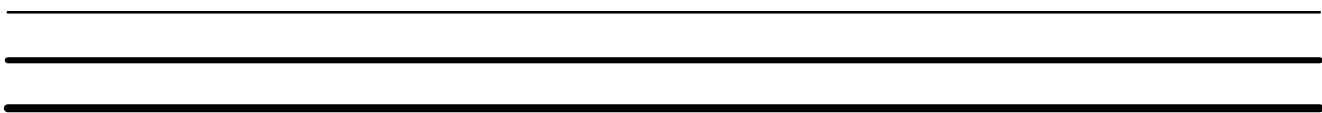


5 phase stepping motor Driver

GTS500 series



【User's manual】

Safety precautions

Please read this operation manual thoroughly before starting any operation. This manual will guide the customers for proper use and avoid any mis-operation. This manual if properly read, will protect the users as well as other people from possibilities physical injuries, property damage and other serious accidents.



Indicates a possibility of causing serious injury or worst, death to the user, caused by fire or electric shock if this warning is ignored. Also indicates that the equipment has the highest degree of causing damage.



This shows the possibility that the user may get serious injury by fire or electrical shock if this warning is neglected.



This shows the possibility that may cause slight injury or damage to this product or other equipment.



- Do not operate this product if it is damaged or disassembled. Otherwise, it may cause fire or electrical shock.
- In any case, do not attempt to repair or modify this product as it may cause fire, electrical shock or serious injuries.
- Do not use this product, in a place where the air includes a corrosive gas, inflammable gas, or any type of explosive gas, or the water or oil splashes, or it is near a flammable material. Otherwise, it may cause fire or electrical shock.
- Leave works such as installation, wiring, operation, checking and maintenance to experts who have enough knowledge on this product. Operation without knowledge may cause electrical shock and other serious physical or property damages.
- Keep the power supply within the rated voltage range. Otherwise, it may cause fire or other damages.
- Make sure all the connections correctly done referring to the wiring diagram shown in this user's manual. Otherwise, it may cause fire or other damages.
- Do not, in any circumstances, touch the terminal block while the power is on as there are some terminals which high voltage appeared. Otherwise, it may cause electrical shock.
- Do not touch or place objects such as metals or foreign substance on the board. Otherwise, it may cause fire or electrical shock.
- Do not bend, pull or place the power or motor lines by the extreme force. Otherwise, it may cause fire or electrical shock.
- Do not make a mistake connecting the motor output terminals to protective earth or power supply. Otherwise, it may cause fire.

- Do not do the driver's installation preventing ventilation. Otherwise, it may cause fire.
- When the "HEAT" is activate, stop the pulse signal. Otherwise, it may cause fire. (Only the product have a Overheat function.)
- The protection circuit is not built into. When the current that exceeds the maximum electric power consumption by some causes flows, it causes a fire, the injury and the breakdown. The current 1.5 times or more than the maximum current consumption must not flow.

 **WARNING**

- Do not attempt any type of works such as moving the machine, wiring, maintenance, checking while the power is on. It is recommended that such works should be done only when more than ten seconds have elapsed after the power is off. Otherwise, it may cause electrical shock.
- Do not touch this product with wet hands while the power is on. Otherwise, it may cause electrical shock.
- Connect the protective earth terminal (PE) properly to it on your equipment, as illustrated in this user's manual. Otherwise, it may cause electrical shock.
- Use this product which installed properly in the enclosure. Otherwise, it may cause electrical shock or injury.
- Do not leave the cover off from the terminal block while the power is on. Otherwise, it may cause electrical shock or injury.
- Fix this product securely onto your equipment. Otherwise, it may cause injury.
- Do not touch this product while it is running or right after it is stopped. Otherwise, it may cause injury, as its surface remains hot.
- Depending on the setting of this product, it may show an unexpected operation when recovering from overheating. Please read this user's manual carefully and pay a special attention.
- Use a DC power supply with reinforced insulation for dangerous voltage. Otherwise, it may cause electrical shock. (Only DC input type)

 **CAUTION**

- Do not use or store this product under a dusty environment. Otherwise, it may cause malfunction.
- Do not give a big shock to this product. Otherwise, it may cause malfunction.
- Do not use or store this product in a place of high or low temperature, or under an environment of extremely high or low humidity. Otherwise, it may cause short circuit to your device or further damage.
- Do not install this product in a place where a dew is generated. Otherwise, it may cause short circuit to your device or further damage.
- MYCOM is, in no way, responsible for any damages or malfunctions that are caused by user's repair or modifications on this driver. If the user performed these initiations and the driver does not work satisfactorily, a warranty will not be provided.
- When giving up the use of the driver, dispose it according to an appropriate regulation on the industrial waste.
- Please do not remove the name plate.

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1. Specification of driver

GTS500-020/GTS500-120

Model number	GTS500-020	GTS500-120
Power voltage	DC24V \pm 10%	
Consumption power	Less than 36W	Less than 48W
Type of driving	Star bi-polar constant current type	
Driving current	0.75A ϕ phase	1.4A ϕ phase
Resolution (Type of excitation)	FULL (Full step) : 4 phase excitation HALF (Half step) : 4-5 phase excitation	
Function	Auto-eco mode (Auto-current down)	
Signal input	Photo coupler input : Input resistance 390ohm Input signal voltage L;0-0.5V H;4-5V 1 pulse (PLUSE, CW/CCW), 2 pulses (CW, CCW)	
Insulation resistance	100M Ω or higher with DC500V Meger applied in normal temperature and humidity. • Power input: Motor leads collection terminal - PE terminal • Power input: Motor leads collection terminal - Signal I/O terminal	
Operating environment temperature	0 to +40°C No freezing	
Operating environment humidity	Less than 80%, No condensation	
Storing environment temperature	-10 to +60°C No freezing	
Storing humidity	Less than 80%, No condensation	
Operating height	Less than 1,000m from sea level	
Atmosphere	In the room without corrosive gas, inflammable gas and dust. Without splashing water and oil.	
Weight	180g	
Accessories	User's manual (this book)	
Applicable motor (※)	PEE 533-B PEE 535-B PF 544-BC PF 545-BC	Standard applicable motor / Equivalent motor PCE 5641-A(B)C /PF 564-A(B) PCE 5661-A(B)C /PF 566-A(B) PCE 5691-A(B)C /PF 569-A(B)

※When other motor except described above, please inquire our sales office.

2-3 Factory default

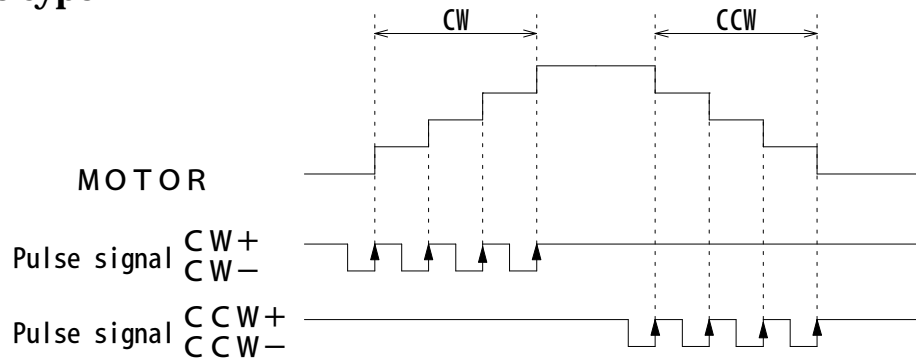
Driver model	GTS500-020	GTS500-120
Driving current	0.75 A/phase	1.4 A/phase
Input pulse type	2 pulse type	
Resolution (excitation type)	Full step	

3. Pulse waveform

3-1. Input pulse type

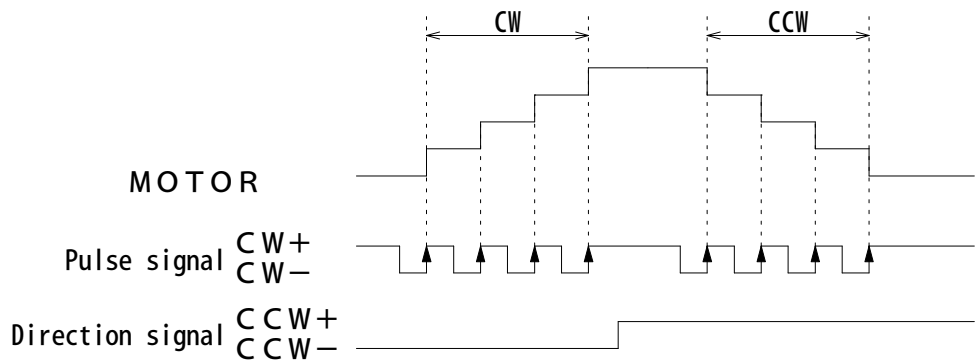
2 pulse type

Timing chart



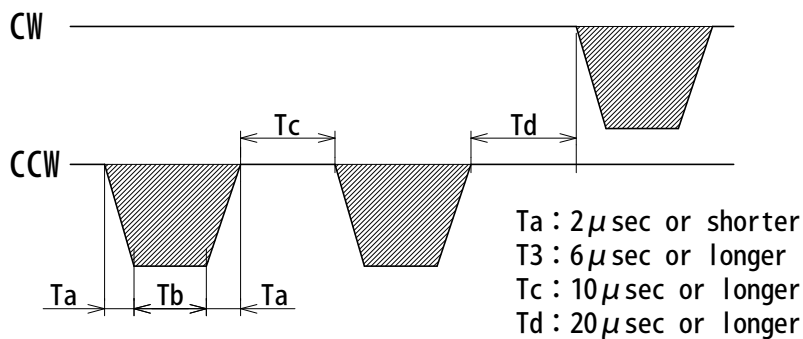
1 pulse type

Timing chart



3-2 Pulse waveform

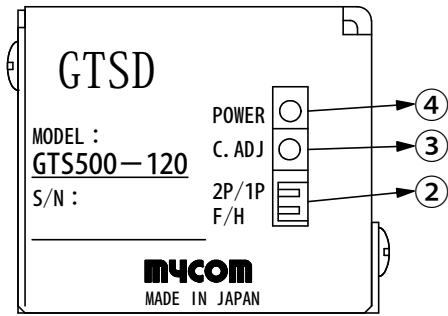
Please input the pulse signal of the below shown waveform.



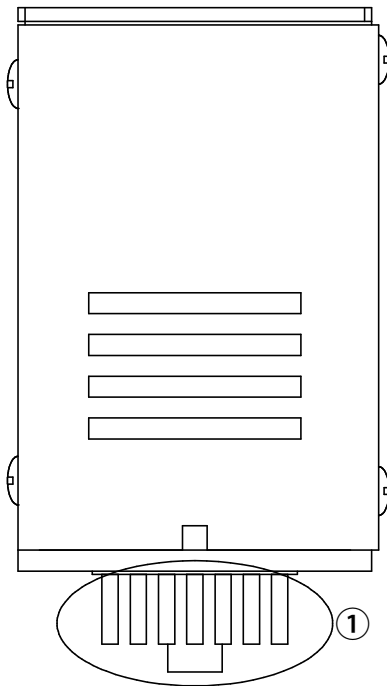
← this section shows "ON" status of internal photo coupler.
 Motor starts to rotate by rising edge of waveform.

4. Each part name and functions

4-1. Each part name



- ① Socket terminal part
- ② Setting switch (SW1)
- ③ Adjusting VR for motor driving current (C.ADJ)
- ④ Power display LED (POWER LAMP)



4-2. Description of function

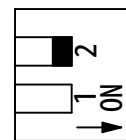
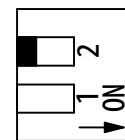
4-2-1. Auto-eco mode function(A.CD)

This reduces the motor driving current to 50% of normal current and temperature rising of motor after the motor stops and 100ms. later

4-2-2. Input pulse type selection (2P/1P)

2P/1P switch sets the driving pulse to 2 pulse type or 1 pulse type (4-1. Each part name ②). Please refer **3. Pulse waveform** about input type.

2PULSE **1PULSE**



4-2-3. Resolution selection(F/H)

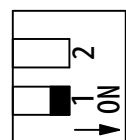
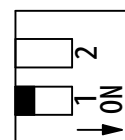
F/H sets up the resolution (4-1. Each part name ②).

F (Basic Step):4 phase excitation

H (Half Step):4-5 phase excitation

FULL

HALF



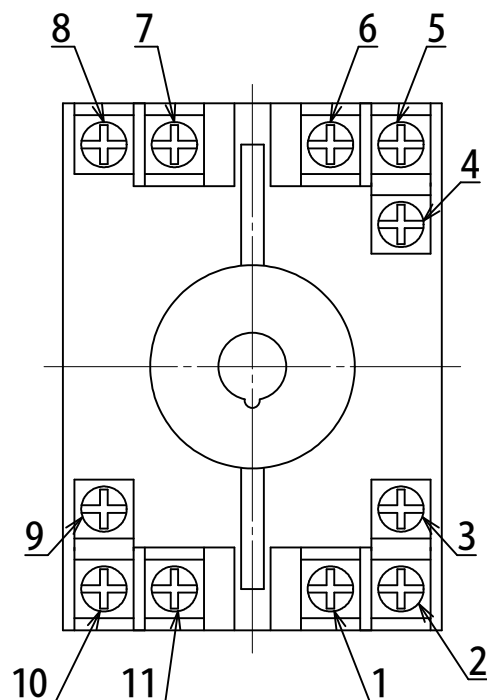
4-2-4. Motor driving current adjusting VR (C.ADJ)

This adjusts motor driving current.

4-2-5. Power LED (POWER)

This lights when turning on electricity

4-2-6. Part of socket terminal



- Recommended DIN rail terminal

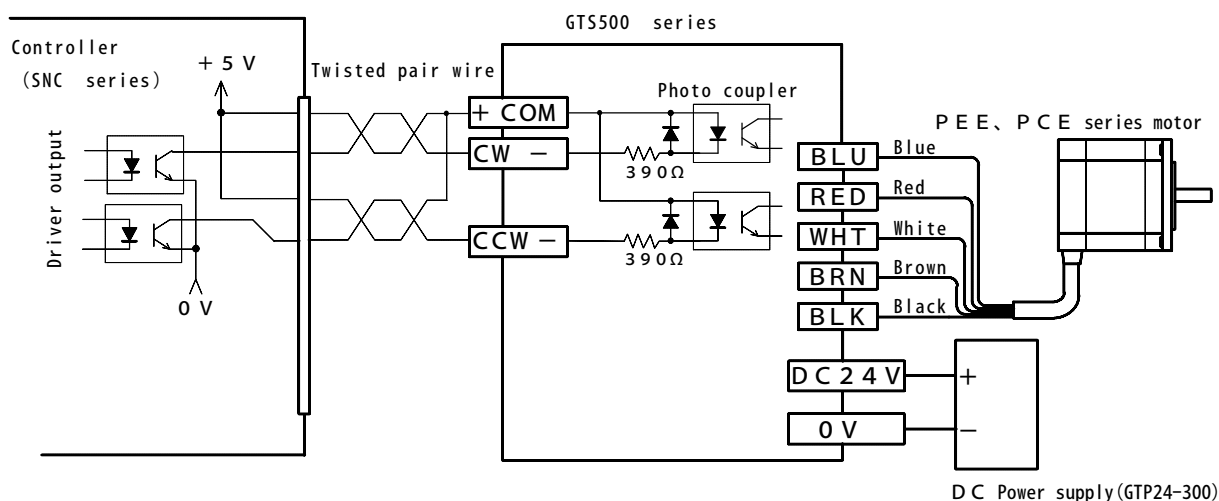
Brand	Model No.
Omron	P2CF-11
Matsushita (NAIS)	ATC 180041

Part of socket terminal

Pin No.	Function	Description
1	CCW-	Signal line, Connecting with CCW-
2	CW-	Signal line, Connecting with CW-
3	+COM	Signal line, Connecting with +COM
4	BLU	Motor line, Connecting with blue line
5	RED	Motor line, Connecting with red line.
6	WHT	Motor line, Connecting with white line.
7	BRN	Motor line, Connecting with brown line.
8	BLK	Motor line, Connecting with black line.
9	24V	Connecting with DC24V.
10	OV	Connecting with DCOV.
11	FG	Connecting with FG.

5. Example of connection

5-1. Wiring diagram



5-2 Specification of Power source

Input voltage : DC24V \pm 10%

Output current : 2A or more

Recommended power supply : GTP24-300(MYCOM brand DC power supply for gts500)

6. Wiring and condition of installation

6-1. Wiring of motor power line

- In case of long motor wiring, shield line can depress the radiant noise.
- In case that there are noise sources near the driver, please insert noise filters at power input.

6-2 Condition of installation

- This driver is primarily designed to be used in controller box.
- In case that multiple drivers are placed side by side, please arrange and fix to make space of more than 1.5cm between each driver.
- Please confirm that the environment temperature of the driver is less than 40°C

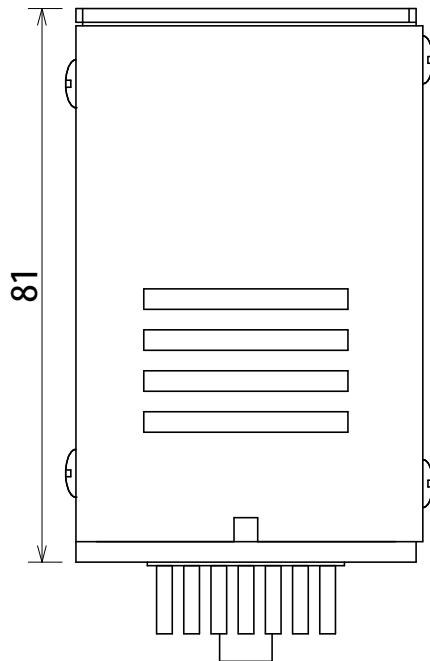
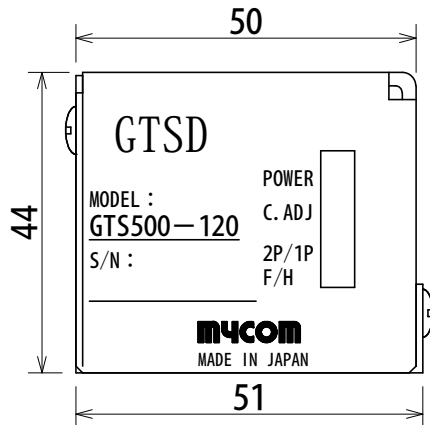
Please use this driver in the condition of 70°C or less of temperature at the cover (the plate where is 7 dish screws)



Attention

7. Dimensions

7.1 Dimensions of GTS500-020/GTS500-120



Unit : mm The screw head is not included.

8. Optional items

8.1. DIN rail terminal (Model number : GT-DIN1)

OMRON brand : P2CF-11

8.2. DIN rail terminal (Model number : GT-DIN2)

Matsushita Electric (NAIS) brand : ATC 180041

8.3. Power unit (Model number : (Model number : GTP24-300))

MYCOM brand DC power supply for GTS500

Please understand that we may make modifications to our products without notification in order to improve the capabilities and external appearance of our products.

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