

# 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 donwload:

<https://www.nilab.at/download/ksed-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<br>Max ambient temperature in operation: 40°C under rated conditions,<br>45°C with power derating 2,5%/°C<br>Min ambient temperature in operation: 0°C<br>Storage temperature: -20°C to 75°C<br>Site altitude without restriction: 1000 m<br>with power derating 2% / 100m > 1000m<br>Rel. humidity: 10% to 85% - without condensation<br>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. |
| CONTINUOUS 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. |
| CONTINUOUS 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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Last update: **2023/09/21 07:16**

