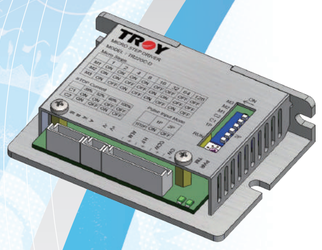
TR22GC-D-VO-V01E

TR22GC-D

DC 2 Phase Micro Stepping Motor Driver

User's Manual



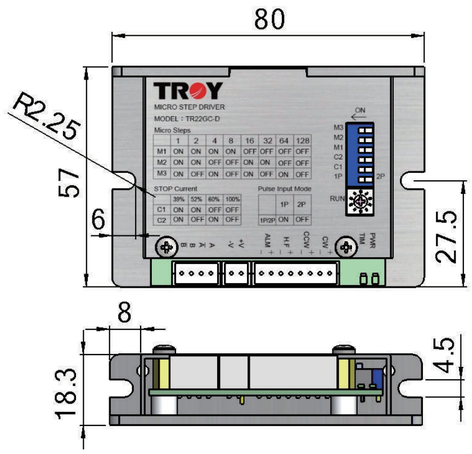
- Constant current control
- Small volume , Easy operating
- Inverse power protection
- 8 kinds of divisions to choose
- Low power consumption
  High switching efficiency

※ Use smart phone to scan it to read online

1 · Spec

Driver model		TR22GC-D
Power Input (V)		DC voltage18~30V / Above 3A
Current(A)		2A/phase
Excitation mode		Micro Stepping
Signal input		Photo coupler input interface
Signal output		ALARM OUT by Open Collector output interface
Input Signal	CW pulse input	2 pulse：Clockwise input ; 1 pulse：Pulse input
	CCW pulse input	2 pulse：Counterclockwise input ; 1 pulse：Operation direction input
	H.OFF input	Holding Off input
Function		●Auto current down (ACD) ●Division adjust (1~128) ●Pulse input switch (1P/2P)
Protection function		●Inverse power protection ●Overheat protection ●Overcurrent protection
Lamp Display		POWER · TIMING
Dimensions (MM)		80(L) X 57(W) X 18.3(H)
Weight (G)		107g
Insulation Resistance		While Adopting DC500V high impedance meter for testing, the impedance between the power input terminal and the chassis is above 100MΩ.
Insulation		After supplying AC1KV / 60Hz high voltage to the power input terminal and the chassis, it operated for 1 minute without exception.
Operation Environment	Temperature	0°~+40°
	Humidity	MAX. 85%
	Condition	Avoid moisture, dust and corrosive, flammable gases

2 · Dimension



Operation Precaution ※Important

- Please use input / output signal line with metal mesh coated. About the metal parts, please adopt unilateral common grounding. While wiring, the signal lines should be kept at least 10cm away from power lines (power lines and motor lines). Do not bind the signal line and power line together to avoid malfunction cause by noise interference.
- If there need to make a long distance between controller and driver or there have other big power device around and operating. at same time, it is suggest to raise up input/output DC power voltage to increase the drive current of long-distance signal transmission and enhanced immunity against noise interference to ensure the normal operation of the motor.
- Please confirm the definition of ＋COM、－COM contacts before connecting with PLC and how to connect with input and output contacts in the diagrams. Please provide the correct input/output power voltage of circuit.
- Adopt easy plug and pull out terminal that are accord with the certification of CE/VDE confirmation.While connecting, please lock the screws to avoid wrong action caused by bad contact .
- The driver has inverse power protection.If there is a power wiring reverse connection upon wiring, please turn the power off and remove wrong wiring to operate again.

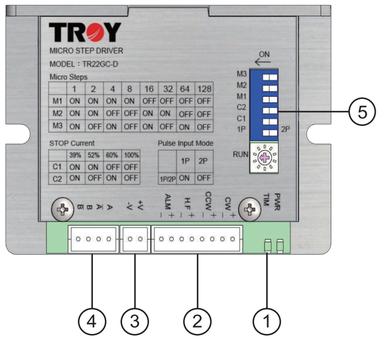
※Please inquiry with local officer or distributor to choose product

TROY泰映科技股份有限公司
TROY ENTERPRISE CO., LTD Motor manufacturer
www.troy.com.tw Made in Taiwan

※Responsibility of environment protection
We place important on spreading environment protection. Each package can be recycled. Please using litter dealing process and recycling to replace the old product.
--- By your attending, we protect the earth together. ---

※ We won't inform individually if we promote the product characteristics. Please inquiry with our overseas salesman. Thank you very much.

3 · Function Description



※TR22GC-D · JST terminal-No upper cover

※Accessory (Optional)

1〉Upper cover (GC-1)

2〉Attachment cord : 60 cm (GC-2)

No.	Name of the panel	Name of function	Function
①	POWER	Power indicator	LED lamp turns on upon power input
	TIM	Phase origin indicator	LED lamp of TIMING lit up every 7.2°
②	CW	CW	2PULSE : CW pulse signal input 1PULSE : pulse input
	CCW	CCW	2PULSE : CCW pulse signal input 1PULSE : Operation direction controlling
	H.F	Holding OFF	As inputting potential (H) holding off, it makes motor no excitation
	ALM	Alarm Output	Alarm output Signal Please refer to Headline 7 "Signal Wiring"
③	+V/-V	Power input terminal	DC24V input
④	A /$\bar{A}$ B /$\bar{B}$	Motor wiring	Connecting the motor to the driver
⑤	M3	Step angle switch	Please refer to Headline 5 "micro-Segmentation Adjustment"
	M2	Step angle switch	Please refer to Headline 5 "micro-Segmentation Adjustment"
	M1	Step angle switch	Please refer to Headline 5 "micro-Segmentation Adjustment"
	C2	Drop rate of current	Please refer to Headline 4 "RUN Current Down Holding Rate Adjustment"
	C1	Drop rate of current	Please refer to Headline 4 "RUN Current Down Holding Rate Adjustment"
	1P/2P	Pulse input mode	1P side : 1 pulse input 2P side : 2 pulse input
	RUN	Regulating the motor run current	Knob adjustment (MAX: 2A)

4 · RUN Current Down Holding Rate Adjustment

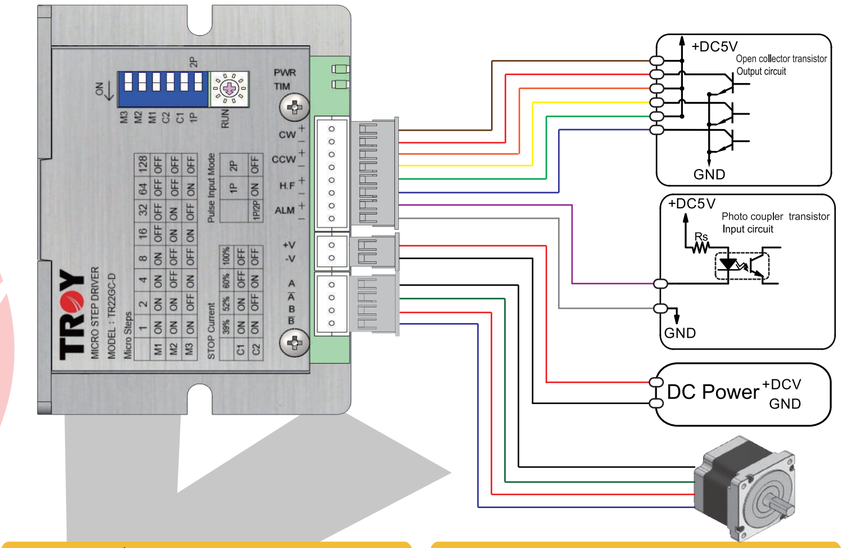
C1	C2	「RUN」current down rate(%)
ON	ON	39%
ON	OFF	52%
OFF	ON	60%
OFF	OFF	100%

※ current down rate(%) : ±5%

5 · Micro-Segmentation Adjustment

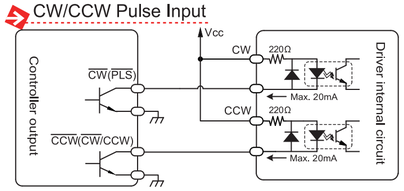
M1	M2	M3	Division	Step angle
ON	ON	ON	1	1.8°
ON	ON	OFF	2	0.9°
ON	OFF	ON	4	0.45°
ON	OFF	OFF	8	0.225°
OFF	ON	ON	16	0.1125°
OFF	ON	OFF	32	0.05625°
OFF	OFF	ON	64	0.028125°
OFF	OFF	OFF	128	0.0140625°

6 · Wiring



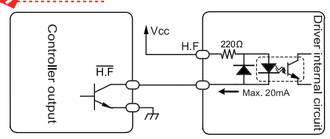
7 · Signal Wiring

CW/CCW Pulse Input



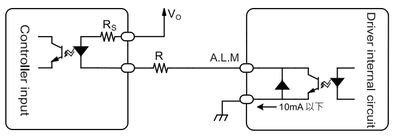
A、Pulse width : Minimum 5μsec
Up/down time : Maximum 2μsec

H.F Input



※This product signal input voltage range is 5~24V.
It could be connected without external limiting resistor.

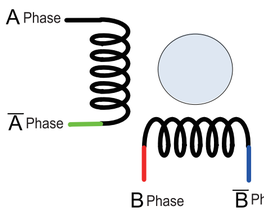
A.L.M Output



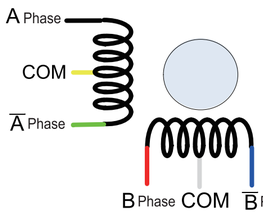
$$R=\frac{Vo}{10mA}-Rs$$

8 · Motor wiring

Internal Motor Wiring of 2 Phase Motor



Internal wiring diagram of 4 leads motor



Internal wiring diagram of 6 leads motor

Motor Wiring Contrast Chart

	TROY	SANYO DENKI	ORIENTAL MOTOR
A	Black	Orange	Black
Ā	Green	Blue	Green
B	Red	Red	Red
B̄	Blue	Yellow	Blue

	TROY	SANYO DENKI	TAMAGAWA	ORIENTAL MOTOR	
A	BLACK	ORANGE	BLACK	BLACK	
COM	YELLOW	WHITE	YELLOW	YELLOW	Do not connect
Ā	GREEN	BLUE	GREEN	GREEN	
B	RED	RED	RED	RED	
COM	WHITE	BLACK	WHITE	WHITE	Do not connect
B̄	BLUE	YELLOW	BLUE	BLUE	

※Do not connect the 2 COM lines
Not to connect them together.

WARNING

※May cause dead or serious injury etc.

Take protective device of over current, instant stop, over temperature, ground fault interrupter.	Prevent fire, injury, electric shock
Do not use product near explosive, water, corrosive gas, or combustible material.	It may cause fire
Do not forcibly put stress, or lead a heavy article on or stuff foreign matter into it.	It may cause electric shock, trouble,and damage
Avoid damage caused by earthquake, fire, artificial accident, please set and fix it for confirmation.	Prevent electric shock, injury, fire, trouble and damage
Install an external emergency stop circuit to turn the power off in the instant halt of operation.	Prevent electric shock, injury, fire, trouble and damage
Connect the driver and Motor to ground.	Prevent electric shock
Neither reach nor touch the Brake terminals while power is on.	It may cause electric shock
Execute safety examination after earthquake	Prevent fire, injury, electric shock
Have a professional expert set the wiring construction accurately.	Prevent electric shock, injury, fire, and trouble
Do not work for moving, wiring or inspection with the power on	Prevent electric shock, injury, fire, and trouble
Do not touch the internal parts of the Brake.	It may cause electric shock , scald
Do not stand/sit on product or put heavy article on it.	It may cause electric shock, trouble, damage
Ensure that wiring has been correctly done.	Prevent injury trouble, damage

※Please dealing according to industry littering as discarding the product.

ATTENTION

※May cause injury or product damage.

When conducting trial operation, make Motor fixed. Confirm motion before composing machine system.	Prevent injuiry
When temperature of Brake or Motor is rising, please do not touch it.	It may cause scald.
Do not reform, assemble or repair the Brake.	It may cause electric shock, injury, fire.
Move the product with a great care so as to prevent from the danger such as tumble or turnover.	It may cause injury, damage.
When power recovers after interruption, don't approach devices since it may restart operation suddenly.	It may cause injury.
Please follow the appointed voltage.	Prevent injury, fire, electric shock
Do not cut-in or off the power frequently.	It may cause trouble.
Do not use damaged Brake or Motor.	It may cause injury, fire.
Do not put obstacle around Brake and Motor or it'll be airless.	It may cause scald, fire.
Please have the cause troubleshooting as tripping, and restart after safety confirming.	Prevent injury
Have an expert execute maintenance and inspection.	Prevent injury and electric shock
Neither block nor stuff the aspiration/exhaust vent with foreign particle.	It may cause electric shock, trouble fire.
Use Brake and Motor in designed combination.	Prevent fire
Do not put a heavy impact on shaft of Motor and Brake.	It may cause trouble.
Please turn power off as stop using for a long period.	It may cause injury from wrong operating.
Mount the product on an incombustible material such as metal.	Prevent fire
Do not set magnetic contactor in main power during Motor rotating or stopping.	It may cause trouble
Do not drive Motor axis from external.	It may cause fire, trouble, electric shock.