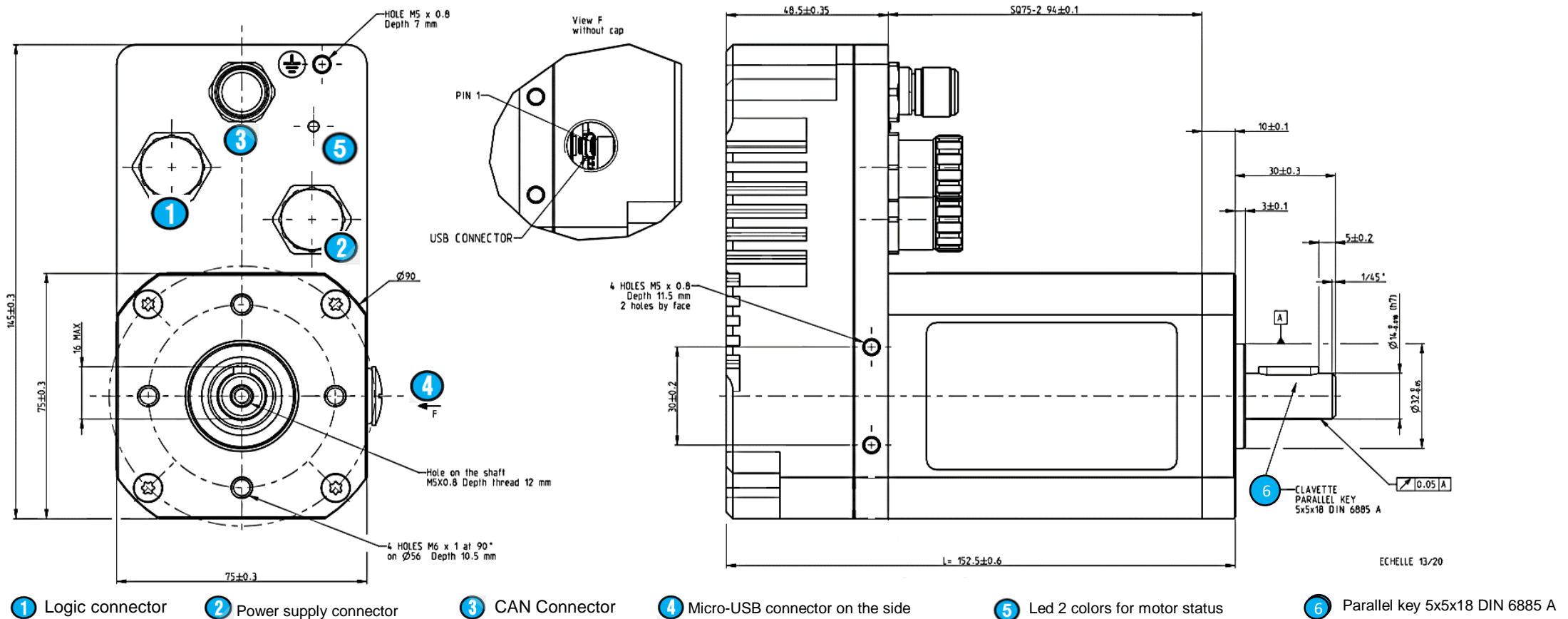


# DCmind Brushless Motor Datasheet

## 80 360 001 SMI22 with CAN

## Series 80 360 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)	24 Vdc	32 Vdc	48 Vdc	
<b>At no load</b>				
Max. output speed	rpm	2 601	3 270	5 000
Current at the max output speed	A	1	1	0,9
Standby current	mA	50	50	50
				±10%
<b>At nominal</b>				
Speed	rpm	2 230	2 960	4 540
Torque	N.m	1,3	1,3	1,3
Output power	W	304	403	618
Current	A	14,4	14,4	14,4
Efficiency	%	85	87	87
<b>At max. output power</b>				
Speed	rpm	1 650	2 160	3 540
Torque (2)	N.m	4	4	4
Output power	W	691	905	1 483
Current	A	42	42	42
Efficiency	%	67	69	71
<b>At peak torque</b>				
Speed	rpm	1 650	2 160	3 540
Torque	N.m	4	4	4
Output power	W	691	905	1 483
Current	A	42	42	42

Others		
Life	h	20 000
Rotor inertia	gcm <sup>2</sup>	536
Rotor poles		8
Cogging torque	mNm	50
Weight	kg	2,7
Noise level	dBA	55

Connecting		
<b>Input/Output M16 connector - 18 pins</b>	<b>Pin N°</b>	
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	
<b>Power supply M16 connector 3 pins</b>	<b>Pin N°</b>	
Output ballast	1	
+VDC	2	
0 Volt	3	
<b>CAN M12 connector - 5 pins</b>	<b>Pin N°</b>	
Not connected	1 / 2	
0V - ground	3	
CAN High	4	
CAN Low	5	

Drive		
<b>Type</b>	<b>SMI22 CAN</b>	
Built-in drive	✓	
Internal magnetic encoder	4096 pulses/rev	
Setting software on PC	DCmind soft+CANopen	
<b>Control</b>		
Position - speed - torque	✓	
4 quadrants	✓	
With regenerative energy absorber (3)	✓	
Type" Field Oriented Control"	✓	
<b>Security</b>		
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	IEC60068-2-1/2	°C	-30 -> +70
Storage temperature		°C	-40 -> +80
Dielectric (1s/2mA)	UL1004-1	Vdc	1 955
Motor insulation	IEC60085	class	E
Salt spray	ISO9227	severity	48h
Degree of protection (output shaft not included)	IEC60529		IP67 + IP69

EMC			
Electrostatic Discharge	IEC61000-4-2	level	3
Radiated field	IEC61000-4-3	level	3
Electrical fast transient / burst test	IEC61000-4-4	level	3
Surge test	IEC61000-4-5	level	1
Conducted disturbances	IEC61000-4-6	level	3
Radiated emission	EN55022	class	B

Approvals			
ROHS	2011/65/CE	✓	
EC		✓	
UL		Pending	
CAN Open	CIA 301 - DSP 402	✓	
Communication			
USB (Setting, monitoring)		Micro-USB B	
CAN open: address - 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, sinusoidal commutation	
(2) Max torque for continuous operation at 20 °C, decrease this value for higher ambient temperature	
(3) Ballast resistor to be added	
(4) Can be configured via DCmind soft+CANopen	

Additional information is available in the SQ75 product user manual and in the starter kit manual, available in [www.crouzet.com](http://www.crouzet.com)

Specifications subject to change without notice. Updated May 27th, 2019

## Drive electrical data

Running datas				
Parameters		Min.	Typical	Max.
Voltage power supply "Vdc"	Vdc	9	32	75
Current "Idc"	A	-	15	60
Standby power "Wo"	W	-	2	-
Voltage optional logic supply (see wiring diagram)	Vdc	9	-	36

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

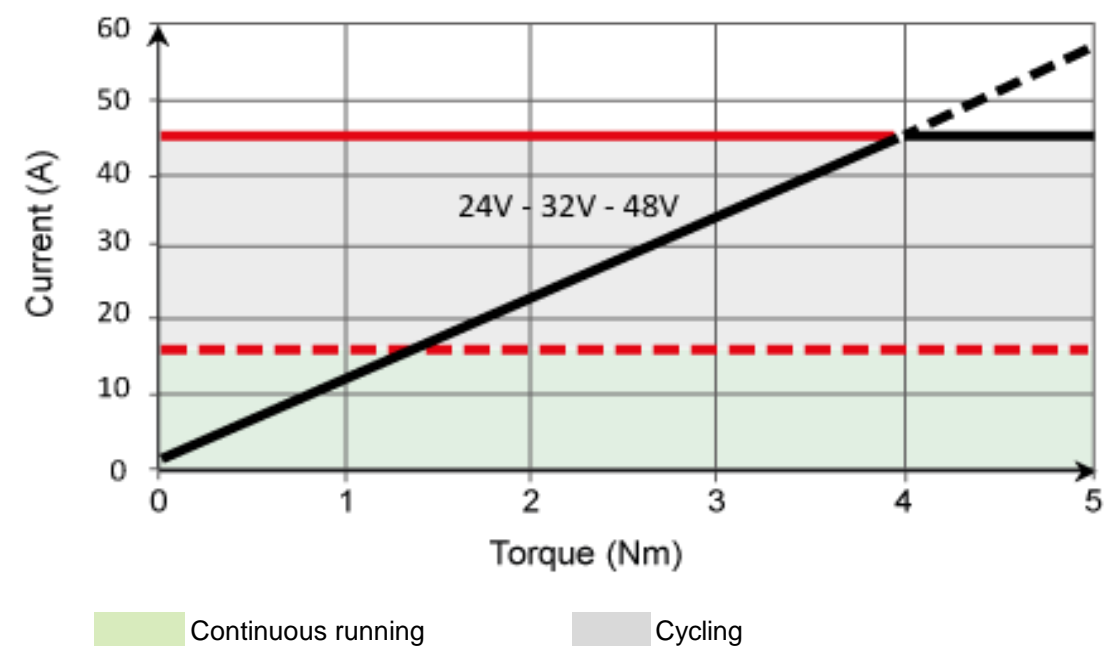
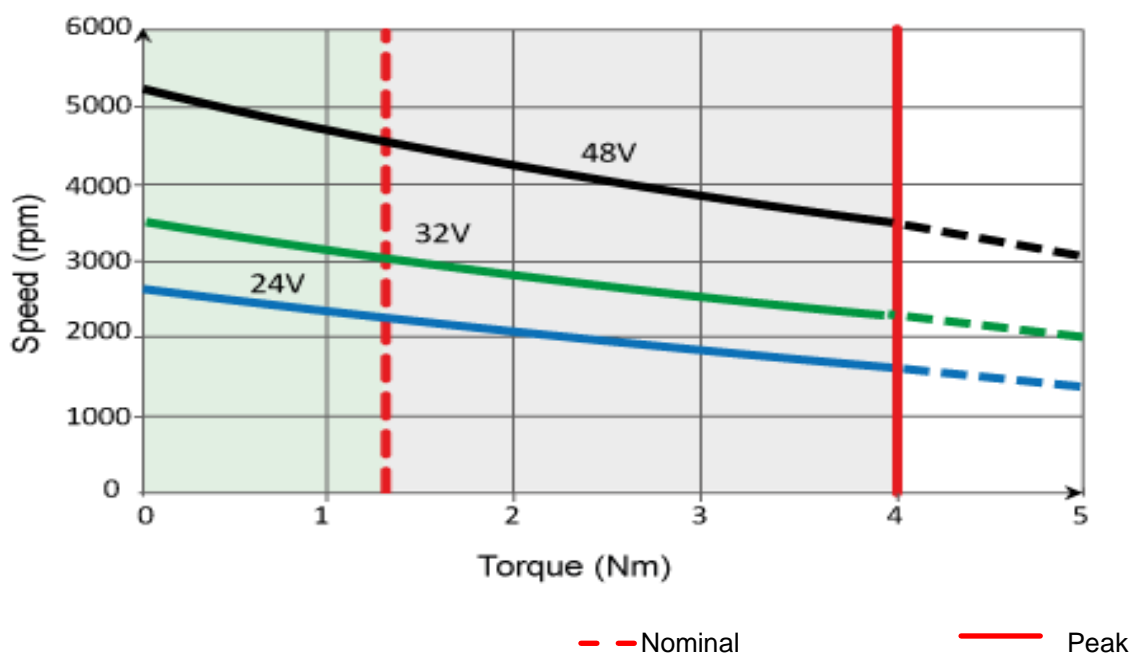
## Accessories

Starter kit				
Part number	<b>79 513 105</b>			
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	

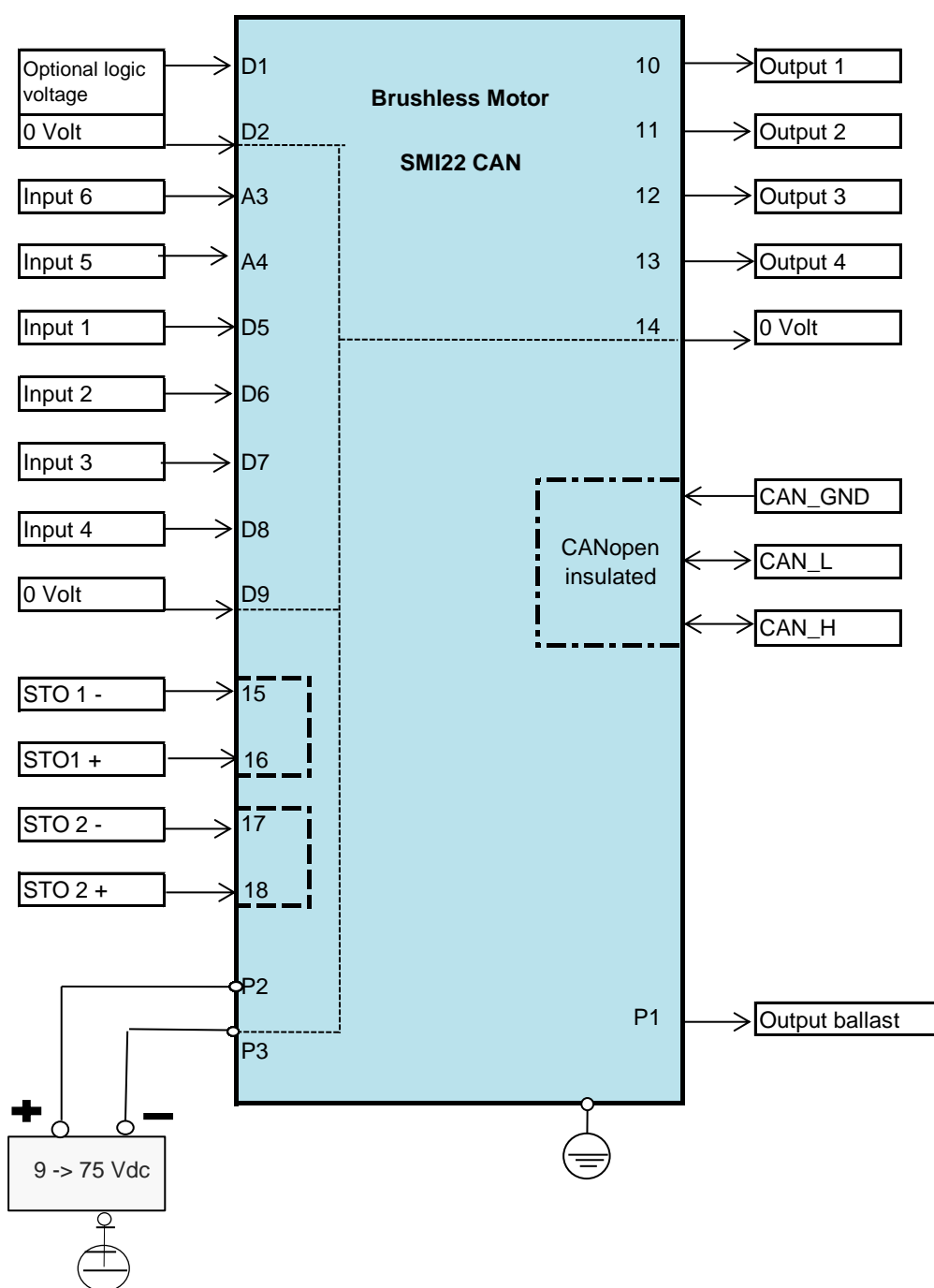
Input datas				
Parameters		Min.	Typical	Max.
Input 1, 2, 3, 4	Impedance	kΩ	-	247
	Low level	Vdc	-90	-
	High level	Vdc	4,5	-
Input 5, 6	Impedance	kΩ	-	159
	Low level	Vdc	-90	-
	High level	Vdc	7,1	-
Inputs STO	Low level	Vdc	-2	-
	High level	Vdc	4,6	-

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

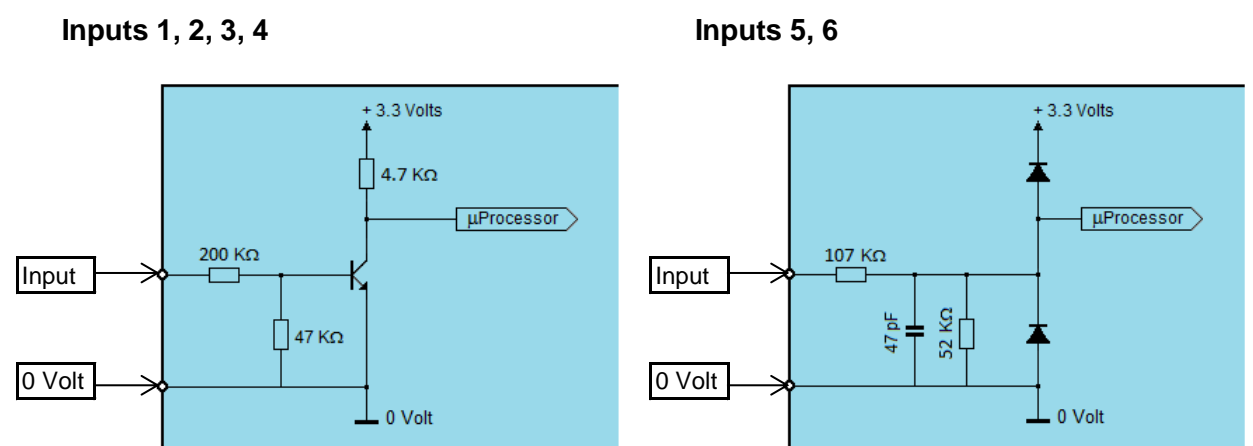
## Speed-torque and current-torque curves



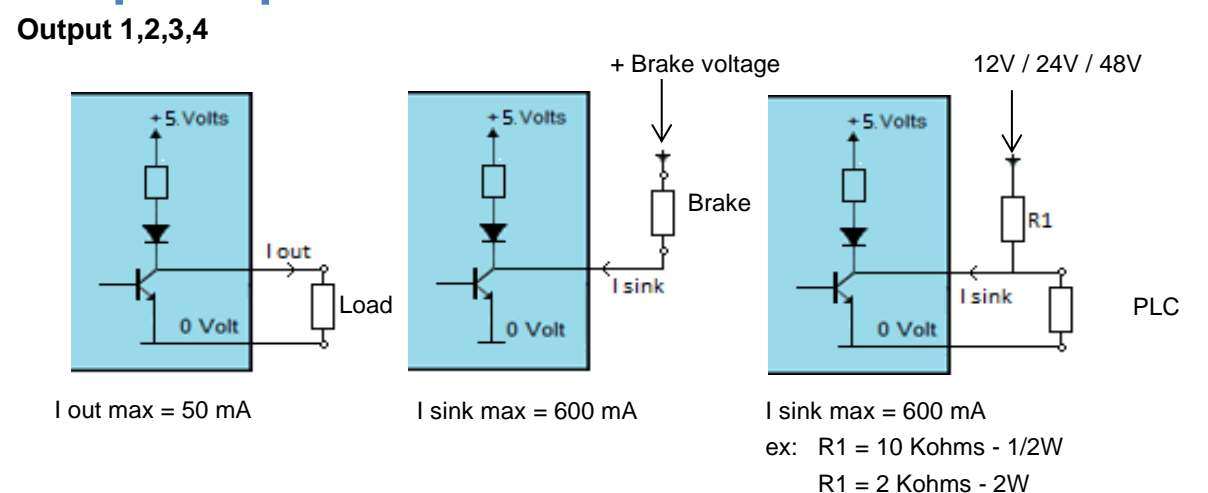
## Wiring



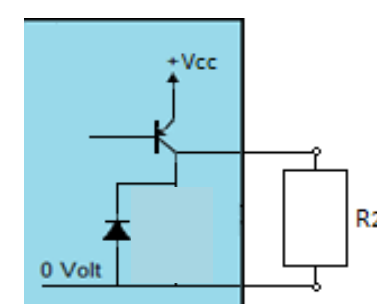
## Input equivalent circuit



## Output equivalent circuit



### 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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