



## 過負荷検知付ギヤモータ

### Gearmotor with Overload Detection Function

#### Value-added gearmotor

『付加価値』  
搭載!!

モータに「過負荷検知機能」を搭載し、モータを停止させたり過負荷信号を出力することが可能となったモータと一体型の減速機が登場しました。

By integrating gearmotor with overload detection function, it is enabled to trigger signals and stop the motor to protect.



## Main Features

## 主な機能

- This series of gearmotors enable to:
  - detect over current caused by motor overload, and then stop the motor to protect it, and
  - use two relay contacts (a, b) to control the circuit to stop the motor to protect it.  
These contacts can be used for error indication and alarm output .
- Motor is protected based on that current value which is selected by the user, not by a breaker or thermal. Therefore it is possible to protect the reducer and the connected machine as well as the motor immediately.
- It is possible to pre-set the following values to meet user's specifications, before product is shipped out.
  - 1) Current value used for detection**  
Motor is stopped to be protected, according to this set value.  
Applicable range: 0.1 - 2.5A [Min. scale: 0.1A] Margin of error: +/-10%
  - 2) Load timer**  
Load time is interval from the point when over current is detected till motor power supply is interrupted.  
Applicable range: 0.3 - 8.0s [Min. scale: 0.5A] Margin of error: +/-0.5s  
(When the actual current value gets lower than the specified current value for detection while load timer is working, timer is re-set.)
  - 3) Start/Cancel timer**  
Start/Cancel timer can be set to ignore inrush current which is caused when starting motor.  
Applicable range: 10. - 8.0sec [ Mim. scale: 0.3sec] Margin of error: +/-0.5sec

< Note >

It's not acceptable to use an inverter to drive a motor. If driven by an inverter, voltage containing harmonics is applied onto the relay board, and lead to the control power source to get damaged.

## Standard Specification

## 基本仕様

Item 項目	Specification Description 仕様
Rated voltage 定格電圧	200/200/220V
Rated frequency 定格周波数	50/60/60Hz
Current value (for detection) 検知電流設定	Initial setting value: 0.1 - 2.5A +/- 10% (工場出荷時設定)
Load timer ロードタイマ	0.3 - 8.0sec +/-0.5sec
Start-Cancel timer スタートキャンセルタイマ	1.0 - 8.0sec +/-0.5sec
Cutout method 遮断方式	Motor current self cutout of U & V phases (Cutout condition is held on.) モータ電流自己遮断(U相 V相の2相遮断) 遮断状態を保持
Recovery method 復帰方式	Recovery by turning on power again after it is cutout 電源遮断(1秒以上)後、再投入
Signal relay 信号用リレー仕様	One (1) contact point 1C接点 AC250V/1.5A DC30V/2.0A (Resistive load) (抵抗負荷) Minimum load : DC 5V/10mA 最小負荷
Terminal block for power supply 電源入力用端子台仕様	Screw bolt M4 with square washer, Terminal width : 8.2mm or less 角座金付ネジM4、端子幅8.2mm以下
Terminal block for signals 信号用端子台仕様	Block: Insert-type, Applicable wire: Stranded (twisted) wire: 0.3 - 1.25mm <sup>2</sup> , Peeled-off length: 11mm 差込式端子台、適合電線:0.3mm <sup>2</sup> ~1.25mm <sup>2</sup> (撚線)、被服剥き長さ11mm

## Environment for usage

## 仕様環境

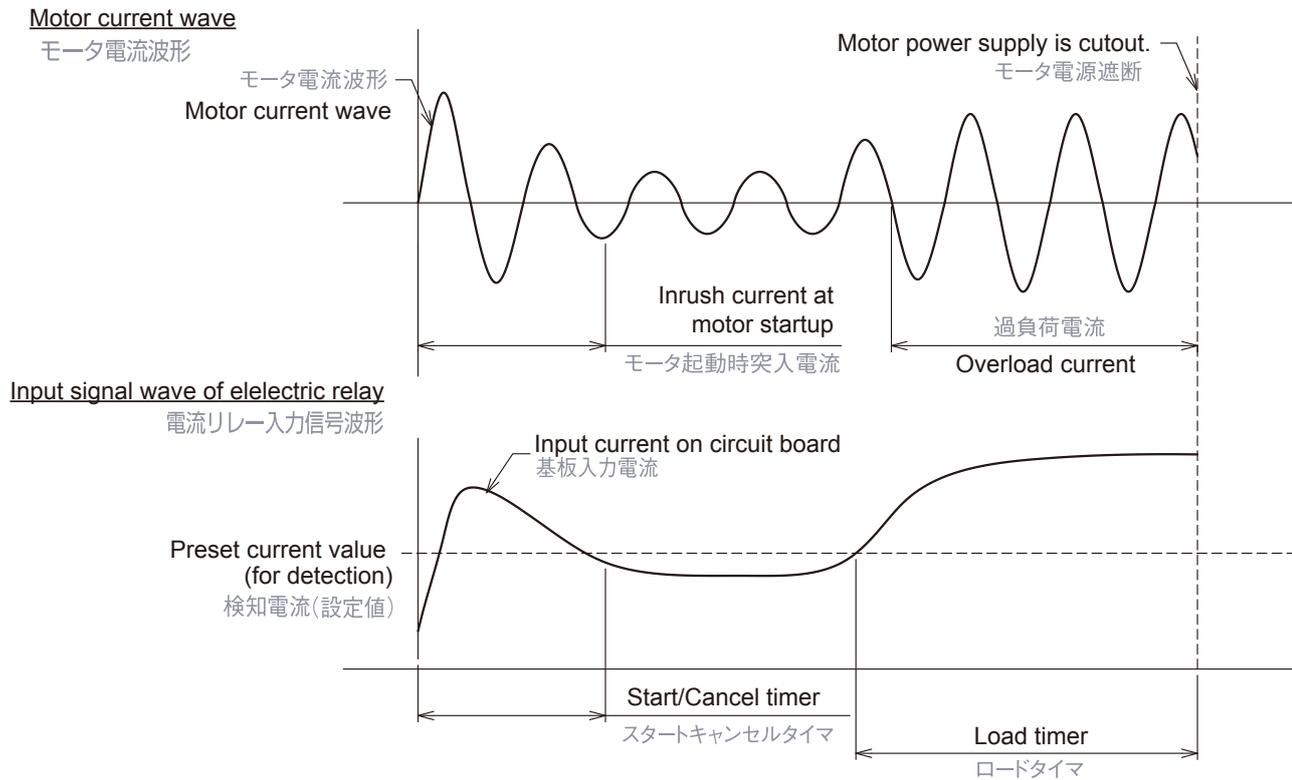
Item	内容	Description
Location 据付場所	In-house 室内	
Ambient temperature 周囲温度	0-40 degree C	
Ambient humidity 周囲湿度	85% or less 85%以下	
Latitude 高度	1000m or less 1000m以下	
Vibration 振動	0.5G or less 0.5G以下	
Atmosphere 雰囲気	Well- ventilated place, free from vapor, dust, explosive and/or gas 腐食性ガス・蒸気がなく、塵埃・水がかからない換気の良い場所	

## Operation Flow

## 動作概要

After motor is activated, and start/cancel timer has finished counting the specified seconds, detection system checks electric current applied on motor. If it gets beyond the specified current value, this system cutout motor power supply to protect the motor.

モータが起動してスタートキャンセルタイマのカウント終了後、ロードタイマの設定時間以上、モータの電流が検知電流の設定値を超えたときに、モータ電源を遮断します。



## How to set values

## 各数値設定方法

The following values are initially set within the specification range according to user's requests. They can be changed after that. (Please note that if current value is set to be beyond the rated current, gearing parts may be damaged. Any problems/damages caused by changing any set value are not covered with the product guarantee.)

Default setting values (= values shown when adjusting screw is turned to left end)

- Current value for detection: rated current
- Load timer: 0.3 +/-0.5 sec
- Start/cancel timer: 1.0 +/- 0.5sec

### How to set current value for detection

Keeping the timer setting their initial values, turn the adjusting screw for setting current value for detection to the right end. Keep the motor in overload condition, slowly turn the adjusting screw to the left. When the electric relay starts working, stop turning the adjusting screw. After that, startup the motor and confirm that the electric relay is properly activated in the case of overload condition.

### How to set Start/Cancel Timer

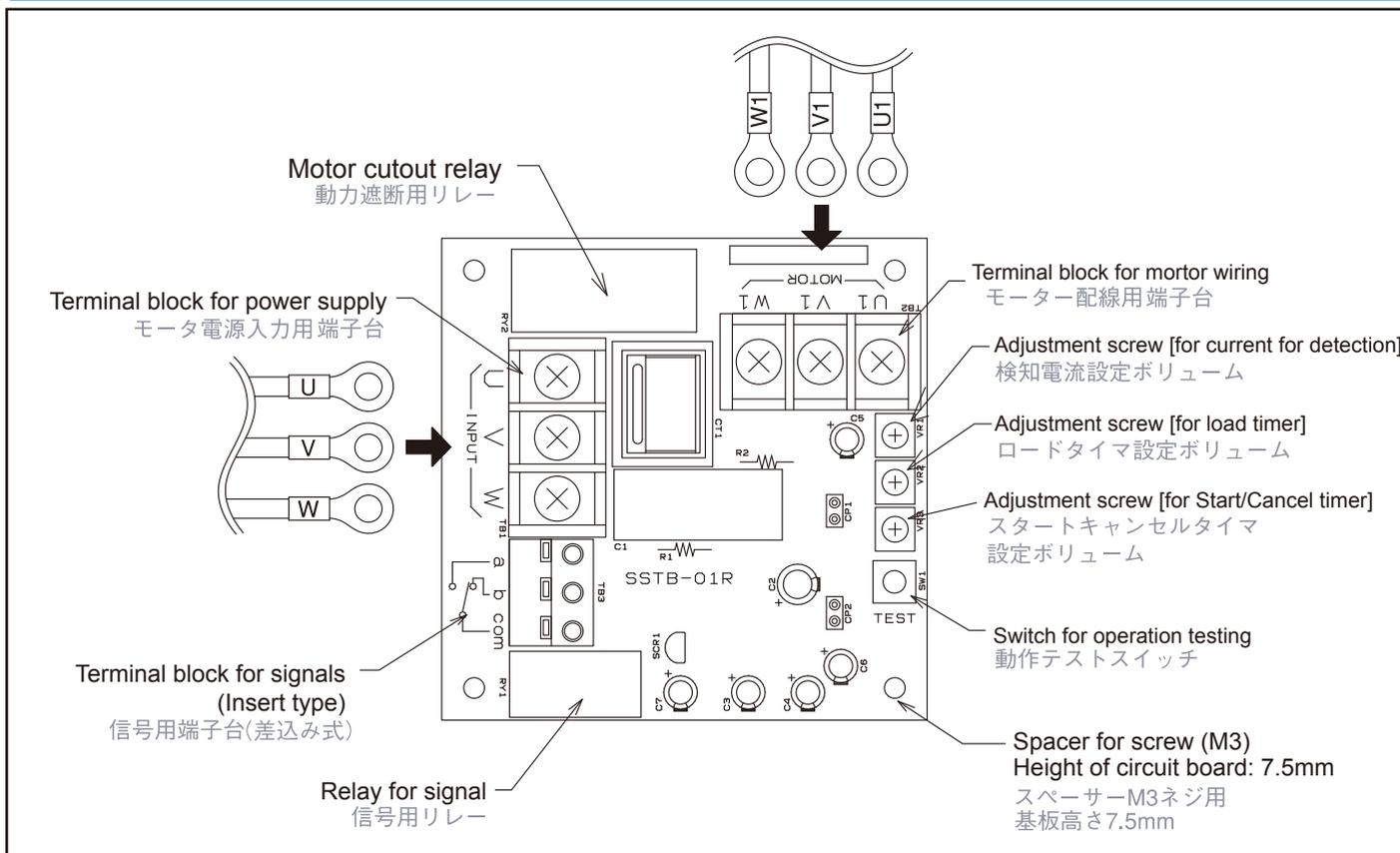
Keeping the load timer setting initial setting value, turn the adjusting screw for Start/Cancel Timer to become your preferable value. The maximum value is approx. 7 seconds. Then start up the motor under overload condition, and count the period required to activate the electrical relay. After that tune the setting value by turning the adjusting screw again to meet your preferable value.

### How to set Load Timer

Turn the adjusting screw to meet your preferable value, supposing the maximum value is approx. 7 seconds. Start up the motor, and wait until Start/Cancel Timer's setting period has passed. Keep the motor under overload condition, and count the seconds required until the electrical relay is activated. After that tune the setting value by turning the adjusting screw again to meet your preferable value.

# External Appearance

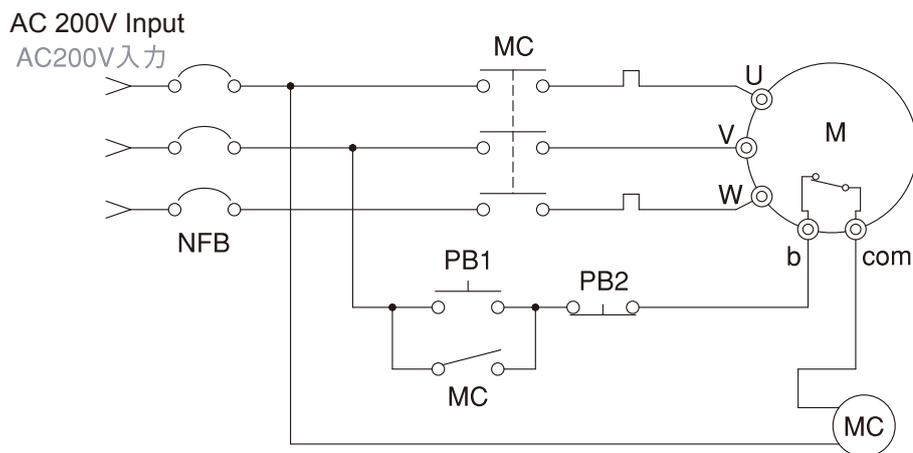
## 外観図



# Wiring Diagram Example

## 信号出力接点結線例

In this case, by pushing PB1 to turning on, MC (electromagnetic contactor) will start rotation. When the electric relay embedded in the sensor board detects overload, it makes the MC open and stops the motor.



PB1: [Start] button 始動ボタン

PB2: [Stop] button 停止ボタン

MC: Electromagnetic contactor 電磁開閉器接点

M: Gearmotor equipped with electric relay 電流リレー付減速機モータ