

DCmind Brushless motor

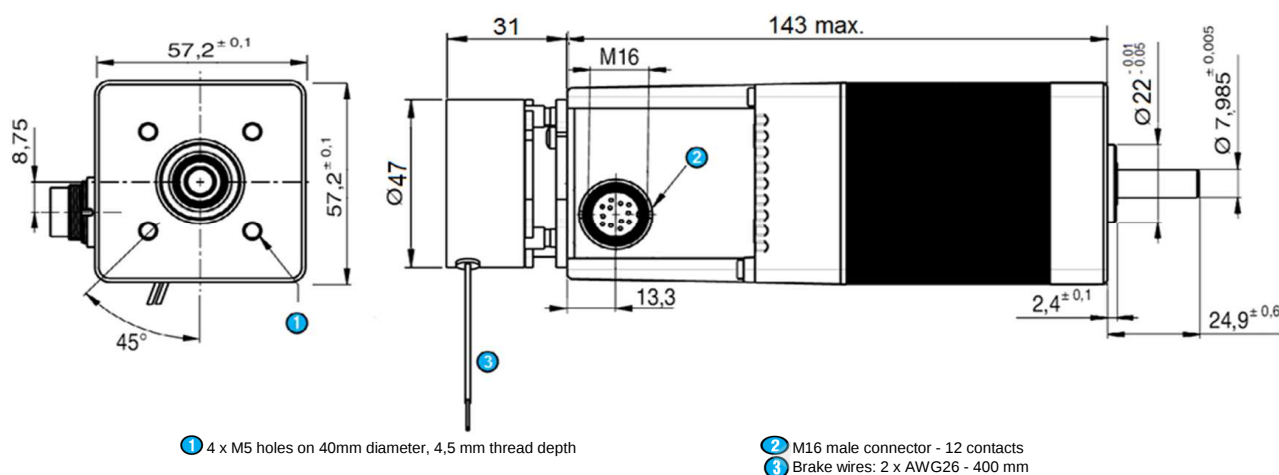
Data sheet

80 180 0

0/10V + M16 + brake

Series

80 180 TNI20



General characteristics

Power supply

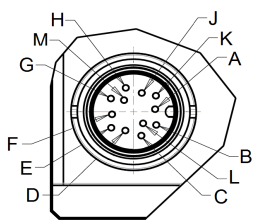
Direct current voltage supply		✓
Nominal voltage range	Vdc	18 -> 32
Max. current	A	6

Motor characteristics (1)

At no load			
Max. output speed	rpm	4 200	
Current at the max output speed (6)	A	0,39	
Standby current	A		
At nominal			
Speed	rpm	3 250	+/-10%
Torque (2)	mNm	240	
Output power	W	82	+/-10%
Current	A	4,8	
Efficiency	%	71	
At max. output power			
Speed	rpm	3 000	
Torque	mNm	300	
Output power	W	94	
Current	A	6	
Efficiency	%	65	
At peak torque			
Speed	rpm	3 000	
Torque	mNm	300	
Output power	W	94	
Current	A	6	
Others			
Life (3)	h	20 000	
Rotor inertia	gcm²	105	
Thermal Resistance	°/W		
Thermal time constant	mn	15	
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	
+ 18Vcc -> + 32 Vdc	E + F		
0V	G + M		
0V	B		
Input: ON/OFF	K		
Input: Direction	J		
Input: Speed	C		
Input: Torque limit	A		
Output: Pulse	D		
Output: Torque limit reached	H		
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	TNI20	
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		
"Trapezoidal" type	✓	
Security		
Short-circuit of outputs	✓	
Input inverted	✓	
Low voltage	Vdc	< 14
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	CEI60529	IP 54
(output shaft not included)		
EMC		
Electrostatic Discharge	CEI61000-4-2	level 3
Radio frequency	CEI61000-4-3	level 3
Electrical fast transient / burst test	CEI61000-4-4	level 3
Surge test	CEI61000-4-5	level 1
Conducted disturbance	CEI61000-4-6	level 3
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

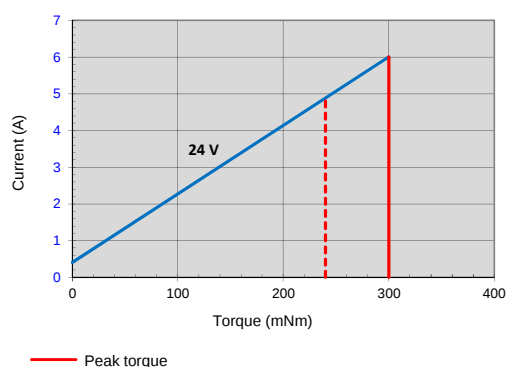
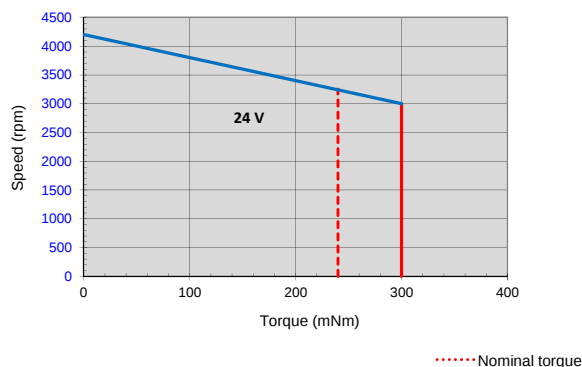
Values without tolerance are average production values.
Motor not protected in case of reversed power voltage
(1) Cold motor, 20 ° C ambient temperature, full speed
(2) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature
(3) Continuously rated torque, zero radial and axial loads
(4) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.

Drive electrical datas

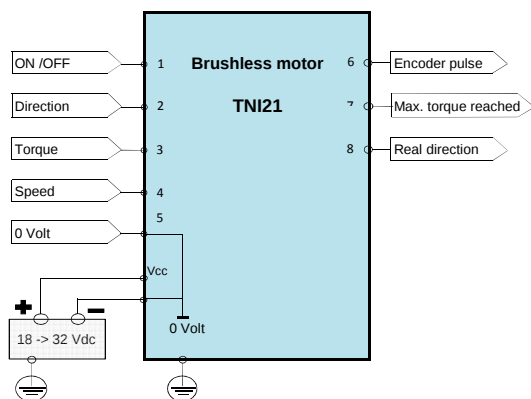
Absolute maximum ratings				
Parameters				
Max. voltage supply "Vcc"	Vdc		36	
Max. current "Icc max"	A		6	
Max. voltage on inputs "Vin max"	Vdc		36	
Max. voltage on outputs "Vout max"	Vdc		40	
Max. output current "Iout max"	mA		50	
Running datas				
Parameters				
Voltage supply "Vcc"	Vdc	Min	Typical	Max
Current "Icc"	A	-	4	6
Standby power "Wo"	W	-	2	-
Speed setting	rpm	0 / 120	-	4 200
Torque setting	mNm	100	-	300

Input datas				
Parameters				
Impedance - Input 1, 2 (On/Off - Direction)	kΩ	Min	Typical	Max
Impedance - Input 3 (torque)	kΩ	-	16,4	-
Impedance - Input 4 (speed)	kΩ	-	440	-
Low level - Input 1, 2	Vdc	0	-	2
High level - Input 1, 2	Vdc	4	-	36
Voltage level - Input 3, 4	Vdc	0	0/10V	36
Output datas				
Parameters				
Low level Outputs	Vdc	Min	Typical	Max
with "pull down resistor" = 4,7KΩ and Vcc = 24 V		0	-	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 rejective voltage				

Speed-torque and current-torque curves



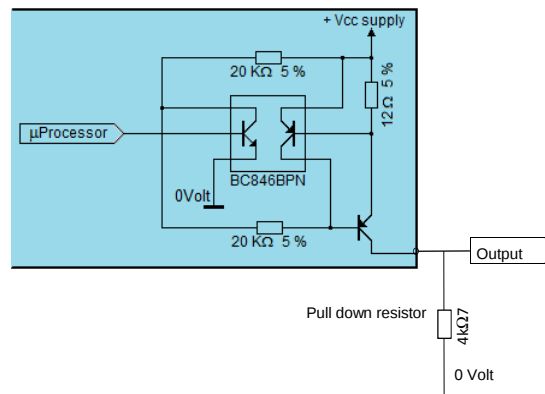
Wiring



Output equivalent circuit

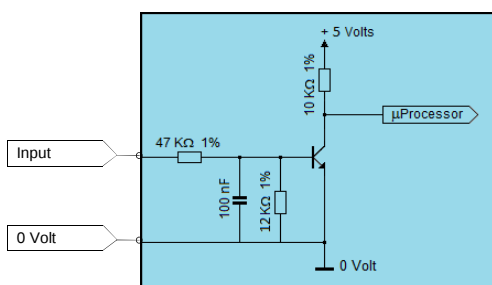
Outputs

Add a pull down resistor

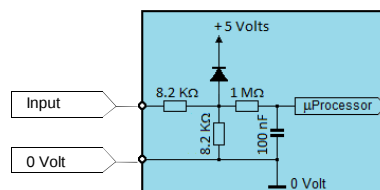


Input equivalent circuits

Inputs 1; 2: ON/OFF and Direction



Input 3: Torque



Input 4: Speed

