

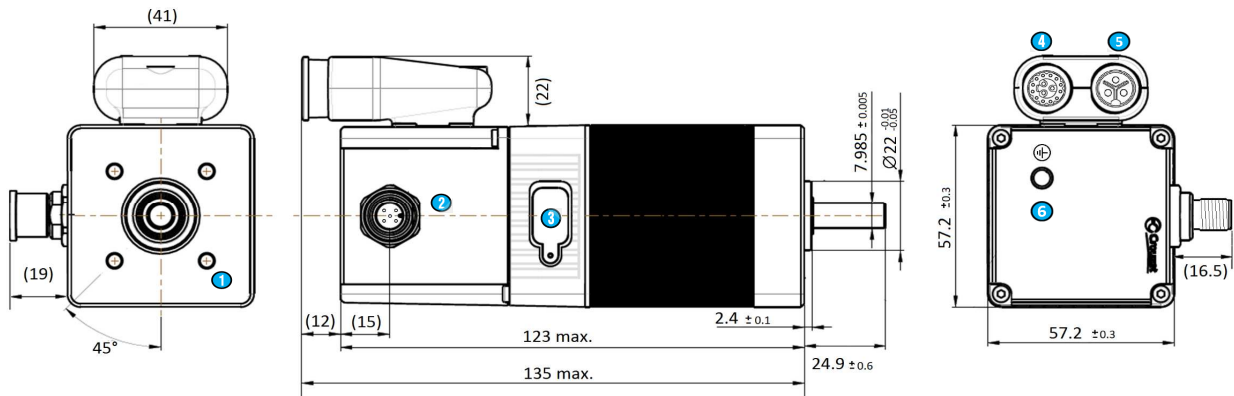
# DCmind motor Brushless

## Data sheet

# 80 280 302

## Series

# 80 280 SMI21 CAN



- ① 4 x M5 threaded holes on 40mm diameter, 4,5 mm thread depth
- ② CAN connector - M12
- ③ micro-USB B connector

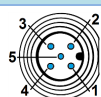
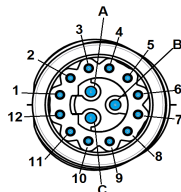
- ④ Input/output connector - M16 - Hummel 7.003.985.101
- ⑤ Voltage supply connector - M16 - Hummel 7.003.983.101
- ⑥ Earth: M6 threaded hole - 10mm thread depth

## 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	0,39	0,43	0,36
Standby current	A	0,065	0,04	0,025
				+10%
<b>At nominal</b>				
Speed	rpm	1 180	2 380	3 910
Torque (4)	mNm	650	565	460
Output power	W	80	141	190
Current	A	8,9	8,0	4,8
Efficiency	%	75	73	83
<b>At max. output power</b>				
Speed	rpm	970	1 900	3 630
Torque (4)	mNm	1 000	1 000	1 000
Output power	W	102	199	380
Current	A	13,8	14	10,2
Efficiency	%	61	59	78
<b>At peak torque</b>				
Speed	rpm	970	1 900	3 630
Torque (4)	mNm	1 000	1 000	1 000
Output power	W	102	199	380
Current	A	13,8	14	10,2
<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		1,62	
Noise level	dBA			

Connecting	
<b>Input / Output - M16 - 15 pins</b>	
Input 1 (digital)	Pin N° 1
Input 2 (digital)	Pin N° 2
Input 3 (digital)	Pin N° 3
Input 4 (digital)	Pin N° 4
Input 5 (analogic)	Pin N° 5
Input 6 (analogic)	Pin N° 6
0V	Pin N° 7
Output 1 (digital - PWM)	Pin N° 8
Output 2 (digital - PWM)	Pin N° 9
Output 3 (digital)	Pin N° 10
Output 4 (digital)	Pin N° 11
Not connected	Pin N° 12
Not connected	Pin N° A - B - C
<b>Power supply - M16 - 3 pins</b>	
Non connecté	Pin N° 1
+ 12Vcc -> + 48 Vcc	Pin N° 2
0V	Pin N° 3
<b>Micro-USB B</b>	
Monitoring and setting	
<b>CAN - M12 - 5 pins</b>	
Not connected	Pin N° 1
Not connected	Pin N° 2
0V	Pin N° 3
CAN High	Pin N° 4
CAN Low	Pin N° 5



Drive	
<b>Type</b>	<b>SMI21 CAN</b>
Built-in drive	✓
Internal encoder	4096 points
Setting software on PC	DCmind Soft + CAN Open
CAN open standard and standalone capabilities	✓
<b>Control</b>	
Position - speed - torque	✓
4 quadrants with regenerative energy	✓
Type" Field Oriented Control"	✓
<b>Security</b>	
Low voltage	Vdc < 8
Short high voltage	Vdc > 85
Internal drive temperature protection (2)	°C > 110
Internal drive temperature protection (2)	°C < -40
Output cut-short	Not protected
Input inverted	Not protected

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 2
Degree of protection (output shaft not included)	CEI60529 IP65
<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 A
<b>Approvals</b>	
ROHS	2011/65/CE ✓
CE	✓
CAN Open	CIA 301 - DSP 402 ✓
<b>Communication</b>	
USB (Setting, monitoring)	Micro-USB B
CAN open: address - node ID (plant output)	0x0A
CAN open: baud rate (plant output)	kbaud 1000

Notes	
Values without tolerances, are average production values.	
EDS file and "manual of use" and "security manual" and "motor manual" are available in English at <a href="http://www.crouzet-motors.com">www.crouzet-motors.com</a> and also in the "starter 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 June, 02 2016

### Accessory

Starter kit		
Part number <b>79 298 008</b>		
USB-CAN converter + "Dmind Soft+CAN" software (memory stick) + Power cable + input/output cable + CAN cable + D-sub/double CAN adaptor + resistor 120 ohms + USB-MicroUSB cable		
Power cable	79 298 664	length (m) = 3
Input/output cable	79 298 663	length (m) = 3
CAN cable	27 358 015	length (m) = 3

## Drive electrical datas

### Absolute max. characteristics

Parameters		
Max. voltage supply "Vcc max"	Vdc	100
Max. voltage on inputs "Vin max"	Vdc	50
Max. voltage on outputs "Vout max"	Vdc	100

### Running datas

Parameters		Min.	Typical	Max.
Nominal voltage supply "Vcc"	Vdc	9	12/24/48	74
Current "Icc"	A	-	5	13
Standby power "Wo"	W	-	1	-

### Input datas

Parameters		Min.	Typical	Max.
Impedance - Input 1, 2, 3, 4	kΩ	-	57	-
Impedance - Input 5, 6	kΩ	-	69	-
Low level - Input 1, 2, 3, 4	Vcc	0	-	2
Hlqh level - Input 1, 2, 3, 4	Vcc	4	-	50
Low level - Input 5, 6	Vcc	0	-	2
High level - Input 5, 6	Vcc	7,5	-	50

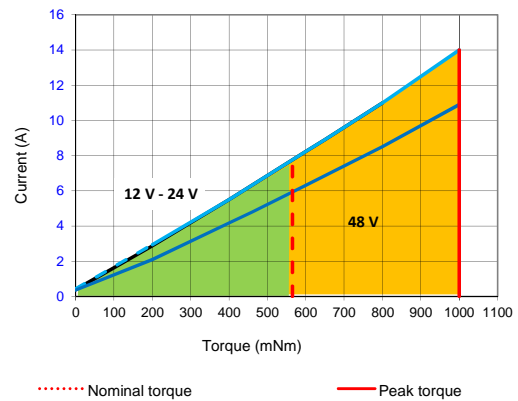
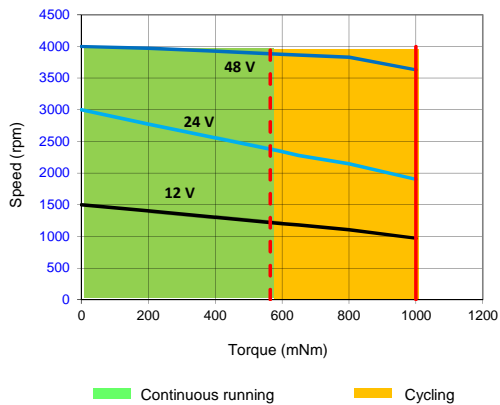
### Output datas

Parameters		Min.	Typical	Max.
Low level Output 1, 2, 3, 4	Vdc	0	-	0,2
with "pull down resistor" = 4,7KΩ and Vcc = 24 V				
High level Output 1, 2, 3, 4	Vdc	Voltage Supply		
with "pull down resistor" = 4,7KΩ and Vcc = 24 V				
= voltage supply added from eventual rejective voltage				
Max. output current "Iout max"	mA	-	-	50

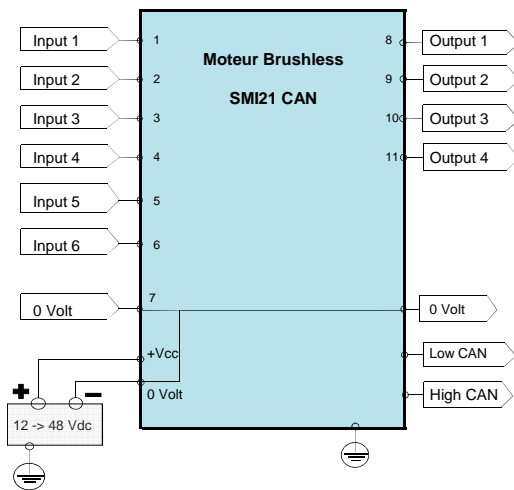
### CAN bus characteristic

Parameters		Min.	Typical	Max.
CAN - Low	Vdc	0,5	2	2,25
CAN - High	Vdc	2,75	3,5	4,5

## Speed-torque and current-torque curves



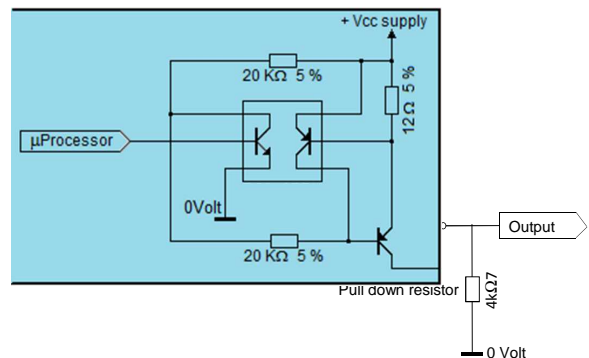
## Wiring



## Output equivalent circuit

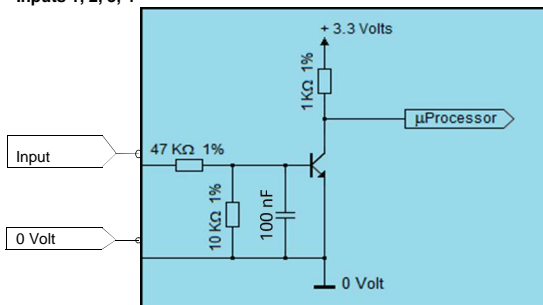
### Output 1,2,3,4

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

