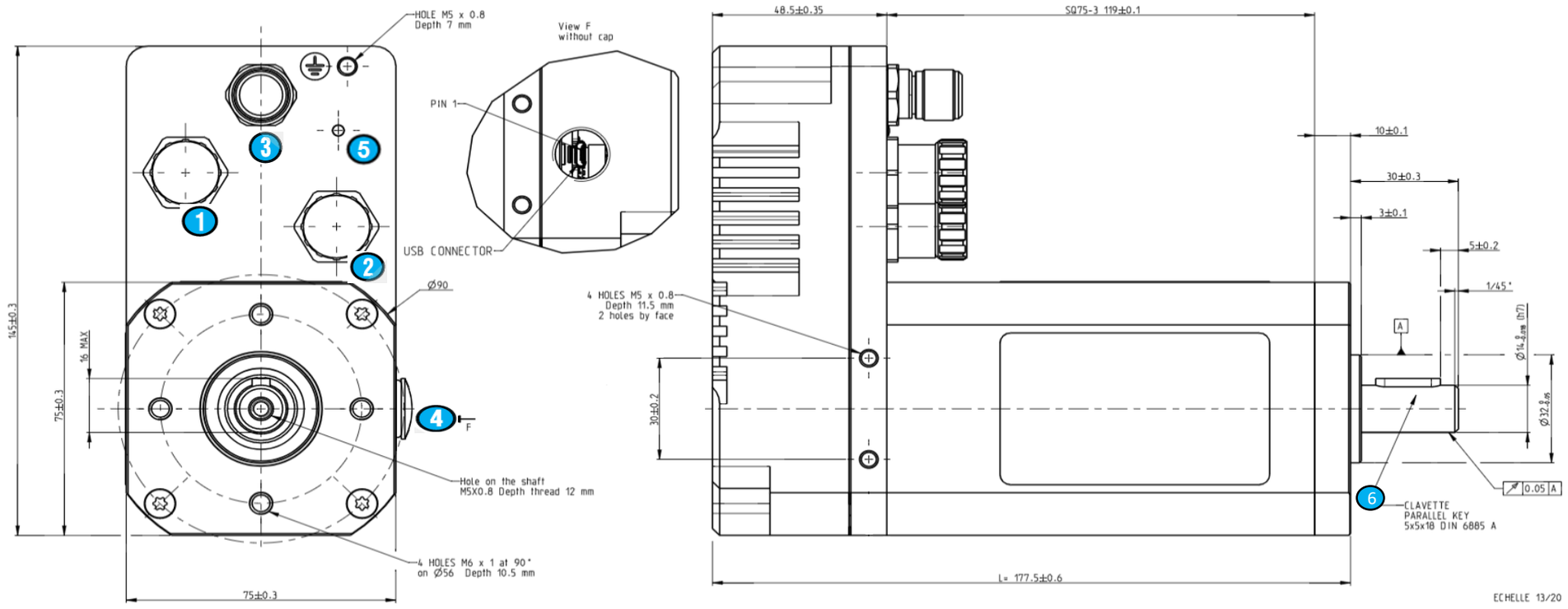
DCmind Brushless motor Datasheet

80 370 001
SMI22 with CAN

Series
80 370 SMI22 CAN



1 Logic connector
2 Power supply connector
3 CAN Connector
4 Micro-USB connector on the side
5 Led 2 colors for motor status
6 Parallel key 5x5x18 DIN 6885 A

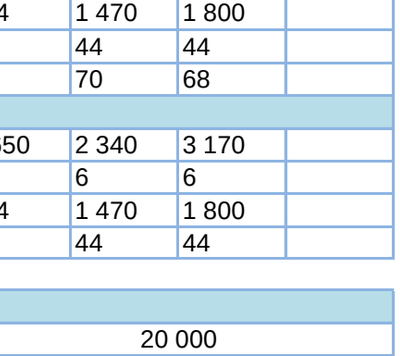
General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	9 -> 75
Max. current	A	75

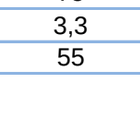
Motor characteristics (1)		32 Vdc	48 Vdc	60 Vdc	
At no load					
Max. output speed	rpm	2 300	3 420	4 320	
Current at the max output speed	A	1	1	1	
Standby current	mA	50	50	50	+-10%
At nominal					
Speed	rpm	2 000	3 130	3 890	+-10%
Torque	N.m	1,9	1,9	1,9	
Output power	W	398	623	700	+-10%
Current	A	15,1	15,1	15,1	
Efficiency	%	80	86	78	
At max. output power					
Speed	rpm	1 650	2 340	3 170	
Torque (2)	N.m	5	6	6	
Output power	W	864	1 470	1 800	
Current	A	40	44	44	
Efficiency	%	67	70	68	
At peak torque					
Speed	rpm	1 650	2 340	3 170	
Torque	N.m	5	6	6	
Output power	W	864	1 470	1 800	
Current	A	44	44	44	

Others		
Life	h	20 000
Rotor inertia	gcm²	763
Rotor poles		8
Cogging torque	mNm	75
Weight	kg	3,3
Noise level	dBA	55

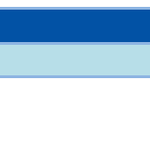
Connecting		
Input/Output M16 connector - 18 pins	**Pins N°**	
Optional logic supply	1	
0 Volt	2	
Input 6 (analogic 1)	3	
Input 5 (analogic 2)	4	
Input 1 (digital)	5	
Input 2 (digital)	6	
Input 3 (digital)	7	
Input 4 (digital)	8	
0 Volt	9	
Output 1 (digital - PWM)	10	
Output 2 (digital - PWM)	11	
Output 3 (digital)	12	
Output 4 (digital)	13	
0 Volt	14	
STO2 -	15	
STO2 +	16	
STO1 -	17	
STO1 +	18	



Power supply M16 connector 3 pins	Pins N°
Output ballast	1
+VDC	2
0 Volt	3



CAN M 12 Connector - 5 pins	Pins N°
Not connected	1 / 2
CAN_GND	3
CAN_H	4
CAN_L	5



Drive		
Type	**SMI22 CAN**	
Built-in drive	✓	
Internal magnetic encoder	4096 pulses/rev	
Setting software on PC	DCmind soft+CANopen	
Control		
Position - speed - torque	✓	
4 quadrants	✓	
With regenerative energy absorber (3)	✓	
Type" Field Oriented Control"	✓	
Security		
Wrong polarity from power supply	✓	
Output shortcut	✓	
Input inverted	✓	
Low voltage	Vdc	< 9
Overvoltage (4)	Vdc	> 75
Internal drive temperature protection	°C	110
Temperature drive allowing to restart	°C	90

Generic parameters				
Output shaft with ball bearings			✓	
2 Safe Torque Off inputs		IEC61800-5-2/62061, ISO13849	✓	
Max. Radial force	(16mm from front face)		N	140
Max. axial force			N	47
Temperature range		CEI60068-2-1/2	°C	-30 -> +70
Storage temperature			°C	-40 -> +80
Dielectric	(1s/2mA)	UL1004-1	Vdc	###
Motor insulation		CEI60085	class	E
Salt spray		ISO9227	severity	48h
Degree of protection (output shaft not included)		CEI60529		IP67 + IP69

EMC			
Electrostatic Discharge	CEI61000-4-2	level	3
Radiated field	CEI61000-4-3	level	3
Electrical fast transient / 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	B
Approvals			
ROHS	2011/65/CE	✓	
EC		✓	
UL		IN PROGRESS	
CAN Open	CIA 301 - DSP 402	✓	
Communication			
USB (Setting, monitoring)		Micro-USB B	
CAN open: adress - node ID (factory settings)			0x20
CAN open: baud rate (factory settings)		**kbaud**	1000

Notes
Values without tolerances, are average production values.
(1) Cold motor, 20 ° C ambient temperature, full speed, sinusoïdal commutation
(2) Max torque for continuous operation at 20 °C, decrease this value for higher ambient temperature
(4) Can be configured via Dcmind soft+CANopen
(3) Ballast resistor to be added

Additionnal information is available in the SQ75 product user manual and in the starter kit manual, available in www.crouzet.com

Specifications subject to change without notice. Updated November 28, 2018

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Series 80 370 SMI22 CAN

Drive electrical data

Running datas				
Parameters		Min.	Typical	Max.
Voltage suply "Vdc"	Vdc	9	48	75
Current "Idc"	A	-	15	60
Standby power "Wo"	W	-	2	-
Optional logic voltage (see wiring diagram)	Vdc	9	-	75

CAN Bus caracteristics					
Parameters			Min.	Typical	Max.
CAN_L	insulated	Vdc	0,5	1,5	2,25
CAN_H	insulated	Vdc	2,75	3,5	4,5

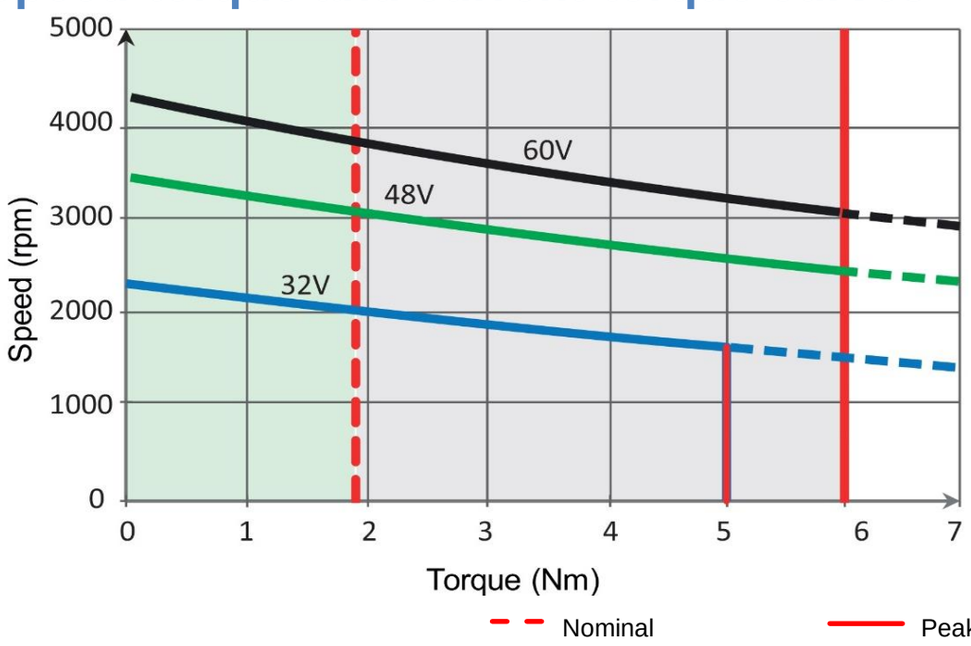
Input datas					
Parameters				Min.	Typical	Max.
Input 1, 2, 3, 4	Impedance	kΩ		-	200	-
	Low level	Vdc		-90	-	2,4
	HIgh level	Vdc		5	-	90
Input 5, 6	Impedance	kΩ		-	107,2	-
	Low level	Vdc		-90	-	2
	HIgh level	Vdc		7	-	90
Inputs STO	Low level	Vdc		-2	-	4
	HIgh level	Vdc		5	-	75

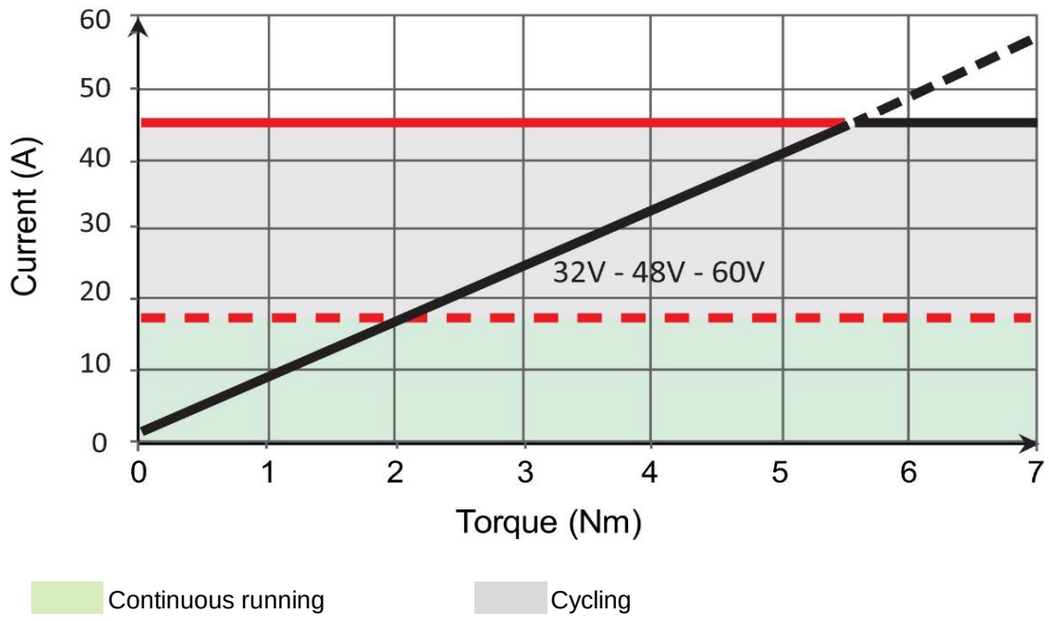
Output datas				
Parameters		Min.	Typical	Max.
Low level Output 1, 2, 3, 4	mVdc	-	-	10
High level Output 1, 2, 3, 4	Vdc	-	4,75	-
Max output current "I outmax"	mA	-	-	50
I sink	mA			600

Accessories

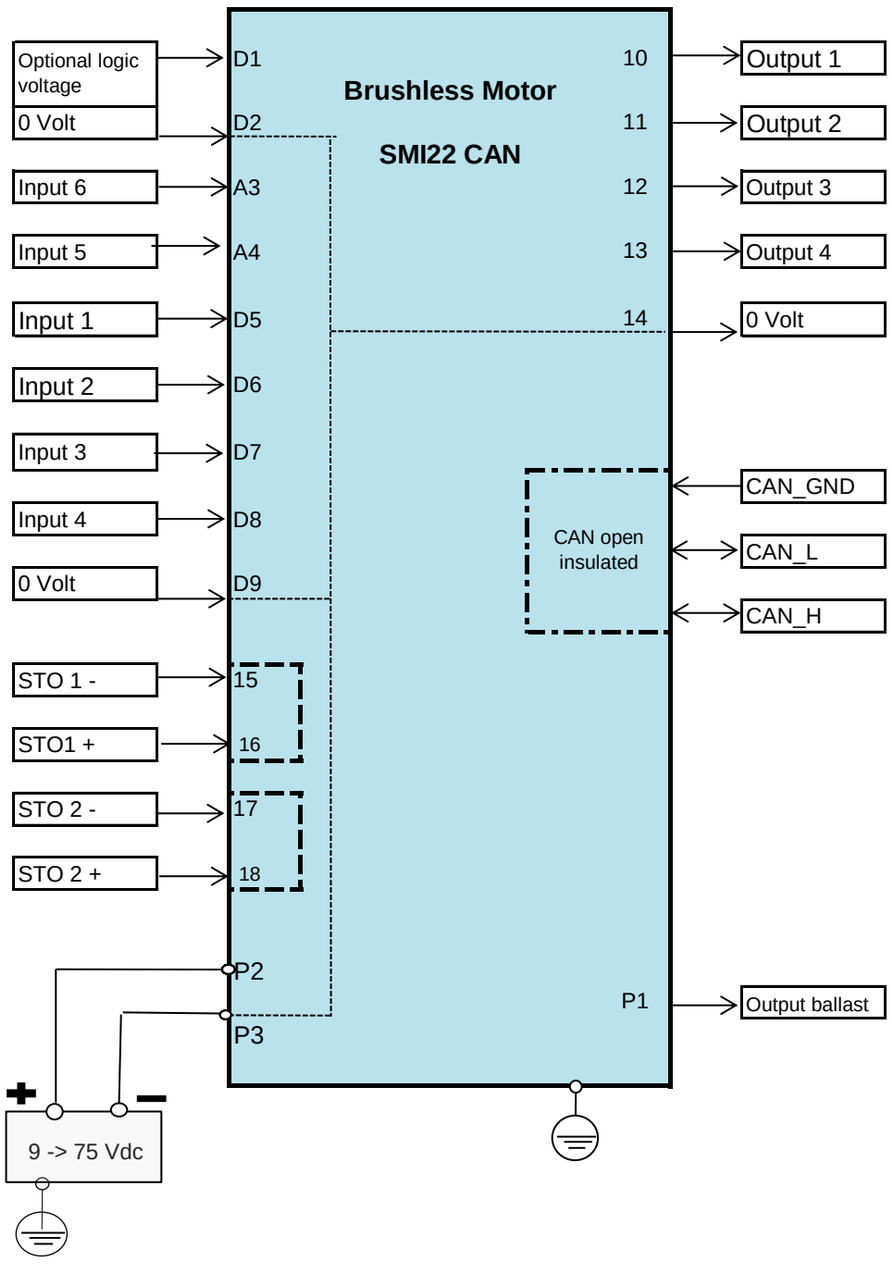
Starter kit				
Part number	**79 513 105**			
Power/logic/CAN 3 m cables - Software - USB to Can Open adapter - CAN terminal resistor - CAN double connector				
Power supply cable	79 298 664	3m length	AWG18	
Input-Output cable	79 513 106	3m length	AWG24	
CAN cable M12	27 358 015	1m length	AWG26	

Speed-torque and current-torque curves



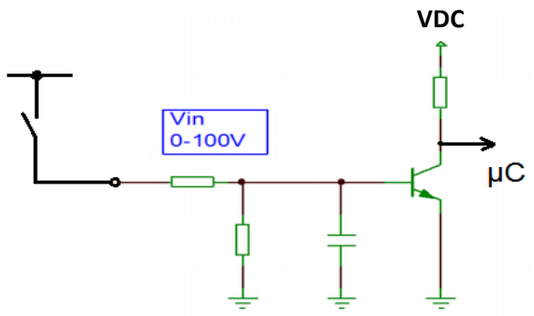


Wiring

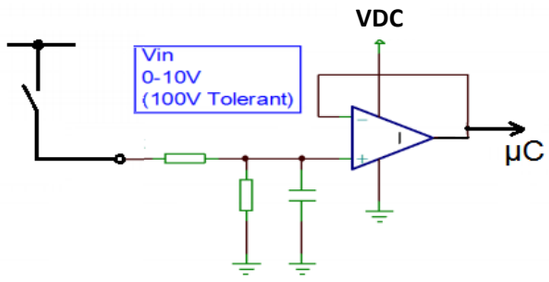


Input equivalent circuit

Inputs 1, 2, 3, 4

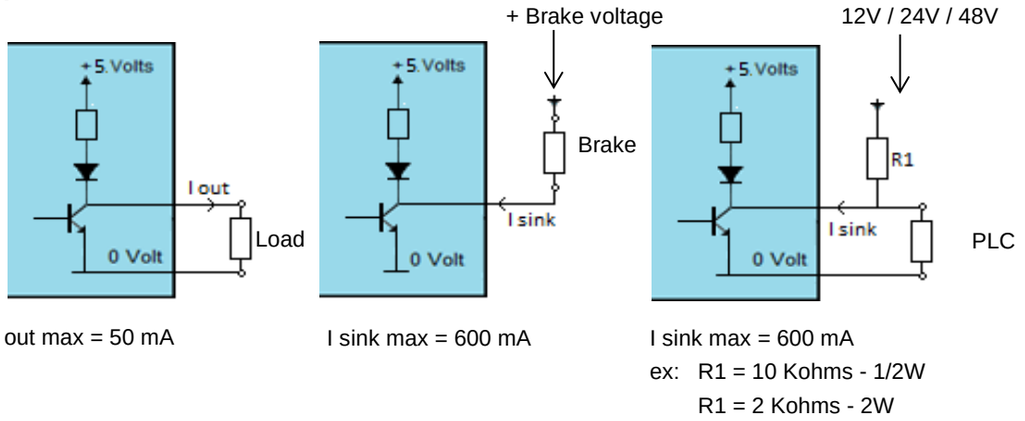


Inputs 5, 6



Output equivalent circuit

Output 1,2,3,4

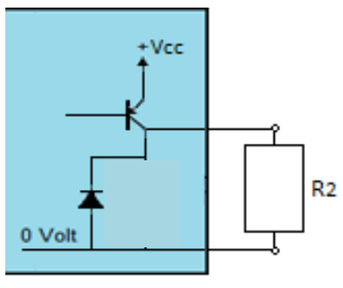


I out max = 50 mA

I sink max = 600 mA

I sink max = 600 mA
ex: R1 = 10 Kohms - 1/2W
R1 = 2 Kohms - 2W

Output ballast



Regenerative energy created per inertia load creates over-voltage. In case of too high value, connect R2 resistor through ballast output and ground to absorb this energy. Typical R2 value is 2.2 Ω. Power value depends from machine inertia. Max. voltage can be set.

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