

# Technical characteristics

The servo amplifier MBD has been designed to drive brushless sinusoidal servomotors. The DSP digital architecture allows to handle a fieldbus and to control the motor in its main variables: power, speed, position. The device can also be driven by a differential analog input.

## Servo amplifier MBD

The hardware interface, in the standard version, includes the following devices:

- 5 opto-isolated digital inputs.
- 2 inputs for disabling security STO A, STO B (under approval)
- 3 opto-isolated digital outputs.
- 1 Drive OK relay
- CANopen interfacing
- RS232 interface, protocol Modbus RTU, gateway RS232/CAN (including in the CANopen)
- Motor feedback input
- Electromechanical motor brake control
- Management of braking circuit with internal or external braking resistor.

The device is supplied of two slots for expansion cards.

## Power supply

The MBD Servo amplifier must be powered by: a 24V auxiliary voltage for operation of control circuits, of electromechanical brakes and of ventilation (if present) and by 3-phase grounded current at 230/400 VAC, 50/60 Hz

All shielding connections are made directly to the amplifier. Output Stage: IGBT module with insulated current measurement on the motor phases. Protection against overcurrent.

## Operation and parameter setting

TKSED software allows you to communicate with the amplifier through ModBus RTU RS-232. Through the interface you can configure the product completely, save and load a configuration of parameters and update the firmware of the amplifier.

TKSED Software download:

<https://www.nilab.at/download/tksed-software-pc-tool/?wpdmdl=2126&refresh=637351b08fa4b1668501936>

## Control

The control is full-digital, internally the three control loops (power, speed and position) can be managed. The insertion of one or more control loops is determined by the used operating mode.

## Technical data

TECHNICAL DATA				
RATED SUPPLY VOLTAGE	V	3x230-10% .. 3x400+10%		
SIZES		3	6	12
OUTPUT RATED CURRENT	A	3	6	12
PEAK OUTPUT CURRENT@5s	A	6	12	24
RATED INPUT POWER	kVA	1,8	3,7	7,4
RATED OUTPUT CURRENT	kW	1,30	2,59	5,75
THERMAL DISSIPATION AT RATED CURRENT	W	30	70	120
THERMAL DISSIPATION, OUTPUT STAGE DISABLED	W	10		
SWITCHING FREQUENCY OF OUTPUT STAGE (DEFAULT VALUE)	KHz	10		

TECHNICAL DATA			
RATED SUPPLY VOLTAGE	V	3x230-10% . . 3x400+10%	
SIZES		30/60	42/84
OUTPUT RATED CURRENT	A	30	42
PEAK OUTPUT CURRENT@5s	A	60	84
RATED INPUT POWER	kVA	18	26,1
RATED OUTPUT CURRENT	kW	14,3	20,1
THERMAL DISSIPATION AT RATED CURRENT	W	350	450
THERMAL DISSIPATION, OUTPUT STAGE DISABLED	W	15	
SWITCHING FREQUENCY OF OUTPUT STAGE (DEFAULT VALUE)	KHz	5	

## Environmental data

ENVIRONMENTAL DATA						
SIZES		3/6	6/12	12/24	30/60	42/84
STORAGE TEMPERATURE	°C	-20°C +75°C				
AMBIENT CONDITIONS		Pollution level 2				
		Max ambient temperature in operation: 40°C under rated conditions, 45°C with power derating 2,5%/°C Min ambient temperature in operation: 0°C Storage temperature: -20°C to 75°C Site altitude without restriction: 1000 m with power derating 2% / 100m > 1000m Rel. humidity: 10% to 85% - without condensation Vibrations: 2g, 10 Hz a 2000 H				
ENCLOSURE PROTECTION	IP20					
POLLUTION LEVEL	2 as per IEC 60664-1, 2.5.1					

## Brake Circuit

BRAKE CIRCUIT					
SIZES		3A,6A	12A	30A	42A
DC-LINK CAPACITANCE	μF	280	500	2460	N.A.
SUPPLY VOLTAGE	V	3x230±10%			
SWITCH-ON THRESHOLD OF BRAKE CIRCUIT	V	390			
OVERVOLTAGE	V	420			
SUPPLY VOLTAGE	V	3x400±10%			
SWITCH-ON THRESHOLD OF BRAKE CIRCUIT	V	720			
OVERVOLTAGE	V	800			
INTERNAL BRAKE RESISTOR	Ω	100	50	-	N.A.
CONTINUOS POWER INTERNAL BRAKE RESISTOR	W	25	50	-	N.A.
PULSE BRAKE POWER(0,5s)	KW	5	10	-	N.A.
MAX PULSE BRAKE POWER	KW	6	15,7	20	N.A.
EXTERNAL BRAKE RESISTOR(*)	Ω	≥66	≥33	≥12,5	N.A.
CONTINUOS POWER EXTERNAL BRAKE RESISTOR	W	1000	1500	5000	N.A.

\* optional

## Fusing

Input Circuit	Internal fuse
24V / Brake resistor, fan	4AM
STO A/B enable	2AM

Fuses:

Circuit	Fuses				
SIZES	3/6	6/12	12/24	30/60	42/84
AC supply feed	6AT	10AT	16AT	40A	50A
24V	4AT			6AT	

Type: gS. >The gS class is defined by standard IEC 60269-4 Ed. 4.0, 2006.

T= time-delay fuse.

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