

# Brushless gearmotor

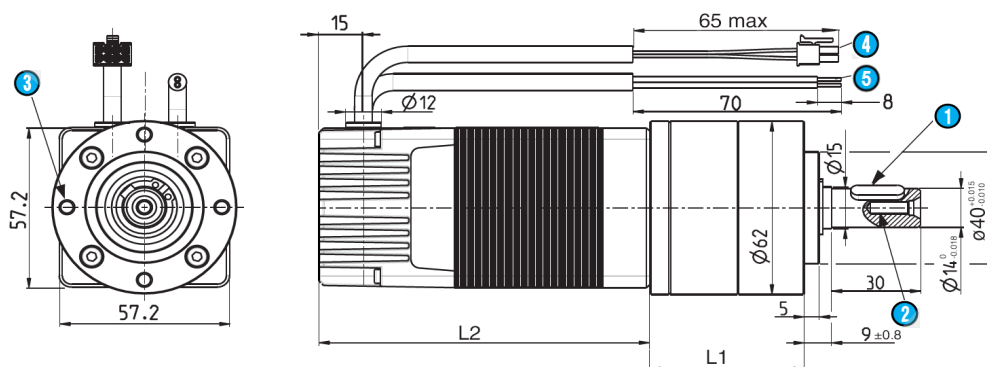
## Data sheet

80 149 6 - TNI20

0/10V - ratio 26.8

Series

80 149 6 TNI20



- 1 Parallel key 4 x 4 x 16 DIN6885A
- 2 M4 x 10
- 3 4 x M5 on diam 40 mm - 10 mm depth

- 4 Input - Output cable with Molex connector - 500 mm +/- 20
- 5 Power supply cable - 500 mm +/- 20

L1 = 67,9 +0,7  
L2 = 92 max.

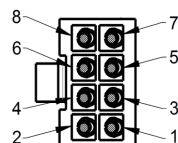
## General characteristics

| Power supply                  |     |          |
|-------------------------------|-----|----------|
| Direct current voltage supply |     | ✓        |
| Nominal voltage range         | Vdc | 18 -> 32 |
| Max. current                  | A   | 3        |

| Gearmotor type 80 149 6 TNI20      |    |            |
|------------------------------------|----|------------|
| Motor type                         |    | 83 140 032 |
| Gearbox type                       |    | 81 049 6   |
| Ratio                              |    | 26,85      |
| Number of stages                   |    | 2          |
| Max. permissible continuous torque | Nm | 25         |
| Max. backlash                      | °  | 0,7        |

| Motor characteristics (1)           |     | 24 Vdc |        |
|-------------------------------------|-----|--------|--------|
| <b>At no load</b>                   |     |        |        |
| Max. output speed                   | rpm | 108    |        |
| Current at the max output speed (6) | A   | 0,29   |        |
| Standby current                     | A   |        |        |
| <b>At nominal</b>                   |     |        |        |
| Speed                               | rpm | 78     | +/-15% |
| Torque (2)                          | Nm  | 3,22   |        |
| Output power                        | W   | 26     | +/-15% |
| Current                             | A   | 4,4    |        |
| Efficiency                          | %   | 25     |        |
| <b>At max. output power</b>         |     |        |        |
| Speed                               | rpm | 63     |        |
| Torque                              | Nm  | 4,94   |        |
| Output power                        | W   | 33     |        |
| Current                             | A   | 3      |        |
| Efficiency                          | %   | 45     |        |
| <b>At peak torque</b>               |     |        |        |
| Speed                               | rpm | 63     |        |
| Torque                              | Nm  | 4,94   |        |
| Output power                        | W   | 33     |        |
| Current                             | A   | 3      |        |
| <b>Others</b>                       |     |        |        |
| Weight                              | kg  | 2,15   |        |
| Noise level                         | dBA | 45     |        |

| Connecting                                             |                                      |
|--------------------------------------------------------|--------------------------------------|
| <b>Input - Output cable</b>                            | With Molex connector ref: 43025-0800 |
| Output cable, UL style 2464 80°C 300V - 8 wires AWG24  |                                      |
| Input: ON/OFF                                          | 1 - Green                            |
| Input: Direction                                       | 2 - Yellow                           |
| Input: Torque limit                                    | 3 - Blue                             |
| Input: Speed                                           | 4 - Orange                           |
| 0V                                                     | 5 - Black                            |
| Output: Pulse                                          | 6 - Brown                            |
| Output: Torque limit reached                           | 7 - Purple                           |
| Output: Direction                                      | 8 - Red                              |
| <b>Power supply cable</b>                              |                                      |
| Cable UL style 2464 80°C 300V - 2 wires AWG20 - 500 mm |                                      |
| + 18Vcc -> + 32 Vdc                                    | Brown                                |
| 0V                                                     | Black                                |



| Drive                                      |                    |
|--------------------------------------------|--------------------|
| <b>Type</b>                                | <b>TNI20</b>       |
| Built-in drive                             | ✓                  |
| Internal encoder                           | 12 pulses per turn |
| <b>Control</b>                             |                    |
| Speed                                      | 0/10 V             |
| Torque                                     | 0/10 V             |
| 4 quadrants - low braking                  | ✓                  |
| 4 quadrants with regenerative energy       | ✓                  |
| "Trapezoidal" type                         | ✓                  |
| <b>Security</b>                            |                    |
| Short-circuit of outputs                   | ✓                  |
| Input inverted                             | ✓                  |
| Low voltage                                | Vdc < 14           |
| Short high voltage                         | Vdc > 36           |
| Stop at max internal drive temperature (2) | °C 110             |
| Drive temperature allowing to restart      | °C 90              |

| Generic parameters                               |                                  |
|--------------------------------------------------|----------------------------------|
| Output shaft with ball bearings                  | ✓                                |
| Max. Radial force (12mm from front face)         | N 360                            |
| Max. axial force(4)                              | N 100                            |
| Temperature range                                | CEI60068-2-1/2 °C -30 -> +70     |
| Storage temperature                              | °C -40 -> +80                    |
| Dielectric                                       | 1min 2mA 50Hz CEI60335 Vac 1 000 |
| Motor insulation                                 | CEI60085 class E                 |
| Salt spray                                       | CEI60068-2-58 severity 48h       |
| Degree of protection (output shaft not included) | CEI60529 IP 53                   |
| <b>EMC</b>                                       |                                  |
| Electrostatic Discharge                          | CEI61000-4-2 level 3             |
| Radio frequency                                  | CEI61000-4-3 level 3             |
| Electrical fast transient / burst test           | CEI61000-4-4 level 3             |
| Surge test                                       | CEI61000-4-5 level 1             |
| Conducted disturbance                            | CEI61000-4-6 level 3             |
| Radiated emission                                | EN55022 class B                  |
| <b>Approvals</b>                                 |                                  |
| ROHS                                             | 2011/65/UE ✓                     |
| EC                                               | 2014/30/UE ✓                     |

|                                                                                                          |
|----------------------------------------------------------------------------------------------------------|
| <b>Notes</b>                                                                                             |
| Values without tolerance are average production values.                                                  |
| Motor not protected in case of reversed power voltage                                                    |
| (1) Cold motor, 20 ° C ambient temperature, full speed                                                   |
| (2) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature    |
| (4) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.                     |
| (6) Value without gearbox. With gearbox, the value increases and varies depending on grease temperature. |

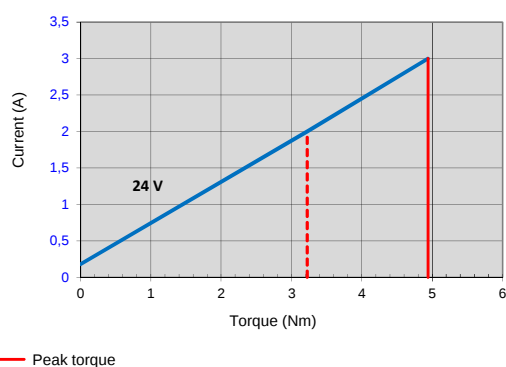
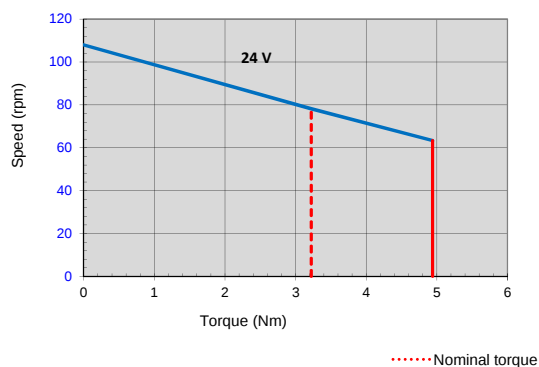
Specifications subject to change without notice. Updated 21/11/2016

## Drive electrical datas

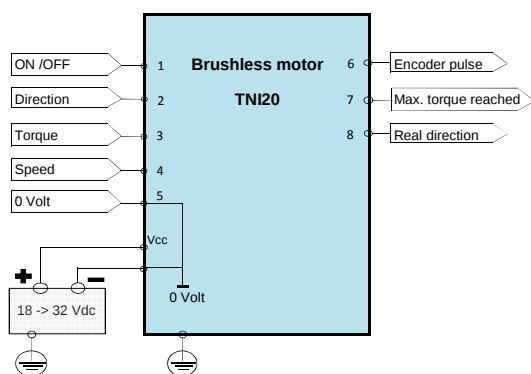
| Absolute maximum ratings           |     |          |         |      |
|------------------------------------|-----|----------|---------|------|
| Parameters                         |     |          |         |      |
| Max. voltage supply "Vcc"          | Vdc |          | 36      |      |
| Max. current "Icc max"             | A   |          | 6       |      |
| Max. voltage on inputs "Vin max"   | Vdc |          | 36      |      |
| Max. voltage on outputs "Vout max" | Vdc |          | 36      |      |
| Max. output current "Iout max"     | mA  |          | 50      |      |
| Running datas                      |     |          |         |      |
| Parameters                         |     |          |         |      |
| Voltage supply "Vcc"               | Vdc | Min      | Typical | Max  |
|                                    |     | 18       | 24      | 32   |
| Current "Icc"                      | A   | -        | 2       | 3    |
| Standby power "Wo"                 | W   | -        | 2       | -    |
| Speed setting                      | rpm | 0 / 4,47 | -       | 115  |
| Torque setting                     | Nm  | 1,72     | -       | 4,94 |

| Input datas                                                                        |     |           |         |     |
|------------------------------------------------------------------------------------|-----|-----------|---------|-----|
| Parameters                                                                         |     |           |         |     |
| Impedance - Input 1, 2 (On/Off - Direction)                                        | kΩ  | Min       | Typical | Max |
|                                                                                    |     | -         | 57      | -   |
| Impedance - Input 3 (torque)                                                       | kΩ  | -         | 16,4    | -   |
| Impedance - Input 4 (speed)                                                        | kΩ  | -         | 440     | -   |
| Low level - Input 1, 2                                                             | Vdc | 0         | -       | 2   |
| High level - Input 1, 2                                                            | Vdc | 4         | -       | 50  |
| Voltage level - Input 3, 4                                                         | Vdc | 0         | 0/10    | 36  |
|                                                                                    | Vdc | -         | -       | -   |
|                                                                                    | Hz  | -         | -       | -   |
| Output datas                                                                       |     |           |         |     |
| Parameters                                                                         |     |           |         |     |
| Low level Outputs                                                                  | Vdc | Min       | Typical | Max |
|                                                                                    |     | 0         | -       | 0,2 |
| with "pull down resistor" = 4,7KΩ and Vcc = 24 V                                   |     |           |         |     |
| High level Outputs                                                                 | Vdc | Vcc - 0,5 | -       | Vcc |
| with "pull down resistor" = 4,7KΩ and Vcc = 24 V                                   |     |           |         |     |
| = voltage supply added from eventual rejective voltage                             |     |           |         |     |
| Notes                                                                              |     |           |         |     |
| Outputs are destroyed if they are connected to zero ground or to a capacitive load |     |           |         |     |

## Speed-torque and current-torque curves



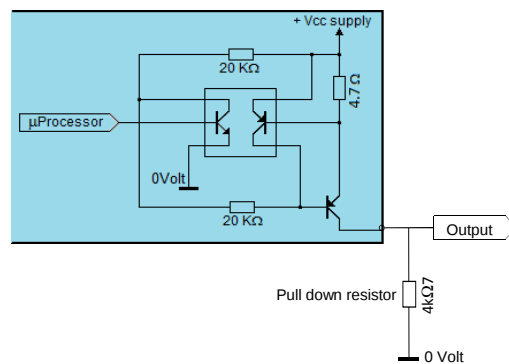
## Wiring



## Output equivalent circuit

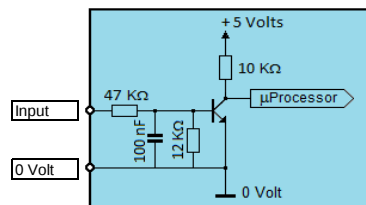
### Outputs

Add a pull down resistor

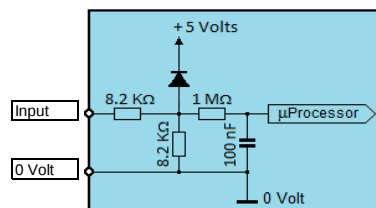


## Input equivalent circuits

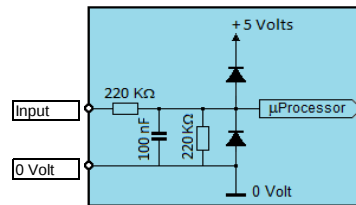
### Inputs 1; 2: ON/OFF and Direction



### Input 3: Torque



### Input 4: Speed (if 0/10 V drive)



### Input 4: Speed (if PWM drive)

