

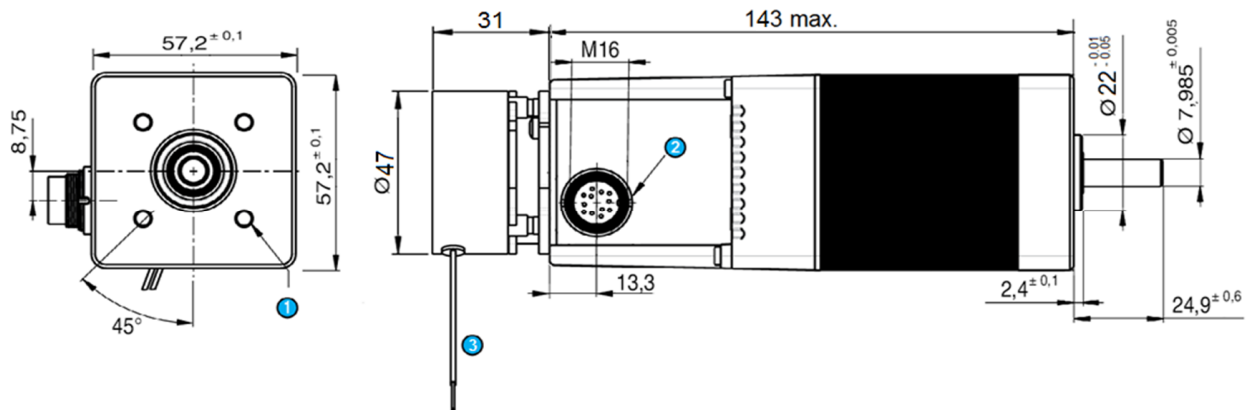
DCmind Brushless motor

Data sheet

80 180 073

Series

80 180 TNI21



① 4 x M5 threaded holes on 40mm diameter, 4,5 mm thread depth

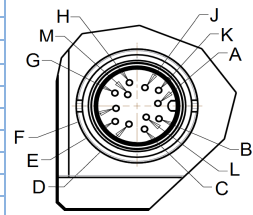
② M16 male connector - 12 contacts
③ Brake wires: 2 x AWG26 - 400 mm

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 diam	
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	
+ 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
E = grey	F = pink
J = black	K = purple
C = green	D = yellow
G = blue	H = red
L = grey/pink	M = red/blue

Drive	
Type	TNI21
Built-in drive	✓
Internal encoder	12 pulses per turn
Control	
Speed	PWM
Torque	PWM
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

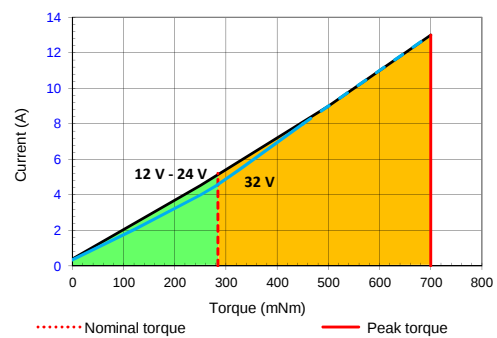
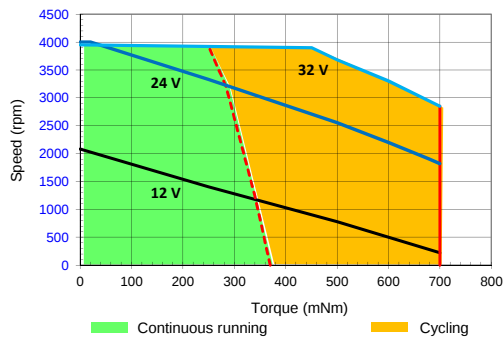
Parameters		Min	Typical	Max
Impedance - Input 1, 2	kΩ	-	57	-
Impedance - Input 3, 4	kΩ	-	69	-
Low level - Input 1, 2	Vdc	0	-	2
High level - Input 1, 2	Vdc	4	-	39
Low level - Input 3, 4	Vdc	0	-	2
High level - Input 3, 4	Vdc	7,5	-	39
Fréquence des PWM	Hz	100	-	2000

Output datas

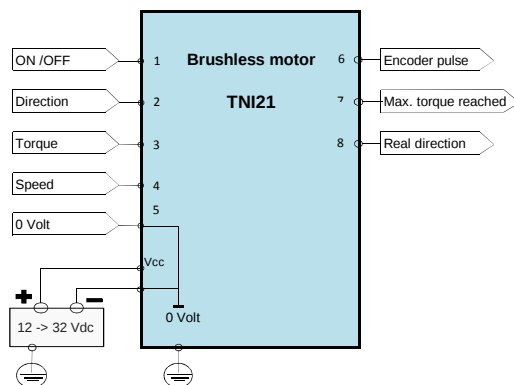
Parameters		Min	Typical	Max
Low level Outputs	Vdc	0	-	0,2
with "pull down resistor" = 4,7KΩ and Vcc = 24 V				
High level Outputs	Vdc	Vcc - 0,5	-	Vcc
with "pull down resistor" = 4,7KΩ and Vcc = 24 V				

= voltage supply added from eventual rejeptive voltage

Speed-torque and current-torque curves



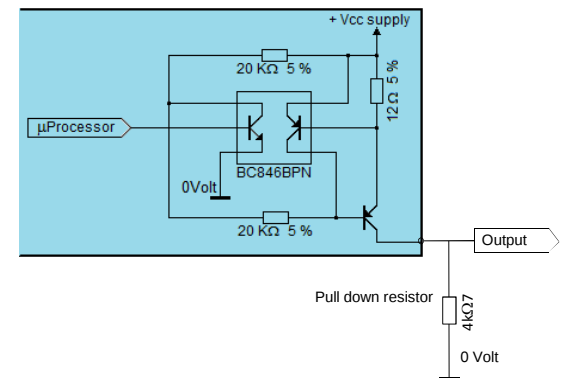
Wiring



Output equivalent circuit

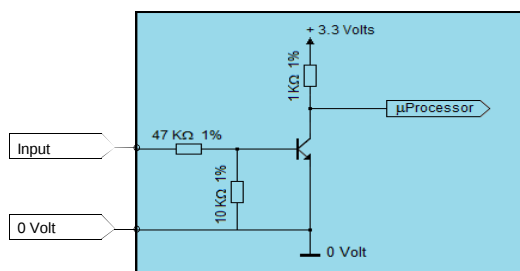
Outputs

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

