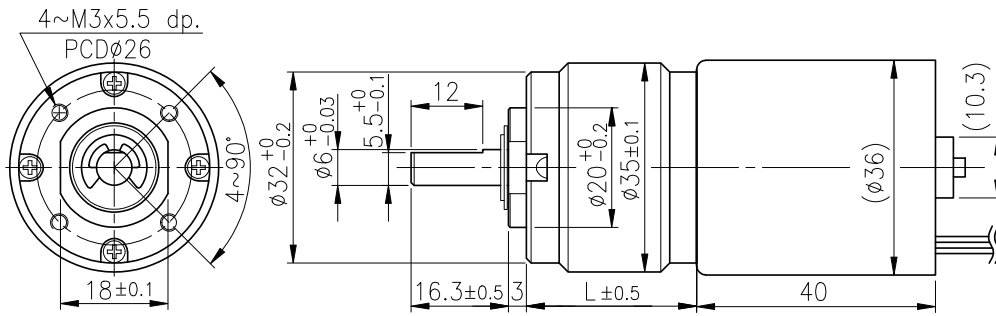


# IG-32PHGM

## 41 & 42 TYPE



### 外形尺寸/ Appearance Size



unit:mm

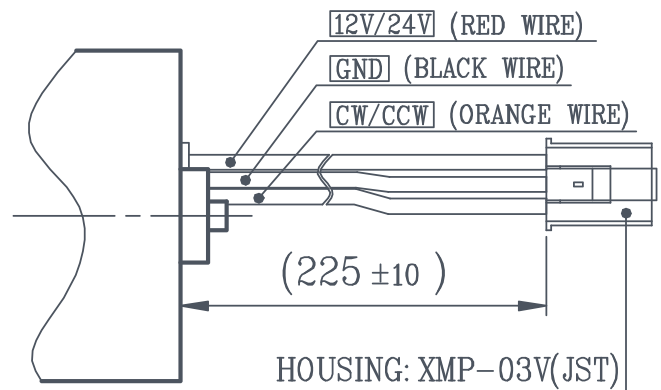
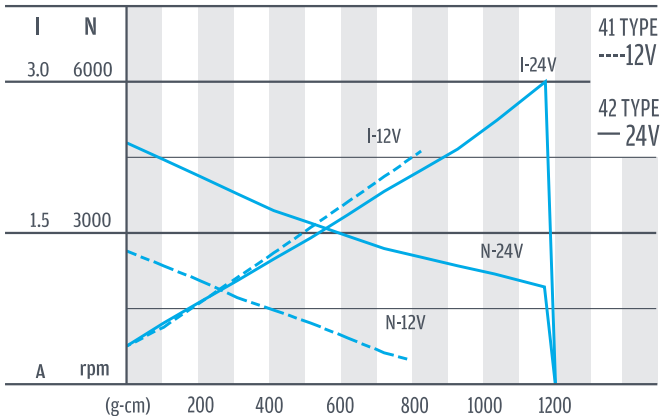
### 齒輪馬達轉矩 & 速度/ Geared Motor Torque & Speed

減速比 Reduction ratio	1/13	1/18	1/25	1/48	1/68	1/94	1/132	1/180	1/250	1/349	1/491	1/683				
12V 定格扭力 Rated torque (Kg-cm)	1.8	2.5	3.5	5.8	8	10	10	12	12	12	12	12				
12V 定格轉數 Rated speed (rpm)	150	109	75	41	29.5	21.5	15.5	12	8.4	6.5	4.4	3.3				
24V 定格扭力 Rated torque (Kg-cm)	2.2	3.1	4.4	7.2	8	10	10	12	12	12	12	12				
24V 定格轉數 Rated speed (rpm)	295	210	150	80	58	41.5	30	23	16.3	12	8.4	6.1				
軸心迴轉方向 Rotation direction	CW															
長度 Length (L)	28.5			34.9				41.3								

### 馬達單體型式/ Motor Data

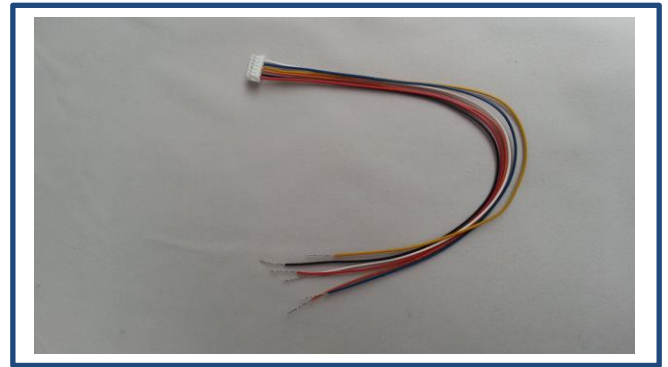
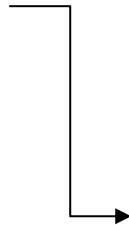
定格電壓 Rated volt (V)	定格扭力 Rated torque (g-cm)	定格回轉數 Rated speed (rpm)	定格電流 Rated current (mA)	無負荷回轉數 No load speed (rpm)	無負荷電流 No load current (mA)	定格出力 Rated output (W)	重量 Weight (g)
12	200	2000	≤ 1000	2800	≤ 350	4.1	145
24	250	3900	≤ 1230	5000	≤ 400	10	145

### 馬達單體特性/ Motor Characteristics



**Connector:**

- Merk connectoren: JST
- Type motor zijde: B6B-ZR-SM4-TF (LF) (SN)\*  
\*(LF) (SN) geeft aan RoHS Compliance
- Model body (tegendeel draad zijde):  
ZHR-6  
(Farnell nr. 335-7570)
- Model krimp contact (tegendeel draad zijde):  
SZH-002T-P0.5  
T.b.v. 28 ~ 26 AWG (0.08~0.13 mm<sup>2</sup>)  
(Farnell nr. 183-0898)
- Standaard met de motor meegeleverd  
Lengte ± 180 mm  
6 x AWG 26



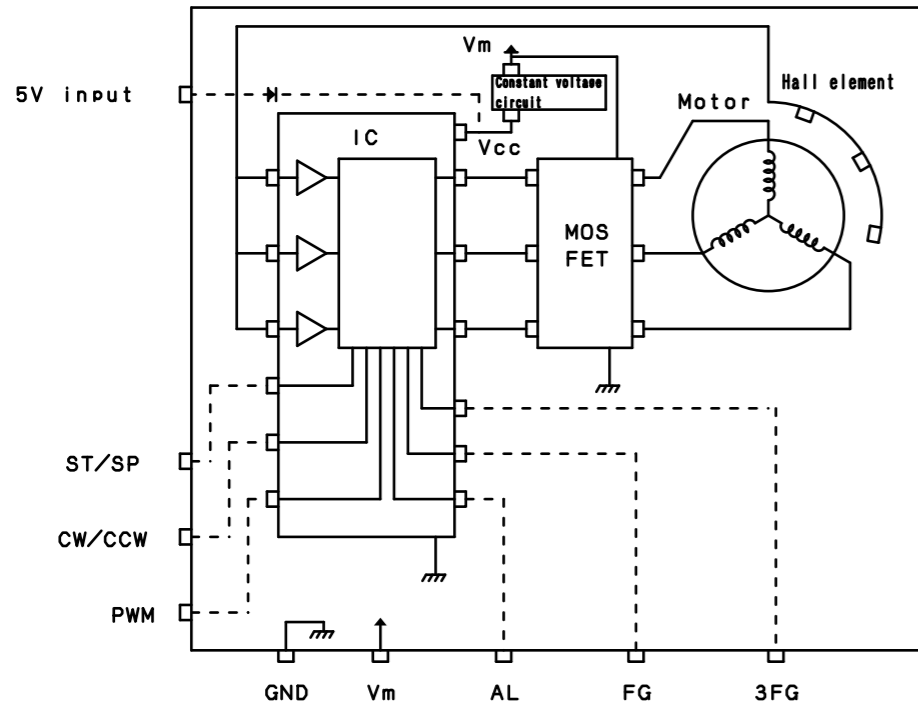
Pin:	Functie:	Ader kleur:
6.	Brake (Start/Stop)	Wit
5.	PWM	Blauw
4.	FG (Puls Output)	Geel
3.	CW/CCW (clock/counter clock)	Oranje
2.	GND (Ground)	Zwart
1.	+ 24VDC	Rood

Voor verdere technische details aangaande de motor (behoudens de connector info) is een datasheet van de fabrikant Nidec beschikbaar.

# 22H Series Interface and functions (ROHM IC)

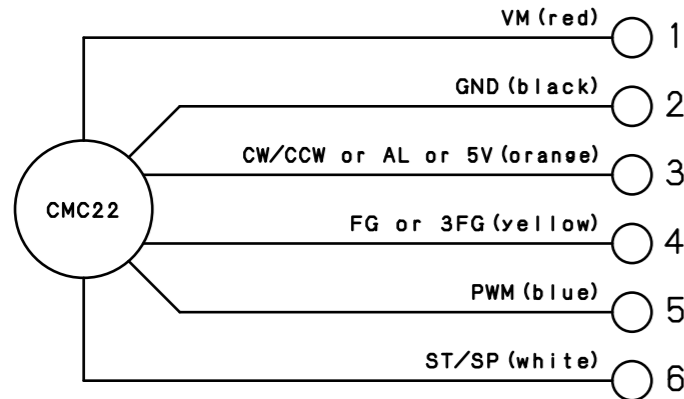
The interface has seven functions as the motor's optional functions: ST/SP, CW/CCW switching, PWM control, FG pulse output, and 3FG pulse output functions, and AL signal and 5V input. However, only up to four of these functions can be used simultaneously (Use with conditions).

## 1. Circuit Block diagram



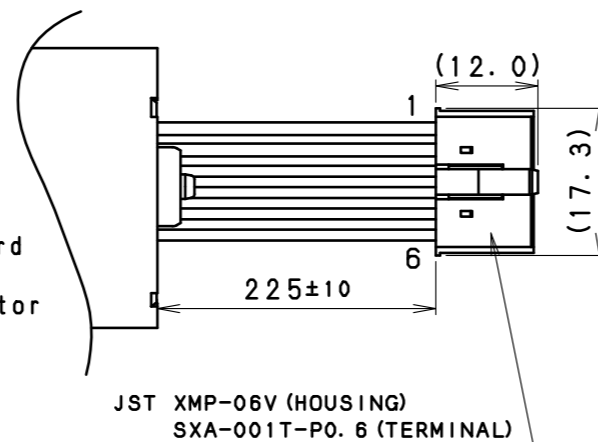
## 2. Interface

The interface's specifications, under the following conditions, can install up to four optional functions.



**REFERENCE**  
2008-4-26  
ST/C-DCM

The specifications of the standard connector (JST) : XMP-06V  
The standard lead length (from motor body to connector down) : 225±10mm



## 3. Function details

### ① ST/SP function

The motor can be turned on/off by ST/SP.

Motor drive	2.5V ≤ V ≤ 5V (Vcc)
Motor stop	V ≤ 1V or open

### ② CW/CCW function

The motor's rotating direction can be switched by external control.

CW	2.5V ≤ V ≤ 5V (Vcc)
CCW	V ≤ 1V or open

CW and CCW means directions from the motor's output axis.

Please switch the CW and the CCW after the motor has stopped rotating. Switching the CW or CCW during rotation may break electronic components inside the motor.

### ③ PWM control function

The motor's rotating speed can be controlled by external control.

Motor drive	2.5V ≤ V ≤ 5V (Vcc)
Motor stop	V ≤ 1V

The recommended PWM frequency: 15k-25kHz.

Note: Stopping the motor by decreasing the PWM duty activates the lock protection circuit. Under the circumstance, the motor can be reactivated by ST/SP, CW/CCW or power restoration.

### ④ FG (3FG) pulse output function

Output the rotation period pulse signal (1FG or 3FG).

(If the motor has 12 poles magnet, 1FG=6pulses, 3FG=18pulses).

The output configuration: Open drain.

VH: The voltage when Q is off	Use the motor with VH ≤ 6V.
VL: The voltage when Q is on	VL ≤ 0.6V
IL: The sink current when Q is on	Use the motor with IL ≤ 3mA

### ⑤ AL signal

This function detects locked motors, and outputs a signal. The output configuration: Open drain.

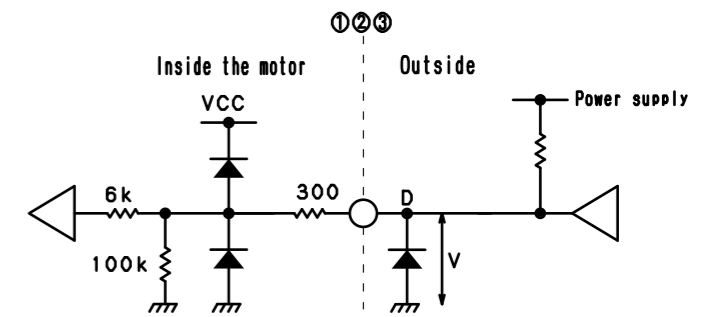
VH: Q voltage at normal operation	VH ≤ 6V
VL: Q voltage at motor lock	VL ≤ 0.6V
IL: Sink current at motor lock	IL ≤ 3mA

### ⑥ 5V Input

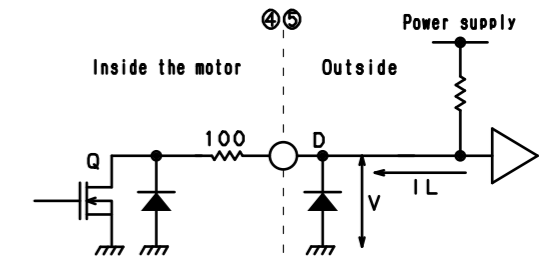
This is the power supply for the control IC.

In order to prevent from destruction by illegal connection, Schottky diode (Vf=0.36V max) is connected on this line.

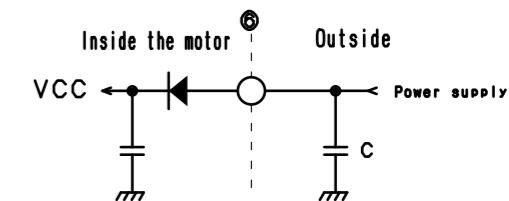
5V: Input voltage range	5.0V ≤ Vcc ≤ 6.0V
Icc: Control current	Icc ≤ 30mA



Note: Insert D (Schottky) to avoid breaking the IC by using distribution impedance.



Note: Insert D (Schottky) to avoid breaking the IC by using distribution impedance.



Note: The insertion C (approximately 47μF) is recommended to prevent glitches with the motor.

Note: When starting and stopping the motor, control its input functions (5V input, ST/SP function, and PWM control function) in the following order:

When starting the motor:  
Start the 5V input → Start the power supply → Start the input of individual signals.

However, using the PWM control function as an ST/SP function may activate the motor lock detecting function and shut down the motor. Therefore, input the PWM signal within 0.5 second after supplying power.

When stopping the motor:  
Stop the input of each signal → Stop the power supply → Stop the 5V input.