

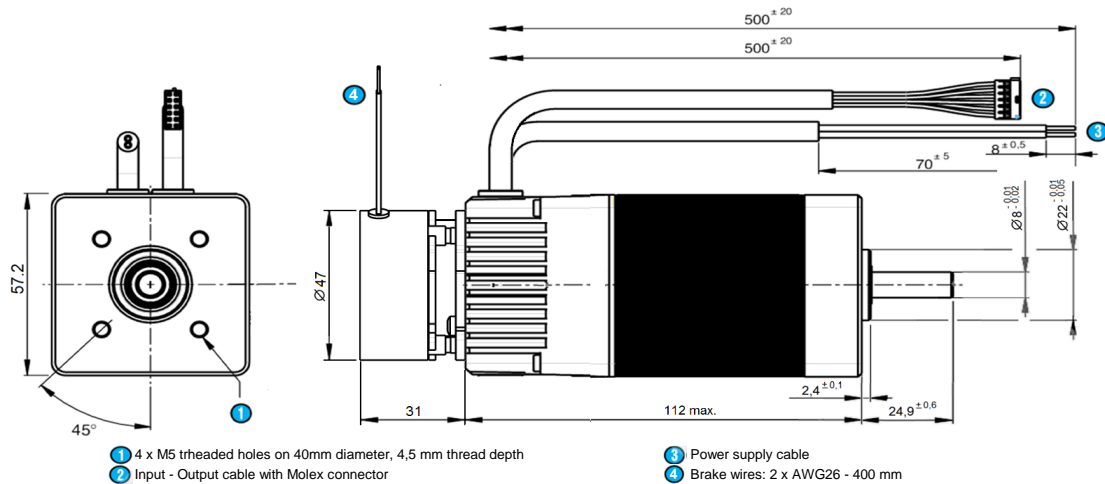
DCmind Brushless motor

Data sheet

80 180 051

Series

80 180 TNI21



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	0,09	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	4,0	
Efficiency	%	55	78	79	

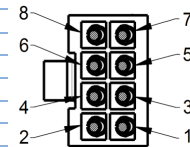
At max. output power					
Speed	rpm	1 040	2 160	3 100	
Torque	mNm	400	600	650	
Output power	W	44	136	211	+10%
Current	A	7,2	11,0	12,0	
Efficiency	%	50	51	55	

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	3
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		✓	

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

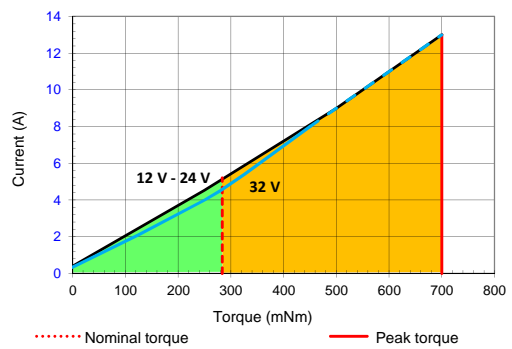
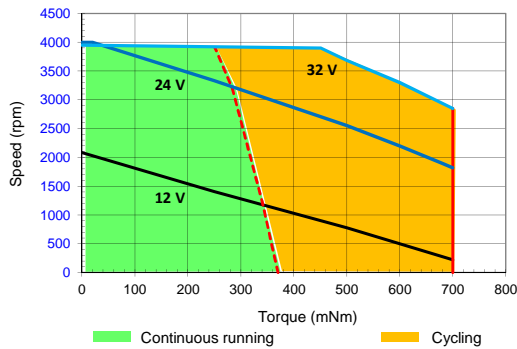
Notes	
Values without tolerances are average production values.	
Added informations are in "TNI21 manual and security" on www.crouzet.com	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 ° C ambient temperature, full speed	
(2) Max torque for continuous operation at 20 ° C,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

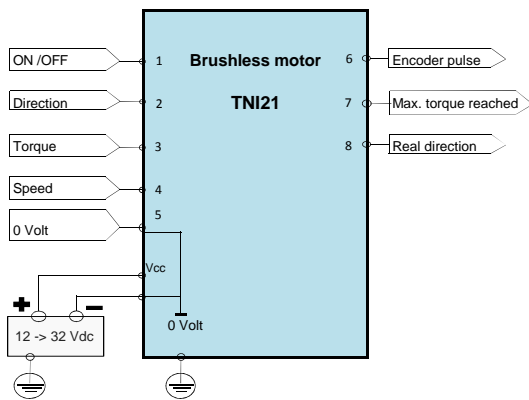
Max. product characteristics			
Parameters			
Max. voltage supply "Vcc"	Vdc		39
Max. current "Icc max"	A		15
Max. voltage on inputs "Vin max"	Vdc		39
Max. voltage on outputs "Vout max"	Vdc		39
Max. output current "Iout max"	mA		50
Running datas			
Parameters			
Voltage supply "Vcc"	Vdc	Min	Typical
	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

Input datas			
Parameters			
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			
Parameters			
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		-	-

Speed-torque and current-torque curves



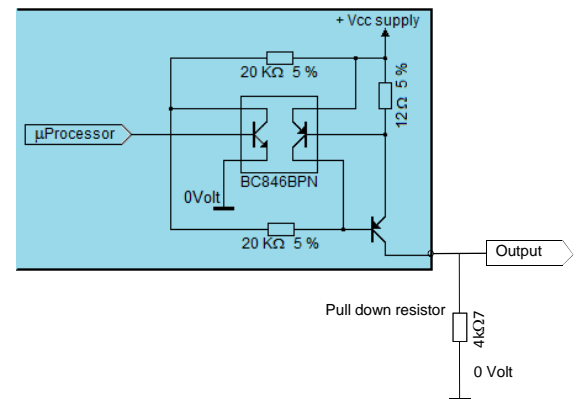
Wiring



Output equivalent circuit

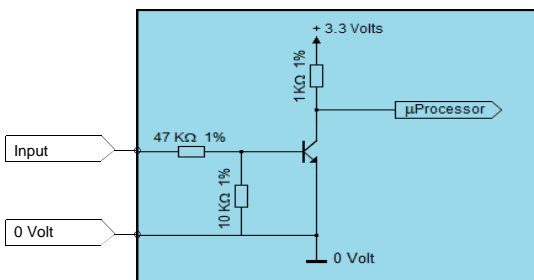
Outputs

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

