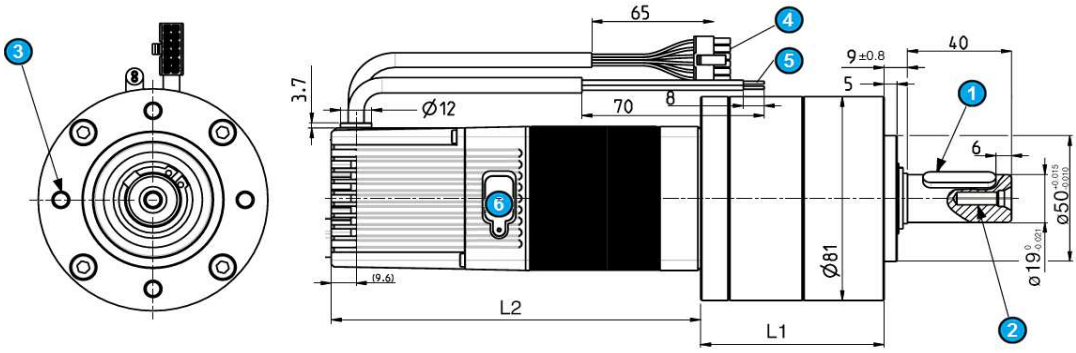
DCmind Brushless gearmotor Data sheet

80 289 725

ratio 99.5

Series

80 289 7 SMI21



1. Parallel key 6 x 6 x 28 DIN6885A
2. M6 x 16
3. 4 x M6 on diam 65 mm - 12 mm depth
4. Input - Output cable / 500 mm +- 20
5. Power supply cable / 500 mm +- 20
6. Micro-USB B connector

L1 = 113,8 +-0,7
L2 = 143 max.

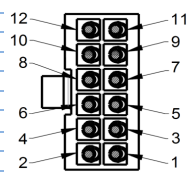
General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range (6)	Vdc	12 -> 72
Max. current	A	14

Gearmotor type	80 289 7 SMI21
Motor type	80 280 001
Gearbox type	81 049 7
Gear ratio	99,52
Number of stages	3
Max. allowed torque	Nm 120
Max. gear play	° 0,60

Motor characteristics (1)		12 Vdc	24 Vdc	48 Vdc	
At no load					
Max. output speed	rpm	15	30	40	
Current at the max output speed (7)	A	0,39	0,43	0,36	
Standby current	A	0,1	0,05	0,025	+-10%
At nominal					
Speed	rpm	12	24	39	+-15%
Torque (4)	Nm	45,3	39,4	32,0	
Output power	W	56	99	132	+-15%
Current	A	8,90	8,00	4,80	
Efficiency	%	53	51	57	
At max. output power					
Speed	rpm	10	19	36	
Torque (4)	Nm	69,7	69,7	69,7	
Output power	W	71	139	266	
Current	A	13,8	14	10,2	
Efficiency	%	43	41	54	
At peak torque					
Speed	rpm	10	19	36	
Torque (4)	Nm	69,7	69,7	69,7	
Output power	W	71	139	266	
Current	A	14	14	10	
Others					
Weight	kg	4,8			
Noise level	dBA	55			

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 -> + 72 Vdc (6)	Brown
0V	Blue
Connector for settings	
Connector type	Micro-USB B



Drive		
Type	**SMI21**	
Built-in drive	✓	
Internal encoder	4096 pulses/turn	
Setting software on PC	DCmind Soft	
Control		
Position - speed - torque	✓	
4 quadrants with regenerative energy	✓	
Type" Field Oriented Control"	✓	
Pulse counter range	+ - 31 bits	
Security		
Output cut-short	✓	
Input inverted	✓	
Low voltage	Vdc	< 8
Short high voltage (6)	Vdc	> 100
Internal drive temperature protection (2)	°C	110
Drive temperature allowing to restart	°C	90

Generic parameters			
Motor for direct current supply		✓	
Output shaft with ball bearings		✓	
Max. Radial force (20mm from front face)		N	1 000
Max. axial force (5)		N	200
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	CEI60068-2-52	level	2
Degree of protection (output shaft not included)	CEI60529	IP	65
EMC			
Electrostatic Discharge	CEI61000-4-2	level	3
Radiated radio frequency	CEI61000-4-3	level	3
Electrical fast transsient / burst test	CEI61000-4-4	level	3
Surge test	CEI61000-4-5	level	1
Conducted disturbances	CEI61000-4-6	level	3
Radiated emission	EN55022	class	A
Approvals			
ROHS	2011/65/UE	✓	
EC	2014/30/UE	✓	

Notes
Values without tolerance, are average production values.
Added informations are in "SMI21 manual and security". Available on www.crouzet-motors.com and in the "Discovery 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 peack torque
(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.
(6) Value upgraded in September 2015. The value was different before to this date.
(7) Value without gearbox. With gearbox, the value increases and varies depending on grease temperature.

Specifications subject to change without notice. Updated 25/07/2016

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www.crouzet-motors.com

Drive electrical datas

Absolute maximum ratings		
Parameters		
Max. voltage supply "Vcc max" (6)	Vdc	100
Max. current "Icc max"	A	12
Max. voltage on inputs "Vin max"	Vdc	50 / 75
Max. voltage on outputs "Vout max"	Vdc	100
Max. output current "Iout max"	mA	50

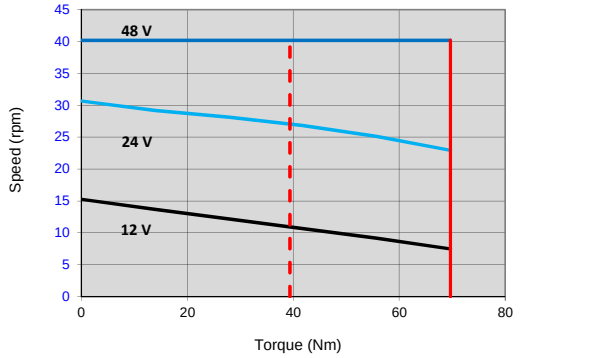
Running datas				
Parameters		Min.	Typical	Max.
Voltage suplly "Vcc" (6)	Vdc	9	12 -> 72	75
Current "Icc"	A	-	8	14
Standby power "Wo"	W	-	1	-
Speed setting	rpm	0 / 0,01	-	40
Torque setting	Nm	0	-	69,7

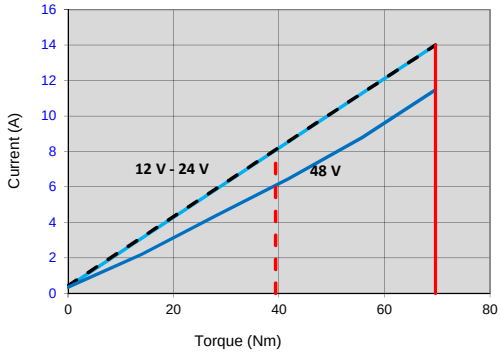
Input datas				
Parameters		Min.	Typical	Max.
Impedance - Input 1, 2, 3, 4	Ω	-	57	-
Impedance - Input 5, 6	Ω	-	69	-
Low level - Input 1, 2, 3, 4	Vdc	0	-	2
HIgh level - Input 1, 2, 3, 4	Vdc	4	-	75
Low level - Input 5, 6	Vdc	0	-	2
High level - Input 5, 6	Vdc	7,5	-	50

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	Vcc - 0,5	-	Vcc

Notes
Outputs are destroyed if they are connected to zero ground or to a capacitive load

Speed-torque and current-torque curves

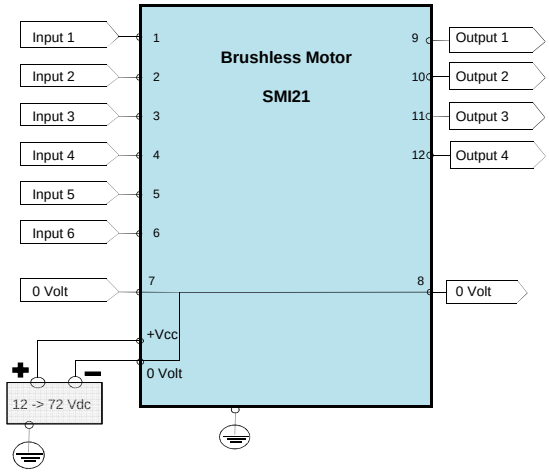




Nominal torque

Peak torque

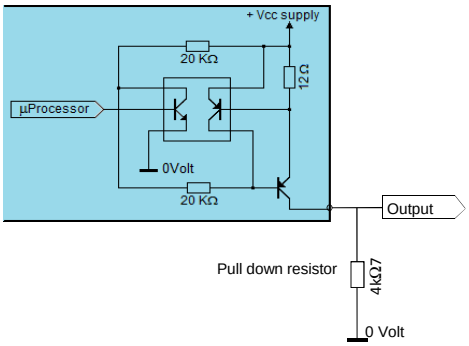
Wiring



Output equivalent circuit

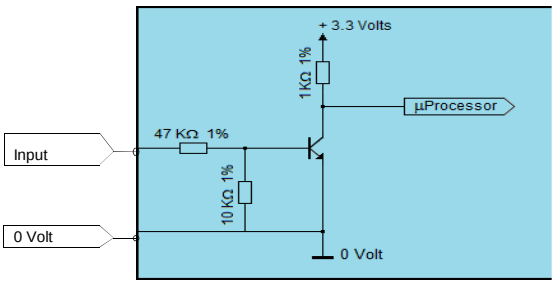
Output 1,2,3,4

Add a pull down resistor

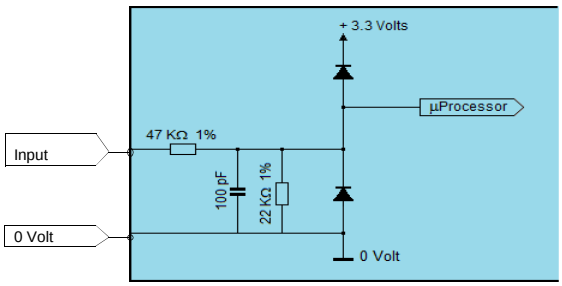


Input equivalent circuit

Inputs 1, 2, 3, 4



Inputs 5, 6



Accessory

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

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