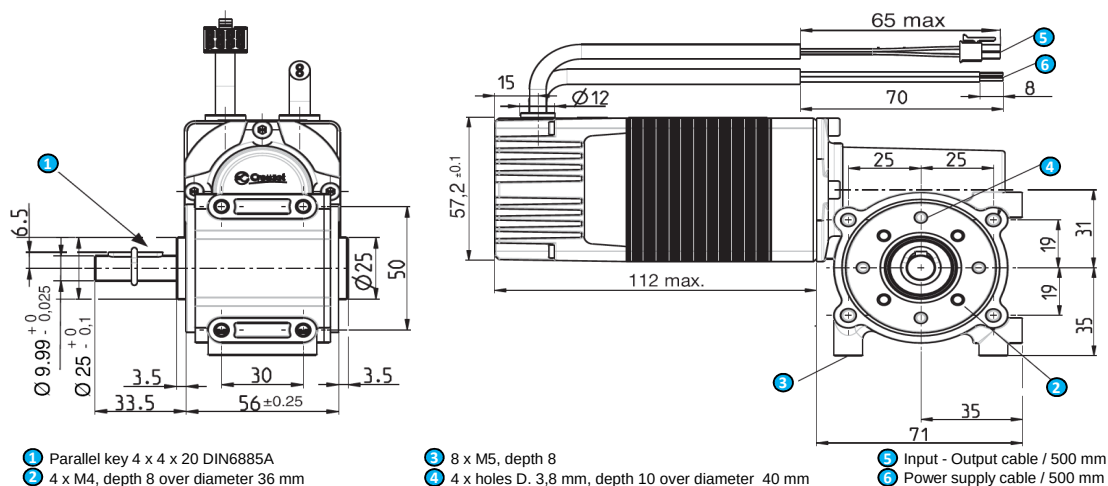


DCmind Brushless motor

Data sheet

80 281 009
PWM - ratio 30

Series
80 281 TNI21



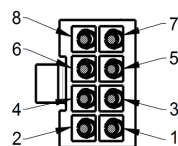
General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range (5)	Vdc	12 -> 48
Max. current	A	15

Gearmotor type		80 281 TNI21	
Motor type		80 280 013	
Gearbox type		81 041 0	
Ratio		30	
Shaft output		Left	
Max. permissible continuous torque	Nm	10	
Max. backlash	°	0,5	

Motor characteristics (1)		12 Vdc	24 Vdc	32 Vdc	
At no load					
Max. output speed	rpm	67	132	132	
Current at the max output speed (6)	A	0,5	0,7	0,6	
Standby current	A	0,08	0,09	0,09	+/-10%
At nominal					
Speed	rpm	47	108	130	+/-10%
Torque (2)	Nm	6,2	4,9	4,5	
Output power	W	30	56	61	+/-10%
Current	A	8,5	6,9	5,5	
Efficiency	%	29	34	35	
At max. output power					
Speed	rpm	33	77	104	
Torque	Nm	10	10	10	
Output power	W	35	81	109	
Current	A	12,3	12,3	12,3	
Efficiency	%	23	27	28	
At peak torque (out of gearbox limits)					
Speed	rpm	27	63	80	
Torque	Nm	12,6	12,6	12,6	
Output power	W	35	83	105	
Current	A	15,3	14,6	12,5	
Others					
Weight	kg	1,65			
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
OV	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	
+ 12Vcc -> + 48 Vdc (5)	Brown
OV	Blue



Drive	
Type	TNI21
Built-in drive	✓
Internal encoder	24 pulses per turn
Control	
Speed	PWM
Torque	PWM
4 quadrants - low braking	✓
4 quadrants with regenerative energy	
"Trapezoidal" type	✓
Security	
Short-circuit of outputs	✓
Input inverted	✓
Low voltage	Vdc < 8
Short high voltage	Vdc > 56
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)	daN 15
Max. axial force(4)	daN 10
Temperature range	CEI60068-2-1/2 °C -30 -> +70
Storage temperature	°C -40 -> +80
Dielectric	1min 2mA 50Hz CEI60335 Vdc 1 000
Motor insulation	CEI60085 class E
Salt spray	CEI60068-2-58 severity 48h
Degree of protection (output shaft not included)	CEI60529 IP 65
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	✓

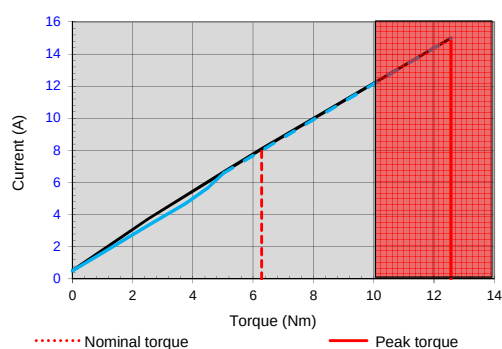
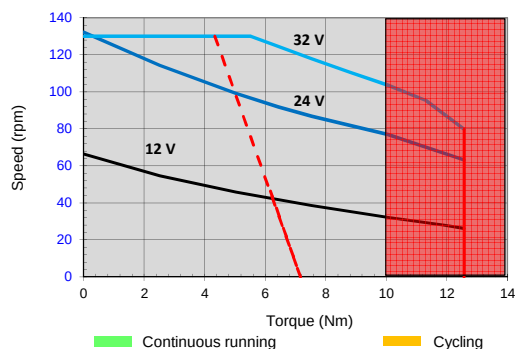
Notes	
Values without tolerance are average production values.	
Added informations are in "SMI21 manual and security". Available on www.crouzet-motors.com .	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 ° C ambient temperature, full speed	
(2) Max torque for continuous operation 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.	
(5) Before September 2015: Nominal was 12 -> +32Vdc, Short high voltage was > 36Vdc, Absolute max. was 39Vdc	
(6) Value without gearbox. With gearbox, the value increases and varies depending on grease temperature.	

Drive electrical datas

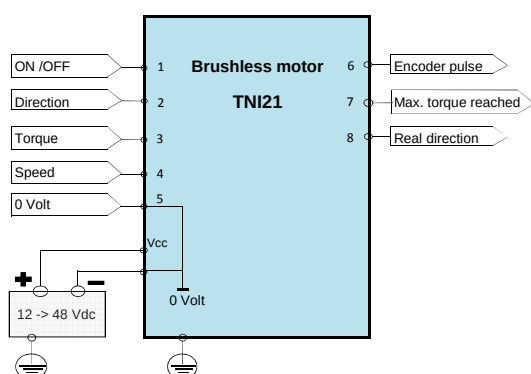
Max. product characteristics				
Parameters				
Max. voltage supply "Vcc" (5)	Vdc		60	
Max. current "Icc max"	A		12	
Max. voltage on inputs "Vin max" (5)	Vdc		50	
Max. voltage on outputs "Vout max" (5)	Vdc		60	
Max. output current "Iout max"	mA		50	
Running datas				
Parameters				
Voltage supply "Vcc" (5)	Vdc	Min	Typical	Max
		9	12/24/48	56
Current "Icc"	A	-	6	12
Standby power "Wo"	W	-	1	-
Speed setting	rpm	4	-	133,333
Torque setting	Nm	0,5	-	12,6
Holding torque setting	Nm	0,5	-	3,9

Input datas				
Parameters				
Impedance - Input 1, 2	kΩ	Min	Typical	Max
		-	57	-
Impedance - Input 3, 4	kΩ	-	69	-
Low level - Input 1, 2	Vdc	0	-	2
High level - Input 1, 2	Vdc	4	-	50
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



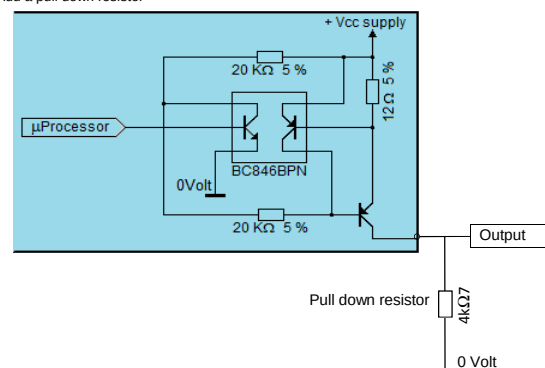
Wiring



Output equivalent circuit

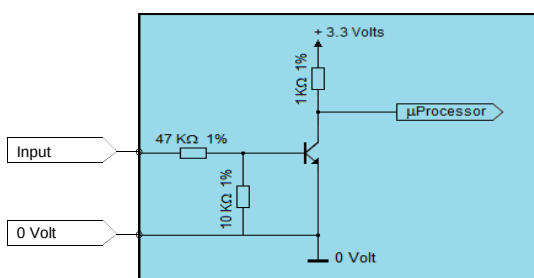
Outputs

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

Inputs: Torque and Speed

