

Chapter 1

Product Configuration and Signal Description

1.1	Product Composition	
1.1.1	Checking Products	1-2
1.1.2	Identifying the Parts	1-4
1.2	System Composition	
1.2.1	Summary	1-6
1.2.2	Connecting CN1 at Position operation mode	1-7
1.2.3	Connecting CN1 at Speed operation mode	1-8
1.3	Signal Explanation	1-9

Chapter1 Product Configuration and Signal Description

1.1 Product Composition

1.1.1 Checking Products

- ① Check if the products are the right one you ordered.
 - Check the types marked in the nameplates of Servo Drive
 - Check the types marked in the nameplates of Servo Motor

2

Check Product and Option Items.

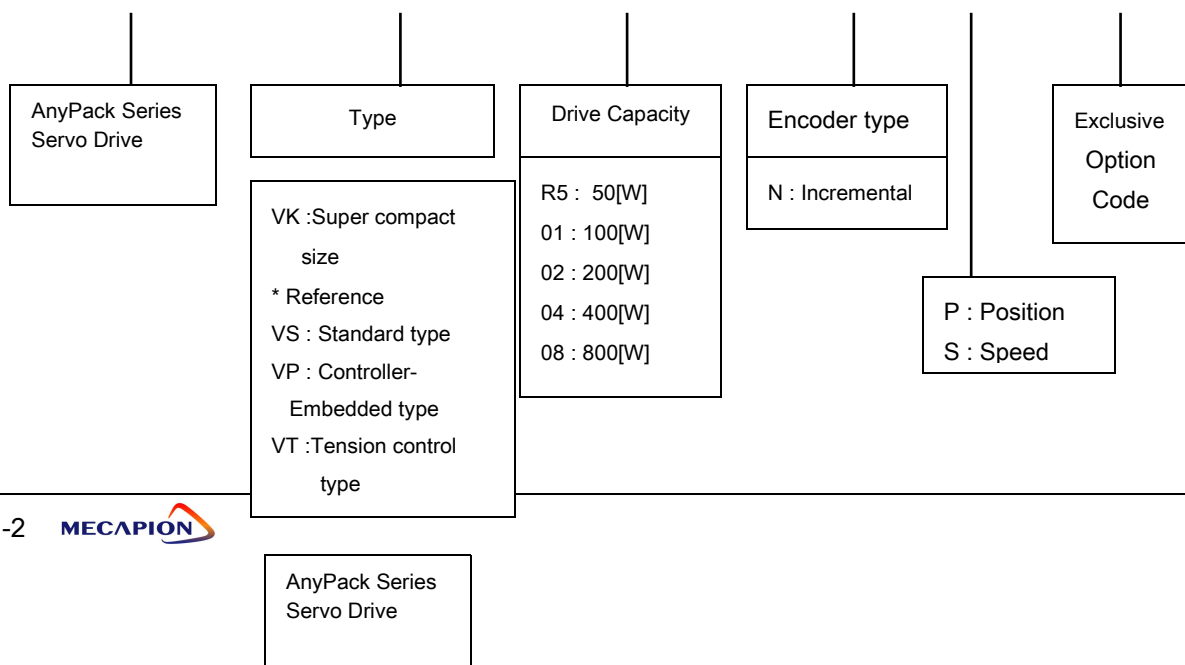
- Check if the cable types and length are correct
- Check if the regenerative resistance is in accordance with the standard
- Check if the motor shaft is correct
- Check if the Oil Seal and Brake is correct
- Check if the reducer and reduction ratio is fine
- Check if the Encoder type is correct

③ Check the External Appearance

- Check if there is no dust or moisture
- Check if there is fading, contamination, damage, and disconnection
- Check if the tightness of fitting & bolts are correct
- Check if there is no noise or excessive friction at rotating

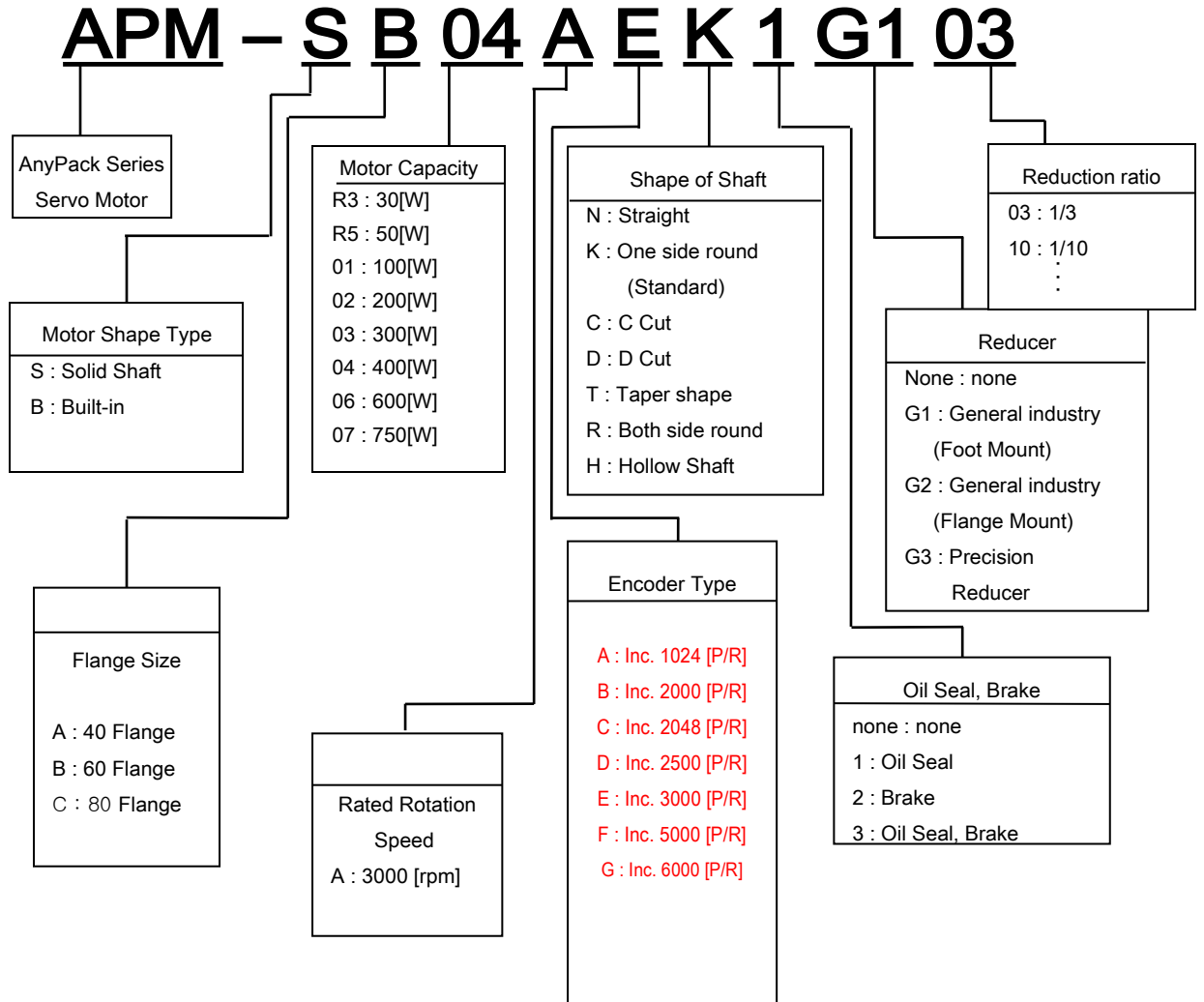
■ Servo drive Type Designation

APD – VK 04 N P A4



Chapter1 Product Configuration and Signal Description

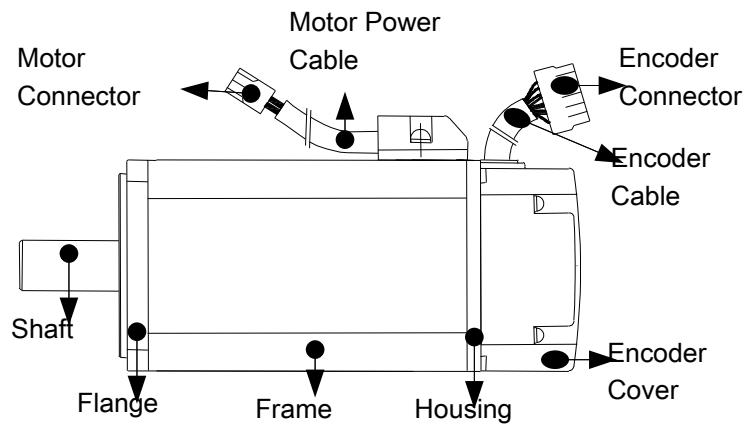
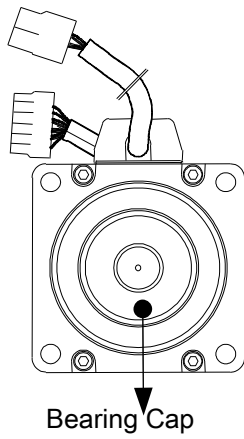
■ Servo Motor Model Configuration



Chapter1 Product Configuration and Signal Description

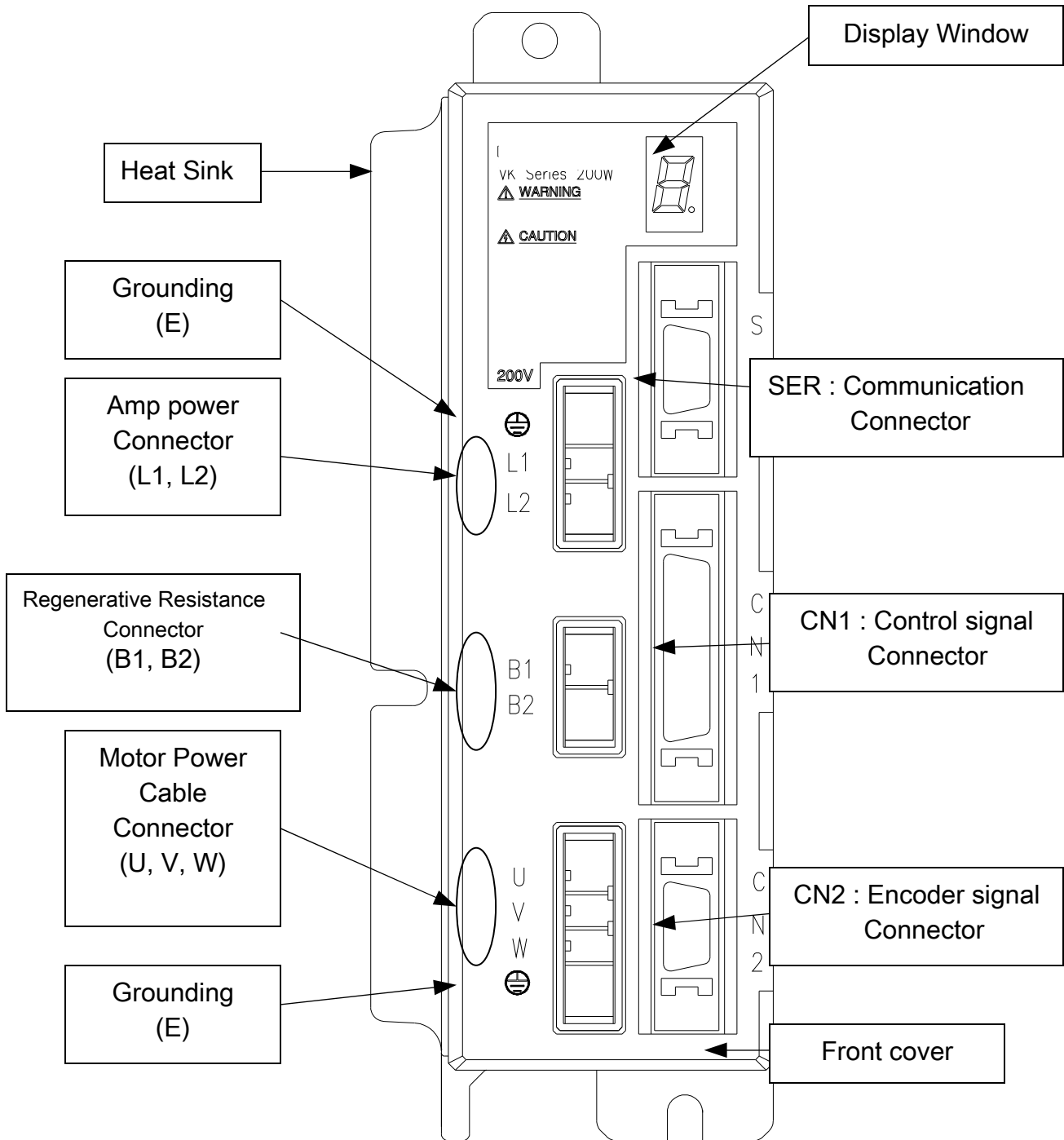
1.1.2 Identifying the Parts

■ Servo Motor



Chapter1 Product Configuration and Signal Description

■ Servo Drive



Chapter1 Product Configuration and Signal Description

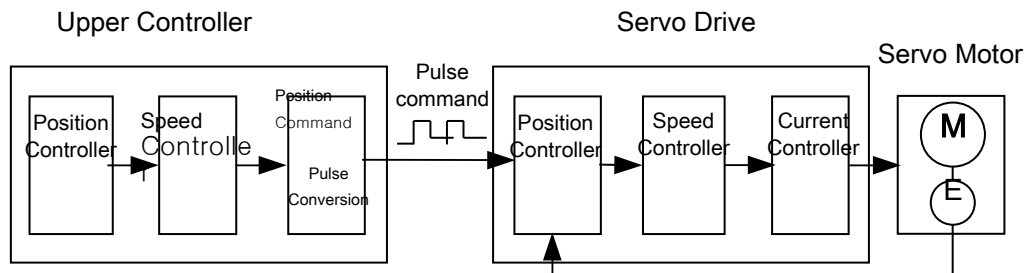
1.2 System Composition

1.2.1 Summary

Servo System can be variously used as per the interface with upper controller.

1) Position Operation System

Operate Servo by pulse command that operates position of servo motor by ratio of encoder pulse compared to command pulse.



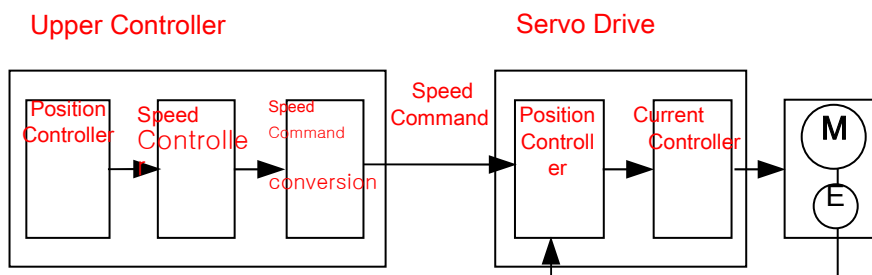
Strength : Because of pulse input by transfer unit, upper controller is simple.

Weak point : High speed rotating is difficult at using precise transfer unit

Response characteristics are not good by using various steps of controller.

2) Speed Operation System :APD-VKxxNS

Operating Servo with three different speed commands by input contacts, which can be operated with digital speed control



Strength : Response characteristics of servo is fast. And precise controller is possible.

Weak point : Upper Controller is complicated.

* Servo can run by speed operation system and position operation system at exclusive software.

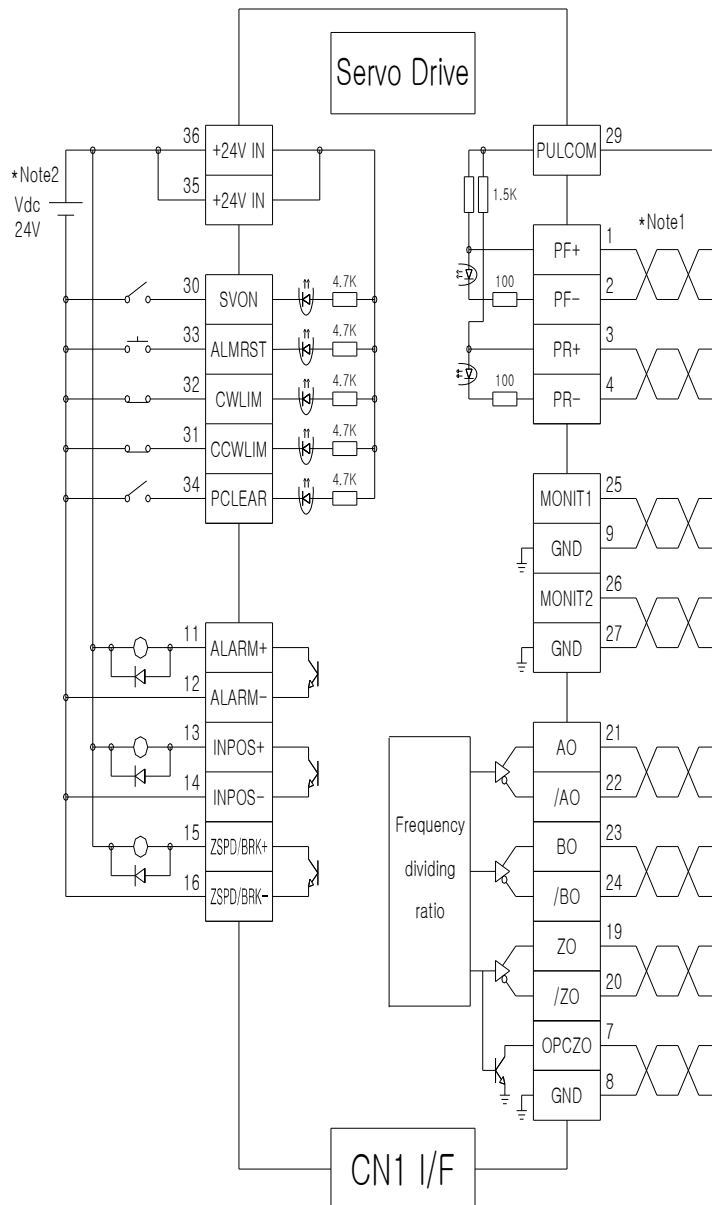
* After this, position type(p) and speed type(s) distinguish by symbol.

* When there is no special distinction of the example. Type P, S is the same.

Chapter1 Product Configuration and Signal Description

Ex)APD-VK04

1.2.2 CN1 Wiring at Position operation mode

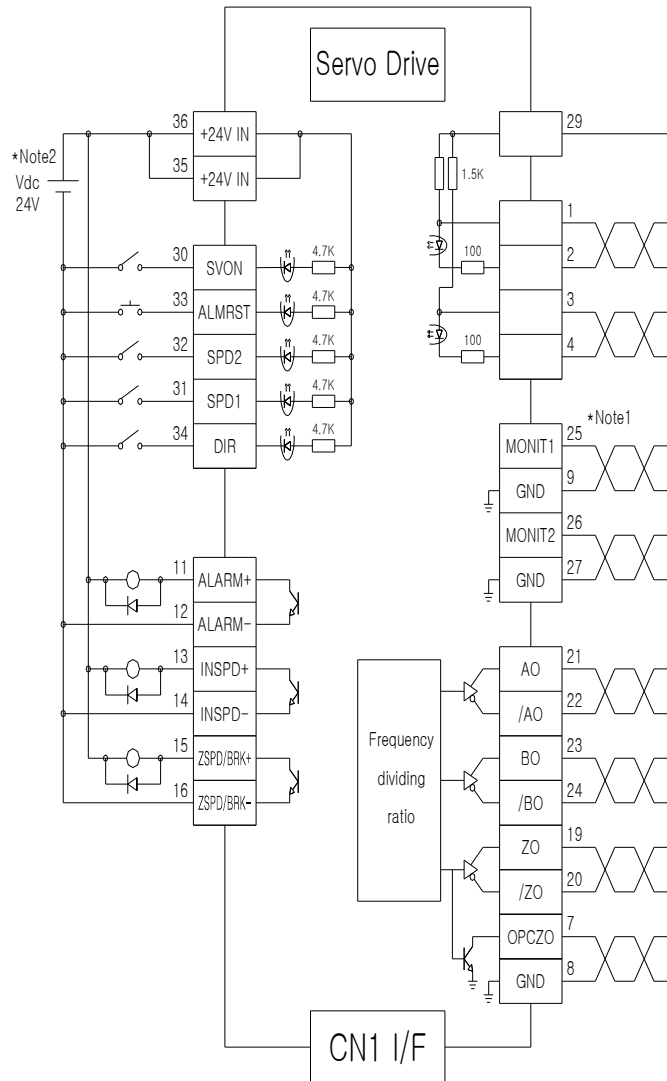


Note1) Surely use twist shield pair cable for the wiring marked with " $\times\times$ " to prevent signal error.

Note2) Surely use an external 24[V] power supply since there is no power supply for 24[V] in servo drive.

Chapter1 Product Configuration and Signal Description

1.2.3 CN1 Wiring at Speed operation mode



Note1) Surely use twist shield pair cable for the wiring marked with " $\times\times$ " to prevent signal error.

Note2) Surely use an external 24[V] power supply since there is no power supply for 24[V] in servo drive.

Note3) When input contacts SPD1=On, SPD2=On are set, STOP

(Refer to the menu, PE-602, PE-603, PE-604)

Chapter1 Product Configuration and Signal Description

1.3 Signal Explanation

1) Input contacts signal

Pin No.	Name	Function and Use	Position	Speed
35,36	+24V IN	Input contact +24[V] power supply	O	O
34	PCLEAR	Input pulse clear	O	X
	DIR	Selecting rotating direction	X	O
33	ALMRST	RESET when ALARM occurred	O	O
32	CWLIM	CW rotation(reverse direction) is not allowed	O	X
	SPD2	Selecting speed 2	X	O
31	CCWLIM	CWW rotation(forward direction) is not allowed.	O	X
	SPD1	Selecting speed 1	X	O
30	SVON	On : Motor Operating, Off : Motor generative braking stop	O	O

2) Pulse Input Signal

Pin No.	Name	Description	Position	Speed
1	PF+	Line driver(5V) : F+ pulse input Open collector(24V) : Not Used	O	X
2	PF-	Line driver(5V) : F- pulse input Open collector(24V) : F pulse input	O	X
3	PR+	Line driver(5V) : R+ pulse input Open collector(24V) : Not Used	O	X
4	PR-	Line driver(5V) : R- pulse input Open collector(24V) : R pulse input	O	X
29	PULCOM	Line driver(5V) : Not Used Open collector(24V) : +24V Power supply input	O	X

3) Pulse Input Signal

Pin No.	Name	Description	Position	Speed
---------	------	-------------	----------	-------

Chapter1 Product Configuration and Signal Description

8	SPDCOM	Analog speed command input (-10~+10[v])	X	O
---	--------	--	---	---

4) Output Contacts Signal

Pin No.	Name	Description	Position	Speed
11 /12	ALARM+ /ALARM-	ALARM state output ON : normal state OFF : ALARM state	O	O
15 /16	ZSPD+ / ZSPD-	Output at servo stop (zero speed)	O	O
	BRK+ / BRK-	Brake operating signal output (ON at servo operating)	O	O
13 /14	INPOS+ / INPOS-	Output complete signal of target position reaching	O	X
	INSPD+ / INSPD-	Output complete signal of target speed reaching	X	O

Note) Selecting contacts of ZSPD/BRAKE is available with the function that is selected at

[PE-517] (0 : ZSPD function, 1 : BRAKE function)

5) Monitor Output Signal and Output Power Supply

Pin No.	Name	Description	Position	Speed
25	MONIT1	Analog monitor output1(-5~+5[V])	O	O
26	MONIT2	Analog monitor output2(-5~+5[V])	O	O
9/27	GND	Analog output signal ground	O	O
5	+15V	+15[v] source output terminal	O	O
6	-15V	-15[v] source output terminal	O	O

6) ENCODER Output Signal

Pin No.	Name	Description	Position	Speed
21 22 23 24	AO /AO BO /BO	Divide the Encoder signal by the setting values in the menu [PE-501] (5[V] Line driver type)	O	O
19 20	ZO /ZO	Output the Encoder Z signal received from motor (5[V] Line driver type)	O	O

Chapter1 Product Configuration and Signal Description

7 9	OPCZO GND	Output the Encoder Z signal received from motor (Open collector type)	O	O
--------	--------------	---	---	---