

① 4 x M5 threaded holes on 40mm diameter, 4,5 mm thread depth

② M16 male connector - 12 contacts

General characteristics

Power supply

Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 32
Max. current	A	14

Motor characteristics (1)

		12 Vdc	24 Vdc	32 Vdc	
At no load					
Max. output speed	rpm	2 100	4 000	3 950	
Current at the max output speed	A	0,35	0,39	0,34	
Standby current	A	0,08	0,09	0,09	+10%

At nominal

Speed	rpm	1 250	3 350	3 900	+10%
Torque (2)	mNm	340	285	250	
Output power	W	45	100	102	+10%
Current	A	6,7	5,4	4,0	
Efficiency	%	55	78	79	

At max. output power

Speed	rpm	1 040	2 160	3 100	
Torque	mNm	400	600	650	
Output power	W	44	136	211	+10%
Current	A	7,2	11	12	
Efficiency	%	50	51	55	

At peak torque

Speed	rpm	220	1 820	2 850	
Torque	mNm	700	700	700	
Output power	W	16	133	209	
Current	A	13	13	13	+10%

Others

Life (3)	h		20 000		
Rotor inertia	gcm ²		115		
Thermal Resistance	°/W		3		
Thermal time constant	mn		30		
Rotor pole number			4		
Cogging torque	mNm		14		
Weight	kg		1,34		
Noise level	dBA		40		

Connecting

M16 male connector - 12 contacts	Lumberg 0315 12
+ 12Vdc -> + 32 Vdc	E + F
0V	G + M
0V	H
Input: ON/OFF	C
Input: Direction	B
Input: Speed	J
Input: Torque limit	D
Output: Pulse	A
Output: Torque limit reached	K
Output: Direction	L

Accessory

2 meters shielded cable with M16 female connector - 12 pins			
Part number	15 275 008	Cable with 12 wires AWG24	
Note: G and M wires have to be connected together. E and F wires have to be connected together			
A = white	B = brown	C = green	D = yellow
E = grey	F = pink	G = blue	H = red
J = black	K = purple	L = grey/pink	M = red/blue

Drive

Type	TNI21	
Built-in drive	✓	
Internal encoder	12 pulses per turn	
Control		
Speed	0/10 V	
Torque	0/10 V	
4 quadrants - low braking	✓	
4 quadrants with regenerative energy		
Type" Trapezoidal"	✓	
Security		
Short-circuit of outputs	✓	
Input inverted	✓	
Low voltage	Vdc	< 10
Short high voltage	Vdc	> 36
Stop at max internal drive temperature (2)	°C	110
Drive temperature allowing to restart	°C	90

Generic parameters

Output shaft with ball bearings		✓	
Max. Radial force (12mm from front face)	N	40	
Max. axial force(4)	N	20	
Temperature range	CEI60068-2-1/2	°C	-30 -> +70
Storage temperature		°C	-40 -> +80
Dielectric	1min 2mA 50Hz CEI60335	Vdc	
Motor insulation	CEI60085	class	E
Salt spray	CEI60068-2-58	severity	48h
Degree of protection (output shaft not included)	CEI60529	IP	65M
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	2002/95/CE		✓
EC			✓

Notes

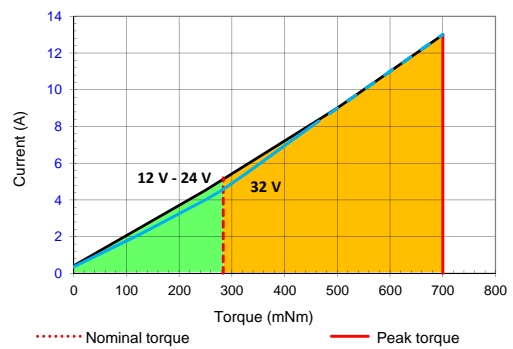
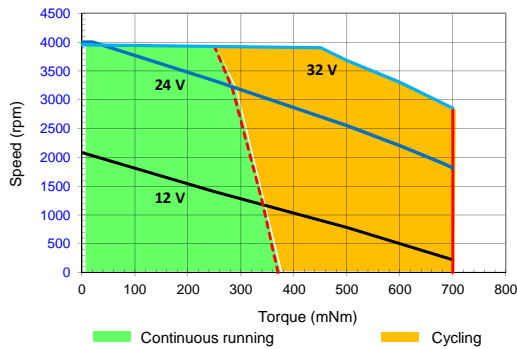
Values without tolerances are average production values.
Added informations are in "TNI21 manual and security" on www.crouzet.com
Motor not protected in case of reversed power voltage
(1) Cold motor, 20 ° C ambient temperature, full speed
(2) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature
(3) Continuously rated torque, zero radial and axial loads
(4) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.

Drive electrical datas

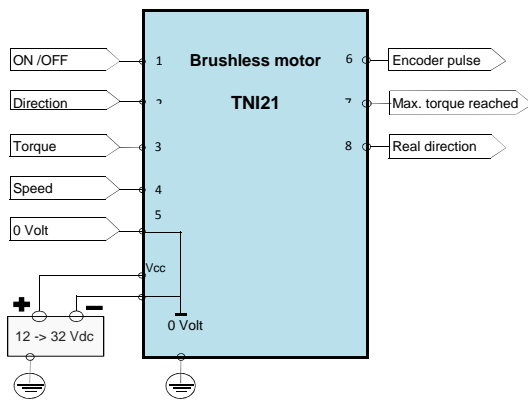
Max. product characteristics			
Parameters			
Max. voltage supply "Vcc"	Vdc		39
Max. current "Icc max"	A		15
Max. voltage on inputs "Vin max"	Vdc		39
Max. voltage on outputs "Vout max"	Vdc		39
Max. output current "Iout max"	mA		50
Running datas			
Parameters			
Voltage supply "Vcc"	Vdc	Min	Typical
		10	12/24/32
Current "Icc"	A	-	6
Standby power "Wo"	W	-	2
Speed setting	rpm	120	-
Torque setting	mNm	30	-
Holding torque setting	mNm	30	-

Input datas			
Parameters			
Impedance - Input 1, 2	kΩ	Min	Typical
		-	57
Impedance - Input 3, 4	kΩ	-	69
Low level - Input 1, 2	Vdc	0	-
		-	2
High level - Input 1, 2	Vdc	4	-
		-	39
Low level - Input 3, 4	Vdc	0	-
		-	2
High level - Input 3, 4	Vdc	7,5	-
		-	39
PWM frequency	Hz	100	-
		-	2000
Output datas			
Parameters			
Low level Outputs	Vdc	Min	Typical
		0	-
with "pull down resistor" = 4,7KΩ and Vcc = 24 V		-	0,2
High level Outputs	Vdc	Vcc - 0,5	-
with "pull down resistor" = 4,7KΩ and Vcc = 24 V		-	Vcc
= voltage supply added from eventual rejeive voltage			

Speed-torque and current-torque curves



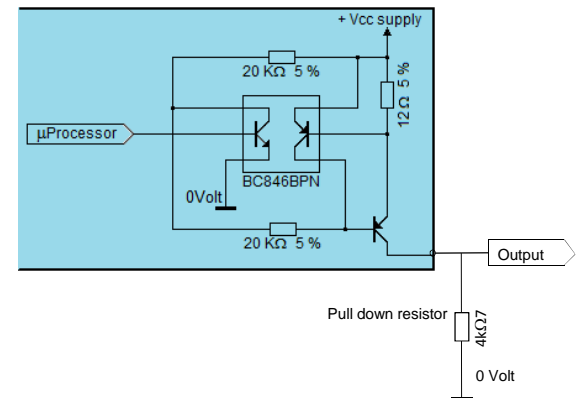
Wiring



Output equivalent circuit

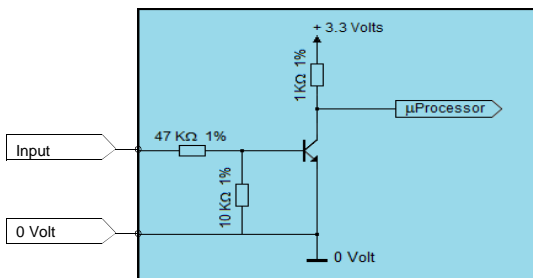
Outputs

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



Inputs: ON/OFF and Direction

Inputs: ON/OFF and Direction



Inputs: Torque and Speed

Inputs: Torque and Speed

