA;

MPU DC 2.5.7 has a power supply in the range from 20 to 60VDC, an input in the range from 0 to 40VDC, and the output current in the range from -10 to 10mA;

MPU DC 0.0.0 (or only MPU DC) is based on the user needs.

MPU116/1 Voltage Measuring Converter

The voltage converter, MPU 116/1, belongs to the group of measuring converters using the two-way rectification method. The converter converts the input AC voltage to the output DC current or DC voltage signal. The output signal is galvanically isolated from the supply voltage and the input signal.



1	
2	
3	AUXILIARY POWER SUPPLY
4	220V 50Hz
5	
6	MEASURING VOLTAGE
7	
8	+ OUTPUT (mA)
9	- OUTPUT (mA)
10	
11	MEASURING VOLTAGE

MEASURING VOLTAGE	
11	6

	Power supply	Input	Output
1	24 V _{DC}	0 – 100 V _{AC}	0 – 5 mA
2	20 – 60 V _{DC}	0 – 250 V _{AC}	0 – 10 mA
3	48 V _{DC}	0 – 500 V _{AC}	0 – 20 mA
4	110 V _{DC}	/	4 – 20 mA
5	100 – 240 V _{DC/AC}	/	0 – 10 V
6	230 V _{AC}	/	/
7	/	/	/
8	/	/	/
9	/	/	/
0	per request	per request	per request

Technical Data

Measuring method	Electronic rectifier
Rated input value	100V, 100/√3V, 220V, 380V, 500V
Rated frequency	50Hz, 60Hz
Own consumption	<2VA
Permanent overload	1.2Un
Short-term overload	2Un
Output load (Voltage)	>10kΩ
Output load (current)	700 – 1500Ω
Setup time	200ms
Output ripple	0.2%
Deviaton at normal conditions	0.2%
Linearity	0.1%
Influence of temperature	0.1% / 10°C
Working temperature	-10°C...+55°C
Storage temperature	-40°C...+70°C
Supply voltage variation	±20%
Frequency variation	±20%
Test voltage (all circuits coupled together)	4kV, 50Hz, 1min

MPU116/1 type is based on desired combinations from table: Power.Supply.Input.Output, for example:

MPU 116/1 1.3.4 has a 24VDC power supply, an input voltage in the range from 0 to 500VAC, and the output current is in the range 4-20mA;

MPU 116/1 3.2.5 has a 48VDC power supply, input 0-250VAC, and output voltage is in the range 0-10V;

MPU 116/1 0.0.0 (or just MPU 116/1) is based on user needs.

MPU117/1 Voltage Measuring Converter

The voltage converter, MPU 117/1, belongs to the group of measuring converters using the two-way rectification method. The converter converts the input AC voltage to the output DC current or DC voltage signal. The output signal is galvanically isolated from the supply voltage and the input signal.



1	
2	
3	AUXILIARY POWER SUPPLY
4	220V 50Hz
5	
6	MEASURING VOLTAGE
7	
8	+ OUTPUT (mA)
9	- OUTPUT (mA)
10	
11	MEASURING VOLTAGE

MEASURING VOLTAGE
11 6

	Power supply	Input	Output
1	24 V _{DC}	0 – 100 V _{AC}	0 – 1 -10 mA
2	20 – 60 V _{DC}	0 – 250 V _{AC}	0 – 2 -20 mA
3	48 V _{DC}	0 – 500 V _{AC}	0 – 1 -10 V
4	110 V _{DC}	/	/
5	100 – 240 V _{DC/AC}	/	/
6	230 V _{AC}	/	/
7	/	/	/
8	/	/	/
9	/	/	/
0	per request	per request	per request

Technical Data

Measuring method	Electronic rectifier
Rated input value	100V, 100/√3V, 220V, 380V, 500V
Rated frequency	50Hz, 60Hz
Own consumption	<2VA
Permanent overload	1.2Un
Short-term overload	2Un
Output Load (Voltage)	>10kΩ
Output load (current)	700 – 1500Ω
Setup time	200ms
Output ripple	0.2%
Deviation at nominal conditions	0.2%
Linearity	0.1%
Influence of temperature	0.1% / 10°C
Working temperature	-10°C...+55°C
Storage temperature	-40°C...+70°C
Supply voltage variation	±20%
Frequency variation	±20%
Test voltage (all circuits coupled together)	4kV, 50Hz, 1min

MPU 117/1 type is based on the desired combinations from table:

PowerSupply.Input.Output, for example:

MPU 117/1 1.3.2 has a 24VDC power supply, an input voltage in the range from 0 to 500VAC, and the output current is in the range 0-20mA, where the breaking point of the output signal is 2mA;

MPU 117/1 3.2.1 has a 48VDC power supply, input 0-250VAC, and the output current is in the range 0-10mA, where the breaking point of the output signal is 1mA;

MPU 117/1 0.0.0 (or just MPU 117/1) is based on user needs.

MPI118/1

Current Measuring Converter

Current measuring converter, MPI 118/1, belongs to the group of measuring converters using the two-way rectification method. The converter converts the input current to the output current or voltage signal. The output signal is galvanically isolated from the supply voltage and the input signal.



1	MEASURING CURRENT 10A
2	
3	AUXILIARY POWER SUPPLY
4	220V 50Hz
5	
6	
7	
8	+OUTPUT (mA)
9	- OUTPUT (mA)
10	MEASURING CURRENT 10A
11	

	Power supply	Input	Output
1	24 V _{DC}	0 – 1 A	0 – 5 mA
2	20 – 60 V _{DC}	0 – 5 A	0 – 10 mA
3	48 V _{DC}	/	0 – 20 mA
4	110 V _{DC}	/	4 – 20 mA
5	100 – 240 V _{DC/AC}	/	0 – 10 V
6	230 V _{AC}	/	/
7	/	/	/
8	/	/	/
9	/	/	/
0	per request	per request	per request

Technical Data

Measuring method	Electronic rectifier
Rated input value	1A, 5A
Rated frequency	50Hz, 60Hz
Own consumption	<2VA
Permanent overload	1.2I _n
Short-term overload	2I _n
Output Load (Voltage)	>10kΩ
Output load (current)	700 – 1500Ω
Setup time	200ms
Output ripple	0.2%
Deviation at nominal conditions	0.2%
Linearity	0.1%
Influence of temperature	0.1% / 10°C
Working temperature	-10°C...+55°C
Storage temperature	-40°C...+70°C
Supply voltage variation	±20%
Frequency variation	±20%
Test voltage (all circuits coupled together)	4kV, 50Hz, 1min

MPI 118/1 type is based on the desired combinations from the table:
PowerSupply.Input.Output, for example:

MPI 118/1 3.1.4 has a 48VDC power supply, an input signal in the range from 0 to 1A, and the output current is in the range 4-20mA;

MPI 118/1 4.2.5 has a 110VDC power supply, input 0-5A, and the output voltage is in the range 0-10VDC;

MPI 118/1 0.0.0 (or just MPI 118/1) is based on user needs.