

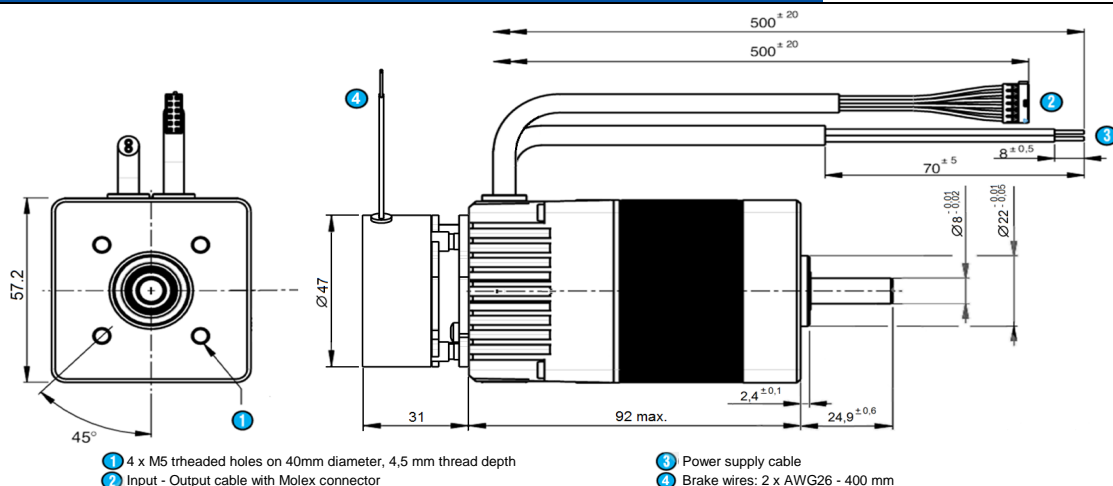
# DCmind Brushless motor

## Data sheet

80 140 052

Series

80 140 TNI21

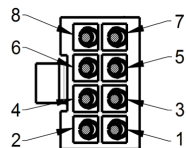


### General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 32
Max. current	A	10

Motor characteristics (1)		12 Vdc	24 Vdc	32 Vdc	
<b>At no load</b>					
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	0,09	0,09	+-10%
<b>At nominal</b>					
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	
<b>At max. output power</b>					
Speed	rpm	1 600	3 050	4 000	
Torque	mNm	250	358	358	
Output power	W	42	114	150	+-10%
Current	A	6,5	10,0	10,0	
Efficiency	%	53	48	47	
<b>At peak torque</b>					
Speed	rpm	930	3 050	4 000	
Torque	mNm	358	358	358	
Output power	W	35	114	150	
Current	A	10	10	10	+-10%
<b>Others</b>					
Life (3)	h		20 000		
Rotor inertia	gcm <sup>2</sup>		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	
<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 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	12 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 E
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

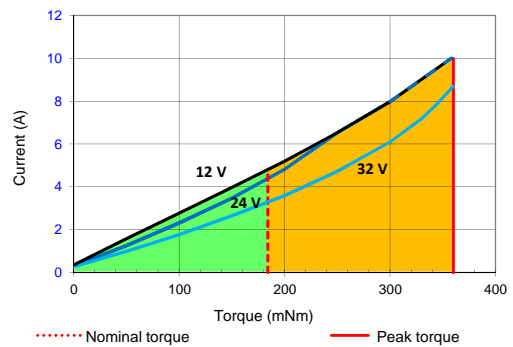
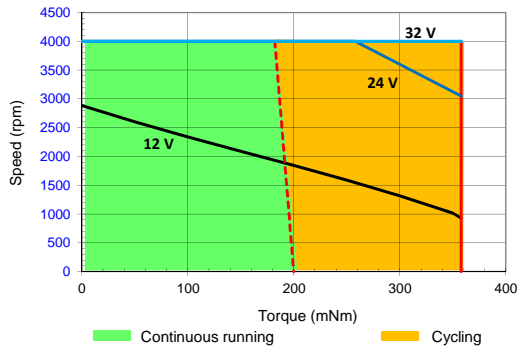
Notes	
Values without tolerances are average production values.	
Added informations are in "TNI21 manual and security" on www.crouzet.com	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 °C ambient temperature, full speed	
(2) Max torque for continuous operation at 20 °C, decrease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

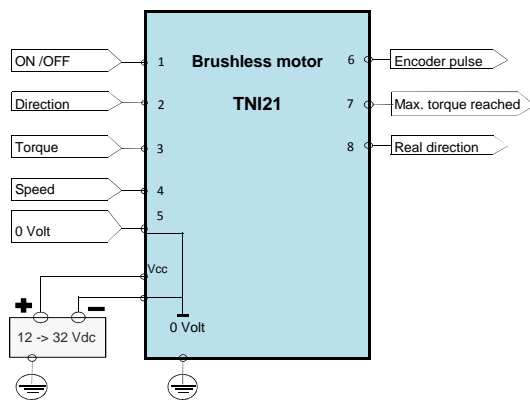
Max. product characteristics				
Parameters				
Max. voltage supply "Vcc"	Vdc		39	
Max. current "Icc max"	A		12	
Max. voltage on inputs "Vin max"	Vdc		39	
Max. voltage on outputs "Vout max"	Vdc		39	
Max. output current "Iout max"	mA		50	
Running datas				
Parameters				
Voltage supply "Vcc"	Vdc	Min	Typical	Max
		10	12/24/32	36
Current "Icc"	A	-	6	12
Standby power "Wo"	W	-	2	-
Speed setting	rpm	120	-	4 000
Torque setting	mNm	35	-	360
Holding torque setting	mNm	35	-	150

Input datas				
Parameters				
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				
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				

## Speed-torque and current-torque curves



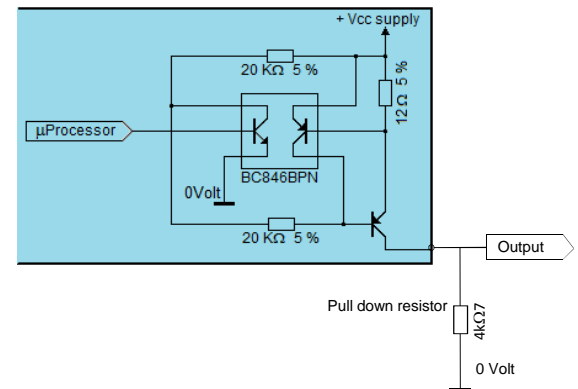
## Wiring



## Output equivalent circuit

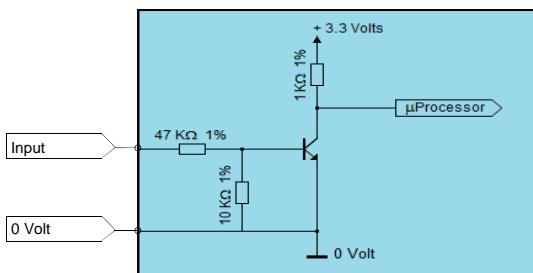
### Outputs

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

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