

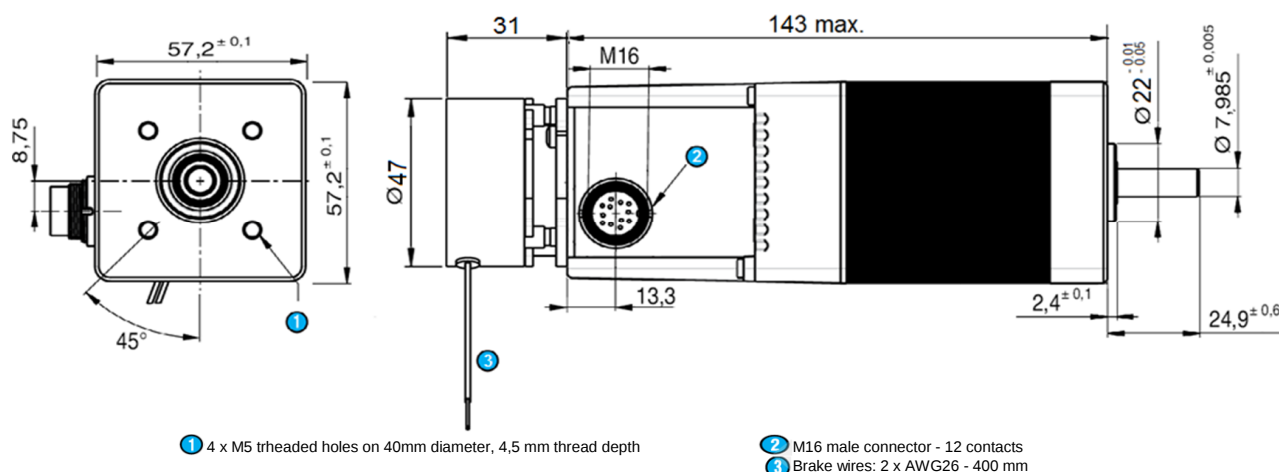
DCmind Brushless motor

Data sheet

80 180 067

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)

		x 6 x 28	M6 x 16	5mm dia	
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	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		3		
Thermal time constant	mn		30		
Rotor pole number			4		
Cogging torque	mNm		14		
Weight	kg		1,34		
Noise level	dBA		40		

Connecting

M16 male connector - 12 contacts		Lumberg 0315 12
+ 12Vdc -> + 32 Vdc	E + F	
0V	G + M	
0V	H	
Input: ON/OFF	C	
Input: Direction	B	
Input: Speed	J	
Input: Torque limit	D	
Output: Pulse	A	
Output: Torque limit reached	K	
Output: Direction	L	

Accessory

2 meters shielded cable with M16 female connector - 12 pins

Part number	15 275 008	Cable with 12 wires AWG24	
Note: G and M wires have to be connected together.			
E and F wires have to be connected together			
A = white	B = brown	C = green	D = yellow
E = grey	F = pink	G = blue	H = red
J = black	K = purple	L = grey/pink	M = red/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

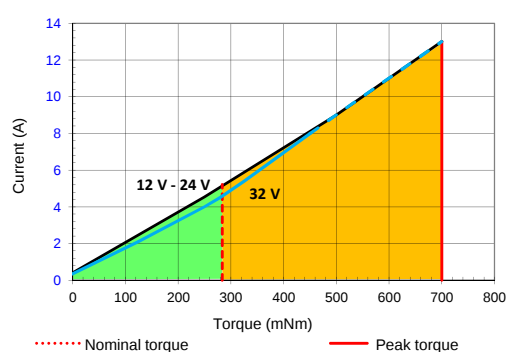
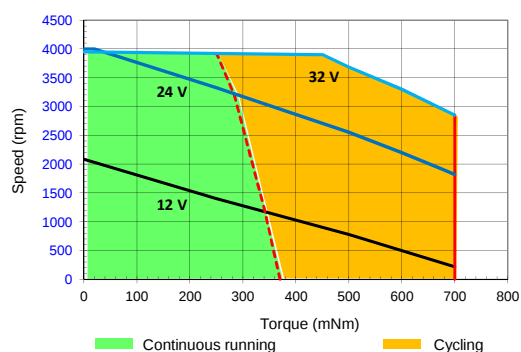
Values without tolerances are average production values.
Added informations are in "TNI21 manual and security" on www.crouzet.com
Motor not protected in case of reversed power voltage
(1) Cold motor, 20 ° C ambient temperature, full speed
(2) Max torque for continuous operation at 20 ° C, decrease this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

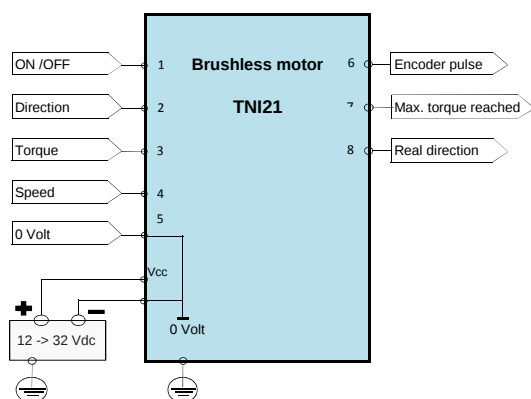
Max. product characteristics				
Parameters				
Max. voltage supply "Vcc"	Vdc		39	
Max. current "Icc max"	A		15	
Max. voltage on inputs "Vin max"	Vdc		39	
Max. voltage on outputs "Vout max"	Vdc		39	
Max. output current "Iout max"	mA		50	
Running datas				
Parameters		Min	Typical	Max
Voltage supply "Vcc"	Vdc	10	12/24/32	36
Current "Icc"	A	-	6	15
Standby power "Wo"	W	-	2	-
Vitesse réglable de	rpm	120	-	4 000
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



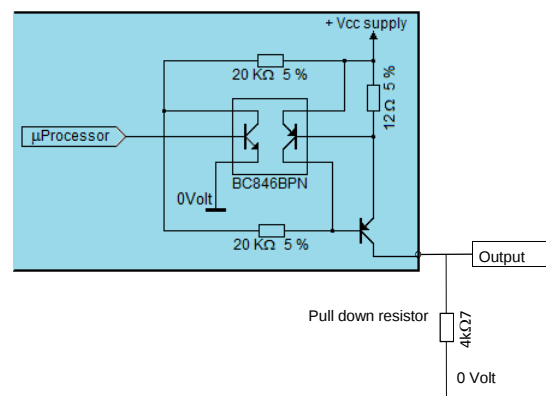
Wiring



Output equivalent circuit

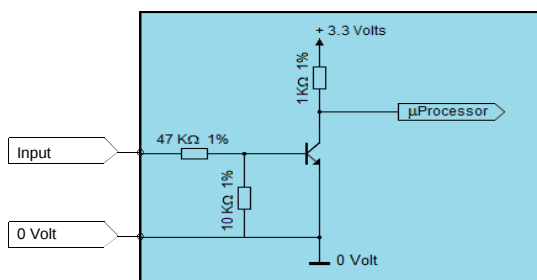
Outputs

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



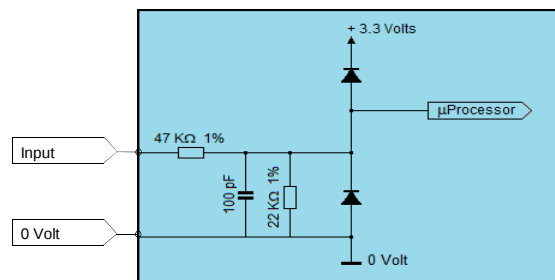
Inputs: ON/OFF and Direction

Inputs: ON/OFF and Direction



Inputs: Torque and Speed

Inputs: Torque and Speed



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