

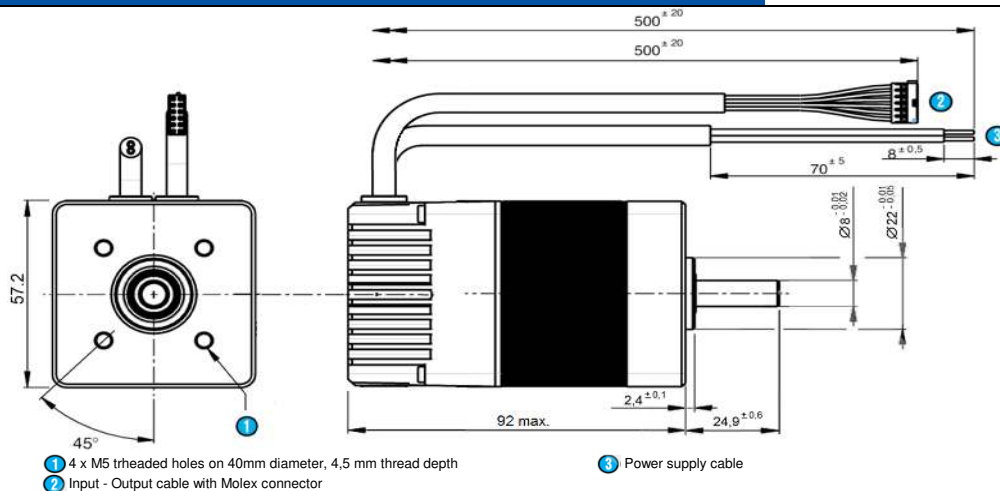
DCmind Brushless motor

Data sheet

80 140 051

Series

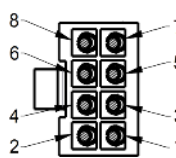
80 140 TNI21



General characteristics

Power supply		
Direct current voltage supply		$\frac{V}{A}$
Nominal voltage range	Vdc	12 -> 32
Max. current	A	10

Motor characteristics (1)					
		12 Vdc	24 Vdc	32 Vdc	
At no load					
Max. output speed	rpm	2 900	4 000	4 000	
Current at the max output speed	A	0,34	0,29	0,27	
Standby current	A	0,08	0,085	0,09	+/-10%
At nominal					
Speed	rpm	1 900	4 000	4 000	+/-10%
Torque (2)	mNm	193	184	178	
Output power	W	38	77	75	+/-10%
Current	A	5,2	4,4	3,2	
Efficiency	%	62	74	73	
At max. output power					
Speed	rpm	1 600	3 050	4 000	
Torque	mNm	250	358	358	
Output power	W	42	114	150	+/-10%
Current	A	6,5	10	10	
Efficiency	%	53	48	47	
At peak torque					
Speed	rpm	930	3 050	4 000	
Torque	mNm	358	358	358	
Output power	W	35	114	150	
Current	A	10	10	10	+/-10%
Others					
Life (3)	h		20 000		
Rotor inertia	gcm ²		75		
Thermal Resistance	°/W		3		
Thermal time constant	mn		20		
Rotor pole number			4		
Cogging torque	mNm		11		
Weight	kg		0,95		
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	$\frac{V}{A}$
Internal encoder	12 pulses per turn
Control	
Speed	0/10 V
Torque	0/10 V
4 quadrants - low braking	$\frac{V}{A}$
4 quadrants with regenerative energy	
Type" Trapezoidal"	$\frac{V}{A}$
Security	
Short-circuit of outputs	$\frac{V}{A}$
Input inverted	$\frac{V}{A}$
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		$\frac{V}{A}$	
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	CEI60529	IP	65M
(output shaft not included)			
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	$\frac{V}{A}$	
EC		$\frac{V}{A}$	

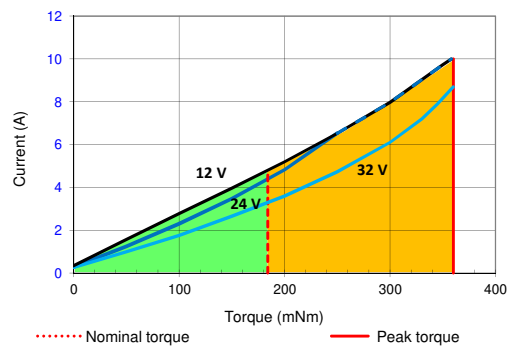
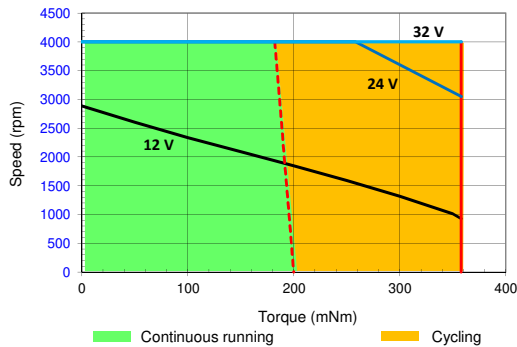
Notes	
Values without tolerances are average production values.	
Added informations are in "TNI21 manual and security" on www.crouzet.com	
Motor not protected in case of reversed power voltage	
(1)	Cold motor, 20 ° C ambient temperature, full speed
(2)	Max torque for continuous operation at 20 ° C, decrease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

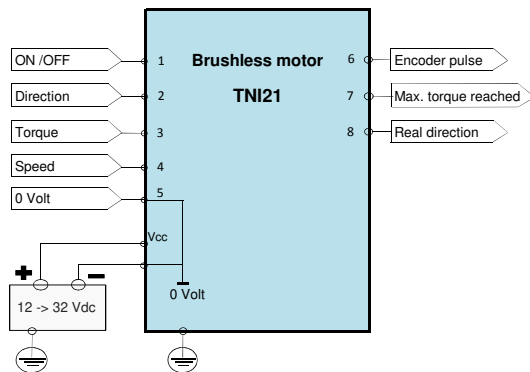
Max. product characteristics				
Parameters		Min	Typical	Max
Max. voltage supply "Vcc"	Vdc			39
Max. current "Icc max"	A			12
Max. voltage on inputs "Vin max"	Vdc			39
Max. voltage on outputs "Vout max"	Vdc			39
Max. output current "Iout max"	mA			50
Running datas				
Parameters		Min	Typical	Max
Voltage supply "Vcc"	Vdc	10	12/24/32	36
Current "Icc"	A	-	6	12
Standby power "Wo"	W	-	2	-
Speed setting	rpm	120	-	4000
Torque setting	mNm	35	-	360
Holding torque setting	mNm	35	-	150

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
PWM frequency	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 rejeptive voltage				

Speed-torque and current-torque curves



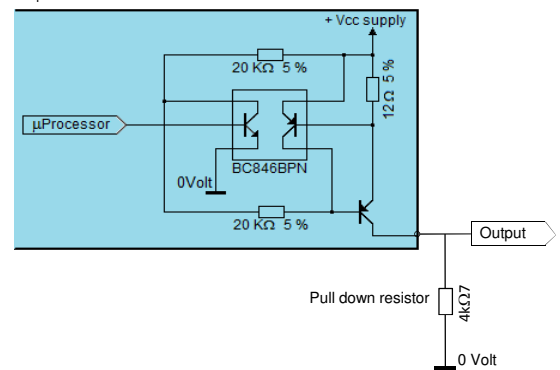
Wiring



Output equivalent circuit

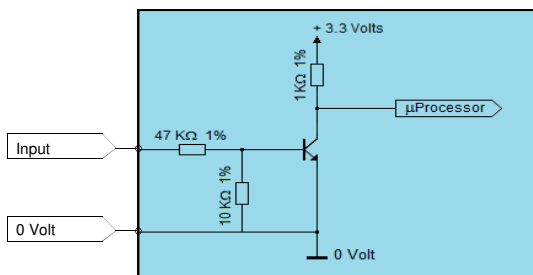
Outputs

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

