

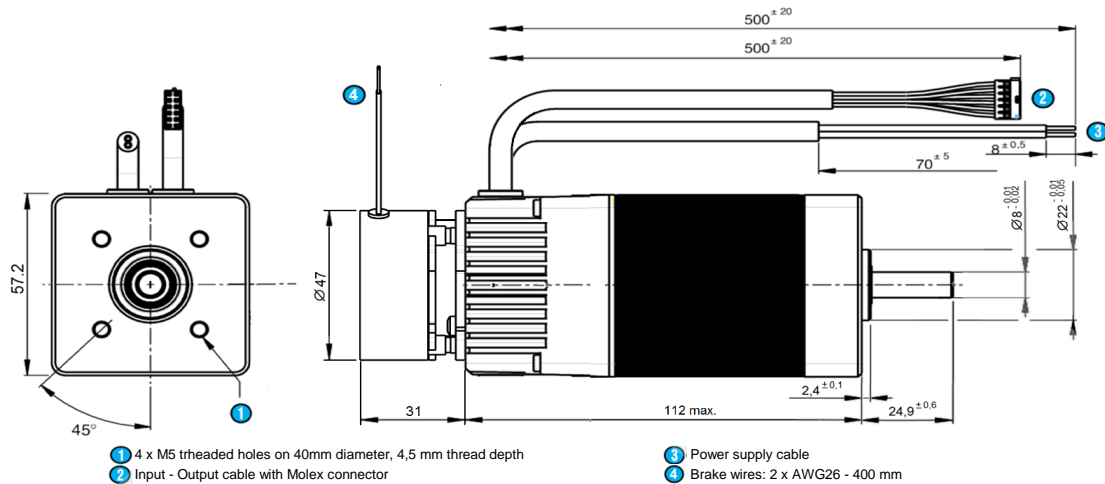
# DCmind Brushless motor

## Data sheet

80 280 008

Series

80 280 TNI21



### General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 32
Max. current	A	17

Motor characteristics (1)					
		12 Vdc	24 Vdc	32 Vdc	
<b>At no load</b>					
Max. output speed	rpm	2 000	3 950	3 950	
Current at the max output speed	A	0,50	0,70	0,60	
Standby current	A	0,08	0,09	0,09	+10%
<b>At nominal</b>					
Speed	rpm	1 400	3 250	3 900	+10%
Torque (2)	mNm	490	390	355	
Output power	W	72	133	145	+10%
Current	A	8,5	6,9	5,5	
Efficiency	%	70	80	82	
<b>At max. output power</b>					
Speed	rpm	800	1 900	2 400	
Torque	mNm	1 000	1 000	1 000	
Output power	W	84	199	251	+10%
Current	A	15,3	14,6	12,5	
Efficiency	%	46	57	63	
<b>At peak torque</b>					
Speed	rpm	800	1 900	2 400	
Torque	mNm	1 000	1 000	1 000	
Output power	W	84	199	251	
Current	A	15	15	13	+10%
<b>Others</b>					
Life (3)	h		20 000		
Rotor inertia	gcm <sup>2</sup>		120		
Thermal Resistance	°/W		2		
Thermal time constant	mn		30		
Rotor pole number			8		
Cogging torque	mNm		33		
Weight	kg		1,44		
Noise level	dBA		50		

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

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

Drive			
<b>Type</b>	TNI21		
Built-in drive	✓		
Internal encoder	24 pulses per turn		
<b>Control</b>			
Speed	0/10 V		
Torque	0/10 V		
4 quadrants - low braking	✓		
4 quadrants with regenerative energy			
Type" Trapezoidal"	✓		
<b>Security</b>			
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

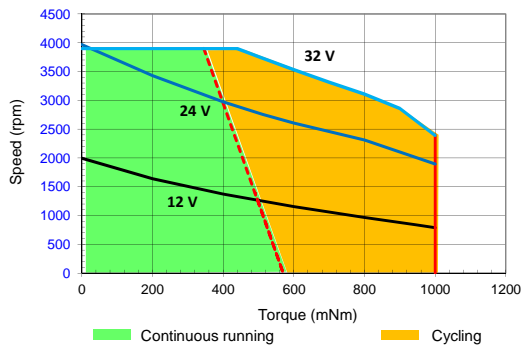
Generic parameters			
Output shaft with ball bearings	✓		
Max. Radial force (12mm from front face)	N		40
Max. axial force(4)	N		20
Temperature range	CEI60068-2-1/2	°C	-30 -> +70
Storage temperature		°C	-40 -> +80
Dielectric	1min 2mA 50Hz	CEI60335	Vdc
Motor insulation	CEI60085	class	B
Salt spray	CEI60068-2-58	severity	48h
Degree of protection (output shaft not included)	CEI60529	IP	65M
<b>EMC</b>			
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
<b>Approvals</b>			
ROHS	2002/95/CE		✓
EC			✓

Brake			
<b>Type</b>	Static		
Power OFF brake	✓		
Voltage supply	Vdc	24 +- 10%	
Nominal holding torque	Nm	0,5	
Input power	W	6,6	

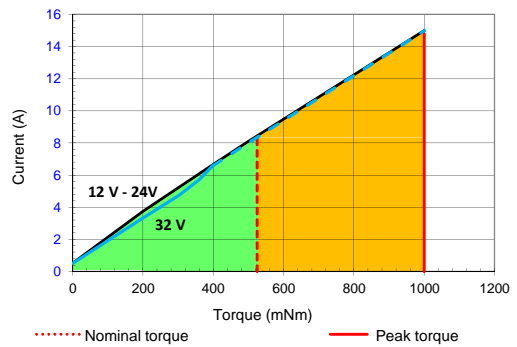
Notes			
Values without tolerances are average production values.			
Added informations are in "TNI21 manual and security" on www.crouzet.com			
Motor not protected in case of reversed power voltage			
(1) Cold motor, 20 ° C ambient temperature, full speed			
(2) Max torque for continuous operation at 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

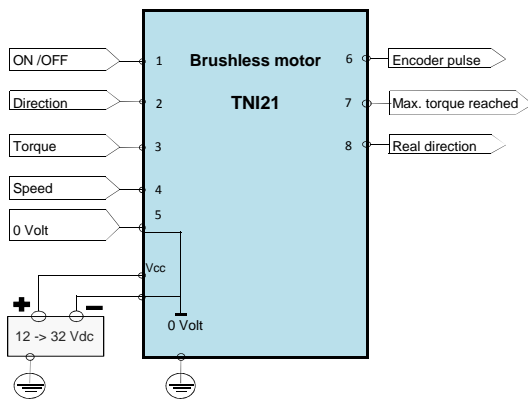
Max. product characteristics			
<b>Parameters</b>			
Max. voltage supply "Vcc"	Vdc		39
Max. current "Icc max"	A		20
Max. voltage on inputs "Vin max"	Vdc		39
Max. voltage on outputs "Vout max"	Vdc		39
Max. output current "Iout max"	mA		50
Running datas			
<b>Parameters</b>			
Voltage supply "Vcc"	Vdc	Min	Typical
		10	12/24/32
Current "Icc"	A	-	10
			17
Standby power "Wo"	W	-	2
			-
Vitesse réglable de	rpm	120	-
			4 000
Couple moteur réglable de	mNm	40	-
			1 000
Couple de maintien réglable de	mNm	40	-
			310



Input datas			
<b>Parameters</b>			
Impedance - Input 1, 2	kΩ	Min	Typical
		-	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			
<b>Parameters</b>			
Low level Outputs	Vdc	Min	Typical
		0	-
with "pull down resistor" = 4,7KΩ and Vcc = 24 V			0,2
High level Outputs	Vdc	Vcc - 0,5	-
			Vcc
with "pull down resistor" = 4,7KΩ and Vcc = 24 V			
= voltage supply added from eventual rejeptive voltage			



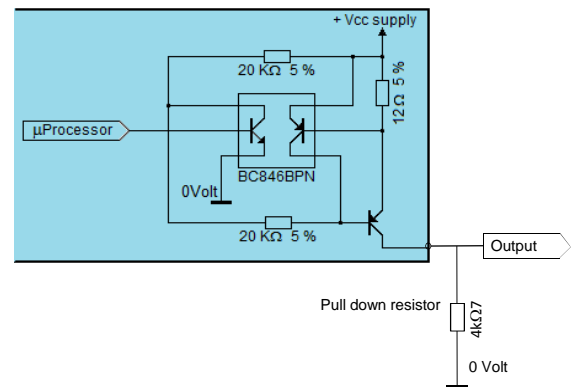
## Wiring



## Output equivalent circuit

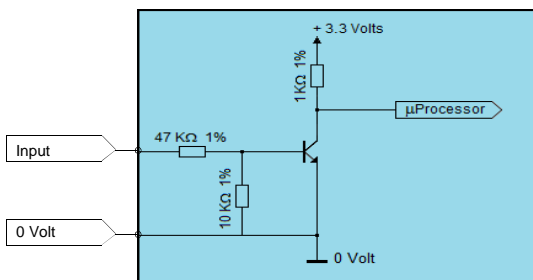
### Outputs

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



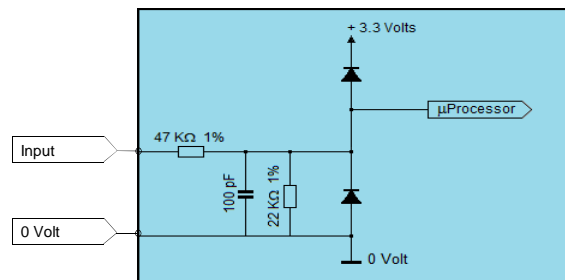
## Inputs: ON/OFF and Direction

### Inputs: ON/OFF and Direction



## Inputs: Torque and Speed

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