

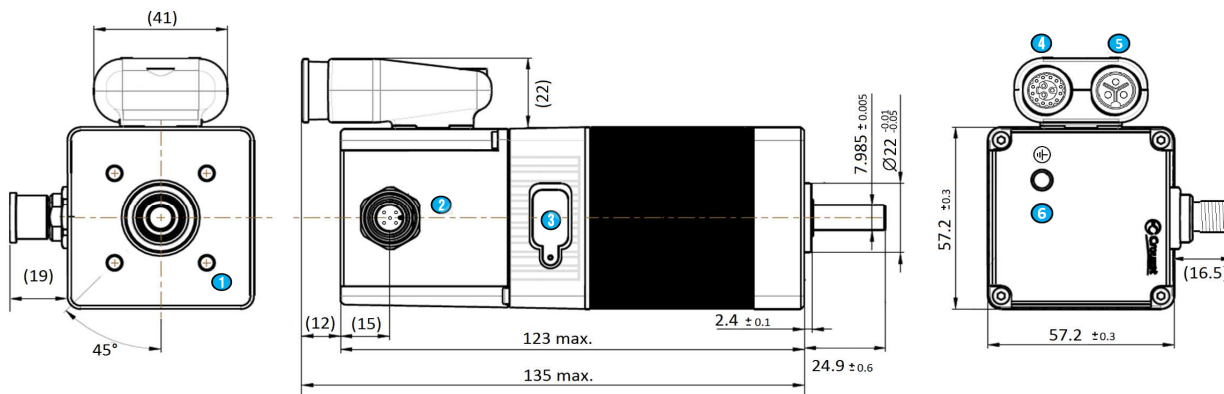
DCmind motor Brushless

Data sheet

80 180 301

Series

80 180 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

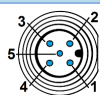
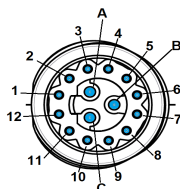
- ④ Input/output connector - M16 - Hummel 7.003.985.101
- ⑤ Voltage supply connector - M16 - Hummel 7.003.983.101
- ⑥ Earth: M6 threaded hole - 10mm thread depth

General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 48
Max. current	A	13

Motor characteristics (1)		12 Vdc	24 Vdc	48 Vdc	
At no load					
Max. output speed	rpm	1 690	3 350	4 000	
Current at the max output speed (6)	A	0,32	0,3	0,2	
Standby current	A	0,065	0,04	0,025	+/-10%
At nominal					
Speed	rpm	1 460	2 650	3 940	+/-10%
Torque (4)	mNm	350	350	350	
Output power	W	38	97	144	+/-10%
Current	A	5,4	5,4	3,8	
Efficiency	%	59	75	79	
At max. output power					
Speed	rpm	950	2 100	3 890	
Torque (4)	mNm	400	600	600	
Output power	W	40	132	245	+/-10%
Current	A	6,4	10	7,2	
Efficiency	%	54	58	71	
At peak torque					
Speed	rpm	100	1 580	3 800	+/-10%
Torque (4)	mNm	750	750	750	
Output power	W	8	165	298	+/-10%
Current	A	11,6	11,5	9,9	
Others					
Life (2-3)	h		20 000		
Rotor inertia	gcm ²		115		
Thermal Resistance	°C/W		3,7		
Rotor poles			4		
Cogging torque	mNm		30		
Weight	kg		1,52		
Noise level	dBA				

Connecting	
Input / Output - M16 - 15 pins	
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° 13
Not connected	Pin N° 14
Not connected	Pin N° 15
Power supply - M16 - 3 pins	
Non connecté	Pin N° 1
+ 12Vcc -> + 48 Vcc	Pin N° 2
0V	Pin N° 3
Micro-USB B	
Monitoring and setting	
CAN - M12 - 5 pins	
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	
Type	SMI21 CAN
Built-in drive	✓
Internal encoder	4096 points
Setting software on PC	DCmind Soft + CAN Open
CAN open standard and standalone capabilities	✓
Control	
Position - speed - torque	✓
4 quadrants with regenerative energy	✓
Type" Field Oriented Control"	✓
Security	
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	°C -30 -> +70
Storage temperature	°C -40 -> +80
Dielectric (1s/2mA/50Hz)	Vac 1 000
Motor insulation	CEI60085 class E
Salt spray	ISO9227 severity 2
Degree of protection (output shaft not included)	CEI60529 IP65
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 ✓
CE	✓
CAN Open	CIA 301 - DSP 402 ✓
Communication	
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 www.crouzet-motors.com 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 79 298 008			
USB-CAN converter + "Dc mind 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

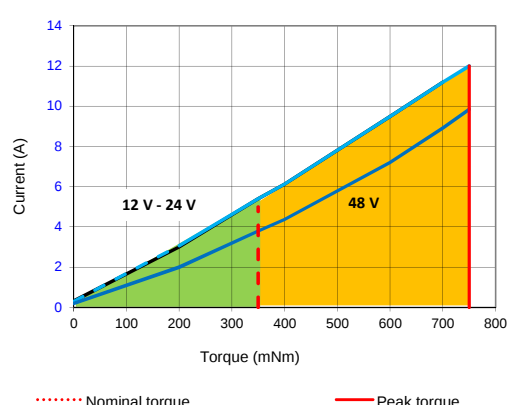
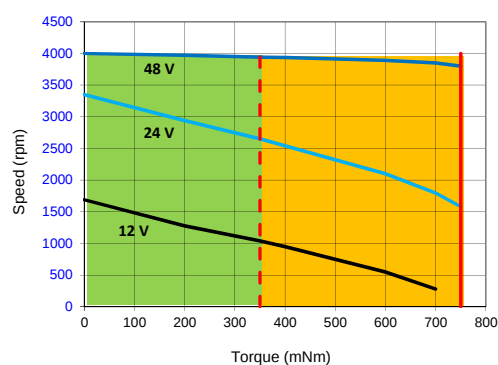
Running datas				
Parameters		Min.	Typical	Max.
Nominal voltage supply "Vcc"	Vdc	9	12/24/48	74
Current "Icc"	A	-	5	13
Standby power "Wo"	W	-	1	-

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
High 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

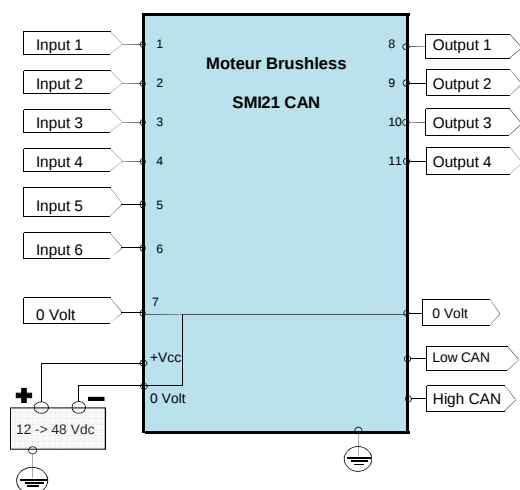
Output datas				
Parameters		Min.	Typical	Max.
Low level Output 1, 2, 3, 4 with "pull down resistor" = 4,7KΩ and Vcc = 24 V	Vdc	0		0,2
High level Output 1, 2, 3, 4 with "pull down resistor" = 4,7KΩ and Vcc = 24 V = voltage supply added from eventual rejective voltage	Vdc	Voltage Supply		
Max. output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



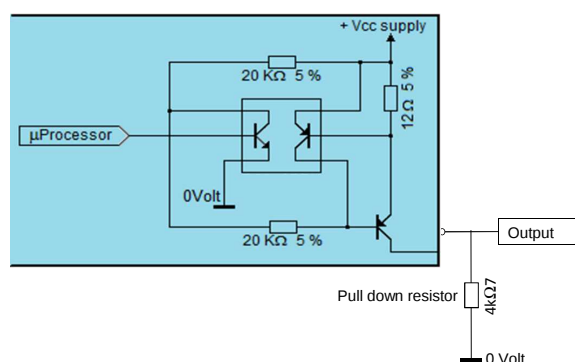
Wiring



Output equivalent circuit

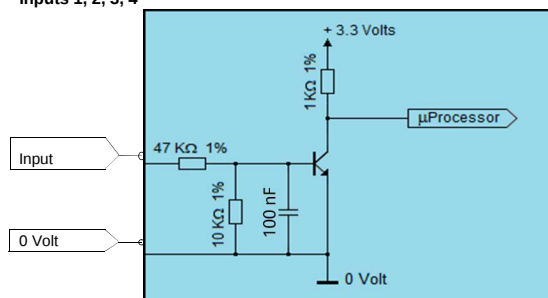
Output 1,2,3,4

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

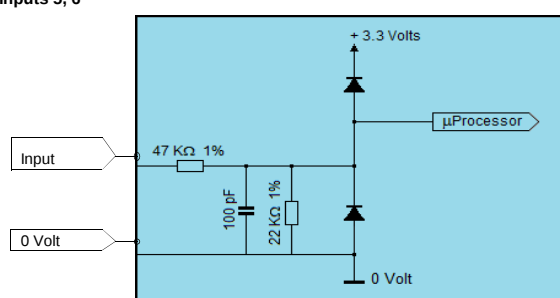


Input equivalent circuit

Inputs 1, 2, 3, 4



Inputs 5, 6



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