

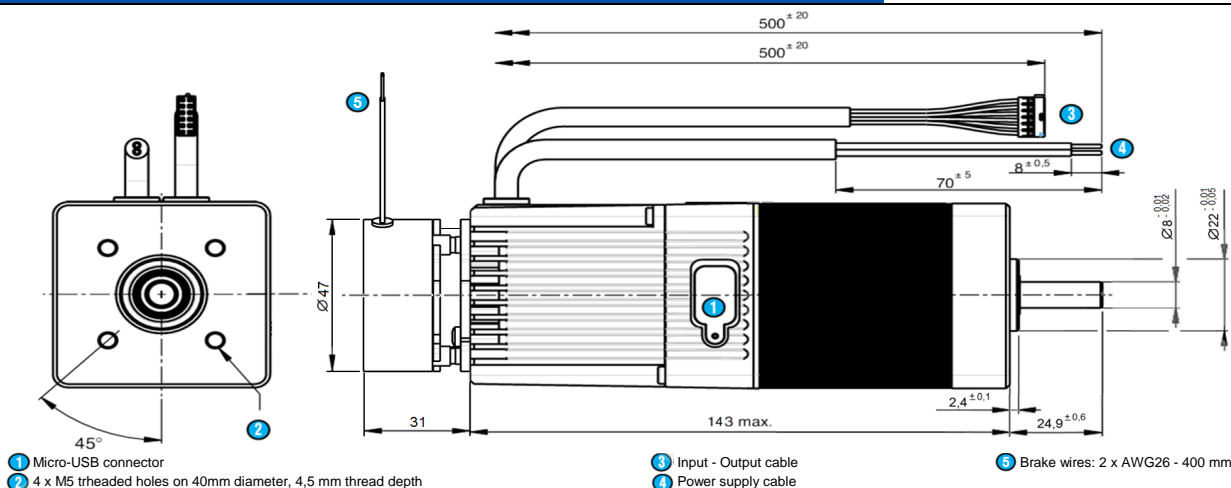
# DCmind motor Brushless

## Data sheet

80 280 002

Series

# 80 280 SMI21

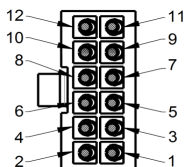


## General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 48
Max. current	A	14

Motor characteristics (1)					
		12 Vdc	24 Vdc	48 Vdc	
<b>At no load</b>					
Max. output speed	rpm	1 500	3 050	4 000	
Current at the max output speed (6)	A	0,38	0,44	0,35	
Standby current	A	0,065	0,04	0,025	+10%
<b>At nominal</b>					
Speed	rpm	1 100	2 863	4 000	+10%
Torque (4)	mNm	685	565	460	
Output power	W	82	170	192	+10%
Current	A	9,5	8,3	5,1	
Efficiency	%	72	85	78	
<b>At max. output power</b>					
Speed	rpm	740	2 250	4 000	
Torque (4)	mNm	1 000	1 000	1 000	
Output power	W	77	235	419	+10%
Current	A	14	14	12	
Efficiency	%	46	55	76	
<b>At peak torque</b>					
Speed	rpm	740	2 250	4 000	+10%
Torque (4)	mNm	1 000	1 000	1 000	
Output power	W	77	235	419	+10%
Current	A	14	14	12	
<b>Others</b>					
Life (2-3)	h		20 000		
Rotor inertia	gcm <sup>2</sup>		120		
Thermal Resistance	°C/W		1,8		
Rotor poles			8		
Cogging torque	mNm		33		
Weight	kg		1,87		
Noise level	dBA		50		

Connecting	
<b>Input - Output cable</b>	With Molex connector ref: 43025-1200
Output cable, UL style 2464 80°C 300V	12 wires AWG26
Input 1 (digital)	1 - Green
Input 2 (digital)	2 - Yellow
Input 3 (digital)	3 - White
Input 4 (digital)	4 - White/brown
Input 5 (analogic)	5 - Blue
Input 6 (analogic)	6 - Orange
0V	7 - Black
0V	8 - White/black
Output 1 (digital - PWM)	9 - Brown
Output 2 (digital - PWM)	10 - Purple
Output 3 (digital)	11 - Red
Output 4 (digital)	12 - Gray
<b>Power supply cable</b>	
Cable UL style 2517 105°C 300V	- 2 wires AWG16
+ 12Vcc -> + 48 Vcc	Brown
0V	Blue
<b>Connector for settings</b>	
Connector type	Micro-USB B



Accessory	
Discovery kit	
Part number	79 298 008
Includes: a MicroUSB - USB cable and a memory stick with Dc mind Soft program	

Drive	
<b>Type</b>	<b>SMI21</b>
Built-in drive	✓
Internal encoder	4096 points
Setting software on PC	Dc mind Soft

Control	
Position - speed - torque	✓
4 quadrants with regenerative energy	✓
Type* Field Oriented Control*	✓

Security	
Output cut-short	✓
Input inverted	✓
Low voltage	Vdc < 8
Short high voltage	Vdc > 56
Internal drive temperature protection (2)	°C 110
Temperature drive allowing to restart	°C 90

Generic parameters			
Motor for direct current supply		✓	
Output shaft with ball bearings		✓	
Max. Radial force (12mm from front face)	N		40
Max. axial force(5)	N		20
Temperature range	CEI60068-2-1/2	°C	-30 -> +70
Storage temperature		°C	-40 -> +80
Dielectric (1s/2mA/50Hz)	CEI60335	Vac	1 000
Motor insulation	CEI60085	class	E
Salt spray	ISO9227	severity	48h
Degree of protection	CEI60529	IP	20
<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	2011/65/CE	✓	
EC		✓	

Brake	
<b>Type</b>	<b>Static</b>
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 "SMI21 manual and security". Available on <a href="http://www.crouzet.com">www.crouzet.com</a> and in the "setting kit"	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 ° C ambient temperature, full speed	
(2) With max.torque (limit tab ) lower than peak torque	
(3) Continuously rated torque, zero radial and axial loads	
(4) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature	
(5) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.	

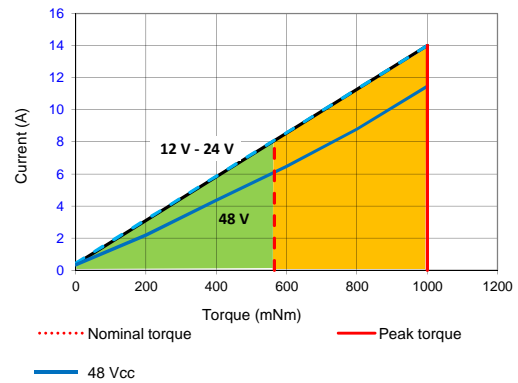
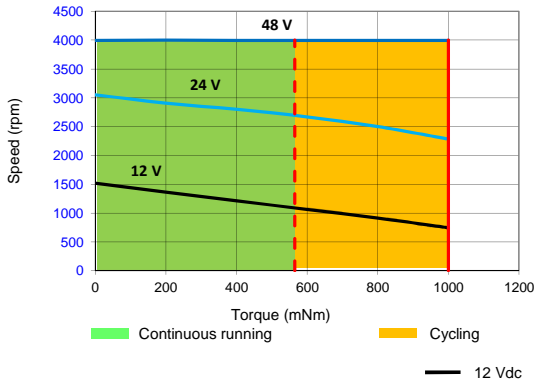
Specifications subject to change without notice. Updated 28/07/2014

## Drive electrical datas

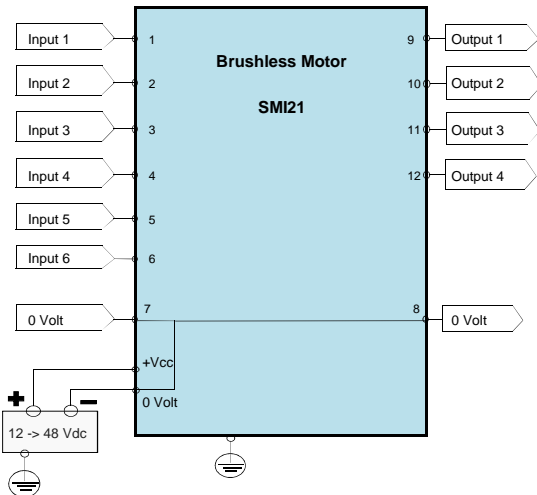
Max. product characteristics				
Parameters				
Max. voltage supply "Vcc max"	Vdc		60	
Max. current "Icc max"	A		20	
Max. voltage on inputs "Vin max"	Vdc		50	
Max. voltage on outputs "Vout max"	Vdc		60	
Max. output current "Iout max"	mA		50	
Running datas				
Parameters				
Voltage supply "Vcc"	Vdc	Min.	Typical	Max.
			12/24/48	56
Current "Icc"	A	-	8	17
Standby power "Wo"	W	-	1	-

Input datas				
Parameters				
Impedance - Input 1, 2, 3, 4	$\Omega$	-	57	-
Impedance - Input 5, 6	$\Omega$	-	69	-
Low level - Input 1, 2, 3, 4	Vdc	0	-	2
High level - Input 1, 2, 3, 4	Vdc	4	-	50
Low level - Input 5, 6	Vdc	0	-	2
High level - Input 5, 6	Vdc	7,5	-	50
Output datas				
Parameters				
Low level Output 1, 2, 3, 4	Vdc	0	-	0,2
with "pull down resistor" = 4,7K $\Omega$ and Vcc = 24 V				
High level Output 1, 2, 3, 4	Vdc	Vcc - 0,5	-	Vcc
with "pull down resistor" = 4,7K $\Omega$ and Vcc = 24 V				
= voltage supply added from eventual rejeptive voltage				

## Speed-torque and current-torque curves



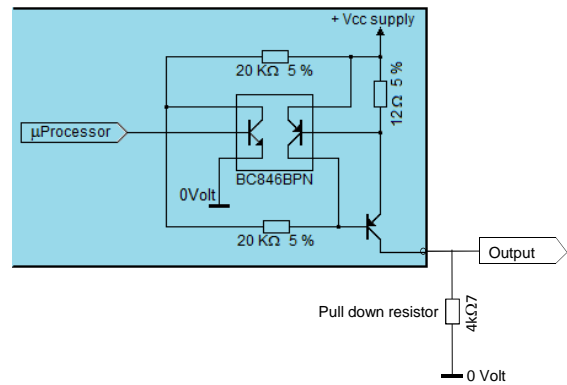
## Wiring



## Output equivalent circuit

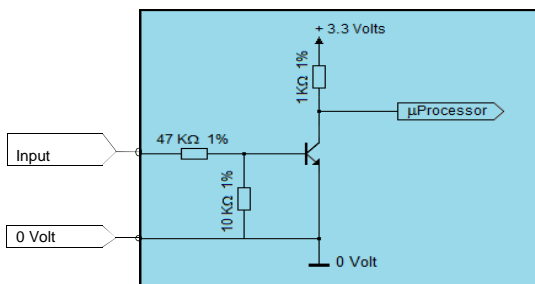
### Output 1,2,3,4

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



## Input equivalent circuit

### Inputs 1, 2, 3, 4



### Inputs 5, 6

