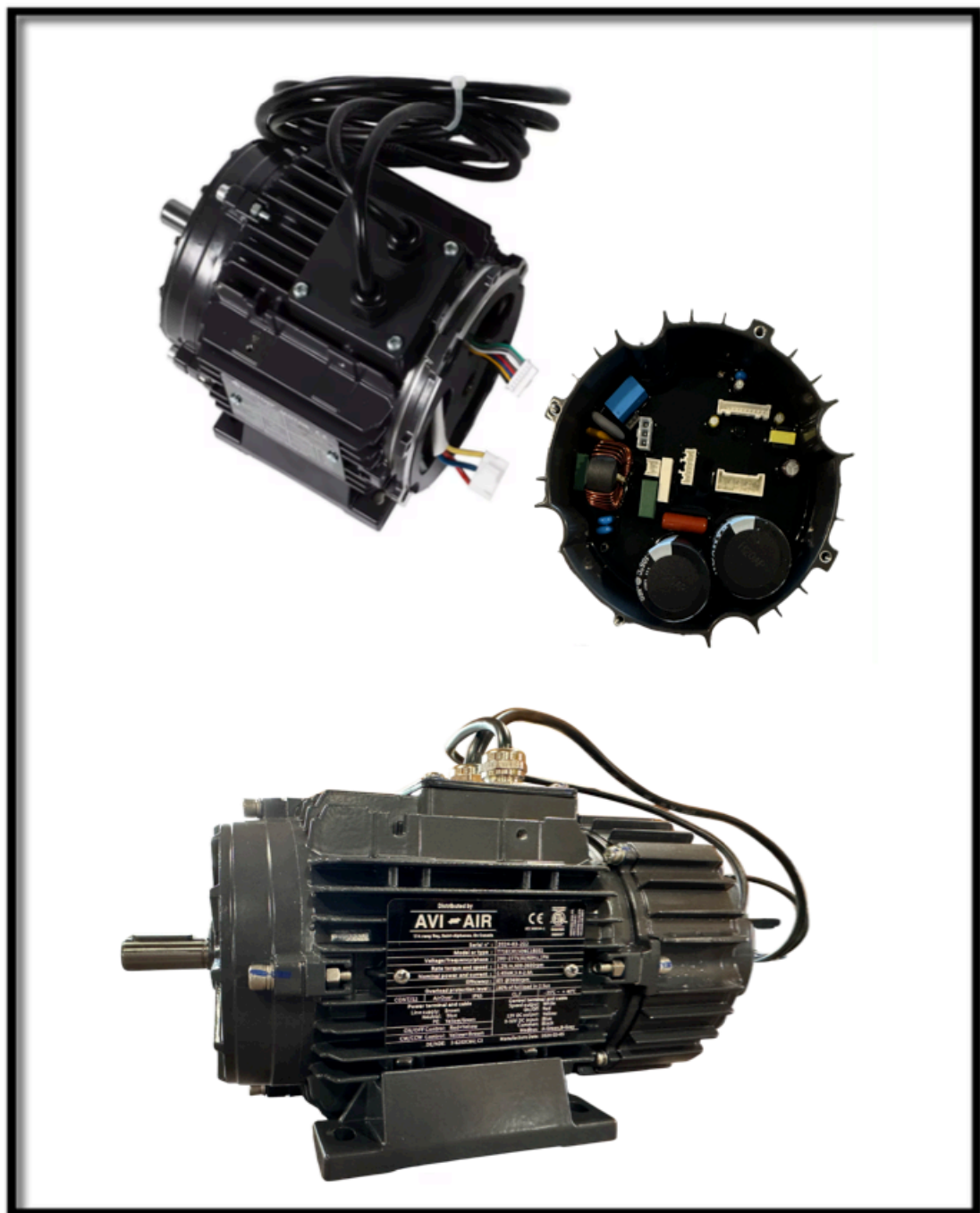




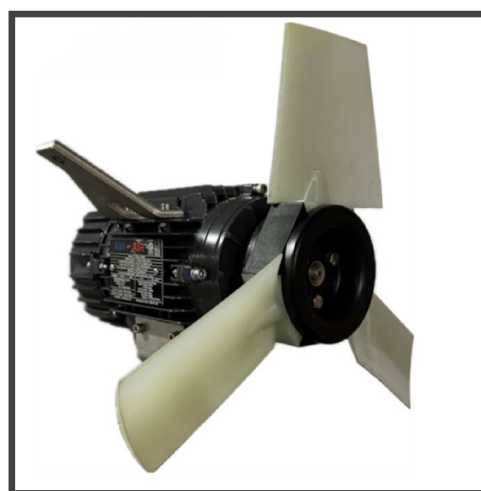
ECI Series



**Electronically Commutated Motors
With Integrated Inverter**

ECI motors are permanent magnet synchronous AC motors with integrated inverter these motors respecting the IEC standards, these motors guarantee significant energy savings, have efficiency beyond the IE4 and IE5 values (IEC60034-30-2-2016).

The management of the EC motor with integrated inverter (ECI series) is extremely simple, it is not necessary to enter the motor data in the inverter, the drive card is already parameterized, these motors can therefore be managed simply as standard asynchronous motors. They are controlled with MODBUS or 0-10 volt for variable speed.



Characteristic:

- Field of application: Ventilation (loads with quadratic resistant torque)
- Overload torque protection.
- Single phase power supply 200-240VAC 50Hz / 60Hz
- IEC 71 aluminum housing IP65
- Total efficiency (motor + inverter) IE5 and beyond
- Variable speed between 300-3600 rpm
- Max torque 4Nm
- Direct motor connections and control (inverter)
- Torque limit control.
- Overtemperature protection
- High input $\cos\phi > 0.95$
- Driver (inverter) input EMC filter class C3

Model	Frame size	Rated torque (Nm)**	Output@1500rpm (kW)	Output@3000rpm (kW)	Maximum speed (rpm)
T71ECI01X36	71	1.2	0.2	0.41	3600
T71ECI02X36		2.4	0.41	0.82	3000
T71ECI03X18		3.2	0.55	-	1800

** The detailed values of the torque are shown in the data sheets.

ECI MOTOR

T 71 EC 03 V 36 C2 B14 P T1
 1 2 3 4 5 6 7 8 9 10

Position	Character	Description
1	"T"	Product platform
2	"71"	Frame size: IEC 90#
3	"EC"	EC: permanent magnet motor ECI: permanent magnet motor with integrated drive
4	"03"	Rated torque
5	"V"	Cooling method: G = General purposes, with fan and fan hood. IC411 V = Ventilation applications, without fan and fan hood.
6	"36"	Maximum speed: 3600 rpm
7	C2	Power line connection method: T1 = Terminal box on top T2 = Terminal box on NDE C1 = No terminal box, power line from housing C2 = No terminal box, power line from NDE
8	B14	Mounting method: B3, B14, B5, B34, B35
9	P	P = Slid rail
10	T1	Voltage code: T1: 3 phase 360-440 V, T2: 3 phase 200-240 V S1: 1 phase 200-240 V, S2: 1 phase 115 V

MOTOR CONNECTIONS:

T71ECI

1. Motor Power connections and inverter conn

Control connections (inverter)

Speed output	White	3 puls per rev (*)
On/Off	Red	On: Red+Yellow
DC 12V output	Yellow	
DC 0-10V input	Blue	Speed control
COM	Black	
CW/CCW	Brown	CCW: Yellow+Brown
RS485 B	Green	T/R+
RS485 A	Grey	T/R-

Motor power connections

L1	Brown
L2	Blue
G	Yellow/Green

ECI Motor Data Sheet

2. Power and control cable connection

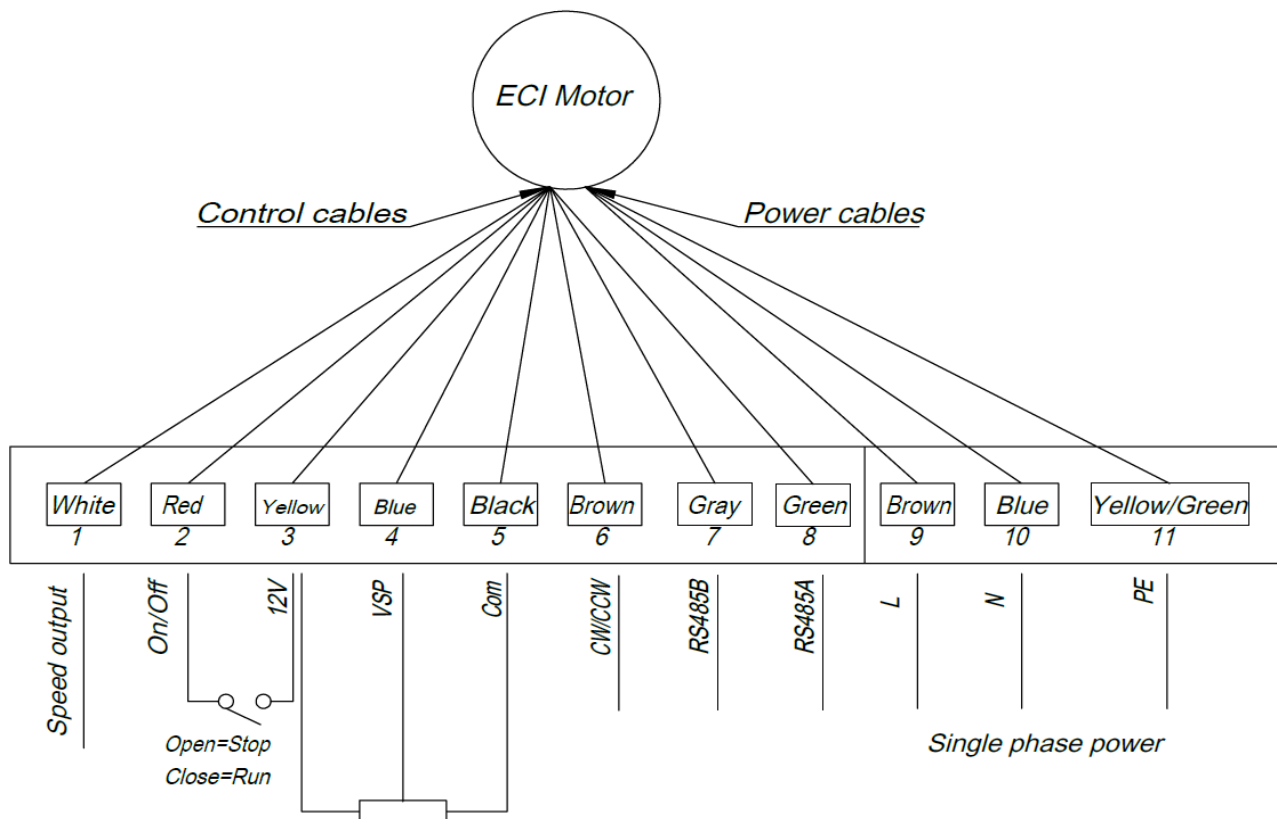
+ Control cable

Item	Fuction	Wire color	Note
1	Speed output	White	3 puls per rev
2	Start/Stop	Red	Start: Red+Yellow
3	DC 12V output	Yellow	
4	DC 0-10V input	Blue	Speed control
5	COM	Black	
6	CW/CCW	Brown	CW: Brown, CCW:Brown+Yellow
7	RS485 B	Gray	
8	RS485 A	Green	

+ Power cable

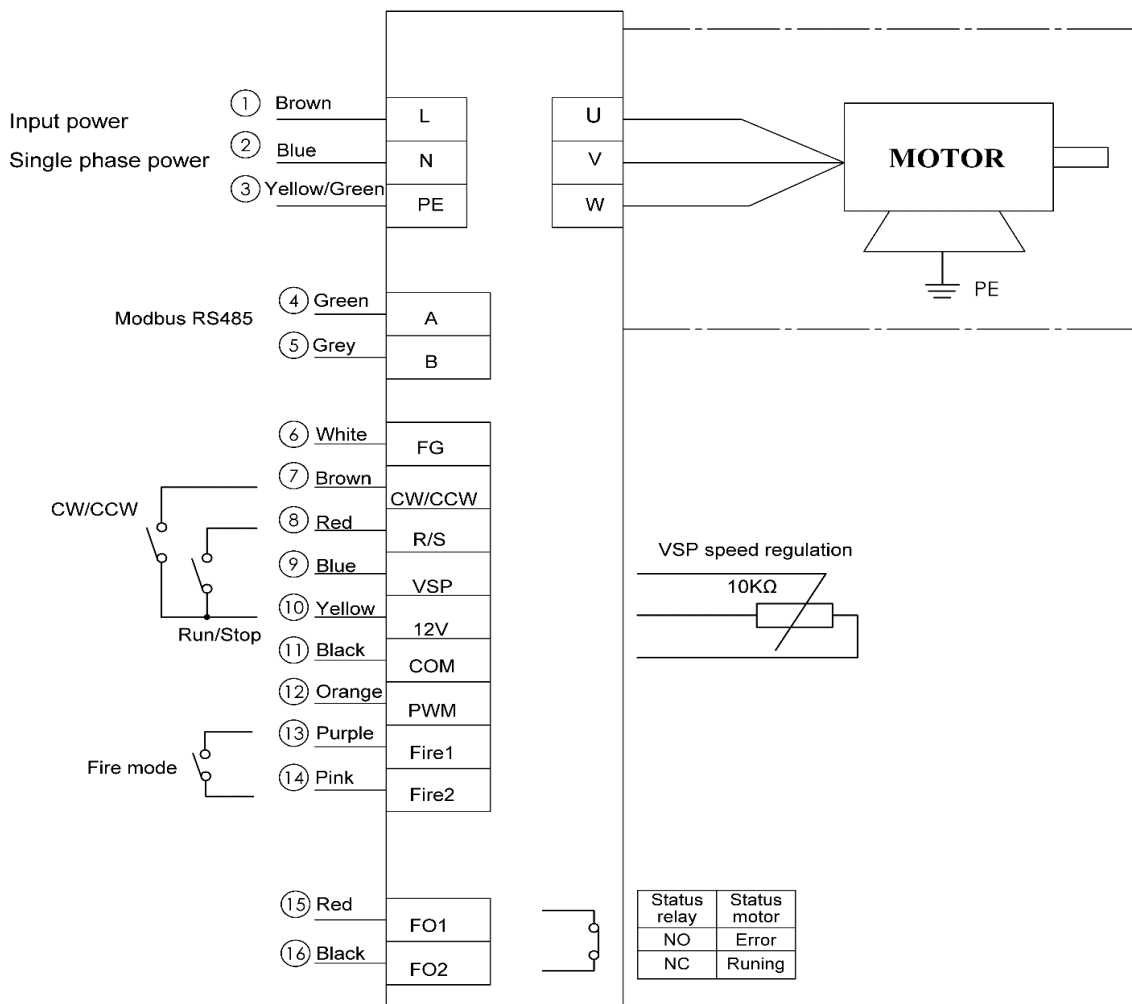
Item	Fuction	Wire color
9	L	Brown
10	N	Blue
11	PE	Yellow/Green

3. Customer side connection



Wiring instructions for single-phase ECI motor

Wiring diagram



Definition of power terminals

No.	Description	Cable color	Function
1	L	Brown	1 ~ 200...277VAC,50/60Hz
2	N	Blue	1 ~ 200...277VAC,50/60Hz
3	PE	Yellow/Green	Ground protection

Definition of Control Terminals			
No.	Description	Cable color	Function
4	RS485 A	Green	“+”,SELV
5	RS485 B	Grey	“-”,SELV
6	FG	White	Speed output:3 puls per rev SELV
7	CW/CCW	Brown	Uin: 5...24 VDC Ri = 2.2 kohm Forward and reverse switching SELV
8	Run/Stop	Red	Uin: 5...24 VDC Ri = 2.2 kohm Switch(R/S) SELV
9	VSP	Blue	0...10VDC,Umax 28VDC,Accuracy 1%, Ri = 4.6kohm SELV
10	12VDC output	Yellow	+12V,I _{max} +50mA,Short circuit prevention,SELV
11	COM	Black	SELV
12	PWM	Orange	Uin high level: 5...28 VDC Uin low level: 0...10 VDC Frequency:10Hz...500Hz(Standard 100Hz) Ri = 3.3kohm,Accuracy 1% SELV (Optional)
13	Fire1	Purple	Relay dry contact input Relay specifications:
14	Fire2	Pink	Maximum > 10mA,U > 24VDC (Optional)
15	FO1	Red	Relay status: default normally closed (NC), normally open (NO) error reported.
16	FO2	Black	Internal relay contact load: 0.1–2 A/Vmax 250 VAC or 42 VDC. (Optional)

ECI Motor Data Sheet

Typical information:

Motor model:	T71ECI01X36		(Integrated drive model)
Input Voltage :	200-240	V	50/60 Hz
Rated torque:	1.2	N.m	*TEAO:
Max speed:	4000	rpm	At least 1m/s air flow cooling
Nominal power:	453	W	@3600 rpm
Nominal current:	3.2	A	@3600 rpm

Performance data:

Minimum speed:	600 rpm	Tested data	2019/2/25
Maximum speed:	4000 rpm		

Speed (rpm)	Voltage (V)	Torque (N.m)	*Input Current (A)	Input Power (W)	*Total Eff (%)
600	220	0.3	0.26	33	57.6
600	220	0.5	0.35	43	65.4
600	220	0.6	0.43	56	67.9
600	220	0.9	0.61	83	68.7
600	220	1.2	0.82	114	67.8

900	220	0.3	0.37	47	61.7
900	220	0.5	0.47	61	70.5
900	220	0.6	0.58	78	73.1
900	220	0.9	0.81	113	74.3
900	220	1.2	1.05	150	75.3

1200	220	0.3	0.46	60	63.3
1200	220	0.4	0.60	79	70.9
1200	220	0.6	0.73	100	75.0
1200	220	0.9	1.00	144	78.5
1200	220	1.2	1.29	190	79.5

1500	220	0.3	0.56	75	64.0
1500	220	0.4	0.72	97	72.2
1500	220	0.6	0.89	123	77.2
1500	220	0.9	1.20	175	80.6
1500	220	1.2	1.54	232	81.5

1800	220	0.3	0.64	86	65.1
1800	220	0.5	0.85	117	73.5
1800	220	0.6	1.03	145	77.9
1800	220	0.9	1.40	207	82.1
1800	220	1.2	1.78	271	83.8

2100	220	0.3	0.75	103	66.0
2100	220	0.5	0.97	135	74.1
2100	220	0.6	1.18	168	78.6
2100	220	0.9	1.59	239	82.8
2100	220	1.2	2.02	312	84.9

ECI Motor Data Sheet

Speed (rpm)	Voltage (V)	Torque (N.m)	*Input Current (A)	Input Power (W)	*Total Eff (%)
2400	220	0.3	0.82	112	66.5
2400	220	0.5	1.09	152	74.9
2400	220	0.6	1.31	190	79.5
2400	220	0.9	1.78	272	83.5
2400	220	1.2	2.27	353	85.6

2700	220	0.3	0.92	129	66.7
2700	220	0.4	1.18	168	75.6
2700	220	0.6	1.46	213	79.8
2700	220	0.9	1.96	302	84.4
2700	220	1.2	2.49	393	86.3

3000	220	0.3	1.00	142	68.3
3000	220	0.4	1.30	186	75.8
3000	220	0.6	1.60	237	80.3
3000	220	0.9	2.15	334	84.7
3000	220	1.2	2.73	434	87.3

3300	220	0.3	1.08	152	67.1
3300	220	0.4	1.41	204	75.5
3300	220	0.6	1.73	258	80.6
3300	220	0.9	2.33	363	85.4
3300	220	1.2	2.97	475	87.4

3600	220	0.3	1.19	168	66.1
3600	220	0.5	1.54	225	76.0
3600	220	0.6	1.86	280	80.7
3600	220	0.9	2.52	397	85.4
3600	220	1.2	3.20	517	87.6

4000	220	0.3	1.32	189	65.1
4000	220	0.5	1.69	254	75.0
4000	220	0.6	2.09	315	80.0
4000	220	0.9	2.81	449	84.6
4000	220	1.2	3.57	583	86.4

* The input current is RMS.

* Total Eff include the VSD loss.

ECI Motor Data Sheet

Typical information:

Motor model:	T71ECI02X30		(Integrated drive model)
Input Voltage :	200-277	V	50/60 Hz
Rated torque:	2.4	N.m	*TEAO:
Max speed:	3000	rpm	At least 1m/s air flow cooling
Nominal power:	753	W	@3000 rpm
Nominal current:	5	A	@3000 rpm

Performance data:

Minimum speed: 600 rpm

Tested data

2019/2/26

Maximum speed: 3000 rpm

Speed (rpm)	Voltage (V)	Torque (N.m)	*Input Current (A)	Input Power (W)	*Total Eff (%)
600	230	0.6	0.40	54	70.4
600	230	1.2	0.71	101	75.2
600	230	1.8	1.04	153	73.9
600	230	2.4	1.39	214	70.1

900	230	0.6	0.55	77	74.0
900	230	1.2	0.96	141	80.1
900	230	1.8	1.39	210	81.0
900	230	2.4	1.85	290	78.3

1200	230	0.6	0.69	98	76.5
1200	230	1.2	1.21	182	83.0
1200	230	1.8	1.73	268	84.3
1200	230	2.4	2.30	369	81.8

1500	230	0.6	0.84	121	78.5
1500	230	1.2	1.46	221	85.5
1500	230	1.8	2.09	329	86.3
1500	230	2.4	2.76	451	84.3

1800	230	0.6	0.97	144	78.5
1800	230	1.2	1.69	262	86.3
1800	230	1.8	2.41	387	87.9
1800	230	2.4	3.20	532	86.0

2100	230	0.6	1.10	165	80.0
2100	230	1.2	1.93	304	86.8
2100	230	1.8	2.77	446	89.0
2100	230	2.4	3.66	614	86.6

ECI Motor Data Sheet

Speed (rpm)	Voltage (V)	Torque (N.m)	*Input Current (A)	Input Power (W)	*Total Eff (%)
2400	230	0.6	1.24	188	80.3
2400	230	1.2	2.17	343	87.8
2400	230	1.8	3.09	504	89.7
2400	230	2.4	4.14	700	87.4

2700	230	0.6	1.37	209	80.9
2700	230	1.2	2.40	385	88.3
2700	230	1.8	3.43	564	90.6
2700	230	2.4	4.61	788	87.9

3000	230	0.6	1.52	234	80.8
3000	230	1.2	2.63	425	88.7
3000	230	1.8	3.77	626	90.8
3000	230	2.4	4.97	856	88.5

* The input current is RMS.

* Total Eff include the VSD loss.

* Motor must be run at forced air cooling condition.

* The operation of IC410 environment requires evaluation according to the actual load.

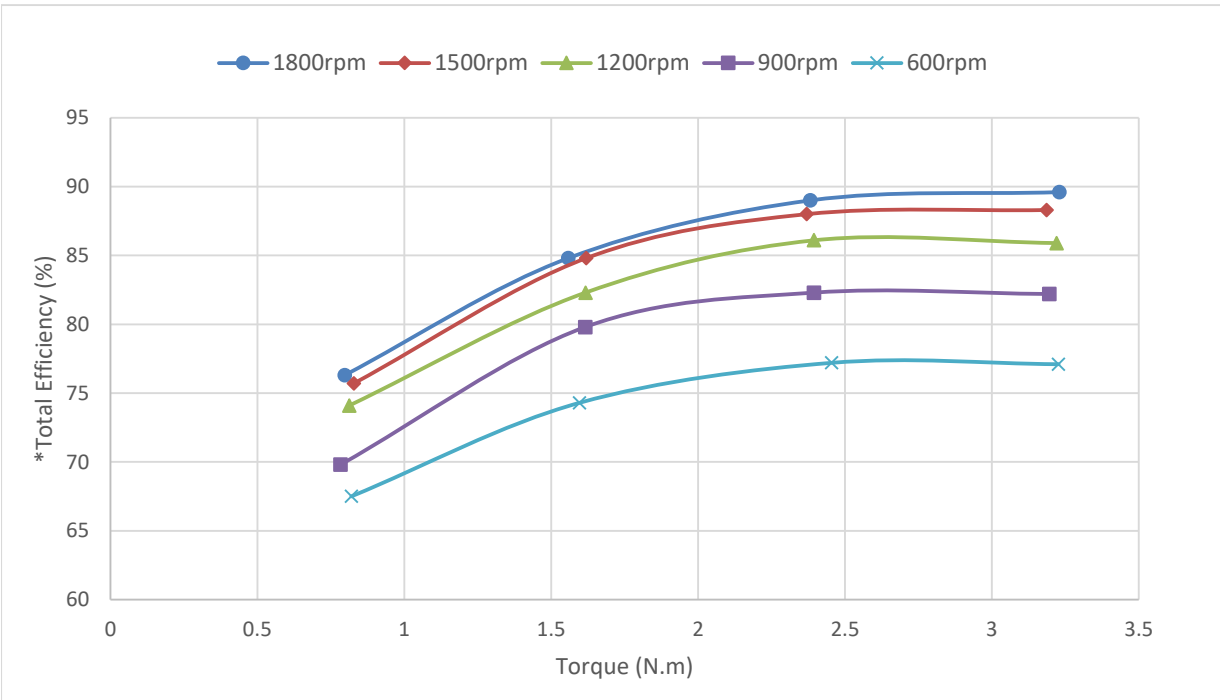
ECI Motor Data Sheet

Typical information:

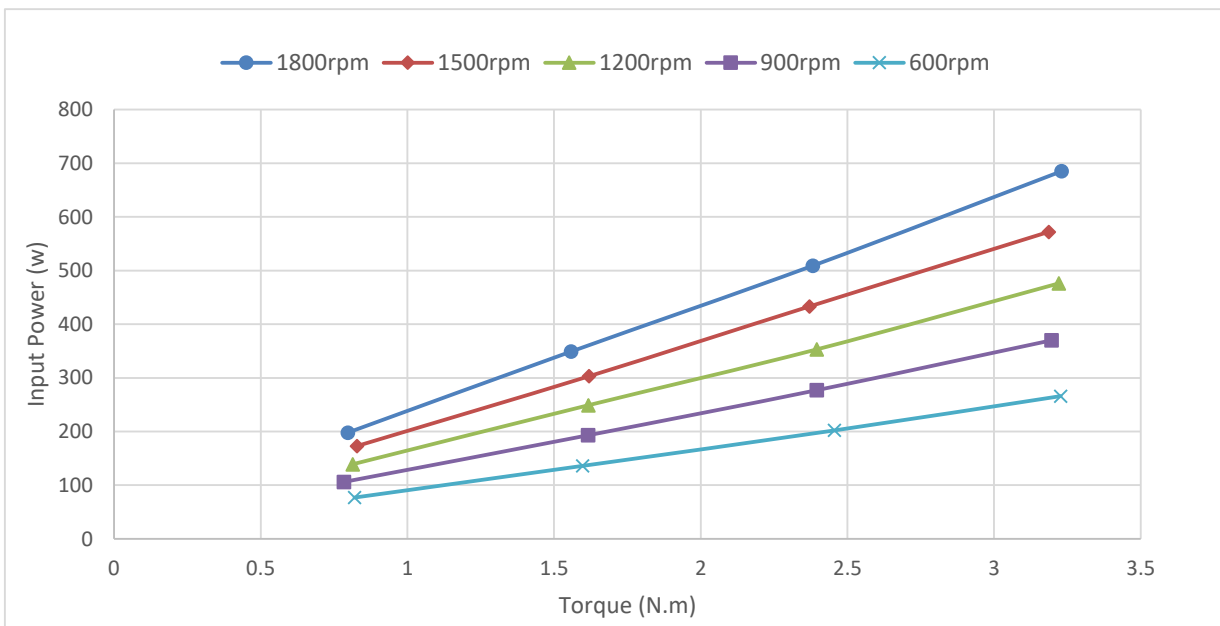
Motor model:	T71ECI03X18			
Input Voltage:	200-240	V	50/60	Hz
Rated torque:	3.2	N.m	* No cooling condition	
Max speed:	1800	rpm		
Maximum torque:	4	N.m		
Maximum current:	4.1	A		

Performance data:

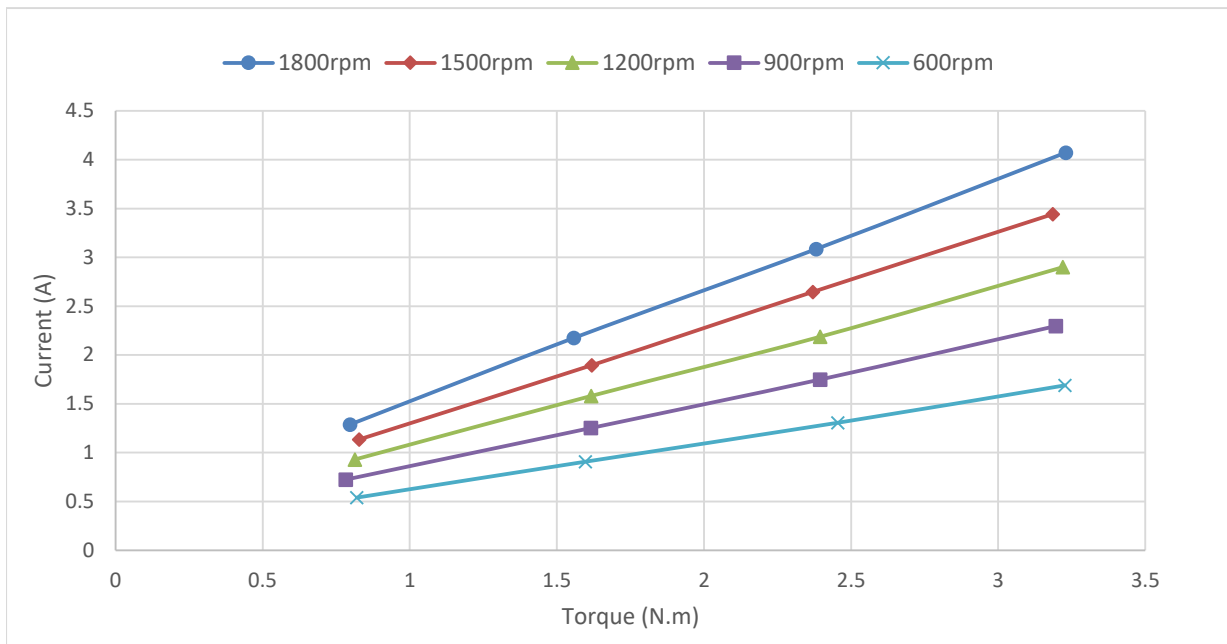
Maximum speed: 1800 rpm Tested data 20190218



* Total efficiency include motor and drive.



EC Motor Data Sheet



Motor plate and certificate

Distributed by	
AVI ⇌ AIR	
114 rang Roy Saint-Alphonse, Qc Canada	
Serial n° :	XXXXXXX-XXX
Model or type :	T71ECI01V36C1B3S1
Voltage/frequency/phase :	200~277V 50/60Hz 1PH
Rate torque and speed :	1.2N.m 600~3600rpm
Nominal power and current :	0.45kW 3.8-2.9A
Efficiency :	IE5 @3600rpm
Overload protection level :	180% of full load in 2.5us
CONT/S1	AirOver
IP65	CLF
-25°C ~ +40°C	
Power terminal and cable	Control terminal and cable
Line supply: Brown	Speed output: White
Neutral: Blue	On/Off: Red
PE: Yellow/Green	12V DC output: Yellow
ON/OFF Control: Red+Yellow	0-10V DC input: Blue
CW/CCW Control: Yellow+Brown	Common: Black
	Modbus: A-Green B-Grey
DE/NDE: 2-6202C&U, C3	Manufacture Date: xxx-xx-xx



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Control Number: **5028387**

Authorized by:

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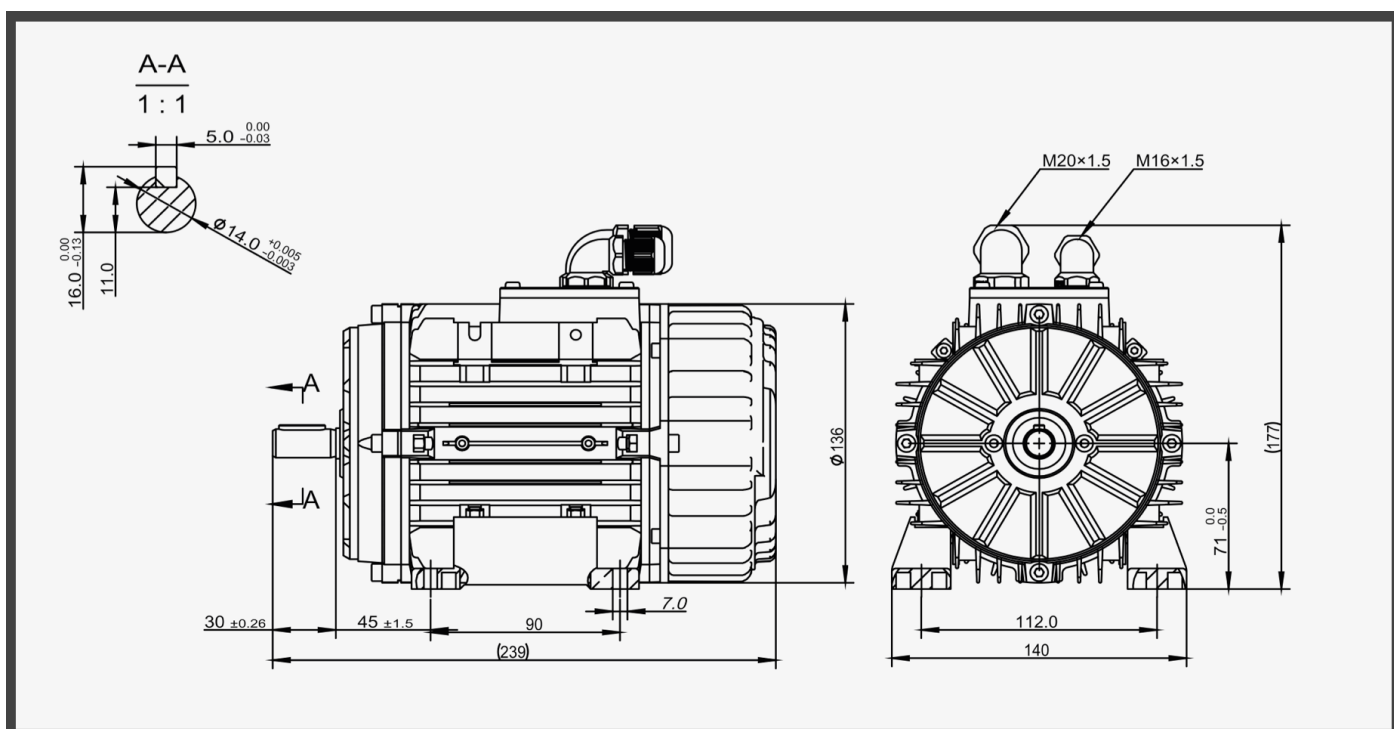
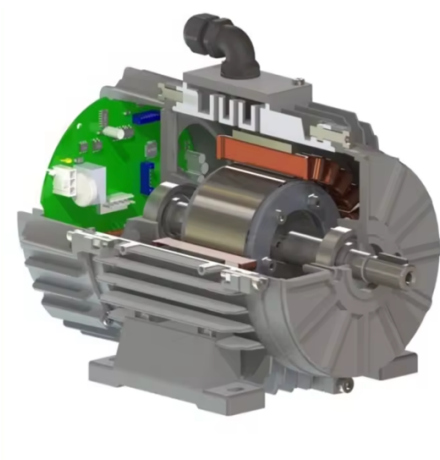
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Standard(s):	Rotating Electrical Machines - General Requirements [UL 1004-1:2012 Ed.2+R:05Nov2020]
	Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy [UL 61800-5-1:2012 Ed.1+R:11Feb2021]
	Adjustable Speed Drives (R2021)[CSA C22.2#274:2017 Ed.2]
	Motors and Generators (R2019) [CSA C22.2#100:2014 Ed.7+U1]
Product:	Air motor
Brand Name:	
Models:	T71ECI followed by 01, followed by V, followed by 36, followed by C1, followed by (A), followed by S1, T71ECI followed by 02, followed by V, followed by 30, followed by C1, followed by (A), followed by S1, T71ECI followed by 03, followed by V, followed by 18, followed by C1, followed by (A), followed by S1, where (A) may be B3, B14, B34, B5 or B35

FRAME 71 DIMENSIONS



(*) with different cable glands height can be 169mm instead 177mm

B3 mounting method - IC410

*The feet can be removed.

*The mounting method can be B5 and B14.

The ECI motor of the F series is an axial flow fan, and the negative pressure fan for animal husbandry is designed as a PMS (permanent magnet synchronous) motor. There are currently two frame sizes: F80ECI, F112ECI

- F80 has a maximum output power of 2.1KW and a maximum torque of 11N.m; F112 has a maximum output power of 3.8KW and a maximum torque of 24N.m;
- Using ferrite magnets, the price is more competitive
- Very high efficiency, the average value exceeds IE4 standard, IEC60034-30-2-2016 (IE4 AC speed regulating motor)
- Very high efficiency in the 600-900rpm speed and power range
- Compact and lightweight design, the stretched casing is more conducive to the application of axial flow fans and negative pressure fans
- Various mounting options: slide rails, feet and B14 flanges in accordance with IEC dimensions
- The driver built into the end of the motor is more convenient for installation and maintenance
- Standard IP55 fully enclosed motor to prevent damage from dust and water spray in any direction (IP56 for customized requirements)
- F series ECI motors are not equipped with external fans (IC411); IC400 needs to be customized for environmental operation
- The default is three-phase power supply, the voltage range is 360-460VAC, under partial load, the motor can be equipped with three-phase 200-240VAC, or single-phase 200-240VAC power supply
- The port has run/stop, CW/CCW, speed regulation control signal, speed feedback, Modbus remote control function



ECI Motor Data Sheet

Typical information:

Motor model:	F80ECII1V12C2XS1	(Integrated drive model)
Input Voltage:	200-240 V	50/60
Rated torque:	11 N.m	*TEAO: At least 3m/s air flow cooling
Max speed:	1200 rpm	
Rated power:	1.38 kW	

Performance data:

Minimum speed:	500 rpm	Tested data	2022/12/28
Maximum speed:	1200 rpm		

Speed (rpm)	Voltage (V)	Torque (N.m)	* Input Current (A)	lutput Power (W)	*Total Eff. η (%)
500	230	2.9	1.41	189	81.6
500	230	5.0	2.28	324	81.1
500	230	7.0	3.18	467	78.5
500	230	9.0	4.12	623	75.4

600	230	3.0	1.65	226	83.3
600	230	5.0	2.60	374	83.5
600	230	7.0	3.60	537	81.6
600	230	8.9	4.64	710	79.2
600	230	11.0	1.15	637	71.9

700	230	3.0	1.88	261	84.4
700	230	5.0	2.93	428	85.1
700	230	7.0	4.05	612	83.7
700	230	9.0	5.19	804	81.6

800	230	3.0	2.10	295	85.1
800	230	5.0	3.28	483	86.1
800	230	7.0	4.50	686	85.1
800	230	8.9	5.71	894	83.5

900	230	3.0	2.34	333	85.7
900	230	5.0	3.64	543	86.9
900	230	6.9	4.93	759	86.2
900	230	9.0	6.31	996	84.7
900	230	10.9	7.67	1235	83.0

1000	230	3.0	2.56	367	86.0
1000	230	5.0	3.94	593	87.5
1000	230	7.0	5.38	836	86.9
1000	230	9.0	6.89	1097	85.7
1000	230	10.9	8.36	1355	84.2

ECI Motor Data Sheet

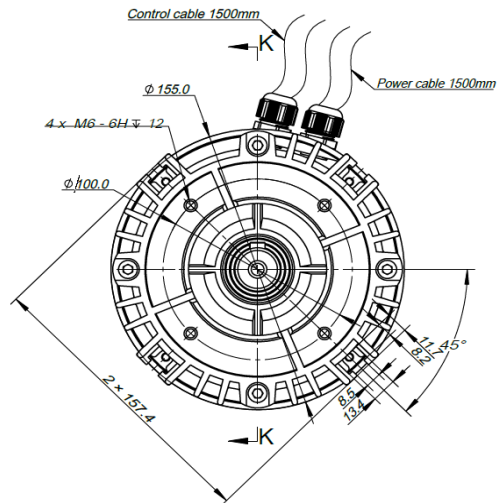
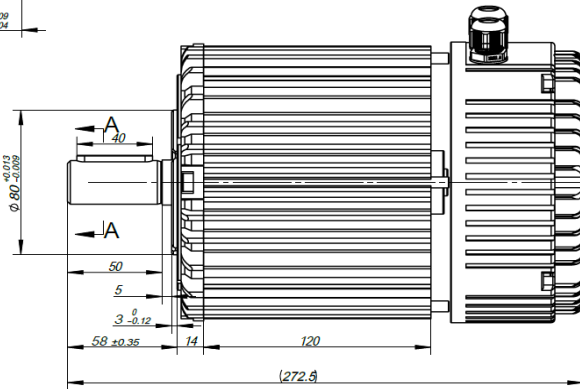
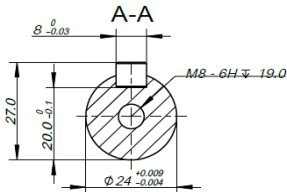
Speed (rpm)	Voltage (V)	Torque (N.m)	* Input Current (A)	Output Power (W)	*Total Eff. η (%)
1100	230	3.0	2.77	401	86.3
1100	230	5.0	4.29	650	88.0
1100	230	6.9	5.83	913	87.6
1100	230	8.9	7.40	1186	86.5
1100	230	10.9	9.03	1476	85.2

1200	230	3.0	2.98	434	86.4
1200	230	5.0	4.62	707	88.3
1200	230	7.0	6.28	990	88.1
1200	230	8.9	7.98	1287	87.2
1200	230	10.9	9.70	1594	86.0

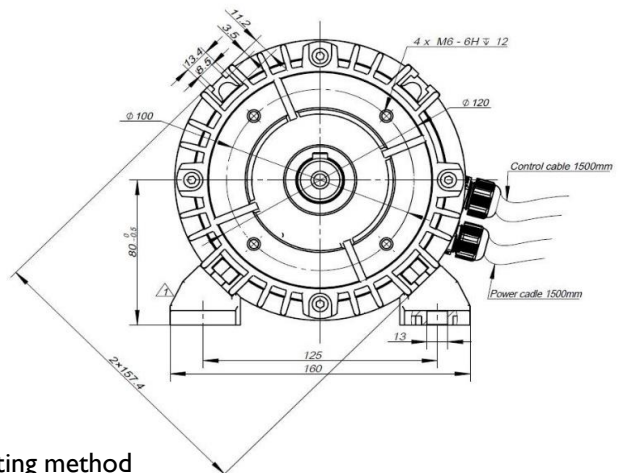
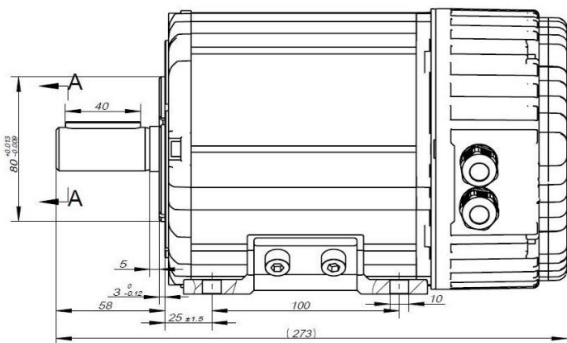
* Current is RMS value.

* Total efficiency include the VSD loss and does not include oil seal loss.

FRAME 80 DIMENSIONS



B14 mounting method



B34 mounting method

ECI Motor Data Sheet

Motor control and connection

I. Nametage information

No. : *****					Power terminal and cable Line supply:Brown Neutral:Blue PE:Yellow/Green	Control terminal and cable Speed output:White On/Off: Red 12VDC output: Yellow 0-10VDC input: Blue Common: Black Modbus: A-Green,B-Grey
Type : F80ECI11V12C2B14S1						
V/Hz/Ph~: 200-240V,50/60Hz,1ph						
SF1.0	IP65	CL.F	CONT/S1	Air Over	ON/OFF:Red+ Yellow CW/CCW:Yellow+Brown	
11Nm	1200rpm	1.38kW	11~9.4A	EFF.86%		
8.3kg	Manufacturer Data :****_**_**					

2. Power and control cable connection

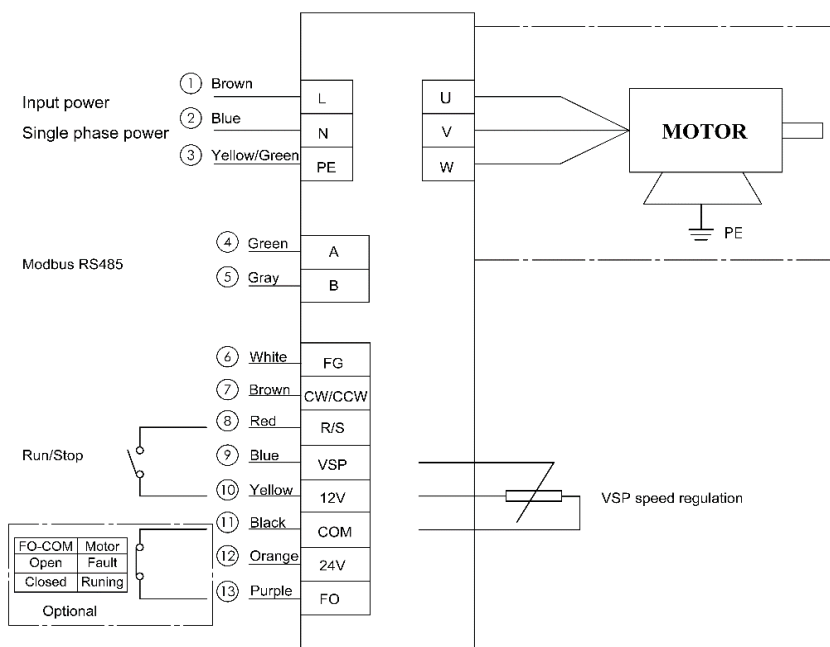
+ Power cable

Item	Fuction	Wire color	Note
1	L	Brown	Single phase
2	N	Blue	
3	Ground	Yellow/Green	PE

+ Control cable

Item	Fuction	Wire color	Note
4	RS485 A	Green	
5	RS485 B	Gray	
6	FG	White	Speed output:3 puls per rev
7	CW/CCW	Brown	CW: Brown, CCW:Brown+Yellow
8	Run/Stop	Red	Red+Yellow
9	DC 0-10V input	Blue	Speed control,VSP
10	DC 12V output	Yellow	
11	COM	Black	
12	DC 24V output	Orange	Optional
13	FO	Purple	Optional,Purple+Black

3. Customer side connection





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