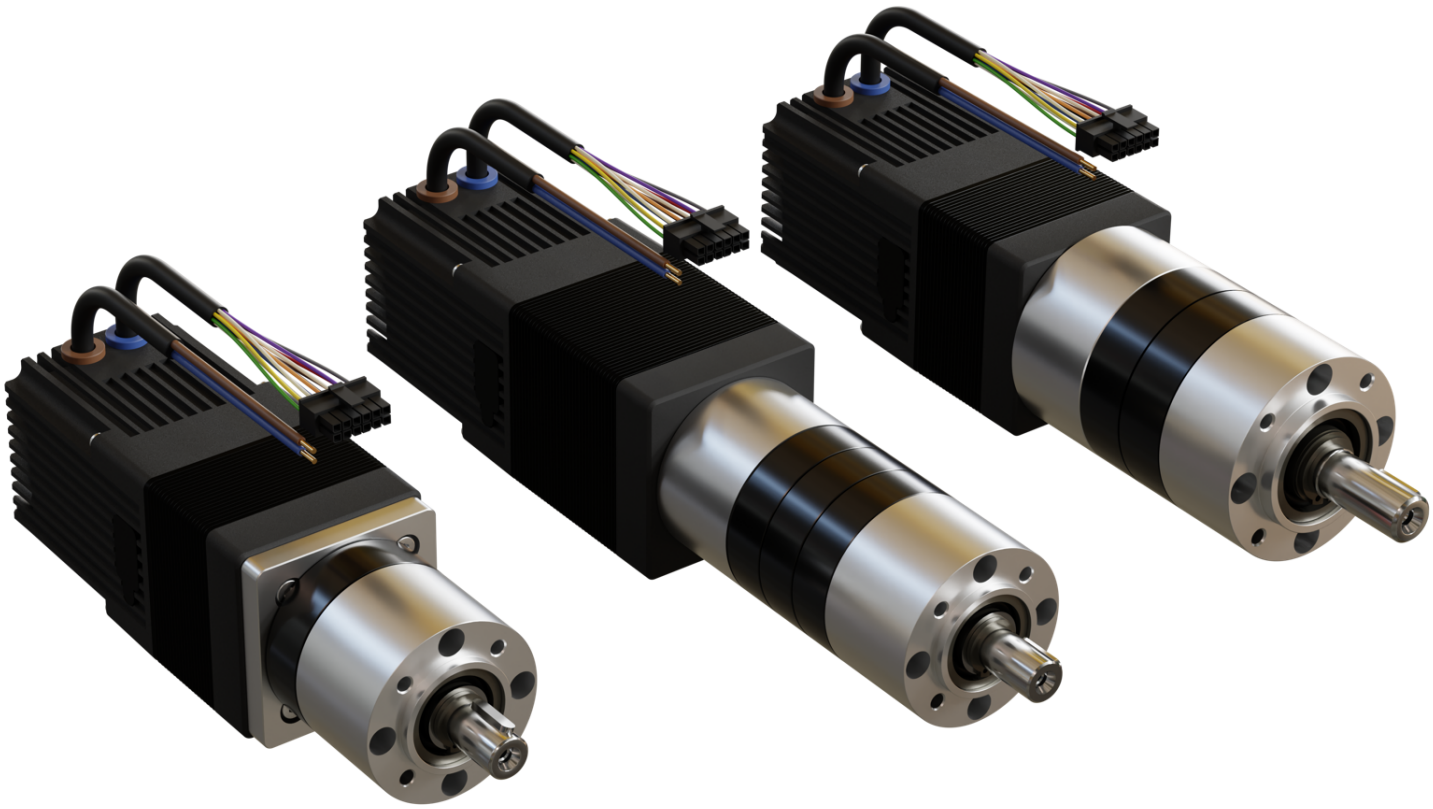
Crouzet DC geared DCmind brushless motors

80140 / 80180 / 80280 - SMi21 + PM52LN / PM62LN



Gearboxes for DCmind brushless range

➜ output up to 50 Nm

- DC brushless motor with integrated electronics and planetary gearbox, very silent versions
- Shafts on ball bearings
- Long service life

Article key						
801x0-SMi21	**24VDC**	**AA**	**PMxxLN**	**1**	**LF**	**i**
Motor type	Voltage	Rearshaft	Gear type	Number of stages	Flange type	Reduction ratio
80140-SMi21	12VDC	- : none	PM52LN	1 : 1 traps	LF : Large	...:1
80180-SMi21	24VDC (1)	AA : rearshaft (2)	PM62LN	2 : 2 traps	SF : Small (3)	
80280-SMi21	48VDC			3 : 3 traps	SFS: Small square	

Comments

(1) This is the nominal voltage. Can also be powered on 12 ~ 48VDC

(2) Only for projects. Standard IP54 level. Encoder and brake options are IP20

(3) Possible with the P52/PM52 and P81/PM81 gear type. The version with straight-cut gears.

General specifications	PM52LN			PM62LN		
Number of stages	**1**	**2**	**3**	**1**	**2**	**3**
Maximum permitted torque (Nm)	4	12	25	8	25	50
Efficiency	0,8	0,75	0,7	0,8	0,75	0,7
Max. backlash in DEG (°)	1,1	0,75	0,8	0,95	0,7	0,75
Radial dynamic load* (N)	200	320	450	240	360	520
Axial dynamic load (N)	60	100	150	70	100	150
Operating temperature	-30 °C ~ +120 °C			-30 °C ~ +120 °C		

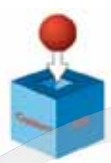
Comments

*Mid output shaft

To maintain a very low noise level, the gears in the first stage are helical-cut and made from a plastic material.

Optional: the gears in the first stage made out of steel, helical-cut.

Product adaptations, contact us



- Special shafts
- Other reduction ratios
- Other fixing holes
- Special mounting flange

Configurations for DCmind brushless range

Motor series: 80140 SMi21		Planetary gearbox series: PM52LN																					
Number of stages		1			2					3													
Reduction ratios i rounded (...:1)		4	7	9	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	400	223	169,1773	108	77	52	39	33	29	25	18	16	15	11	11	9	8	6	5	4
24VDC*	Rated speed (rpm)	1068	595	451,9119	288	206	139	104	87	78	67	48	43	40	31	28	23	22	17	13	10
48VDC	Rated speed (rpm)	1096	611	463	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	0,7	1,2	1,6	2,3	3,2	4,7	6,3	7,5	7,9	9,1	12,8	14,4	15,4	20,1	21,6	26	28	36	48	62
Flange types		LF	LF	LF/SFS	LF	LF	LF	LF	LF/SFS	LF	LF	LF	LF	LF	LF	LF/SFS	LF	LF	LF	LF/SFS	LF

Motor series: 80180 SMi21		Planetary gearbox series: PM52LN																					
Number of stages		1			2					3													
Reduction ratios i rounded (...:1)		4	7	9	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	301	168	127	81	58	39	29	25	22	19	14	12	11	9	8	7	6	5	4	3
24VDC*	Rated speed (rpm)	795	443	336	214	153	103	77	65	58	50	36	32	30	23	21	17	17	13	10	7
48VDC	Rated speed (rpm)	1096	611	463	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	1	1,8	2,4	3,6	5	7,4	9,8	11,7	12,3	14,2	19,9	22,4	24	31	34	41	43	57	74	96
Flange types		LF	LF	LF/SFS**	LF	LF	LF	LF	LF/SFS**	LF	LF	LF	LF	LF	LF	LF/SFS**	LF	LF	LF	LF/SFS**	LF

Motor series: 80280 SMi21		Planetary gearbox series: PM52LN																					
Number of stages		1			2					3													
Reduction ratios i rounded (...:1)		4	7	9	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	301	168	127	81	58	39	29	25	22	19	14	12	11	9	8	7	6	5	4	3
	Rated torque (Nm)	2	3,6	4,7	7	9,7	14,4	19,2	23	24,1	28	39	44	47	61	66	80	84	111	145	188
24VDC*	Rated speed (rpm)	795	443	336	214	153	103	77	65	58	50	36	32	30	23	21	17	17	13	10	7
	Rated torque (Nm)	1,6	3	3,9	5,7	8	11,9	15,9	18,9	19,8	22,9	32	36	39	51	54	66	70	92	119	155
48VDC	Rated speed (rpm)	1096	611	463	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	1,3	2,4	3,2	4,7	6,5	9,7	12,9	15,4	16,2	18,7	26	29	32	41	44	54	57	75	97	127
Flange types		LF	LF/SFS**							LF											

Comments

Not highlighted: Standard stock program

Highlighted in GREY: available on order. Please involve us in your innovation, to experience the possibilities.

Highlighted in RED: please note max. continues torque. Motor should be limited on torque (current).

* This is the nominal voltage. Can also be powered on 12 and 48VDC

** SFS version: Currenly available on order.

In addition to the listed ratios, the following are also available on order: 5, 16, 17, 23, 25, 34, 67, 70, 102, 106, 115, 123, 128, 145, 176, 192:1

Configurations for DCmind brushless range

Motor series: 80140 SMi21		Planetary gearbox series: PM62LN																		
Number of stages		**1**		**2**					**3**											
Reduction ratios i rounded (...:1)		4	7	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	400	223	108	77	52	39	33	29	25	18	16	15	11	11	9	8	6	5	4
24VDC*	Rated speed (rpm)	1068	595	288	206	139	104	87	78	67	48	43	40	31	28	23	22	17	13	10
48VDC	Rated speed (rpm)	1096	611	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	0,7	1,2	2,3	3,2	4,7	6,3	7,5	7,9	9,1	12,8	14,4	15,4	20,1	21,6	26,2	27,7	36,5	47,5	62

Motor series: 80180 SMi21		Planetary gearbox series: PM62LN																		
Number of stages		**1**		**2**					**3**											
Reduction ratios i rounded (...:1)		4	7	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	301	168	81	58	39	29	25	22	19	14	12	11	9	8	7	6	5	4	3
24VDC*	Rated speed (rpm)	795	443	214	153	103	77	65	58	50	36	32	30	23	21	17	17	13	10	7
48VDC	Rated speed (rpm)	1096	611	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	1	1,8	3,6	5	7,4	9,8	11,7	12,3	14,2	19,9	22,4	24	31,3	33,6	40,8	43,1	57	74	96

Motor series: 80280 SMi21		Planetary gearbox series: PM62LN																		
Number of stages		**1**		**2**					**3**											
Reduction ratios i rounded (...:1)		4	7	14	19	28	37	45	50	58	81	91	98	128	137	166	176	232	302	393
12VDC	Rated speed (rpm)	301	168	81	58	39	29	25	22	19	14	12	11	9	8	7	6	5	4	3
	Rated torque (Nm)	2	3,6	7	9,7	14,4	19,2	23	24,1	27,8	38,9	43,8	47	61	66	80	84	111	145	188
24VDC*	Rated speed (rpm)	795	443	214	153	103	77	65	58	50	36	32	30	23	21	17	17	13	10	7
	Rated torque (Nm)	1,6	3	5,7	8	11,9	15,9	18,9	19,8	22,9	32,1	36,1	38,8	51	54	66	70	92	119	155
48VDC	Rated speed (rpm)	1096	611	296	211	143	107	90	80	69	49	44	41	31	29	24	23	17	13	10
	Rated torque (Nm)	1,3	2,4	4,7	6,5	9,7	12,9	15,4	16,2	18,7	26,1	29,4	31,6	41,1	44,1	54	57	75	97	127

Comments

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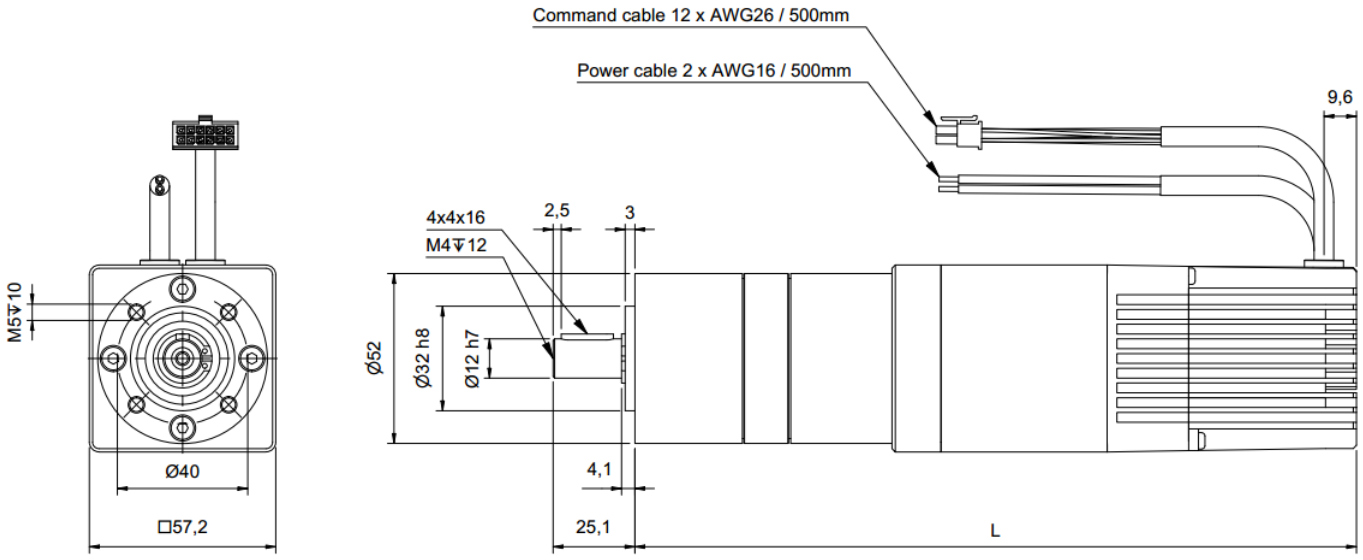
* This is the nominal voltage. Can also be powered on 12 and 48VDC

In addition to the listed ratios, the following are also available on order: 5, 16, 17, 23, 25, 34, 67, 70, 102, 106, 115, 123, 128, 145, 176, 192:1

Configurations for DCmind brushless range

Dimensions

80xx0-SMi21_PM52LN -x-LF



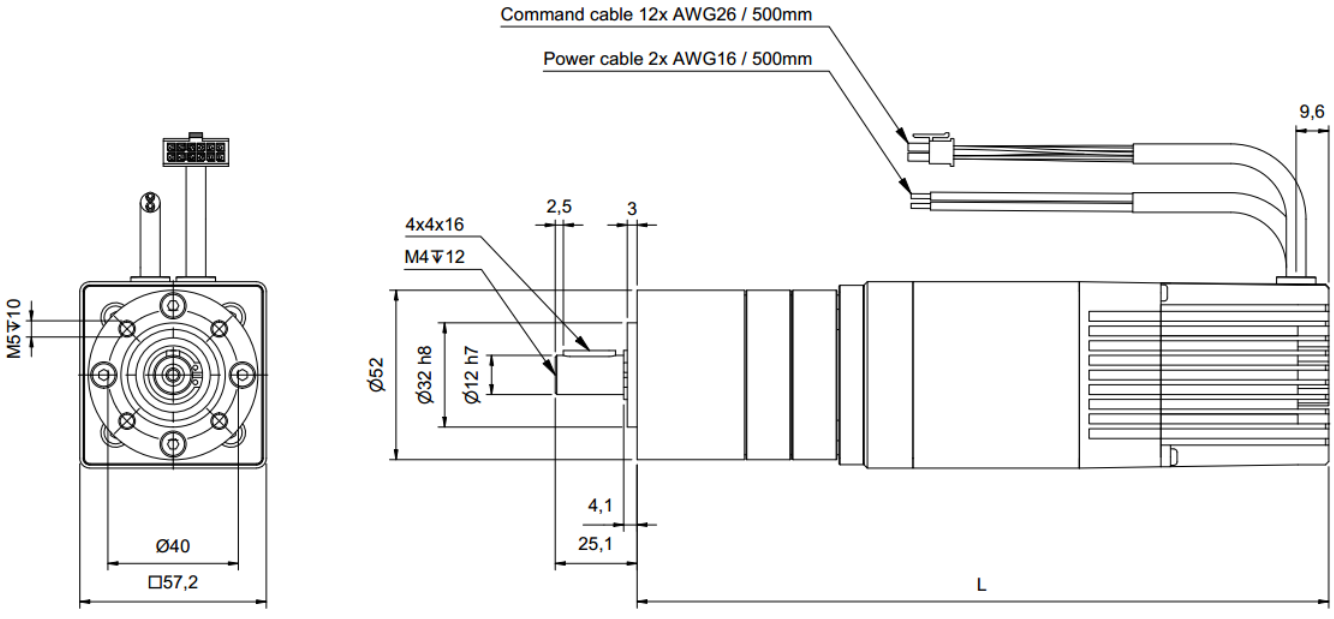
80140-SMi21_PM52LN -x-LF

L	1 stage:	201,9 mm
L	2 stage:	216,1 mm
L	3 stage:	230,2 mm

80180-80280-SMi21_PM52LN -x-LF

L	1 stage:	221,9 mm
L	2 stage:	236,1 mm
L	3 stage:	250,2 mm

80xx0-SMi21_PM52LN -x-SFS



80140-SMi21_PM52LN -x-SFS

L	1 stage:	178,5 mm
L	2 stage:	192,7 mm
L	3 stage:	206,7 mm

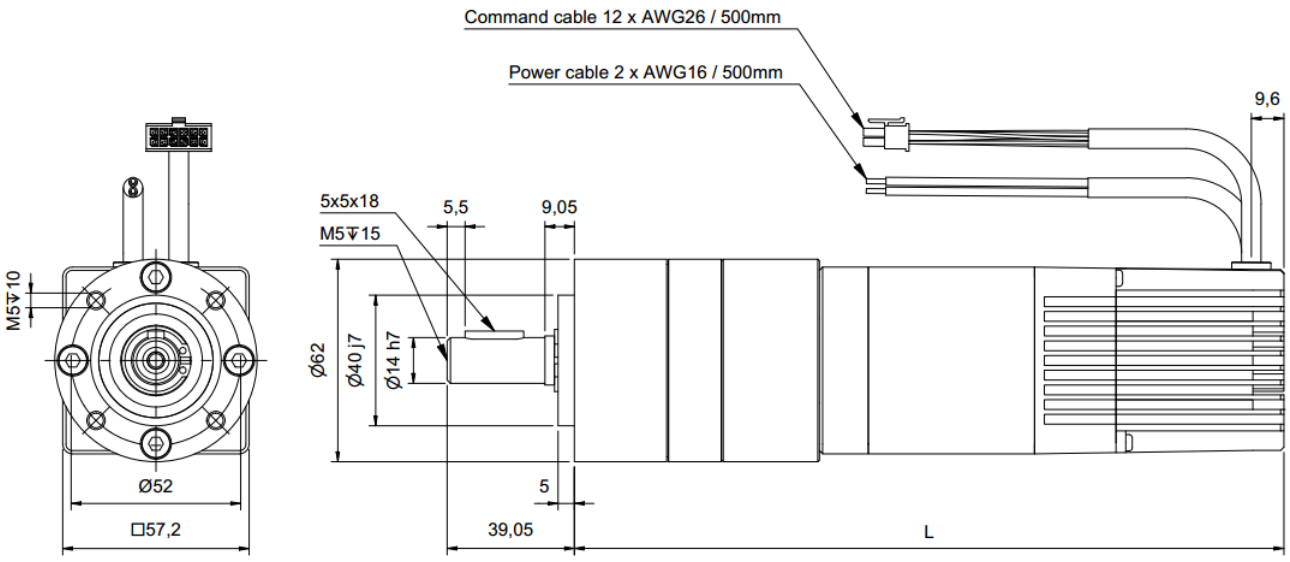
80180-80280-SMi21_PM52LN -x-SFS

L	1 stage:	198,5 mm
L	2 stage:	212,7 mm
L	3 stage:	226,7 mm

Configurations for DCmind brushless range

Dimensions

80xx0-SMi21_PM62LN -x-LF



80140-SMi21_PM62LN -x-LF

L	1 stage:	198,2 mm
L	2 stage:	215,0 mm
L	3 stage:	231,9 mm

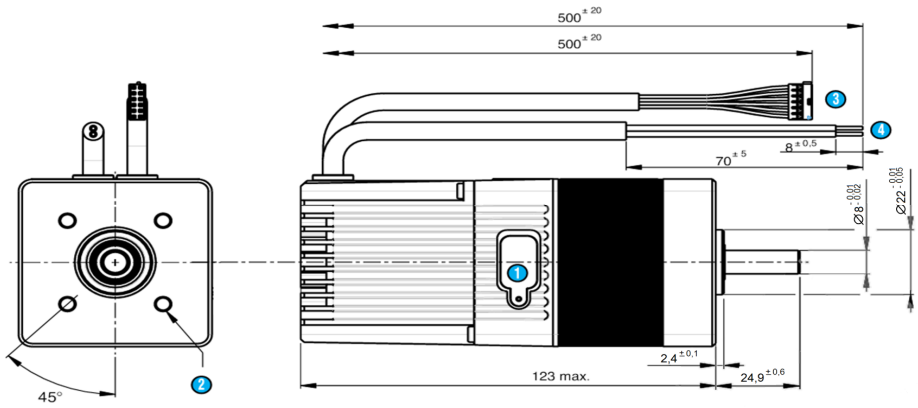
80180-80280-SMi21_PM62LN -x-LF

L	1 stage:	218,2 mm
L	2 stage:	235,0 mm
L	3 stage:	251,9 mm

DCmind motor Brushless
Data sheet

Series

80 140 SMI21



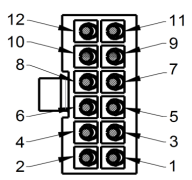
1 Micro-USB connector
2 4 x M5 trheaded holes on 40mm diameter, 4,5 mm thread depth
3 Input - Output cable
4 Power supply cable

General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 48
Max. current	A	10

Motor characteristics (1)		12 Vdc	24 Vcc	48 Vcc	
At no load					
Max. output speed	rpm	2 400	4 000	4 000	
Current at the max output speed (6)	A	0,3	0,3	0,2	
Standby current	A	0,065	0,04	0,025	+-10%
At nominal					
Speed	rpm	1 460	3 900	4 000	+-10%
Torque (4)	mNm	225	225	225	
Output power	W	34	92	94	+-10%
Current	A	5,2	5,2	2,6	
Efficiency	%	55	74	76	
At max. output power					
Speed	rpm	1 100	3 000	4 000	
Torque (4)	mNm	300	400	440	
Output power	W	34	125	184	+-10%
Current	A	7	9,5	6,1	
Efficiency	%	41	55	63	
At peak torque					
Speed	rpm	550	2 200	4 000	+-10%
Torque (4)	mNm	440	440	440	
Output power	W	25	101	184	+-10%
Current	A	10	10	6,1	
Others					
Life (2-3)	h		20 000		
Rotor inertia	gcm²		75		
Thermal Resistance	°C/W		3,2		
Rotor poles			4		
Cogging torque	mNm		30		
Weight	kg		1,17		
Noise level	dBA		40		

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 -> + 48 Vcc	Brown
0V	Blue
Connector for settings	
Connector type	Micro-USB B



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

Drive		
Type	**SMI21**	
Built-in drive	✓	
Internal encoder	4096 points	
Setting software on PC	Dcmind Soft	
Control		
Position - speed - torque	✓	
4 quadrants with regenerative energy	✓	
Type" Field Oriented Control"	✓	
Security		
Output cut-short	✓	
Input inverted	✓	
Low voltage	Vdc	< 8
Short high voltage	Vdc	>56
Internal drive temperature protection (2)	°C	110
Température drive allowing to restart	°C	90

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	48h
Degree of protection (output shaft not included)		CEI60529		IP54
EMC				
Electrostatic Discharge		CEI61000-4-2	level	3
Electrical fast transsient / burst test		CEI61000-4-4	level	3
Surge test		CEI61000-4-5	level	1
Radiated emission		EN55022	class	B
Approvals				
ROHS		2011/65/CE	✓	
EC			✓	

Notes
Values without tolerences, are average production values.
Added informations are in "SMI21 manual and security". Available on www.crouzet.com and in the "setting 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
(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 28/07/2014

Crouzet Automatismes
2 rue du Docteur Abel BP59
26902 Valence CEDEX 9 France

www.crouzet.com

Series 80 140 SMI21

Drive electrical datas

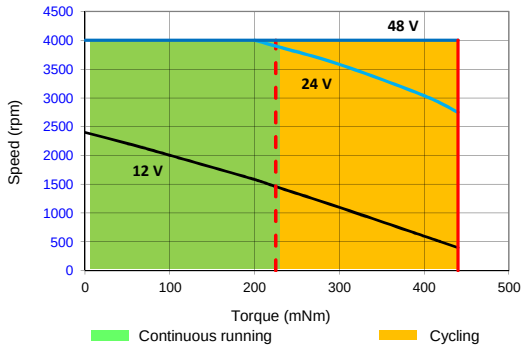
Max. product characteristics		
Parameters		
Max. voltage supply "Vcc max"	Vdc	60
Max. current "Icc max"	A	20
Max. voltage on inputs "Vin max"	Vdc	50
Max. voltage on outputs "Vout max"	Vdc	60
Max. output current "Iout max"	mA	50

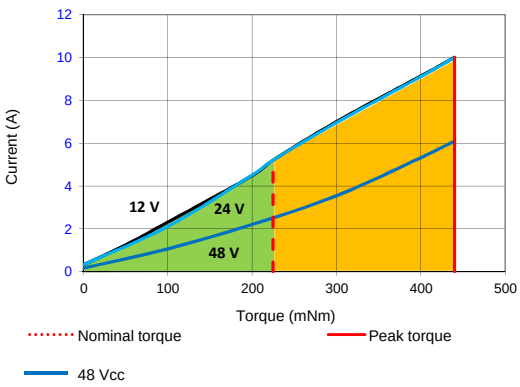
Running datas				
Parameters		Min.	Typical	Max.
Voltage suplly "Vcc"	Vdc	9	12/24/48	56
Current "Icc"	A	-	5	10
Standby power "Wo"	W	-	1	-

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	-	50
Low level - Input 5, 6	Vdc	0	-	2
High level - Input 5, 6	Vdc	7,5	-	50

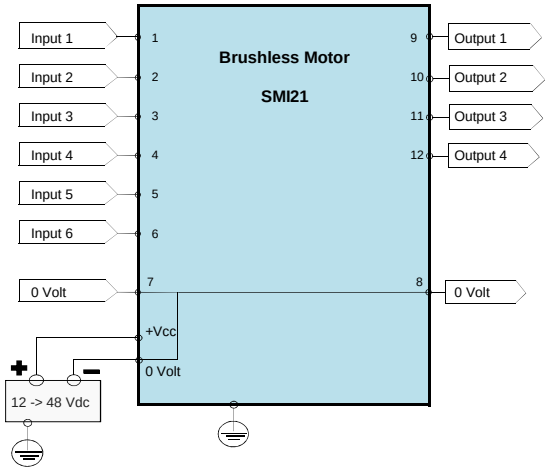
Output datas				
Parameters		Min.	Typical	Max.
Low level Output 1, 2, 3, 4 with "pull down resistor" = 4,7KΩ and Vcc = 24 V	Vdc	0	-	0,2
High level Output 1, 2, 3, 4 with "pull down resistor" = 4,7KΩ and Vcc = 24 V = voltage supply added from eventual rejective voltage	Vdc	Vcc - 0,5	-	Vcc

Speed-torque and current-torque curves





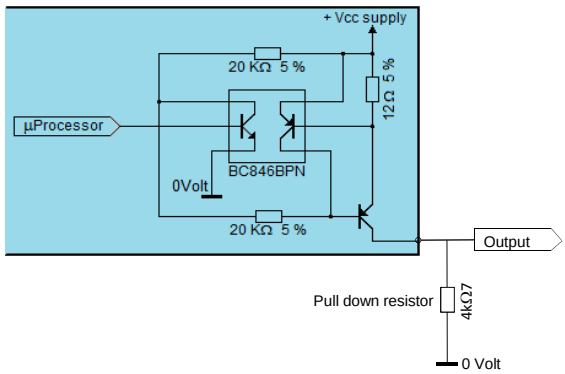
Wiring



Output equivalent circuit

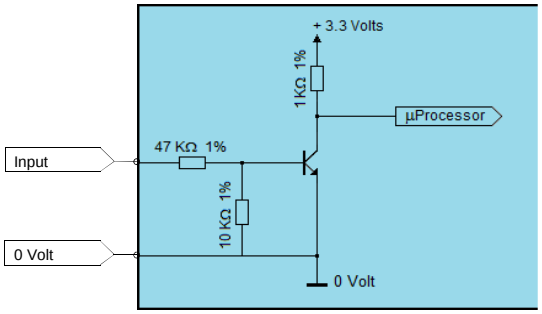
Output 1,2,3,4

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

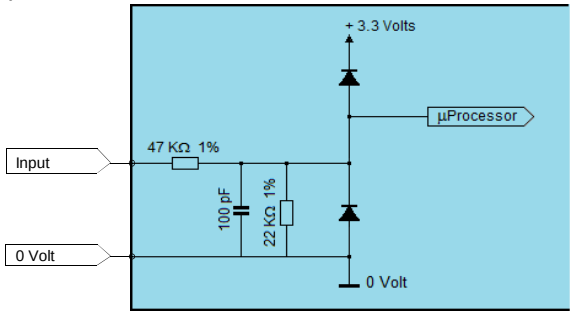


Input equivalent circuit

Inputs 1, 2, 3, 4



Inputs 5, 6



Series 80 140 SMI21

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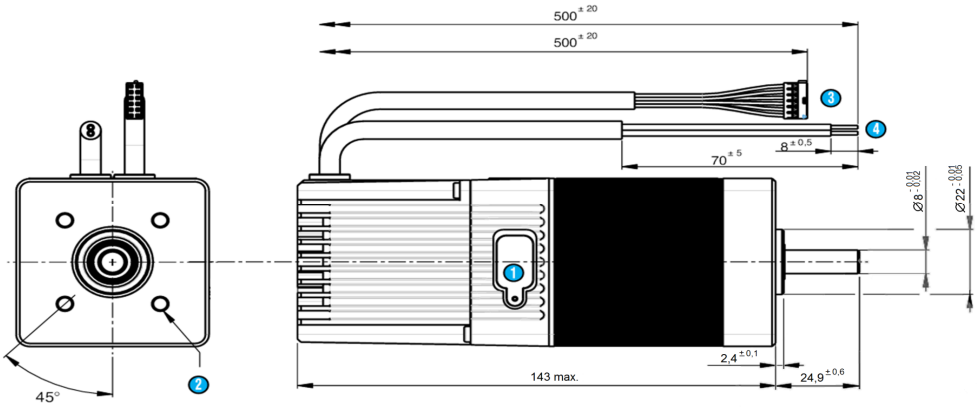
26902 Valence CEDEX 9 France
www.crouzet.com

DCmind motor Brushless
Data sheet

Series

80 180 SMI21



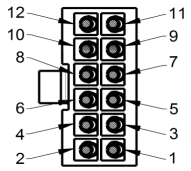
1. Micro-USB connector
2. 4 x M5 trheaded holes on 40mm diameter, 4,5 mm thread depth
3. Input - Output cable
4. Power supply cable

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	1 700	3 500	4 000	
Current at the max output speed (6)	A	0,3	0,33	0,2	
Standby current	A	0,065	0,04	0,025	+-10%
At nominal					
Speed	rpm	1 100	2 900	4 000	+-10%
Torque (4)	mNm	350	350	350	
Output power	W	40	105	145	+-10%
Current	A	5,65	5,40	3,65	
Efficiency	%	60	82	83	
At max. output power					
Speed	rpm	1 000	2 400	4 000	
Torque (4)	mNm	400	600	750	
Output power	W	42	151	314	+-10%
Current	A	6,4	10	10,1	
Efficiency	%	54	62	65	
At peak torque					
Speed	rpm	100	2 100	4 000	+-10%
Torque (4)	mNm	750	750	750	
Output power	W	8	165	314	+-10%
Current	A	13	13	10,1	
Others					
Life (2-3)	h	20 000			
Rotor inertia	gcm²	115			
Thermal Resistance	°C/W	3,7			
Rotor poles		4			
Cogging torque	mNm	30			
Weight	kg	1,52			
Noise level	dBA	40			

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 -> + 48 Vcc	Brown
0V	Blue
Connector for settings	
Connector type	Micro-USB B



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

Drive		
Type	**SMI21**	
Built-in drive	✓	
Internal encoder	4096 points	
Setting software on PC	Dcmind Soft	
Control		
Position - speed - torque	✓	
4 quadrants with regenerative energy	✓	
Type" Field Oriented Control"	✓	
Security		
Output cut-short	✓	
Input inverted	✓	
Low voltage	Vdc	< 8
Short high voltage	Vdc	>56
Internal drive temperature protection (2)	°C	110
Température drive allowing to restart	°C	90

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	48h
Degree of protection (output shaft not included)	CEI60529		IP54
EMC			
Electrostatic Discharge	CEI61000-4-2	level	3
Electrical fast transsient / burst test	CEI61000-4-4	level	3
Surge test	CEI61000-4-5	level	1
Radiated emission	EN55022	class	B
Approvals			
ROHS	2011/65/CE	✓	
EC		✓	

Notes
Values without tolerences, are average production values.
Added informations are in "SMI21 manual and security". Available on www.crouzet.com and in the "setting 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
(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 28/07/2014

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Series 80 180 SMI21

Drive electrical datas

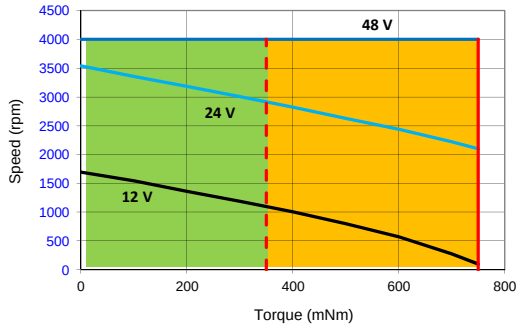
Max. product characteristics		
Parameters		
Max. voltage supply "Vcc max"	Vdc	60
Max. current "Icc max"	A	20
Max. voltage on inputs "Vin max"	Vdc	50
Max. voltage on outputs "Vout max"	Vdc	60
Max. output current "Iout max"	mA	50

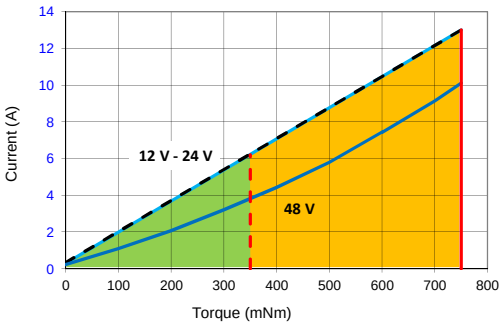
Running datas				
Parameters		Min.	Typical	Max.
Voltage suplly "Vcc"	Vdc	9	12/24/48	56
Current "Icc"	A	-	5	13
Standby power "Wo"	W	-	1	-

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	-	50
Low level - Input 5, 6	Vdc	0	-	2
High level - Input 5, 6	Vdc	7,5	-	50

Output datas				
Parameters		Min	Typique	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

Speed-torque and current-torque curves

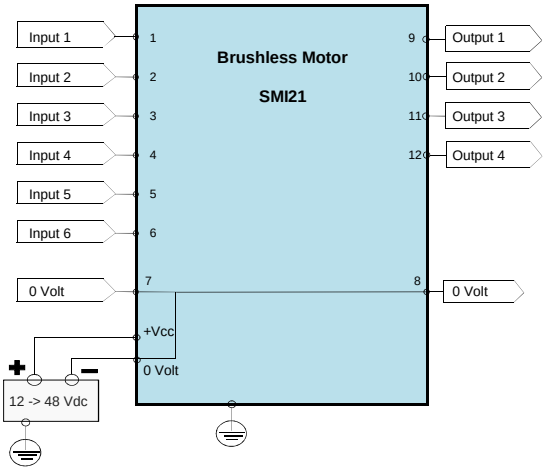




Continuous running — Cycling — Nominal torque — Peak torque

12 Vdc — 24 Vcc — 48 Vcc

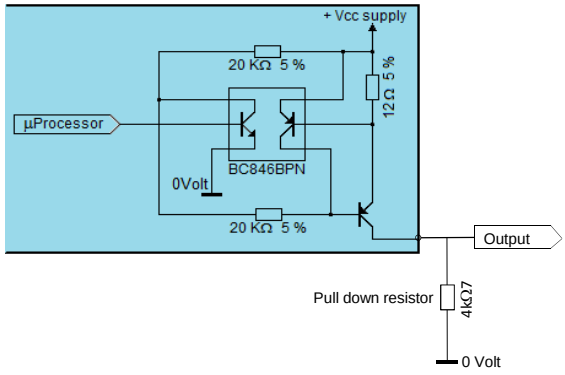
Wiring



Output equivalent circuit

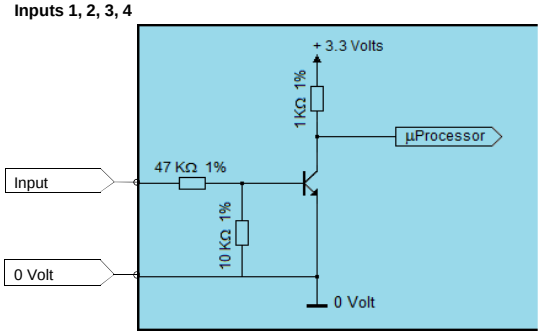
Output 1,2,3,4

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

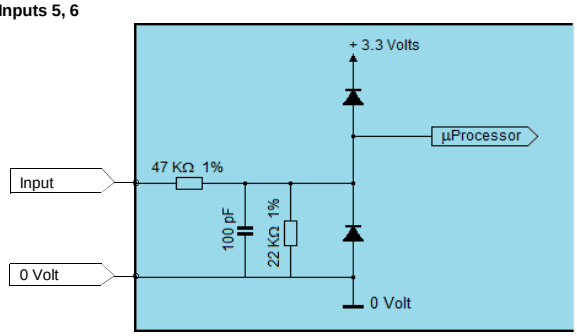


Input equivalent circuit

Inputs 1, 2, 3, 4



Inputs 5, 6



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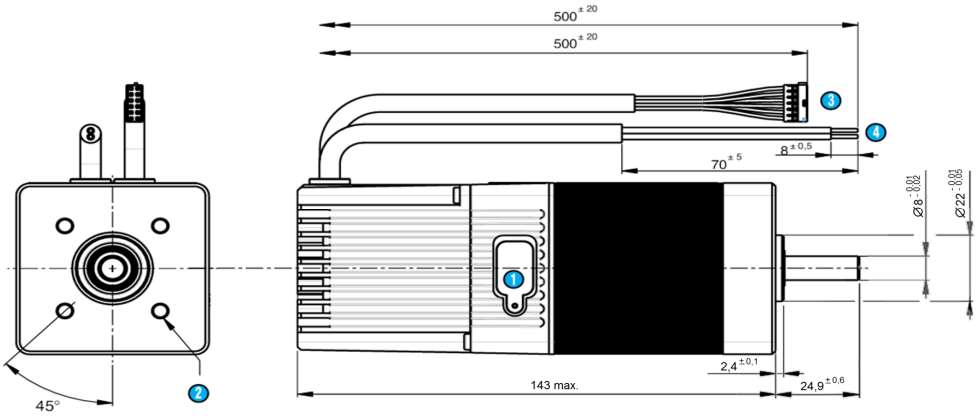
Series 80 180 SMI21

DCmind motor Brushless
Data sheet

Series

80 280 SMI21



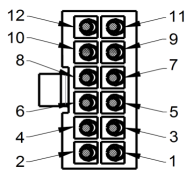
1. Micro-USB connector
2. 4 x M5 trheaded holes on 40mm diameter, 4,5 mm thread depth
3. Input - Output cable
4. Power supply cable

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	
At no load					
Max. output speed	rpm	1 500	3 050	4 000	
Current at the max output speed (6)	A	0,38	0,44	0,35	
Standby current	A	0,065	0,04	0,025	+-10%
At nominal					
Speed	rpm	1 100	2 863	4 000	+-10%
Torque (4)	mNm	685	565	460	
Output power	W	82	170	192	+-10%
Current	A	10	8	5	
Efficiency	%	72	85	78	
At max. output power					
Speed	rpm	740	2 250	4 000	
Torque (4)	mNm	1 000	1 000	1 000	
Output power	W	77	235	419	+-10%
Current	A	14	14	11,5	
Efficiency	%	46	70	76	
At peak torque					
Speed	rpm	740	2 250	4 000	+-10%
Torque (4)	mNm	1 000	1 000	1 000	
Output power	W	77	235	419	+-10%
Current	A	14	14	11,5	
Others					
Life (2-3)	h	20 000			
Rotor inertia	gcm²	120			
Thermal Resistance	°C/W	1,8			
Rotor poles		8			
Cogging torque	mNm	33			
Weight	kg	1,62			
Noise level	dBA	50			

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 -> + 48 Vcc	Brown
0V	Blue
Connector for settings	
Connector type	Micro-USB B



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

Drive		
Type	**SMI21**	
Built-in drive	✓	
Internal encoder	4096 points	
Setting software on PC	Dcmind Soft	
Control		
Position - speed - torque	✓	
4 quadrants with regenerative energy	✓	
Type" Field Oriented Control"	✓	
Security		
Output cut-short	✓	
Input inverted	✓	
Low voltage	Vdc	< 8
Short high voltage	Vdc	>56
Internal drive temperature protection (2)	°C	110
Température drive allowing to restart	°C	90

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	48h
Degree of protection (output shaft not included)	CEI60529		IP54
EMC			
Electrostatic Discharge	CEI61000-4-2	level	3
Electrical fast transsient / burst test	CEI61000-4-4	level	3
Surge test	CEI61000-4-5	level	1
Radiated emission	EN55022	class	B
Approvals			
ROHS	2011/65/CE	✓	
EC		✓	

Notes
Values without tolerences, are average production values.
Added informations are in "SMI21 manual and security". Available on www.crouzet.com and in the "setting 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
(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.

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Series 80 280 SMI21

Drive electrical datas

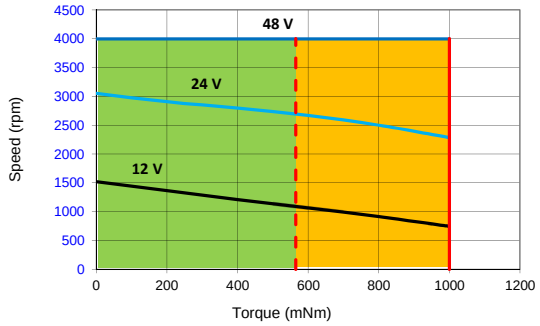
Max. product characteristics		
Parameters		
Max. voltage supply "Vcc max"	Vdc	60
Max. current "Icc max"	A	20
Max. voltage on inputs "Vin max"	Vdc	50
Max. voltage on outputs "Vout max"	Vdc	60
Max. output current "Iout max"	mA	50

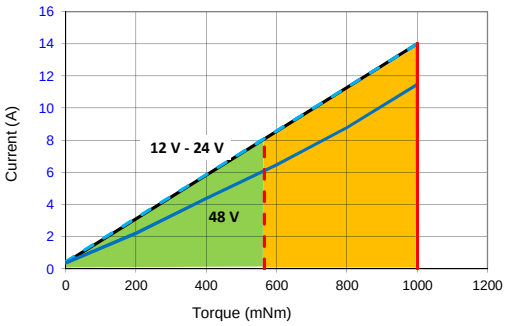
Running datas				
Parameters		Min.	Typical	Max.
Voltage suplly "Vcc"	Vdc	9	12/24/48	56
Current "Icc"	A	-	8	17
Standby power "Wo"	W	-	1	-

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

Speed-torque and current-torque curves

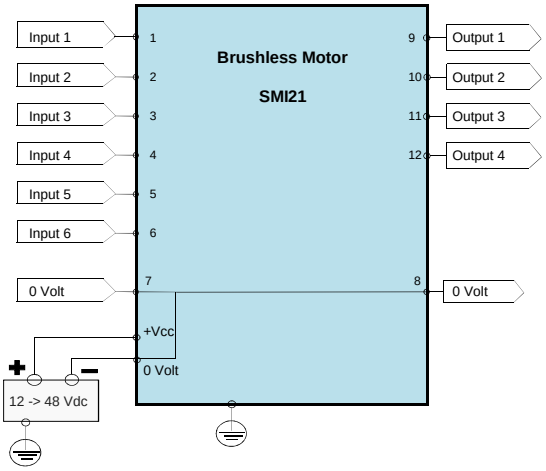




Continuous running | Cycling | Nominal torque | Peak torque

12 Vdc | 24 Vcc | 48 Vcc

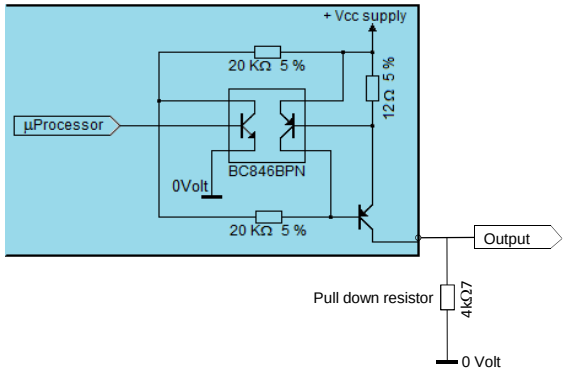
Wiring



Output equivalent circuit

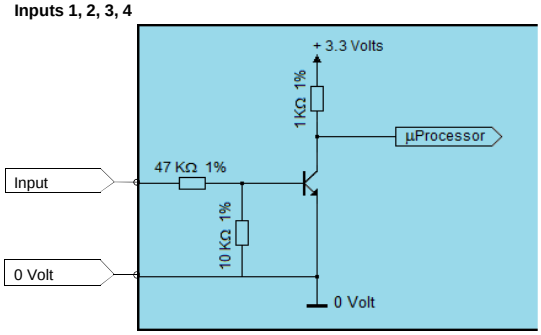
Output 1,2,3,4

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

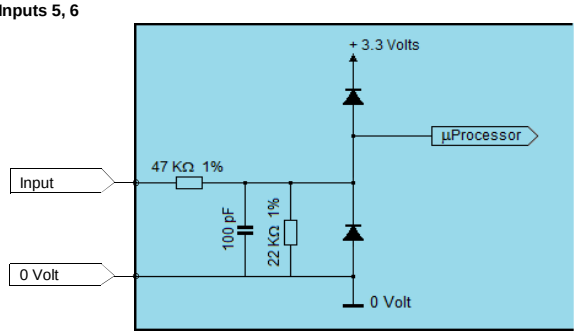


Input equivalent circuit

Inputs 1, 2, 3, 4



Inputs 5, 6



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