

1 4 x M5 threaded holes on 40mm diameter, 4,5 mm thread depth
2 Input - Output cable with Molex connector

3 Power supply cable

General characteristics

| Power supply | | |
|-------------------------------|-----|----------|
| Direct current voltage supply | | ✓ |
| Nominal voltage range | Vdc | 12 -> 32 |
| Max. current | A | 14 |

| Motor characteristics (1) | | 12 Vdc | 24 Vdc | 32 Vdc | |
|---------------------------------|------------------|-------------------|--------|--------|--------|
| | | At no load | | | |
| Max. output speed | rpm | 2 100 | 4 000 | 3 950 | |
| Current at the max output speed | A | 0,35 | 0,39 | 0,34 | |
| Standby current | A | 0,08 | 0,085 | 0,09 | +/-10% |
| At nominal | | | | | |
| Speed | rpm | 1 250 | 3 350 | 3 900 | +/-10% |
| Torque (2) | mNm | 340 | 285 | 250 | |
| Output power | W | 45 | 100 | 102 | +/-10% |
| Current | A | 6,7 | 5,4 | 4 | |
| Efficiency | % | 55 | 78 | 79 | |
| At max. output power | | | | | |
| Speed | rpm | 1 040 | 2 160 | 3 100 | |
| Torque | mNm | 400 | 600 | 650 | |
| Output power | W | 44 | 136 | 211 | +/-10% |
| Current | A | 7,2 | 11 | 12 | |
| Efficiency | % | 50 | 51 | 55 | |
| At peak torque | | | | | |
| Speed | rpm | 220 | 1 820 | 2 850 | |
| Torque | mNm | 700 | 700 | 700 | |
| Output power | W | 16 | 133 | 209 | |
| Current | A | 13 | 13 | 13 | +/-10% |
| Others | | | | | |
| Life (3) | h | | 20 000 | | |
| Rotor inertia | gcm ² | | 115 | | |
| Thermal Resistance | °W | | 2,7 | | |
| Thermal time constant | mn | | 30 | | |
| Rotor pole number | | | 4 | | |
| Cogging torque | mNm | | 14 | | |
| Weight | kg | | 1,34 | | |
| Noise level | dBA | | 40 | | |

Connecting

| Input - Output cable | 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 |

| Power supply cable | |
|---|-------|
| Cable UL style 2517 105°C 300V - 2 wires AWG16 - 500 mm | |
| + 12Vdc -> + 32 Vdc | Brown |
| 0V | Blue |

| Drive | |
|--|--------------------|
| Type | TNI21 |
| Built-in drive | ✓ |
| Internal encoder | 12 pulses per turn |
| Control | |
| Speed | 0/10 V |
| Torque | 0/10 V |
| 4 quadrants - low braking | ✓ |
| 4 quadrants with regenerative energy | |
| Type "Trapezoidal" | ✓ |
| Security | |
| Short-circuit of outputs | ✓ |
| Input inverted | ✓ |
| Low voltage | Vdc < 10 |
| 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 | | 40 |
| Max. axial force(4) | N | | 20 |
| Temperature range | CEI60068-2-1/2 | °C | -30 -> +70 |
| Storage temperature | | °C | -40 -> +80 |
| Dielectric | 1min 2mA 50Hz CEI60335 | Vdc | |
| Motor insulation | CEI60085 | class | E |
| Salt spray | CEI60068-2-58 | severity | 48h |
| Degree of protection (output shaft not included) | CEI60529 | IP | 65M |
| EMC | | | |
| Electrostatic Discharge | CEI61000-4-2 | level | 3 |
| Electrical fast transient / burst test | CEI61000-4-4 | level | 3 |
| Surge test | CEI61000-4-5 | level | 1 |
| Radiated emission | EN55022 | class | B |
| Approvals | | | |
| ROHS | 2002/95/CE | ✓ | |
| EC | | ✓ | |

Notes

Values without tolerances are average production values.
Added informations are in "TNI21 manual and security" on www.crouzet.com

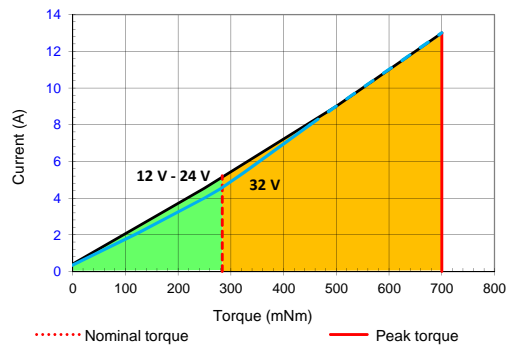
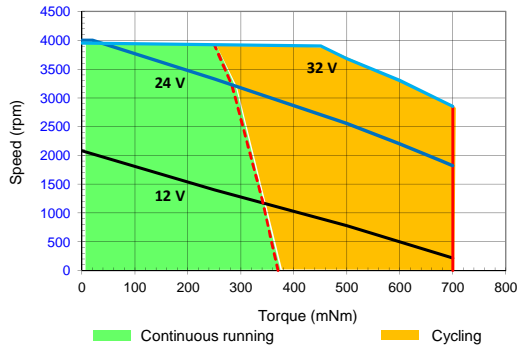
- Motor not protected in case of reversed power voltage
- (1) Cold motor, 20 ° C ambient temperature, full speed
- (2) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature
- (3) Continuously rated torque, zero radial and axial loads
- (4) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.

Drive electrical datas

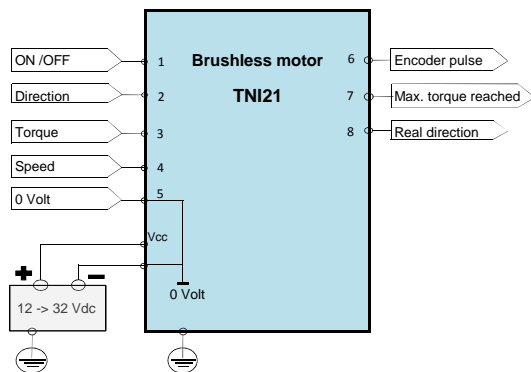
| Max. product characteristics | | | | |
|------------------------------------|-----|-----|----------|------|
| Parameters | | | | |
| Max. voltage supply "Vcc" | Vdc | | 39 | |
| Max. current "Icc max" | A | | 15 | |
| Max. voltage on inputs "Vin max" | Vdc | | 39 | |
| Max. voltage on outputs "Vout max" | Vdc | | 39 | |
| Max. output current "Iout max" | mA | | 50 | |
| Running datas | | | | |
| Parameters | | Min | Typical | Max |
| Voltage supply "Vcc" | Vdc | 10 | 12/24/32 | 36 |
| Current "Icc" | A | - | 6 | 15 |
| Standby power "Wo" | W | - | 2 | - |
| Vitesse réglable de | rpm | 120 | - | 4000 |
| Couple moteur réglable de | mNm | 30 | - | 700 |
| Couple de maintien réglable de | mNm | 30 | - | 230 |

| Input datas | | | | |
|--|-----|-----------|---------|------|
| Parameters | | Min | Typical | Max |
| Impedance - Input 1, 2 | kΩ | - | 57 | - |
| Impedance - Input 3, 4 | kΩ | - | 69 | - |
| Low level - Input 1, 2 | Vdc | 0 | - | 2 |
| High level - Input 1, 2 | Vdc | 4 | - | 39 |
| Low level - Input 3, 4 | Vdc | 0 | - | 2 |
| High level - Input 3, 4 | Vdc | 7,5 | - | 39 |
| Fréquence des PWM | Hz | 100 | - | 2000 |
| Output datas | | | | |
| Parameters | | Min | Typical | Max |
| Low level Outputs | Vdc | 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 | | | | |

Speed-torque and current-torque curves



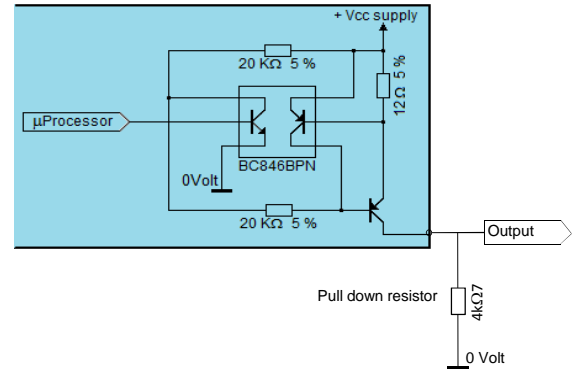
Wiring



Output equivalent circuit

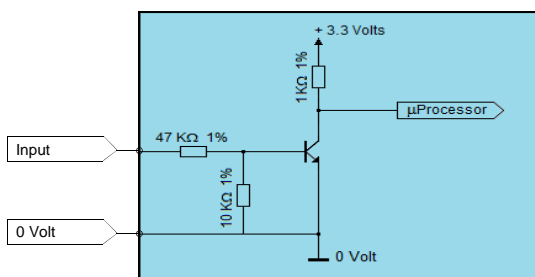
Outputs

PNP open collector output with internal current limitation (50mA)
Add a pull down resistor



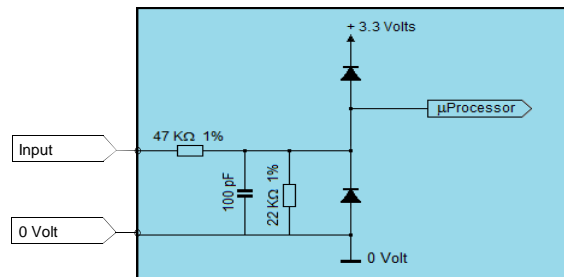
Inputs: ON/OFF and Direction

Inputs: ON/OFF and Direction



Inputs: Torque and Speed

Inputs: Torque and Speed



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