

# DIAS Drive

## MDP 101-1



The MDP 101 is a power supply module with a 3 kVA rating at an input voltage of 400/480 V.

This power module is the head station for each MDD 100 servo drive system. The MDP 101-1 forms the communication interface and is responsible for the bus communication with the connected axis modules.

Integrated in the module are eight digital capture inputs and a safety input.

### Additional Characteristics:

- various feedback systems (Resolver, EnDAT<sup>®</sup> encoder, Hiperface<sup>®</sup> encoder, high-resolution Sin/Cos encoder)
- integrated power filter
- integrated Safety functions „Safe Torque Off“ STO and „Safe Stop 1“ SS1
- fast capture inputs

### Rated Data

Input voltage (symmetrically opposing ground)	V <sub>AC</sub>	3x 230 V <sub>-10%</sub> – 480 V <sup>10%</sup> , 45-65 Hz
Maximum peak current with activation of the mains contact (limited by inrush circuit)	A	3
Rated power in S1 mode	kVA	3
Rated power in S1 mod for input voltage < 400 V	kVA	3 kVA-7.5 W * (400 - input voltage/V)
Rated DC-link voltage	V <sub>DC</sub>	290-680
Over voltage threshold of the DC-link voltage	V <sub>DC</sub>	450, 800, 900
+24 V auxiliary voltage	V <sub>DC</sub>	22-30
+24 V auxiliary supply power	W	maximum 50
Maximum leakage current	mA	30
Holding brake supply voltage +24 V-BR	V <sub>DC</sub>	23 to 26 (depending on selected holding brake type)

### Brake Switch

Capacitance of the intermediate circuit voltage	µF	135
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### G-VMAINS = 230 (rated mains voltage = 230 V)

Switch-on threshold	V <sub>DC</sub>	420
Switch-off threshold	V <sub>DC</sub>	400
Over voltage protection	V <sub>DC</sub>	450
Peak power of the internal ballast resistance (max. 1 s)	kW	5.3

### G-VMAINS = 400 (rated supply voltage = 400 V)

Switch-on threshold	V <sub>DC</sub>	730
Switch-off threshold	V <sub>DC</sub>	690
Over voltage protection	V <sub>DC</sub>	800
Peak power of the internal ballast resistance (max. 1 s)	kW	21

### G-VMAINS = 480 (rated mains voltage = 480 V)

Switch-on threshold	V <sub>DC</sub>	850
Switch-off threshold	V <sub>DC</sub>	810
Over voltage protection	V <sub>DC</sub>	900
Peak power of the int. ballast resistance (max. 1 s)	kW	27

### Safety Input

Input voltage between ENABLE_H (+) and ENABLE_L (-)	V	typically 24 V to a maximum of 30 V
Signal level between ENABLE_H (+) and ENABLE_L (-)	V	low: ≤ +5, high ≥ +15
Input current	mA	typically 10 mA at 24 V
Input switching delay times	s	switch-on delay circa 0.02 s turn-off delay min. 0.5 s, maximum 1 sec
Relay output (S1, S2)		no
Switching power		maximum 30 V DC, 42 V AC, 100 µA to maximum 0.5 A

### Digital Inputs

Input voltage Dig_IN1 to Dig_IN8	V	typically 24 V to a maximum of 30 V
Signal level	V	low: $\leq +5$ , high $\geq +15$
Input current	mA	typically 10 mA at 24 V
Input switching delay times	ms	typically 0.1

### Safety Conformity

Safety Integrity Level in accordance with IEC EN 62061		SIL 3
Performance Level in accordance with EN ISO 13849-1		PLe
Probability of failure per hour	PFH <sub>D</sub> [10 <sup>-9</sup> ]	0.3
Mean time to dangerous failure	MTTF <sub>D</sub> symmetrized [Years]	high
Proof Test Interval [years]		20

### Internal Fuse

Auxiliary supply voltage +24 V (+24 V - BGND)		electronic fuse
Holding brake supply 24 V-BR (24 V-BR - BGND)		electronic fuse
Ballast resistance		electronic protection

### Resolver Specifications

Exciter frequency $f_{\text{err}}$	kHz	8
Exciter voltage $U_{\text{Ref}}$	$U_{\text{eff}}$	2.8
Number of poles m	-	2, 4, 6, ..., 32
Resolver voltage $U_{\text{sin/cos, max}}$	$U_{\text{eff}}$	1.9

### Connector Types

Safety Inputs (X1)		Phoenix FMC1.5/5-ST-3.5
Power supply (X2)		Phoenix GMSTB 2.5HCV/9-ST-7.62
VARAN bus (X3, X4)		RJ 45
Digital inputs (X6)		Phoenix FMC1.5/12-ST-3.5

### Dimensions

Height	mm	155
Width	mm	60
Depth with module carrier (without/with plugs)	mm	152/195
Weight	kg	1.2

### Article Number

		09-403-101-1
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### Standard

		UL 508C, NMMS.E336350
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## Notes

