

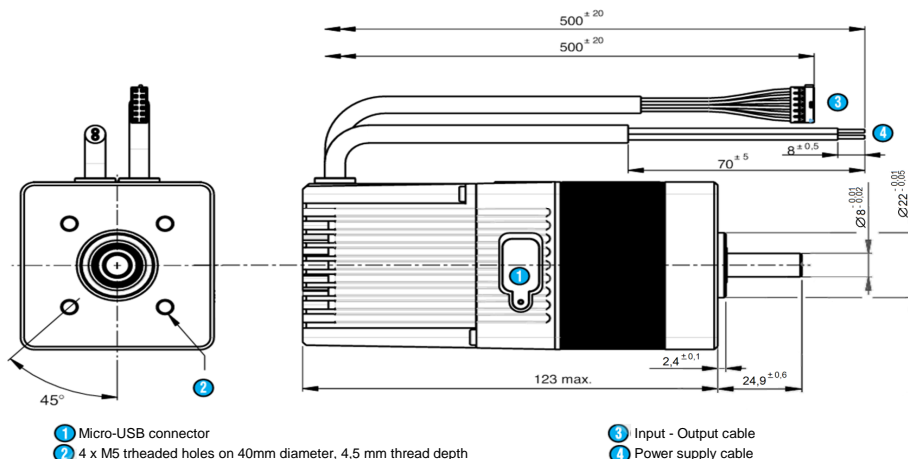
DCmind motor Brushless

Data sheet

80 140 043

Series

80 140 SMI21



- 1 Micro-USB connector
- 2 4 x M5 threaded holes on 40mm diameter, 4,5 mm thread depth

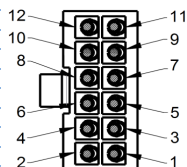
- 3 Input - Output cable
- 4 Power supply cable

General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 48
Max. current	A	10

Motor characteristics (1)		12 Vdc	24 Vcc	48 Vcc	
At no load					
Max. output speed	rpm	2 400	4 000	4 000	
Current at the max output speed (6)	A	0,3	0,3	0,2	
Standby current	A	0,065	0,04	0,025	+10%
At nominal					
Speed	rpm	1 460	3 900	4 000	+10%
Torque (4)	mNm	225	225	225	
Output power	W	34	92	94	+10%
Current	A	5,2	5,2	2,6	
Efficiency	%	55	74	76	
At max. output power					
Speed	rpm	1 100	3 000	4 000	
Torque (4)	mNm	300	400	440	
Output power	W	34	125	184	+10%
Current	A	7	9,5	6,1	
Efficiency	%	41	55	63	
At peak torque					
Speed	rpm	550	2 200	4 000	+10%
Torque (4)	mNm	440	440	440	
Output power	W	25	101	184	+10%
Current	A	10	10	6,1	
Others					
Life (2-3)	h		20 000		
Rotor inertia	gcm ²		75		
Thermal Resistance	°C/W		3,2		
Rotor poles			4		
Cogging torque	mNm		30		
Weight	kg		1,17		
Noise level	dBA		40		

Connecting	
Input - Output cable	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
Power supply cable	
Cable UL style 2517 105°C 300V - 2 wires AWG16	
+ 12Vcc -> + 48 Vcc	Brown
0V	Blue
Connector for settings	
Connector type	Micro-USB B



Drive	
Type	SMI21
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
Température 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 (output shaft not included)	CEI60529 IP65M
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	2011/65/CE ✓
EC	✓

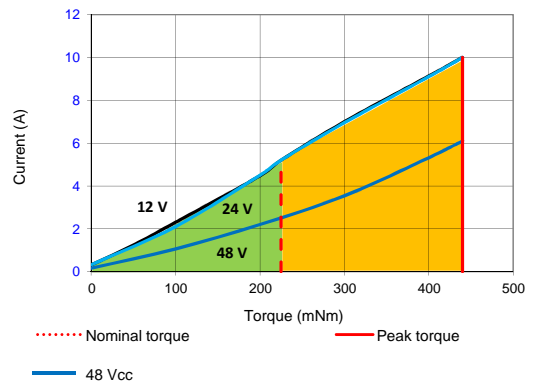
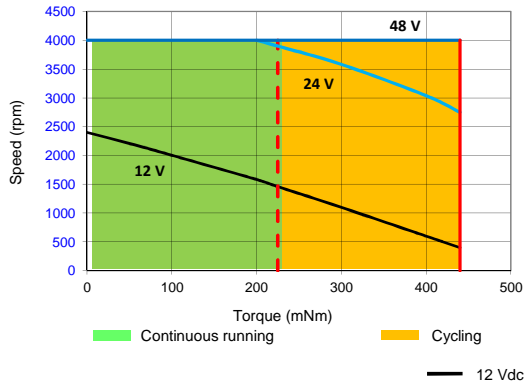
Notes	
Values without tolerances, are average production values.	
Added informations are in "SMI21 manual and security". Available on www.crouzet.com and in the "setting kit"	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 ° C ambient temperature, full speed	
(2) With max.torque (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.	

Drive electrical datas

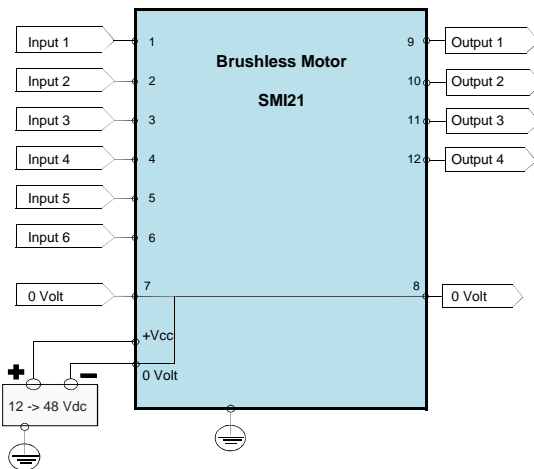
Max. product characteristics			
Parameters			
Max. voltage supply "Vcc max"	Vdc		60
Max. current "Icc max"	A		20
Max. voltage on inputs "Vin max"	Vdc		50
Max. voltage on outputs "Vout max"	Vdc		60
Max. output current "Iout max"	mA		50
Running datas			
Parameters			
Voltage supply "Vcc"	Vdc	Min.	Typical
		9	12/24/48
Current "Icc"	A	-	5
Standby power "Wo"	W	-	1

Input datas				
Parameters				
Impedance - Input 1, 2, 3, 4	Ω	Min.	Typical	Max.
		-	57	-
Impedance - Input 5, 6	Ω	-	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	Min.	Typical	Max.
with "pull down resistor" = 4,7K Ω and Vcc = 24 V		0	-	0,2
High level Output 1, 2, 3, 4	Vdc	Vcc - 0,5	-	Vcc
with "pull down resistor" = 4,7K Ω and Vcc = 24 V				
= voltage supply added from eventual rejective voltage				

Speed-torque and current-torque curves



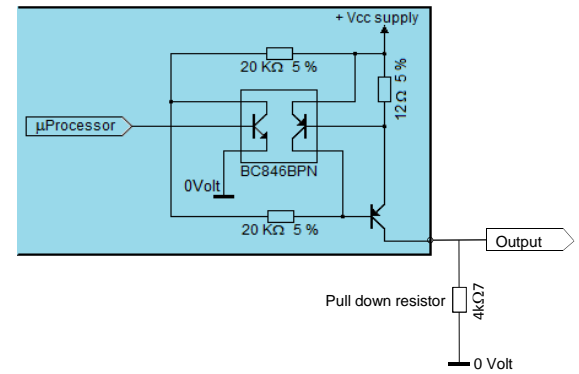
Wiring



Output equivalent circuit

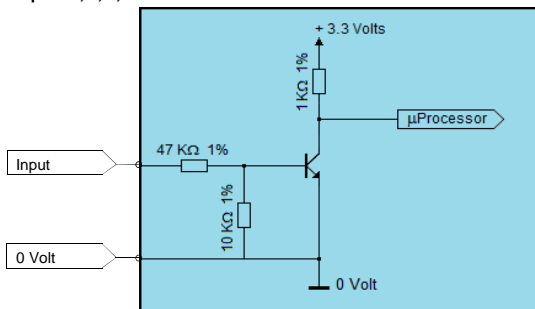
Output 1,2,3,4

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

