

Direct Drive Motor < > <DrvG >

TI 71M01D03-01KA

DD

. 사용에 대해서 본서를

- WindowsXP, Windows Vista, Windows7 Microsoft Corporation
그 외의 나라에 .
- Adobe, Acrobat , Adobe Systems Incorporated(Adobe Systems) 상 표 입 니 다 .
- Pentium .
- , 상표입니다.

다.

Copy, , , .

가가

Symbol

아래

Symbol



...

가 경우에



...

System



...



...

니다.



...

Page

다.

User

실행

고객

은 아닙니다.

가

System

해

System

가

하여

하여

, 제조된

System

경우에는

안전성을 확보하는

가

System

드립니다.

다.

User

가

User

가

Copy

요.

가
가 니다.

, disassemble Reverse engineering

3 가

요.
시요.

1mm이상

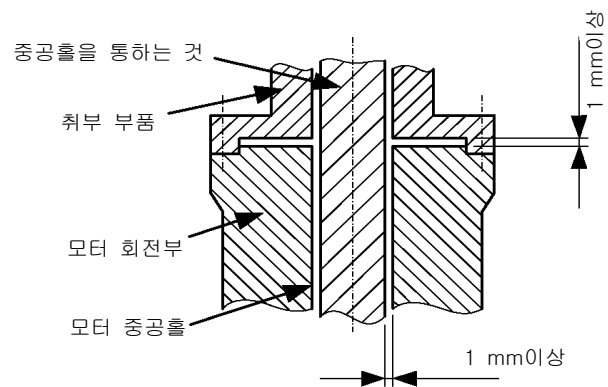
주십시오.

가

1mm이상의 틈을 확보하여 주십시오.
가

DM
DR

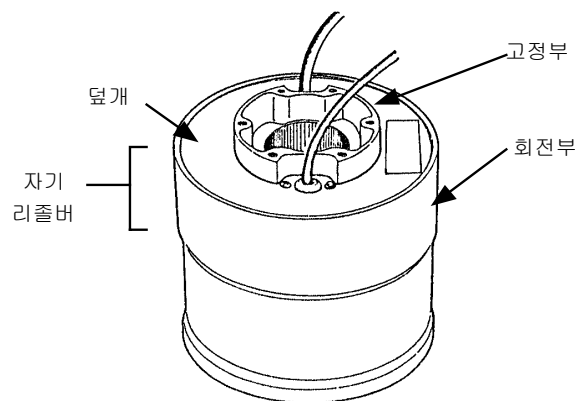
/



, 가 아 DR
하여 주십시오.

리졸버가

조합되어



가 가 가

DrvGIII

500W

2kW
가

8 mm, 4kW

6 mm

를 (50)
1 90 10
가

, , () 가

EMC

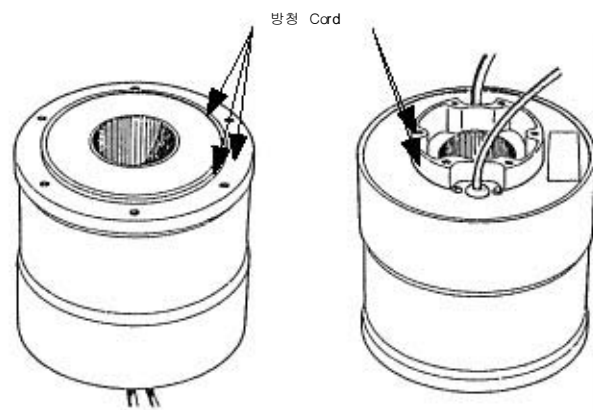
(DM - , DR -)
(UD G3- , UR G3-) 5 가 가
가

DR

끼칠 우려가 있습니다.
해 주십시오.

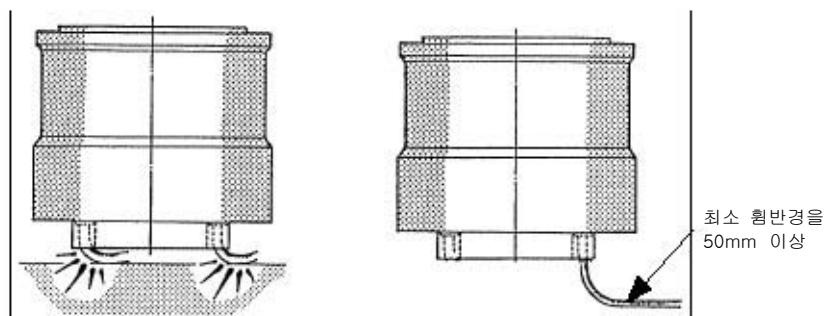
가

가



제품의 운반, 보관, 설치에 있어서는 아래 그림과 같은 형태로 모터를 두지 말아 주세요.
모터 스스로 케이블을 눌러 케이블이 단선될 우려가 있습니다.케이블 취출부를
아래 방향으로 모터를 두는 경우는 케이블을 띄워 파손을 방지하도록 지지대를
마련해 주십시오.

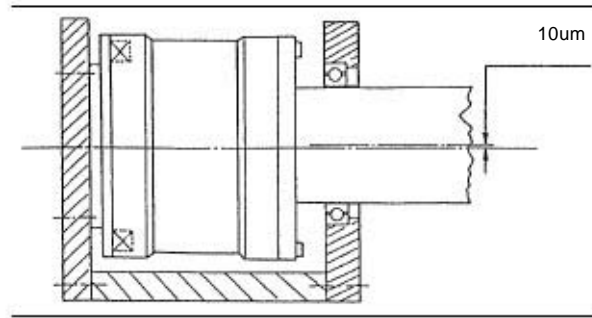
장치에서 케이블을 굽혀 설치하는 경우는 최소의 곡선반경을 50 mm이상으로 해주십시오.
또한 굴곡되거나 접히지 않게 사용해 주십시오. 단선이나 고장의 원인이 되는
경우가 있습니다. 당사에서 준비하는 케이블, 옵션 케이블은 유수명품으로 소모품입니다.



가
의 피복을

심 벗어남이 10μ m

가



가
7

가

가
4kW 2kW 7 500W 4

Separator
가

separator가

UD1B 3-075 - 「xxxHz」 여진
20 (1) 22 (2)

.단선이나 고장의 원인이

가

RDY LED가
「10.xdata sum error」가 가 후
Restore . (가)

주고

5 가

「10.x data sum error」가 가
All reset

Tool

, RDY LED가
「10.x data sum error」가 가
Restore
(가)

Blank Page

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1. 제품 개요

1.1 DM/DR시리즈 모터에 대해서

Dynaserv는 고속/고 토크/고정밀의 아우터 로터형 다이렉트 드라이브 서보 모터Type입니다.

DM시리즈 모터

DM시리즈는 광학식 엔코더를 내장한 알루미늄 케이스 모터로 고정도의 토크 중량비가 좋은 것이 특징입니다.

DM1A형, DM1B형, DM1C형이 있고, DM1B에는 높이를 줄인 편평 형태의-004 및-006이 있으며 DM1C는 외경을 줄인 작은 형태의 Motor입니다.

- DM1A형 : 외경 264 mm, 중공홀경 58 mm, 출력 토크 50~200N.m
- DM1B형(DM1B-004,-006를 제외) : 외경 160 mm, 중공홀경 25 mm, 출력 토크 15~75N.m
- DM1B-004, DM1B-006 : 플랜지 160 mm각, 외경 158 mm, 중공홀경 25 mm, 출력 토크 4, 6N.m
- DM1C 형 : 외경 116 mm, 중공홀 직경 25 mm, 출력 토크 4N.m

DR시리즈 모터

DR시리즈는 자기식 엔코더를 내장한 스틸 케이스 모터로 내환경성이 뛰어나고 대구경 중공홀을 가지고 있습니다.

DR1A형, DR1E형, DR1B형, DR5A형, DR5E형, DR5B형, DR5C형이 있어, DR5궤는 고속 회전의 용도로 사용할 수 있습니다.

- DR1A형:외경 264 mm, 중공홀경 150 mm, 출력 토크 50~400N.m
- DR1E형:외경 205 mm, 중공홀경 76 mm, 출력 토크 30~250N.m
- DR1B 형(DR1B-008을 제외):외경 150 mm, 중공홀경 56 mm, 출력 토크 15~60Nm
- DR1B-008:외경 145 mm, 중공홀경 56 mm, 출력 토크 8N.m
- DR5A형:외경 264 mm, 중공홀경 150 mm, 출력 토크 300~500N.m
- DR5E형:외경 205 mm, 중공홀경 76 mm, 출력 토크 70, 100N.m
- DR5B형:외경 150 mm, 중공홀경 56 mm, 출력 토크 30~70N.m
- DR5C형:외경 107 mm, 중공홀경 26 mm, 출력 토크 5~15N.m

1.2 DrvG 드라이버에 대해서

인텔리전트 드라이버 Drv GIII는 SD/SR/TM형 드라이버 DrvG 드라이버의 후속 모델인 다이렉트 드라이브 모터 드라이버입니다. 제어 성능과 조작성을 향상시켜 기능을 Up 시켰으며 Size도 소형화했습니다.

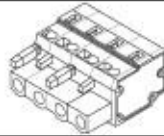
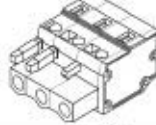
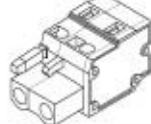

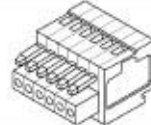

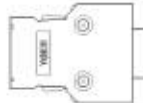

- 드라이버의 체적은 종래의 약1/2(2kW급SD,SR드라이버 비)
약2/3(500 W급 TM드라이버 비)입니다.
- 분해능은 종래의 4배(DM시리즈 모터 SD드라이버 비),2배(DR,LM모터 SR,TM드라이버 비)입니다.
- 모터와 드라이버를 간단한 조작으로 상세하게 컨트롤 할 수 있으며지 윈 툴(Windows판)을 준비했습니다.

1.3 제품의 확인

제품을 받은후에는 즉시 현품을 확인해 주십시오. 주명판을 보고

주문한 제품과 부속품의 종류 및 수량에 이상이 없는지 외관 검사로 이상이 없는 것을 확인해 주세요.

주문한 제품과 다른 경우나 또는 제품에 부적합이 있는 경우는 즉시 구입한 판매점 또는 당사에 연락해 주십시오.

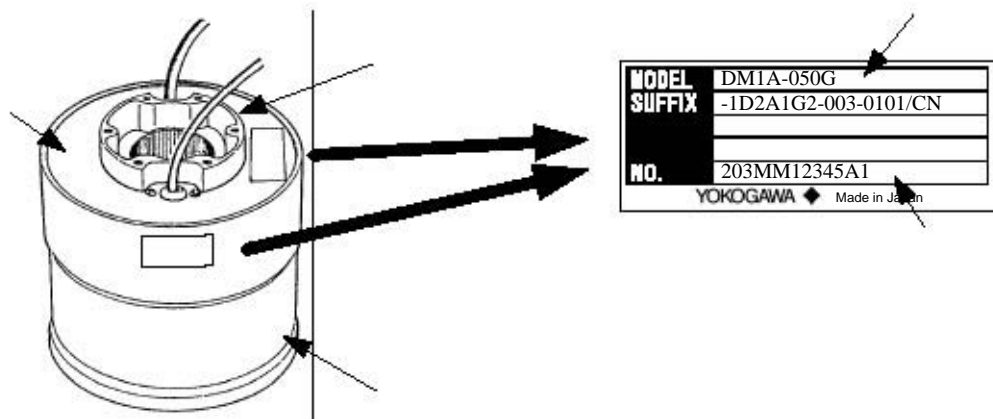
명칭		형상	
Motor		Code	
	Driver	Code	
	TB1 Connector (231-204/026-000 WAGO)		(1 1)
	TB2 Connector (231-203/026-000 WAGO)		
	TB3 Connector (231/202/026-000 WAGO)		(1 1) Page
	Screw 없는 (231-131 WAGO)		
	TB4 Sensor Connector (733-106 WAGO)		(1 1)
			(1 1) Page
	CN2 Connector (PCR-S20FS、PCR-LS20LA1)		가 Code 「/CN」
	CN4 Controller Interface Connector (PCR-S36FS、PCR-LS36LA)		
Cable			

회생 저항 첨부 기종 일람

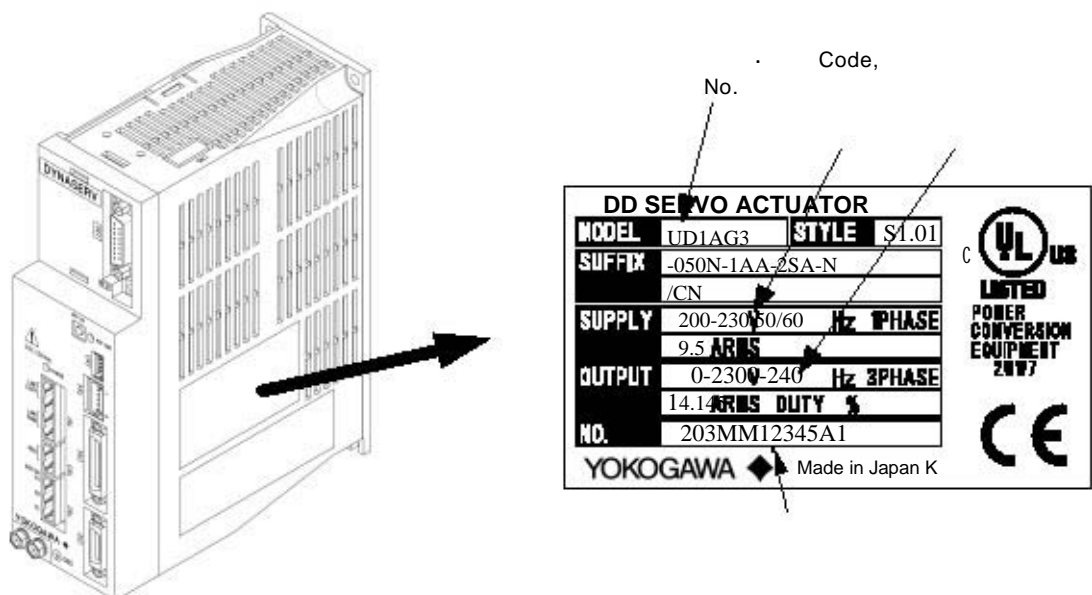
아래 표의 모델에 회생 저항을 첨부하고 있습니다. 2kW급 드라이버는 회생 저항을 내장하고 있어 첨부하지 않았습니다.

형명	기본사양 코드			회생기종	
UD1AG3	-050N-	A-1	-N	80W	60
	-050N-	A-2	-N	80W	200
UR1AG3	-050N-	B-1	-N	80W	60
	-050N-	B-2	-N	80W	200
UR1EG3	-030N-	B-1	-N	80W	60
	-030N-	B-2	-N	80W	200
UR5BG3	-010N-	B-2	-N		
UR5CG3	-015N-	B-2	-N		

모터의 명판



드라이버의 명판



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2. 사양

2.1 표준 사양

DM1

CE

				DM1A			
				DM1A-200	DM1A-150	DM1A-100	DM1A-050
+			N·m	200	150	100	50
			N·m	67	50	33	17
	(100/200V)		rps	1.2 / 1.2			
	(100/200V)		rps	0.5 / 1.0		1.0 / 1.0	
	회전 위치 제어		p/rev	4,096,000			
				± 1			
				± 15			
	Pulse		p/rev	100			
	(100/200V)		kVA	1.5 / 3.0	1.5 / 3.0	1.35 / 2.7	1.2 / 2.4
	(100/200V)		kVA	1.32 / 1.9	1.12 / 1.5	1.12 / 1.12	0.71 / 0.71
			kg·m ²	167 × 10 ⁻³	142 × 10 ⁻³	119 × 10 ⁻³	96 × 10 ⁻³
		N	4 × 10 ⁴				
			2 × 10 ⁴				
		N·m	400				
		mm/N	2 × 10 ⁻⁶				
			3 × 10 ⁻⁶				
			rad/N·m	4 × 10 ⁻⁷			
			kg	29	24	19	14.5
()		mm	188	163	138	113	
		mm	238	213	188	163	

0.05rps

				DM1B							DM1C	
				DM1B-075	DM1B-060	DM1B-045	DM1B-030	DM1B-015	DM1B-006	DM1B-004	DM1C-004	
+			N·m	75	60	45	30	15	6	4	4	
			N·m	25	20	15	10	5	2	1	1	
	(100/200V)		rps	2.4 / 2.4					2.5 / 2.5		2.5 / 2.5	
	(100/200V)		rps	1.0 / 2.0	1.0 / 1.5	1.0 / 2.0	1.5 / 2.0	2.0 / 2.0	2.0 / 2.0		2.0 / 2.0	
				p/rev	2,621,440							2,621,440
					± 1					± 3		± 3
					± 15					± 20 / ± 60		± 20 / ± 60
	Pulse		p/rev	60					124		124	
	(100/200V)		kVA	1.25 / 2.5	1.1 / 2.2	1.0 / 2.0	1.0 / 2.0	0.8 / 1.6	0.35 / 0.5	0.3 / 0.4	0.25 / 0.4	
	(100/200V)		kVA	1.05 / 1.4	0.8 / 1.0	0.75 / 1.0	0.67 / 0.75	0.5 / 0.5	0.3 / 0.3	0.25 / 0.25	0.2 / 0.2	
			kg·m ²	27 × 10 ⁻³	23 × 10 ⁻³	19 × 10 ⁻³	15 × 10 ⁻³	12 × 10 ⁻³	7.5 × 10 ⁻³	5.5 × 10 ⁻³	2.5 × 10 ⁻³	
			N	3 × 10 ⁴					200	50	50	
				1 × 10 ⁴					200	50	50	
			N·m	200					50	-	-	
			mm/N	2.5 × 10 ⁻⁶					-		-	
				3 × 10 ⁻⁶					-		-	
			rad/N·m	1 × 10 ⁻⁶					-		-	
			kg	14	12	9.5	7.5	5.5	5	3	3	
	(L)			mm	194	168	143	118	92.5	65	45	77
		Break		mm	233	208	183	157	132	-	-	-

DR

				DR1A					
				DR1A-400	DR1A-300	DR1A-200	DR1A-150	DR1A-100	DR1A-050
+			N. m	400	300	200	150	100	50
			N. m	133	100	67	50	33	17
	(100/200V)		rps	0.4 / 0.8	0.5 / 1.0	0.8 / 1.2	1.0 / 1.2	1.2 / 1.2	1.8 / 1.8
	(100/200V)		rps	0.25 / 0.5		0.5 / 1.0		1.0 / 1.0	1.5 / 1.5
			p/rev	1,638,400					
			sec	± 3					
			sec	± 30					
	Pulse		p/rev	200					
	(100/200V)		kVA	1.6 / 3.2	1.6 / 3.2	1.5 / 3.0	1.5 / 3.0	1.25 / 2.5	1.25 / 2.5
	(100/200V)		kVA	1.12 / 1.8	0.9 / 1.4	1.06 / 1.9	0.85 / 1.5	1.12 / 1.12	1.0 / 1.0
			kg·m ²	400 × 10 ⁻³	340 × 10 ⁻³	285 × 10 ⁻³	230 × 10 ⁻³	200 × 10 ⁻³	180 × 10 ⁻³
			N	4 × 10 ⁴					
				2 × 10 ⁴					
			N. m	400					
			mm/N	2 × 10 ⁻⁶					
				3 × 10 ⁻⁶					
			rad/N. m	4 × 10 ⁻⁷					
			kg	65	55	45	36	31	26
	(L)		mm	358	304	250	212	185	158
			mm	408	354	300	262	235	208

				DR1B					
				DR1B-060	DR1B-045	DR1B-030	DR1B-015	DR1B-008	
+			N.m	60	45	30	15	8	
			N.m	20	15	10	5	3	
	(100/200V)		rps	1.4 / 2.4	1.8 / 2.4	2.4 / 2.4			
	(100 / 200V)		rps	1.0 / 1.5	1.0 / 2.0	1.5 / 2.0	2.0 / 2.0		
			p/rev	1,015,808					
				± 3					
				± 45					
	Pulse		p/rev	124					
	(100/200V)		kVA	1.15 / 2.3	1.05 / 2.1	0.9 / 1.8	0.7 / 1.4	0.5 / 1.0	
	(100/200V)		kVA	0.71 / 0.71	0.67 / 0.8	0.67 / 0.75	0.5 / 0.5	0.4 / 0.4	
			kg·m2	33 × 10 ⁻³	26 × 10 ⁻³	24 × 10 ⁻³	21 × 10 ⁻³	15 × 10 ⁻³	
			N	3 × 10 ⁴					
				1 × 10 ⁴					
			N.m	200					
			mm/N	3 × 10 ⁻⁶					
				4 × 10 ⁻⁶					
			rad/N.m	2 × 10 ⁻⁶					
			kg	15.5	13.0	11.0	9.0	6.0	
	L ()		mm	207	179	151	123	85	
			mm	252	224	196	168	-	

CE

			DR1E							
			DR1E-250	DR1E-220	DR1E-160	DR1E-130	DR1E-100	DR1E-070	DR1E-030	
+		N.m	250	220	160	130	100	70	30	
		N.m	83	73	53	43	33	23	10	
	(100/200V)		rps	0.7 / 1.2		1.0 / 1.2	1.2 / 1.2	1.5 / 2.4	2.0 / 2.4	
	(100/200V)		rps	0.5 / 1.0				1.0 / 1.5	1.5 / 2.0	
			p/rev	1,228,800						
			sec	± 3						
			sec	± 45						
	Pulse		p/rev	150						
	(100/200V)		kVA	1.6 / 3.2	1.5 / 3.0	1.4 / 2.8	1.25 / 2.5	1.15 / 2.3	1.0 / 2.0	0.9 / 1.8
	(100/200V)		kVA	1.25 / 1.8	1.12 / 1.6	0.9 / 1.5	0.75 / 1.25	1.06 / 1.5	1.0 / 1.4	0.71 / 0.9
			kg.m ²	185 × 10 ⁻³	170 × 10 ⁻³	140 × 10 ⁻³	125 × 10 ⁻³	100 × 10 ⁻³	85 × 10 ⁻³	72 × 10 ⁻³
		N	4 × 10 ⁴							
			2 × 10 ⁴							
			N.m	400						
		mm/N	2 × 10 ⁻⁶							
			3 × 10 ⁻⁶							
			rad/N.m	4 × 10 ⁻⁷						
			kg	48	44	36	32	26	22	18
	L()		mm	355	327	271	243	210	183	156

			DR5E		DR5B			DR5C			
			DR5E-100	DR5E-070	DR5B-070	DR5B-050	DR5B-030	DR5C-015	DR5C-010	DR5C-005	
+		N.m	100	70	70	50	30	15	10	5	
		N.m	33	23	23	17	10	5	3	2	
	(100/200V)		rps	- / 4.0		- / 5.0		- / 6.0			
	(100/200V)		rps	- / 2.0		- / 4.0		- / 4.0			
		p/rev	638,976		557,056			425,984			
		sec	± 4		± 5			± 5			
		sec	± 90		± 90			± 150			
	Pulse		p/rev	78		68			52		
	(100/200V)		kVA	- / 3.4	- / 3.1	- / 3.4	- / 3.1	- / 3.1	- / 1.4	- / 1.2	- / 0.6
	(100/200V)		kVA	- / 1.7	- / 1.25	- / 1.18	- / 0.95	- / 0.67	- / 0.3	- / 0.35	- / 0.3
			kg.m ²	125 × 10 ⁻³	100 × 10 ⁻³	37 × 10 ⁻³	34 × 10 ⁻³	27 × 10 ⁻³	8 × 10 ⁻³	7 × 10 ⁻³	6 × 10 ⁻³
		정	N	4 × 10 ⁴		3 × 10 ⁴			5 × 10 ³		
		회		2 × 10 ⁴		1 × 10 ⁴			3 × 10 ³		
			N.m	400		200			20		
		정	mm/N	2 × 10 ⁻⁶		3 × 10 ⁻⁶			4 × 10 ⁻⁶		
		회		3 × 10 ⁻⁶		4 × 10 ⁻⁶			8 × 10 ⁻⁶		
			rad/N.m	4 × 10 ⁻⁷		2 × 10 ⁻⁶			8 × 10 ⁻⁷		
			kg	32	26	18.0	16.0	13.5	7.5	6.5	5.5
	L()		mm	243	210	240	212	184	167	140	113

		0~45 : 0~40 : CE	
		20~85% RH	
		-20~85	
		20~85% RH	
		가 , 가 1000 m (CE)	

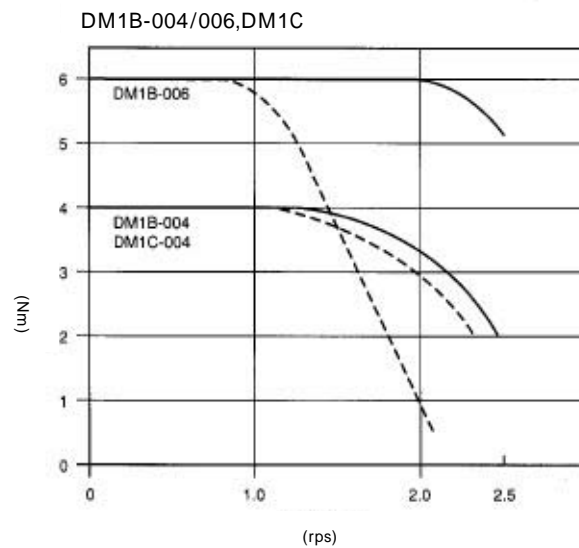
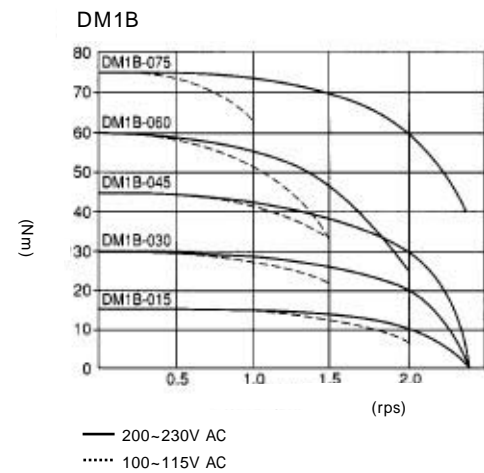
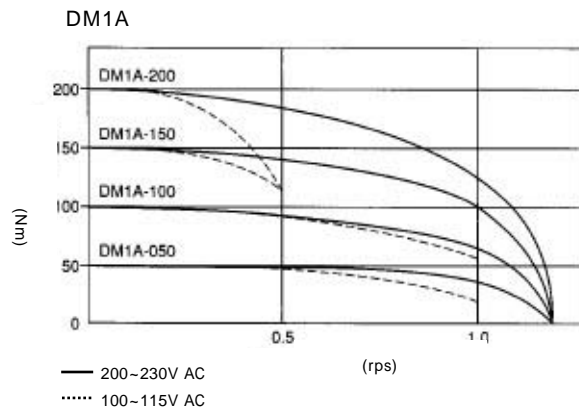
Code			Pulse	Pulse	Analog 1	Analog 2
S	A	12~24VDC	(RS422A) Max. 2MHz (A, B 500kHz)	(RS422A) Max. 3MHz (A, B 750kHz)		. / . Feed forward
	B	5VDC				
T	A	12~24VDC	(RS422A) Max. 2MHz (A, B 500kHz)	(RS422A)		
	B	5VDC				
U	A	12~24VDC	5 V Open - Collector Max. 200kHz	(RS422A)		
	B	5VDC				

드라이버 일반 사양/기능 사양

		500 W	2 kW
	Main	AC100~ 115V / AC200~ 230V	+10% -15% 50/60Hz
		1.3kVA	3.4kVA
		AC100~115V / AC200~ 230V	+10% -15% 50/60Hz
		40VA	
		0~+50 () / -20~+85 ()	
		20~90%RH ()	
		가 , 가 , 1000 m (CE)	
	Fan	Wall-mount	
		DC	
	60 W × 195 H × 150 D (mm)		100 W × 195 H × 200 D (mm)
	1.2 kg		2.5 kg
		() EN50178, EMC () EN55011 class A group 1, EN 61800-3	
		UL508C	
	; 10M (DC500V)		; 1,500VAC 1
	Pulse Pulse	DYNASERV UD1AG3 ; 4,096,000 pulse/rev (1,024,000pulse/rev) UD1BG3 ; 2,621,440 pulse/rev (655,360 pulse/rev) UD1CG3 ; 2,621,440 pulse/rev (655,360 pulse/rev) UR1AG3 ; 1,638,400 pulse/rev (819,200 pulse/rev) UR1BG3 ; 1,015,808 pulse/rev (507,904 pulse/rev) UR1EG3 ; 1,228,800 pulse/rev (614,400 pulse/rev) UR5BG3 ; 557,056 pulse/rev (278,528 pulse/rev) UR5CG3 ; 425,984 pulse/rev (212,992 pulse/rev) UR5EG3 ; 638,976 pulse/rev (319,488 pulse/rev)	
	Interface (RS232C/RS485)	, Binary 38,400 bps Multi (RS485) 10	
	Controller Interface	Pulse [PLS-SIGN],[UP-DOWN],[A-B] Pulse [UP-DOWN]、[A-B] Analog 12 , 6 () , , , (Code Interface T) , , , feed forward	
		, ±Over travel (End of Travel-EOT)	
	Feed forward		
	Filter	Filter, Filter, Filter, Notch Filter(2 ch)	
		, Test , , JOG	
		, Hard EOT, Soft EOT() , , , , ,	
		, , Analog 2 ch, 2 ch	
		() () Tool	
		() Servo (Code -1B -1L)	

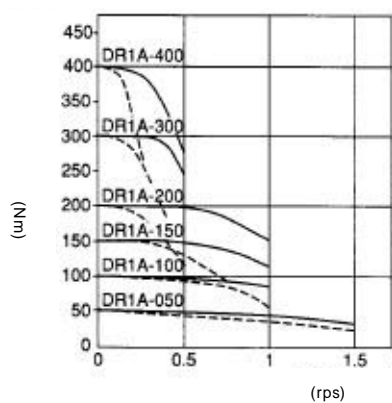
2.2 토오크/속도 특성

DM

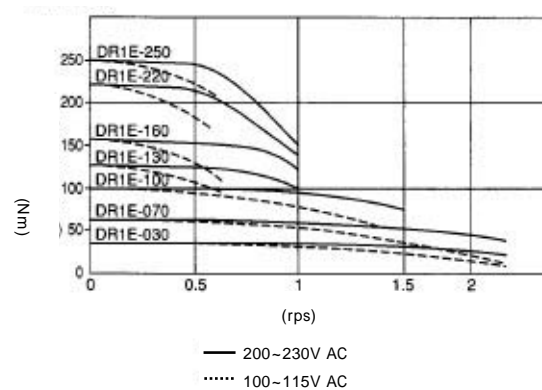


DR1

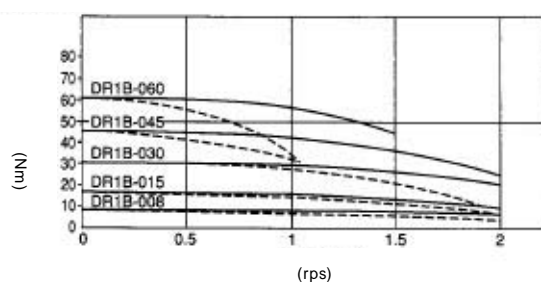
DR1A



DR1E

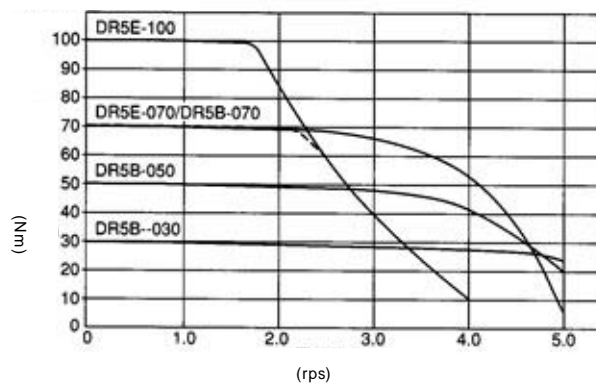


DR1B

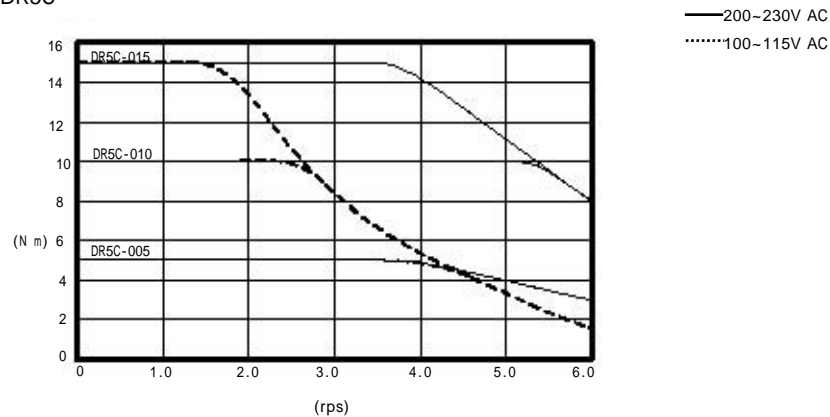


DR5

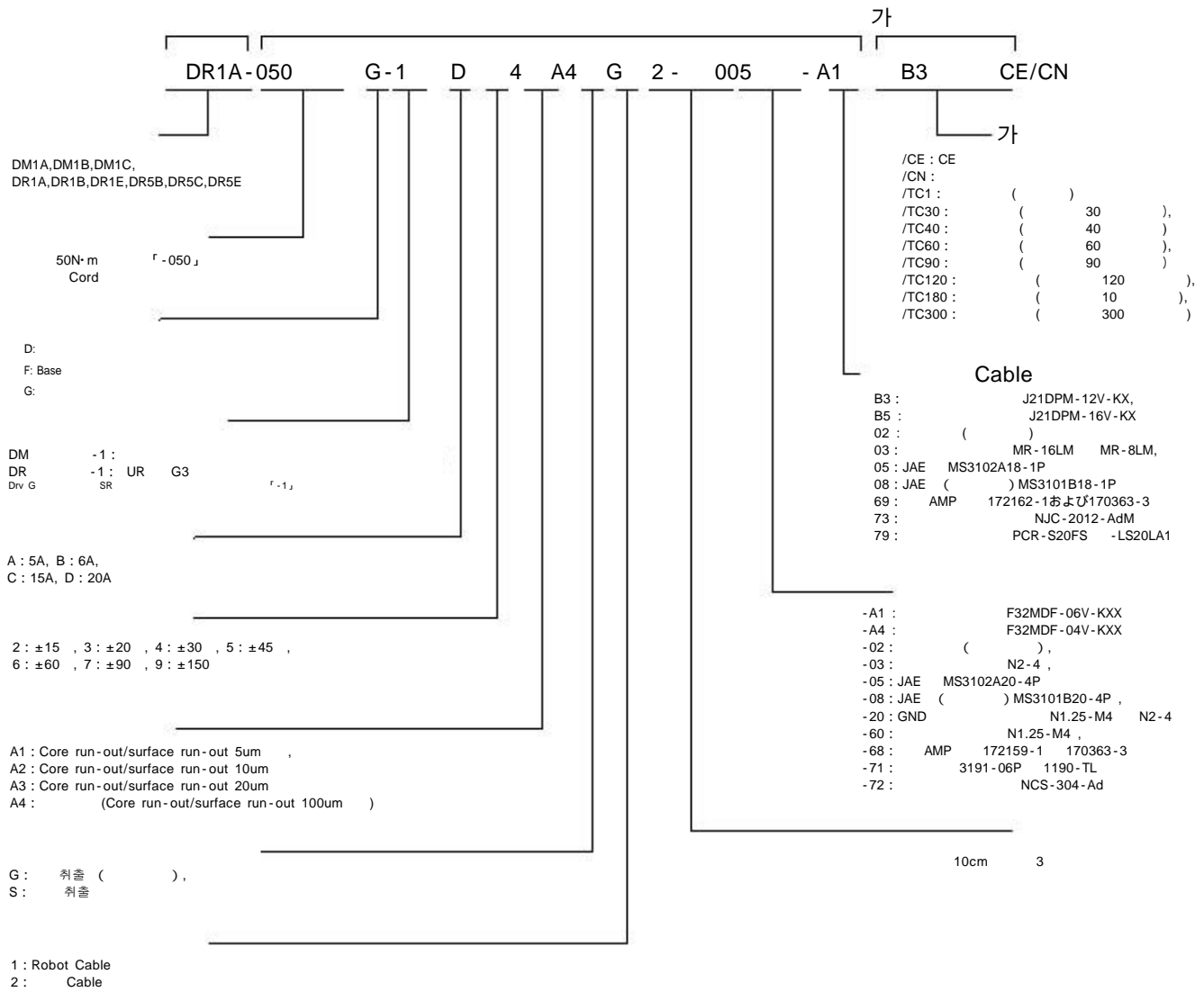
DR5B/DR5E



DR5C



2.3



형명사양 코드 선택표

Model	기본사양 코드										부가사양 코드
	모터 케이블 종단처리	기 본 사 양	드라이버 종단처리	드라이버 전류	유지제어 종도	기계적 종도	케이블 종단처리	케이블 종단처리	케이블 종단처리	케이블 종단처리	
DM1A	-050	G	-1	D	2	A1 A2 A4	G S	1 2	-003 -004 -005 -008 -010 -020 -030 -031 -040 -050 -080 -100 -120 -150 -200 -300	[**1]	
		D									
	-100	G									
		D									
	-150	G									
		D									
	-200	G									
		D									
		G									
		D									
		G									
		D									

[**1]

기본사양 코드		부가사양 코드
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-03,-20	02,03,05,08, 69,73,79	/CE /TC1 /TC30
-05,-08, -71,-72	02,03,79	
	05,08, 69,73	/CE /CN /TC1 /TC30

형명사양 코드 선택표

Model	기본사양 코드											드래그 레일 부
	드래그 레일 부	기본사양	드래그 레일 호환성	드래그 레일 종류	위치제어 정도	기계적 정도	케이블 종류	케이블 길이	케이블 길이	모터 케이블 종단처리	엔코더 케이블 종단처리	
DM1B	-004	F	-1	B	3 6	A2	S	2	-003,-004 -005,-008 -010,-020 -030,-031	[**2]		
	A			[**2]								
	-015	G		C	2	A1 A2 A4	G S	1,2	-003,-004 -005,-008 -010,-020 -030,-031 -040,-050 -080,-100 -120,-150 -200,-300	[**3]		
		D					G			[**3]		
	-030	G					G S			[**3]		
		D					G			[**3]		
	-045	G					G S			[**3]		
		D					G			[**3]		
	-060	G				A2 A3 A4	G S			[**3]		
		D					G			[**3]		
	-075	G					G S			[**3]		
		D					G			[**3]		
DM1C	-004	F	-1	A	3 6	A2	S	2	-003,-004 -005,-008 -010,-020 -030,-031	[**2]		

[**2]

기본사양 코드		미리 예약 코드
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-20,-60	02, 69,73,79	/CE /TC1 /TC40 /TC120
-68,-72	02,79	
	69,73	/CE /CN /TC1 /TC40 /TC120

[**3]

기본사양 코드		미리 예약 코드
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-03,-20,	02,03, 05,08, 69,73,79	/CE /TC1 /TC30
-05,-08, -71,-72	02,03,79	
	05,08, 69,73,	/CE /CN /TC1 /TC30

형명사양 코드 선택표

Model	기본사양 코드										부가사양 코드
	최대 출력 모터 코드	응용사양	드라이버 호환성	드라이버 전류	유지제어 정도	기계적 정도	케이블 차 종류 코드	케이블 차 종류	케이블 길이	모터 케이블 종단처리	
DR1A	-050	D G	-1	D	4	A1 A2 A4	G	1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]	
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	1							-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	1							-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	-100					A3 A4		1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]	
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	-150							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]	
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
	-200							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]	
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]		
-300		1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]							
2		-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]								
-400		1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]							
2		-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**4]								

[**4]

기본사양 코드		부가사양 과
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-03,-20	02,03,05,08, 69,73,79	/CE /TC1 /TC60
	02,03,79	
-05,-08,-71,-72	05,08,69,73	/CE /CN /TC1 /TC60

형명사양 코드 선택표

Model	기본사양 코드										비고 참고사항
	모터 케이블 종단처리	기초 사양	드라이버 호환성	드라이버 진폭	유치제어 정도	기계적 정도	케이블 착탈 용이성	케이블 길이	모터 케이블 종단처리	엔코더 케이블 종단처리	
DR1B	-008	G	-1	C	5	A1 A2 A4	G	1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]	
	-015	D G						2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]	
								1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]	
		2						-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		
		-030						1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]	
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		
	-045	1						-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		
		2						-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		
	-060	A2 A3 A4				1		-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		
						2		-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**5]		

[**5]

기본사양 코드		비고 참고사항
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-03,-20	02,03,05,08,69,73,79	/CE /TC1 /TC90
	02,03,79	
-05,-08,-71,-72	05,08,69,73	/CE /CN /TC1 /TC90

형명사양 코드 선택표

Model	기본사양 코드											파기사항 코드						
	최대 출력 중단처리	기본 사양	드라이버 호환성	드라이버 전류	유치 제어 정도	기계적 정도	케이블 체결 방향	케이블 중단	케이블 길이	모터 케이블 중단처리	엔코더 케이블 중단처리							
DR1E	-030	G	-1	D	5	A1 A2 A4	G	1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-070							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-100							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-130					A3 A4		1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-160							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-220							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
	-250							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**6]								

[**6]

기본사양 코드		파기사항 코드
모터 케이블 중단처리	엔코더 케이블 중단처리	
-02,-03,-20	02,03,05,08,69,73,79	/CE /TC1 /TC90
	02,03,79	
-05,-08,-71,-72	05,08,69,73	/CE /CN /TC1 /TC90

형명사양 코드 선택표

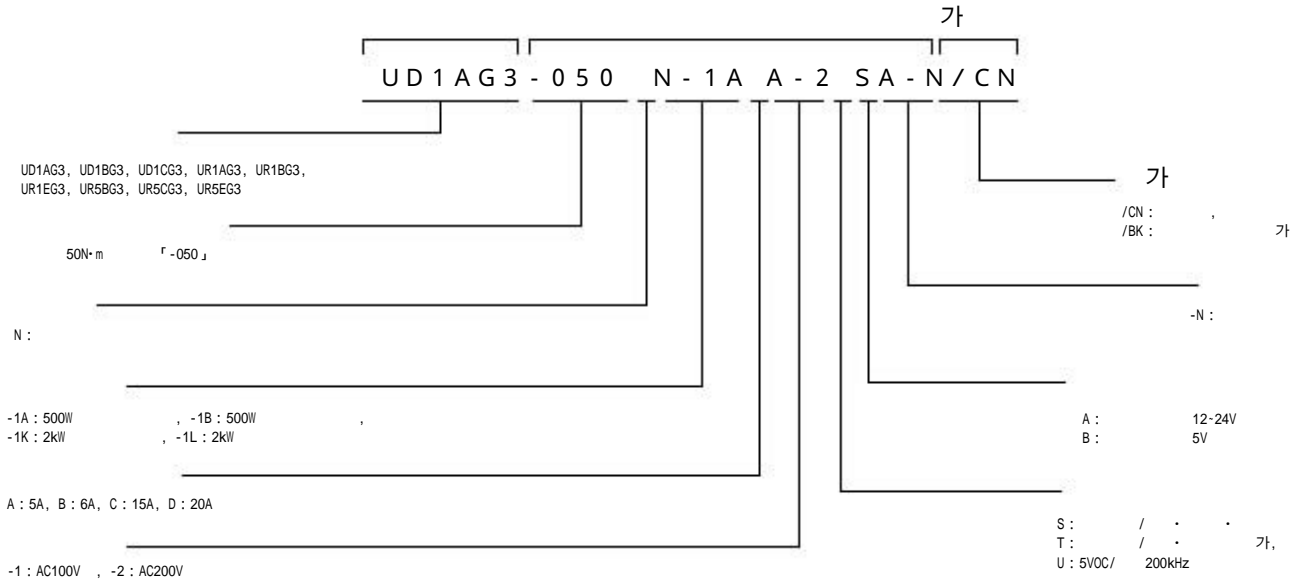
Model	기본사양 코드											드라이버 사양
	모터 케이블 종단처리	기본사양	드라이버 호환성	드라이버 진폭	유치제어 정도	기계적 정도	케이블 체결 방식	케이블 종단처리	케이블 길이	모터 케이블 종단처리	엔코더 케이블 종단처리	
DR5B	-030	G	-1	C	7	A1 A2 A4	G	1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]		
	2							-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]			
	-050					1		-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]			
						2		-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]			
	-070					1		-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]			
						2		-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]			
DR5C	-005	G	-1	B	9	A2 A4	G	2	-003,-004,-005,-008,-010,-020,-030,-031	[**8]		
	-010											
	-015											
DR5E	-070	G	-1	D	7	A4	G	1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]		
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]		
	-100							1	-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]		
								2	-003,-004,-005,-008,-010,-020,-030,-031,-040,-050,-080,-100,-120,-150,-200,-300	[**7]		
DB5C	-005	G	-1	B	9	A2 A4	G	2	-003,-004,-005,-008,-010,-020,-030,-031	[**8]		
	-010											
	-015											

[**7]

기본사양 코드		비 리 터 가 사 양 파
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-03,-20	02,03,05,08, 69,73,79	/CE /TC1 /TC180
	02,03,79	
-05,-08,-71,-72	05,08,69,73	/CE /CN /TC1 /TC180

[**8]

기본사양 코드		비 리 터 가 사 양 파
모터 케이블 종단처리	엔코더 케이블 종단처리	
-02,-20	02,69,73,79	/CE /TC1 /TC300
	02,79	
-60,-68,-72	69,73	/CE /CN /TC1 /TC300



2 kW

500 W

Model	조명 구동 전 압	부하 능	기동구동 전압	드라이브 전압	전원전압	I/F 종류	I/F 사양	규격대응	드라이브 방식
UD1AG3	-050	N		D					/CN
	-100								
	-150								
	-200								
UD1BG3	-015			C					/CN
	-030								
	-045								
	-060								
UR1AG3	-075			D	-1 -2	S T U	A B	-N	/CN /BK
	-050								
	-100								
	-150								
UR1BG3	-200			C					/CN /BK
	-300								
	-400								
	-008								
UR1EG3	-015			D					/CN
	-030								
	-045								
	-060								
UR5BG3	-030			C	-2				/CN /BK
	-070								
	-100								
	-130								
UR5EG3	-160			D					/CN
	-220								
	-250								
	-010								

Model	조 동 전 압	부 하 능	기 동 전 압	미 리 전 압	전 원 전 압	I/F 종 류	I/F 사 양	이 동 구 조 대 응	드 라 이 브 방 식									
UD1AG3	-050	N	-1A -1B	A	-1 -2	S T U	A B	-N	/CN									
UD1BG3	-004			B														
	-006			A														
	-015																	
	-030																	
UD1CG3	-004			UR1BG3					-1 -2	S T U	A B	-N	/CN /BK					
UR1AG3	-050												/CN /BK					
UR1BG3	-008												B	-2	/CN /BK			
	-015														/CN /BK			
	-030														/CN /BK			
UR1EG3	-030												-1 -2	XA C1 P1	-N	/CN		
UR5BG3	-010												-1 -2			/CN		
UR5CG3	-005												-1 -2			XA C1 P1	-N	/CN
	-010																	/CN
	-015													/CN				

가 (UD G3 , (DM 5 가 , DR))

UR G3)

2.4

2.4.1

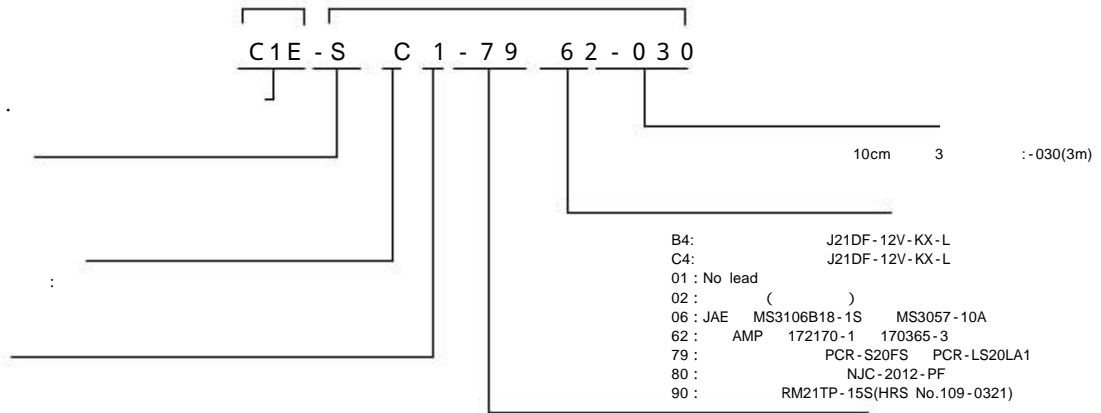
조합

-E : UD G3
-S : UR G3

조합

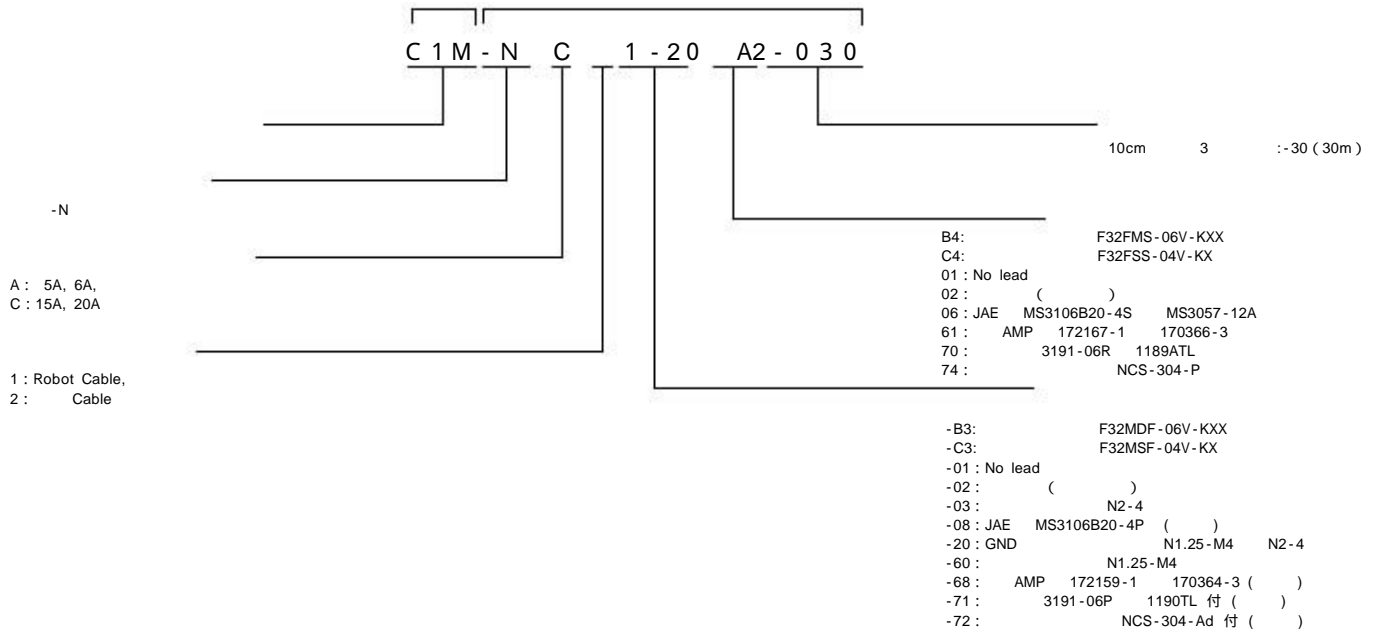
5A, 6A
C : 15A, 20A

1 : Robot
2 :

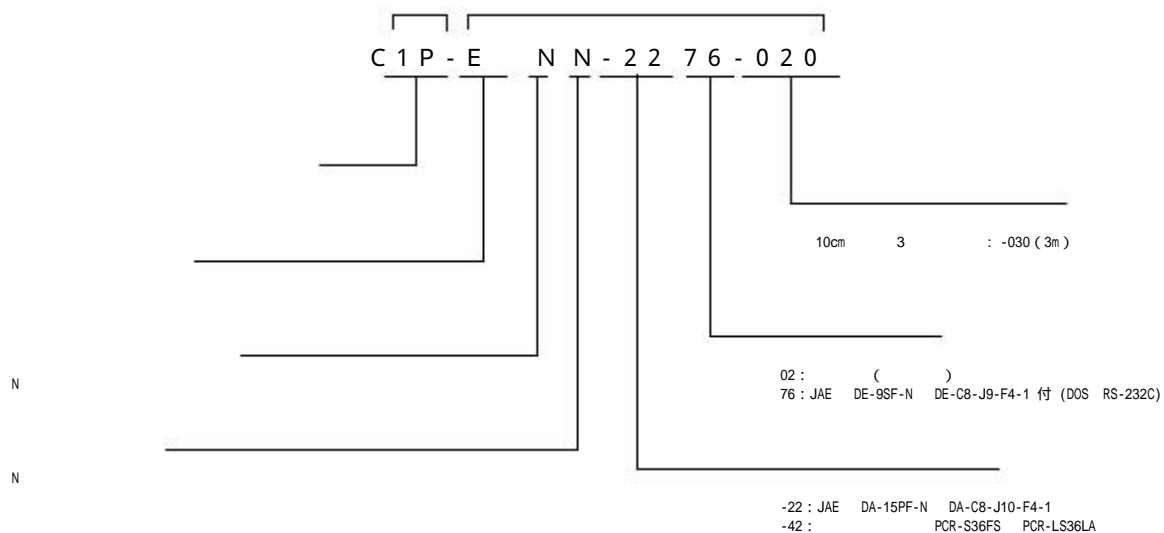


-B3: J21DPM-12V-KX
-C3: J21DPM-12V-KX
-01 : No lead
-02 : ()
-08 : JAE MS3101B18-4P ()
-22 : JAE DA-15PF-N DA-C8-J10-F4-1
-69 : AMP 172162-1 170363-3 ()
-73 : NJC-2012-AdM ()
-79 : PCR-S20FS PCR-LS20LA1
-91 : JAE (DA-15PF-N,DA-C8-J01-F4-1)
(N1.25-M4)
-92 : AMP 172162-1&172159-1 170363-3
-93 : JAE (DA-15PF-N,DA-C8-J01-F4-1)
GND (N1.25-M4) ()

Model	Code					비 고	
	조향드라이버	비회전드라이버	차량용 케이블	드라이버측 종단처리	모터측 종단처리		
C1E	-E	A	1,2	-01, -02, -79	01,02,06,62,80	-005, -010, -015, -020, -025, -030, -035, -040, -045, -050, -060, -070, -080, -090, -100	
		C		-01, -02, -79		-005, -010, -015, -020, -025, -030, -035, -040, -045, -050, -060, -070, -080, -090, -100, -150, -200, -250, -300	
	-S	A	1	-79	C4	-005, -010, -015, -020, -025, -030, -035, -040, -045, -050, -060, -070, -080, -090, -100	
				-01, -02, -79	01,02,06,62,80		
			2	-79	B4		
				-01, -02, -79	01,02,06,62,80		
		C	1	-79	C4	-005, -010, -015, -020, -025, -030, -035, -040, -045, -050, -060, -070, -080, -090, -100, -150, -200, -250, -300	
				-01, -02, -79	01,02,06,62,80		
			2	-79	B4		
				-01, -02, -79	01,02,06,62,80		



Model	기본상양 코드						비 고	
	비이리드형 종단처리	비이리드형 종단처리	비이리드형 종단처리	드라이버측 종단처리	모터측 종단처리	케이블 길이		
C1M	-N	A	1,2	-01,-02,-20,-60	01,02,61,74	-005,-010,-015,-020, -025,-030,-035,-040, -045,-050,-060,-070, -080,-090,-100,		
				-68,-72			Relay cable	
		C		-01,-02,-03,-20	01,02,06, 70,74	-005,-010,-015,-020, -025,-030,-035,-040, -045,-050,-060,-070, -080,-090,-100,-150, -200,-250,-300		
				-08,-71,-72			Relay cable	

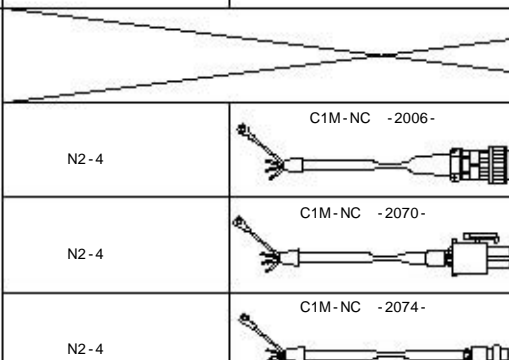
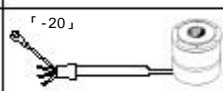
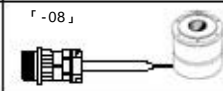
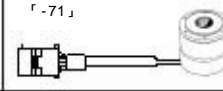
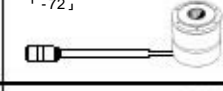
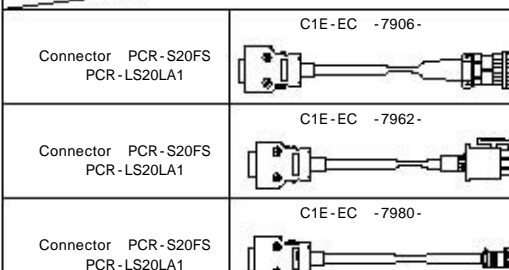
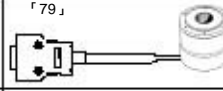
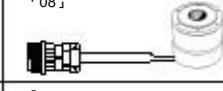
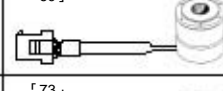
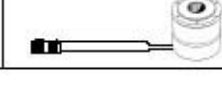


Model	기본상양 코드						비 고
	모터드라이버	드라이버	케이블	드라이버측 종단처리	모터측 종단처리	케이블 길이	
C1P	-E	N	N	-22	76	-020	RS232C cable(DOS) for CN1
				-42	02	-002,-003,-004,-005, -006,-007,-008,-009, -010,-012,-015,-020, -022,-025,-030,-035, -040,-045,-050,	PLC cable for CN4

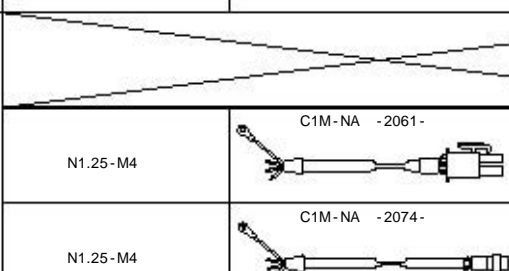
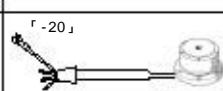
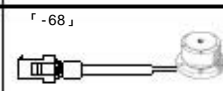
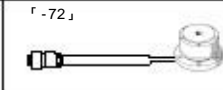
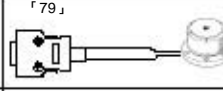
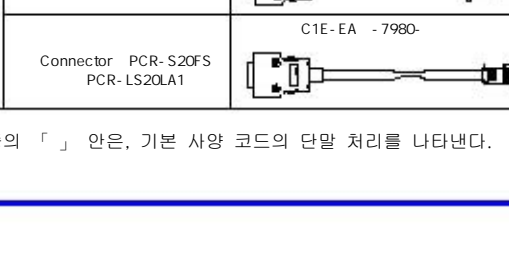
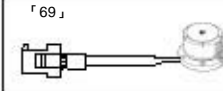
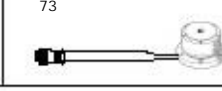
2.4.2

DM

(DM1B-004, DM1B-006, DM1C-004())

Cable				
Connector	Code	Connector	Connector	Code
			N2-4	「-20」 
			JAE Connector Connector MS3106B20-4S MS3057-12A	「-08」 
			Connector 3191-06R 1189ATL	「-71」 
			Connector NCS-304-P(female)	「-72」 
			Connector PCR-S20FS PCR-LS20LA1	「79」 
			JAE Connector Connector MS3106B18-1S MS3057-10A	「08」 
			AMP Connector 172170-1 170365-3	「69」 
			Connector NJC-2012-PF(female)	「73」 

DM1B-004, DM1B-006, DM1C-004

Cable				
Connector	Code	Connector	Connector	Code
			N1.25-M4	「-20」 
			AMP Connector 172167-1 170366-3	「-68」 
			Connector NCS-304-P(female)	「-72」 
			Connector PCR-S20FS PCR-LS20LA1	「79」 
			AMP Connector 172170-1 170365-3	「69」 
			Connector NJC-2012-PF(female)	「73」 
			Connector NJC-2012-AdM(male)	

표중의 「 」 안은, 기본 사양 코드의 단말 처리를 나타낸다.

DR

Cable				j	
Connector	Code	Connector			
				N2-4	「-20」
N2-4	C1M-NC -2006-	JAE Connector Connector MS3106B20-4S MS3057-12A	JAE Connector Connector MS3101B20-4P		「-08」
N2-4	C1M-NC -2070-	Connector 3191-06R 1189ATL	Connector 3191-06P 1190TL		「-71」
N2-4	C1M-NC -2074-	Connector NCS-304-P (female)	Connector NCS-304-Ad(male)		「-72」
				Connector PCR-S20FS PCR-LS20LA1	「79」
Connector PCR-S20FS PCR-LS20LA1	C1E-SC -7906-	JAE Connector Connector MS3106B18-1S MS3057-10A	JAE Connector Connector MS3101B18-1P MS3057-10A		「08」
Connector PCR-S20FS PCR-LS20LA1	C1E-SC -7962-	AMP Connector 172170-1 170365-3	AMP Connector 172162-1 170363-3		「69」
Connector PCR-S20FS PCR-LS20LA1	C1E-SC -7980-	Connector NJC-2012-PF(female)	Connector NJC-2012-AdM(male)		「73」

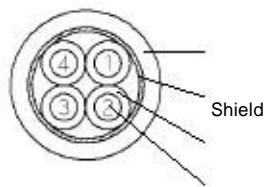
■그외 DR□□모터용 케이블

Cable			모터 인출선	
드라이버측 콘넥터	형명사양코드	모터측 콘넥터	콘넥터	종단처리코드
			일본 압착 단자 N2-4	「-68」
일본압착단자 N2-4	C1M-NA□-2061-□□□	JAE제 캐논 Connector Connector MS3106B20-4S 클램프 MS3057-12A	JAE제 캐논 Connector Connector MS3101B20-4P 클램프 MS3057-12A	「-72」
일본압착단자 N2-4	C1M-NA□-2074-□□□	철성과학 연구소제 Connector NCS-304-P (female)	철성과학 연구소제 Connector NCS-304-AdM(male)	「79」
			혼다 통신공업제 Connector PCR-S20FS 커버 PCR-LS20LA1	「69」
혼다 통신공업제 Connector PCR-S20FS 커버 PCR-LS20LA1	C1E-BA□-7962-□□□	JAE제 캐논 Connector Connector MS3106B18-1S 클램프 MS3057-10A	JAE제 캐논 Connector Connector MS3101B18-1P 클램프 MS3057-10A	「73」
혼다 통신공업제 Connector PCR-S20FS 커버 PCR-LS20LA1	C1E-BA□-7980-□□□	철성과학 연구소제 Connector NCS-2012-PF (female)	철성과학 연구소제 Connector NCS-2012-AdM (male)	

표중의 「 」 안은, 기본 사양 코드의 단말 처리를 나타낸다.
모터 인출선의 단말 처리 코드는 「형명 및 사양 코드」를 참조

2.4.3

(1) 15A,20A ,

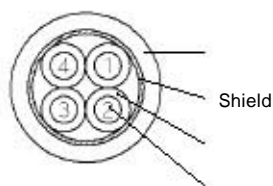


	1	2	3	4
				or /

Cable

	AWG#14(2.0mm ²)
	3.0mm
	10.1mm

(2) 15A,20A ,

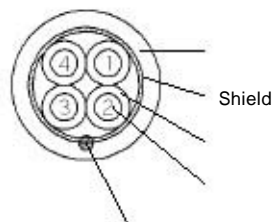


	1	2	3	4

Cable

	AWG#14(2.0mm ²)
	2.7mm
	9.4mm

(3) 5A,6A ,

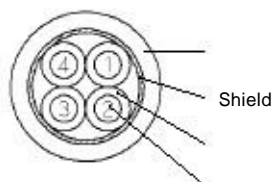


	1	2	3	4
				or /

Cable

	AWG#20(0.5mm ²)
	1.65mm
	6.5mm

(4) 5A,6A ,

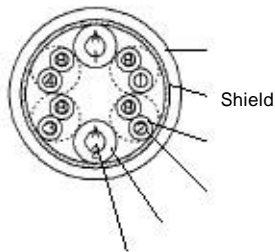


	1	2	3	4

Cable

	AWG#20(0.5mm ²)
	1.64mm
	7.0mm

(1) DM , ()

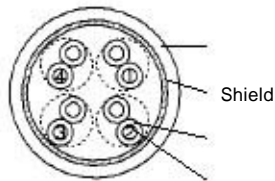


	A1	A2	B1	B2	B3	B4
			x /	x /	x /	x /

Cable

A	AWG#20(0.5mm ²)
B	AWG#24(0.2mm ²)
A	1.9mm
B	1.05mm ()
	8.5mm

(2) DM , (DM1B-004/006 , DM1C-004)

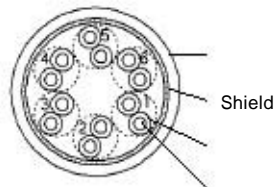


	1	2	3	4
	청 x 청 /	x /	x 흑	x /

Cable

	AWG#24(0.2mm ²)
	1.05mm ()
	6.8mm

(3) DM , ()

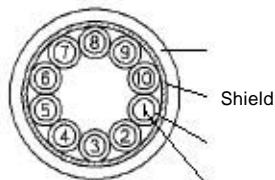


	1	2	3	4	5	6
	녹 x	x 흑	x	x	황 x	x 정

Cable

	AWG#22(0.3mm ²)
	1.3mm ()
	9.8mm

(4) DM , (DM1B-004/006 , DM1C-004)

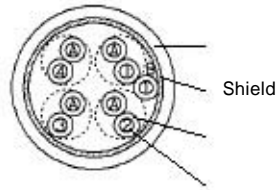


	1	2	3	4	5	6	7	8	9	10
	녹	황		청				흑		

Cable

	AWG#22(0.3mm ²)
	1.29mm
	8.5mm

(5) DR ,

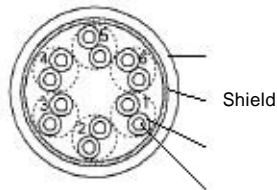


	A1	A2	A3	A4	B1
	등백×청/백	갈×녹	갈/백×녹/백	등×청	흑

Cable

A	AWG#24(0.2mm ²)
	AWG#24(0.2mm ²)
	1.05mm (트위스트 페어)
B	1.05mm
	6.8mm

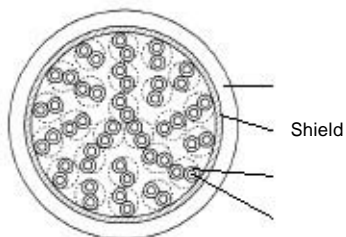
(6) DR ,



	1	2	3	4	5	6
	녹×	×	×갈	×	×	×

Cable

	AWG#22(0.3mm ²)
	1.3mm (트위스트 페어)
	9.8mm



Cable

	AWG#28(0.08mm ²)
	1.06mm (트위스트 페어)
	13.0mm

		1	2
1		적1	청or 1
2		적1	청or 1
3	백	적1	청or 1
4		적1	청or 1
5		적1	청or 1
6		적2	청or 2
7	회	적2	청or 2
8		적2	청or 2
9		적2	청or 2
10		2	or 2
11		3	or 3
12		3	or 3
13		3	or 3
14		3	or 3
15		3	or 3

		1	2
16		적4	청or 4
17		적4	청or 4
18		적4	청or 4
19		적4	청or 4
20		적4	청or 4
21		적연	청or
22		적연	청or
23		적연	청or
24		적연	청or
25			or

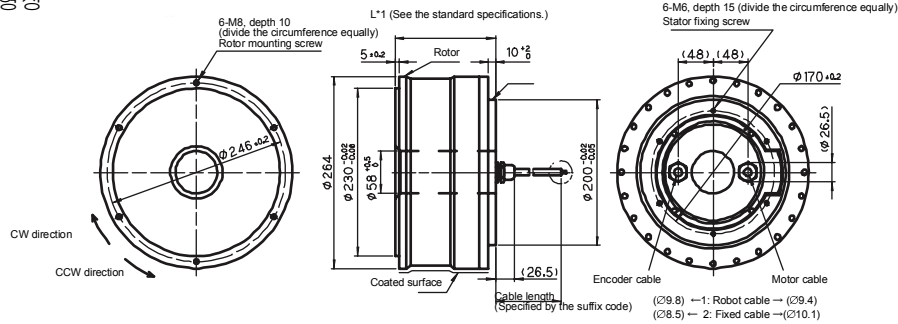
2.5 외형도

2.5.1 모터

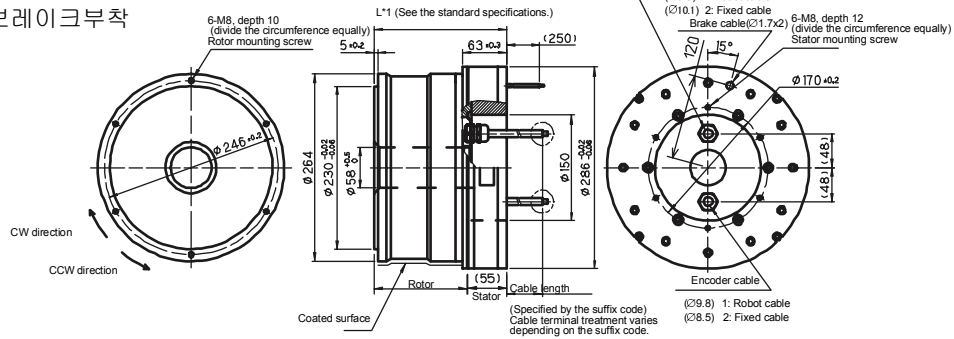
DM

(1) DM1A

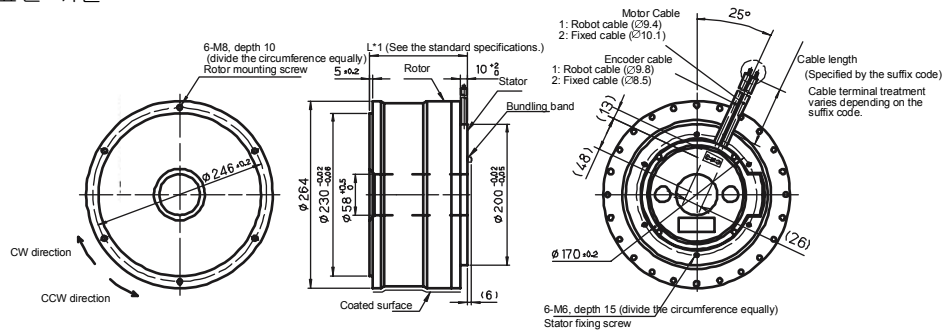
표준형상



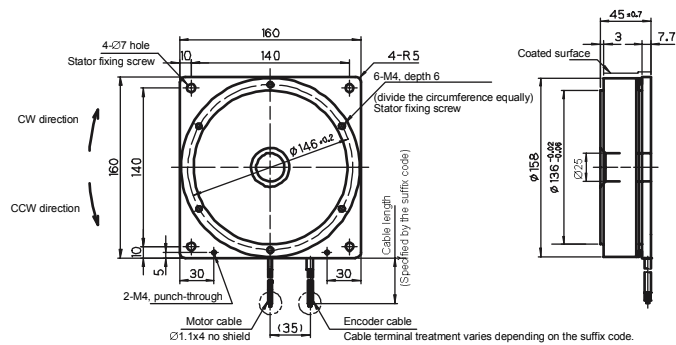
메카브레이크부착



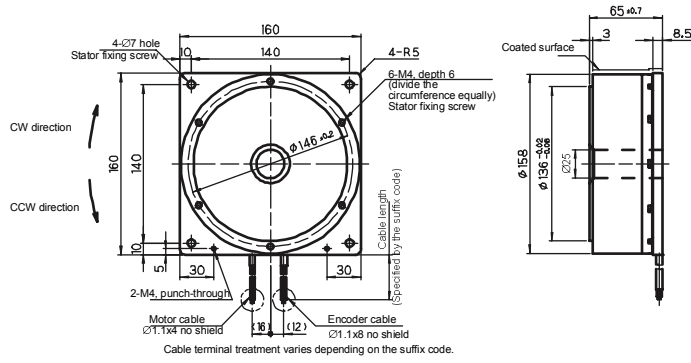
케이블 옆면 추출



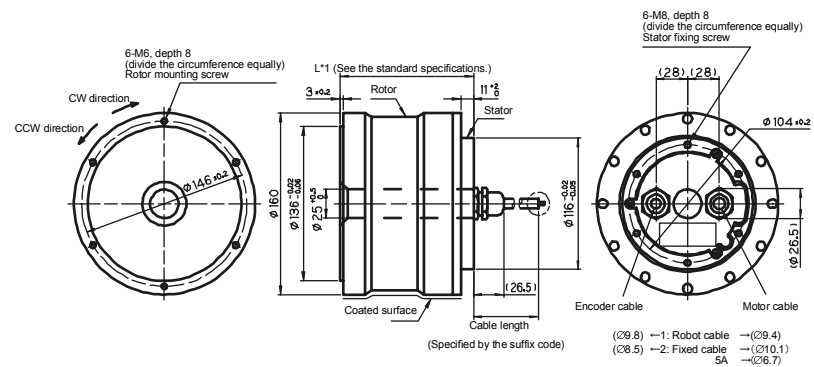
(2) DM1B-004



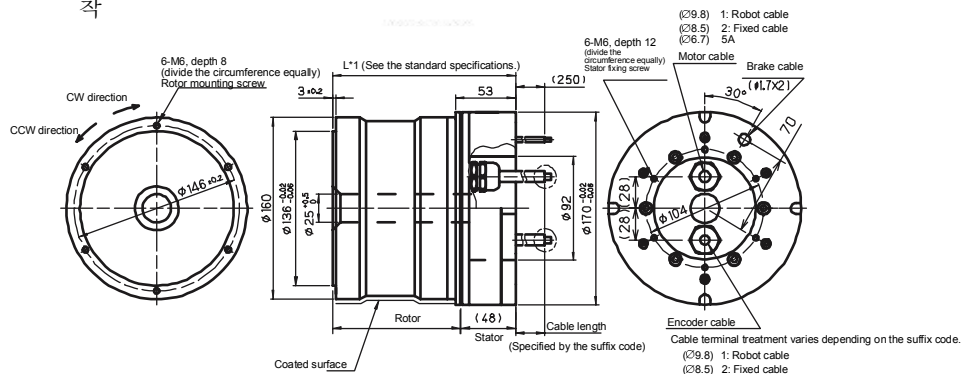
(3) DM1B-006



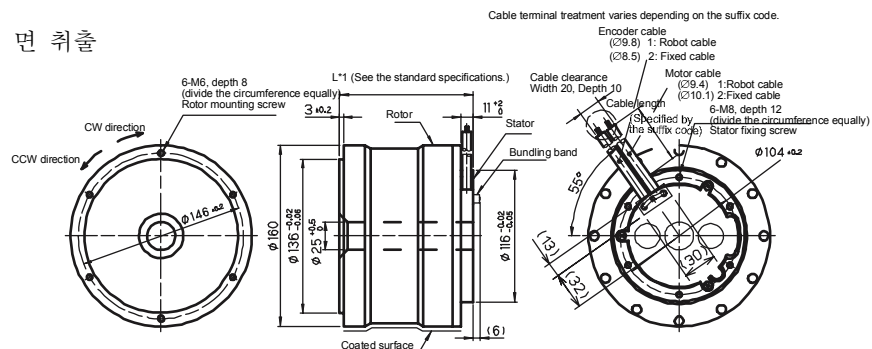
(4) DM1B (DM1B-004, DM1B-006() 제외)



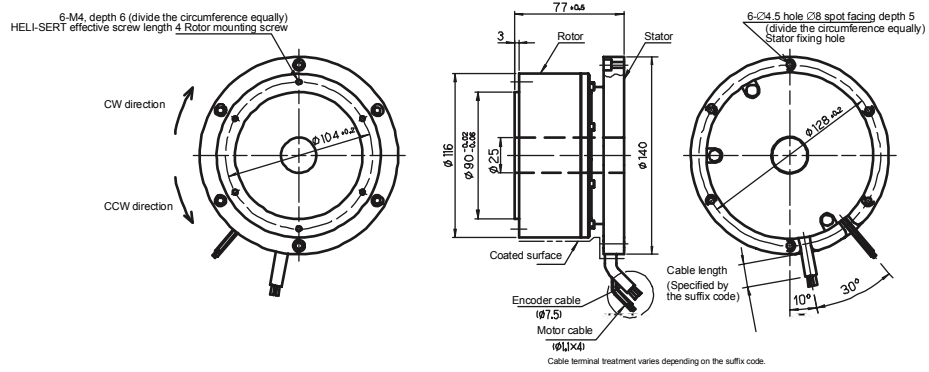
작



면 취출



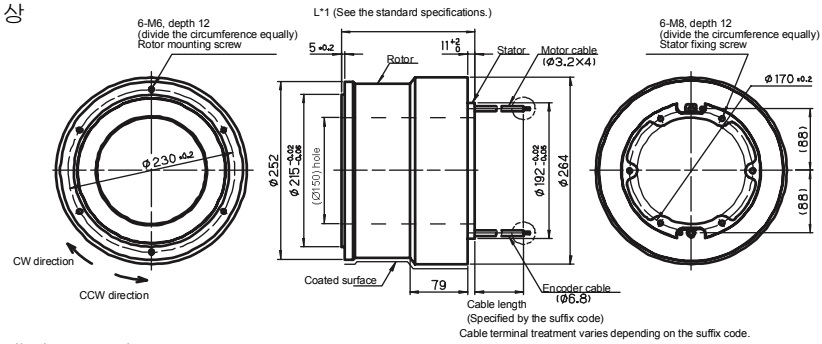
(5) DM1C-004



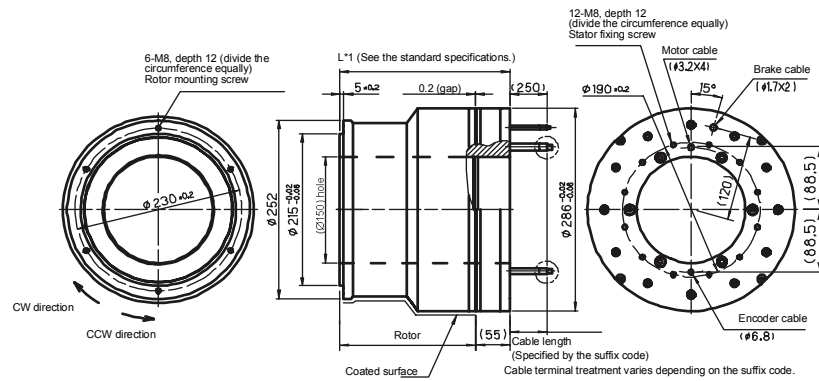
DR

(1) DR1A

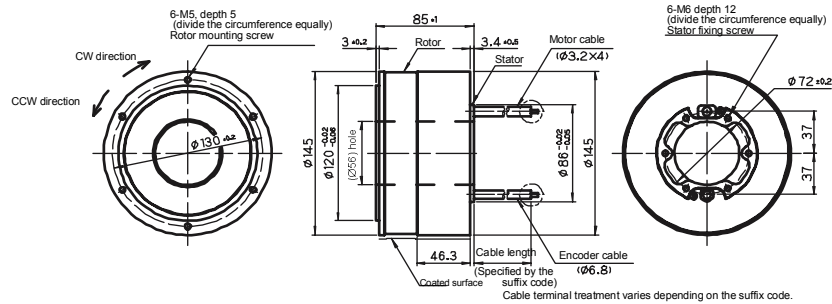
표준형상



메카브레이크 부착

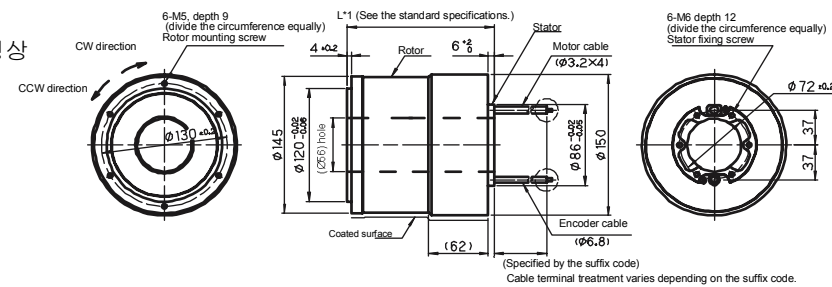


(2) DR1B-008

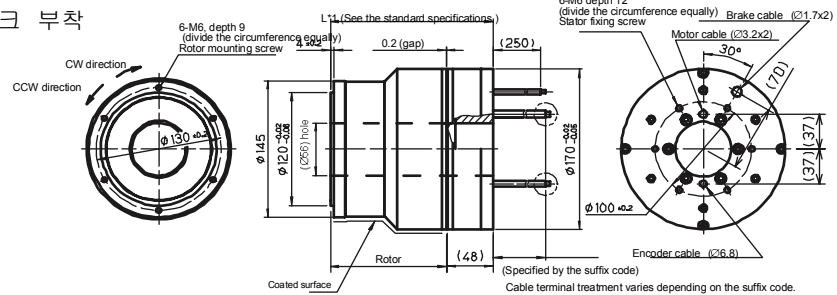


(3) DR1B(DR1B-008 제외, DR5B

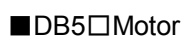
표준형상



메카브레이크 부착



(5) DR5C



Technical drawing of the Rotor assembly, showing three views: front view (left), side view (middle), and rear view (right).

Front View (Left): Shows the rotor mounting screw (6-M5, depth 7, divide the circumference equally) and the rotor mounting screw. The rotor diameter is $\phi 82.4 \pm 0.2$. Arrows indicate CW (Clockwise) and CCW (Counter-clockwise) directions.

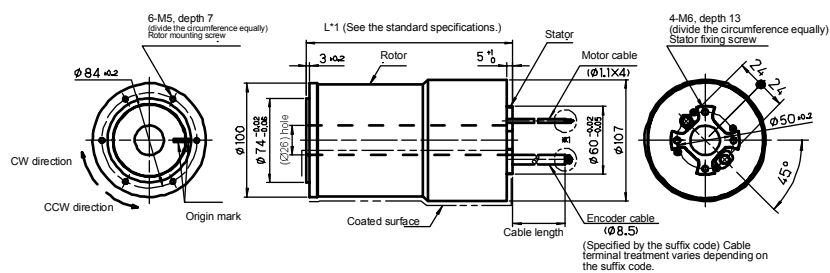
Side View (Middle): Shows the rotor assembly with dimensions: L^*1 (See the standard specifications.), 3 ± 0.2 , $\phi 74.4 \pm 0.02$ (G20 hole), 5 ± 0 , $\phi 100$, $\phi 74.4 \pm 0.02$ (G20 hole), $\phi 60 \pm 0.08$, and $\phi 107$. The rotor is labeled "Rotor" and the stator is labeled "Stator". The rotor has a "Coated surface".

Rear View (Right): Shows the stator assembly with dimensions: $4 \times M6$ depth 13 (divide the circumference equally), 2.4 ± 0.2 , $\phi 50 \pm 0.02$, and 45° . The stator is labeled "Stator" and the stator fixing screw is labeled "Stator fixing screw".

Labels and Dimensions:

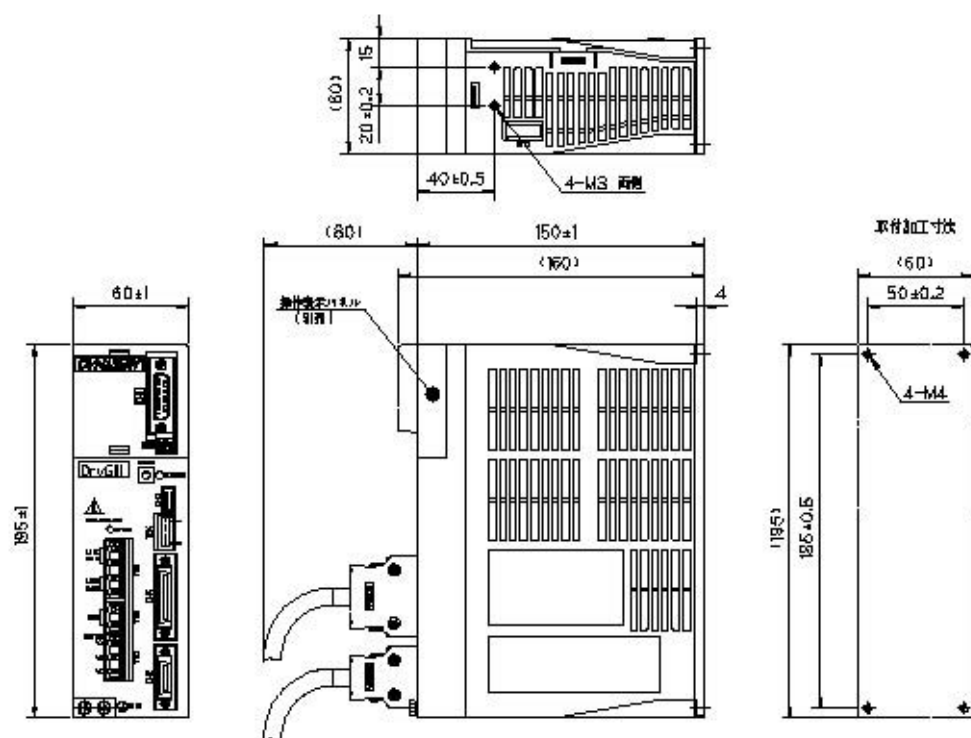
- 6-M5, depth 7 (divide the circumference equally)
- Rotor mounting screw
- $\phi 82.4 \pm 0.2$
- CW direction
- CCW direction
- L^*1 (See the standard specifications.)
- 3 ± 0.2
- $\phi 74.4 \pm 0.02$ (G20 hole)
- 5 ± 0
- $\phi 100$
- $\phi 74.4 \pm 0.02$ (G20 hole)
- $\phi 60 \pm 0.08$
- $\phi 107$
- Rotor
- Stator
- Coated surface
- Motor cable ($\phi 1 \times 4$)
- Cable length
- Encoder cable ($\phi 6, 8$)
- 4-M6 depth 13 (divide the circumference equally)
- Stator fixing screw
- 2.4 ± 0.2
- $\phi 50 \pm 0.02$
- 45°

(Specified by the suffix code)
Cable terminal treatment varies depending on the suffix code.

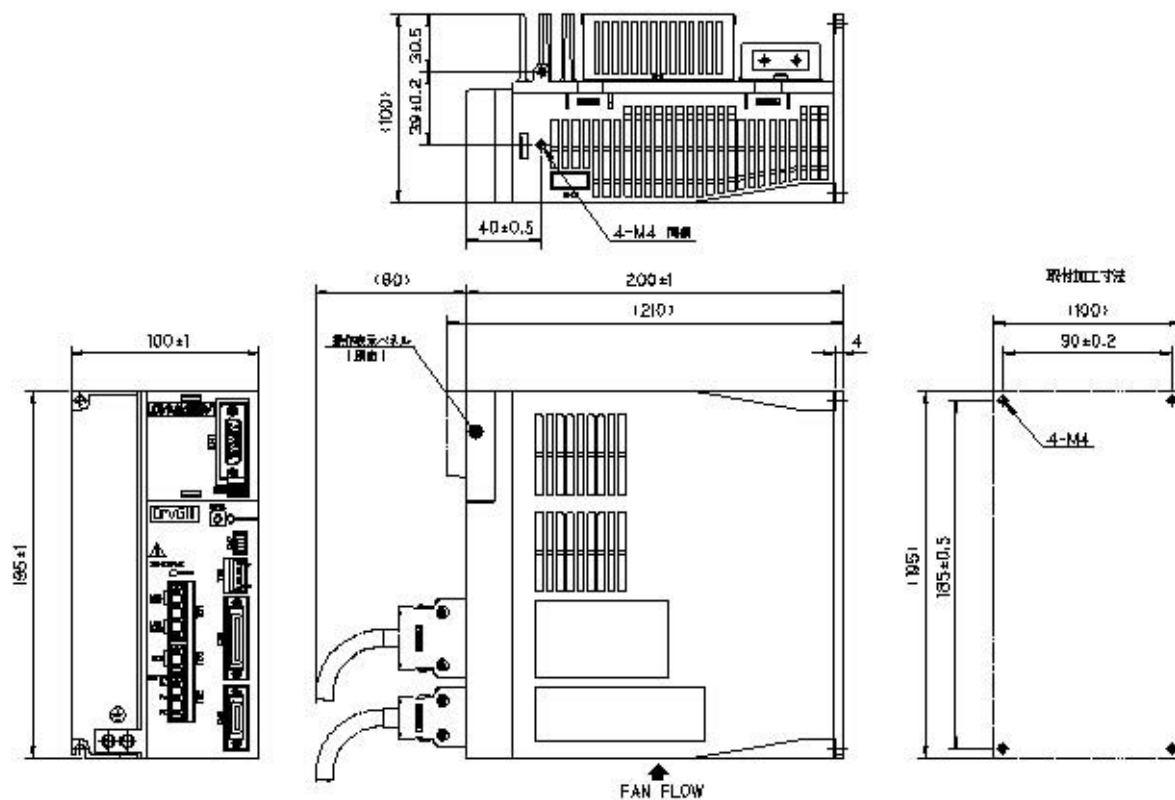


2.5.2

500W



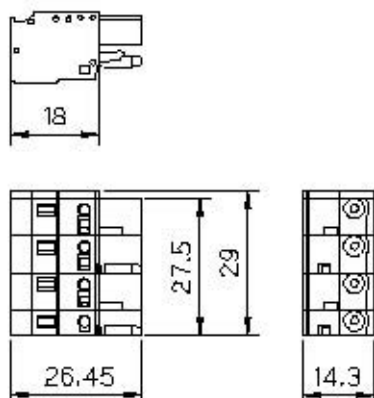
2Kw



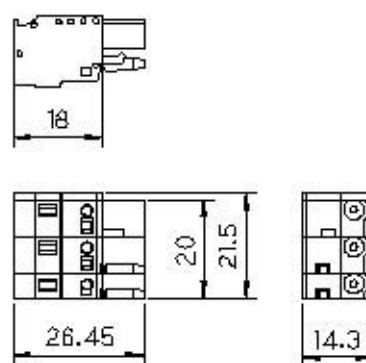


2.5.5

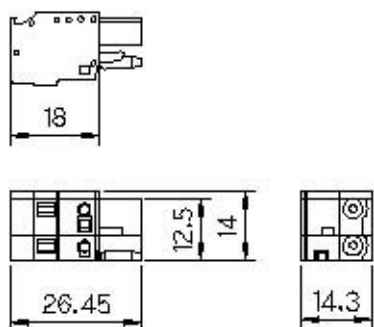
:231-204/026-000(WAGO)



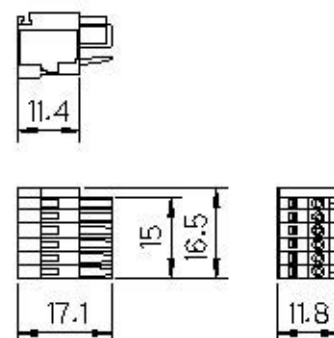
: 231-203/026-000(WAGO)



: 231-202/026-000(WAGO)

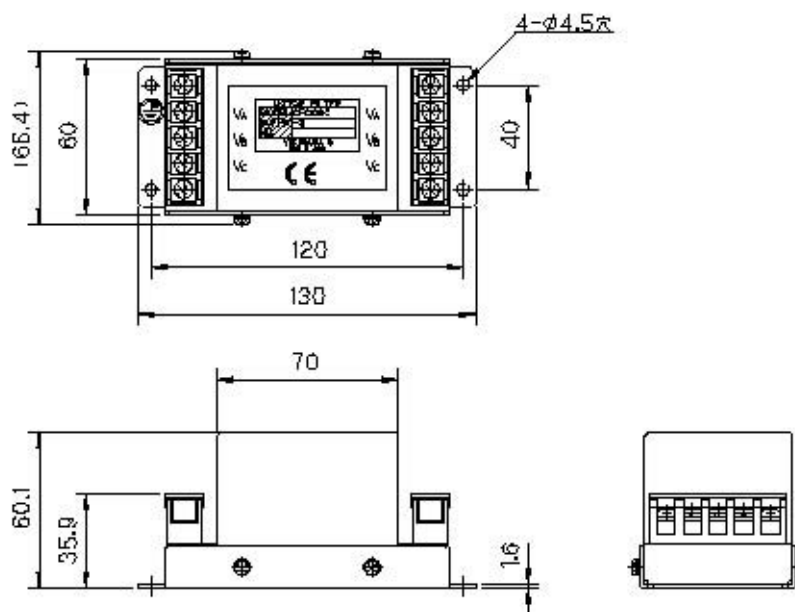


: 733-108(WAGO)



2.5.6

: R7020TA (OF002C-3)



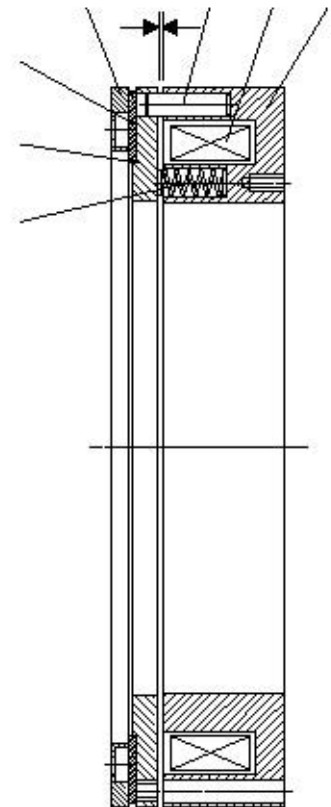
2.6

2.6.1

	BXM2.5-000B	BXM10-000B
	DM1B/DR B	DM1A/DR A
(VDC)	24	24
(W/@20)	28	45
(N· m)	20	110
Spring (N)	650	2100
(mm)	0.2	0.2

2.6.2

1	Yoke
2	Coil
3	Pin
4	Spring
5	Armature
6	Fading
7	Friction disk



2.6.3

Friction 7
fading Yoke
friction 7
Yoke

Armature

Yoke

Yoke 떨어진
합니다.

fading Friction 7

1.

Yoke

가

하기

		BXM10-000B
(mm)	0.2	0.2
(mm)	0.4	0.6

2.6.4

$$t = \frac{GD_2 \cdot 60 \cdot n}{2 \cdot 37.5 \cdot Td}$$

$$\theta = (t + t_1 + t_2) \cdot 360 \cdot n$$

θ : (°)

t : (sec)

t_1 : (sec)

t_2 : Relay (sec)

DG^2 : 4J

J : (kg·m²)

n : (rps)

Td : (Ts × 0.7) (N·m)

Ts : (N·m)

: DM1B-060

: $J = 10 \times J_H = 0.23 \text{ kg} \cdot \text{m}$

($J_H = 0.023 \text{ kg} \cdot \text{m}$)

: $n = 1 \text{ rps}$

: $Td = 14 \text{ N} \cdot \text{m}$

: $t_1 = 0.06 \text{ sec}$ (, BXM10 0.1sec가)

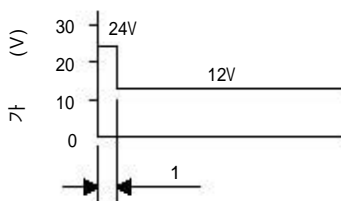
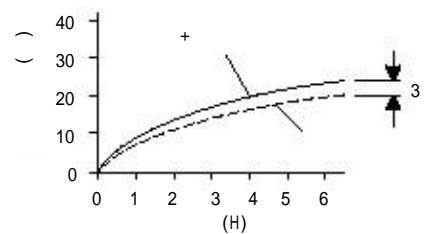
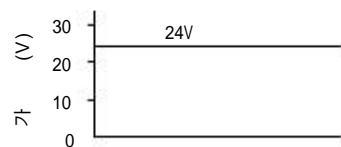
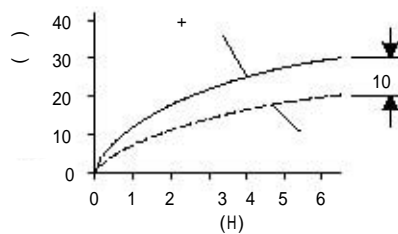
Relay : $t_2 = 0.082 \text{ sec}$ ()

$$t = \frac{4 \cdot 0.23 \cdot 60 \cdot 1}{2 \cdot 37.5 \cdot 14} = 0.053 \text{ sec}$$

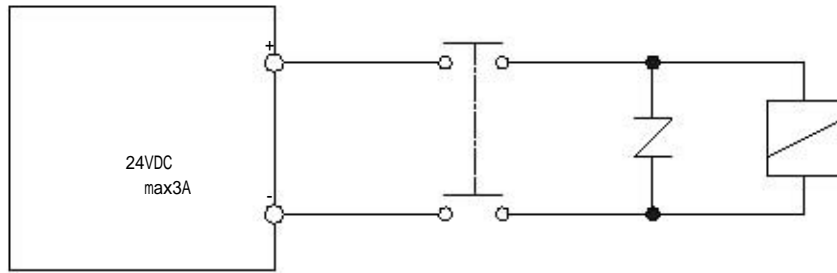
$$\theta = (0.053 + 0.06 + 0.082) \cdot 360 \cdot 1 = 71^\circ$$

2.6.5 가

가 DC24V 10 가
(OFF) ()
1 24V 가 12V 약3℃의
가

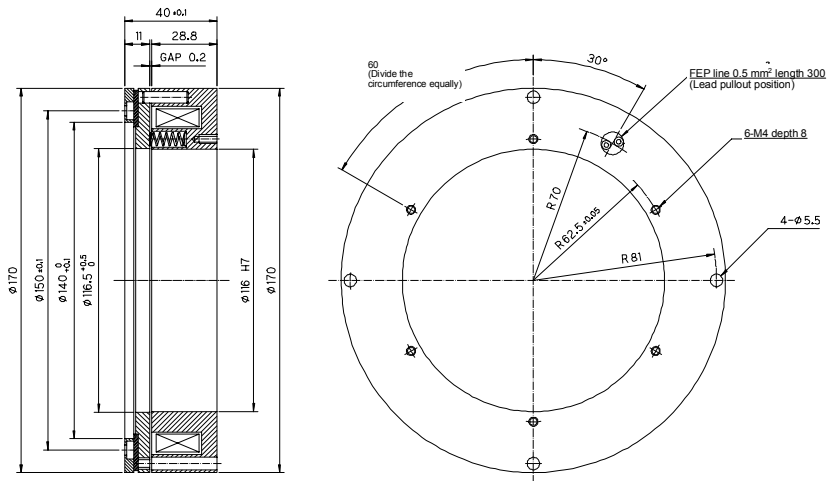


2.6.6 전원 사양/배선

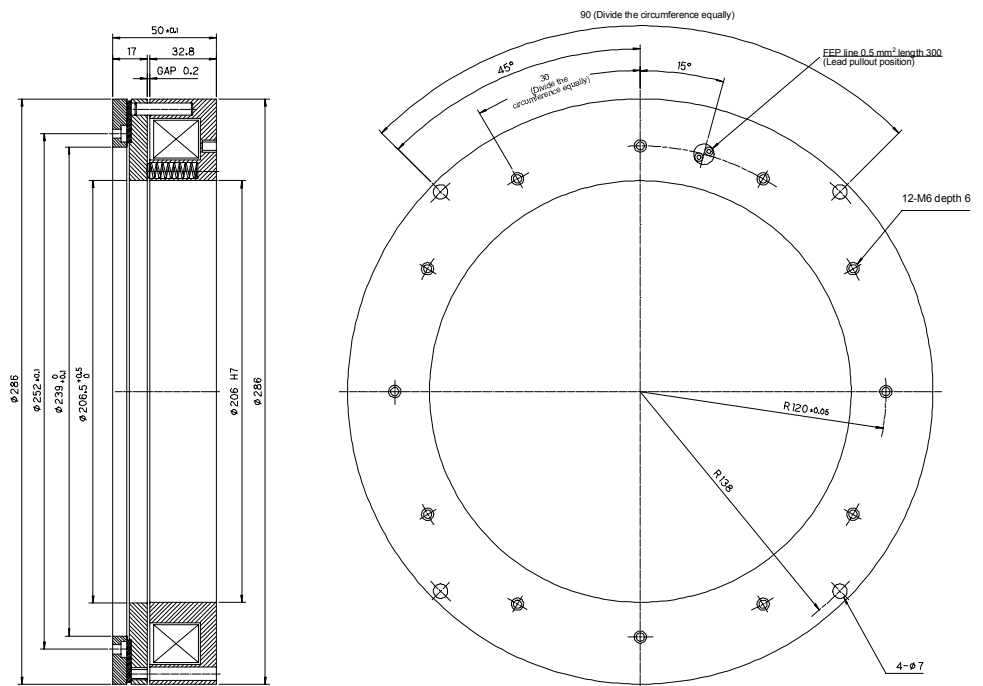


주 1. 브레이크는 유도 부하이므로 조작 접점을 개방할 때에 매우 큰 역 전압이 발생해 조작접점을 손상합니다. 반드시 보호회로를 붙여 주십시오.
추천 바리스터 : ERZV20D470 (Matusita 전기)

BXM2.5-000B



BXM10-000B



2.7 취부,이송, 보관상의 주의

2.7.1 모터의 설치

가
() 가

설치 장소

모터는 통상의 옥내사용을 전제로 하고 있습니다.
먼지가 적고 통풍이 양호한 곳

고온 다습먼지/ 금속 가루/ 부식성
가스등이 있는곳은 피해주세요.

		0- 45 : 0- 40 : CE	
		20- 85% RH	
		-20- 85	
		20- 85% RH	
		가 1000m (CE)	

기계적 결합

1 mm

가 가

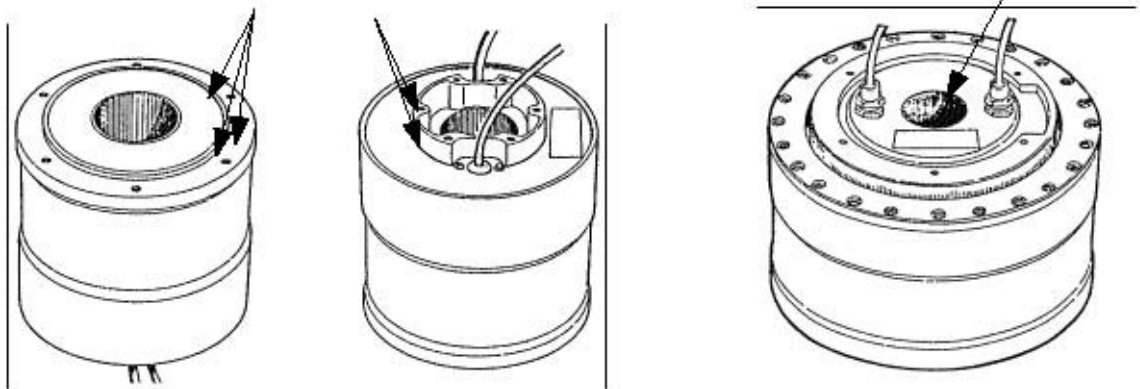
- 모터 회전부 및 고정부의 취부 나사의 체결 토오크는 최대 체결 토오크값 이하로 해 주십시오. 과대한 토오크로 조이면 나사산의 파손또는 모터의 고장의 원인이 됩니다.
- 모터 고정판의 평면도는 0.01 mm이하로 해 주세요.
모터의 정도나 성능에 영향을 줄 수도 있습니다.
- 취부 나사에는 록 타이트 601또는 상당품으로 나사가 풀리지 않도록 해주십시오.

최대 체결 토오크

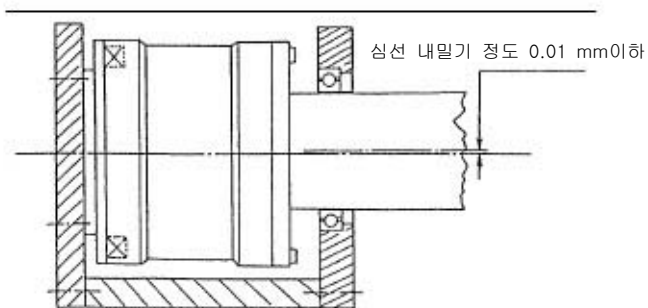
회전부 설치 나사DM1A			16N·m
	DR1A	21N·m	21N·m
	DR1E		
	DR5A		
	DR5E		
	DM1B	11N·m	11N·m
	DR1B		
	DR5B		
	DR5C	6N·m	11N·m
	DM1B-004	2N·m	2N·m
	DM1B-006		
	DM1C-004		

0.01mm

- 가 가 1mm 가
- DR
- 가 가



- 설치 나사는 모터측의 유효 나사 깊이 이상으로 들어가지 않게 해 주세요. 유효 나사 깊이 이상으로 나사가 도달하면 고장이나 기능 저하의 원인이 되는 경우가 있습니다.
- 모터와 부하의 결합은 심선을 충분히 빼내(0.01 mm이하)의 정도로 취부해 주십시오.
심선이 불충분하게 내밀면 이음이나 진동을 발생하거나 모터 내부의 베어링을 손상할 수가 있습니다.



2.7.2 드라이버의 설치

설치 장소

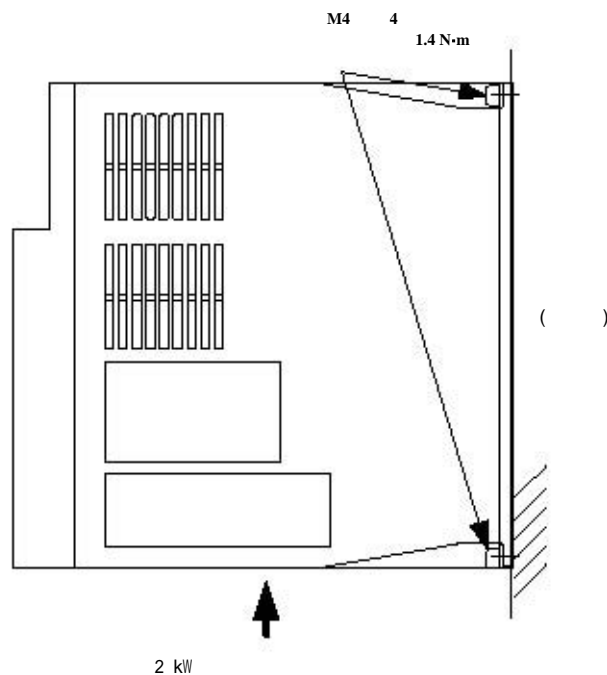
- 드라이버는 반드시 제어반내 또는 장치내에 설치해 주세요.
- 근처에 다른 발열체가 있는 경우, 차단 커버등으로 온도 상승을 방지하고 드라이버 주변의 온도가 50℃ 넘지 않게 해 주세요.
- 부근에 진동원이 있을 때는 방진재를 넣고 고정해 주십시오.
- 그외 고온 다습.먼지.금속가루.부식성 가스등이 있는 곳을 피해 주십시오.

		0~ 50	
		20~ 90% RH	
		-20~ 85	
		20~ 90% RH	
		가 , 1000m (CE)	

설치 방법

드라이버는 월 마운트 Type입니다. 다이 캐스트부에 있는 4개소의 설치홀을 이용하여 금속판에 확실히 고정해 주십시오.

평나사를 사용하는 경우는 외경 8mm(ISO)의 것을 사용해 주십시오.



Notch필터 설정

UD1B 3-075 - 의 경우는 접속하는 모터에 [xxxHz] 붙어있는 명판에 써여 있는값을 파라메타 20 (Notch필터 1주파수), 파라메타 22 (-notch필터 2주파수)에 설정한 후 서보 조정을 시작하여 주십시오.

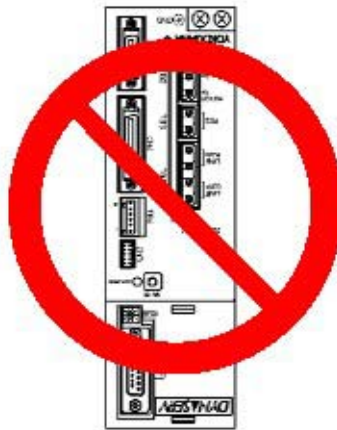
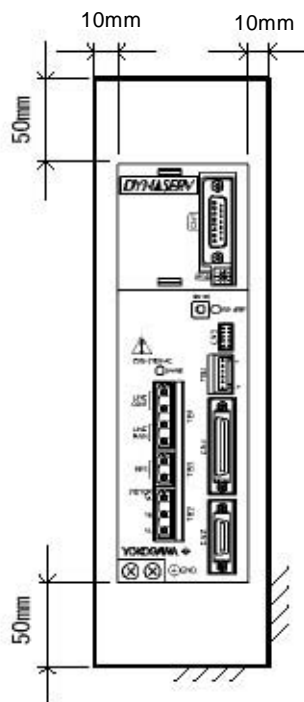
(2) 500 W

.()

50mm

10mm

30W



2.8 Error

Error 공주() 가 Servo
, ()가 .
Servo Error Servo 가 .
“ ” (Code -1B, -1L)
가 .
Servo 가 .

2.8.1 Servo

Servo Error Servo .
100msec()
Servo 가 . ,
/표시판넬의 가
.
“ #Parameter101System Register1 ”

Servo Error Error Servo / Reaction
“6.1.4 Error ”

Error Error
#Parameter 결
Servo Error

Error	Error Code
Over Speed	24.0
Overload	22.1 22.2
	23.0
	31.0
A	16.1
	20.3
	21.0
EOT	42.0 43.0
EOT	44.0 45.0
Pulse	18.0
Interface	46.2

Servo	Mode		Error	Type	
	Controller			Controller	
Error Type	Table	JOG			Torque
Servo				x	x
Servo				(Error	(Error
Servo				,	,
Servo))
Servo	x	x			x

x : 가
: 가



Level 가 가 Error Servo off
(회전)
()가



「 Servo off」 () 가



Servo Error가 Servo off가 Servo
Error가

- 4.0 Watch Dog Error
- 15.* Error
- 20.1
- 20.2 IPM fault
- 20.4 (Servo off Level)
- 20.5 A ,B
- 25.*
- 30.0 Servo Not Ready

2.8.2 (-1B, -1L)

, " " (Code-1 B, -1L)

가 .

Error Servo off가
() 가 .



Off한
가 할수 있도록 .



, , . 가
하여 주십시오.

아래 가 . Error
" #Parameter110 System Register1 "

- 1.
2. Servo off Level 가
3. " #Parameter110 System Register1 " Servo off brake On 이 "1:
On" Servo off가



Error Servo 가

Servo off Power off , 가

Mode(, ,)

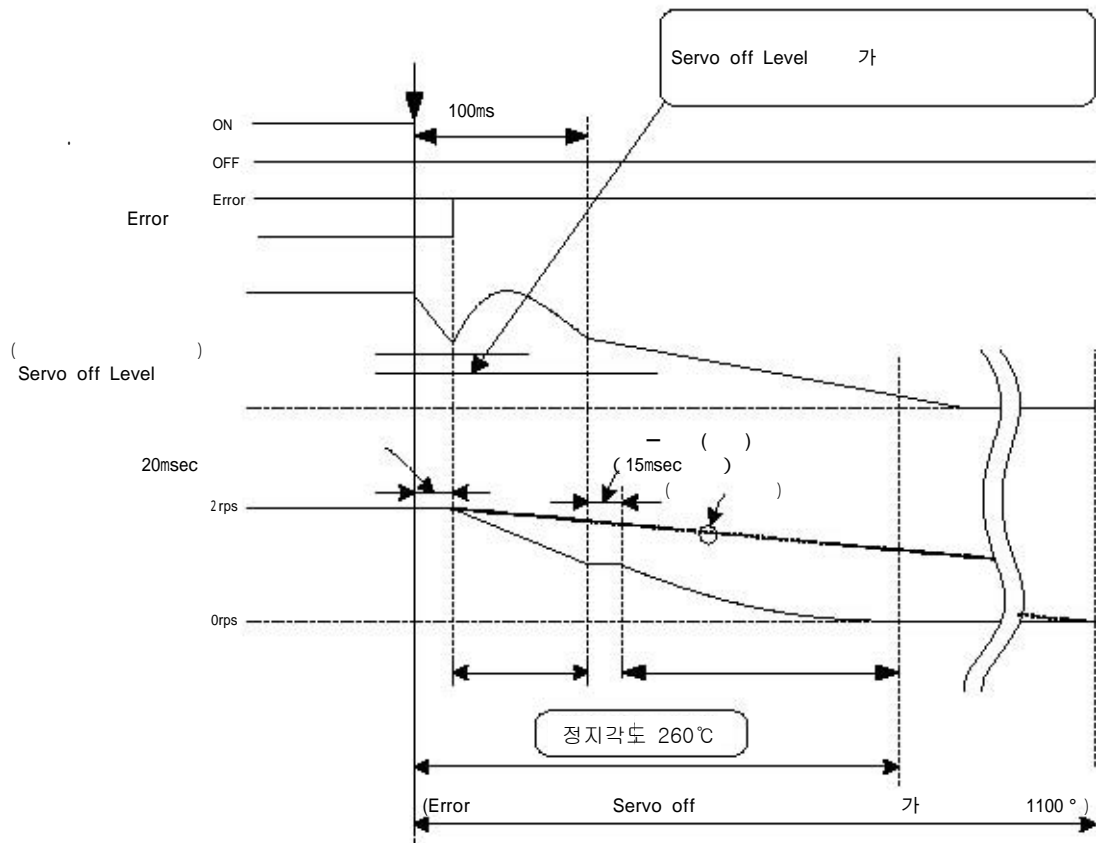
2.8.3

가
주전원 상태감시 불감 설정은 20msec 170msec
Servo 가 가

	UR1BG3-015N-1LC-2SA-N
	DR1B-015G-1C5A4G1-003-01-01
	0.4kg·m ²
	AC200V
Mode	Mode
	2rps (Jog Mode)
가 Type	가 ,

Error

Parameter		
Servo off	(Error Register 1)	On
	(System Register 1)	20msec
	/ (Error Register1)	
	(Error Register1)	Servo
(Vdd)	/ (Error Register1)	
	(Error Register1)	Servo
(#80)		350msec



해서

Servo

2.9

- 가 DR5B DR5C
사용해 주십시오.

2.9.1 (DR5B DR5C)

- 가 45

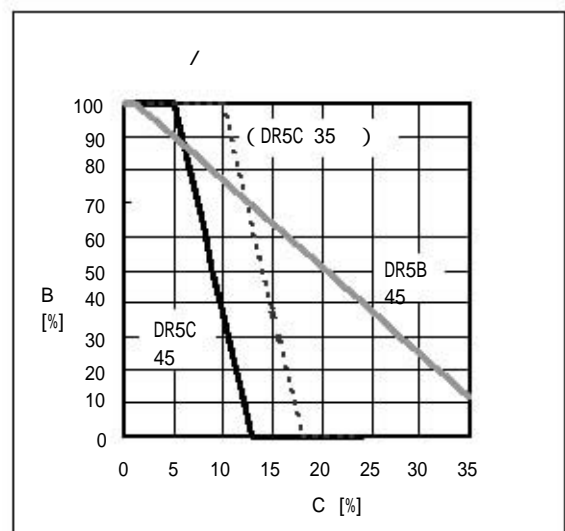
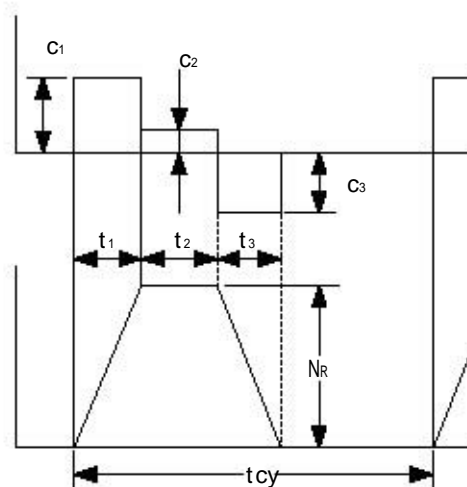
「가」

가 .

, ()

, () Tool

<div style="border: 1px dashed black; padding: 5px; display: inline-block;"> Tool #342 #385 #303 </div>		$NR = \frac{\#342}{\#303}$ $c1, c2, c3 = \frac{\#385}{32768}$
DR5B	$B = \frac{NR}{2(t_1 + 2t_2 + t_3)} \times \left[\frac{1}{rps} t_{cy} \times 100 \right] \quad (1)$ $C = (t_1 \cdot c_1 + t_2 \cdot c_2 + t_3 \cdot c_3) \times \frac{1}{t_{cy}} \times 100 \quad (2)$ $B + 2.6 \cdot C < 103 \quad (3)$	$B =$ C, c_1, c_2, c_3 $=$ $NR = \quad (rps)$ $t_{cy} = \quad (msec)$ $t_1, t_2, t_3 = \quad (msec)$
DR5C	$B = \frac{NR}{2(t_1 + 2t_2 + t_3)} \times \left[\frac{1}{rps} t_{cy} \times 100 \right] \quad (1)$ $C = (t_1 \cdot c_1 + t_2 \cdot c_2 + t_3 \cdot c_3) \times \frac{1}{t_{cy}} \times 100 \quad (2)$ $B + 12.5 \cdot C < 162.5 \quad (3.1)$ $(B + 12.5 \cdot C < 225) \quad (3.2)$	$B =$ C, c_1, c_2, c_3 $=$ $NR = \quad (rps)$ $t_{cy} = \quad (msec)$ $t_1, t_2, t_3 = \quad (msec)$



< DR5B 45 >

$$NR = 4 \text{ (rps)}$$

$$c_1 = c_3 = 0.36$$

$$c_2 = 0.04$$

$$t_1 = t_2 = t_3 = 1/4 t_{cy}$$

$$B = \frac{4}{2} \left(\frac{1}{4} t_{cy} + \frac{2}{4} t_{cy} + \frac{1}{4} t_{cy} \right) \times \frac{1}{5 t_{cy}} \times 100$$

$$= \frac{2}{5} \times 100 = 40$$

$$C = \left(\frac{0.36}{4} t_{cy} + \frac{0.04}{4} t_{cy} + \frac{0.36}{4} t_{cy} \right) \times \frac{1}{t_{cy}} \times 100$$

$$= 19$$

(3)

$$40 + 2.6 \times 19 = 98 < 103$$

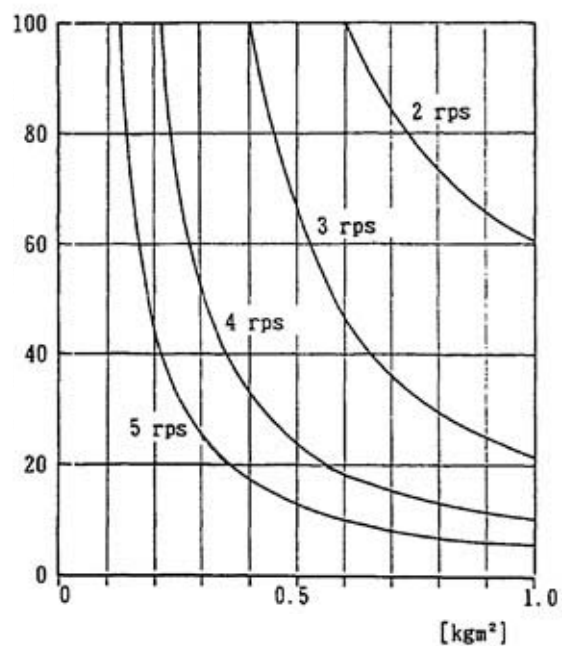
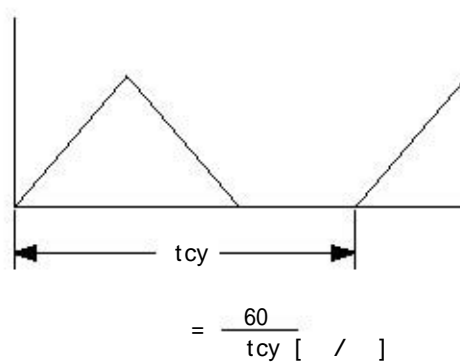
2.9.2

(DR5B)

Parameter

1 kgm²

DR5B



2.9.3 EEP-ROM

Data(Parameter, TABLE Data, I/O Data)		EEP-ROM에
. EEP-ROM	Write	. Write
(Parameter, TABLE Data, I/O Data)	100	.

2.10 적합 규격

EMC 지령에 대해서는 당사의 모터, 드라이버 및 고객의 기기에 이용하는 제어장치, 전기 부품을 포함한 기기 전체로의 인증이 필요하게 됩니다.

기기의 EMC 지령에의 적합성은 기기에 이용하는 제어장치, 부품의 구성, 배선등에 의해 변화합니다. 기기의 적합성 인증은 고객이 확인해 주십시오.

모터

- 저전압 지령(자기 선언) IEC34-1
- EMC 지령(자기 선언) EN55011 class A group 1, EN61800-3
- 저전압 지령(자기 선언) EN50178
- EMC 지령(자기 선언) EN55011 class A group
- UL508C

[UL규격에의 적합]

드라이버는 이하의 UL규격 인정품입니다.
적합 규격 UL508C (File No. E238911)

[UL규격 인정 조건 및 안전에 관한 주의 사항]

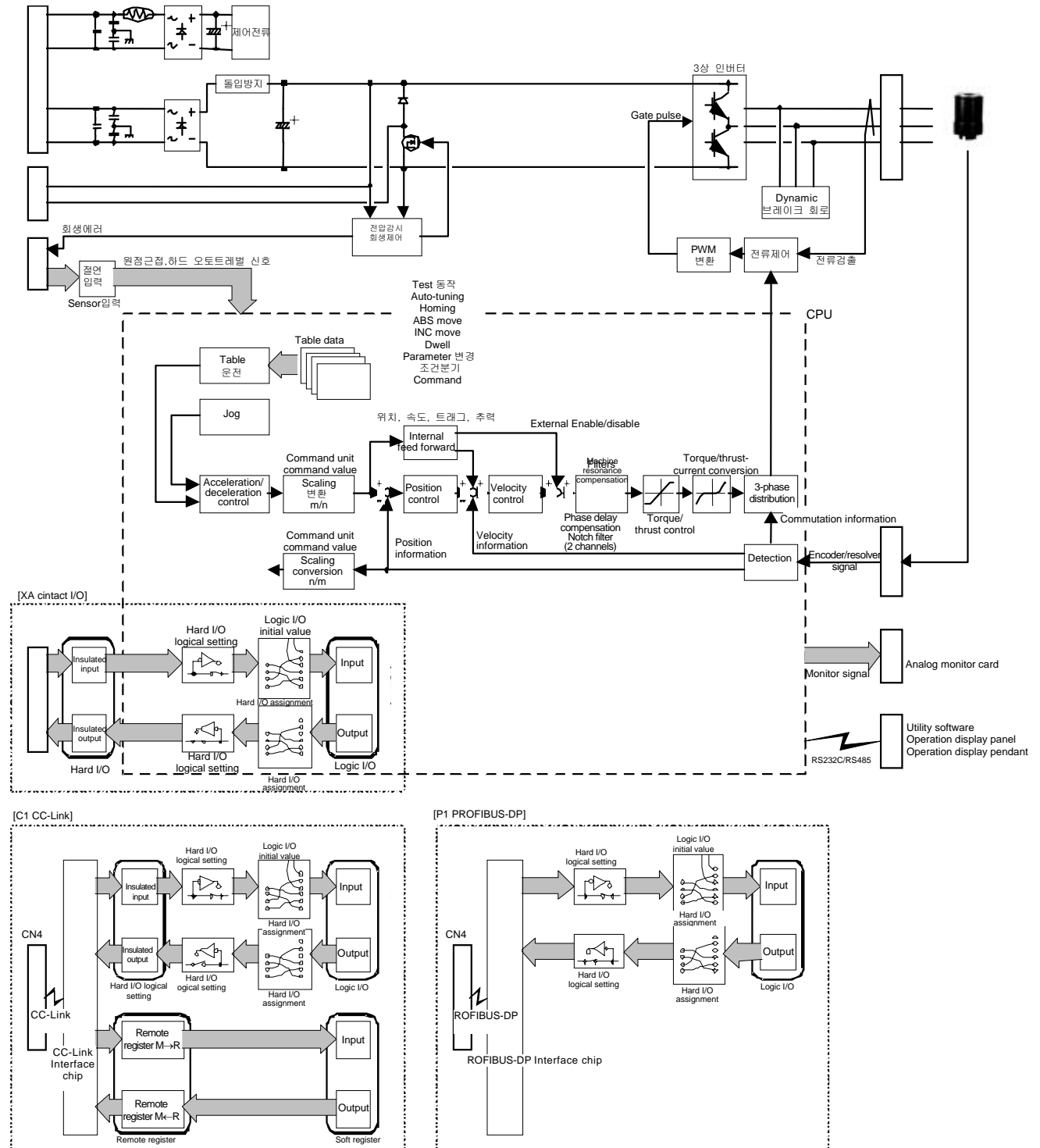
- (i) 60/75℃정격의 동선을 사용해 주세요.
 - (ii) 본 드라이버는 개방형 장치입니다. 제어반에 수납해 사용해 주세요. 벽에 걸서는 사용할 수 없습니다.
 - (iii) 드라이버는 240 V로 차단 용량 5000Arms.(을)를 넘지 않는 전원에 접속해 주세요.
 - (iv) 전원과 드라이버간의 배선은 아래와 같이 전류정격의 Listed Class RK1 퓨즈를 접속해 주세요.
- | <u>MODEL No.</u> | <u>CLASS RK1 FUSE</u> |
|------------------|-----------------------|
| ALL 500W Models | 5[A] |
| ALL 2kW Models | 15[A] |
- (v) 드라이버의 사용 주위 온도는 최고 50℃이내의 환경에서 사용해 주세요.
 - (vi) 위험-감전의 위험이 있음 — 내부 콘덴서 방전에는 7분 이상 걸립니다.
 - (vii) 위험-감전의 위험이 있음 — 작업전에, 주전원 및 제어 전원을 모두 차단해 주세요.
 - (viii) 각 기종에는 모터 보호기능이 있습니다.
 - (ix) 본 드라이버의 설치에는 오염도 2의 환경하에서 사용해 주세요.
 - (x) 경고-화상의 위험이 있음-표면은 고온이 됩니다.

【WARNING】

- (i) Use 60/75 degrees Celsius CU wire only.
 - (ii) Open Type Equipment.
 - (iii) Suitable for use on a circuit capable of delivering not more than 5000 Arms symmetrical amperes, 240 V maximum.
 - (iv) Distribution fuse size marking is included in the manual to indicate that the unit shall be connected with a Listed Class RK1 Fuse with the current ratings as shown in the table below :
- | <u>Model No.</u> | <u>Class RK1 Fuse</u> |
|------------------|-----------------------|
| All 500 W models | 5 [A] |
| All 2 kW models | 15 [A] |
- (v) Maximum surrounding air temperature 50 degrees Celsius.
 - (vi) CAUTION -Risk of Electric Shock- Capacitor discharge time is at least 7 min.
 - (vii) CAUTION -Risk of Electric Shock- More than one disconnect switch may be required to deenergize the equipment before servicing.
 - (viii) Solid state motor overload protection is provided in each model.
 - (ix) Install device in pollution degree 2 environment.
 - (x) WARNING -Hot Surface- Risk of Burn.

3. 시스템 구성

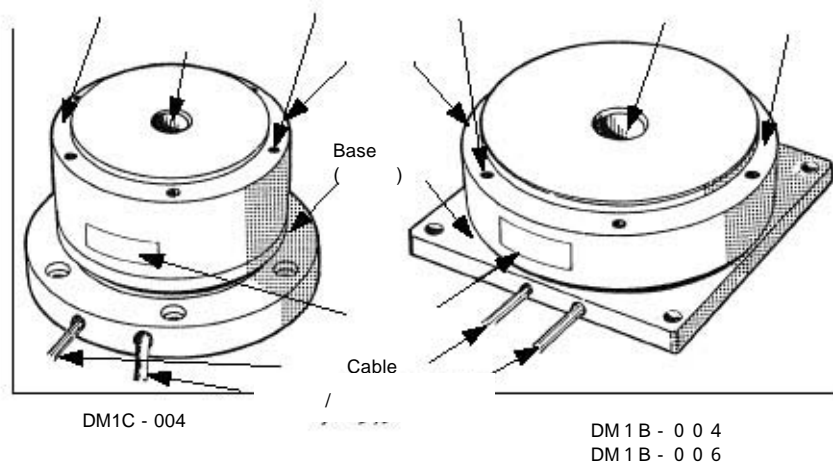
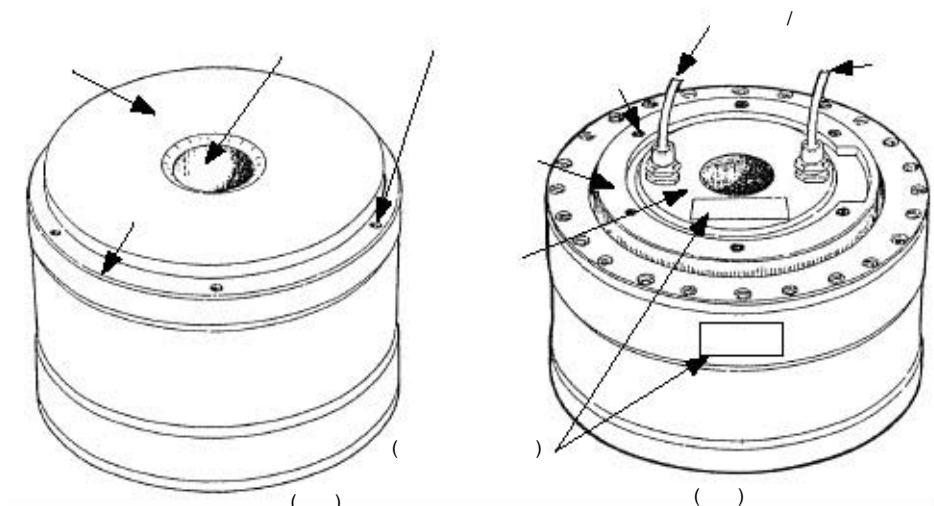
드라이버의 시스템 구성은 아래와 같이 되어 있습니다.



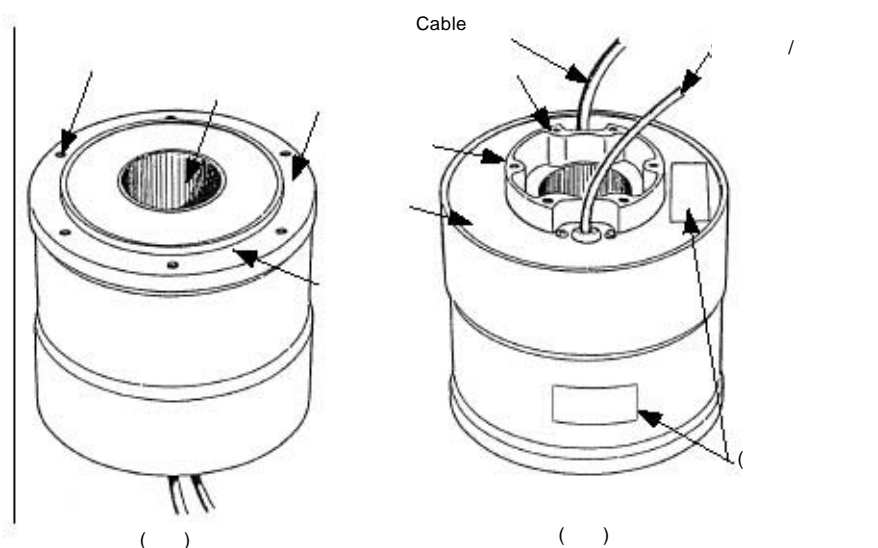
4.

4.1

4.1.1 DM



4.1.2 DR



4.2

4.2.1 500W

<CN1>

(RS232C/RS485)

<RS-ID>

<RDY/ERR>

<SRV-DS> Disable

<CN3>

<TB4>

<CHARGE>

<TB1>

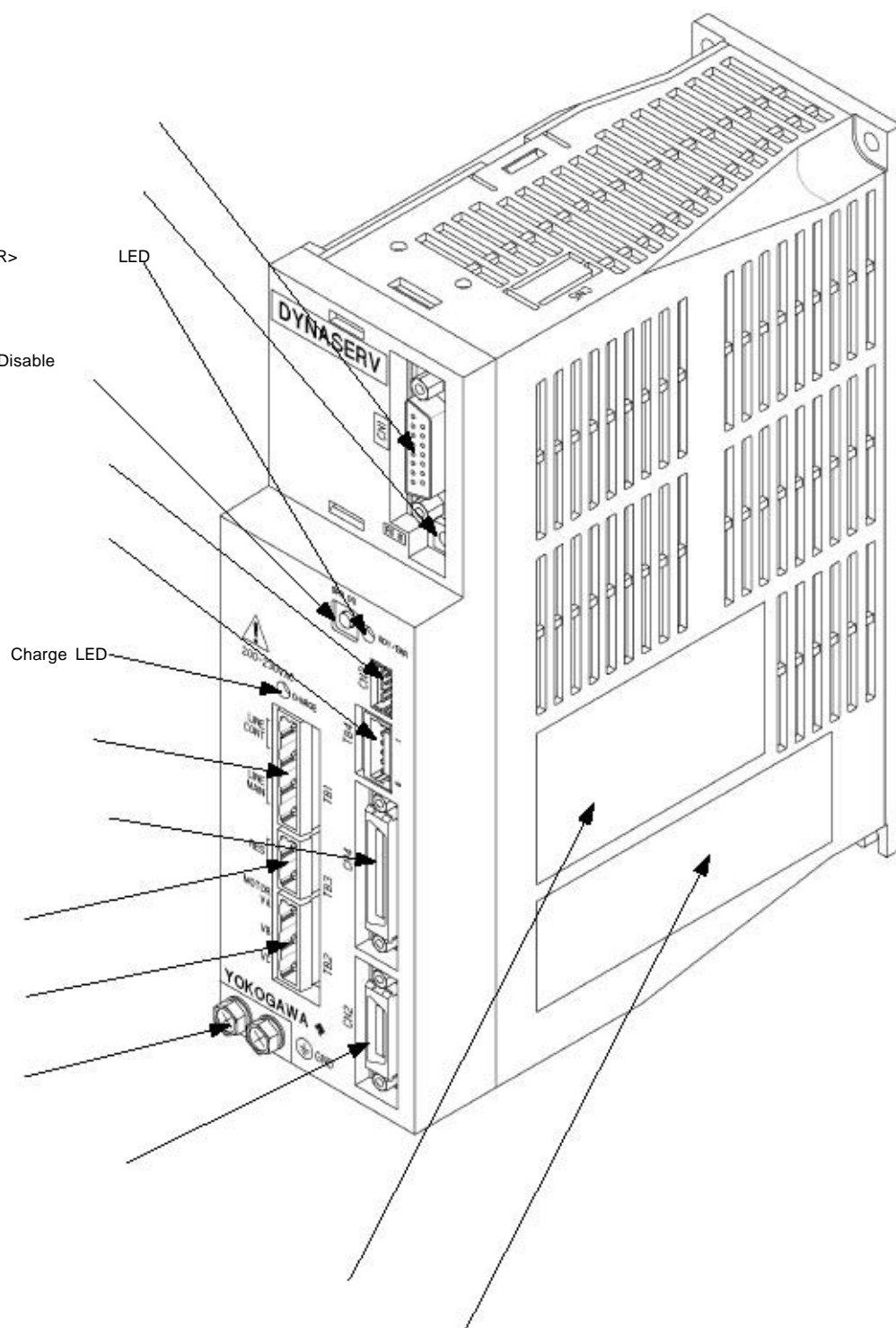
<CN4>

<TB3>

<TB2>

<GND>

<CN2>



<CN1>
Interface Connector
(RS232C/RS485)

<RDY/ERR> LED

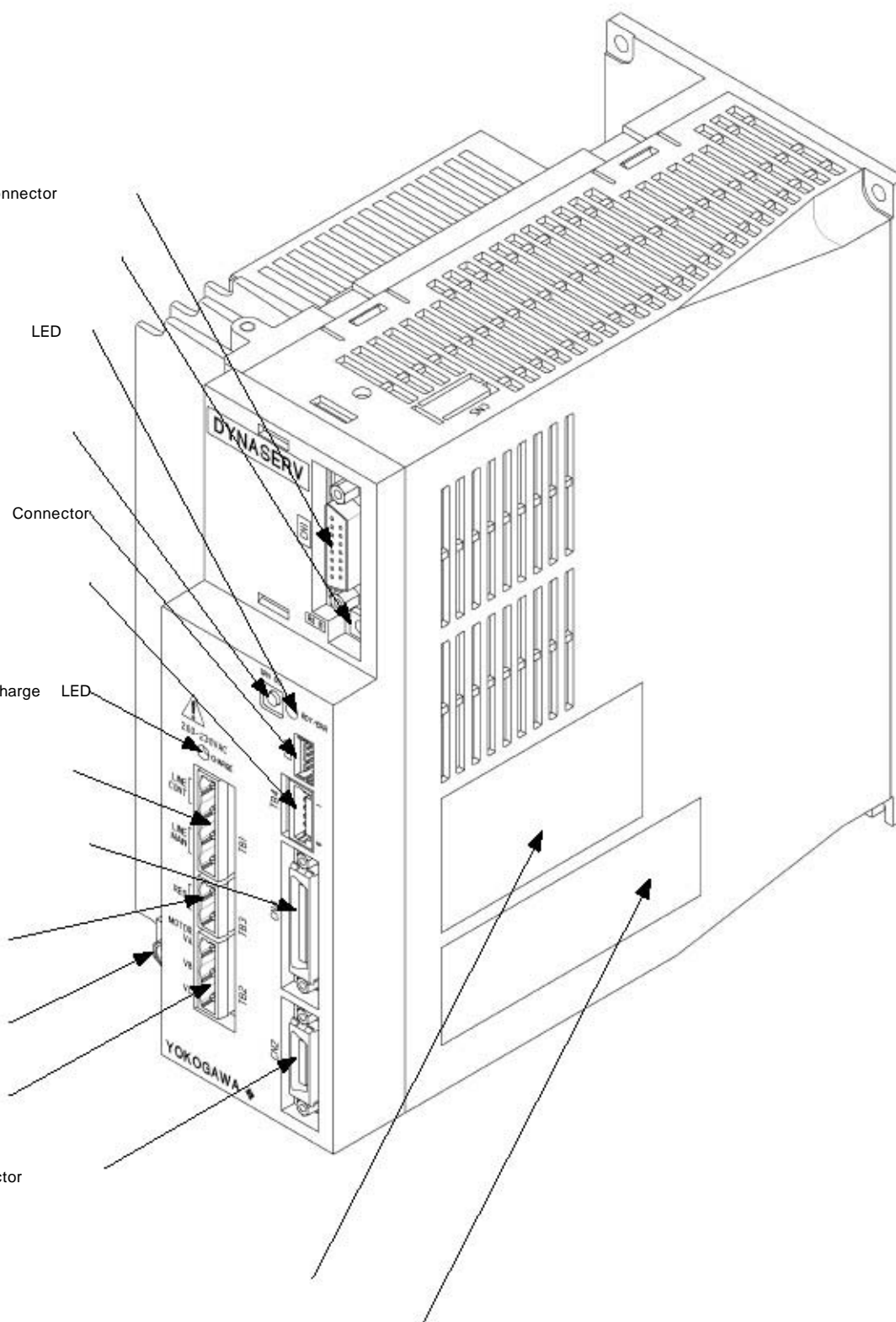
<CN3> Analog Connectors

<CHARGE>	Charge	LED
0	0.00	0.00
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00
19	0.00	0.00
20	0.00	0.00
21	0.00	0.00
22	0.00	0.00
23	0.00	0.00
24	0.00	0.00
25	0.00	0.00
26	0.00	0.00
27	0.00	0.00
28	0.00	0.00
29	0.00	0.00
30	0.00	0.00
31	0.00	0.00
32	0.00	0.00
33	0.00	0.00
34	0.00	0.00
35	0.00	0.00
36	0.00	0.00
37	0.00	0.00
38	0.00	0.00
39	0.00	0.00
40	0.00	0.00
41	0.00	0.00
42	0.00	0.00
43	0.00	0.00
44	0.00	0.00
45	0.00	0.00
46	0.00	0.00
47	0.00	0.00
48	0.00	0.00
49	0.00	0.00
50	0.00	0.00
51	0.00	0.00
52	0.00	0.00
53	0.00	0.00
54	0.00	0.00
55	0.00	0.00
56	0.00	0.00
57	0.00	0.00
58	0.00	0.00
59	0.00	0.00
60	0.00	0.00
61	0.00	0.00
62	0.00	0.00
63	0.00	0.00
64	0.00	0.00
65	0.00	0.00
66	0.00	0.00
67	0.00	0.00
68	0.00	0.00
69	0.00	0.00
70	0.00	0.00
71	0.00	0.00
72	0.00	0.00
73	0.00	0.00
74	0.00	0.00
75	0.00	0.00
76	0.00	0.00
77	0.00	0.00
78	0.00	0.00
79	0.00	0.00
80	0.00	0.00
81	0.00	0.00
82	0.00	0.00
83	0.00	0.00
84	0.00	0.00
85	0.00	0.00
86	0.00	0.00
87	0.00	0.00
88	0.00	0.00
89	0.00	0.00
90	0.00	0.00
91	0.00	0.00
92	0.00	0.00
93	0.00	0.00
94	0.00	0.00
95	0.00	0.00
96	0.00	0.00
97	0.00	0.00
98	0.00	0.00
99	0.00	0.00

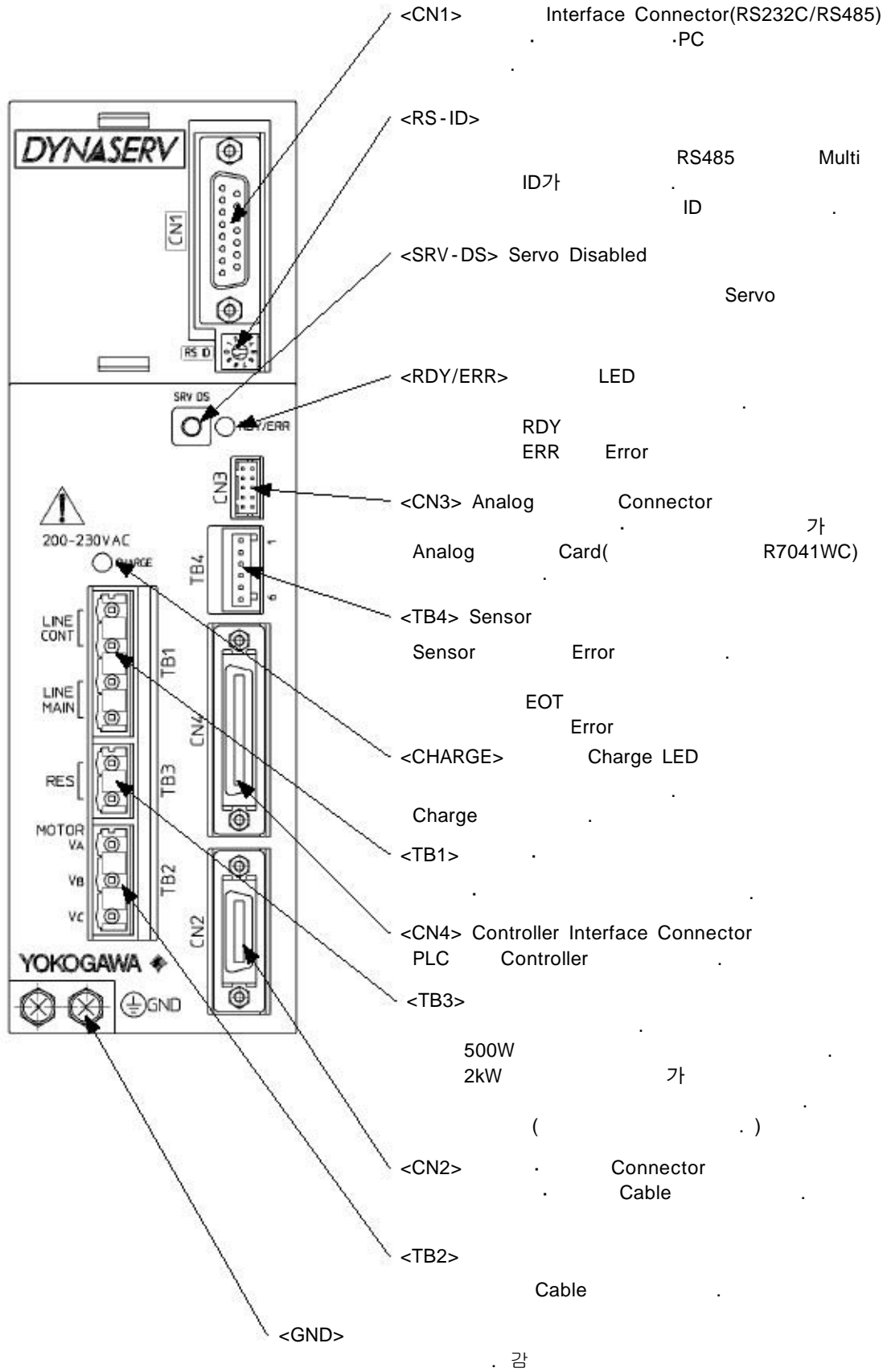
<CN4>
Controller Interface
Connector

<GND>

<CN2>
Connector



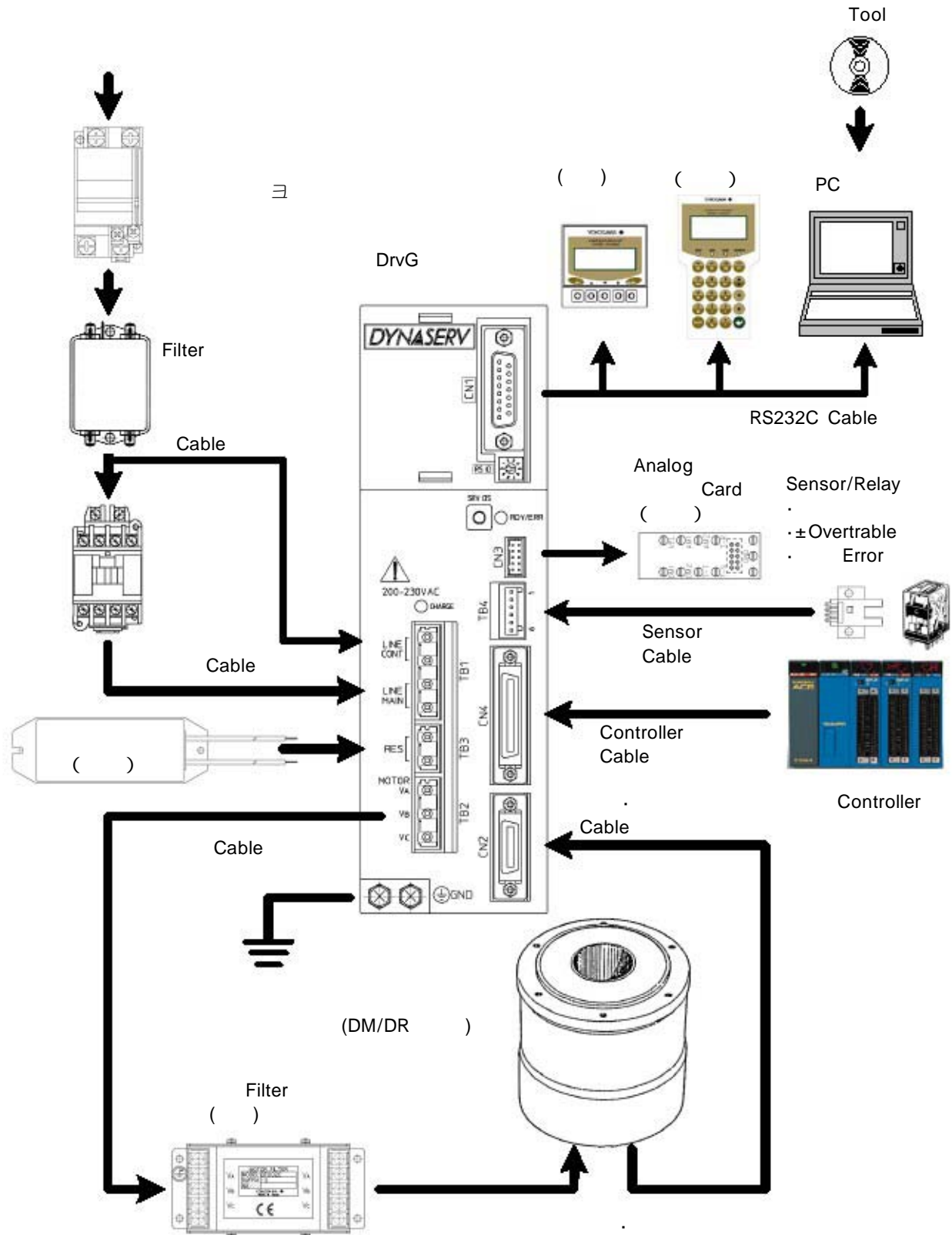
4.2. 3



5.

5.1

5.1.1



5.1. 2

			(1)
500W	CP32FM/5W ()	250VAC,5A	LISTED CLASS RK1 5A
	CP30-BA2P1M5A ()	250VAC,5A	
2kW	CP32FM/15W ()	250VAC,15A	LISTED CLASS RK1 15A
	CP30-BA2P1M15A ()	250VAC,15A	

() 1. UL



System

5.1. 3

		Filter		Filter
500W	SC11AA-M10 ()	FN2070-6/06 (SCHAFFNER)	250V,6A	R7020TA [OF002C-3] (YOKOGAWA)
	S-N11 ()			
2kW	SC18AA-M10 ()	FN2070-10/06 (SCHAFFNER)	250V,10A	
	S-N18 ()			

	Sensor-	Relay
500W 2kW	EE-SX670 (Omron)	MY2-D DC24V (Omron)

() 1.
2. Filter

5.1. 4 Cable

2kW

Cable

Cable		
	AWG#14(2.0mm2) , 30 m	20A
	AWG#20(0.5mm2) , 10 m	1A
	AWG#14(2.0mm2) , 30 m	20A
	AWG#14(2.0mm2) (가 3 (100) ..)	
Sensor	AWG#28-20(0.08-0.5mm2)	
	AWG#24(0.2mm2) Twist-pair, Shield , 9 mm , 30 m	0.1A
Controller	AWG#28-20(0.08-0.5mm2), Shield , 14 mm , 3 m	0.5A
RS232C	Cable : C1P-ENN-2276-020(2.0m)	

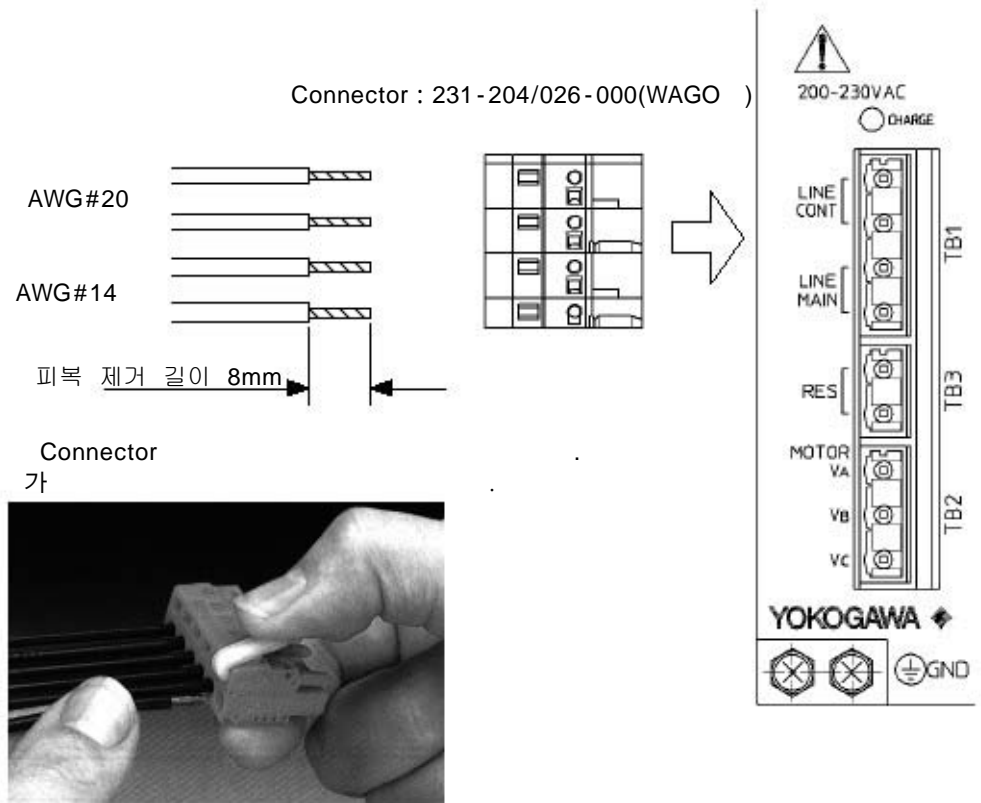
500W

Cable

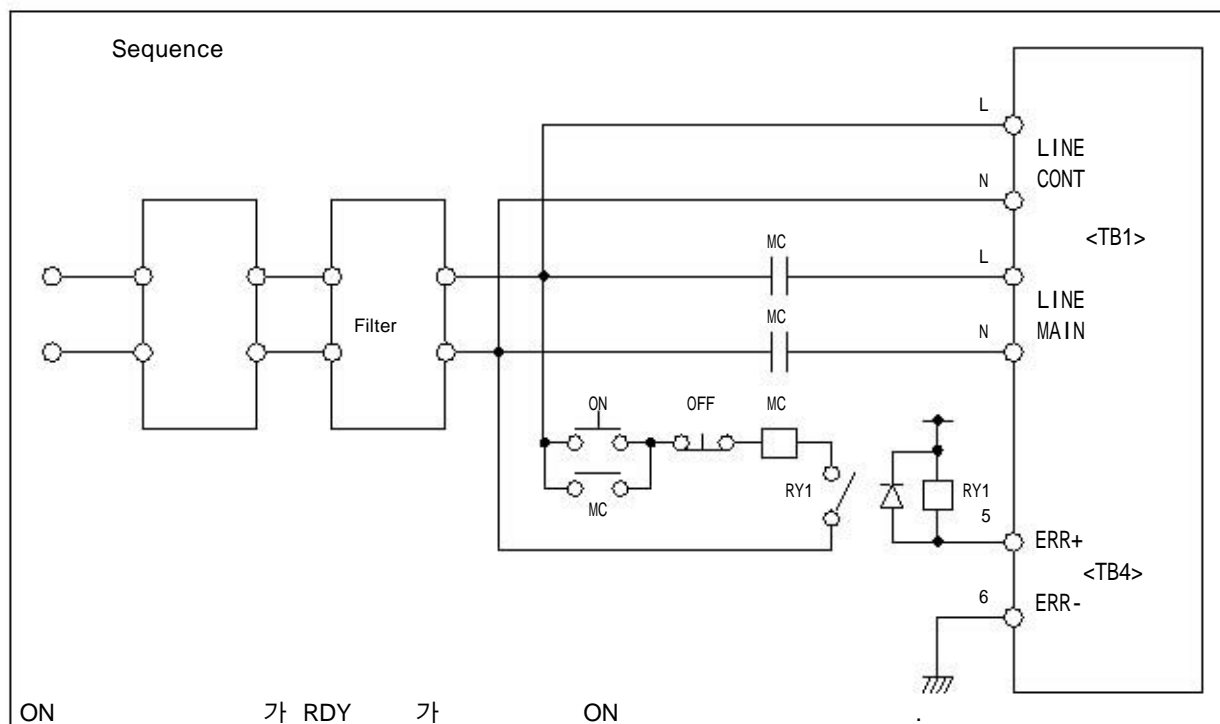
Cable		
	AWG#20(0.5mm2) , 30 m	6A
	AWG#20(0.5mm2) , 10 m	1A
	AWG#20(0.5mm2) , 10 m	6A
	AWG#14(2.0mm2) (가 3 (100) ..)	
Sensor	AWG#28-20(0.08-0.5mm2)	
	AWG#24(0.2mm2) Twist-pair, Shield , 9 mm , 10 m	0.1A
Controller	AWG#28-20(0.08-0.5mm2), Shield , 14 mm , 3 m	0.5A
RS232C	Cable : C1P-ENN-2276-020(2.0m)	

5.2

<TB1>

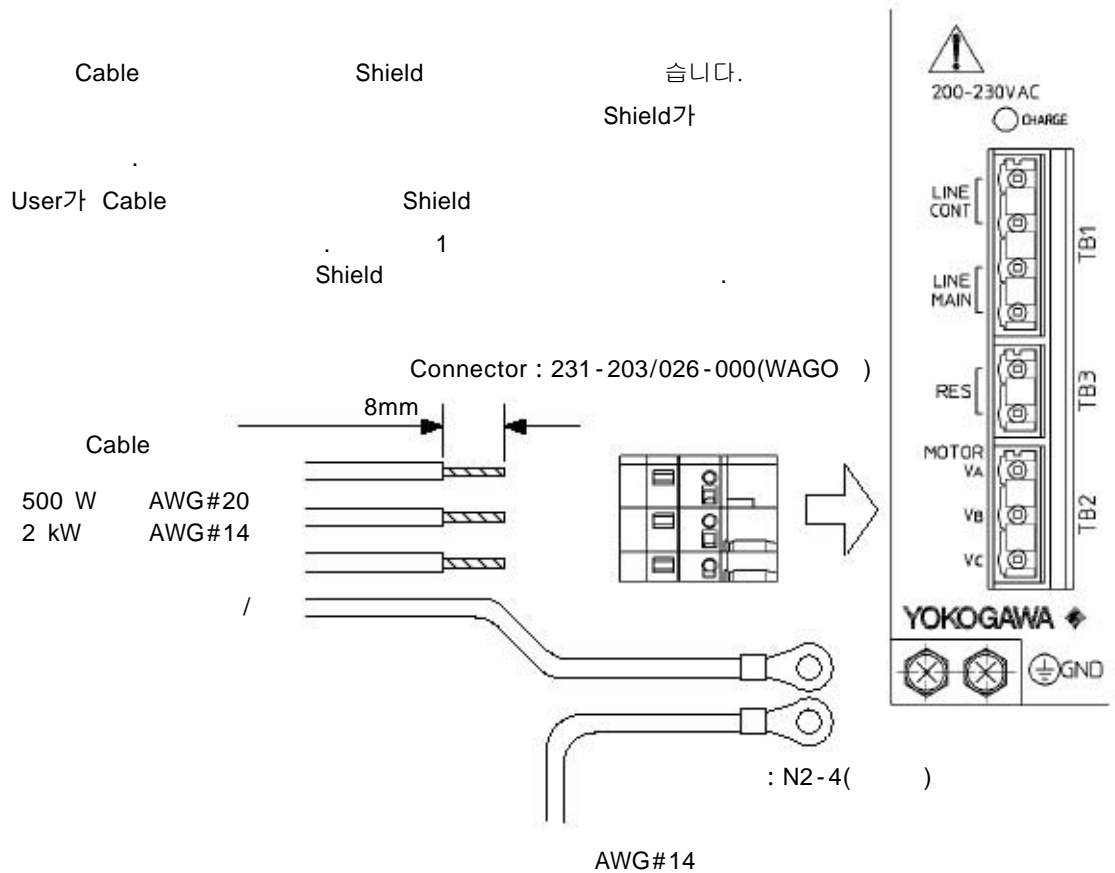


Sequence



5.3

<TB2>



Cable

Cable	500 W		2 kW	
	AWG#20(0.5mm2)	10 m	AWG#14(2.0mm2)	30 m
Motor	[20] (N1.25-M4)		Motor	[20] (N2-4)
	AWG#14(2.0mm2) (가 .) 3 (100) 조임 : 1.2N·m(12kgf·cm)(: M4×0.7)			



5.4

<TB3>

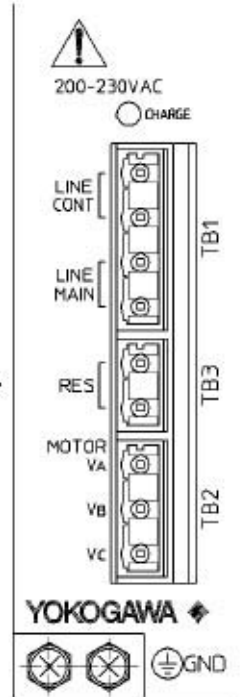
Connector : 231-202/026-000(WAGO)



()

여

AWG#20-16



	Code					
UD1AG3	-050N-	A-1	-N	80W	60	
	-050N-	A-2	-N	80W	200	
UR1AG3	-050N-	B-1	-N	80W	60	
	-050N-	B-2	-N	80W	200	
UR1EG3	-030N-	B-1	-N	80W	60	
	-030N-	B-2	-N	80W	200	
UR5BG3	-010N-	B-2	-N			
UR5CG3	-010N-	B-2	-N			
	-015N-	B-2	-N			



가

·2kW

·500W



가

separator

가

7 , 500W

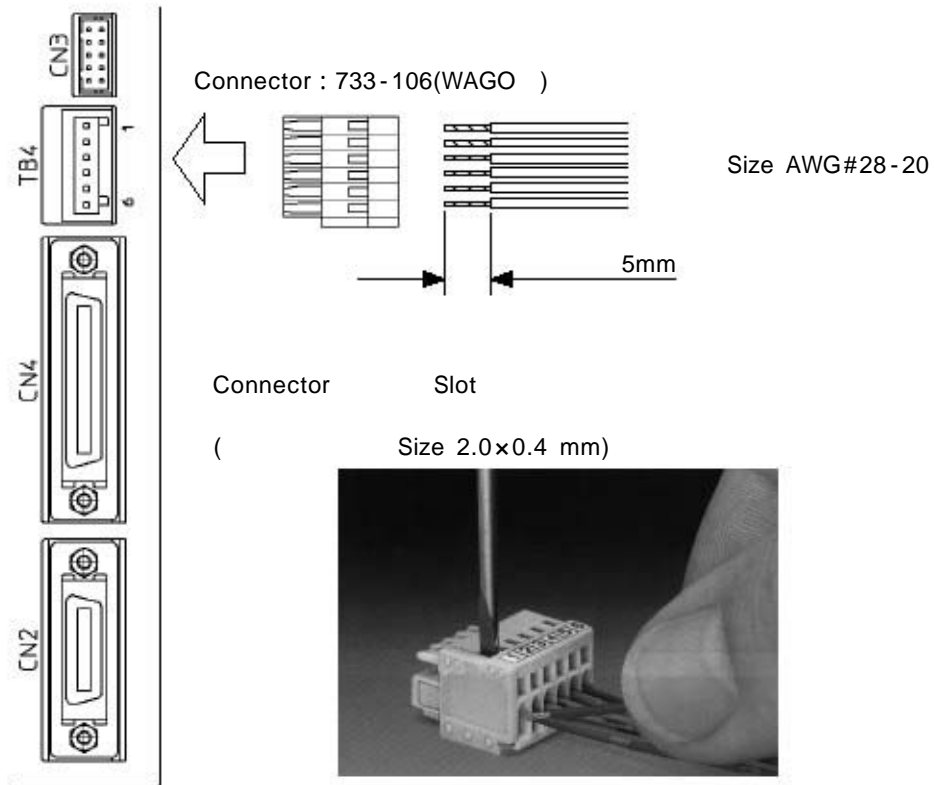
4

2kW



가

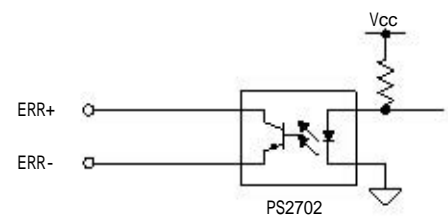
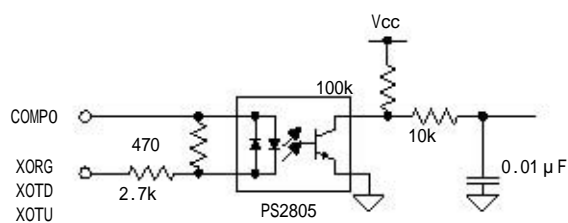
5.5 Sensor <TB4>



1	COMP0	Sensor
2	XORG	B
3	XOTD	- B
4	XOTU	+ B
5	ERR+	Error +
6	ERR-	Error -

Sensor	
	12~24VDC (±10%)
	4.1mA/ (at 12 VDC)
	8.5mA/ (at 24 VDC)
impedance	3.0k
(COMP0)	Off 3.0 VDC
	On 9.0 VDC
	1.0 mA Off

Error	
	30VDC
	50mA



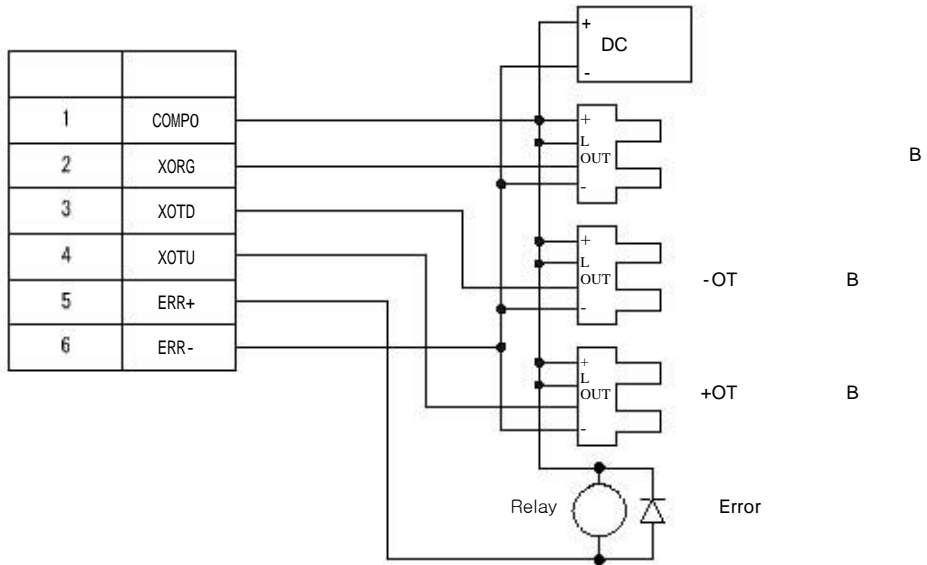
<TB1> Sequence

5.2

Sensor (Sensor : EE - SX670)

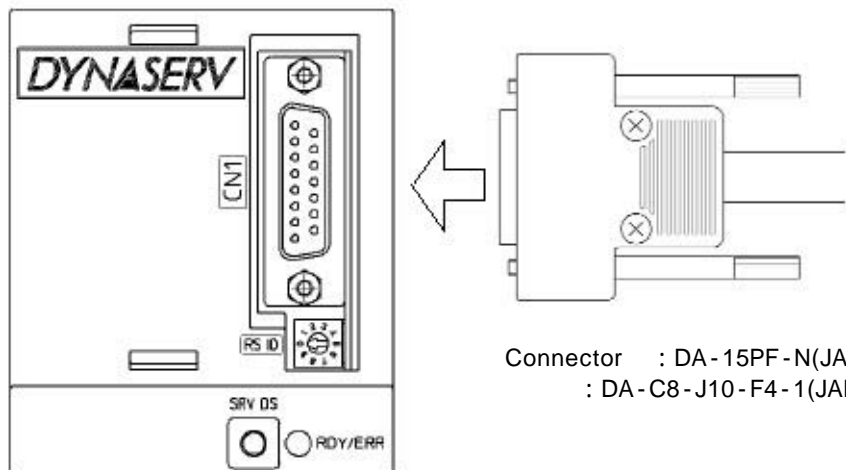
Sensor B
Sensor OFF
Sensor

OFF가



≡ 「 5.2 」

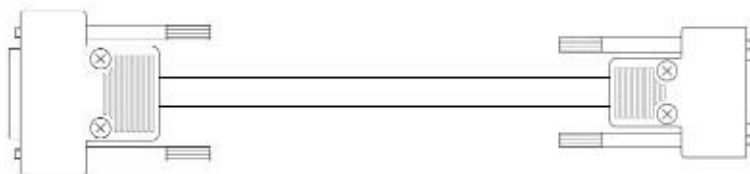
5.6 Interface Connector <CN1>



Connector : DA-15PF-N(JAE)
: DA-C8-J10-F4-1(JAE)

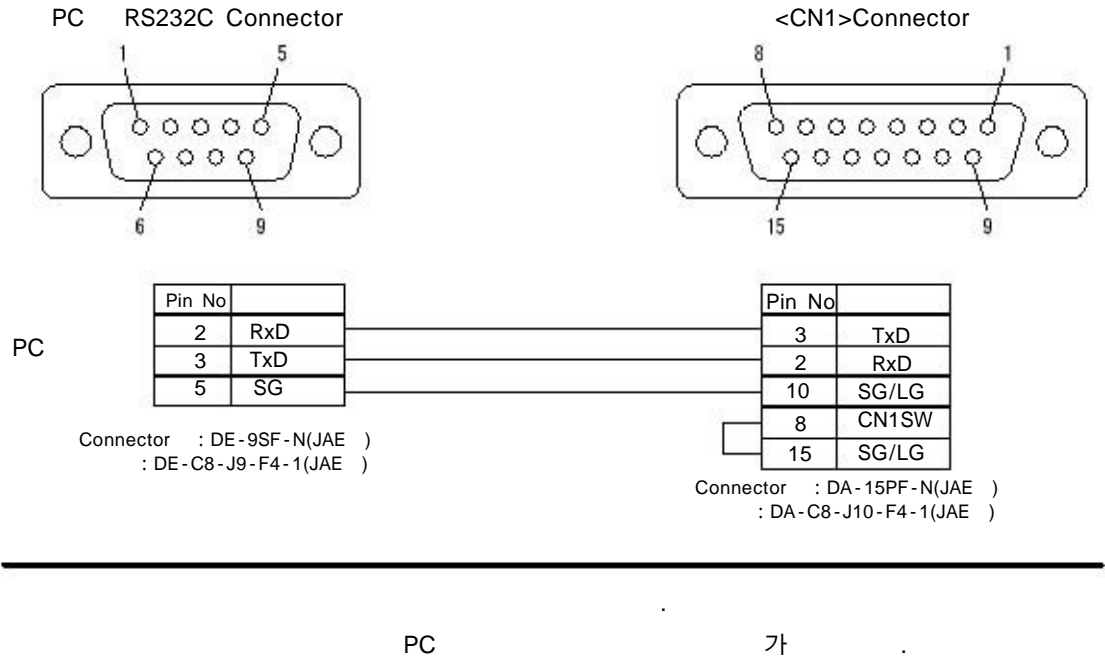
1	FG	Frame GND
2	RxD	RS232C Single RxD
3	TxD	RS232C Single 채널 통신 TxD 단자
4	A	RS485 Multi Rx(+)
5	Y	RS485 Multi Tx(+)
6	485SW	RS485 Multi Bit
7	TRMP	RS485 Multi Terminator - (#14 TRMN)
8	CN1SW	CN1 Bit
9	+5V	+5 V (.)
10	SG/LG	GND
11	B	RS485 Multi Rx(-)
12	Z	RS485 Multi Tx(-)
13	SG/LG	GND
14	TRMN	RS485 Multi Terminator - (#7 TRMP)
15	SG/LG	GND

RS232C Cable()

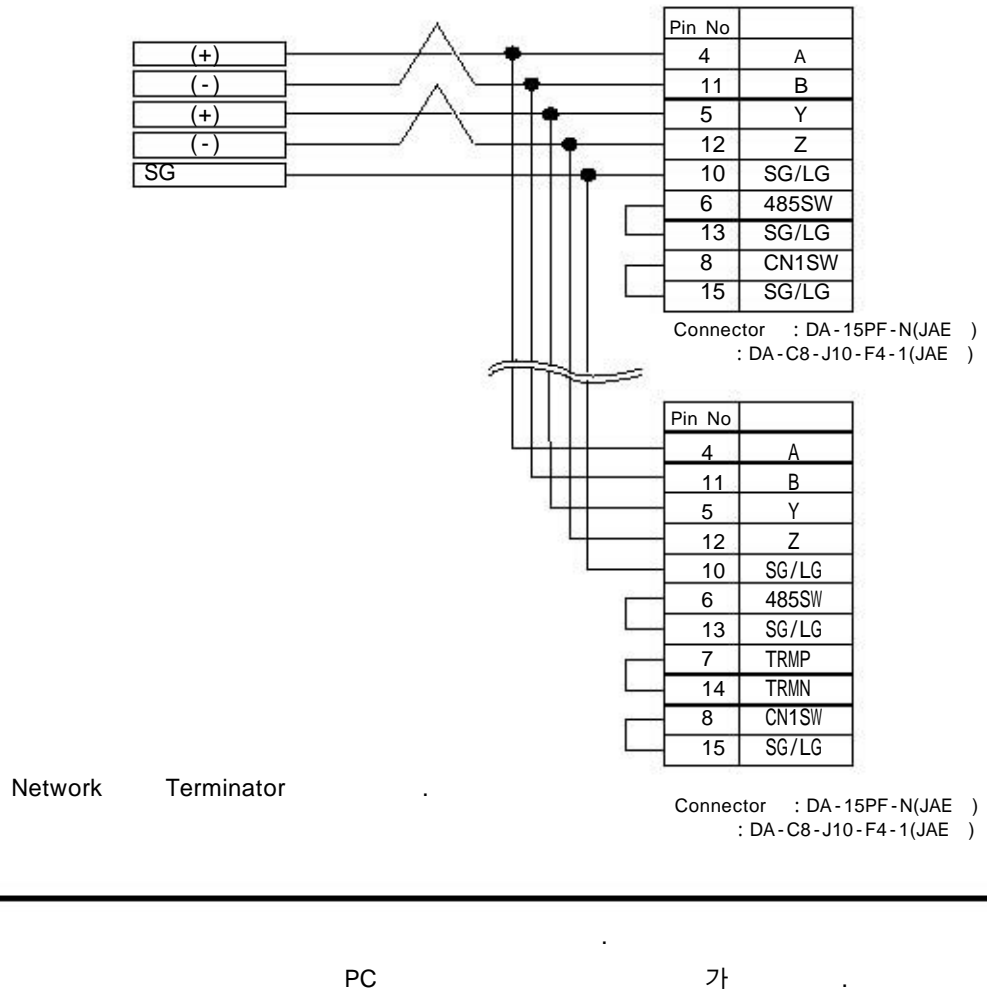


C1P-ENN-2276-020(2.0 m)

RS232C Cable

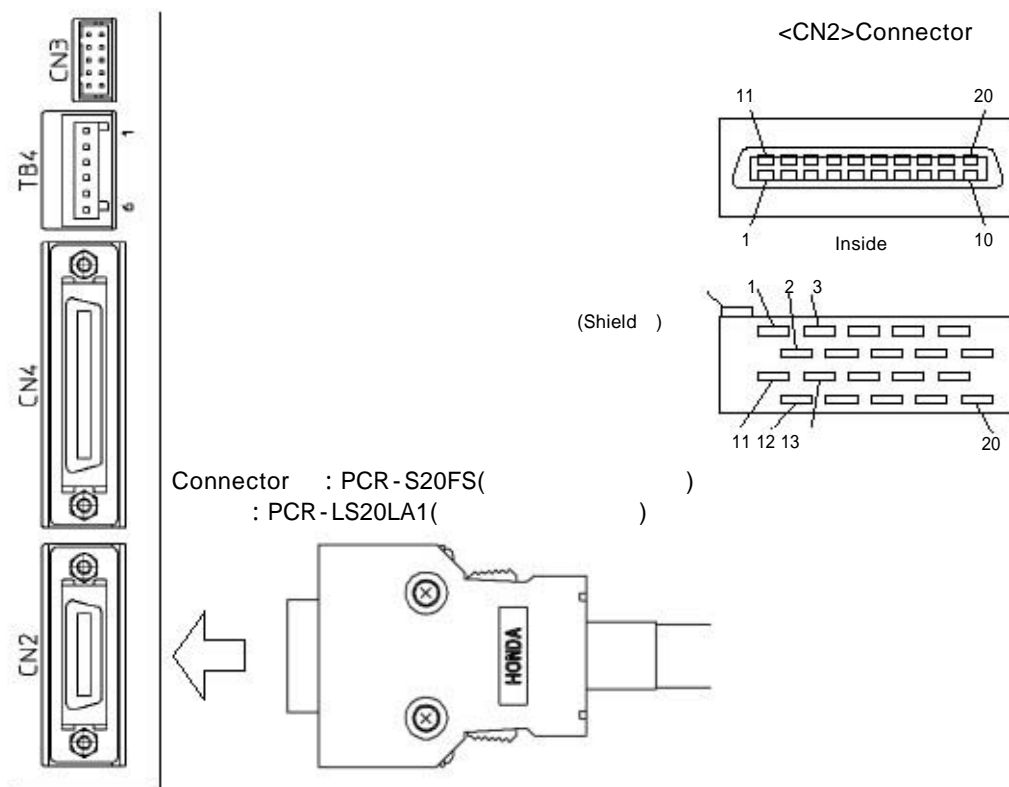


RS485 Cable

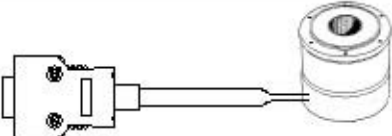


5.7

Connector <CN2>



Cable

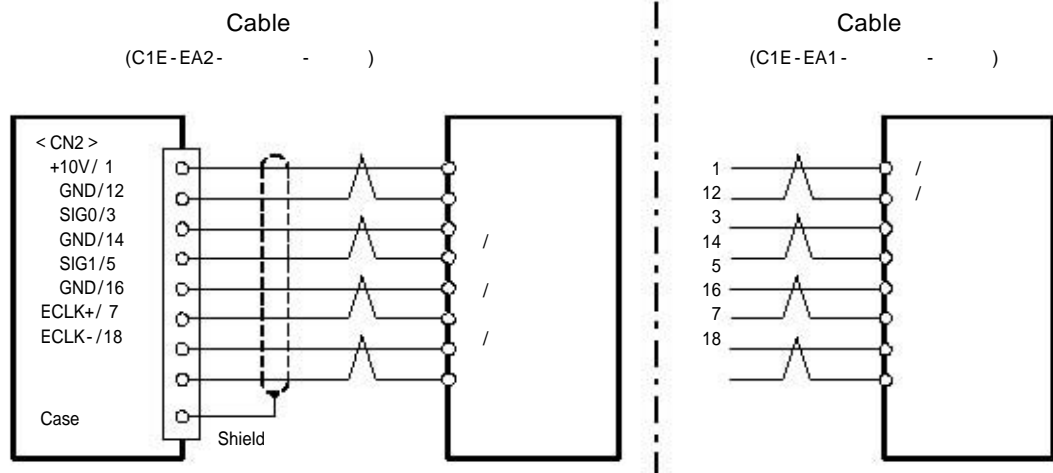
Cable				
	500 W		2 kW	
	AWG#24(0.2mm2) Twist-pair Shield 9 mm 10 m		AWG#24(0.2mm2) Twist-pair Shield 9 mm 30 m	
	Code : 79 (PCR - S20FS PCR - LS20LA1)			
				

Connector

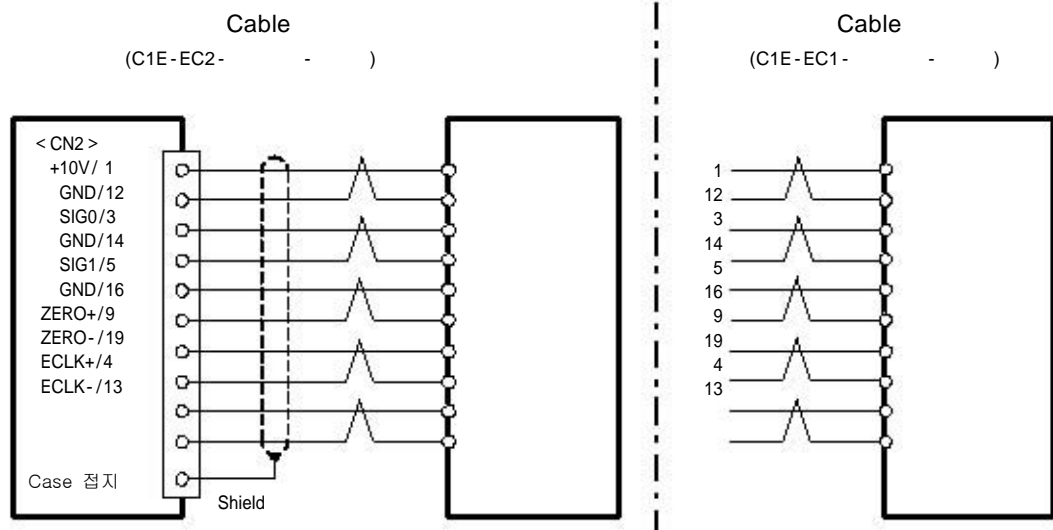
	DM1B-004/006 Type DM1C-004 Type			DM ()		
		Cable		Cable	Cable	Cable
1	+10V		.	+10V		.
2						
3	SIG 0			SIG 0		
4				ECLK+(10V)		
5	SIG 1			SIG 1		하늘
6						
7	ECLK+(3V)					
8						
9				ZERO+		
10						
11						
12	GND		/	GND		/
13				ECLK-(10V)	/	
14	GND	/		GND	/	
15						
16	GND	자/백	자	GND	자/백	자
17						
18	ECLK-(3V)	자/백	백			
19				ZERO-	/	
20						
Case						

	DR		
		Cable	Cable
1			
2	+S0	/	
3			
4			
5			
6	-S0		
7			
8	-C0		
9			
10	+C0	/	
11	+S180	/	
12			
13			
14			
15	-S180		
16			
17	-C180		
18			
19			
20	+C180	/	
Case	/Shield		

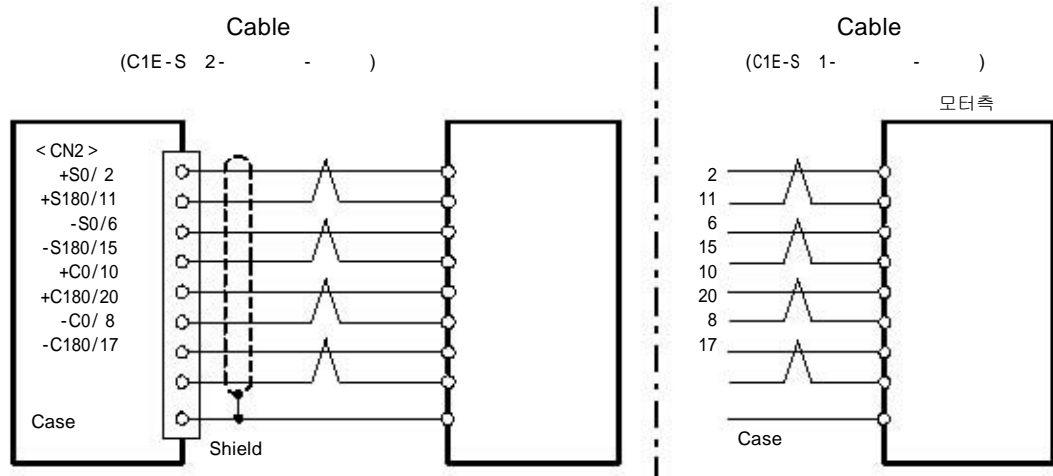
(1) DM1C-004 Type, DM1B-004/006 Type



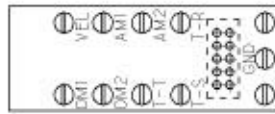
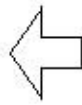
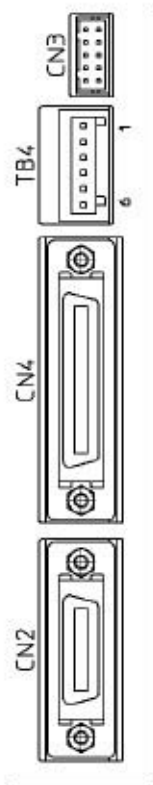
(2) DM (Model)



(3) DR

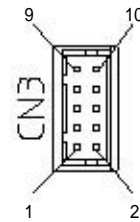


5.8 Analog Connector <CN3>



Analog Card
(R7041WC)

<CN3>



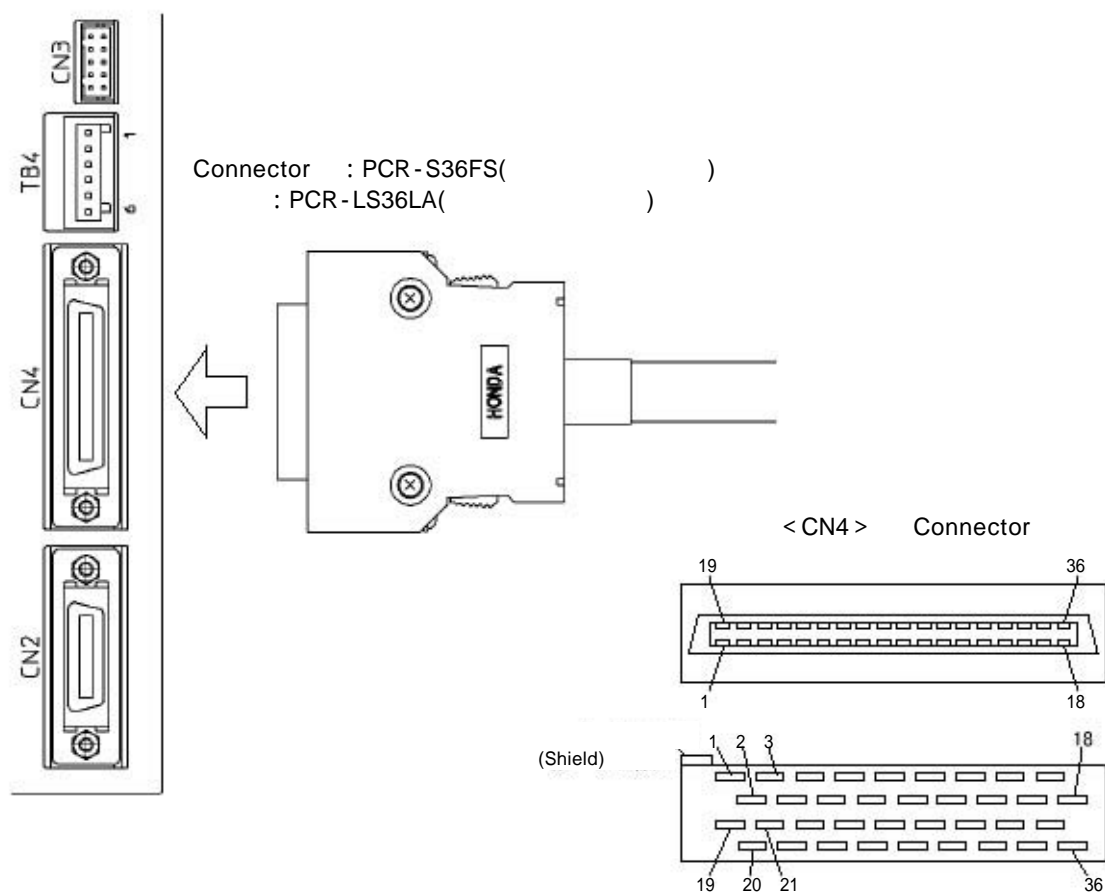
Pin No.	Signal name	Definition
1	VEL	속도 모니터 단자
2	AM1	Analog monitor 단자1 (범용A 모니터1)
3	AM2	Analog monitor 단자2(범용A 모니터 2)
4	DM1	Digital monitor 단자2(범용 D 모니터1)
5	DM2	Digital monitor 단자2(범용 D모니터2)
6	T-R	전류지령
7	T-T	보수용
8	T-S	보수용
9	<사용금지>	보수용 아무것도 접속하지 말아 주십시오
10	GND	모니터용 접지단자

Analog Card()
취출

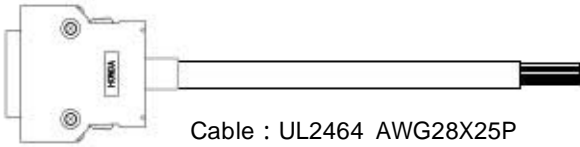


Analog Card()

5.9 Controller Interface Connector <CN4>



Cable

Interface	AWG#28-20(0.08-0.5mm ²) 14 mm 3 m Shield
	Cable : C1P-ENN-4202-  Cable : UL2464 AWG28X25P

Connector

Cable

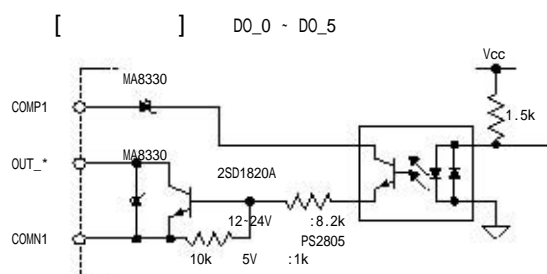
Pin			Mark		
1	COMP1		or 3	Interface +	인터페이스 사양에 적절한 전원을 입력해 주십시오
2	COMN1		or 1	Interface -	
3	DO_0		1	0	I/O 가
4	DO_1			1	
5	DO_2			2	
6	DO_3			3	
7	DO_4			4	
8	DO_5		2	5	
9	UA_OUT+		2	1 +	UP-DOWN or A-B
10	UA_OUT-		or 2	1 -	
11	DB_OUT+			2 +	
12	DB_OUT-		or 2	2 -	
13	Z_OUT+		2	ZERO +	ZERO
14	Z_OUT-		or 2	ZERO -	
15	PUA_IN+		2	1 +	PLS-SIGN or UP-DOWN or A-B
16	PUA_IN-		or 2	1 -	
17	SDB_IN+		3	2 +	
18	SDB_IN-		or 3	2 -	
19	DI_0		3	0	I/O 가
20	DI_1			1	
21	DI_2			2	
22	DI_3			3	
23	DI_4		4	4	
24	DI_5			5	
25	DI_6			6	
26	DI_7			7	
27	DI_8			8	
28	DI_9			9	
29	DI_10			10	
30	DI_11			11	
31	(NC)				
32	(NC)				
33	ASUB_IN+			+	, / feed-forward /
34	ASUB_IN- (SG)		or	-	
35	ACMD_IN+			+	(, T)
36	ACMD_IN- (SG)		or	-	
Shield				Shield	

DI/DO

DO_0~DO_5				
		I/O	I/O	
3	DO_0	OUT_DRDY	READY	
4	DO_1	OUT_SRDY	Servo READY	
5	DO_2	OUT_BUSY	Busy	
6	DO_3	OUT_OVL	Over load	
7	DO_4	OUT_OVER	Over	
8	DO_5	OUT_COIN		

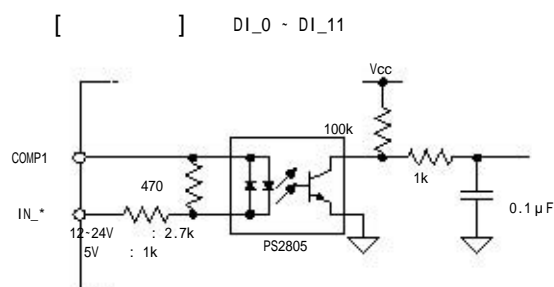
DI_0~DI_11				
		I/O	I/O	
19	DI_0	IN_ERR_RESET	Error RESET	
20	DI_1	IN_SERVO	Servo	
21	DI_2	IN_START		
22	DI_3	IN_ABORT		
23	DI_4	IN_I_CODE.0	Code 0	
24	DI_5	IN_I_CODE.1	Code 1	
25	DI_6	IN_POSW.0	0	
26	DI_7	IN_POSW.1	1	
27	DI_8	IN_VELFREQ_SEL		
28	DI_9	IN_POSFREQ_SEL		
29	DI_10	IN_PLS_DIRECT	Pulse	
30	DI_11	IN_POSINT_INH		

DI/DO



I/F	Code	A	B
		12~24VDC (± 10%)	5VDC (± 10%)
		0.1 A / , 0.5 A/Common	
		0.5 VDC	
		0.1 mA	

() OUT_DRDY : READY가 , 가 가 .



I/F	Code	A	B
		12~24VDC (± 10%)	5VDC (± 10%)
		4.1mA(at 12VDC) 8.5mA(at 24VDC)	4.0mA(at 5VDC)
Impedance		3.0k	1.0k
(COMP*)		ON 9.0VDC以下 OFF 3.0VDC以上	ON 4.0VDC以下 OFF 1.0VDC以上
		1.0 mA	

() IN_SERVO : Servo Photo-coupler , Photo-coupler .

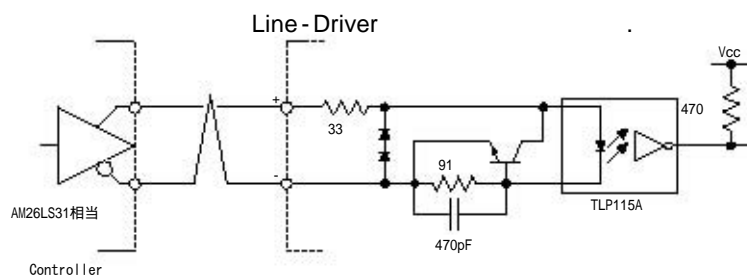
Pulse

[] PUA_IN \pm , SDB_IN \pm

AM26LS31

RS422A

Photo-coupler
가

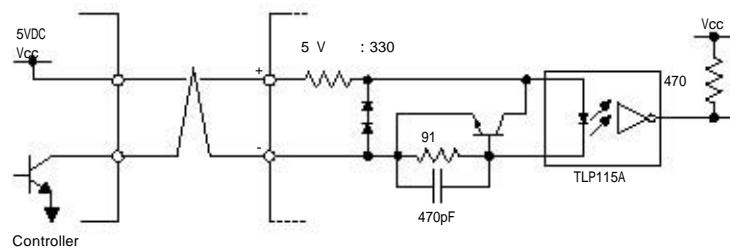


[Open-Collector

] PUA_IN \pm , SDB_IN \pm

Interface

Photo-coupler
가



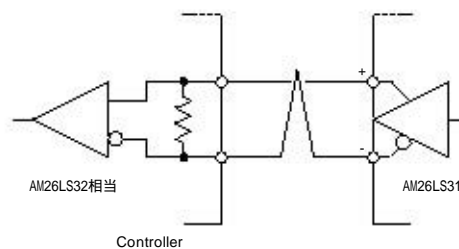
Pulse

UA_OUT \pm , DB_OUT \pm , Z_OUT \pm

AM26LS32

RS422A

+ 가-
가



Analog

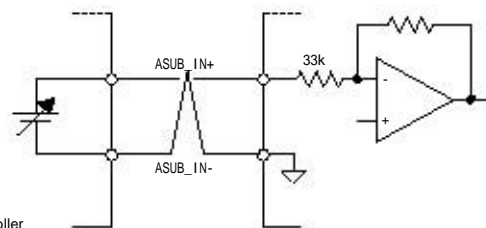
[Analog

] ASUB_IN \pm

Parameter

-6VDC~6VDC
-10VDC~10VDC

Controller



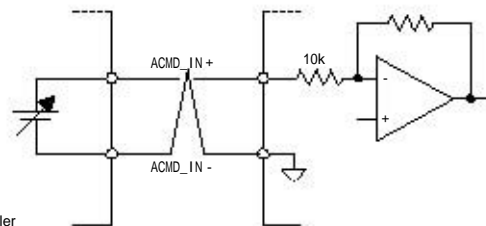
[Analog

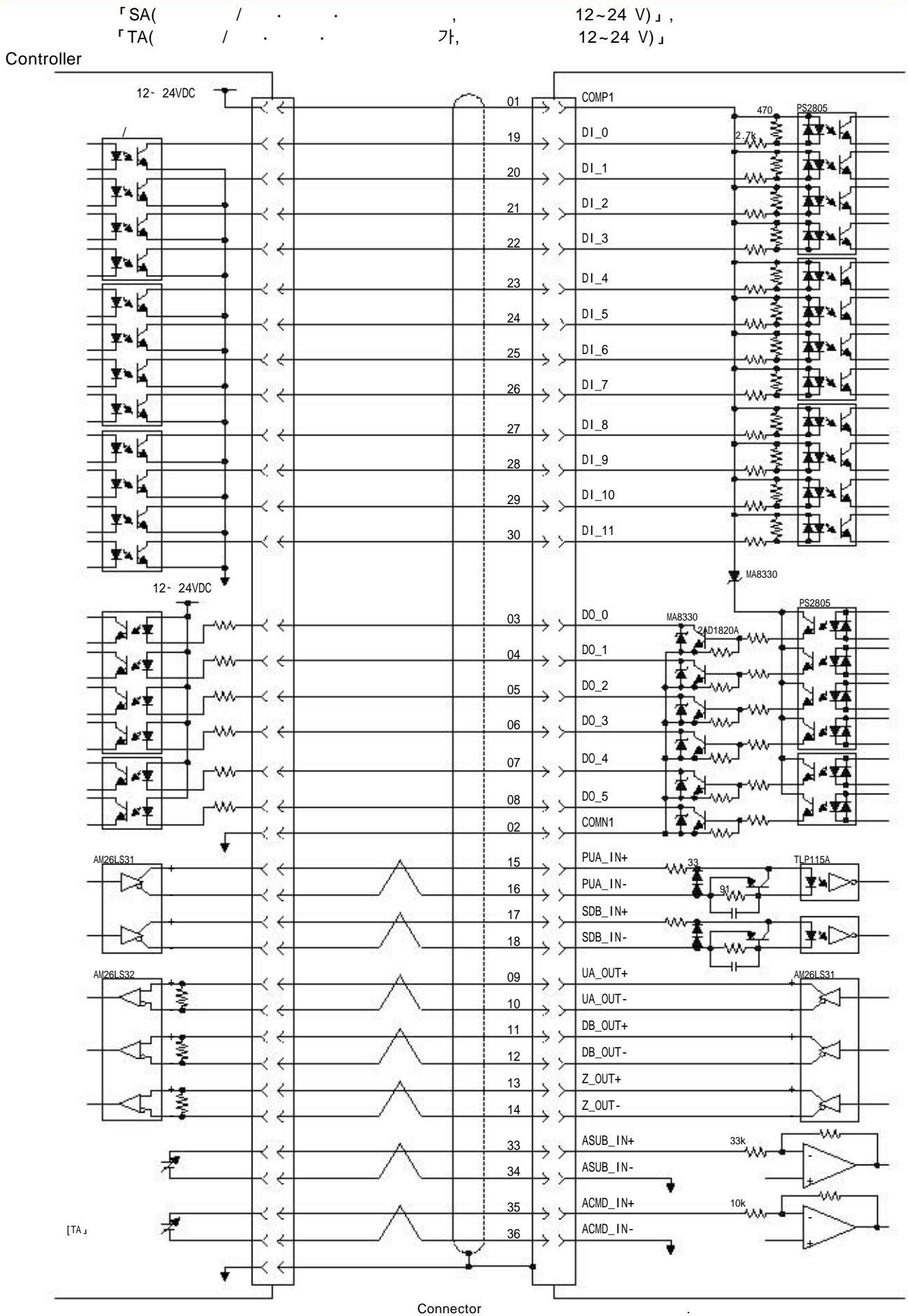
] ACMD_IN \pm

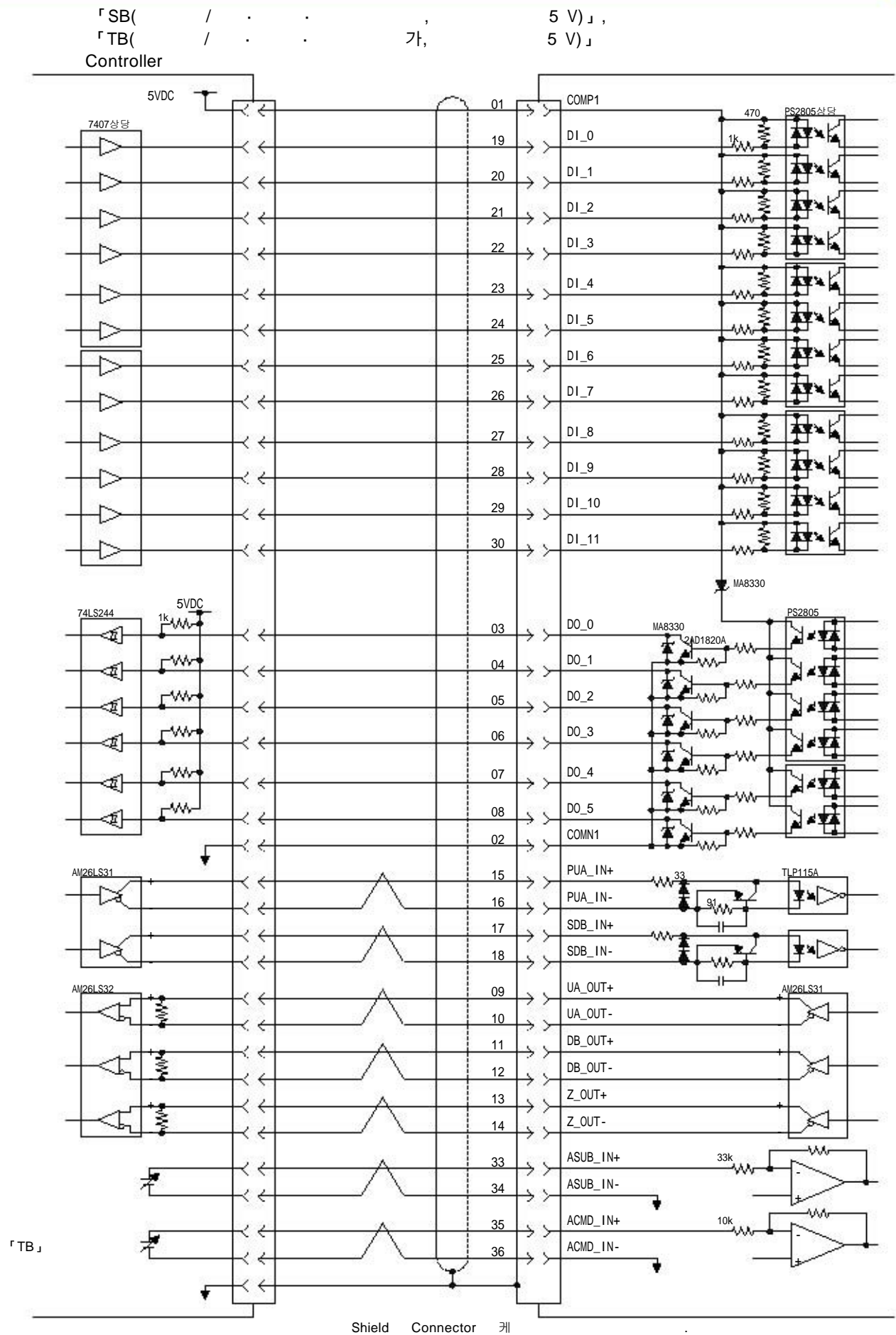
Parameter

-6VDC~6VDC
-10VDC~10VDC

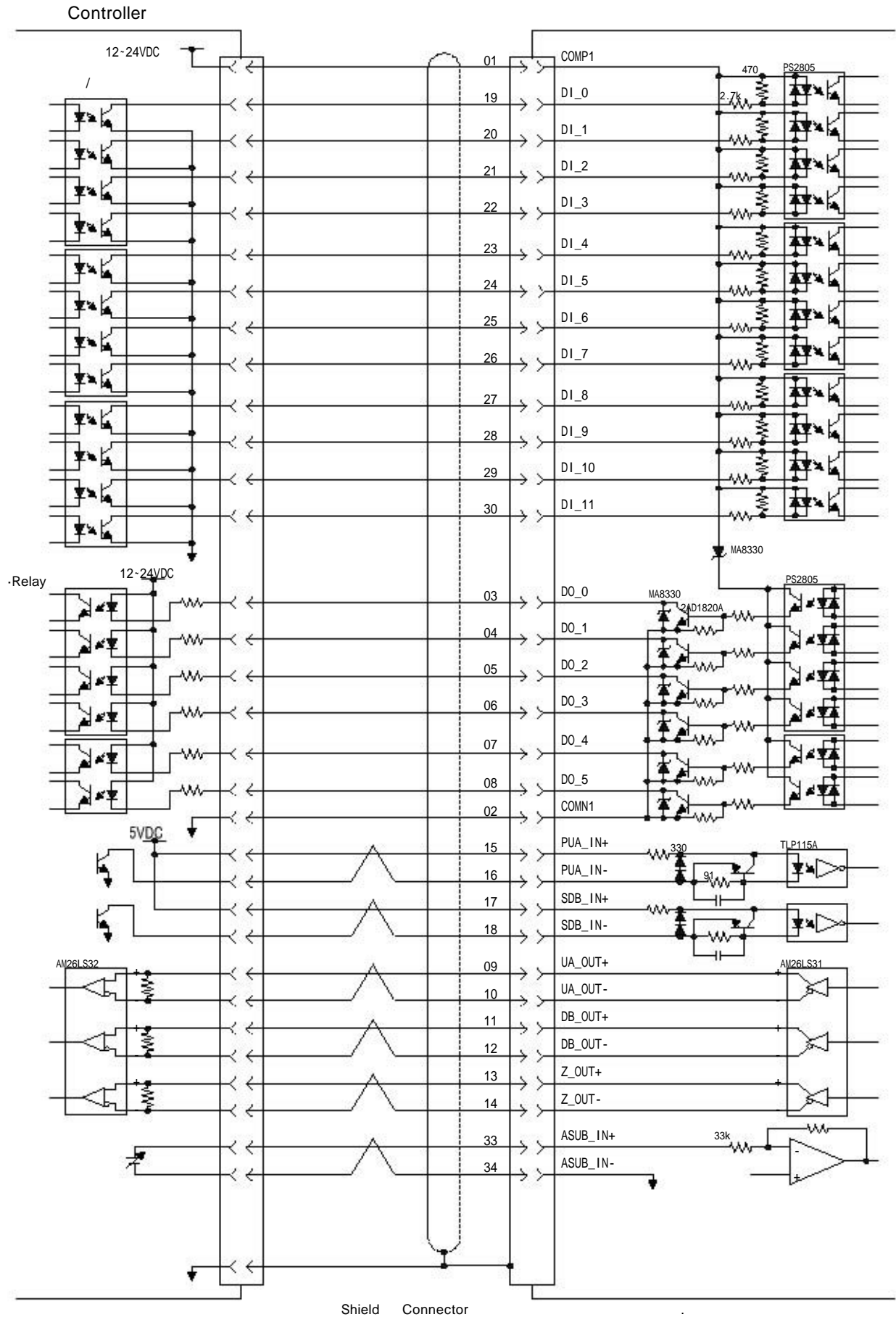
Controller







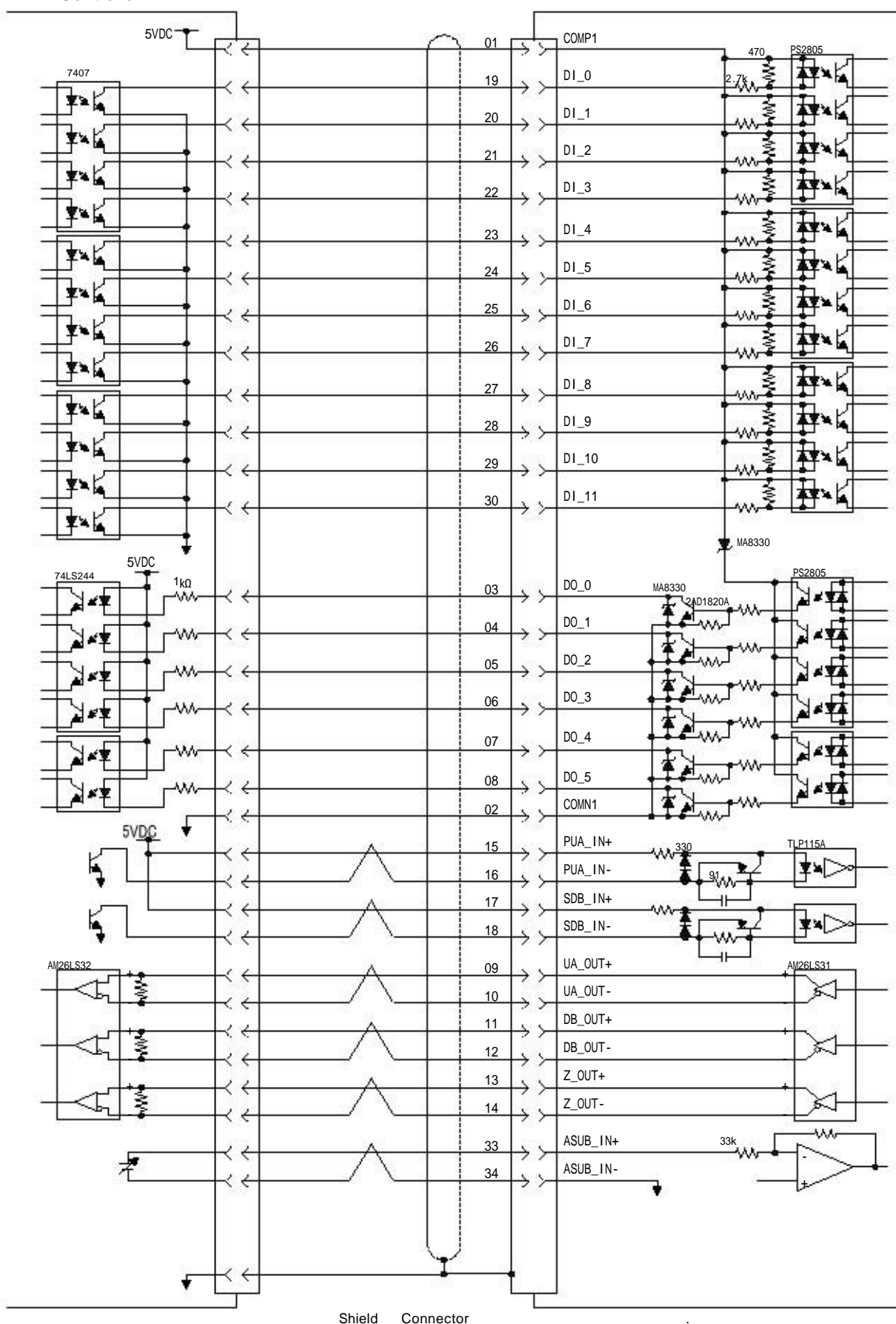
「UA(5 VOC/200 kHz, 12~24 V)」



「UB(5V0C/200kHz,

5V)」

Controller



Shield Connector

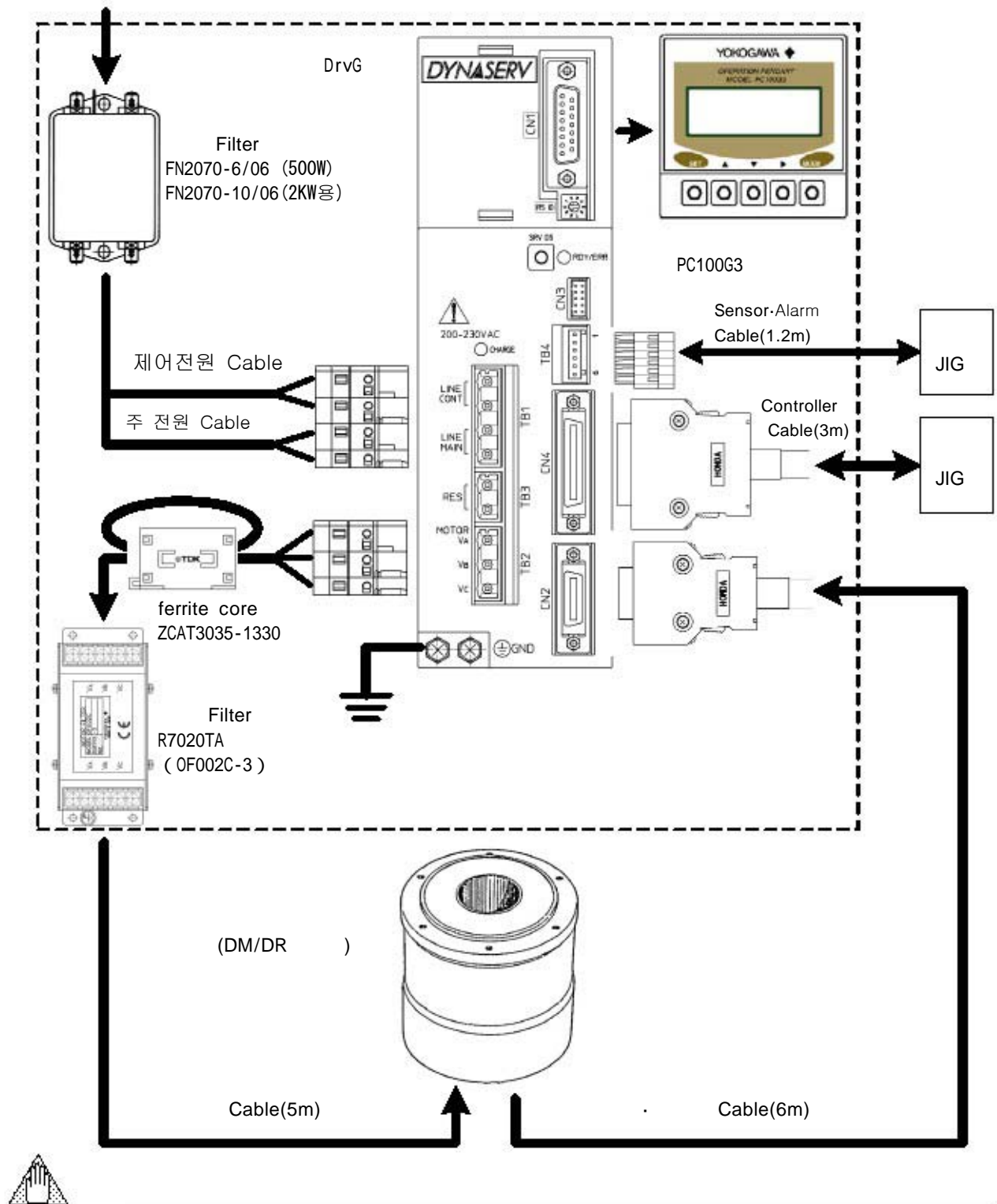
5.10

DrvG

EMC

CE

()



5.10. 1

Filter

Filter
INVERTER

가 INVERTER

가 , Filter

Filter
INVERTER

10 kHz INVERTER 가

100 kHz 1 MHz

(Common Mode Coil 5 mH Filter)

Filter

「 5.11

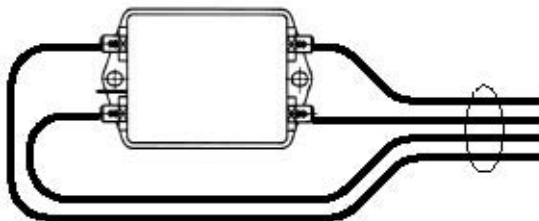
Filter

Filter

전기적

Filter

가 Filter 가



5.10.2 Ferrite core 1

Ferrite core 1 Cable 가 .
Cable
가 또는 되거나 동일 기기에
주지 않는 가 .

5.10.3 Ferrite core 2

Cable . Cable
가 Cable
, Cable
가 .

5.10.4 Filter

Common Mode 가 .
Common Mode Cable
, Cable 10 m CCD
Common Mode 가 가
가 Cable 삽입하여 .
, Filter 지 말아
Cable 가 .

5.10.5 Cable Shield

Cable Shield , 버터
CPU 가 .
Cable Cable Shield
impedance
Controller Cable Controller Shield GND 요.
Controller GND impedance Pulse
아날 .

5.11

Filter

가

확인하여

5.11. 1

Filter

「가 -

가

가

1

가

I_p 와 그시간이

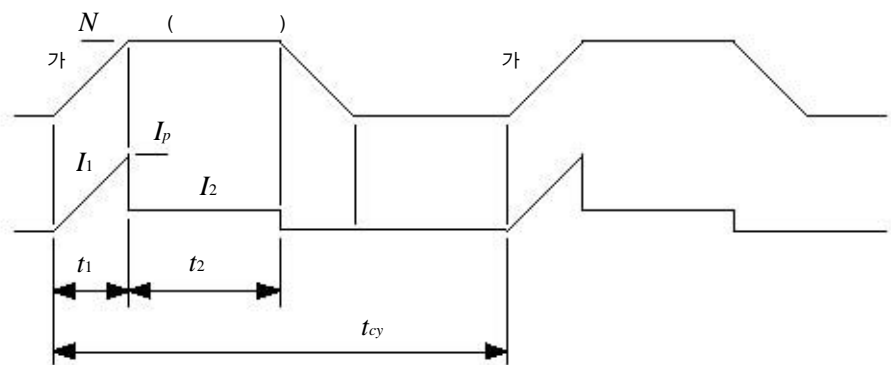
가

가

가

가

가

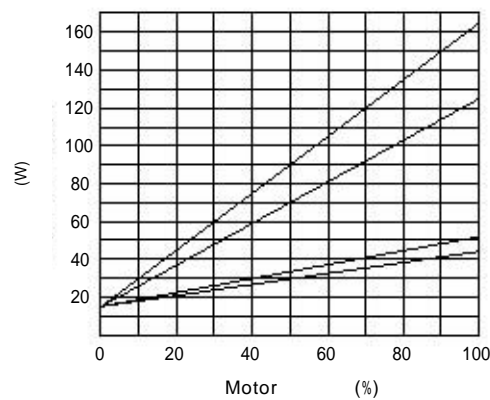


가

, 가

70~80%

10%



「D : 20 A」

「C : 15 A」

「B : 6 A」

「A : 5 A」

가 I_p

60%

80%

$$I_p = \frac{D_{L1} 2 \pi N \cdot T \cdot 0.8}{m \cdot P_f \cdot E_{in} P_f \cdot E_{in}} + \frac{D_{L1}}{P_f \cdot E_{in}}$$

가

$$I_{1(rms)} = \frac{I_p}{\sqrt{3}}$$

I_2

$$I_2 = \frac{2 N \cdot (T_{LB} + T_{LL}) D_{L2}}{m \cdot P_f \cdot E_{in} P_f \cdot E_{in}} + \frac{D_{L2}}{P_f \cdot E_{in}}$$

$I_{in(rms)}$ ()

$$I_{in(rms)} = \sqrt{\frac{I_{1(rms)}^2 \cdot t_1 + I_2^2 \cdot t_2}{t_{cy}}}$$

N	:	(rps)
T	:	(N·m)
D_{L1}	:	가 (W)
D_{L2}	:	(W)
η_m	:	60%
P_f	:	0.5
E_{in}	:	(V)
T_{LB}	:	/10(N·m)
T_{LL}	:	(N·m)

Filter

I_p

$$I_p = \frac{2 \cdot 1.0 \cdot 100 \cdot 0.8}{0.6 \cdot 0.5 \cdot 230} + \frac{135}{0.5 \cdot 230} = 8.46 \text{ A}$$

가

$$I_{1(rms)} = \frac{8.46}{\sqrt{3}} = 4.88 \text{ A}$$

I_2

$$I_2 = \frac{2 \cdot 1.0 \cdot (10 + 0)}{0.6 \cdot 0.5 \cdot 230} + \frac{30}{0.5 \cdot 230} = 1.17 \text{ A}$$

$I_{in(rms)}$ ()

$$I_{in(rms)} = \sqrt{\frac{8.46^2 \cdot 0.05 + 1.17^2 \cdot 0.1}{0.3}} = 3.52 \text{ A}$$

「4 A」가

I_p

	: 20A
	: 100 N·m
	: 1.0rps
가	: 50ms
	: 100ms
	: 100ms
Cycle Time	: 300ms
	: 230V
	: 0 N·m

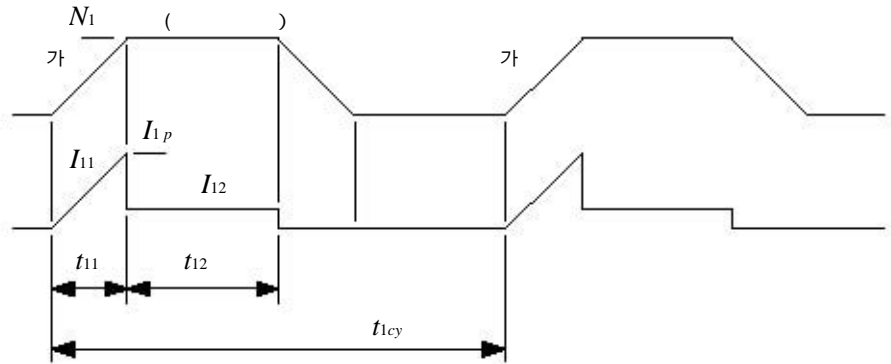
5.11. 2

1

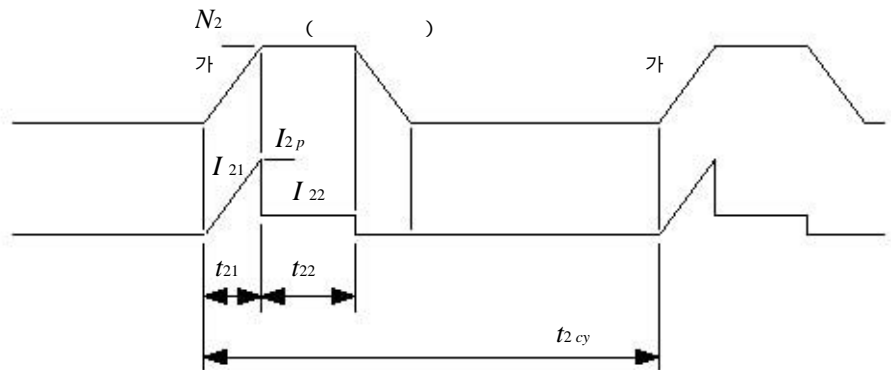
Filter

가

1



2



1 + 2



「 5.12. 1

」

$I_{1in(rms)}, I_{2in(rms)}, \dots$

$I_{in(rms)}$

$$I_{in(rms)} = I_{1in(rms)} + I_{2in(rms)} + \oplus \oplus \oplus$$

$I_{p(max)}$

5.12

가

가

5.12. 1

()

(25) Cold start

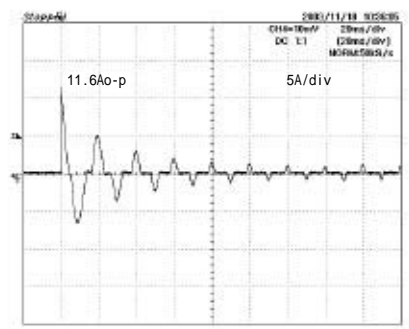
+

impedance,

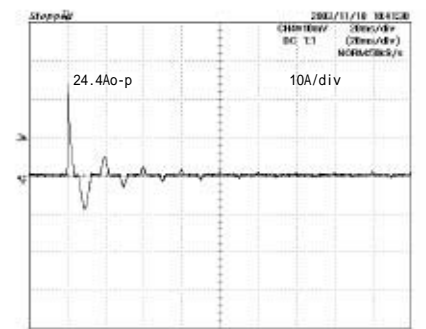
impedance가

n

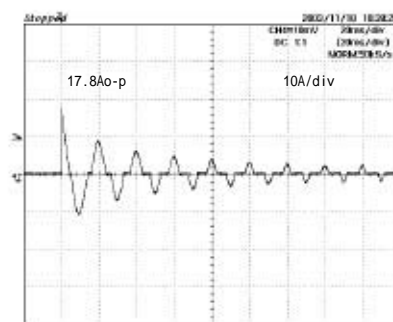
500 W 115VAC



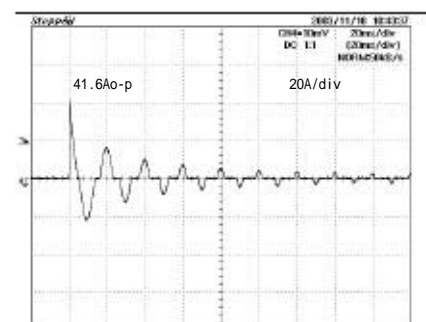
500 W 230VAC



2 kW 115VAC



2 kW 230VAC



5.12. 2

가

조해

500W
24.4A가
)

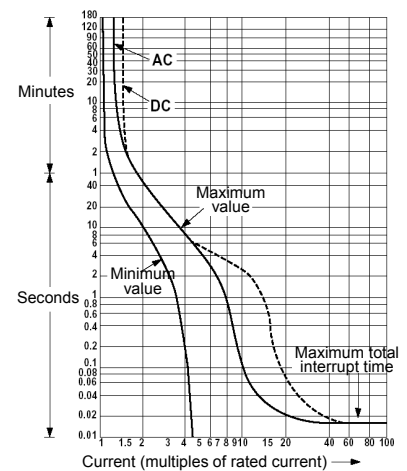
230 V

가

5 가

$$\frac{24.4}{5} = 4.88 A$$

가 5 A



Blank Page

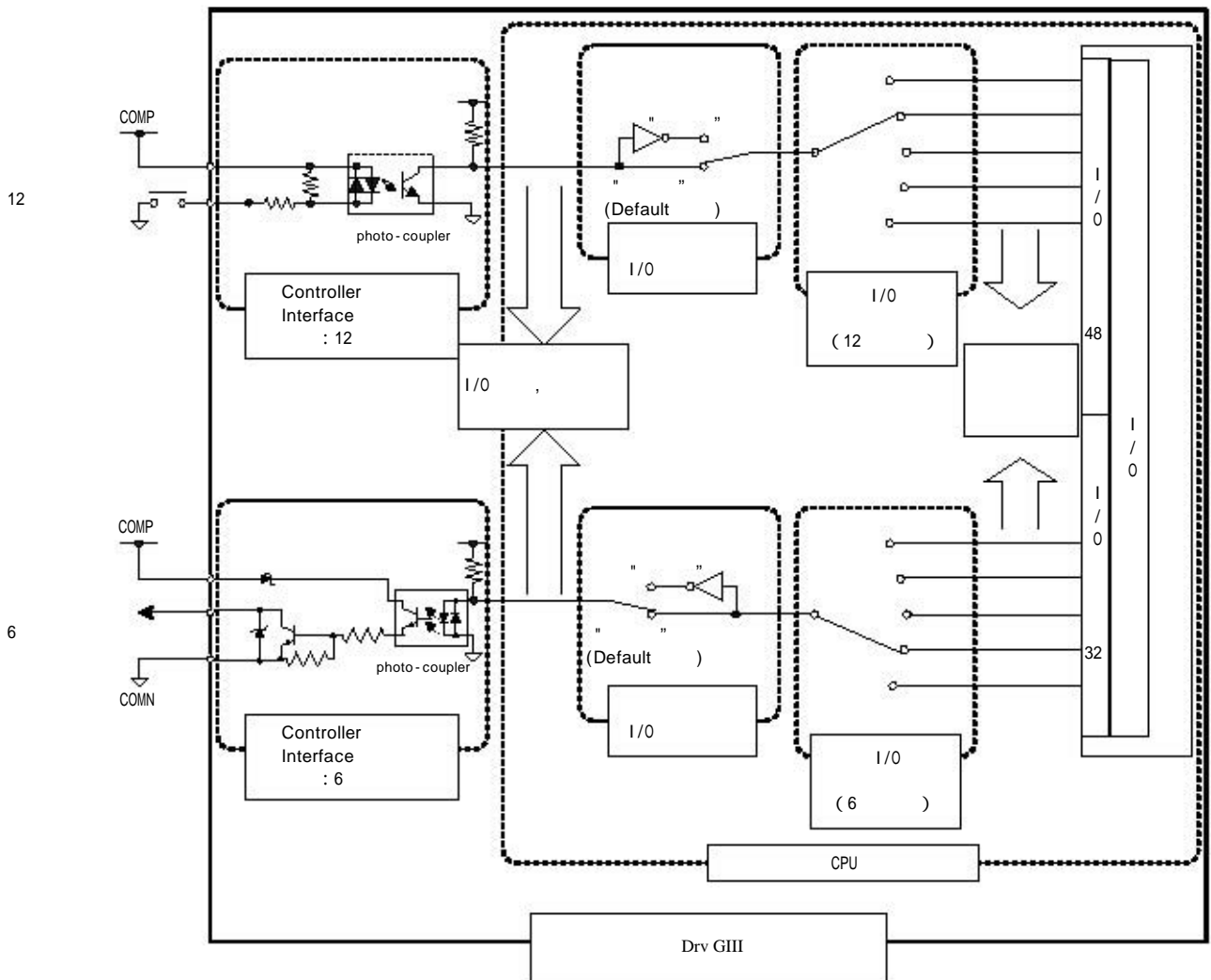
6

6.1

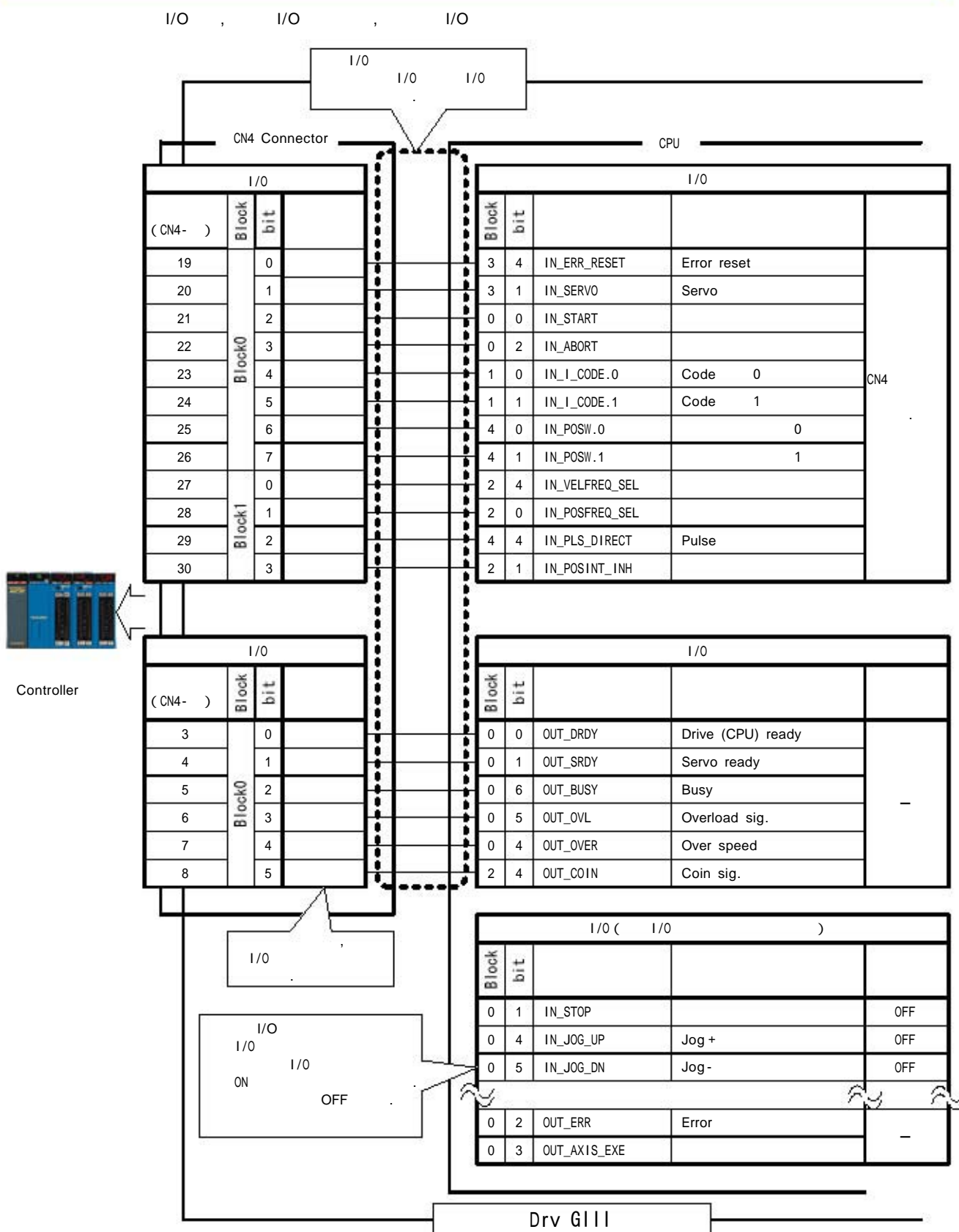
6.1.1

(1)

어 . CN4에서
 「 I/O 」 하며 12 , 6
 " I/O , I/O , I/O초기값 설정의 설정상태"와 같이
 「 I/O 」 I/O (48 ,
 32) 12 , 6 가 (하드I/O분할 기능)



I/O		4 8
		3 2
I/O		1 2
		6



I/O

Controller Interface (CN4)

I/O

I/O 2Block, 1Block 어 Block 8Bit
(8)

I/O

I/O 12 , 6

Application

으로

가

「 6.1.1 (3) I/O 」

< >

공장 출하시 설정에는

I/O

OUT_AREA,0 (Area 0)

사용하고

OUT_OVL (Overload)

할당에서 고 에

OUT_AREA,0 (Area 0)

I/O

Bit

가

「 6.1.1 (3) I/O 」

Controller Interface

"photo-coupler 가 상태"

가 On .

가 On

"Transistor On"이 됩니다.

(, OUT_OVL

I/O

가

.)

< >

IN_EMG ()

,

photo-coupler

ON

I/O

[]

photo-coupler

가

ON

I/O

[]

I/O

I/O

8 Block,
Bit

8 Block 이며

Block

8Bit (8

)

6.1.1(2)[소프트 I/O의 종류]를

I/O

가

6.1.1(4)

I/O

I/O점수를 절약 할 I/O점수를 절약할수가 있습니다.

<

>

I/O

,

I/O

가 가

IN_SERVO (Servo On)

,

ON

I/O

IN_SERVO ON

I/O

IN_SERVO

"I/O

" "

"

I/O

I/O

#Parameter/#

Tool

I/O

I/O

가

8.5.1

#310 ~ #313

I/O

#314 ~ #317

I/O

(2) I/O

I/O

Mode

기능

I/O

(Block0- Block1)

...
...
...

I/O	Block	bit			J O G						I/O
Block 0	0	IN_START								ON TABLE Data	H
	1	IN_STOP								ON TABLE TABLE TABLE	H
	2	IN_ABORT								ON TABLE Data Test Data TABLE	H
	3	(reserve)								()	
	4	IN_JOG_UP	JOG + *1							ON JOG	H
	5	IN_JOG_DN	JOG - *1								
	6	IN_M_ANS	M answer							M M answer ON	H
	7	(reserve)								()	
Block 1	0	IN_I_CODE.0	Code 0							TABLE Data TABLE Binary I/O TABLE I/O	H
	1	IN_I_CODE.1	Code 1								
	2	IN_I_CODE.2	Code 2								
	3	IN_I_CODE.3	Code 3								
	4	IN_I_CODE.4	Code 4								
	5	IN_I_CODE.5	Code 5								
	6	(reserve)								()	
	7	(reserve)								()	

*1...

JOG

#110 System

Register1

JOG

택으

I/O

((Block2))

...

...

...

I/O				J O G						I/O															
Block	bit																								
Block 2	0	IN_POSFREQ_SEL							Servo Gain ON Limiter #Parameter가	H															
									<table><tr><td></td><td colspan="2">IN_POSFREQ_SEL</td></tr><tr><td></td><td>OFF</td><td>ON</td></tr><tr><td></td><td>#8 1</td><td>#9 2</td></tr><tr><td></td><td>#10 1</td><td>#11 2</td></tr><tr><td>Limiter</td><td>#12 Limiter 1</td><td>#13 Limiter 1</td></tr></table>		IN_POSFREQ_SEL			OFF	ON		#8 1	#9 2		#10 1	#11 2	Limiter	#12 Limiter 1	#13 Limiter 1	
		IN_POSFREQ_SEL																							
		OFF	ON																						
		#8 1	#9 2																						
		#10 1	#11 2																						
	Limiter	#12 Limiter 1	#13 Limiter 1																						
	1	IN_POSINT_INH							ON	H															
	2	IN_POSINT_RST	Reset						ON Clear 가	H															
	3	(reserve)							()																
4	IN_VELFREQ_SEL							Servo Gain ON Limiter #Parameter가	H																
								<table><tr><td></td><td colspan="2">IN_VELFREQ_SEL</td></tr><tr><td></td><td>OFF</td><td>ON</td></tr><tr><td></td><td>#2 1</td><td>#3 2</td></tr><tr><td></td><td>#4 1</td><td>#5 2</td></tr><tr><td>Limiter</td><td>#6 Limiter 1</td><td>#7 Limiter 1</td></tr></table>		IN_VELFREQ_SEL			OFF	ON		#2 1	#3 2		#4 1	#5 2	Limiter	#6 Limiter 1	#7 Limiter 1		
	IN_VELFREQ_SEL																								
	OFF	ON																							
	#2 1	#3 2																							
	#4 1	#5 2																							
Limiter	#6 Limiter 1	#7 Limiter 1																							
5	IN_VELINT_INH							ON System Register1 " 가	H																
6	IN_VELINT_RST	Reset						ON Clear System Register 1 " 가	H																
7	(reserve)							()																	

I/O

(Block3)

...
...
...

I/O			J	O	G					I/O
	Block	bit								
Block3	0	IN_EMG							Error 6.1.4 「Error」	H
	1	IN_SERVO	Servo						ON ON	H
	2	IN_INTERLOCK	Interlock						ON Override Zero (ON OFF)	H
	3	IN_OVERRIDE_SEL	Override						Override ON: #45 OFF: #44 Override OFF #44=10000 (Default)	H
	4	IN_ERR_RESET	Error Reset						ON Edge Error가 Reset Reset 가	H
	5	(reserve)							()	
	6	(reserve)							()	
	7	(reserve)							()	

I/O

(Block4~ Block5)

...
...
...

I/O		Block	bit			J	O	G				I/O																																																			
Block 4	0	IN_POSW.0	0							IN_POSW #Parameter TABLE Data TABLE Data 가			H																																																		
	1	IN_POSW.1	1							<table><thead><tr><th colspan="2">#Parameter</th><th colspan="3">IN_POSW.</th></tr><tr><th></th><th></th><th>2</th><th>1</th><th>0</th></tr></thead><tbody><tr><td>#90</td><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td></tr><tr><td>#91</td><td>1</td><td>OFF</td><td>OFF</td><td>ON</td></tr><tr><td>#92</td><td>2</td><td>OFF</td><td>ON</td><td>OFF</td></tr><tr><td>#93</td><td>3</td><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>#94</td><td>4</td><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>#95</td><td>5</td><td>ON</td><td>OFF</td><td>ON</td></tr><tr><td>#96</td><td>6</td><td>ON</td><td>ON</td><td>OFF</td></tr><tr><td>#97</td><td>7</td><td>ON</td><td>ON</td><td>ON</td></tr></tbody></table>				#Parameter		IN_POSW.					2	1	0	#90	0	OFF	OFF	OFF	#91	1	OFF	OFF	ON	#92	2	OFF	ON	OFF	#93	3	OFF	ON	ON	#94	4	ON	OFF	OFF	#95	5	ON	OFF	ON	#96	6	ON	ON	OFF	#97	7	ON	ON	ON
	#Parameter		IN_POSW.																																																												
			2	1	0																																																										
	#90	0	OFF	OFF	OFF																																																										
	#91	1	OFF	OFF	ON																																																										
	#92	2	OFF	ON	OFF																																																										
	#93	3	OFF	ON	ON																																																										
	#94	4	ON	OFF	OFF																																																										
	#95	5	ON	OFF	ON																																																										
#96	6	ON	ON	OFF																																																											
#97	7	ON	ON	ON																																																											
2	IN_POSW.2	2																																																													
3	(reserve)									()																																																					
4	IN_PLS_DIRECT	Pulse								OFF . Pulse ON . Scaling Bypass																																																					
5	(reserve)									()																																																					
6	(reserve)									()																																																					
7	(reserve)									()																																																					
Block 5	0	IN_PRM_WR_REQ								()																																																					
	1	IN_PRM_RD_REQ																																																													
	2	IN_MON_B_CHNG_REQ																																																													
	3	IN_MON_A_CHNG_REQ																																																													
	4	(reserve)								()																																																					
	5	(reserve)								()																																																					
	6	(reserve)								()																																																					
	7	(reserve)								()																																																					

(Block0~ Block1)

• • •

• • •

• • •

I/O				JOG					
Block	bit								
Block 0	0	OUT_DRDY	Ready						Error 가 ON (6.1.6) Sequence
	1	OUT_SRDY	Servo Ready						Servo ON ON
	2	OUT_ERR	Error						Error ON
	3	OUT_AXIS_EXE							Mode, ON Mode
	4	OUT_OVER	Over						Overflow Speed Error ON
	5	OUT_OVL	Overload						Overload Error ON I/O “ ” 가 Error Overflow Load OFF가
	6	OUT_BUSY	Busy						TABLE Jog ON
	7	OUT_JOG_EXE	Jog						Jog ON
Block 1	0	OUT_O_CODE.0	Code 0						M Code Binary M Code OUT_M_EN ON
	1	OUT_O_CODE.1	Code 1						
	2	OUT_O_CODE.2	Code 2						
	3	OUT_O_CODE.3	Code 3						
	4	OUT_O_CODE.4	Code 4						
	5	OUT_O_CODE.5	Code 5						
	6	OUT_O_CODE.6	Code 6						
	7	OUT_O_CODE.7	Code 7						

• • •

• • •

• • •

Block 3

(3) I/O

I/O

I/O I/O Block, Bit

Controller Interface

STEP1 Tool 「Data 」 [I/O] [I/O]

STEP2 [I/O]

STEP3 [I/O] [IN]

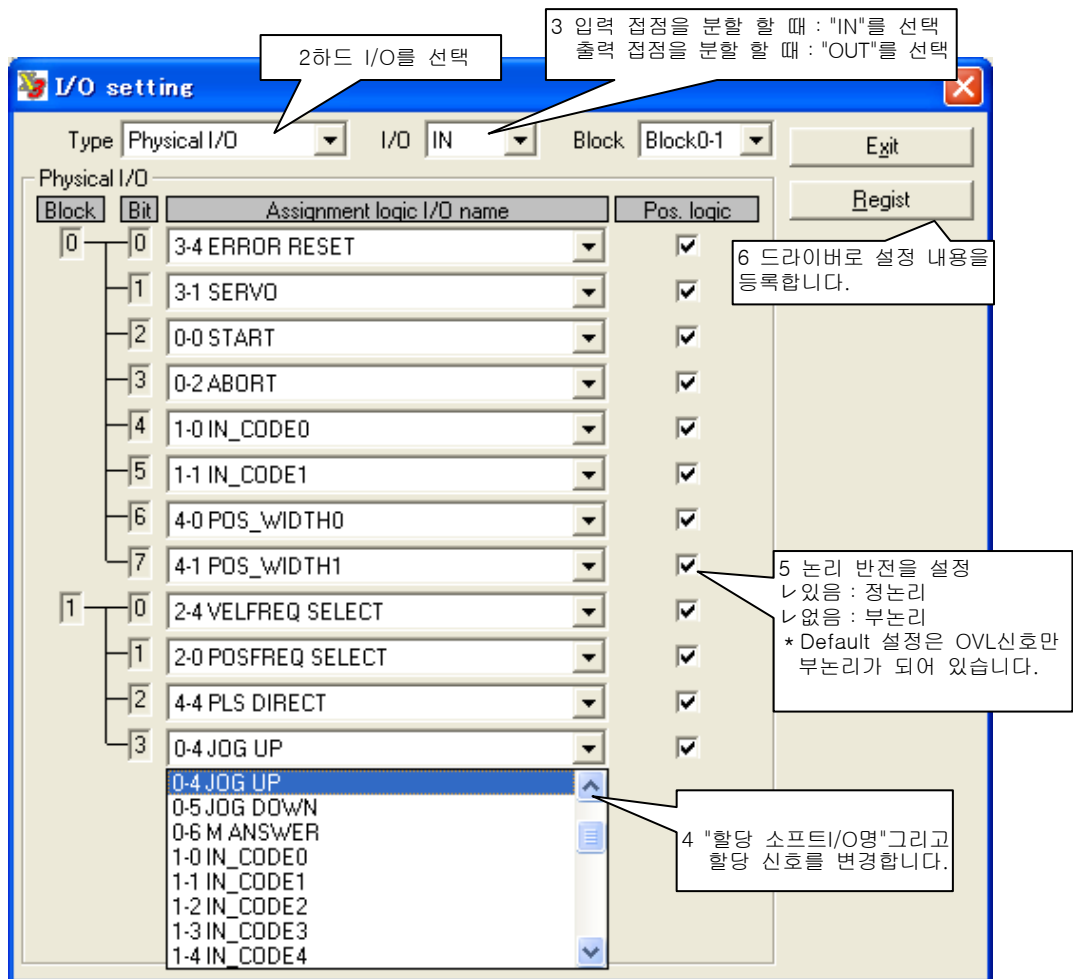
[OUT]

STEP4 Block/Bit " I/O "

STEP5

STEP6 []

Block



TIP

정논리와 신호상태의 관계는 아래와 같습니다.

<입력점점>

정논리:이신호의 의미에 맞출때 입력 포토 커플러에 전류가 흐른다.

(예) IN_SERVO: Servo on일때 포토 커플러에 전류가 흐른다.

<출력 점점>

정논리:이 신호의 의미에 맞출때 출력 트랜지스터가 ON상태가 됩니다.

(예) OUT_DRDY:드라이버 RDY가 된 경우 출력트랜지스터가 ON 상태가 됩니다.

I/O Block/Bit Controller Interface(CN4)

I/O Block CN4

I/O Default

Overload (OUT_OVL)

가

I/O의 공장 출하시

[I/O]

I/O		(CN4-)	I/O *1		I/O *1
Block	bit				
Block0	0	19	IN_ERR_RESET	Error Reset	
	1	20	IN_SERVO	Servo	
	2	21	IN_START		
	3	22	IN_ABORT		
	4	23	IN_I_CODE.0	Code 0	
	5	24	IN_I_CODE.1	Code 1	
	6	25	IN_POSW.0	0	
	7	26	IN_POSW.1	1	
Block1	0	27	IN_VELFREQ_SEL		
	1	28	IN_POSFREQ_SEL		
	2	29	IN_PLS_DIRECT	Pulse	
	3	30	IN_POSINT_INH		

[I/O]

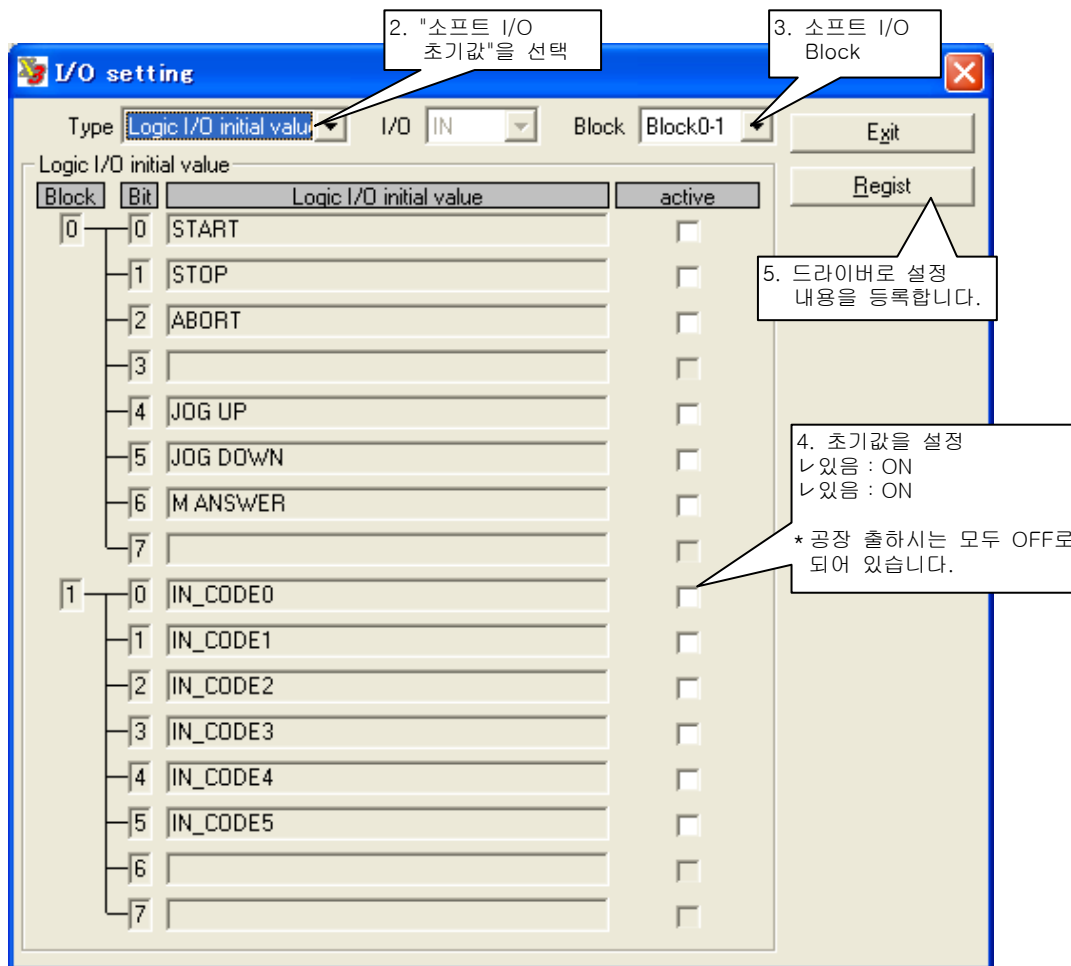
I/O		(CN4-)	I/O *1		I/O *1
Block	bit				
Block0	0	3	OUT_DRDY	Ready	
	1	4	OUT_SRDY	Servo Ready	
	2	5	OUT_BUSY	Busy	
	3	6	OUT_OVL	Overload	
	4	7	OUT_OVER	Over	
	5	8	OUT_COIN		

*1...

(4) I/O

Tool I/O
I/O OFF가 I/O

STEP1 Tool 「Data 」 [I/O] [I/O]
STEP2 [I/O]
STEP3 I/O Block [Block]
STEP4
(ON)
STEP5 []



6.1.2 #Parameter/# Monitor

*** #Parameter/#Monitor라고 부른다.

#Parameter/# Monitor

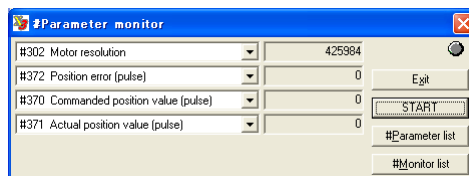
#Parameter · # Monitor (***)		Write/ Backup	
#0~ #99	#Parameter	가	Read Write가 가
#100~ #109	#Parameter	가	User가 Read Write가 가 Table Data
#110~ #127	#Parameter	가	*, Read Write가 가
#300~ #427	#Monitor	가	Read
#1000~	물리량 모니터	불가	지원 Tool·오실로스코프 기능만으로 이용 할 수 있는 모니터입니다. 「8.6. 11 물리량 표시기능」을 참조하십시오.

#Parameter/# Monitor *** . Table Data Command
(Read) 가 한 Write
(Write) 가

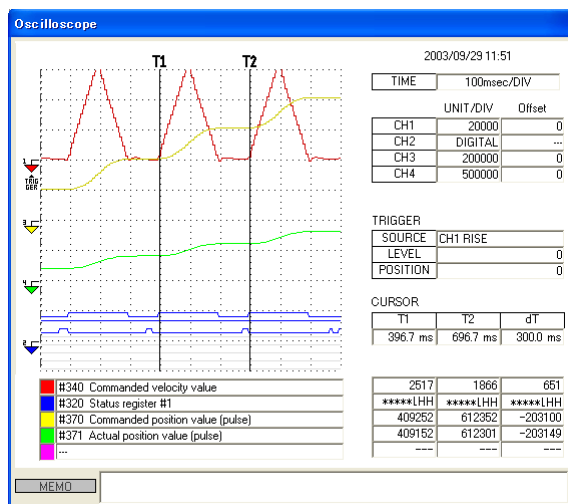
#Parameter/# Monitor

#Parameter/# Monitor Tool의 [#Parameter] []
있습니다.#Parameter/#Monitor의 종류와 그 내용에 대해서는 부록
「#Parameter 」, 「#Monitor 」

[#Parameter/#Monitor표시] 화면 예



[Oscilloscope 기능] 예



(1) #Parameter
#Parameter

Error

가

#Parameter

Write

PC

#Parameter를 일괄 Up Load

PC

Download

Register Parameter

Register Parameter

System

Register

Error

Register가

복수의 설정

#Parameter

32bit Binary

#Parameter	#Parameter
#38	Error Register1
#39	Error Register2
#98	System Register2
#99	System Register3
#110	System Register1

< > #98 System Register2

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	Notch	2	1	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	(Reserve)	Error	M
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

#98 System Register2 00030002 (16)


```
#Parameter Write
#Parameter Write 3
1 ) Tool [#Parameter]
2 ) Tool [Terminal]
3 ) Table Data
Table Data
#Parameter 6.4.9#Parameter
```



```
#Parameter " " " " .2가
가
: RAM #Parameter Data
Return. #Parameter
: EEPROM RAM #Parameter
「 」
1 EEPROM RAM #Parameter
RAM #Parameter
```



```
#Parameter EEPROM .EEP-ROM Write 가
. ( 100 )
EEP-ROM 가 가
Table 「#Parameter 」 #Parameter 「 」
가
```

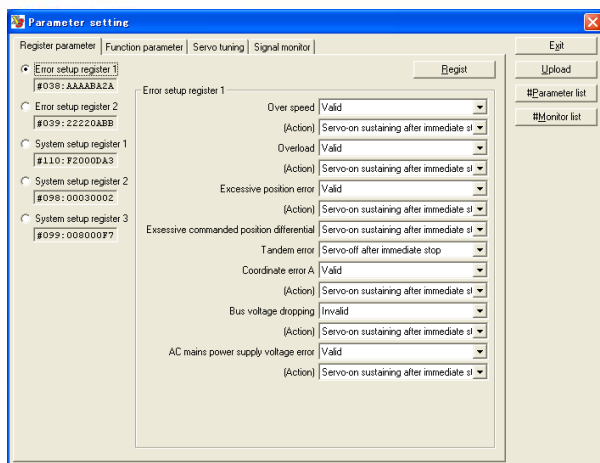
1) Tool [#Parameter]

Tool [#Parameter] #Parameter

#Parameter

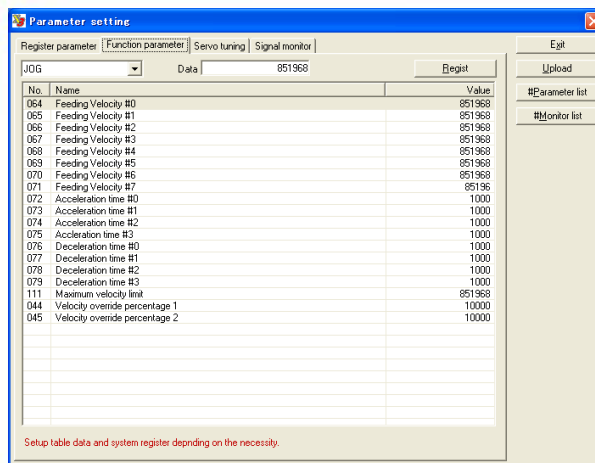
[Register] 버튼을 눌러 값을 보전하여 주십시오.

8.10.1 #Parameter



Register #Parameter

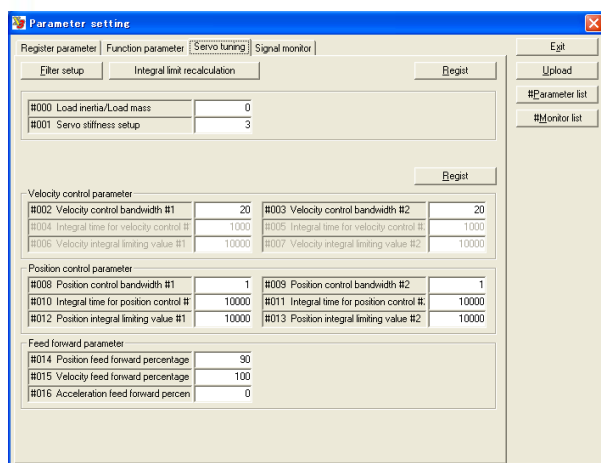
Register #Parameter



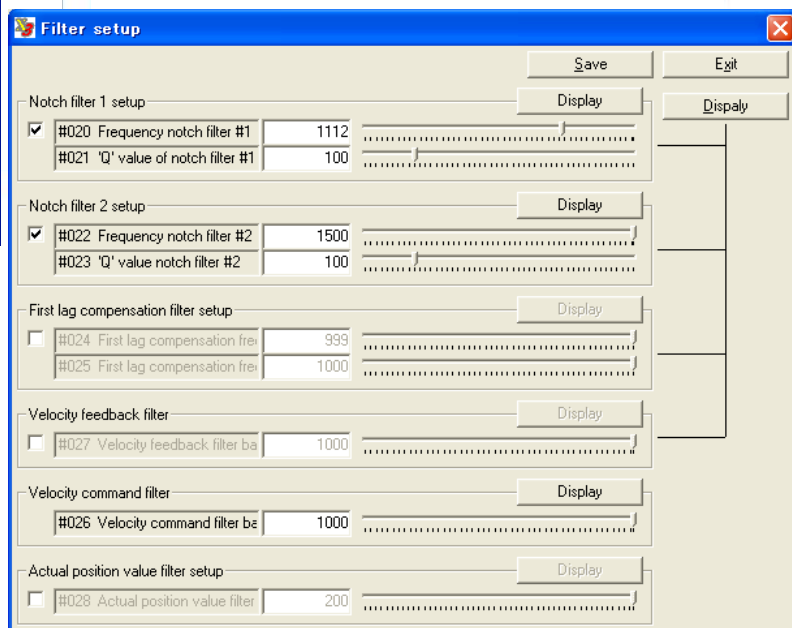
#Parameter

#Parameter

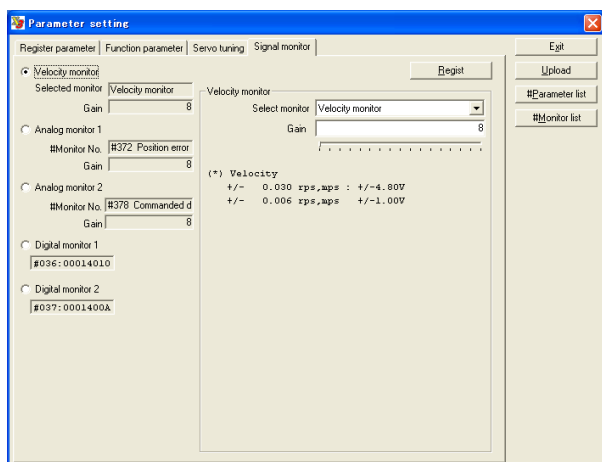
- JOG
- Test
- INC / ABS



Servo 조정 화면
Servo 조정에 사용됩니다.



Filter 설정 화면
공진 대책용의 Filter 설정에 사용됩니다



신호 모니터 단자 설정 화면

Analog Monitor Card에 출력 하는 파형을 선택하거나

출력 계인의 변경을 실시합니다.

★신호 모니터 기능의 사용에는, Analog Monitor Card
(별매)R7041WC가 필요합니다.

2)

```

Tool [      ]      [#Parameter]      Edit

#Parameter "      "
#      =      (      .)

#Parameter "      "
##      =      (EEP-ROM #Parameter      .)

"      "      "      "

@16      (RAM      Data EEPROM      .)

)
#1=5      (      )
##1=5      (      )

@16      (      "      "      #Parameter      )

```

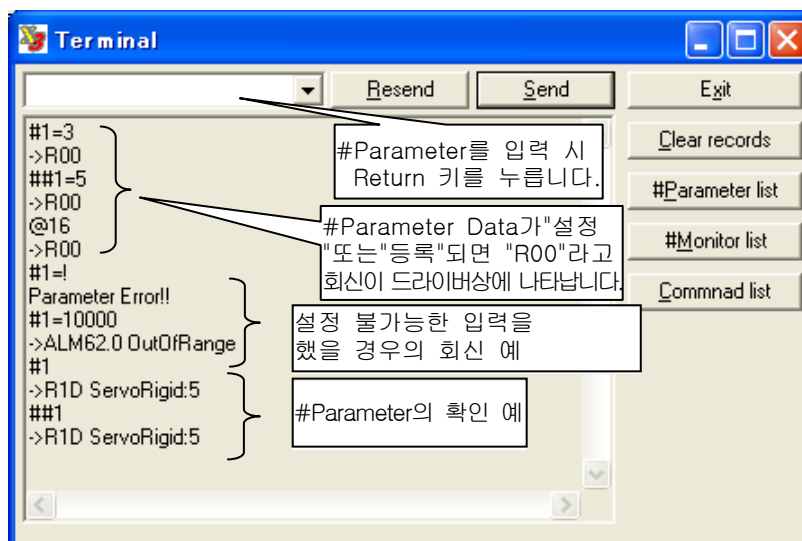


```

#Parameter
#Parameter      Edit

" #1Parameter      "      : #1
" #1Parameter      "      : ##1

```



3) Table Data
6.4.9 #Parameter

#Parameter
8.11.4

(2)#Monitor

#

" #Parameter.#Monitor " , " " " "

Table Data #

Write

Register Monitor

Register Monitor # # 32 bit Binary

표현하고

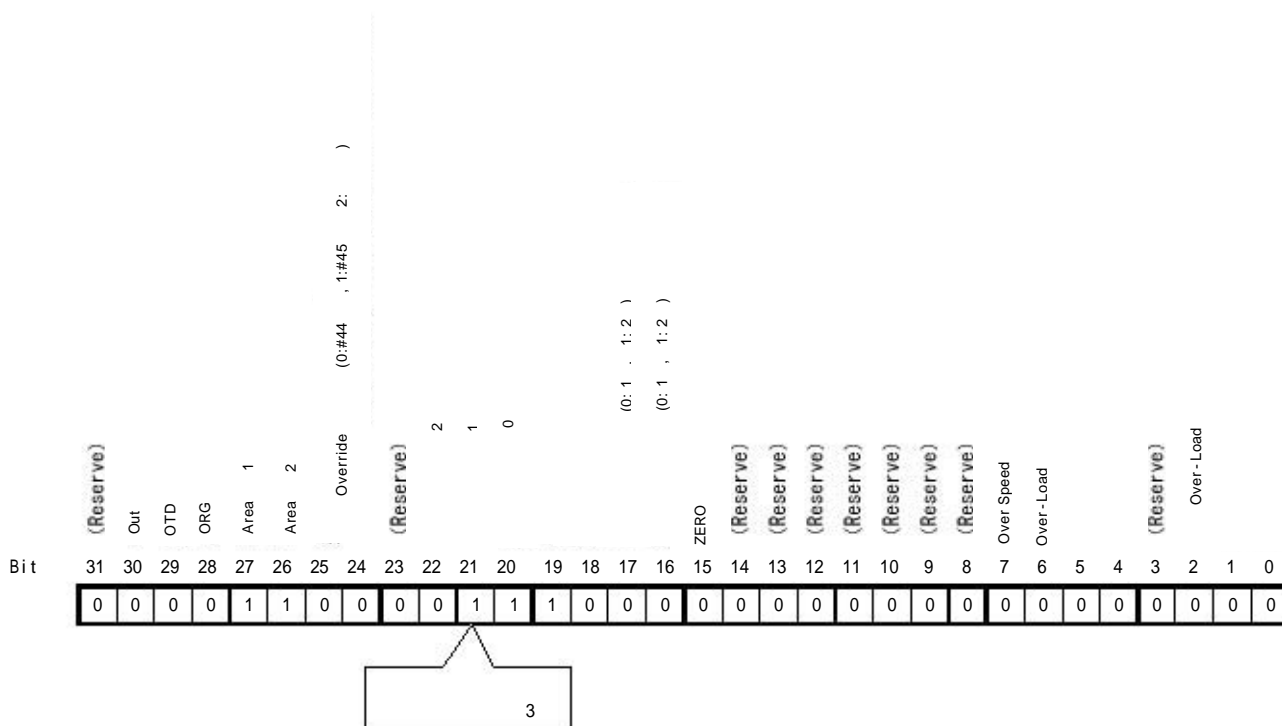
() Status Register Tool []

가

#Parameter (#**)	#Parameter
#300	Code
#301	Code
#310~ #313	I/O Bit
#314~ #317	I/O Bit
#320~ #322	Status Register

#

#321 Status Register2 0C380000 (16)



6.1.3

Controller Interface Serial Interface 2 Interface 다.
 Serial Interface Tool, (), ()가
 .
 가 Interface Interface
 가 Interface Interface
 . Interface
 , Interface 가 Mode

가 ... 가
 x ... 가
 - ... Mode 가

Command	Serial Interface		Controller Interface	
	Serial Interface	Controller Interface	Serial Interface	Controller Interface
M	-		-	
JOG	#110 System JOG Register1 #Parameter RS Bit			
(abort)				
STOP		x	x	
START		x	x	
RESET	-		-	
	-		-	
	-		-	
RESET	-		-	
	-		-	
	-		-	
Error Code		-		-
Error Reset				
Clear Error Reset		-		-
override	-		-	
INTERLOCK	-		-	
Servo		x	x	
	-		-	
Pulse 가	-		-	
	-		-	
Offset		x		*1
		x		*1
		x		*1
#Parameter Write		-		-
#Parameter # Monitor Read		-		-

*1:Table Data 가

Controller Interface가

3) @5:0

2) @5:1



Error #Parameter

Error	Error Code	Error /	Error Type	Error
Over-speed	24.0	Error Register 1	Error Register 1	
Over-load	22.1 22.2	Error Register 1	Error Register 1	-
	23.0	Error Register 1	Error Register 1	#18 () #19 ()
	31.0		Error Register 1	-
A	16.1	Error Register 1	Error Register 1	-
	20.3	Error Register 1	Error Register 1	-
	21.0	Error Register 1	Error Register 1	-
Hard Over-trouble	42.0 43.0	Error Register 2	Error Register 2	Sensor
Soft Over-trouble	44.0 45.0	Error Register 2	Error Register 2	#42() #43()
Monitor Pulse	18.0	Error Register 2	Error Register 2	-
Interface	46.2	Error Register 2	Error Register 2	-

Error Type

Error	Type
Servo	Servo On
Servo Off	Servo Off
Servo	Servo On #80"
Servo Off	Servo #80"
Servo Off	Servo Off



「 Servo Off, 공주(헛돌음) 하 가 .
System에서 .

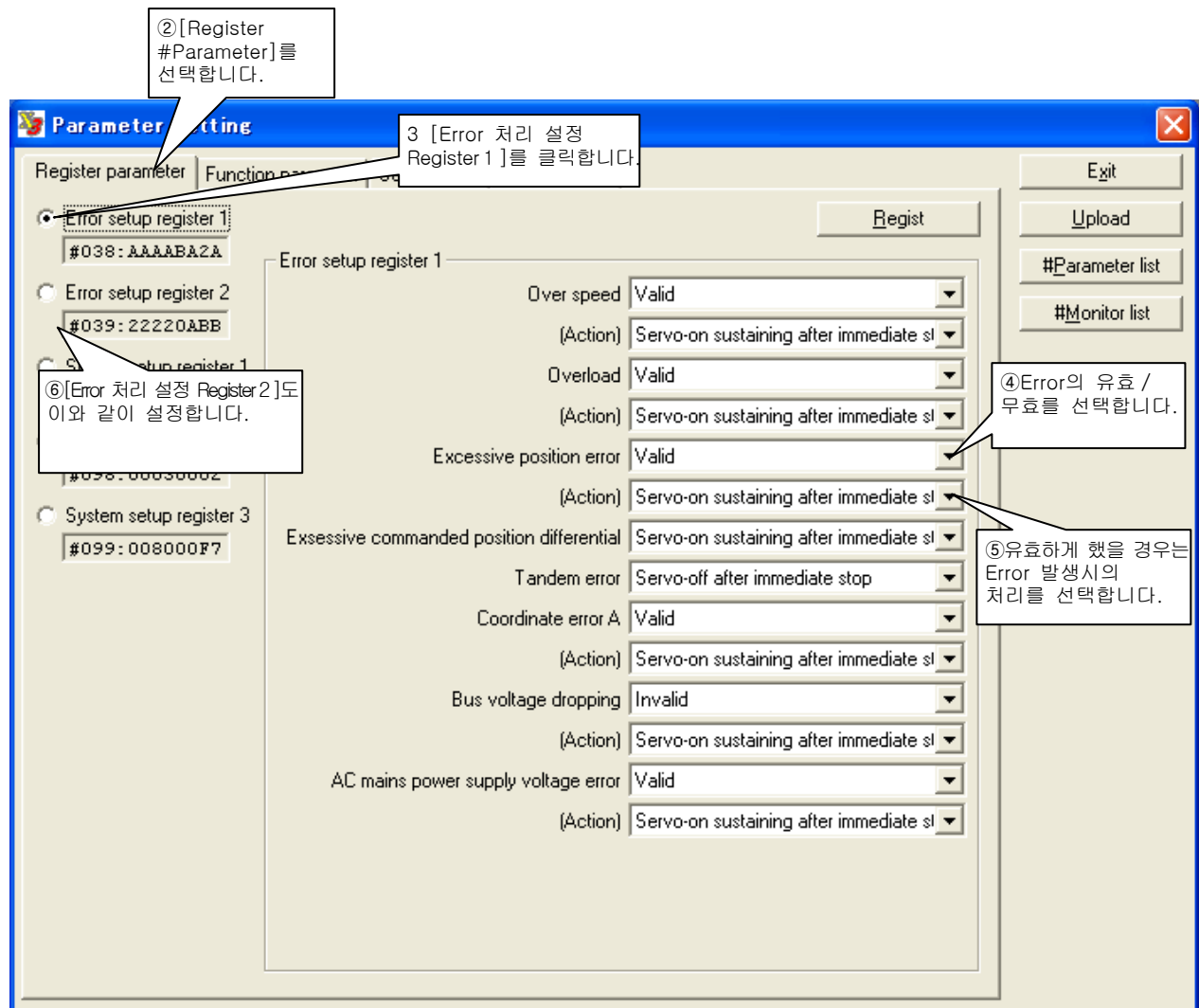


Servo Error가 Servo Off가 Servo
Error가 Servo Off가 Servo

4.0 Watchdog Error
15.* Encoder Error
20.1
20.2 IPM fault Current trans
20.4 (Servo Off Level)
20.5 A ,B
25.*
30.0 Servo Not Ready

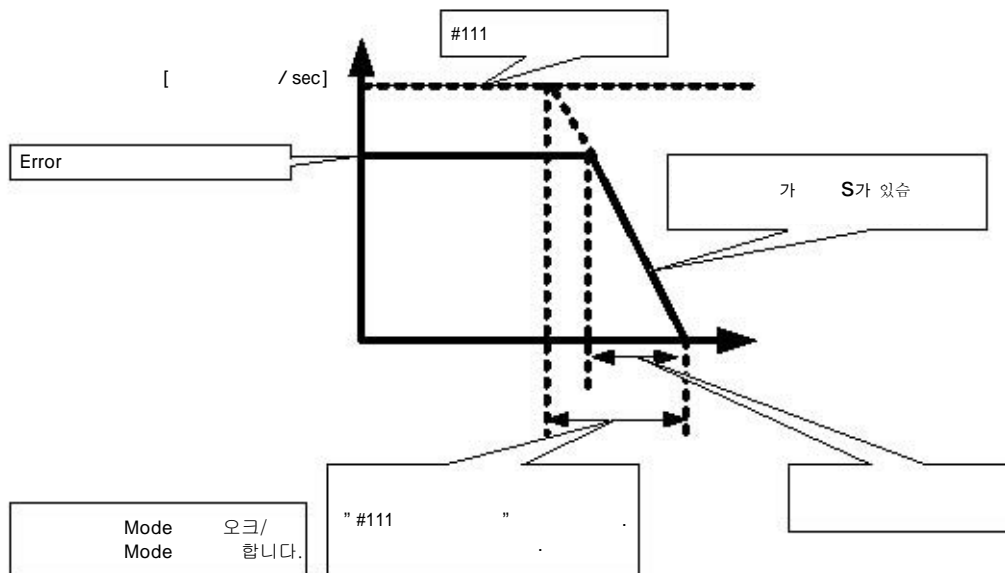
(1)#Parameter

Step1 Tool Main [#Parameter]
 Step2 [Register #Parameter]
 Step3 [Error Register1]
 Step4 Error /
 Step5 Error Error
 Step6 [Error Register 2]
 Step7



Mode Error

			Controller		Controller		
			Table Data	Jog	Mode	Mode	Mode
			" #80 "	" #80 "	" #80 "	Error	Error
			Table Data	#Parameter " Register3 " Type	가		
			Table Data	#Parameter " System Register 3 " Type	" #76 0 "		
			Table Data	#Parameter " Register3 " Type	가		



(#80)

가 100%로 계산합니다.

(, S 가 , S 가 1.5 .

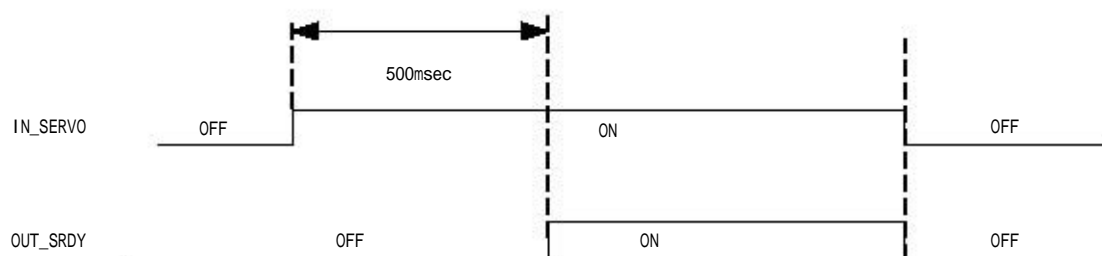
$$t = \frac{(JM+JL) \cdot 2 \cdot v}{T}$$

t : [sec]
 JM: (2.1) [kgm^2]
 JL: [kgm^2]
 v : [rps]
 T : [Nm]

6.1.5 Servo On

Servo On Controller Interface IN_SERVO ON Serial
 Interface Servo On IN_SERVO가 ON이
 Servo 6.1.6전원 투입시의 Sequence 방법을 참조해

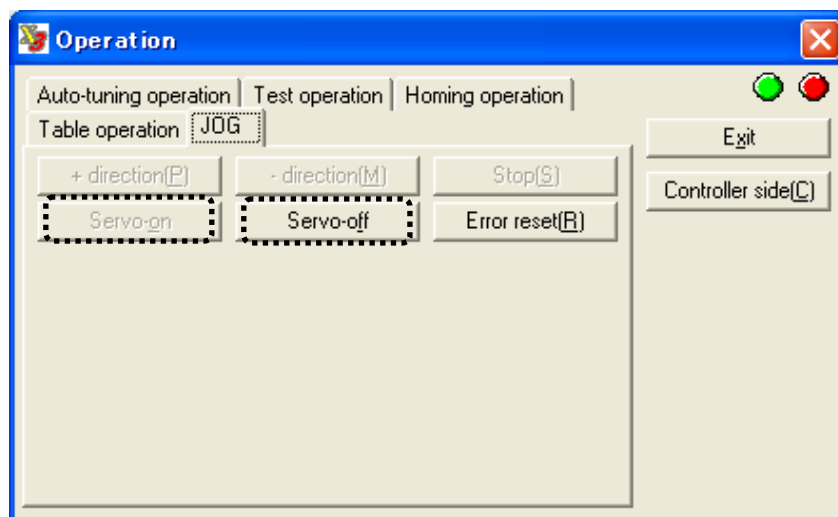
(1)Controller Interface Servo



*Servo Servo On

(2) Tool Servo

Tool [] [Servo On] Servo On . Servo Off
 [Servo Off]



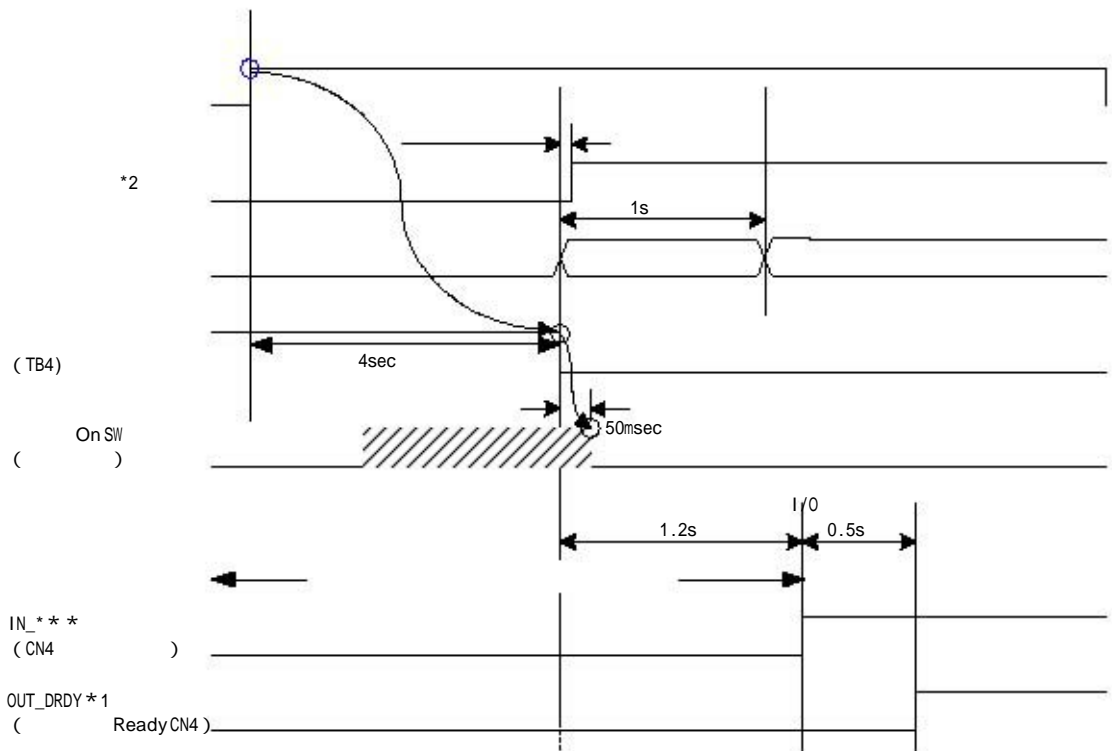
6.1.6

Sequence

Sequence

Timing

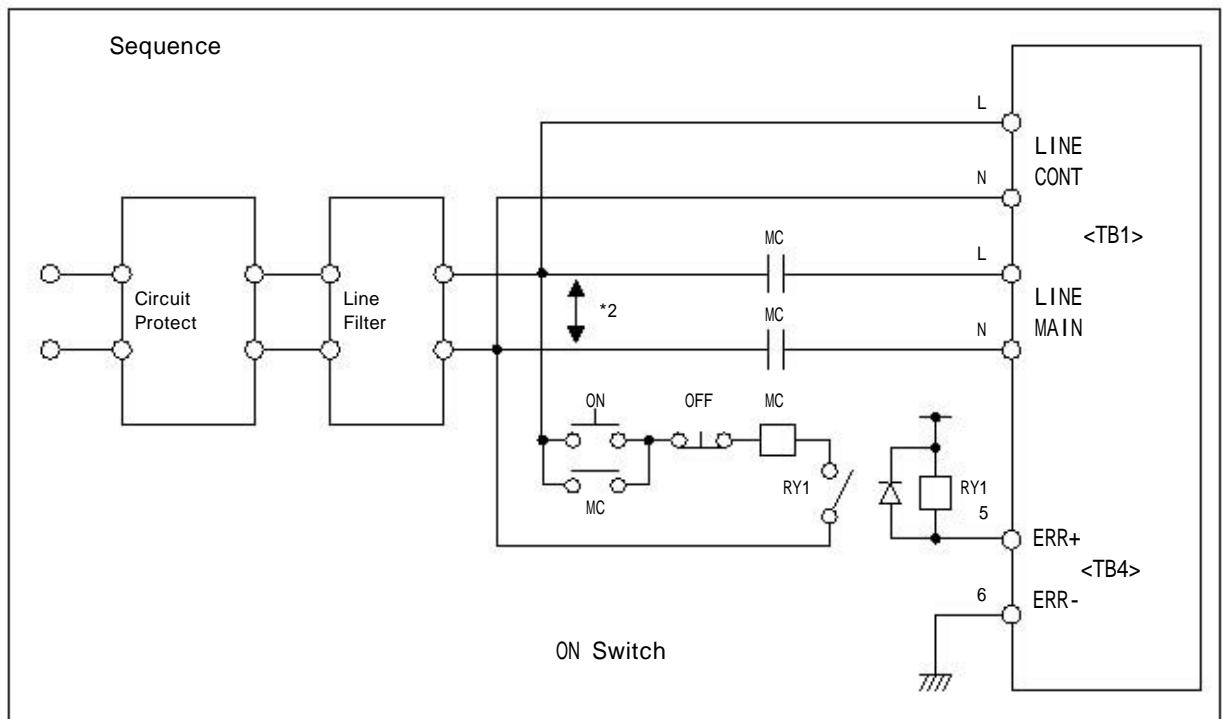
참조하여



*1

*2 Timing

Error가



Start Up

Sequence

Table Data

Timing

Start Up

가 되도록

Sequence

(TB4)

On SW

()

IN_***

(CN4)

IN_SERVO

(Servo CN4)

OUT_SRDY

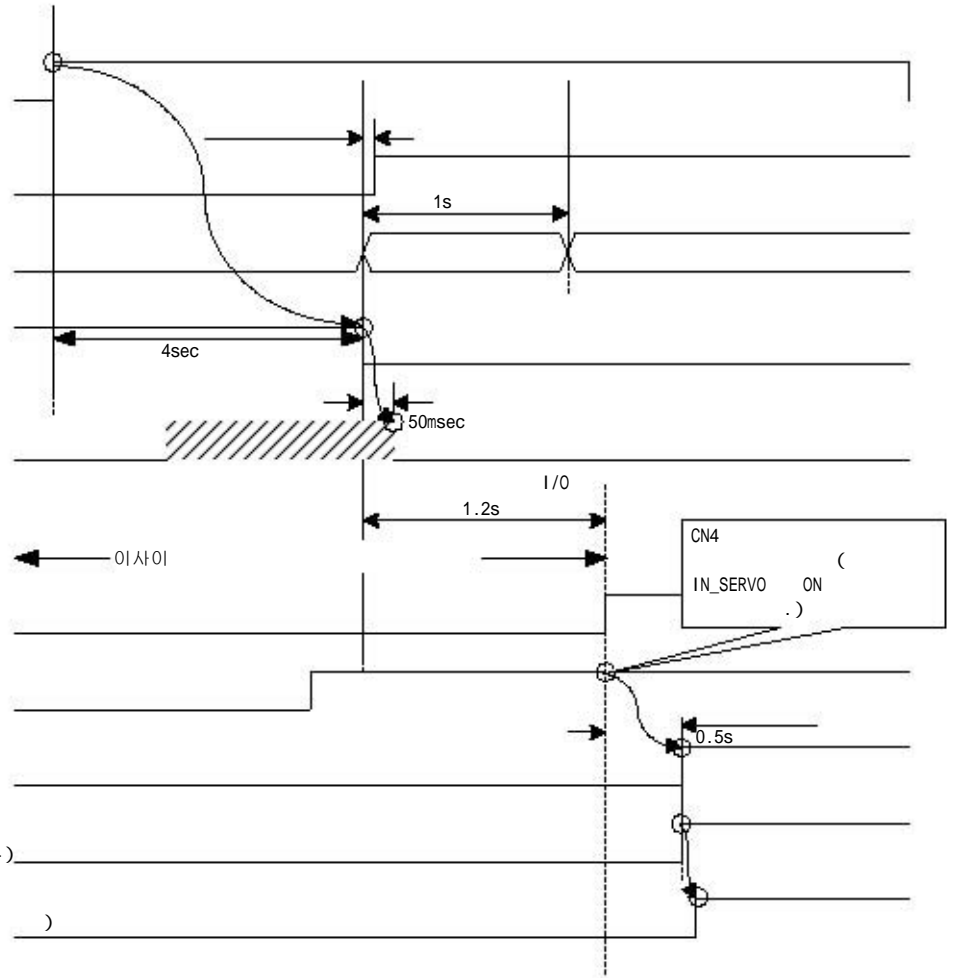
(Servo Ready CN4)

OUT_DRDY * 1

(Ready CN4)

OUT_MODE_EXE

(CN4)



6.1.7

(1)

가 . System

Software EOT 가 .

가0 " (Scaling Data - 1) " 가 1

0 Return . 1

0 가 가 .

< 계의 변경 방법 >

step1 Tool Main Menu [#Parameter]

step2 [Register#Parameter], [System Register1] Open .

step3 [System Register] [] .

:0 ~ (#112 -1)

Pulse:0 ~ (#113 -1)

#112 : Scaling Data ()

#113 : Scaling Data (Pulse)

:
 + : 2147483647 $\frac{\#112}{\#113}$ 999999998 ()가 ()
 - : -2147483647 $\frac{\#112}{\#113}$ -999999998 ()

Pulse :
 + : 2147483647 999999998 $\frac{\#113}{\#112}$ ()가 ()
 - : -2147483647 -999999998 $\frac{\#113}{\#112}$ ()



Software EOT

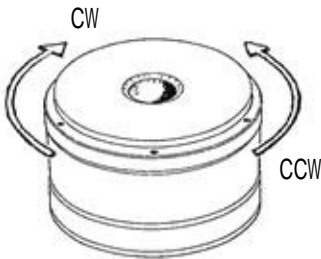
Error가 . (ERR44.0 + Software EOT, ERR45.0 - Software EOT)

(2)

Mode 가

< >

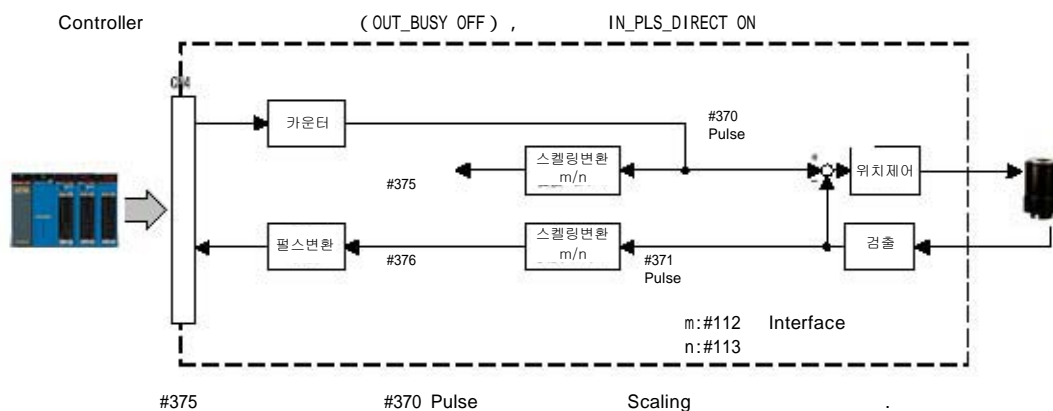
STEP1 Tool Main Menu [#Parameter]
STEP2 [Register #Parameter], [System Register1] Open
STEP3 [System Register1] []



	Mode		Mode	
	CW	CCW	CW	CCW
JOG	IN_JOG_UP	IN_JOG_DN	IN_JOG_DN	IN_JOG_UP
Table Data	+	-	-	+
Mode	+	-	-	+
Mode				
Mode				

[:]

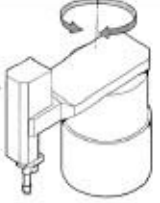
Scaling	Controller	Controller Interface	Tool
Pulse	가	Pulse	가
Scaling	2	2	,
Scaling			.
Scaling			.
Scaling Data			Pulse Rate

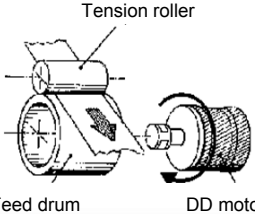
$$\text{Pulse} = \frac{\#113 \text{ Scaling Data(Pulse)}}{\#112 \text{ Scaling Data()}} \times$$


< Scaling Data >

Scaling Data

. System

			Index
	 <p>TABLE, ARM</p>		
#112 Scaling Data ()	360000		500000
#113 Scaling Data (Pulse)			
	1 : 1/1000	1 : 1 Pulse	100000 : 72deg

	Roll feeder
	 <p>Tension roller Feed drum DD motor</p>
#112 Scaling Data ()	[μm]
#113 Scaling Data (Pulse)	
	1 : 1 μm

Scaling Data

		#113 Scaling Data (Pulse)	#112 Scaling Data ()
DM1A-	4096000	4096000	1024000
DM1B-	2621440	2621440	655360
DM1C-	2621440	2621440	655360
DR1A-	1638400	1638400	819200
DR1B-	1015808	1015808	507904
DR1E-	1228800	1228800	614400
DM5B-	557056	557056	278528
DR5C-	425984	425984	212992
DR5E-	638976	638976	319488

#112, #113

의

Data가

6.1.8 Mode

(1) Mode

Controller Controller 가 .
Controller Mode .(다음 페이지 참조)

	JOG	6.3	JOG			
		6.4.5				
		6.4.3	Servo			
	Test	6.4.4	Servo	Serial Interface		
	INC	6.4.7	()		I-P	
	ABS	6.4.6	()			
	Mode	6.5.1		Controller Interface Pulse		
	Mode	6.5.2		Controller Interface Analog		
	Mode	6.5.3				

Mode			
Mode	Controller		
	Controller (JOG, Table Data)	A_CMD Analog	PUA_IN, SDB_IN Pulse
Mode	Controller		Pulse
Mode			
Mode			

Pulse Analog Controller
 , Pulse /Analog Controller
 . Controller Pulse /Analog 전압에
 가 . Controller
 Pulse 열/Analog .

(2) Mode

STEP1	Tool	[#Parameter]	.
STEP2	System	Register1	.
STEP3	Mode		.
STEP4			.

Profile

모니터에 표시



	JOG	Table Data (ABS / INC /)
Type	" System Register3 " S 가 .	" Table Data " S 가 .
가 Type	" System Register3 " S 가 .	" Table Data " S 가 .
	#Parameter 4 / 가 . (#76 0 ~ #79 3) " System Register3 " #Parameter (#76 0 ~ #79 3) .	#Parameter 4 / 가 . (#76 0 ~ #79 3) " Table Data " #Parameter (#76 0 ~ #79 3) .
가	#Parameter 4 / 가 . (#72가 0 ~ #75 가 3) " System Register3 " #Parameter (#72가 0 ~ #75가 3) .	#Parameter 4 / 가 . (#72가 0 ~ #75 가 3) " Table Data " #Parameter (#72 가 0 ~ #75 가 3) .
	#Parameter 8 / 가 . (#64 0 ~ #71 7) " System Register8 " #Parameter (#64 0 ~ #71 7) .	#Parameter 8 / 가 . (#64 0 ~ #71 7) " Table Data " #Parameter (#64 0 ~ #71 7) .

(1)

(#64 0~ #71 7)
가
#305
가 (#72 가 0~ #75 가 3/#76 0~ #79 3)
가 /
, 가속/감속시간과
가 /
가 [시간]으 []
가 / 합

가 (#72~ #79)

가
(s 가 / 1.5배 정도의 가속/감속 시간이 필요합니다.

$$t = \frac{(JM+JL)*2 \ v}{0.8 * (T - Tx)}$$

t :가 / [sec]

JM: (2.1) [kgm2]

JL: [kgm2] (#0)

v : [rps] (#305 [rps])

T : [Nm]

Tx: 오크[Nm]

0.8 : Margin

가 / Type

JOG, System Registe3에서 설정, INC위치결정 이동이나

ABS위치결정 이동의

Table Data

가 / Type

가

S

가

가

.S

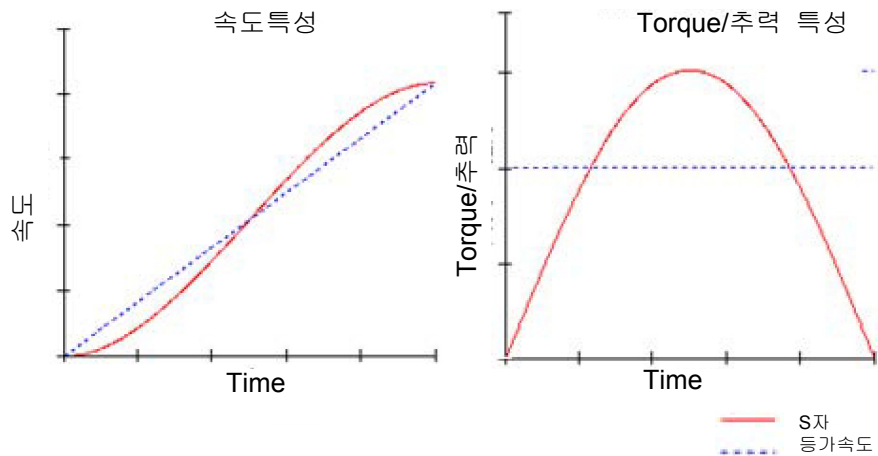
이

가 /감속

시간은

가 Type

가



토크/추력을 넘을때 가

가

가 「가

」

(2) #Parameter

Step1 Tool Main Menu [#Parameter]

Step2 [#Parameter]

Step3 " "

Step4 #Parameter

Step5 Return

Step6 #Parameter [] #Parameter

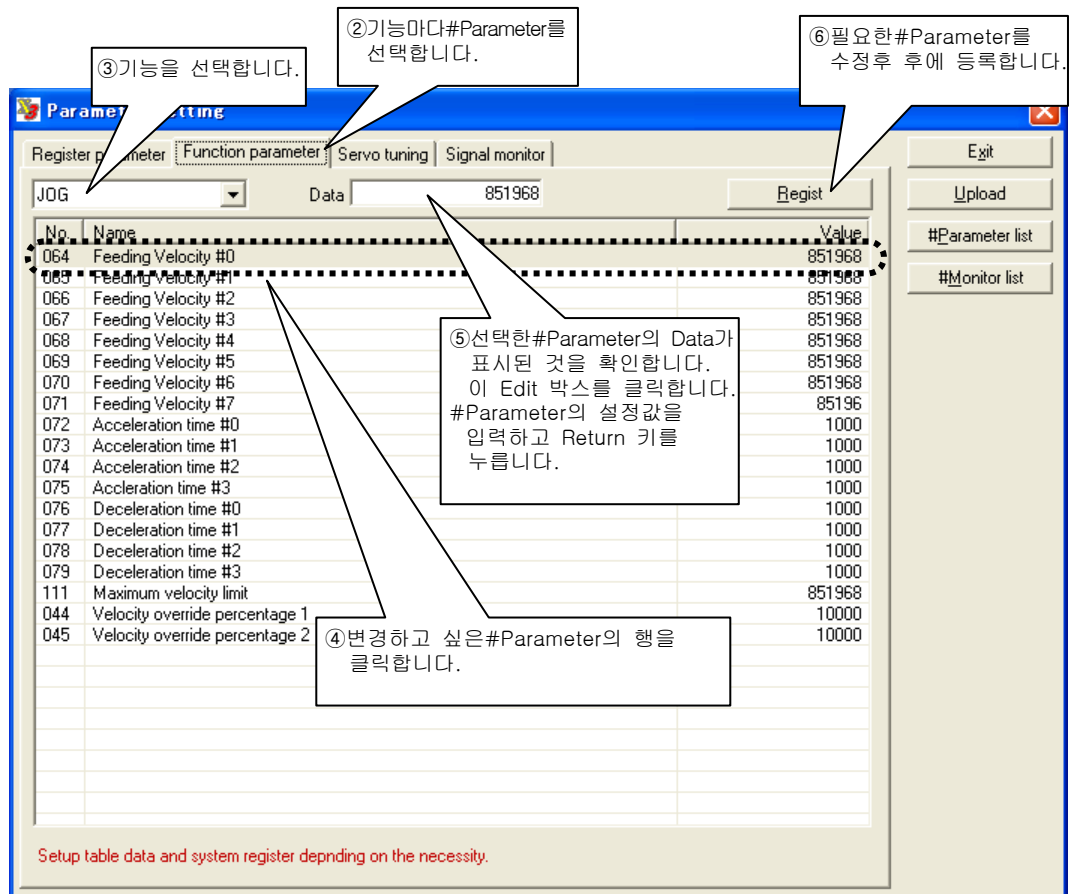
Step7 #Parameter

 #Parameter (#64 ~ #71)

 #Parameter 가

JOG " System Register 3 "

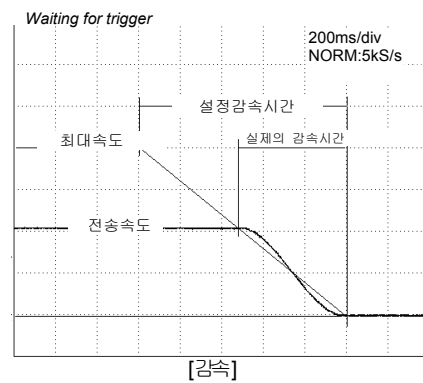
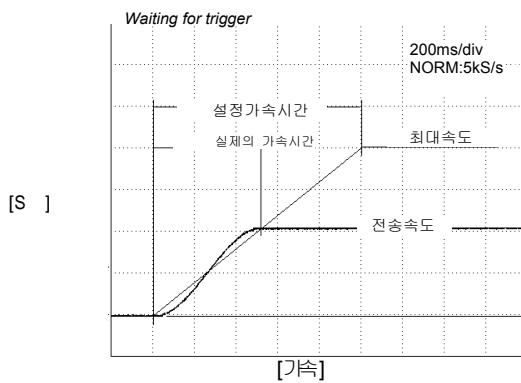
Table Data Table Data



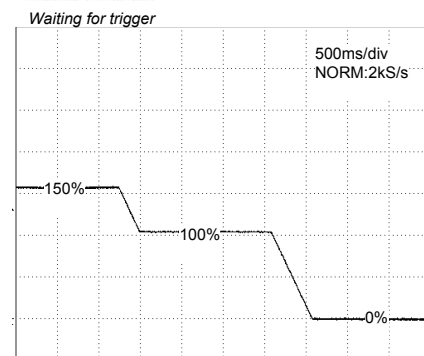
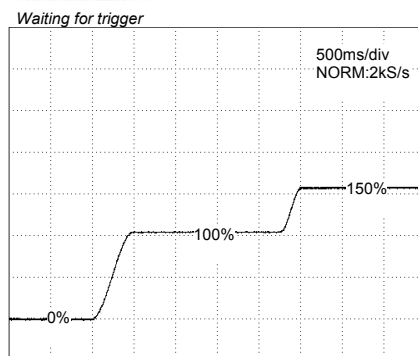
(3) OVERRIDE / INTERLOCK

Override 가 .
 Override Percentage#Parameter (#44, #45) Controller Interface
 IN_OVERRIDE_SEL . Override 0%
 200% 0.01% 가 #Parameter 가 .
 Controller Interface IN_INTERLOCK ON IN_OVERRIDE_SEL
 Override Percentage#Parameter (#44, #45) Override
 Percentage가 0 . (.)
 100% 가 Error(ERR31.0 위치지령
 , ERR24.0 Over speed) 가 .
 Override Table Data Jog .

	Override IN_OVERRIDE_SEL	
OFF	OFF	Override Percentage1 (#44) ×
	ON	Override Percentage2 (#45) ×
ON	OFF	0
	ON	



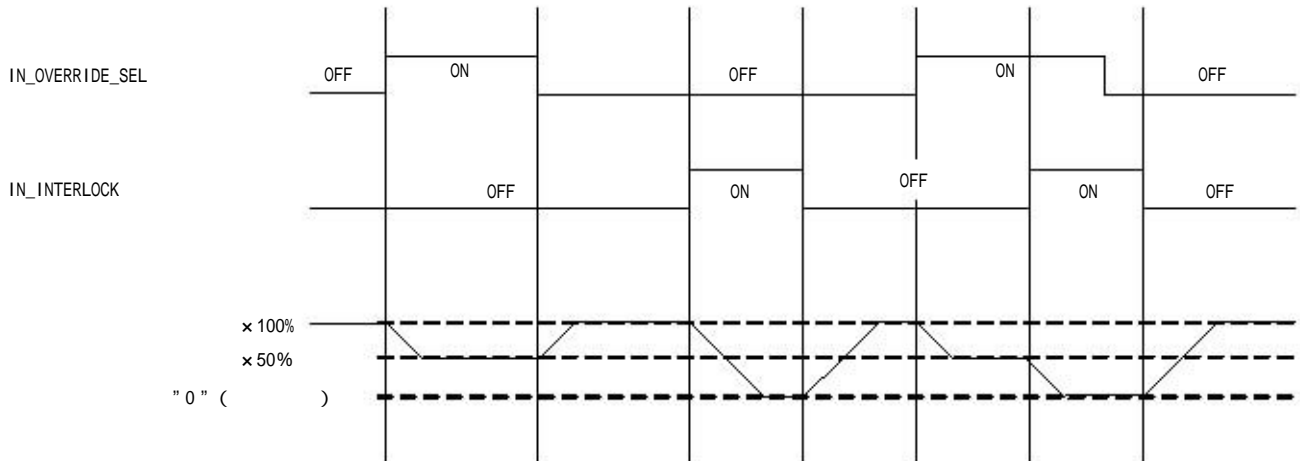
Override 가 .
 Override 커졌을 경우는 6.1.10 Profile
 Profile 가 가 가 가 .
 동일하게 .



예:[가속:S자 감속:등가속도]

< Sequence >

#44 = 10000[1/100%]... Override Percentage1 = 100%
 #45 = 5000[1/100%]... Override Percentage2 = 50%



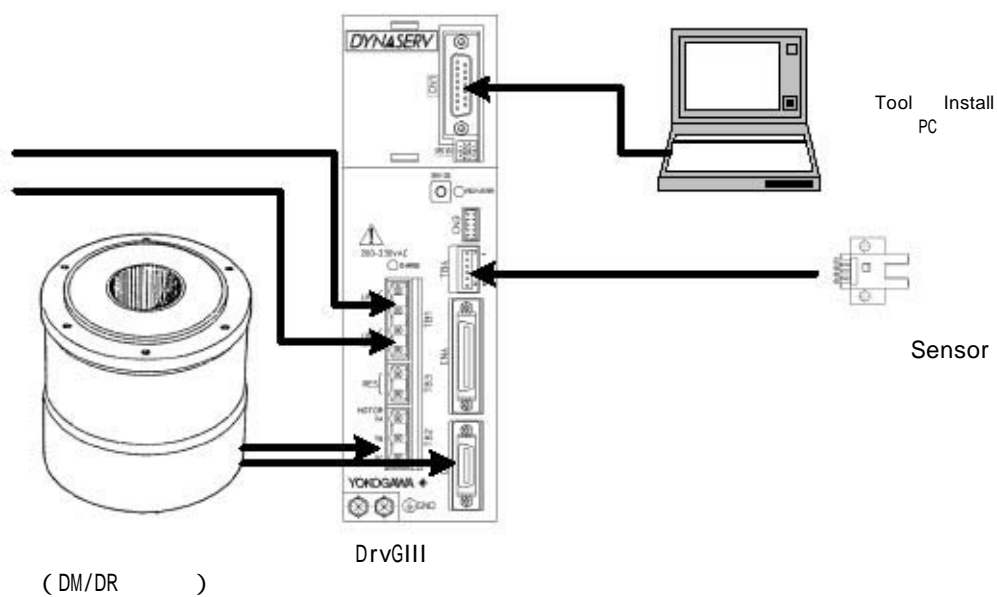
6.2

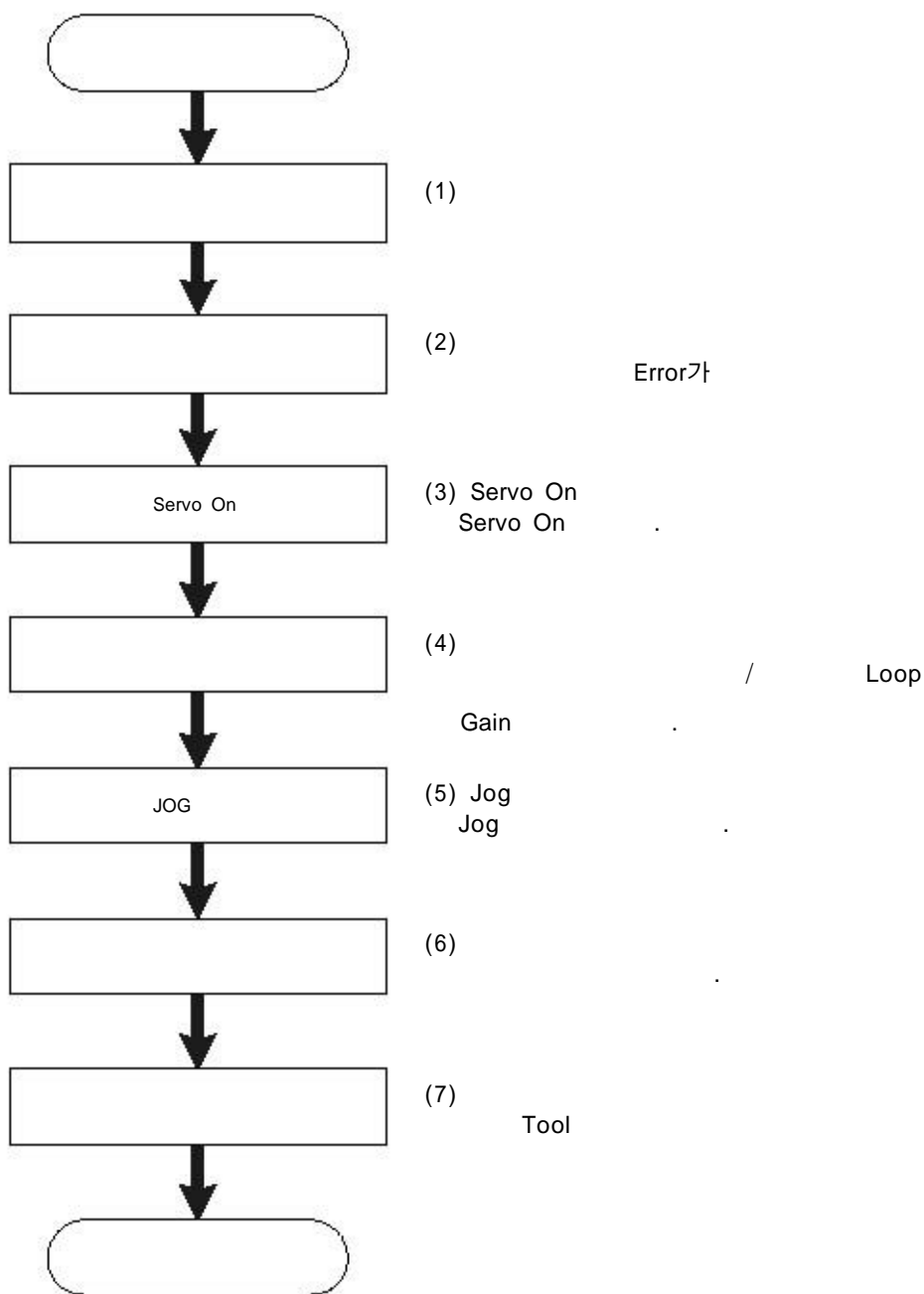
Parameter, I/O , I/O

Controller Interface

6.2.1 Tool

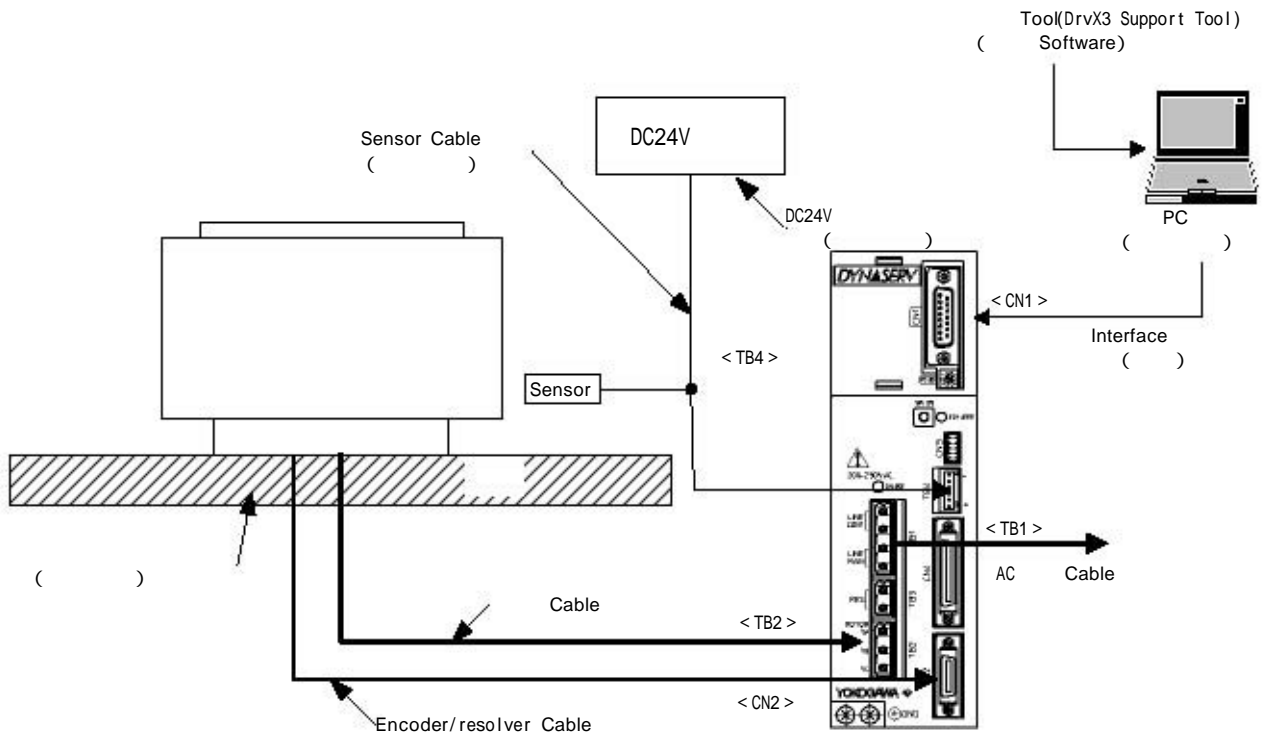
Tool





(1)

- / / Sensor/DC
- Tool PC
- (Tool Download 주십시오)
-
- Cable



- 어 있습니까?
- 없습니까?
- AC Cable 어 있습니까? (LINE, GND)
- Cable 어 니까? (VA, VB, VC, GND)
- Cable은 어 있습니까?
- 접 Sensor 어 있습니까?
- Interface 어 있습니까?

☐

☐

☐

☐

☐

☐

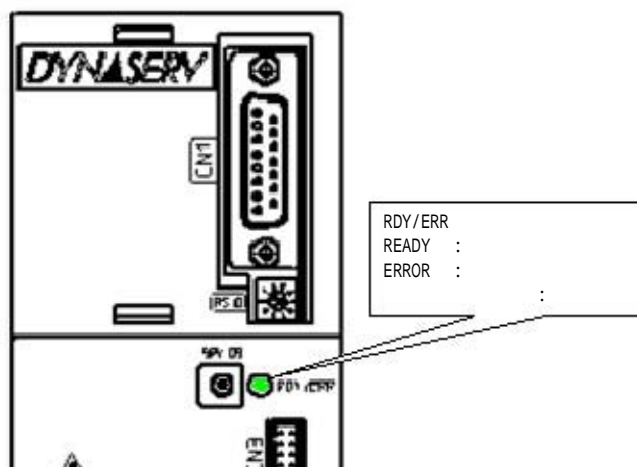
☐

(2)

Main
LED가

DrvGIII프런트 패널상에 있는[RDY/ERR]
Error가

Error



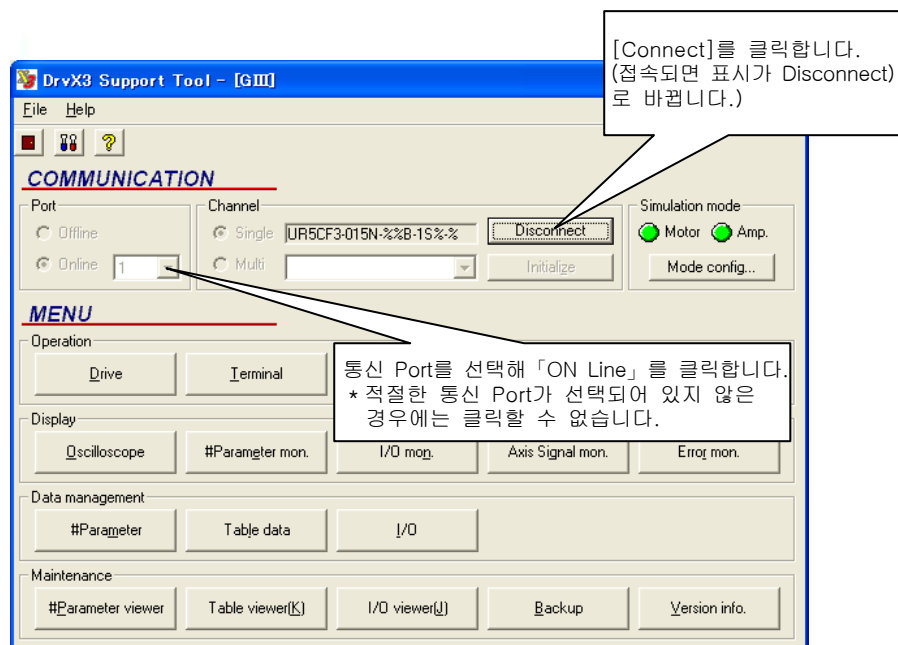
(3) Servo On
ON Line

Step1 Tool

Step2 Port (PC COM Port)

Step3 [Port] [ON Line]

Step4 [] PC

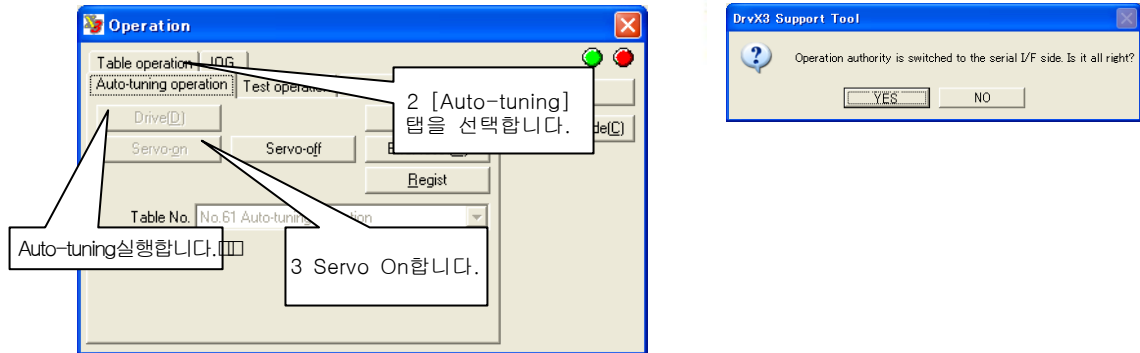


Servo On

STEP1 [] [] .
 (Message가 「 」 .)
 STEP2 [] .
 STEP3 [Servo On] .



SRV DS Servo Off 가 .
 Servo On SRV DS
 Servo Off 가 .



(4)

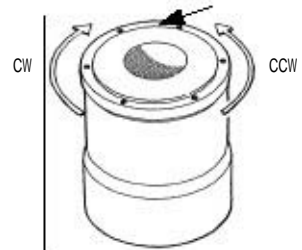
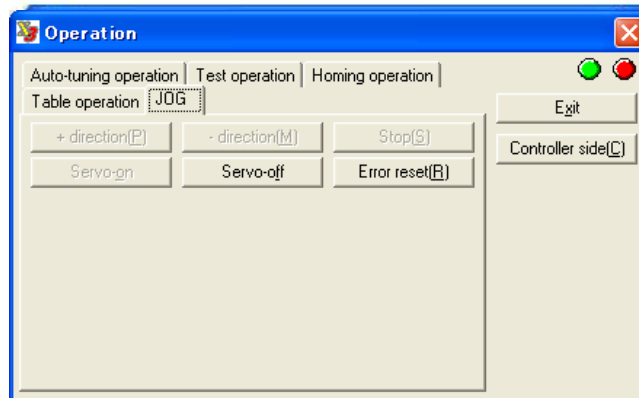
[Drive] . 종료후 [Register] 버튼으로 추정치를 Write .



CW , 가
 . (30 .)
 (Cable/모터 Cable)을 확인하여 주십시오.
 가 .

(5)JOG

Step1 [Operation] [JOG] .
 * Servo Off [Servo On] Servo On .
 Step2 [+Direction] / [-Direction] / [Stop] JOG .



+방향: CW방향, -방향: CCW방향이 됩니다.
 (CW/CCW)

(6)

Sensor ON/OFF

Step1 Tool [Monitor] [Axis signal monitor] [START]

Step2 Servo On (Servo Ready) Servo Off

Step3 [Axis signal monitor] 「ORG signal status」

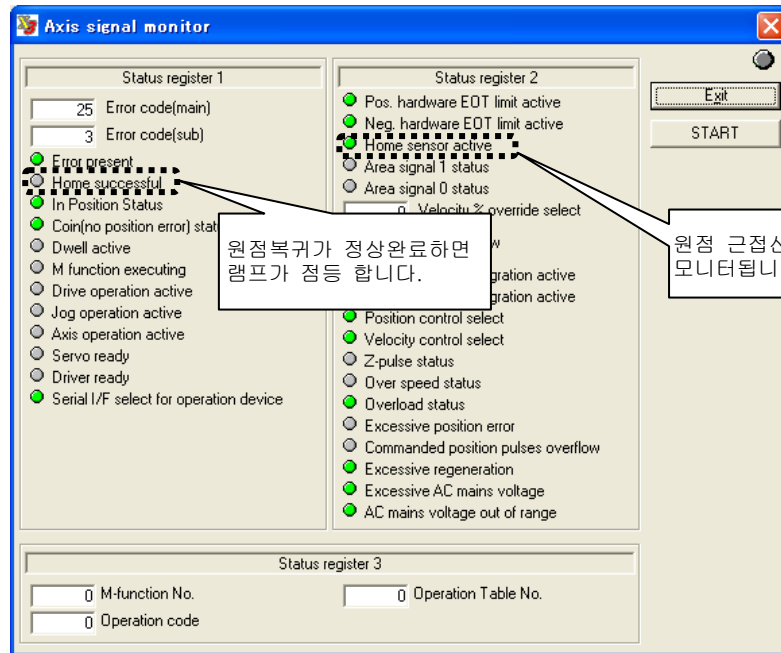
가 Area

Area

가

Sensor가

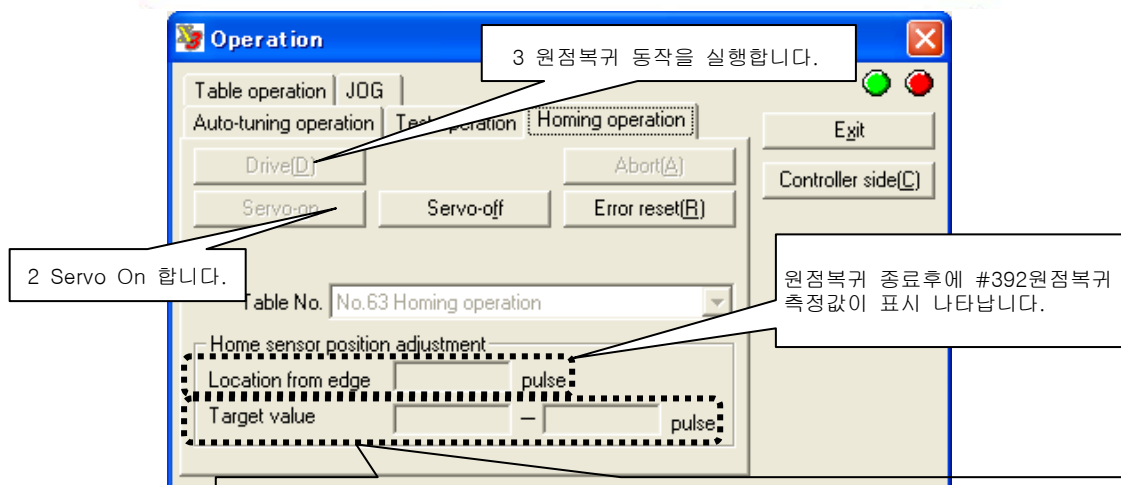
Step4 [STOP]



Step1 [Drive] [Homing]

Step2 Servo Off가 [Servo On] Servo On

Step3 [Drive]



원점복귀의 종료시에 원점복귀 측정값이 목표치의 범위 외의 경우에는 ERR49.1 / ALM49.1원점 Tab 위치가 이상하게 되어 도그 위치의 조정이 필요하게 됩니다. (6.4.5(5) 「Tab의 설치 위치 조정」 참조)

(7) Sample Table Data

TABLE Data Sample Table Data(Table 7)에 의해 90도 INC 위치 결정의

Step1 [Operation Window]

Step2 [Control] [Terminal]

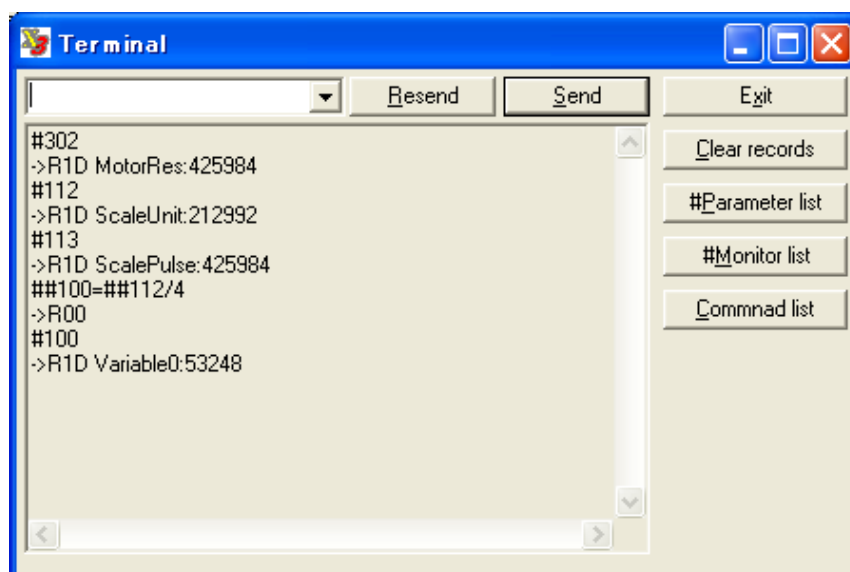
Step3 Parameter

.()

302

112 Scaling Data()

113 Scaling Data(Pulse)



Scaling Data

		# 113 Scaling Data (Pulse)	# 112 Scaling Data ()
DM1A-	4096000	4096000	1024000
DM1B-	2621440	2621440	655360
DM1C-	2621440	2621440	655360
DR1A-	1638400	1638400	819200
DR1B-	1015808	1015808	507904
DR1E-	1228800	1228800	614400
DM5B-	557056	557056	278528
DR5C-	425984	425984	212992
DR5E-	638976	638976	319488

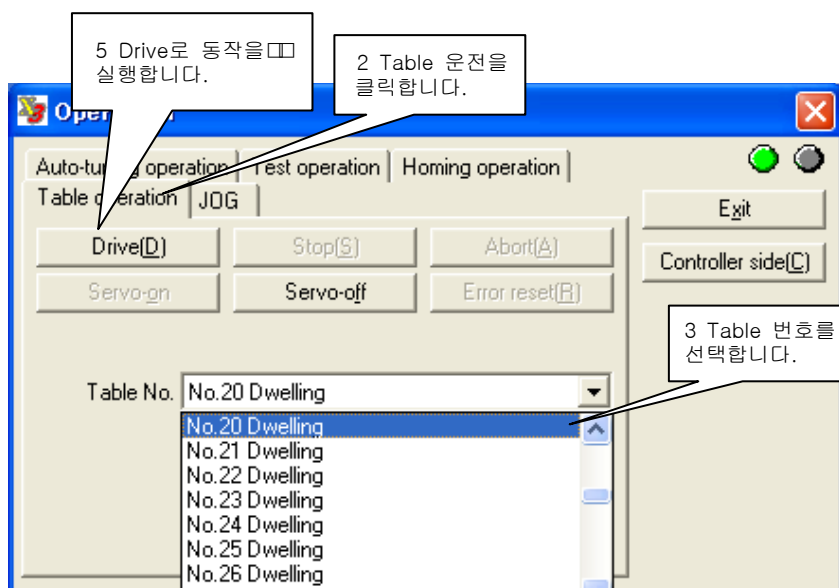
Step4 Table 7 "#100 0" 90



Step5 [Terminal]

Sample Table

Step1 [Operation] [Control window] .
 Step2 [Table operation] .
 Step3 Table " No.07 INC " .
 Step4 Servo Off가 [Servo On] .
 Step5 [Driver] INC .



6.3 JOG

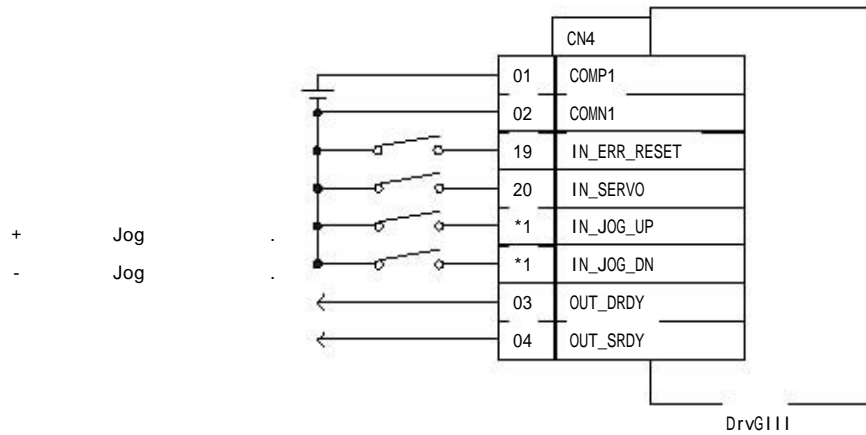
idle() JOG + 가
가 , , 가 Type, Type, JOG

(1)

Controller Interface

(Serial Interface

(2)#Parameter



*1 :

I/O 할당 기능으로 점점신호를

.(6.1.1)

(2) Parameter

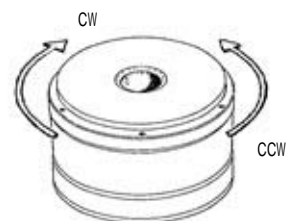
Step1 Tool [Data Management] [#Parameter]

Step2 [System setup register1]

Step3 [Coordinate system forward direction]

JOG			
		IN_JOG_UP (+)	IN_JOG_DN (-)
		CW	CCW
		CCW	CW

* #Parameter JOG



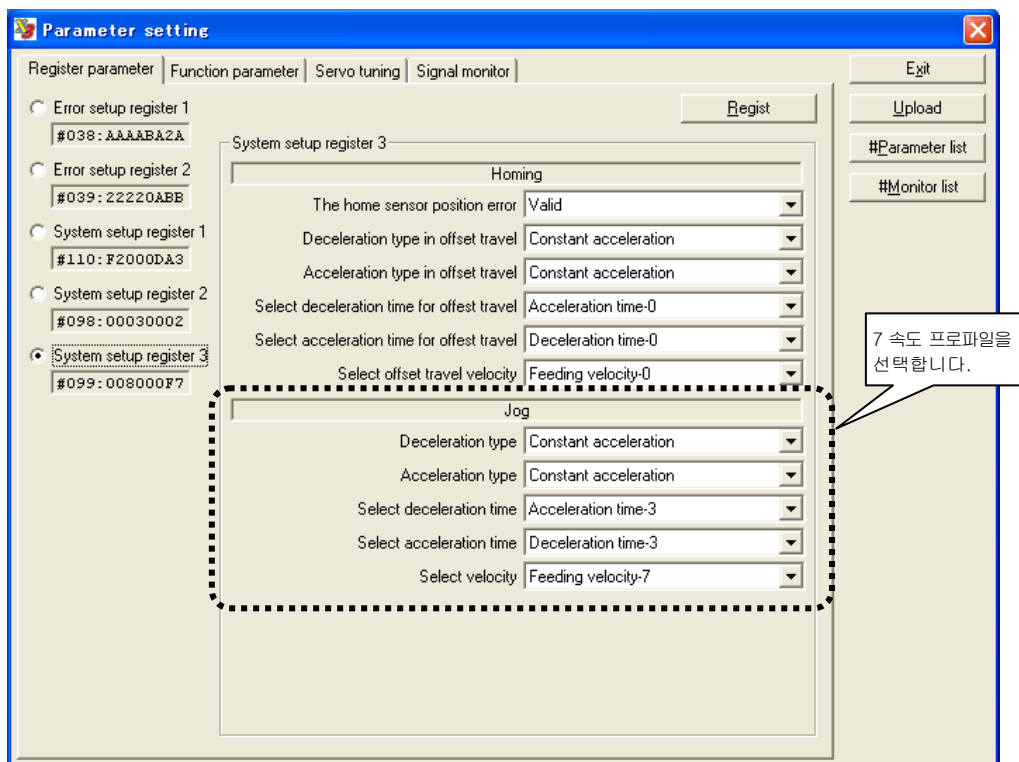
Step4 [Jog feed operation serial interface side selection] Tool보다 JOG이동
[Valid] Controller Interface에 의한 JOG

지령 하는 [Invalid]

Step5 [Regist] #Parameter

Step6 [Parameter window] , 가 , , 가 ,
(6.1.9를 참조해 주십시오)

Step7 [System setup register3] , 가 , , 가 ,



(3) JOG (Tool JOG 하는 경우)
Servo .

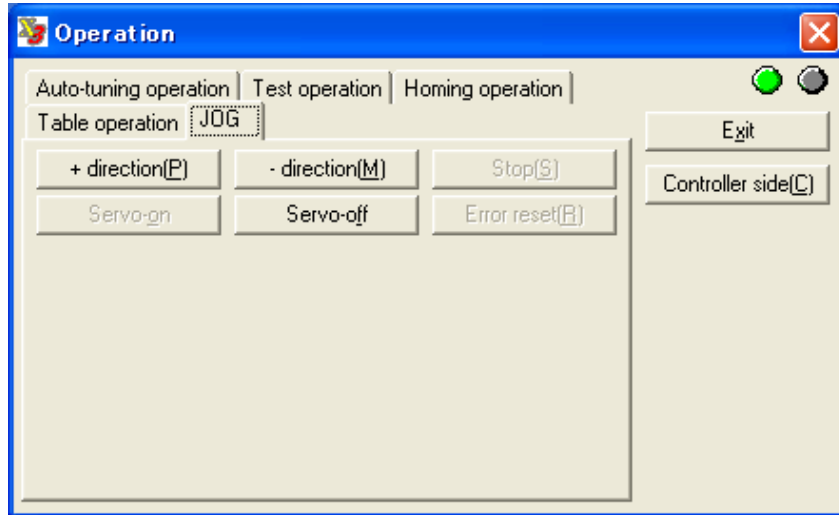
STEP1 Tool [Operation] .

STEP2 [Operation] [JOG] .

STEP3 [Servo On] 가 Servo On .

STEP4 [+Direction], [-Direction] JOG

기동 .



(4) JOG (Controller Interface JOG 경우)

JOG

IN_JOG_DN (-)	IN_JOG_UP (+)	JOG
OFF	OFF	
	ON	+
ON	OFF	-
	ON	

JOG

STEP1 IN_SERVO ON

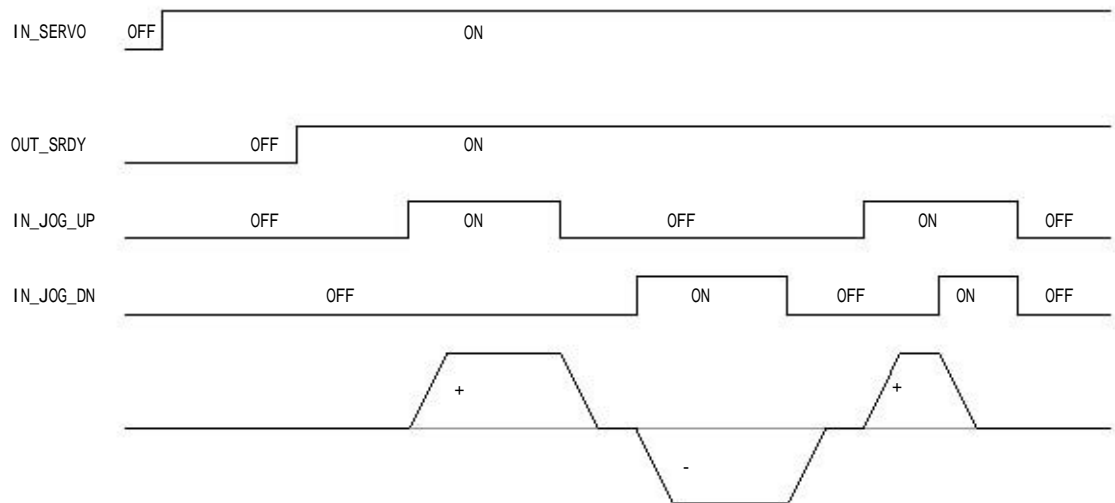
STEP2 OUT_SRDY가 ON

STEP3 + IN_JOG_UP -
IN_JOG_DN ON

JOG

+ IN_JOG_UP
IN_JOG_DN OFF

JOG Timing

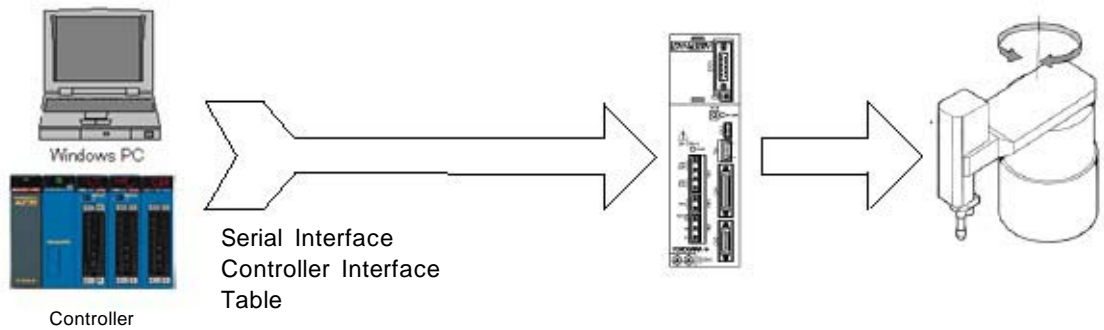


6.4 Table Data

6.4.1 Table Data

Table Data Controller Servo
(Code)
Table #Parameter 가

Table Data Register, Data 0, Data 1
Tool . Table Data Serial Interface
Controller Interface
Table Table " "
가 . Table Data 0 63 , 60 63
Code가 Data
동작 Register의 변경은



Code		
Table	Homing()	Controller
Table		Servo
	Test	Servo (2.5Hz) Step
Table	INC	()
	ABS	()
Table	Dwell	Dwell Time()
	Parameter	#Parameter
	Command	@Command

Table	Code	
0~ 58	Tool	가
59	Tool * 1	
60	Test (가)	가
61	(가)	
62	Reserve (가)	
63	Homing() (가)	

*1 [Start Up operation function]

Table 0~58과 동일합니다.

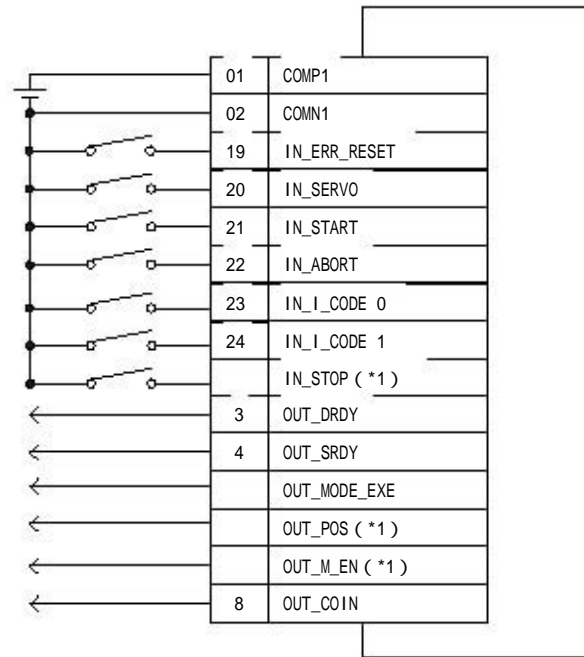
Table	Code
0	Test
1	
2	Blank
3	Homing()
4~ 5	Sample Program 1 (ABS)
6~ 7	Sample Program 2 (INC)
8~ 29	Blank
30~ 35	90 ° "N" INC
36~ 39	Blank
40~ 51	Sample Program 3 ()
52~ 59	Blank
60	Test (가)
61	(가)
62	Dwell (0msec) (가)
63	Homing() (가)

Sample Program



Pulse	Analog	Controller
	Pulse /Analog	, Controller
	Controller	Pulse /Analog
	가 Controller	
Pulse /Analog		

(1)



*1 하드 I/O 할부

*2 Table Data 0 3
Table Data IN_I_CODE[2..7]를
I/O

(2) Table

Table Data

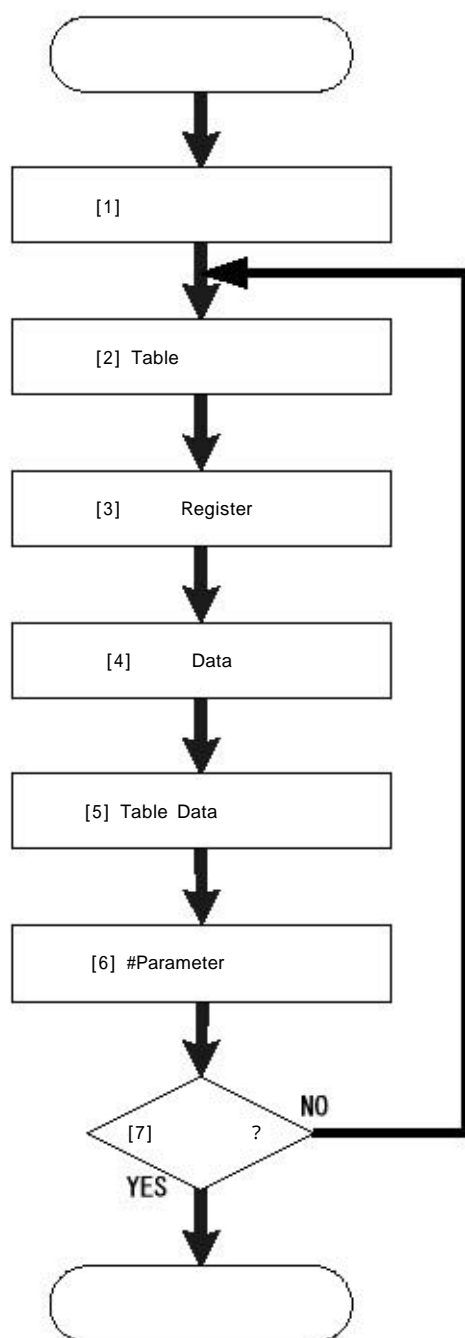


Table setup

No.	Code	M-func.	M-func.par.	Coin	Conti.	Next table
000	Test operation	Invalid	Invalid	Invalid	Invalid	--
001	Auto-tuning operation	Invalid	Invalid	Invalid	Invalid	--
002	Dwelling	Invalid	Invalid	Invalid	Invalid	--
003	Homing operation	Invalid	Invalid	Invalid	Invalid	--
004	Parameter change	Invalid	Invalid	Invalid	Valid	5
005	ABS positioning	Invalid	Invalid	Invalid	Valid	--
006	Parameter change	Invalid	Invalid	Invalid	Valid	7
007	INC positioning	Invalid	Invalid	Invalid	Invalid	--

Buttons: Exit, Edit, Table copy, Table paste, Table delete

Table

Table setup

No. 5

Code: ABS positioning

M-function: Invalid, M-func.par: Invalid, Coin waiting: Invalid

Continue: Invalid, Next table: 5

Table data0

Coin window: #50 Coin width-0, 5, Regist...

Select acceleration time: #72 Acceleration time-0, 1000, Regist...

Select deceleration time: #76 Deceleration time-0, 1000, Regist...

Select acceleration type: Constant acceleration

Select deceleration type: Constant acceleration

Select velocity: #54 Feeding velocity-0, 851968, Regist...

Optional move direction for rotation coordinate: Type0 [Short cut]

Direct or indirect: Indirect

Table data1

Type: #Parameter

#Parameter No.: #100 Variable 0

Buttons: Cancel, Regist, 0004, 0100, 00000064

Table Data

Register , Code
Table Data

Step1

/ , , Scaling , 3항목이 올바르게
설정 되어 .6.1.7을 참조해 주십시오.

Step2 Table

- 1 Tool [Table Data]
- 2 Table Data

N...	Code	M-fun...	M-func.par...	Coin ...	Conti...	Next table
000	Test operation	Invalid	Invalid	Invalid	Invalid	--
001	Auto-tuning operation	Invalid	Invalid	Invalid	Invalid	--
002	Dwelling	Invalid	Invalid	Invalid	Invalid	--
003	Homing operation	Invalid	Invalid	Invalid	Invalid	--
004	Parameter change	Invalid	Invalid	Invalid	Valid	5
005	ABS positioning	Invalid	Invalid	Invalid	Invalid	--
006	Parameter change	Invalid	Invalid	Invalid	Valid	7
007	INC positioning	Invalid	Invalid	Invalid	Invalid	--

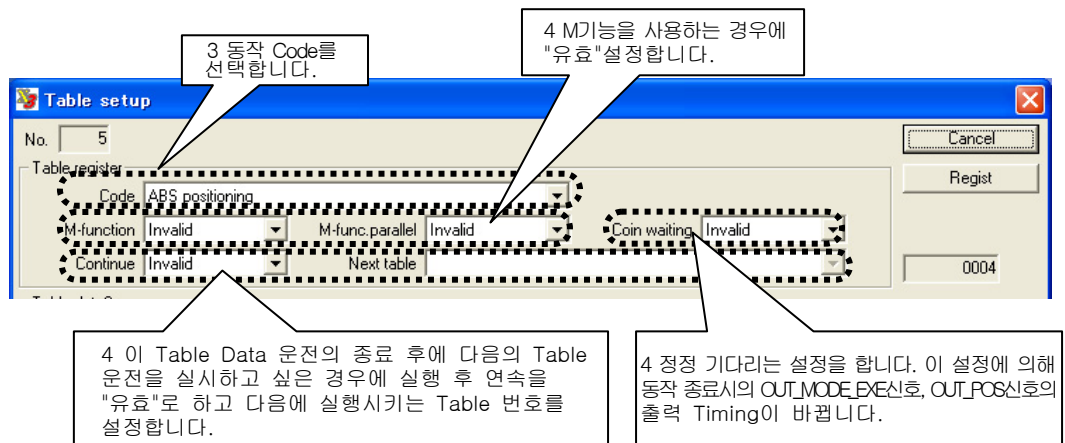
Step3

Register

Register

Register

Code, M



Step4

Data

Data

Code

(6.4.3~

6.4.11)

Step5 Table Data

[Regist]

[Cancel]

. Table Data

Step6 #Parameter

#Parameter

6.4.3~6.4.11를 참조해 주십시오.

(3) Table Data

(Controller Interface)

Mode Main Controller Interface가
가 Error Table Data

Servo

Step1 Table IN_I_CODE[5..0] (Binary)

Step2 IN_START ON IN_I_CODE[5..0] Table Data가

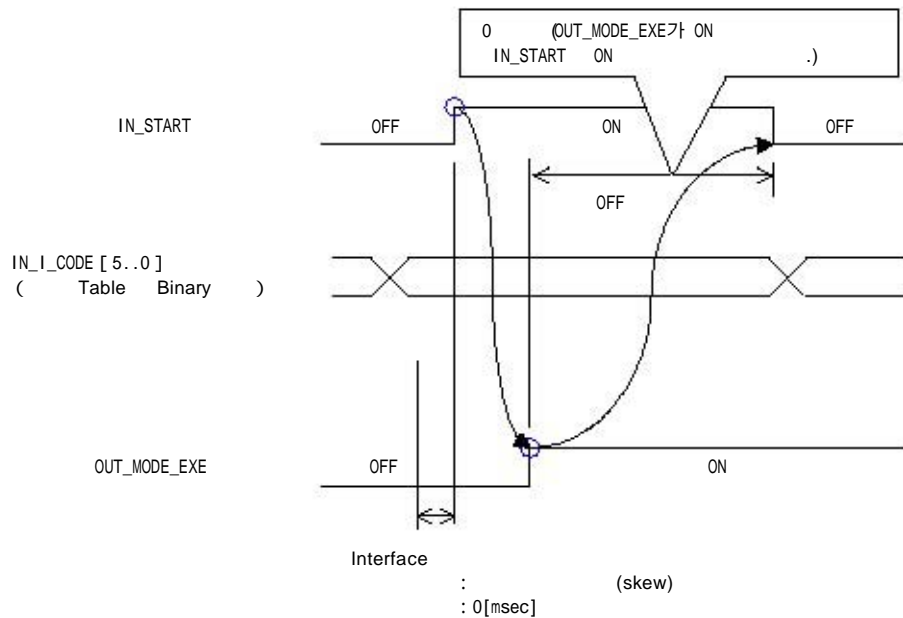
Step3 OUT_MODE_EXE 가 ON가 IN_START를 OFF로합니다.

Step4 OUT_MODE_EXE 가 OFF가 Table OUT_MODE_EXE의

가 OFF

IN_START가 ON

OUT_MODE_EXE ON



/

IN_ABORT

IN_ABORT Table Data

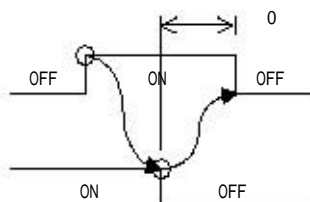
Test

ON

M

IN_ABORT

OUT_MODE_EXE



IN_STOP

IN_STOP

Table Data

Table Data

ON

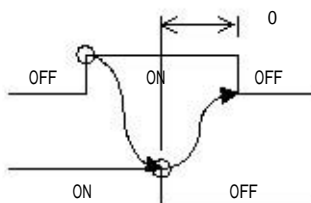
M

M

OUT_MODE_EXE OFF

IN_STOP

OUT_MODE_EXE

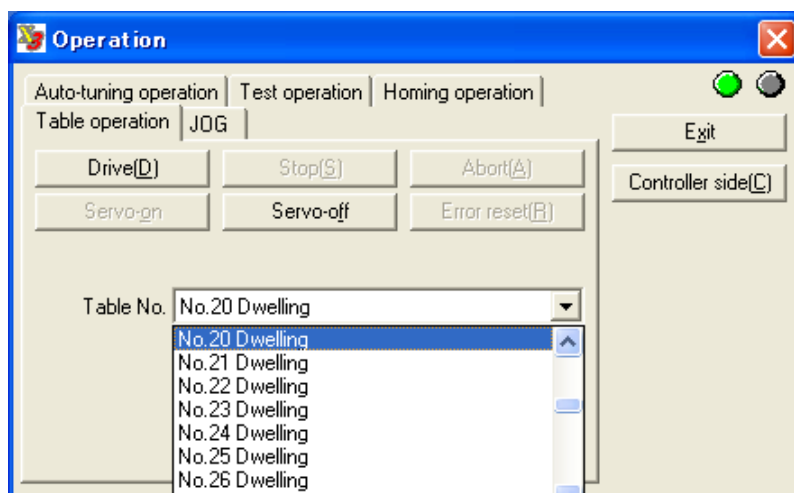


(4) Table Data (Tool)

Table Data

Servo

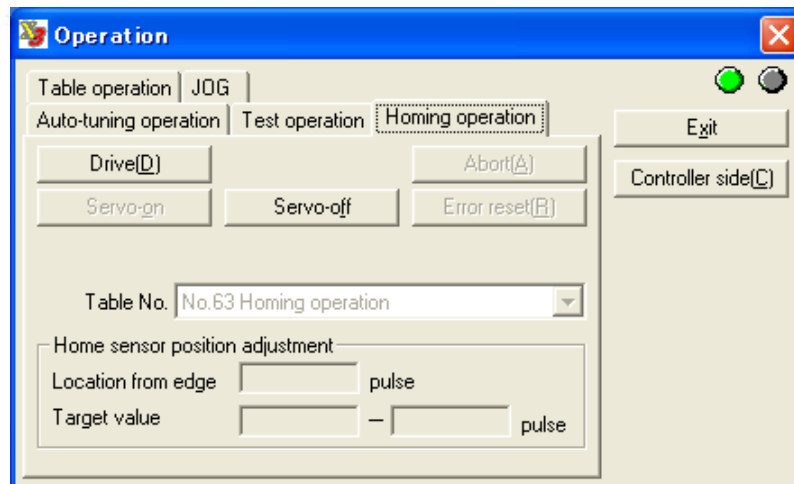
Step1 Tool [Operation]
 Step2 [Operation] [Table operation]
 Step3 [Servo On] 가 Servo On
 Step4 Table
 Step5 [Drive] Table Data



Homing(), Test , , .[Operation]
 Table

	Table
Test	60
	61
Homing()	63

HOMING()



6.4.2 Register

Table Data

Register

Table Data

- (1) Code
- (2)M
- (3)
- (4)

(1)M

DD

Sequence

M OUT_M_EN Timing

OUT_M_EN ON OUT_O_CODE Table 가

IN_M_ANS ON OUT_M_EN OFF가 Table

(Table)

Sequence Page

Register

진 M Cord의

M	M	M
		Table OUT_M_EN ON
		가 Table Timing OUT_M_EN ON OUT_COIN ON OUT_M_EN ON
		M
		M



I/O

OUT_M_EN

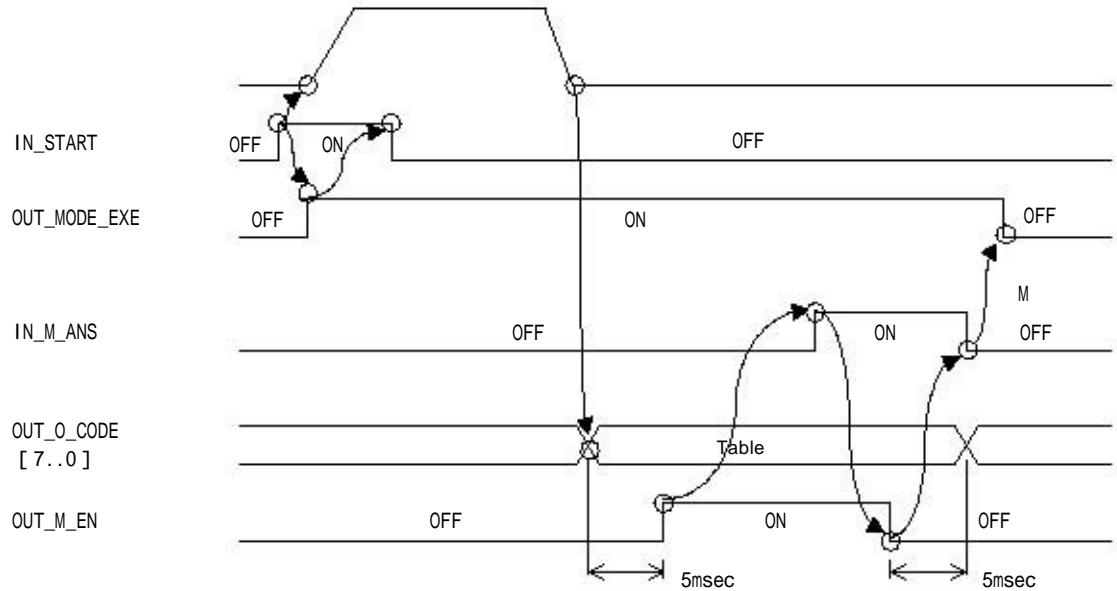
Table

Register M

M

M
OUT_M_EN 가 ON
OUT_M_EN
Sequence
Table Data
IN_M_ANS가 ON
OUT_0_CORD[7..0]에 Binary값으로
M

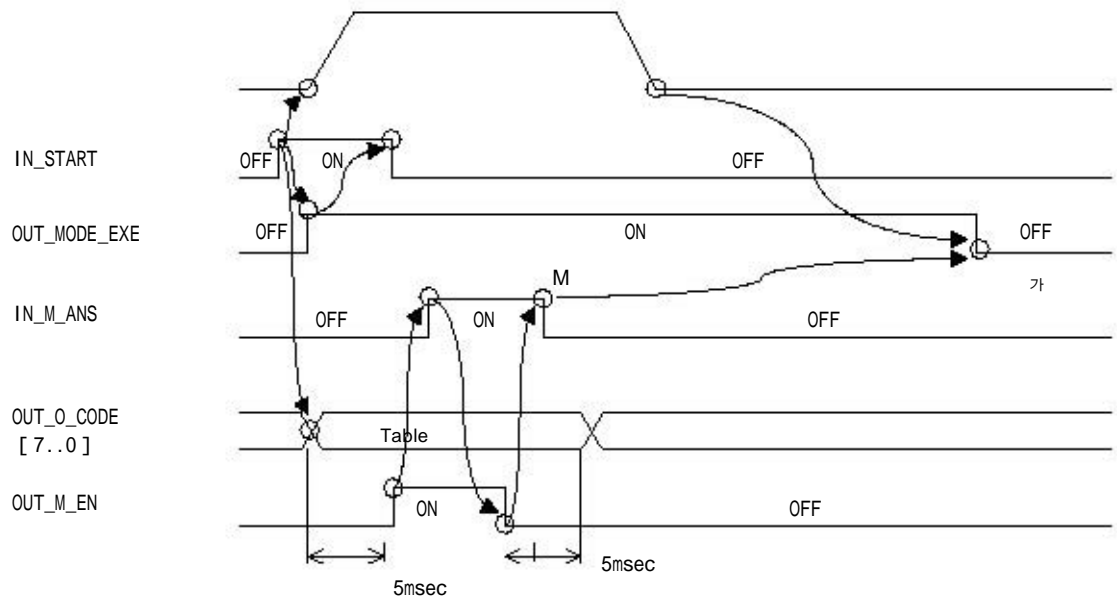
M Sequence



* IN_M_ANS

OUT_M_EN 10msec ON M

M Sequence



* IN_M_ANS가

OUT_M_EN 10msec ON M



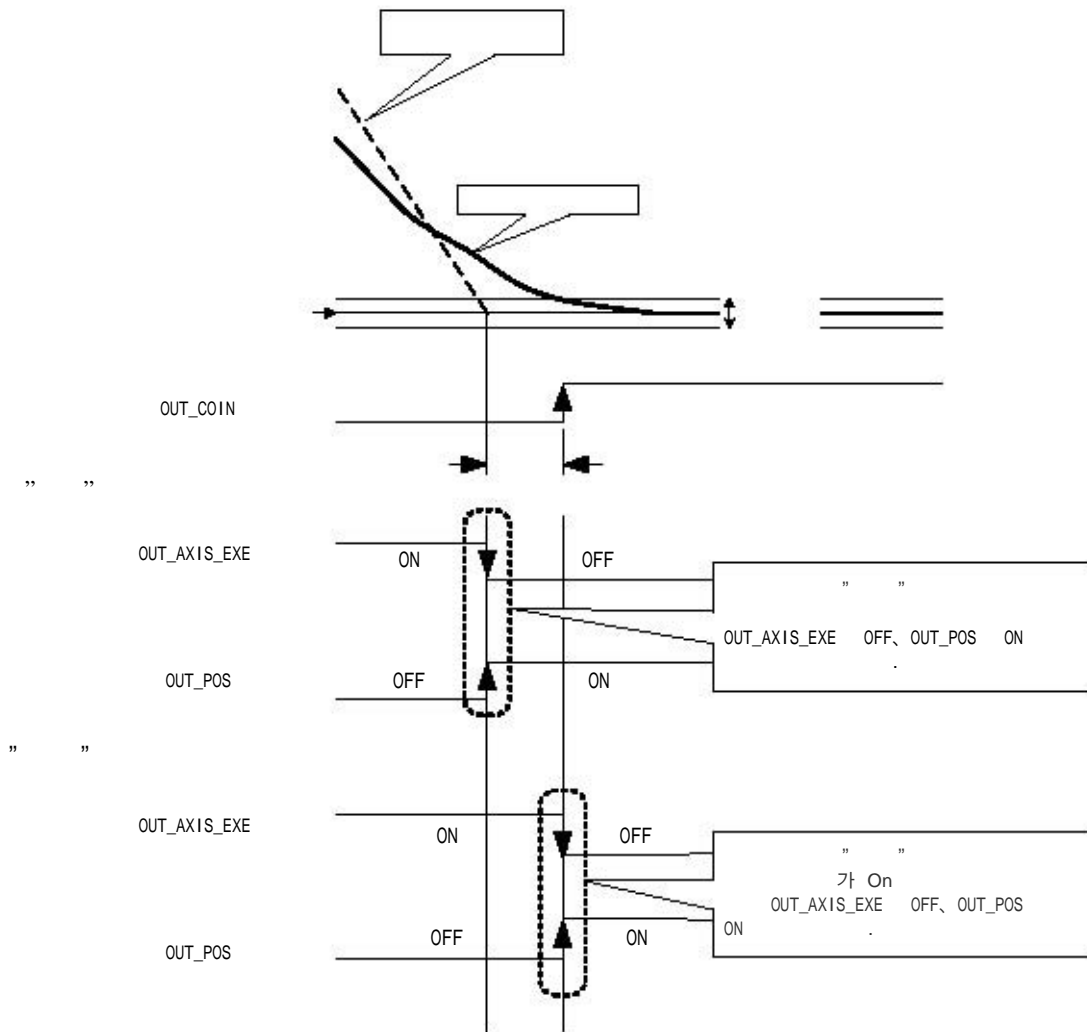
Error M
[#Parameter] [System Register2] [Error M] " "
Error가 M
Error가 M

(2)Setting coin() /

「 」 OUT_MODE_EXE신호OUT_POS신호의
출력 Timing

6.6 「 」

: OUT_MODE_EXE Table Data OFF가 됩니다.위치정정
가 OFF OFF가 됩니다.
OUT_POS Table Data
ON
: OUT_MODE_EXE Table Data (OUT_COIN)이
ON OFF가
OUT_POS Table Data
(OUT_COIN)가 ON ON

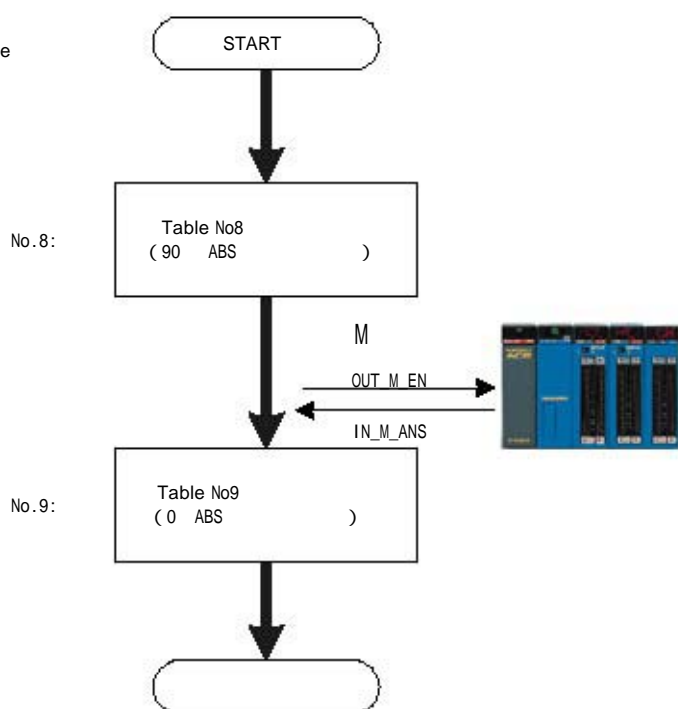


(3)

Table
 Table []
 [Table]
 OFF가
 Table OUT_MODE_EXE 신호는

90

Table



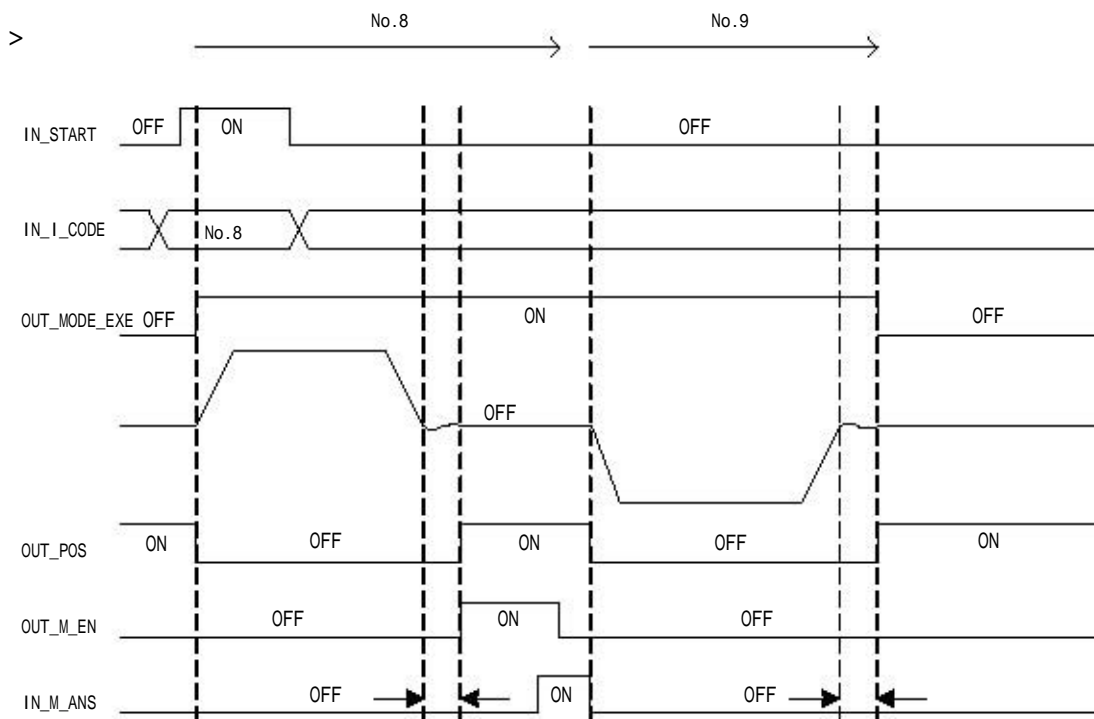
< Table Data >

Table	No.8	No.9
「 Register 」		
Code	ABS	ABS
M		
M		
Table	No.9	-
「 Data 0 」		
가 Type	가	가
Type	가	가
	Type 0 []	Type 0 []
「 Data 1 」		
	90000	0

< #Parameter >

#112	Scaling Data ()	360000
------	--------------------------	--------

< Timing >



6.4.3

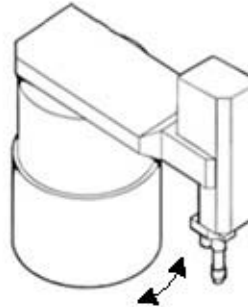
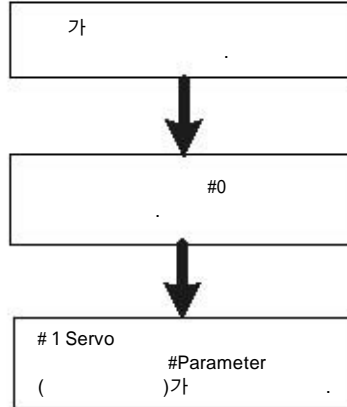
Servo

#0[부하관성/부하질량]에

가

#Parameter가

. System



가 feed forward, feed forward, feed forward, Filter

되는 #Parameter

설정되는 #Parameter는

Mode,

IN_POSFREQ_SEL, IN_VELFREQ_SEL

. ()

#Parameter

Servo
()



#1 Servo	#Parameter			
	(*1)		(*2)	
	#8/#9	#12/#13	#2/#3	#6/#7 (*3)
13	39	(Servo ,)	150	(Servo ,)
12	38		140	
11	36		130	
10	34		120	
9	32		110	
8	30		100	
7	28		90	
6	26		80	
5	24		70	
4	22		60	
3	19		50	
2	16		40	
1	14		30	
0	9		20	
-1	8		15	
-2	6		12	
-3	5		10	

*1 IN_POSFREQ_SEL OFF #8 #12 ON #9 #13

*2 IN_VELFREQ_SEL OFF #2 #6 ON #3 #7

*3 System Register1

(0)

(1)

6.4.1 「Table Data」 Table Data Flowchart
Data . Flowchart [4] Data [6] #Parameter

Data

Data

#Parameter

STEP1 Tool [Data Management]-[#Parameter]-[Function Parameter]

STEP2 [Function Parameter] [Auto-tuning]

STEP3 가

STEP4 #Parameter /

Mode

Mode,

#Parameter가 다르게 됩니다.

Mode

#Parameter등록한 다음에

STEP1 Tool [#Parameter]-[Register Parameter]

STEP2 [System Register1]

STEP3 Mode

STEP4 []

STEP5 []

STEP6 #Parameter /

#Parameter

#Parameter

#Parameter



+방향으로 움직입니다만 동작개시



가

가



#Parameter에

Parameter

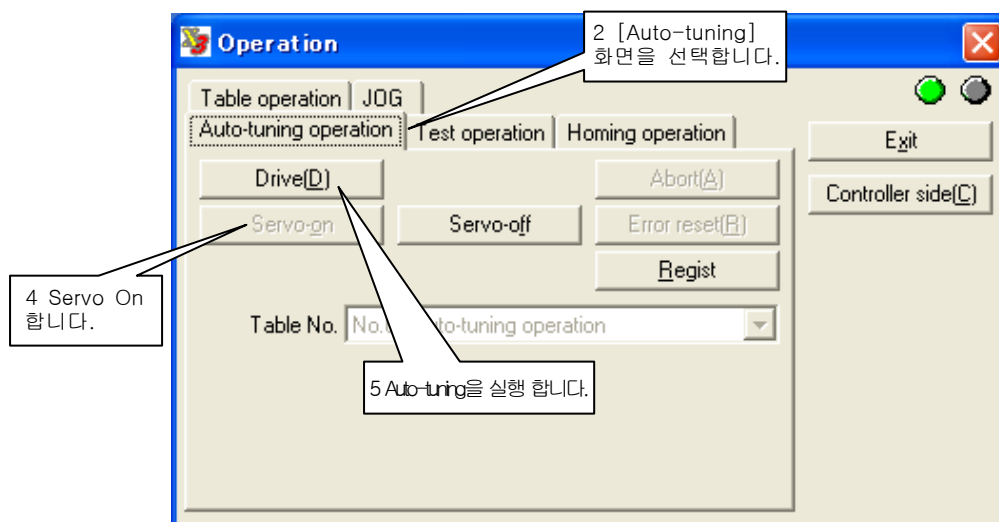
#Parameter	#Parameter	
#51		<p>(2 ~ 5)</p> <p>(Default) 2%</p> <p>가 2rps</p> <p>$2 * 0.02 * 360deg$ 14.4deg</p>
#52	가	
#53	가	
#1	Servo	Servo
#54		(#54=6)

#Parameter

#Parameter	#Parameter	
#0	/	#Parameter Write
#2 #3	1 2	<p>.#1[Servo 강성설정상태]</p> <p>IN_VELFREQ_SEL</p> <p>가</p> <p>#Parameter</p>
#8 #9	1 2	<p>.#1[Servo 강성설정상태]</p> <p>IN_POSFREQ_SEL</p> <p>가</p> <p>#Parameter</p>
#6 #7	1 2	<p>System Register1</p> <p>#Parameter</p> <p>IN_VELFREQ_SEL #Parameter</p> <p>(, , Servo)</p>
#12 #13	1 2	<p>Loop</p> <p>System Register1 Mode</p> <p>#Parameter</p> <p>IN_POSFREQ_SEL #Parameter</p> <p>(, , Servo)</p>

(2)

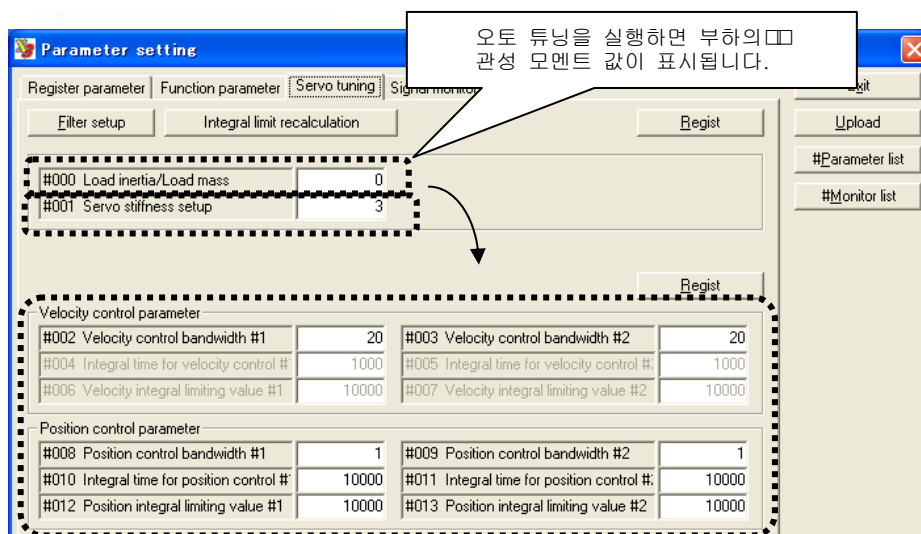
STEP1 Tool [Control] [Operation]
 STEP2 [Operation] [Auto - Tuning]
 STEP3
 STEP4 [Servo On]
 STEP5 [Drive]
 STEP6 . #Parameter [Register]



남겨 . Overshoot

남겨

IN_POSFREQ_SEL、IN_VELFREQ_SEL



6.4.4 Test

Test Step 가 .

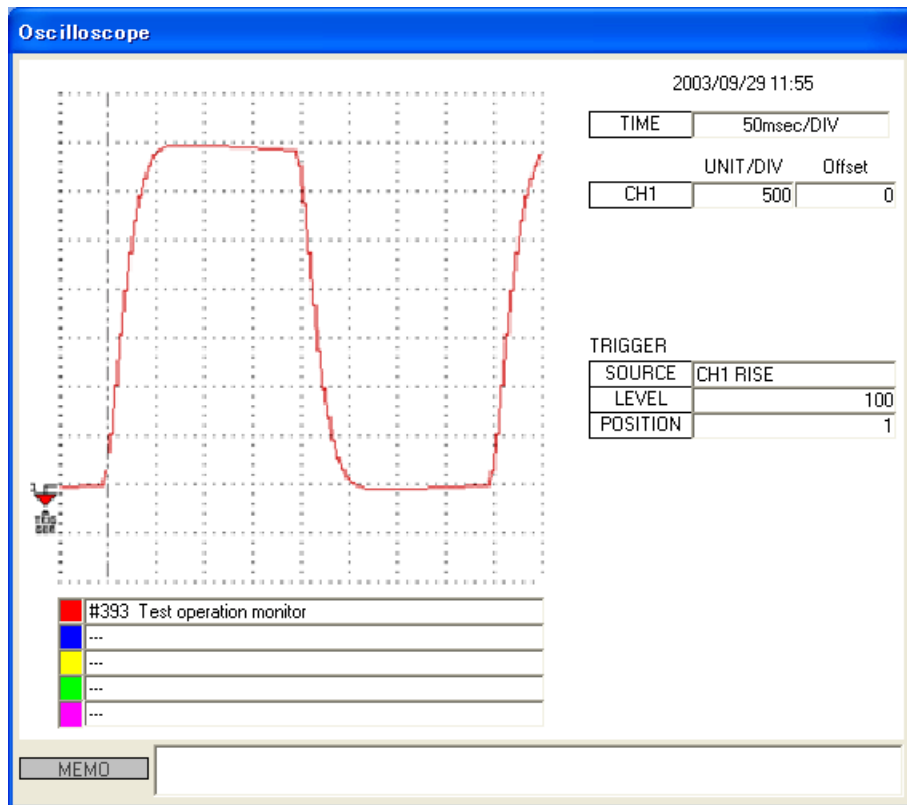
Test 2.5Hz .

Tool #393 Test #Parameter

Test feed forward, feed forward, 가 feed forward

0 .

Test .



(1)

6.4.1 「Table Data」 Table Data Flowchart ,
Data . Flowchart Data , #Parameter

Data

Test Data .

Test

Parameter

Test

STEP1 Tool [Data management]-[#Parameter]-[Function parameter]

STEP2 [Function parameter] [Test operation]

STEP3 #50"Test " 가

Test 가

Error가

STEP4 #Parameter /

#Parameter

Test #Parameter

#Parameter

(2) Test

(Tool)

STEP1 Tool [Control] [Operation]

STEP2 [Operation] [Test operation]

STEP3 Test

STEP4 [Servo On]

STEP5 [Drive] Test

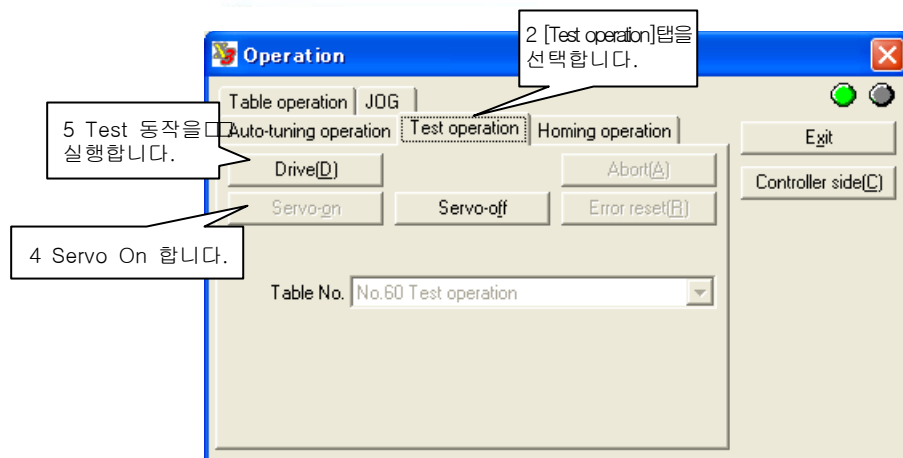
STEP6 [Display] [Oscilloscope] Test

(8

[EASY SETUP] [Test] .)

STEP7 [Data management] [#Parameter] [Servo tuning] #Parameter

(Servo tuning)



(3) Test

(Controller Interface)

6.4.1 (3) [Table Data

(Controller Interface

)]를

Test #Parameter

#Parameter	#Parameter	
#50	Test	Test

Servo #Parameter

#Parameter	#Parameter	
#0	/	#Parameter
#2 #3	1 2	.#1[Servo강성설정상태]에서 IN_VELFREQ_SEL #Parameter 가
#4 #5	1 2	Mode가 IN_VELFREQ_SEL , 가 Parameter가 IN_VELFREQ_SEL 가 OFF #4[1] ON #5[2]가
#6 #7	1 2	System Register1 설정했을 #Parameter IN_VELFREQ_SEL #Parameter (, , Servo)
#8 #9	1 2	.#1[Servo강성설정상태] IN_POSFREQ_SEL #Parameter 가
#10 #11	1 2	Mode가 IN_POSFREQ_SEL 가 Parameter가 IN_POSFREQ_SEL 가 OFF #10[] ON #11[2]
#12 #13	1 2	Loop System Register1 Mode 있는 #Parameter IN_POSFREQ_SEL #Parameter 출력 할 (, , Servo 설정값에 의해 값은)

Controller Table Data

2 가 .

Controller 경우는 6.11 「 Controller

. Table Data

Search .

Table Data .

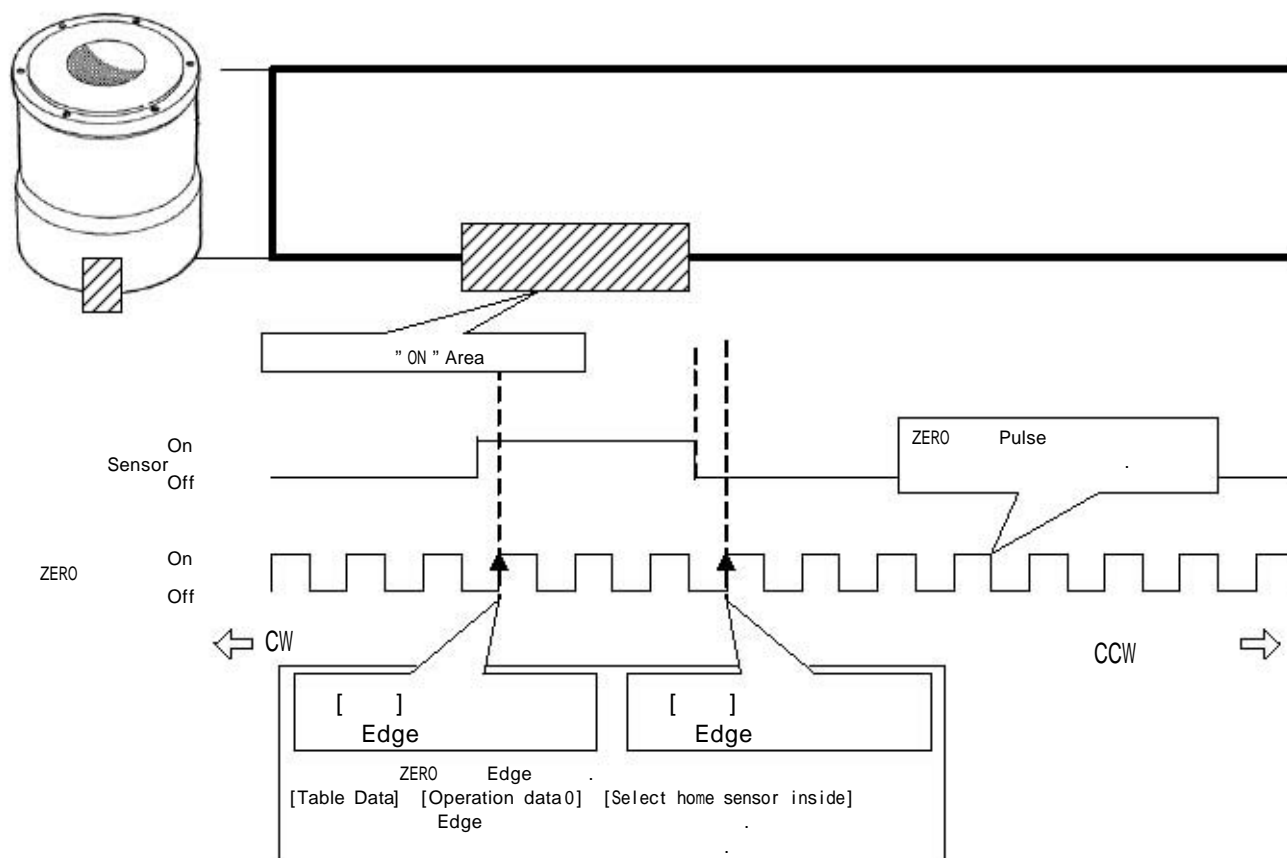
e Data Zero 신호에 의해 결정된 원점

#56 Offset #Parameter

#57 #Parameter

6.4.5(1) 「 」 .

가 가 . Override .



(1)

Step1 Step8

STEP1 OT Search

Table Data [Hardware OT limit active in homing operation]를 [Enable]로 설정했을

OT Sensor를 파악한후 원점Sensor를 Search하는
가

Table Data [Enable the home sensor during OT search] [Enable]

OT Search

Hardware OT Search이동을 종료해

STEP3

STEP2

Search

Sensor Search

Table Data [Enable home sensor] [Disable]

Search

[Enable]

STEP3

Area

[STEP4 first home detection movement]

#Parameter의 설정에

CW

Area

Sensor가 CW

가

[Select home sensor inside]를

[Outside]

가

CW

것을 가

STEP4 1

#Parameter

CCW방향으로 Zero신호 상승 Edge를

Search

[Select home sensor inside] [Outside]

:

접

On Area

가

ZERO신호 상승 edge를 인식해 정지합니다.

[Select home sensor inside] [Inside]

:

On Area

CCW

ZERO신호 상승 edge를 인식해

STEP5 2

()

ZERO

Edge

[#55 Overshoot distance in homing operation]

으로

CW

STEP6 2

(ZERO신호 Edge Search이동)

CCW

ZERO

Edge

Search

STEP6

[#58 Z-Pulse sensing iterations during homing]

STEP5와 STEP6의

Data

STEP7

ZERO Edge . Software Zero 신호의 모터에는

2

STEP8

Offset

#56

Offset

#Parameter

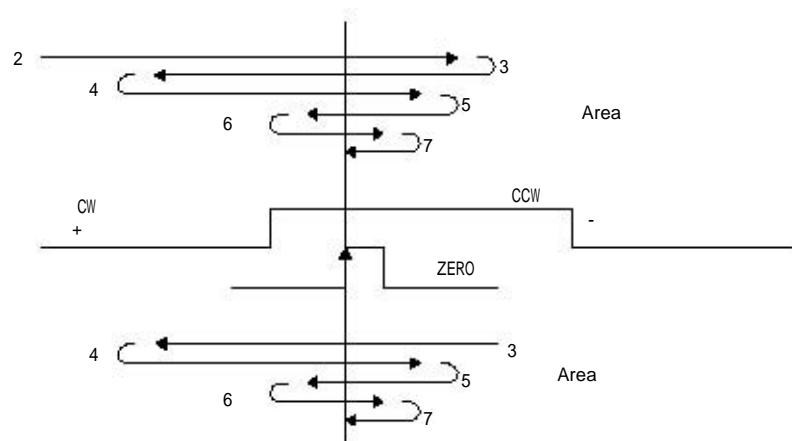
#57

#Parameter의 설정값으로 설정합니다.

Step					가 Type	가	
1	OT Search	Table Data " OT "	OT	(Table Data)	Table Data 「가 Type」 / 「가 Type」	Table Data 「가 Type」 / 「가 Type」	#60 OT Search
2	Search	Table Data " " " "	Sensor	Table Data			#61 Search
3	Area		: Area : Area STEP4	: CW : CCW			#62 1
4	1		ZERO Edge Search	CCW (가)			#62 1
5	2 ()	#58 ZERO	#55 CCW (overshoot)	CW (가)			#62 1
6	2 (ZERO) Edge Search		ZERO Edge Search	CCW (가)			#63 2
7							#62 1
8	Offset	Offset 0	#56 Offset	#56 > 0: #56 < 0:	System Register 3	System Register 3	System Register 3

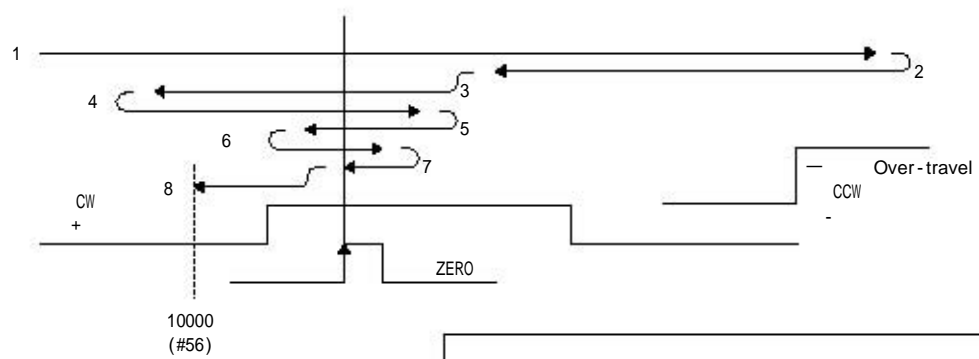
「OT Search」
Table

1 - STEP



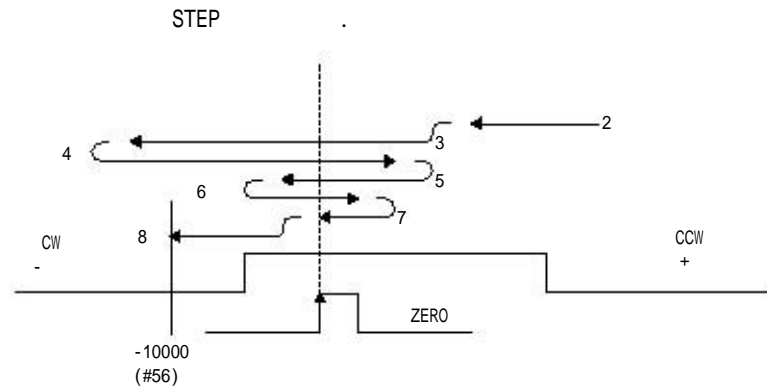
< Table Data0, 1 >			
OT			
OT Search			
Sensor			
< #Parameter >			
Parameter			
Offset			
System Register 1			
#56 = 0			

2 - STEP



< Table Data0, 1 >			
EOT			
OT Search			
Sensor			
< #Parameter >			
Parameter			
Offset			
System Register 1			
#56 = 10000			

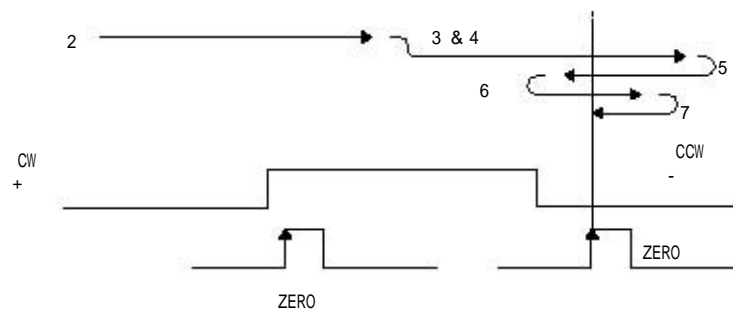
- 3 -



< Table Data0, 1 >	
OT	-
OT Search	Sensor
< #Parameter >	
Parameter	Offset
System	Register 1
	#56 = -10000

- 4 -

STEP



< Table Data0, 1 >	
OT	-
OT Search	Sensor
< #Parameter >	
Parameter	Offset
System	Register 1
	0

(2)

Table Data Flowchart (6.4.1 테이블 데이터 운전) Data
Flowchart [4] Data [6] #Parameter

Data

Data

Table

Data

#Parameter

#Parameter를 참조해 주십시오.

Parameter

STEP1 Tool [Data Management]-[#Parameter]-[Function parameter]

STEP2 []

STEP3 #Parameter

System Register

STEP1 Tool [Data Management]-[#Parameter]-[Register #Parameter 3]

STEP2 #Parameter

System

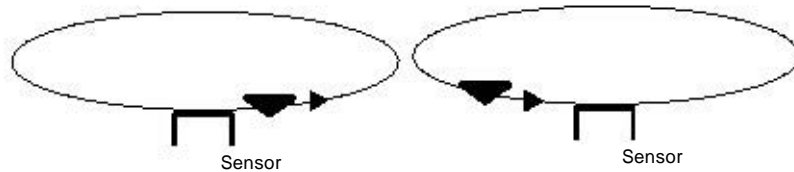
#Parameter

Sensor가 가

System

가

Dog



< >

[Table Data] [Operation data0] [Homing direction]

「Hard EOT limit active in homing operation

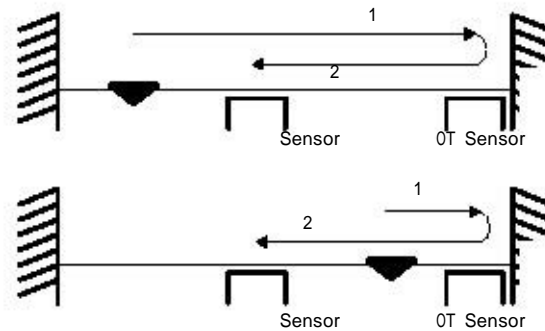
dog가

Sensor

어느쪽에

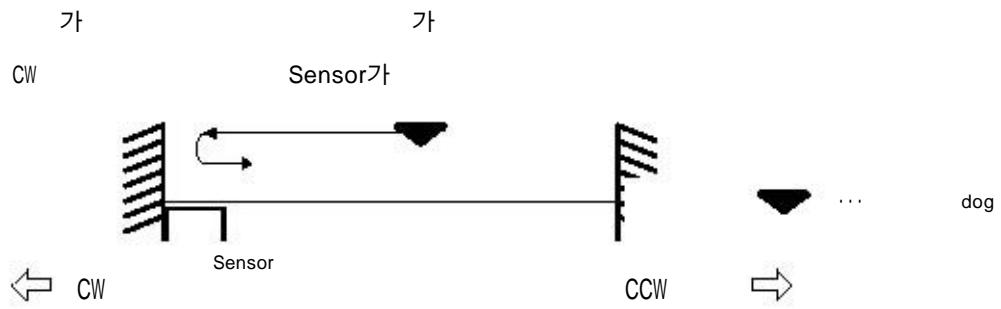
Homing()

가



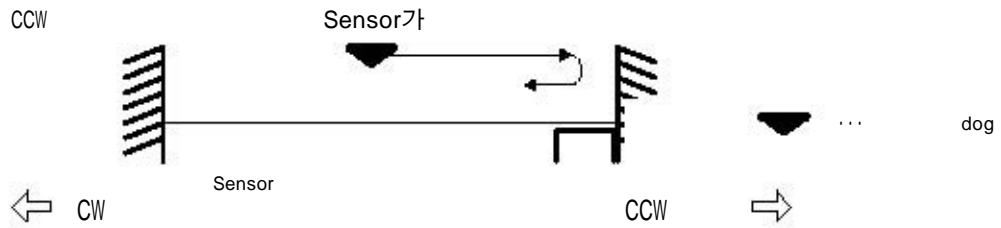
< >

[Table Data] [Operation data0] [Hard OT limit active in homing operation]
[Enable]



< >

[Table Data] [Operation data0] [Select home sensor inside] [Outside] .



< >

[Table Data] [Operation Data0] [Select home sensor inside] [Inside] .



가

가

가

.

Data 0 일람

		Table 3 63
		-
	?0~7(#90~#97)로 부터	0
가	가 가 0~3 (#72~ #75)	가 0
	0~3 (#76~ #79)	0
가 Type	[Constant acceleration] [S-curved profile]	가
Type	[Constant acceleration] [S-curved profile]	가
Hard OT	OT Sensor (TB4) Hard over travel signal search [Enable] EOT Sensor [Disable]	
	[] [] Search ZERO Pulse	
Hard OT search	OT [] OT Search Search	
	<p>ZERO Edge</p> <p>Sensor</p> <p>ZERO</p> <p>Edge CW</p> <p>Edge CCW</p>	

Table setup

No. 5

Table register

Code: Homing operation

M-function: Disable M-func.parallel: Disable Coin waiting: Disable

Continue: Disable Next table:

Table data0

Homing direction: direction

Coin window: #90:Coin width-0 5

Select acceleration time: #72:Acceleration time-0 1000

Select deceleration time: #76:Deceleration time-0 1000

Select acceleration type: Constant acceleration

Select deceleration type: Constant acceleration

Hardware EOT limit active in homing operation: Disable

Enable home sensor: Disable

Enables the home sensor during EOT search: Disable

Select home sensor inside: Outside

00000000

#Parameter

#Parameter	#Parameter	
#60	OT Search	Table Data [OT] []
#61	Search	Search
#62	1	
#63	2	
#55	ZERO Overshoot	
#58	ZERO	
#56	Offset	Offset #Parameter 가 Offset
#57		(#57 = 0)
System Register 3	Offset	#56 = 0 Offset
System Register 3	dog Error	[]

(3) (Tool)

STEP1 Tool [Control] [Operation]

STEP2 [Operation] [Homing operation]

STEP3

STEP4 [Servo On]

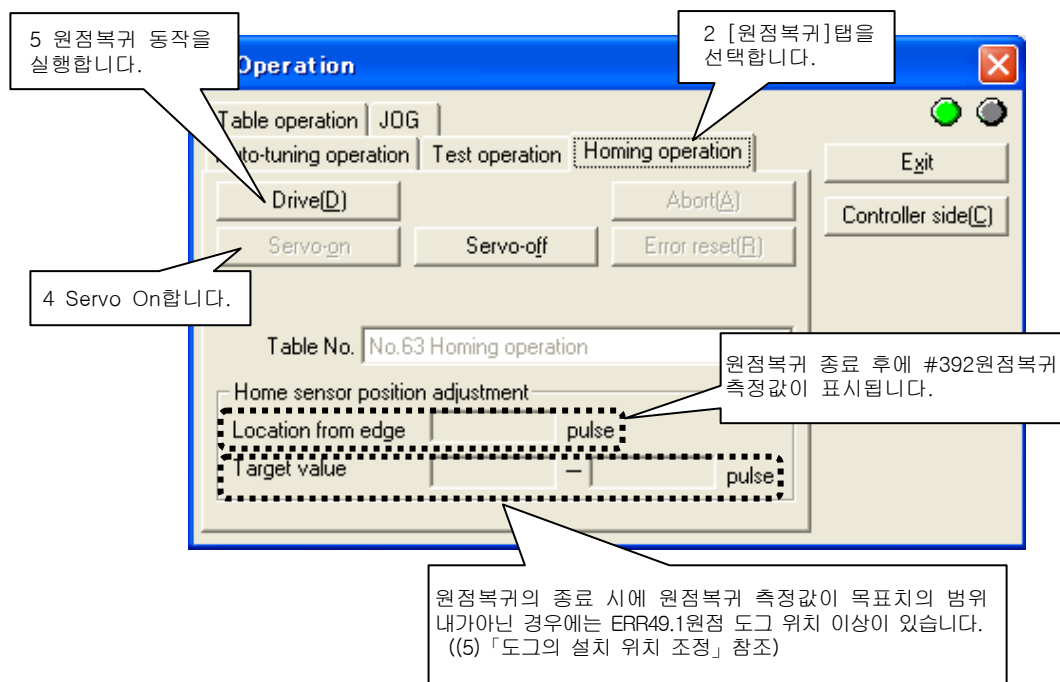
STEP5 [Drive]

STEP6 dog Error (Error Code 49.1)가 Sensor

dog 가 가

dog Error Reset ,

* [Homing] Table Data 63 . M , ,



(4) (Controller Interface)

6.4.1 (3) [Table Data (Controller Interface)]



OUT_ORG_FINISH	OFF	가	OUT_ORG_FINISH가 ON
Servo On/Off			OFF가 되지 않습니다.
		OFF가	ON이 됩니다.

(5)

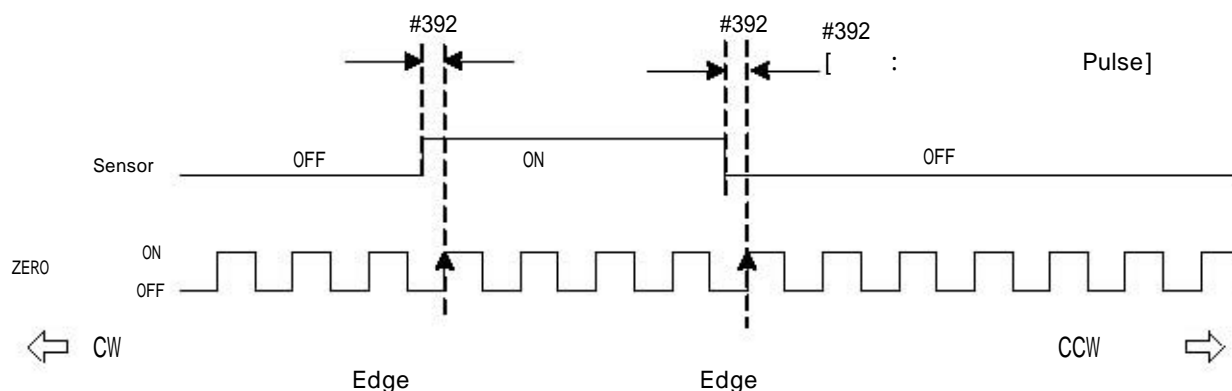
ZERO 2 (Hardware ZERO , Software ZERO)에는

On Area ZERO 신호Edge와

가" #306 ZERO Pulse " # 가
ZERO (Hardware ZERO , Software ZERO)

가

1 Area Edge
ZERO Edge (Pulse) #392 #
Error
Error



[Hardware ZERO]

#392 < 0.05 * #306 Error (Error Code49.1)
0.05 * #306 #392 < 0.1 * #306
0.1 * #306 #392 0.7 * #306
0.7 * #306 < #392 0.75 * #306
0.75 * #306 < #392 Error (Error Code49.1)

[Software ZERO]

#392 < 0.05 * #306 Error (Error Code49.1)
0.05 * #306 #392 < 0.1 * #306
0.1 * #306 #392 0.4 * #306
0.4 * #306 < #392 0.45 * #306
0.45 * #306 < #392 Error (Error Code49.1)

	ZERO	ZERO Pulse [1 /]	ZERO Pulse	#392
UD1A-	Hardware	100	40960	4096~ 28672
UD1B- (* 1)		60	43690	4396~ 30583
UD1B-004 / UD1B-006	Software	124	21140	2114~ 8456
UD1C-	Software	124	21140	2114~ 8456
UR1A-	Software	200	8192	819~ 3276
UR1B-		124		
UR1E-		150		
UR5B-		68		
UR5E-		78		
UR5C-		52		

* 1 UD1B-004, UD1B-006



가

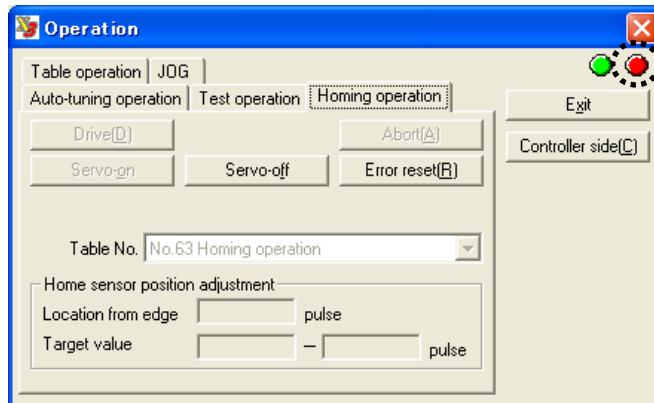
Tool []

()

Tool

가

Controller Interface



:
:
:

(6)현재의 위치를 원점 복귀후 위치에 설정하는 것은

#57 원점복귀 완료후 지령단위 지령값을 0로 하고 원점복귀를 합니다. 그후 원점 복귀후의 위치 하고싶은 위치로 이동한 후 원점 Offset위치 설정을 하여 주십시오. 작업중에는 좌표계의 재설정 은 하지말아 주십시오.

원점 Offset위치 설정의 조작에 대해서는 6.4.11[Command],8.5[Terminal]을 참조해 주십시오.

6.4.6 ABS()

Table Data

(1)

6.4.1 「Table data operation」 Table Data Flowchart

Data . Flowchart [4] Data [6] #Parameter

Data

STEP1 " " #Parameter (#90 ~ #97)
 " " #Parameter [#Parameter] [Function parameter] [INC/ABS move]

STEP2 가 /
 " 가 / " # Parameter (#72 ~ #79)
 " 가 / " #Parameter [#Parameter] [Function parameter]
 [INC/ABS move]

STEP3 가 Type / Type 가 S 가

STEP4

STEP5 가 Type

STEP6 [Direct] " " [Operation data1]
 [Direct] " " [Operation data1] 가
 #Parameter #

ABS

#Parameter

ABS #Parameter

STEP1 Tool [Data management] > [#Parameter] > [Function parameter]

STEP2 [Function parameter]로부터 [ABS/INC move]를 선택합니다.

STEP3 , 가 , , , , , override

STEP4 #Parameter / .

(2) Table Data (Tool)

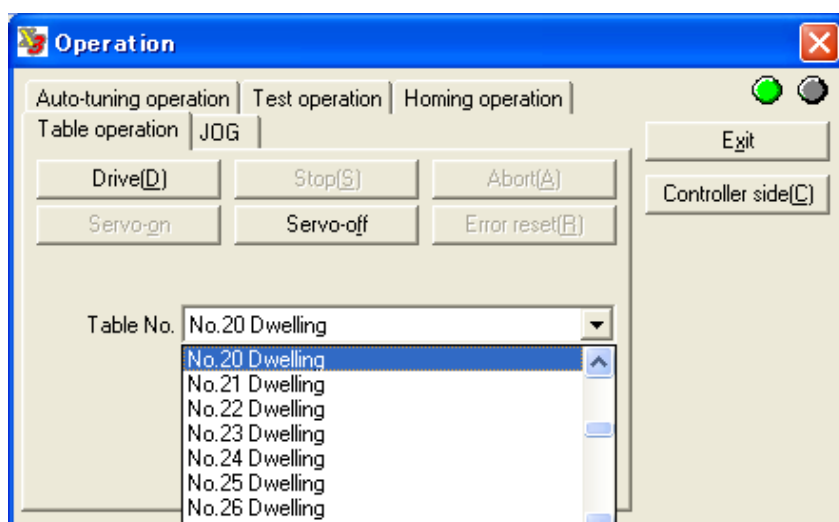
STEP1 Tool [Operation]

STEP2 [Operation] [Table operation]

STEP3 [Servo On] 가 Servo On

STEP4 Table

STEP5 [Drive] Table Data



(3) ABS (Controller Interface)

6.4.1 (3) 「Table Data (Controller Interface)

ABS

Data 0,1

		Default
	0~ 7 (#90~ #97)	0
가	가 가 0~ 3 (#72~ #75)	가 0
	0~ 3 (#76~ #79)	0
가 Type	가 S	가
Type	가 S	가
	0~ 7 (#64~ #71)	가
	System Register 1 / (.)	Type 0 []
	" " : Data1 () " " : Data1 #Parameter / #Parameter #Parameter ()	0

Type

Type 0[]	가 .(180도 회전하는 + 360 설정하여도
Type 1[]	Table Data 가 360
Type 2[]	Table Data 360
Type 3[+]	+ 360 . 360
Type 4[-]	- 360 . 360

6.4.7 INC ()

Table Data 하고

(1)

6.4.1 「Table Data operation」 Table Data Flowchart

Data . Flowchart [4]동작 Data 설정[6]#Parameter의

Data

STEP1 " " #Parameter (#90 ~ #97)
 " " #Parameter [#Parameter] [Function parameter] [INC/ABS move]

STEP2 가 /
 " 가 / " #Parameter (#72 ~ #79)
 " 가 / " #Parameter [#Parameter] [Function parameter]
 [INC/ABS move]

STEP3 가 Type/ Type 가 S자 가감속의 어느쪽이든

STEP4

STEP5 가 Type

STEP6 [Direct] " " [Operation data1]

[Direct] " " [Operation Data1]

가 됩니다.

#Parameter #

INC #Parameter

INC #Parameter

STEP1 Tool [Data management] > [#Parameter] > [Function parameter]

STEP2 [Function parameter] [ABS/INC move]

STEP3 , 가 , , , , , override

STEP4 #Parameter /

(2) Table Data (Tool)

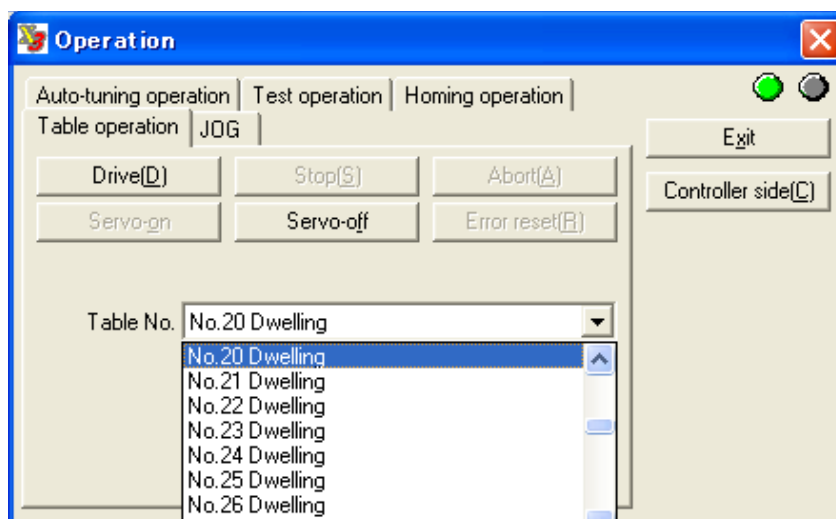
STEP1 Tool [Operation]

STEP2 [Operation] [Table operation]

STEP3 [Servo On] 가 Servo On

STEP4 Table

STEP5 [Drive] Table Data



(3) INC (Controller Interface)

6.4.1 (3) 「Table Data (CN4 Interface 의한 일때)」

INC

Data 0,1

		Default
	0~ 7 (#90~ #97)	0
가	가 가 0~ 3 (#72~ #75)에서	가 0
	0~ 3 (#76~ #79)에서	0
가 Type	가 S	가
Type	가 S	가
	0~ 7 (#64~ #71)	가
	System Register1 계/ (.)	Type 0 []
	" " : Data () : Data#Parameter/ #Parameter· #Parameter· ()	0

Type

Type 0[]	경우에는 + 360 . (180도
Type 1[]	Table Data 가 360
Type 2[]	Table Data . 360
Type 3[+]	+ 360 . 360
Type 4[-]	- 360 . 360

6.4.8 Dwell

()
가 0 ~ 65535msec 1msec
2 Table

(1)

6.4.1 「Table data operation」 Table Data Flowchart
Data . Flowchart [4] Data [6] #Parameter

Data

STEP1 Tool Main [Table Data]
STEP2 Table
STEP3 () (ms)
STEP4 M ,

6.4.9 Parameter

Table #Parameter 가 Table
 Parameter #Parameter(#100~109)를 계수용
 Counter Count
 Sample Table
 . (「 #Parameter 」)

(1)

Tool . Table 「 Code」 Parameter
 「 Data 0」 Type 「 Data 1」

Parameter 변경을 선택합니다.

Table setup

No. 10

Table register

Code Parameter change

M-function Invalid M-func.parallel Invalid Coin waiting Invalid

Continue Invalid Next table

Table data0

Type Binary operation substitute3

#Parameter No. substituted #100 Variable 0

Operator code +

Save change Not saved

ex) #100=#101+#302

설정 상태가 표시됩니다

Table data1

Type1 #Parameter

Calculate #Parameter No.1 #101 Variable 1

Type2 #Monitor

Calculate #Monitoring No.2 #302 Motor resolution

연산 Type에 따라서 설정 항목이 바뀝니다

Cancel

Regist

0018

6406

FFFF8265

(2)

Type

을 하여 주십시오.

(Changed)#Parameter
#Parameter

Code

가

		가 Type
가	+	2
	-	2
	*	2
	/	2
	%	2
Bit AND	&	2
Bit EXOR	^	2
Bit OR		2
Bit	~	

가 Code

#Parameter가 RAM #Parameter 경우[Do not regist]를
EEP-ROM #Parameter 「Regist」
Counter 는[Do not regist]를 선택하여 주십시오.



#Parameter EEP-ROM .EEP-ROM Write 가
(100)

EEP-ROM 가 가

Table 「Parameter 」 #Parameter 「 」

(3) Type

「Parameter

」

#Parameter

가

.

,

#Parameter

「Operation data1」로 지

(32bit)

「Operator code」

)

#100=123

#100=-123

##100=123

#Parameter

「Operation data1」

#Parameter/#

#Parameter

RAM

#Parameter

「Operator code」

) #100=#101

1

#Parameter

「Operation Data1」

(부 32bit)

Code 「

(-)」

「Bit

(~)」

가

Code

[50.5 실행불가 Error]에서

) #100=~123

2

#Parameter

「Operation data1」

#Parameter/#

Code 「

(-)」

「Bit

(~)」

가

Code

[50.5 실행불가 Error]에서

) #100=~123

2

1

#Parameter

「Data1」

(24bit)

#Parameter/

#

Code

「50.5

가 Error」

) #100=123+#101

2	2	#Parameter 「 Data1 」 #Parameter/# (부 24bit) . Code 「 50.5 가 Error 」 .) #100=#101+123
2	3	#Parameter 「 Data1 」 #Parameter· # . Code 「 50.5 가 Error 」 .) #100=#101+#102

6.4.10

가

#Parameter/#

#Parameter

Sample Table

. (「Parameter 」)

(1)

Tool

. Table

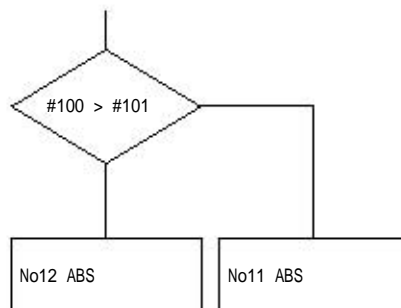
화면의 [동작 Code]

조건 분기를 선택합니다

조건 분기 성립시 JAMP Source Table 번호

조건 성립시 JAMP Source Table 번호
조건 성립시에 반드시 실행됩니다.

, Flowchart



(2)

Code

가

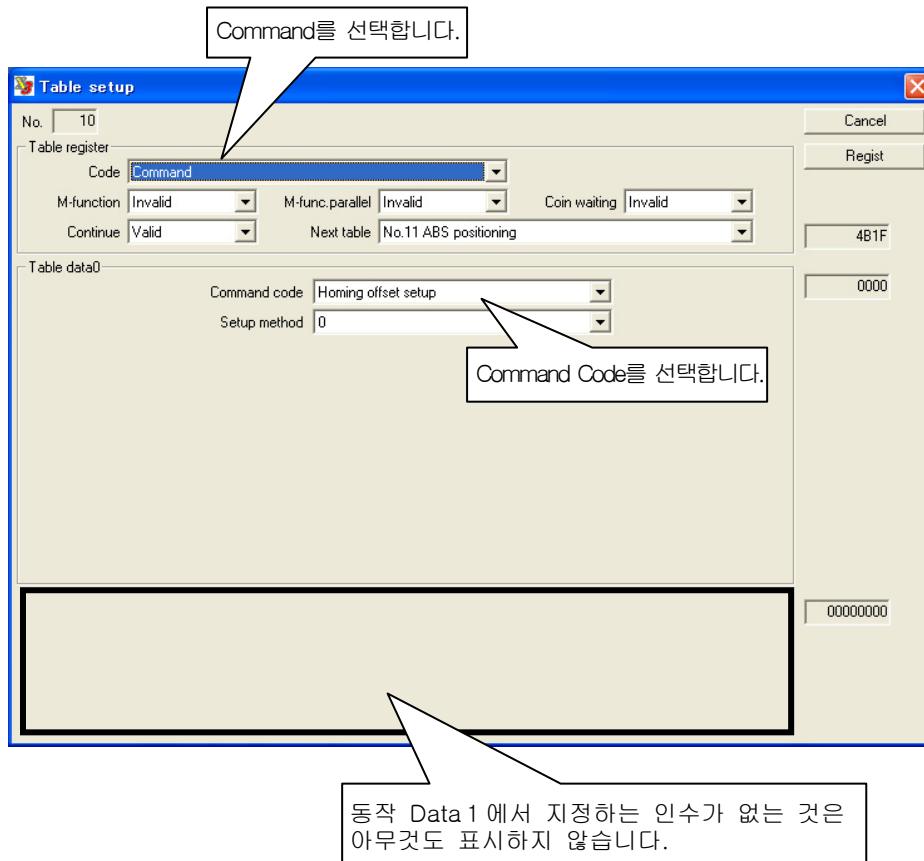
>	
<	
=	
& &	
&	Bit AND
^	Bit EXOR
	Bit OR

6.4.11 Command

Command Interface 가 @Command 지령의 일부를
가 . (@Command 8.4.2)

(1)

Tool . Table 화면의 [Code] Command



(2) Command

Offset

Offset	Command	Offset	Parameter
가	#56		
Command	.	#56Parameter	.
Interface	@10 Command		.

$$A = \quad + \#56$$

0 A (가 Offset)
 0 A (#112 Scaling)/2

$$\begin{aligned} \#56 &= A \\ \#56 &= A - \#112 \end{aligned}$$

1 Offset)

$$\#56 = A$$

2 (- Offset)

$$\#56 = A - \#112$$

$$\#56 = \quad + \#56$$



#57 Parameter가 0의 상태로 원점복귀를 마친경우

. 0

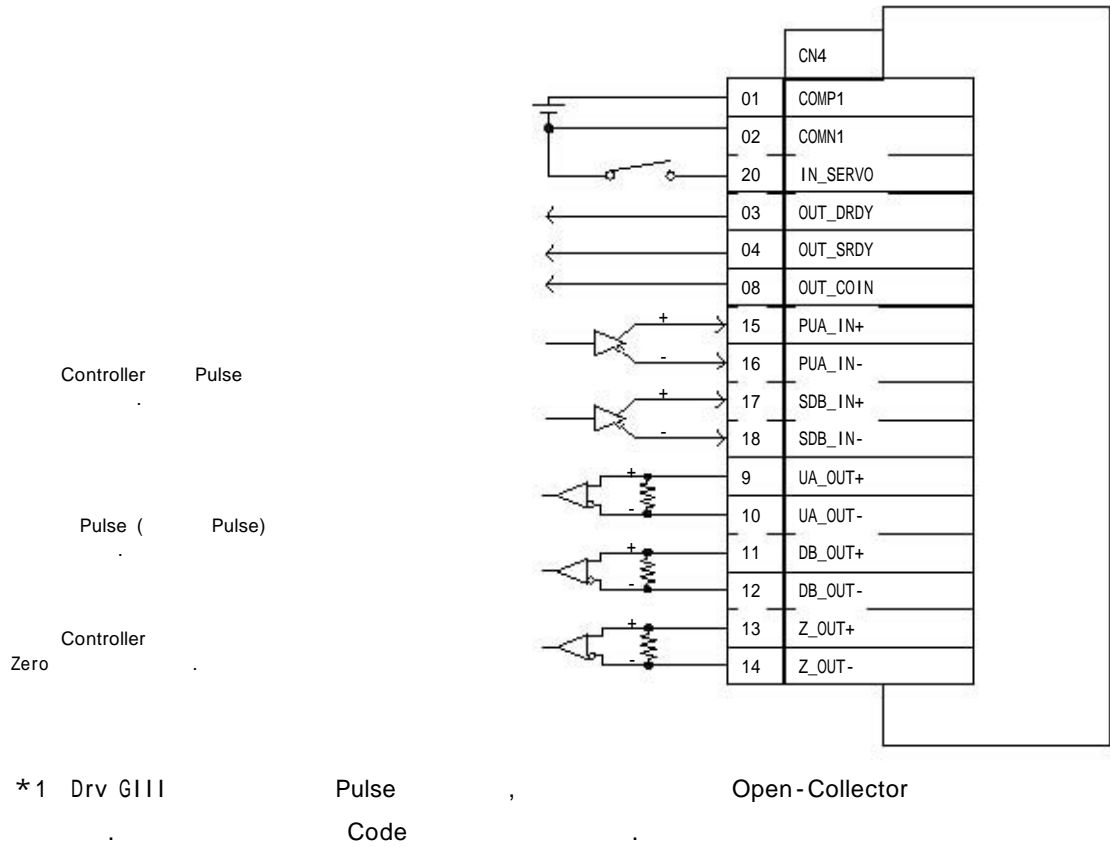
Command
 Command . (#Parameter)
 . [17.2좌표계이상B Error]가
 .
 Interface @13Command .

Command Controller Interface
 (1 2)
 .
 I/O #Parameter가 .
 IN_VELFREQ_SEL OFF시:#6 1
 ON시 :#7 2
 IN_POSFREQ_SEL OFF시:#12 1
 ON시 :#13 2
 #Parameter RAM #Parameter가 . EEP-ROM상의 등록이
 Parameter .
 Interface @14Command .

6.5 Controller

6.5.1 Mode Pulse

(1)

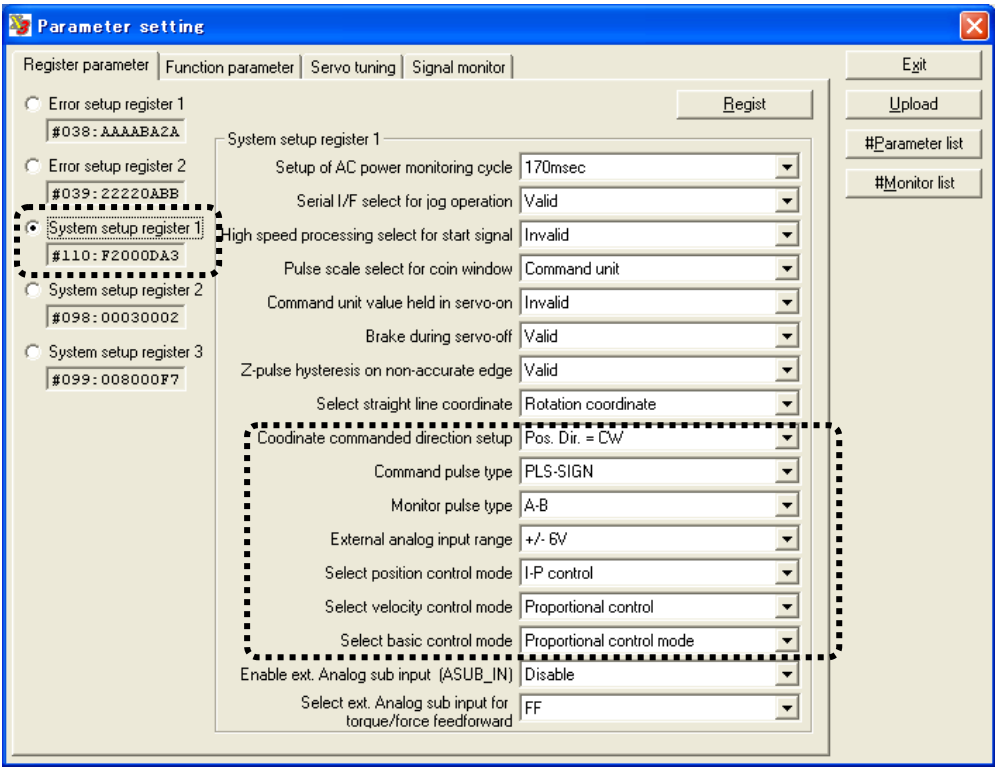
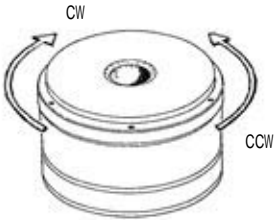


(2) #Parameter

#Parameter . DYNASERV I -PD
(: - , :) .

STEP1 Tool [#Parameter] [Register Parameter]
STEP2 [System setup register1]
STEP3 [Position control mode] " Mode"
STEP4 [Velocity control mode] " Proportional control"
STEP5 [Position control mode] " -
STEP6 [Coordinate command direction setup] Pulse

		Pulse	
		+	-
		CW	CCW
		CCW	CW


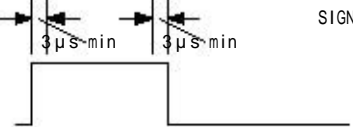


STEP7 [Pulse Type

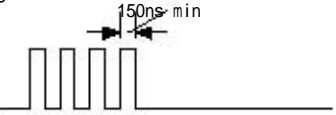
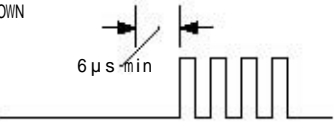
Pulse Type 3 가 . (PLS, SIGN input, UP, DOWN input, A, B input)

Pulse Type


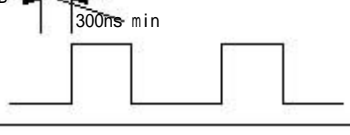
PLS, SIGN Type

			+	-		
PUA_IN +	1	CN4-15	<div>PLS</div> <div>H Level : 150ns_{min}</div> 		<div>H()</div> <div>PLS</div> <div>Pulse</div> <div>1ms Pulse 가</div> <div>Error Code31.0</div> <div>Error가</div>	
PUA_IN -		CN4-16				
SDB_IN +	2	CN4-17	<div>SIGN</div> 			
SDB_IN -		CN4-18				
			2 MPPS			
	Open - Collector		200kPPS			

UP, DOWN Type

					H () UP, DOWN Pulse 1ms Pulse 가 Error Code31.0 Error가
			+	-	
PUA_IN +	1	CN4-15			
PUA_IN -		CN4-16			
SDB_IN +	2	CN4-17			
SDB_IN -		CN4-18			
			2 MPPS		
	Open - Collector		200kPPS		

A, B Type

		(A, B)		
		+	-	
PUA_IN +	1	CN4-15		H () Pulse 1ms Pulse 가 Error Code31.0 Error가
PUA_IN -		CN4-16		
SDB_IN +	2	CN4-17		
SDB_IN -		CN4-18		
		500kPPS		
Open - Collector		200kPPS		



: G 3 - - -



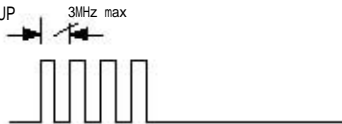
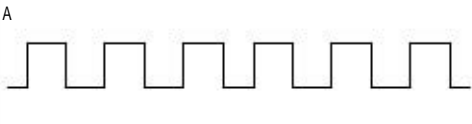

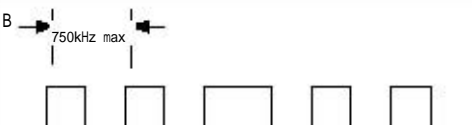
Interface

S : / . .

T : / . .

U : 5V / : 200kHz

STEP8 Pulse
 Controller
 [Pulse Type]
 Pulse Type 2 가 . (UP, DOWN input, A,B input)
 Pulse Type

Pulse		Type	(UP、 DOWN)		(A、 B)	
			+	-	+	-
UA_OUT+	1	CN4-9				
UA_OUT-		CN4-10				
DB_OUT+	2	CN4-11				
DB_OUT -		CN4-12				
			3Mpps		750kpps	

(3) Servo

.(6.4.3 참조)

*

Servo

[7 Servo조정]을

.

(4)

Pulse

가

.

OUT_BUSY:OFF

OUT_DRDY:ON

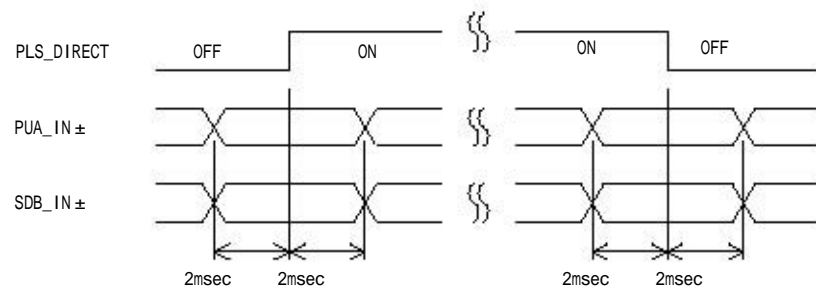
OUT_SRDY:ON

(5)Pulse

IN_PLS_DIRECT ON Controller Interface Controller
1 Pulse Scaling 1/(모터 분해능)

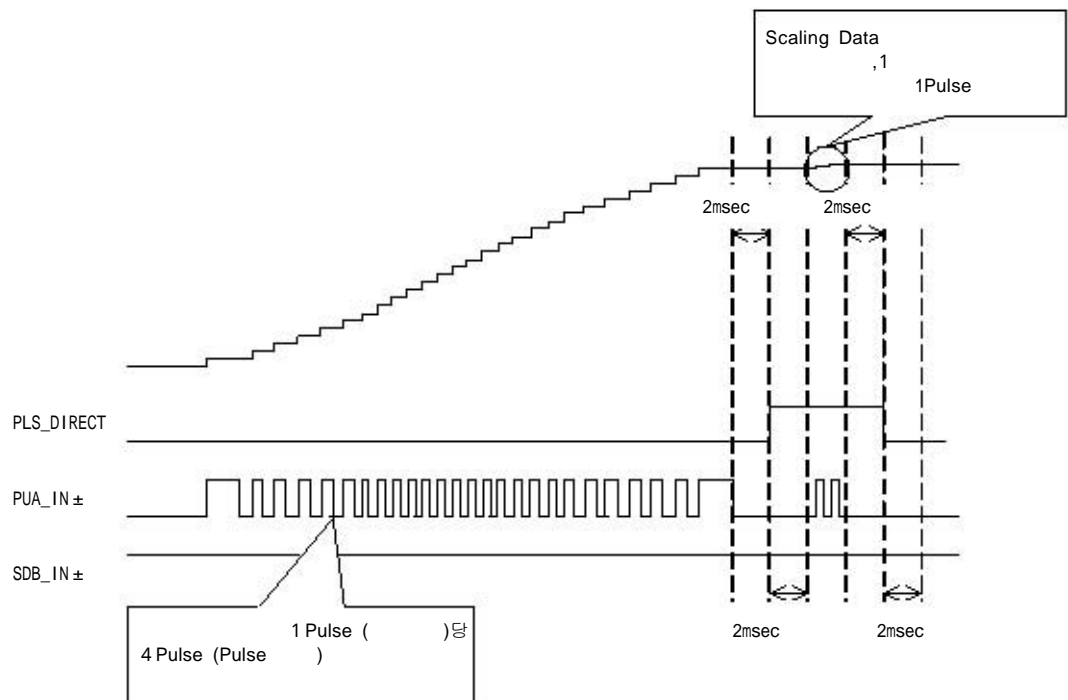
Scaling Pulse 가
Controller 1Pulse

가
「PLS_DIRECT」 (Off On, On Off) , 2msec의 사이는
(PLS、SIGN), (UP、DOWN), (A、B)



< Pulse >

#Parameter
112 Scaling Data () = 1024000
113 Scaling Data (Pulse) = 4096000
System Register1 Pulse Type = PLS-SIGN



6.5.2

Mode

Analog

$\pm 10V$

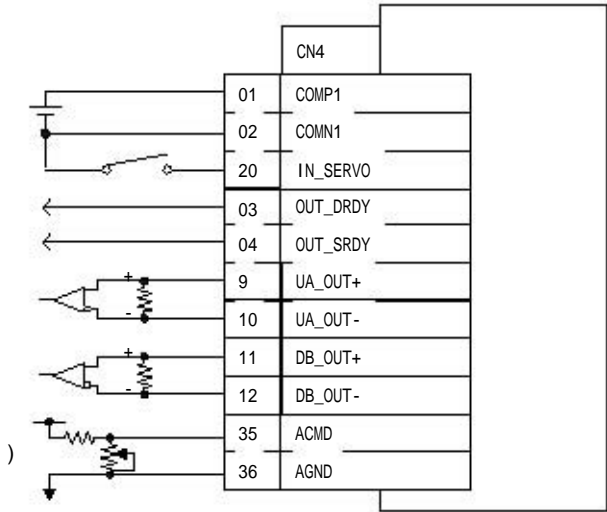
$\pm 6V$

#Parameter

(1)

Pulse (Pulse)

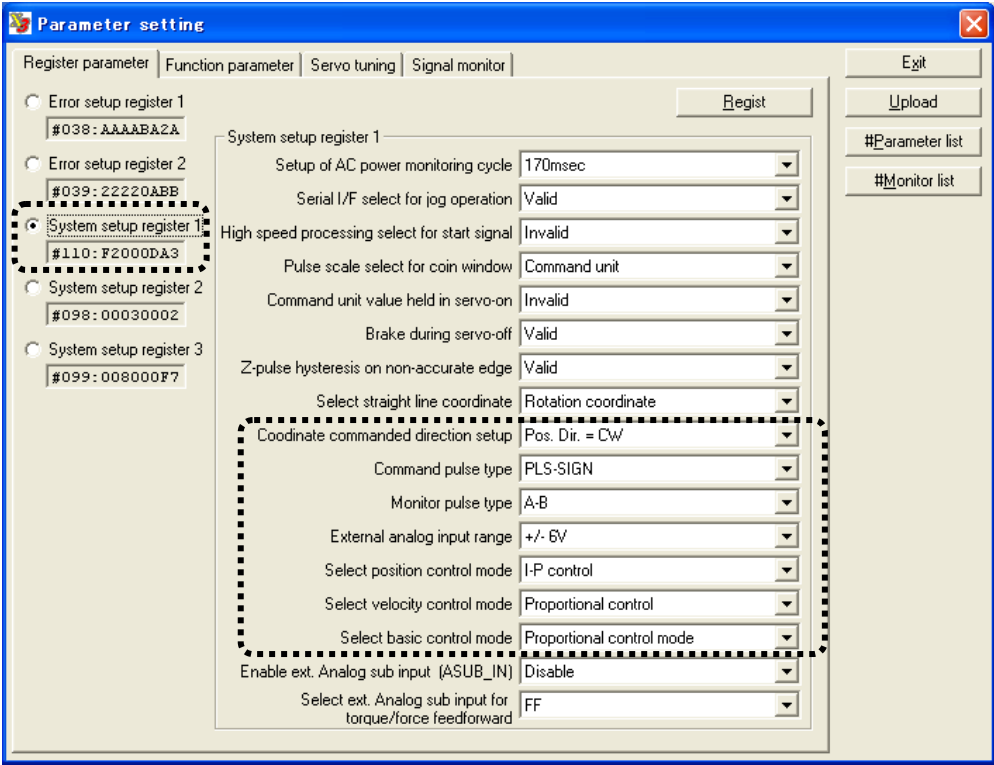
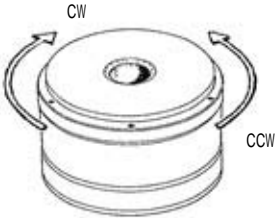
(Analog)



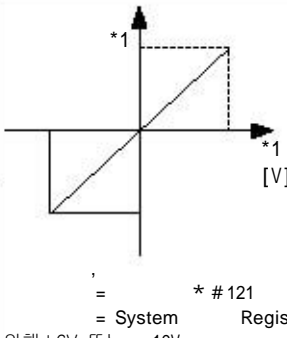
(2) #Parameter

STEP1 Tool [Data management] [#Parameter]
 STEP2 [System setup register1]
 STEP3 [Select basic control mode] " Mode"
 STEP4 [External analog input range] , Range
 (± 10V 6V)
 STEP5 Range Range (6 V 혹은 10 V)에 대한 속도를
 #121
 (# 121 1/100% .)
 STEP6 [Velocity control] [Proportional-integral control] [Proportional control]
 STEP7 [Coordinate commanded direction setup]
 STEP8

		(+)	(-)
		CW	CCW
		CCW	CW



* System Register1 / # 110 / .

ACMD_IN+	Analog () +	CN4-35	
ACMD_IN-	Analog (- Grand)	CN4-36	

Analog Offset

Analog 0V

Analog Offset

#Parameter #81 Analog Offset Offset

Analog A/D 변환한 값에 가산되어 속도 지령량으로

(3) Servo

* Servo 7.조정을 참조하여

(4)

Mode

가

OUT_BUSY:OFF

OUT_DRDY:ON

OUT_SRDY:ON

6.5.3

Mode

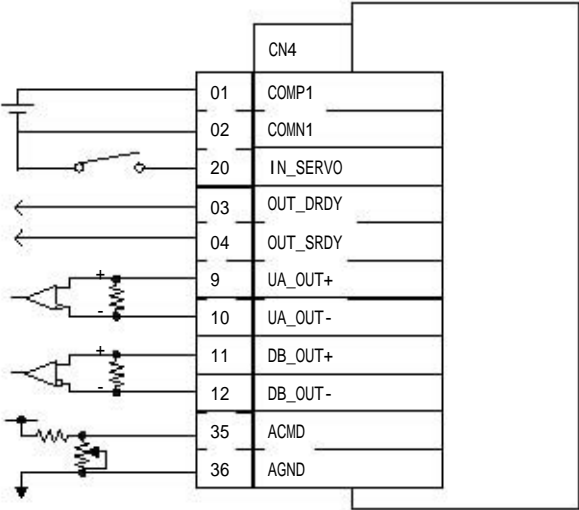
Controller Analog
± 10V ± 6V

토크/추력

(1)

Pulse (Pulse)

(Analog)



/	Mode	Controller

(2) #Parameter

STEP1 Tool [Data management] [#Parameter]

STEP2 [System setup Register1]

STEP3 [Select basic control mode] " Mode"

STEP4 [External command input range] Range

(± 10V 6V)

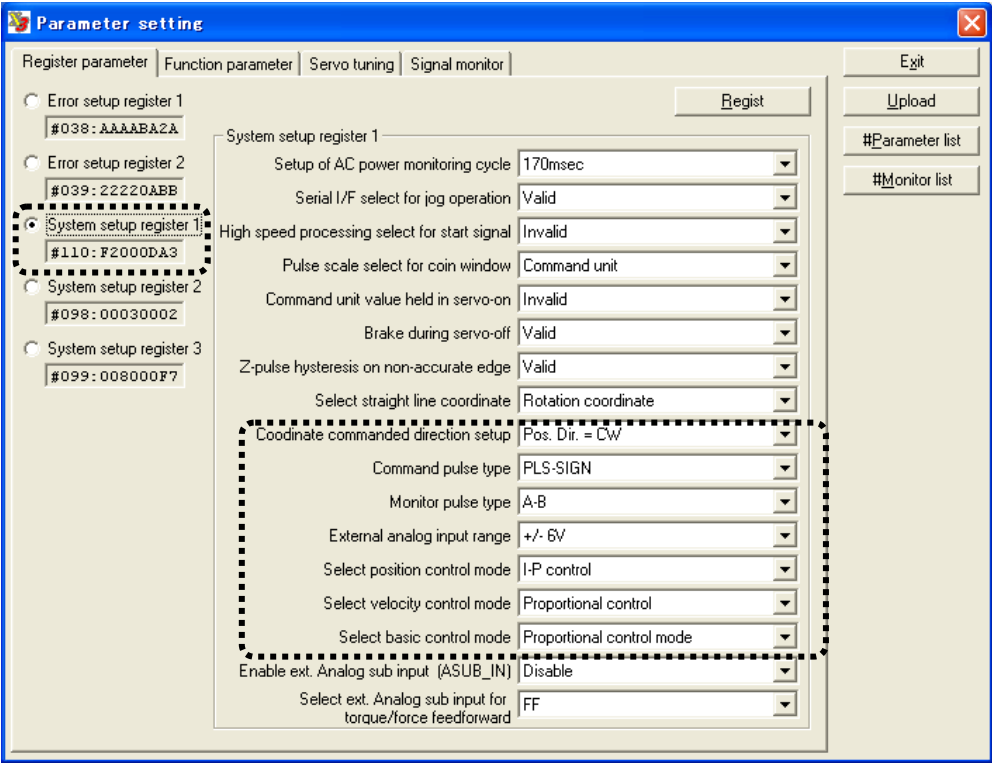
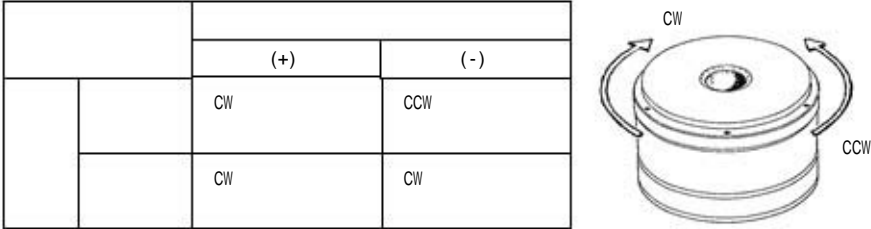
STEP5 Range Range (6V 혹은 10V)에 대한 토오크를

#122 /

(#122 한 1/100% .)

STEP6 [Coordinate command direction setup]

STEP7



ACMD_IN+	Analog (/ +)	CN4-35	
ACMD_IN-	Analog (- Gaand)	CN4-36	

Analog Offset

Analog 0V 가

Analog Offset

#Parameter #81 Analog Offset Offset
 Analog A/D 변환한 값에 가산되어 토크/추력 지령량으로서

(3) Servo

Filter

(4)

/ Mode 가

OUT_BUSY: OFF
 OUT_DRDY: ON
 OUT_SRDY: ON

6.6

(OUT_COIN)

가

Controller

()가 Parameter

ON이

()

가

가 ON이 되는 일이 있습니다.

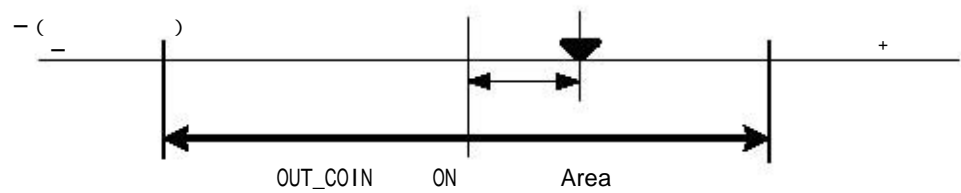
Chattering

" #29

"

가

ON



Mode

Parameter

IN_POSW.0~IN_POSW.2의

Table Data

Table Data

Parameter



Table Data

Table Data

Mode

위치제어 모드시의 입력 접점상태와 선택위치 정정 Parameter

Parameter				
		IN_POSW.2	IN_POSW.1	IN_POSW.0
#90	0	OFF	OFF	OFF
#91	1	OFF	OFF	ON
#92	2	OFF	ON	OFF
#93	3	OFF	ON	ON
#94	4	ON	OFF	OFF
#95	5	ON	OFF	ON
#96	6	ON	ON	OFF
#97	7	ON	ON	ON



System

Register

Parameter(#90 ~ #97)

Pulse

Parameter

Overshoot

가 #29위치 정정신호 체터링 처리 회수
가ION . Servo
(OUT_COIN) (1ms)

#330 토크/추력 지령치

#342 속도 현재치

#372 속도 펄스 위치 편차

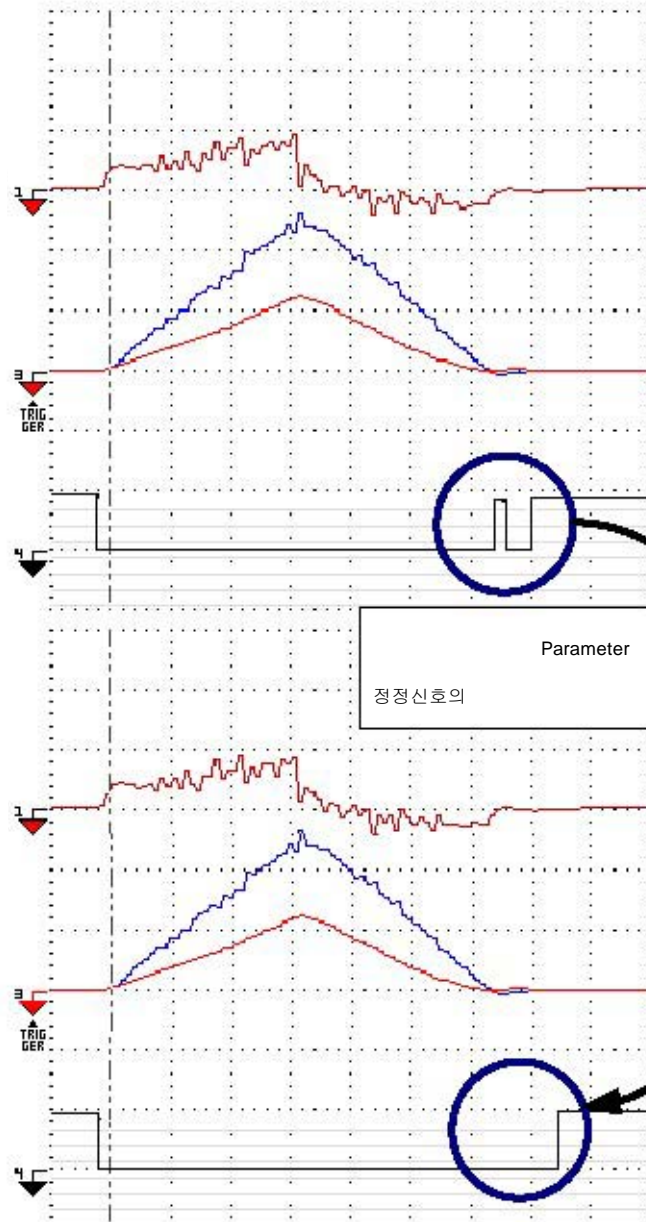
위치 정정신호

#330 토크/추력지령치

#342 속도 현재치

#372 속도 펄스 위치 편차

위치 정정신호



Parameter

Parameter	Parameter	
#90~ #97		가 Parameter OUT_COIN ON Table Data Parameter가 Binary OFF #90 IN_POSW.0~ IN_POSW.2 IN_POSW.0~ IN_POSW.2 가
#28	Filter	System Register2 Filter Filtering .COIN 가 OUT_COIN Filter 가 1차 LPF에서
#29		OUT_COIN 가(#29) × 1[msec] 상태가 "ON"이 됩니다.
#110 bit17	System Register1 Pulse	Parameter 0 : 단위, 1: Pulse 가

	Parameter	
#372	Pulse	Pulse . Pulse 가 Pulse

I/O

	I/O	I/O	(*2)	
(OUT_COIN)	Block2 Bit4	CN4-8	#320 Status Register1 bit16	가 가 ON이 됩니다. 모터가 ON이 됩니다.
(OUT_POS)	Block2 Bit5	(*1)	#320 Status Register1 bit17	Mode가 Mode 가
Busy (OUT_BUSY)	Block0 Bit6	CN4-5	-	Table Data Jog 가 " ON이 됩니다. Table Data 가 " " OUT_BUSY신호는 OFF가
(OUT_MODE_EXE)	Block2 Bit0	(*1)	#320 Status Register1 bit12	Table Data (N_START) ON . Table Data 가 " " OUT_MODE_EXE OFF가
OUT_AXIS_EXE	Block0 Bit3	(*1)	#320 Status Register1 bit10	Mode, Mode ON Table Data 가 " " OUT_AXIS_EXE OFF가

* 1 ...

I/O

* 2 ...

Tool "

", " Parameter/

", "

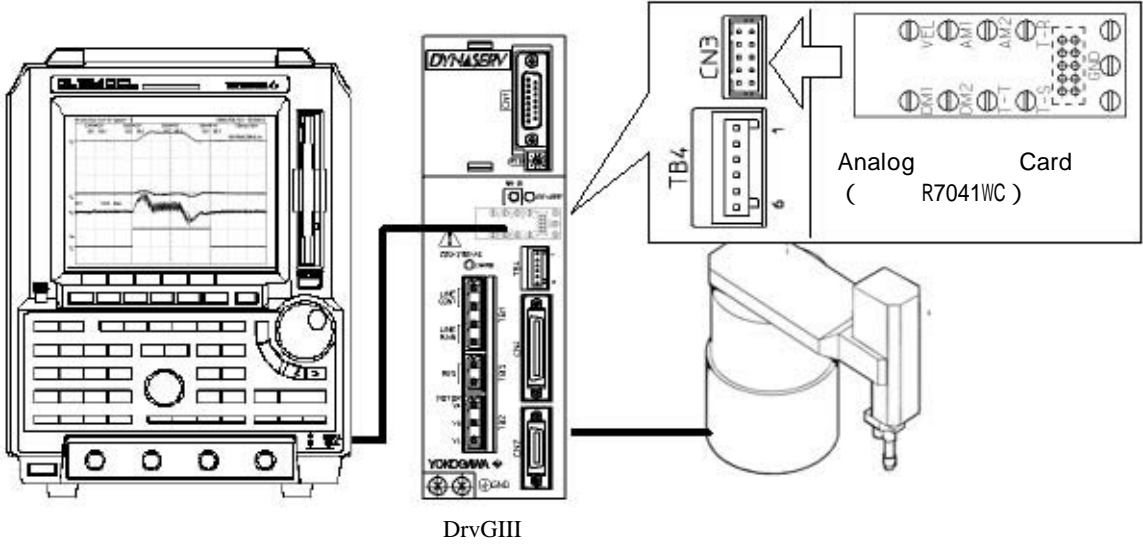
"

6.7

* , Analog Card()R7041WC가 필요합니다.

Analog Card

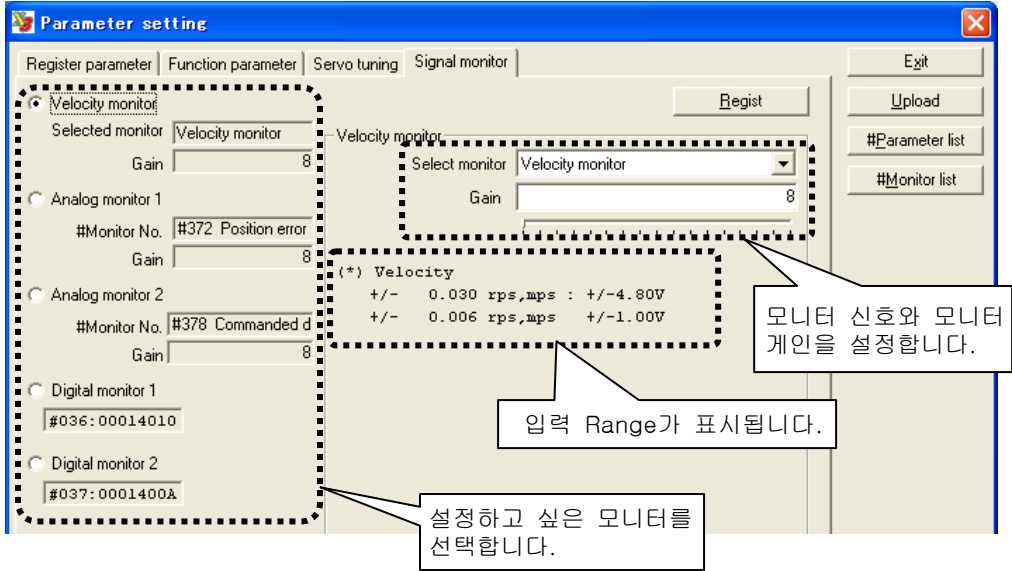
가



			Level	
VEL		CN3-1		AC Analog 력 입니다. Range Tool 가 . $\pm 3.07V \text{ VS } \pm 2^n$ (8 n 24) : 4.8V
AM1	Analog 1	CN3-2		#Parameter/# (#0- #427) Analog 력 합니다. Range Tool .
AM2	Analog 2	CN3-3		$\pm 3.07V \text{ VS } \pm 2^n$ (8 n 24) : 4.8V
DM1	1	CN3-4	1 : 5V 0 : 0V	#Parameter # (#0- #427) bit .
DM2	2	CN3-5		
T-R		CN3-6	$\pm = \pm 4.3V$	
GND		CN3-10	-	Pin .

(1) Parameter

- STEP1 Tool [Data management] [#Parameter]
 STEP2 [Signal monitor terminal tab]
 STEP3
 STEP4 (Digital monitor)
 * Range가
 STEP5 [Regist]



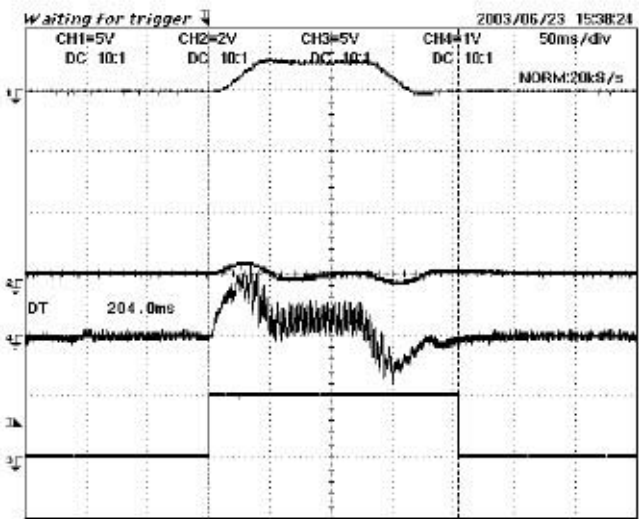
< >

VEL

AM1 #372Pulse

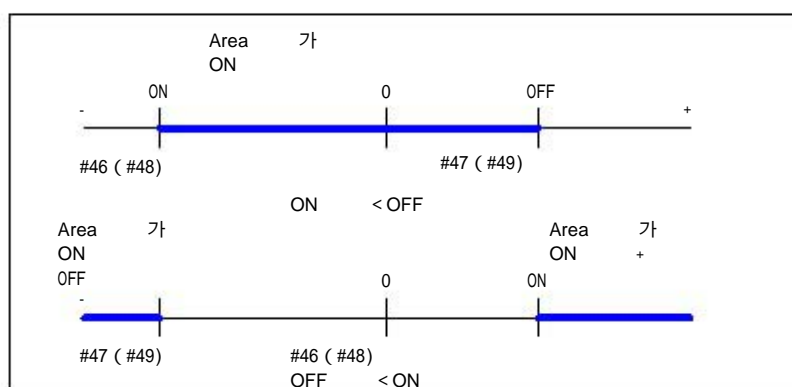
AM2 #325

DM1 #320 Status Register Bit12

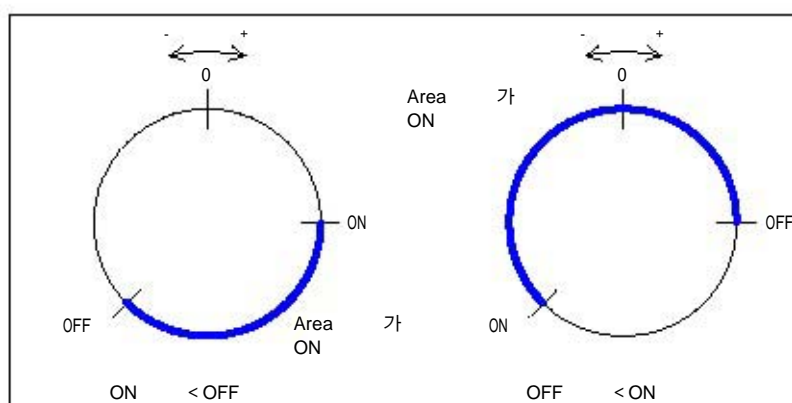


TI 71M01D03-01KA 14th Edition : 2010.12.15

Parameter		가	
Area	가2	Controller Interface	
OUT_AREA_0, OUT_AREA_1	Tool	#321	Status Register 2 (Bit26, Bit27)
"#46 Area	0 On " "	"#48 Area	1 On "Parameter On
			"#47 Area 신호0 OFF", "#49 Area 신호1
"Parameter	OFF		. ON
OFF			"#376지령단위 현재값"에 대한 신호출력



[]



[]

STEP1 [Control] [Terminal]

STEP2	Area	Parameter
-------	------	-----------

STEP1 [Data management] [I/O]

STEP2	I/O	Area	0	Area	1
-------	-----	------	---	------	---

6.9

/

Parameter#59

Limit Controller Interface
Analog Analog 가
Parameter Analog

Parameter #59

STEP1 Tool [Control] [Terminal#59]
STEP2 Edit
[1/100%] . 100% 오크/

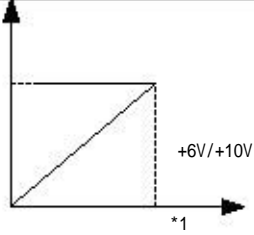
Analog

Analog System Register1에서 외부 Analog보조 신호입력을

토오크/

STEP1 Tool [Data management] [Parameter]
STEP2 [System setup Register1] " Analog " "
.(
STEP3 [System setup Register 1] " Analog 토오크/ FF "
" 을
STEP4 [Regist]
STEP5 오크/ Analog

* 오크/

ASUB_IN+	(/) ⁺	CN4-33	 <p>*1</p> <p>기준 제한 토오크/추력, 기준전압은 아래식으로 구해진다 기준제한 토오크/추력= 최대 토오크*#122외부 토오크/추력입력감도*0.0001[Nm] 기준전압=System설정 레지스터1의 외부지령입력 Range에 해±6V 또는±10V를 선택</p>
ASUB_IN-	(Grand) ⁻	CN4-34	

6.10 / Fee-forward

Mode 크/ Feed-forward ,
Controller Interface 오크/ Feed-forward Analog 가
Mode .

Parameter

System Register 1 Analog 크/추력

Feed forward .

STEP1 Tool [Data management] [Parameter] .

STEP2 [System setup Register 1] Open .

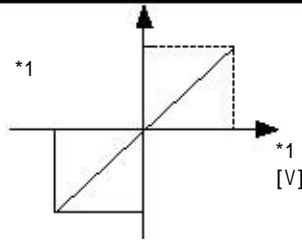
STEP3 [External Analog auxiliary input (A_SUB_IN)] [Use] .

STEP4 [Analog . Feed Forward 선택 [/
Feed forward] . (크/추력 제한으로
)

STEP5 [Analog (ACMD_IN,ASUB_IN) Range] [± 6V] [± 10V] .

STEP6 Parameter [Regist] .

STEP7 크/추 Feed forward Analog .

ASUB_IN+	(/ Feed forward) +	CN4-33	 <p>기준 토오크/추력Feedforward량,기준전압은 아래식으로 구한다 기준제한 토오크/추력Feedforward량 = 최대 토오크*#122외부 토오크/추력입력감도*0.0001 기준전압=System설정 레지스터1의 외부지령입력 Range에 ± 6V ± 10V</p>
ASUB_IN-	(Grand) -	CN4-34	

6.11 Controller

Controller Interface

Zero
Controller

Controller

Sensor

ZERO

Pulse
1

ZERO

ZERO

Hardware

, Pulse

ZERO

. ()

.ZERO 가 ON

Software

ZERO 가 ON

200 μ sec

ZERO

Edge

Edge가

. ()

Edge

원점

	ZERO	ZERO Pulse [1 /]	ZERO ON Duty
UD1A-	Hardware	100	10%
UD1B- (* 1)		60	12%
UD1B-004 / UD1B-006	Software	124	약50%
UD1C-	Software	124	
UR1A-	Software	200	
UR1B-		124	
UR1E-		150	
UR5B-		68	
UR5E-		78	
UR5C-		52	

* 1 UD1B-004, UD1B-006

ZERO

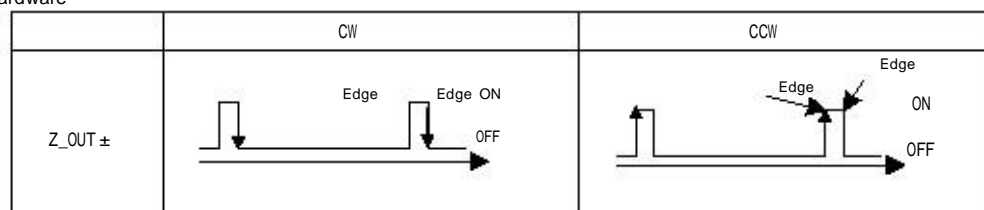
Timing

ZERO

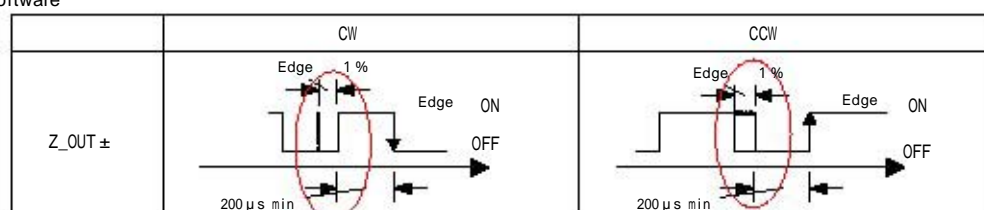
Edge

Edge

Hardware



Software



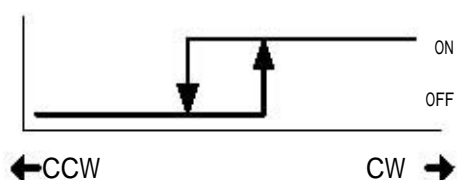
Hysteresis ZERO

1%



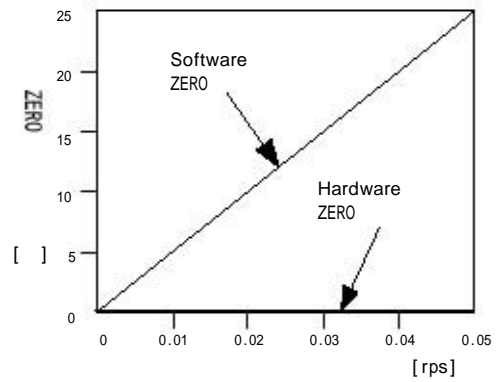
Soft Zero

Edge Hysteresis



ZERO

ZERO



ZERO

가

Edge

Edge

ZERO

가

Edge

가

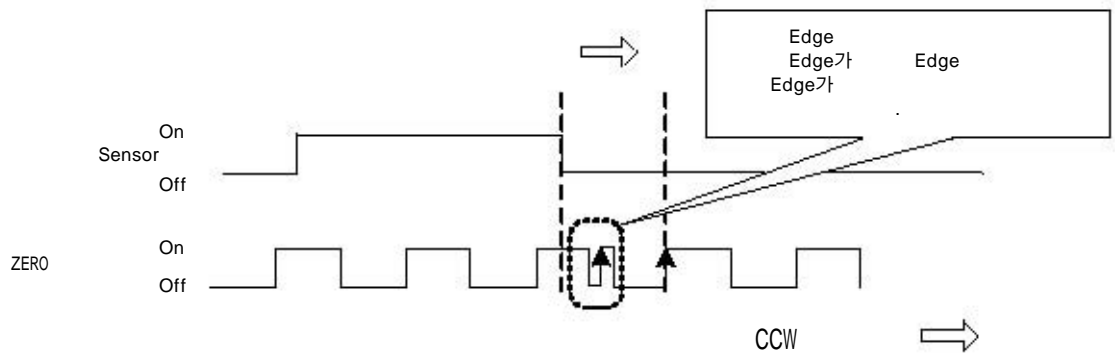
가

)

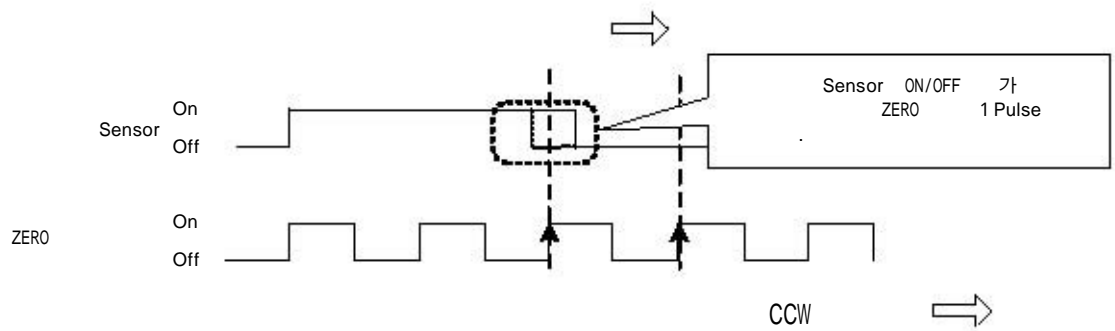
CCW (

Edge :

Edge)



Sensor
Edge
1 Pulse
Sensor가 ON/OFF
가
Sensor
ZERO



7.

7.1 Servo

#Parameter
Servo

Loop

#Parameter

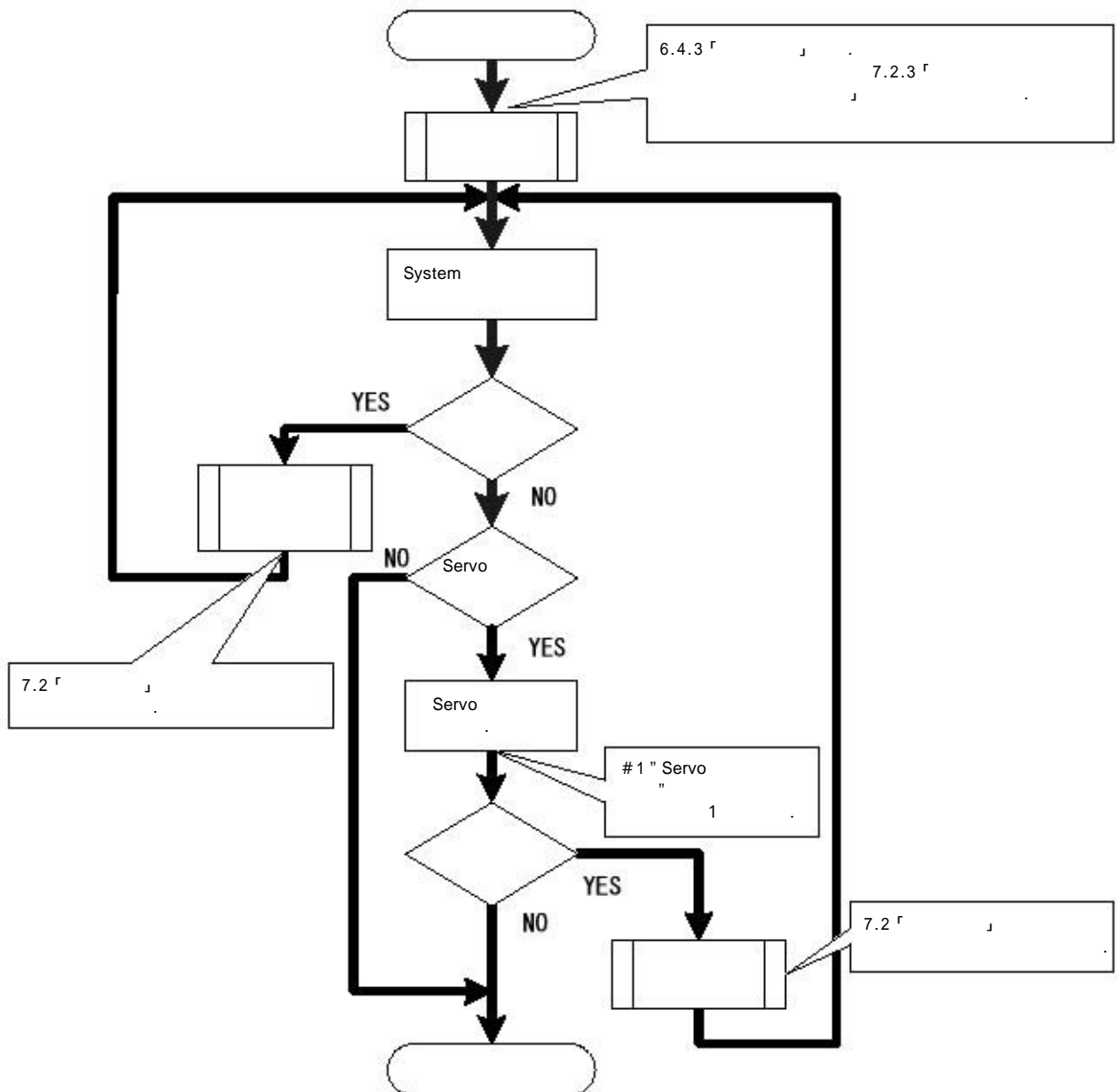
Servo

#Parameter

Servo

Page

Servo



가

가

. Servo

		<p>· Hz</p> <p>()</p>	<p>가</p> <p>$< 3^*$</p> <p>(1.5)</p> <p>· #0 Servo () 가 20%</p>
			<p>Limiter , 가 가</p> <p>「 Limiter 」</p>
		<p>Hz- 200Hz</p>	<p>· f_r $f_r < f_v$ f_r 180° ()</p> <p>· Filter Filter 가 ? Filter</p> <p>#1 Servo ()</p>
		<p>Hz-2kHz</p>	<p>· Loop 가 가</p> <p>· Filter</p> <p>· (7.2.1기계공진 대책참조) 감쇠 시킵니다.(7.2.2 Filter 참조)</p>

7.2

7.2.1

Dynaserv

Loop

가

3가 가

(1)

(2)Servo (,)

(3)Filter (1 , Notch Filter, Filter)

가

(1)

Servo

가

(2)Servo

(3)Filter

대책 (2)보다 Servo

가

Filter

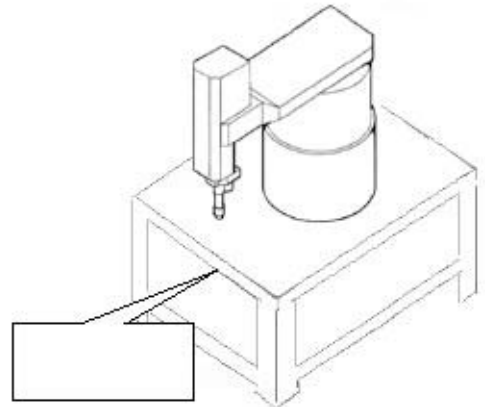
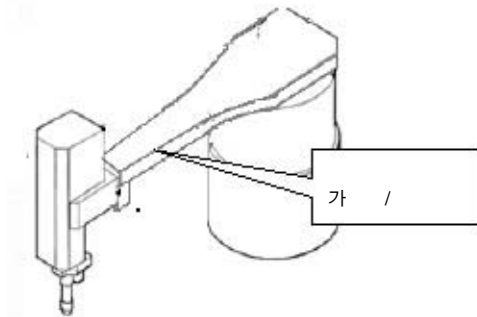
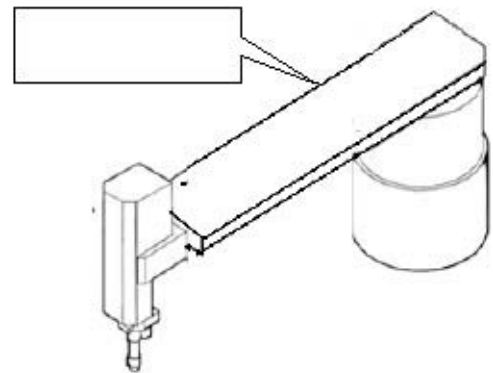
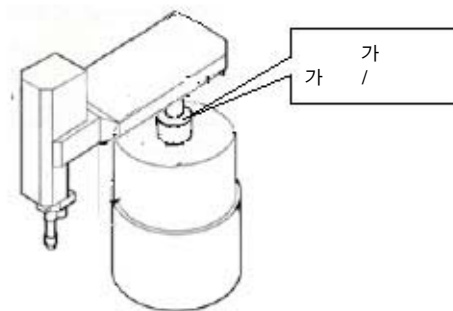
가

가

가

Servo

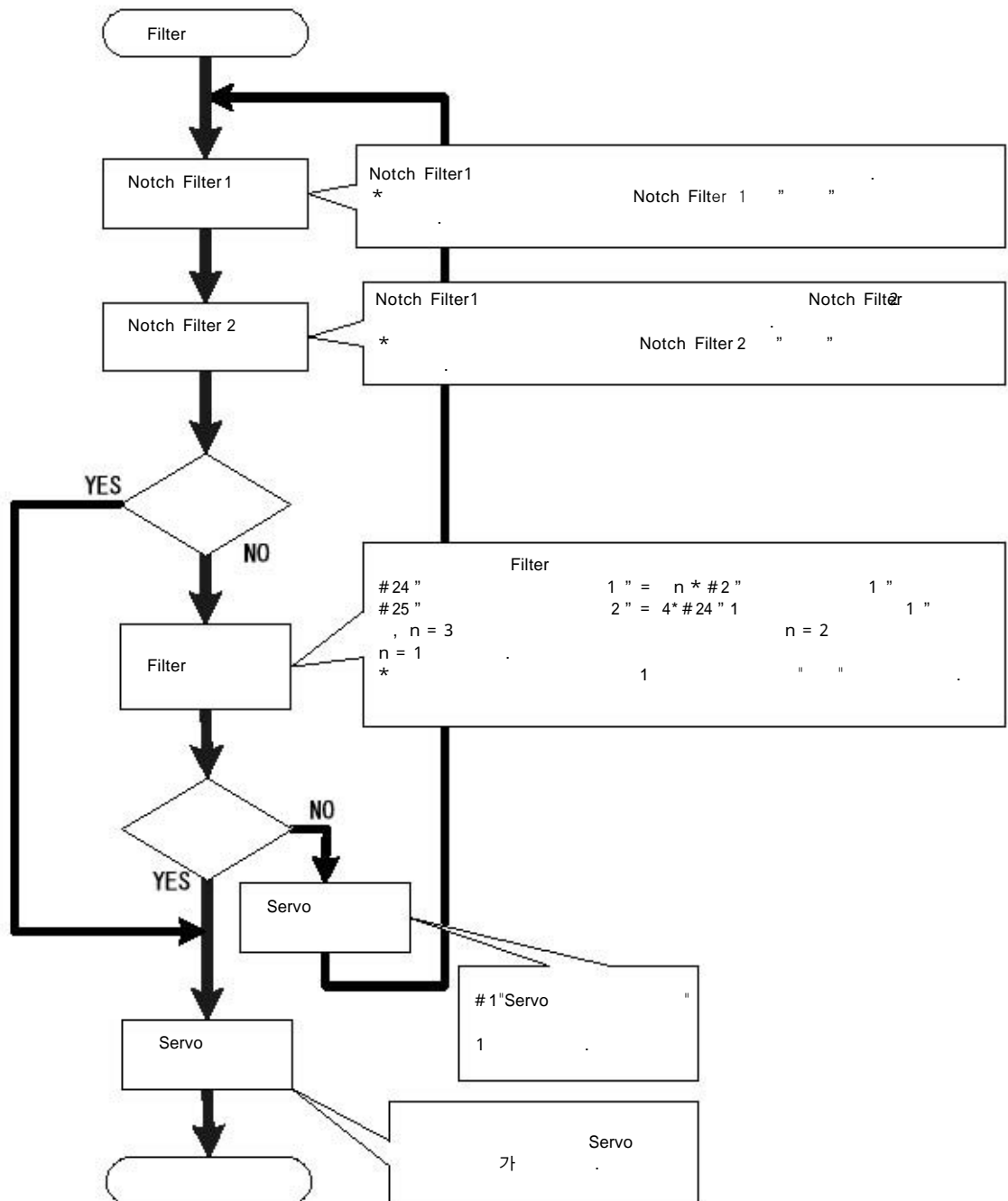
Filter



7.2.2 Filter

(1) Filter

Filter



가 가 ,
. Servo

(2) Filter

Filter

3Type

Filter

Filter	1 Filter 가	1 가
Notch Filter	가	가
feedback Filter	1 Filter 가	90deg가

Notch Filter1,2

Notch Filter

Filter

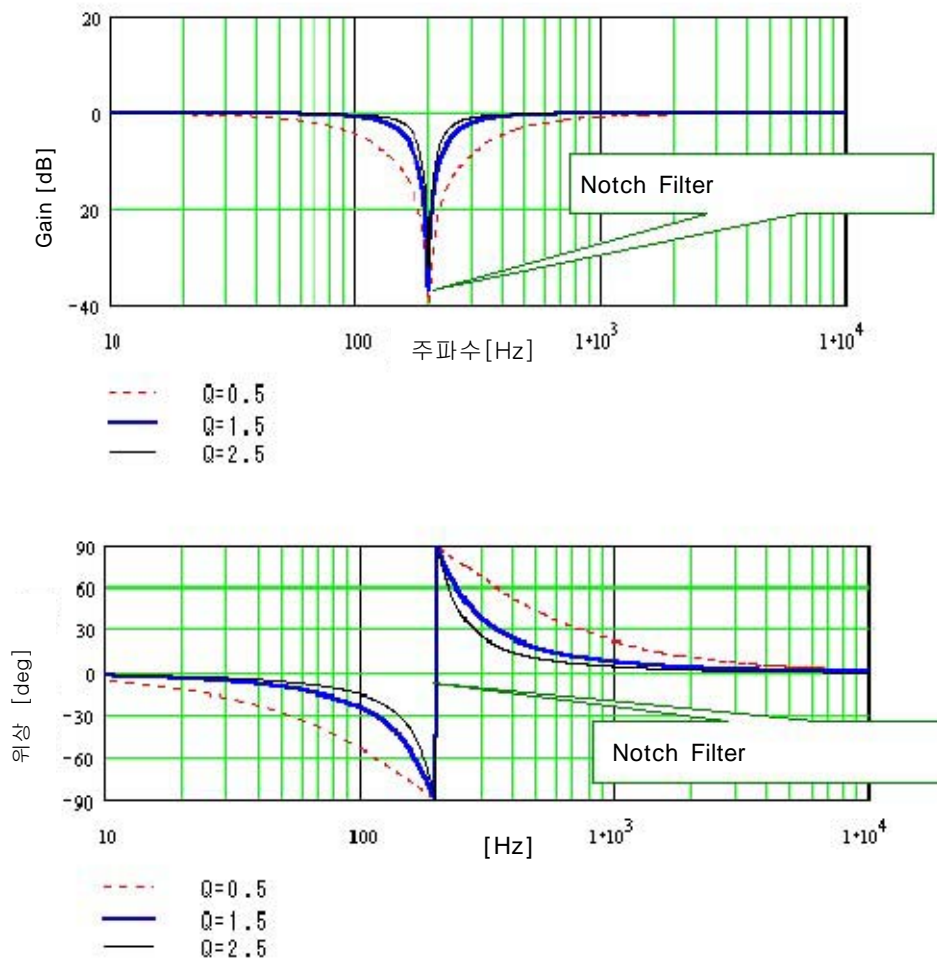
Q 0.1 ~ 5.0

Notch Filter

Q값을 바꾸는것에 따라

가 는 50~1500Hz에서

.초기치는 주파수 1500Hz,Q값 1.0으로 설정되어 있습니다.



UD1B 3-075 -

「xxxHz」

Parameter 20 (Notch Filter 1), Parameter22 (Notch Filter 2)

Servo

Filter

1 Filter #24 -3dB #25 이득 +3dB0I

Filter

Filter

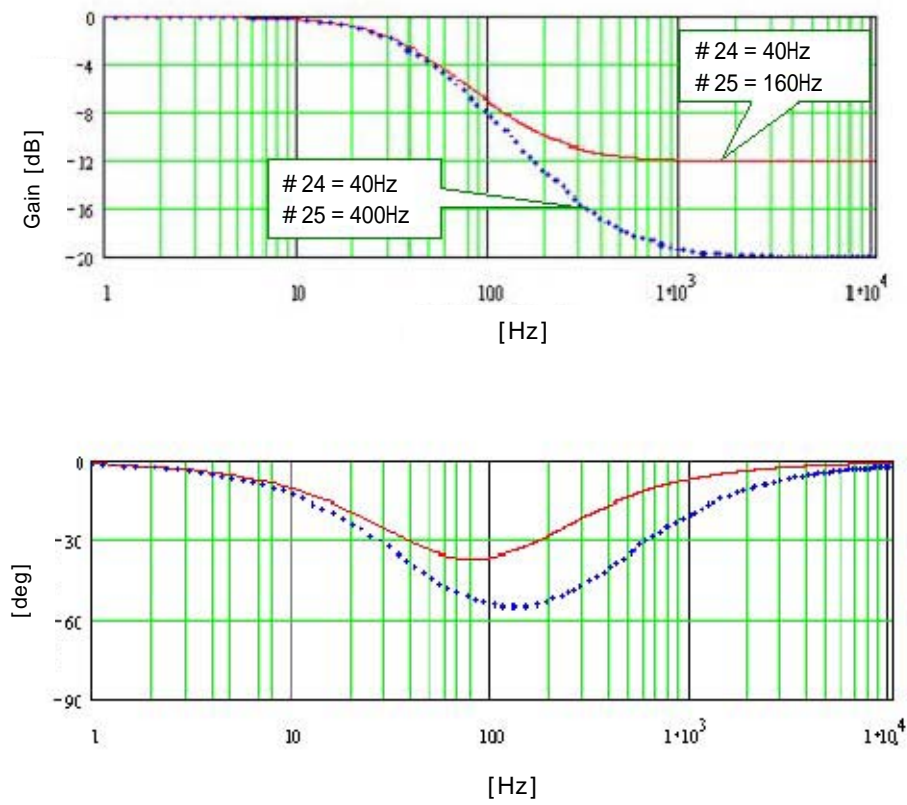
가

가

Filter

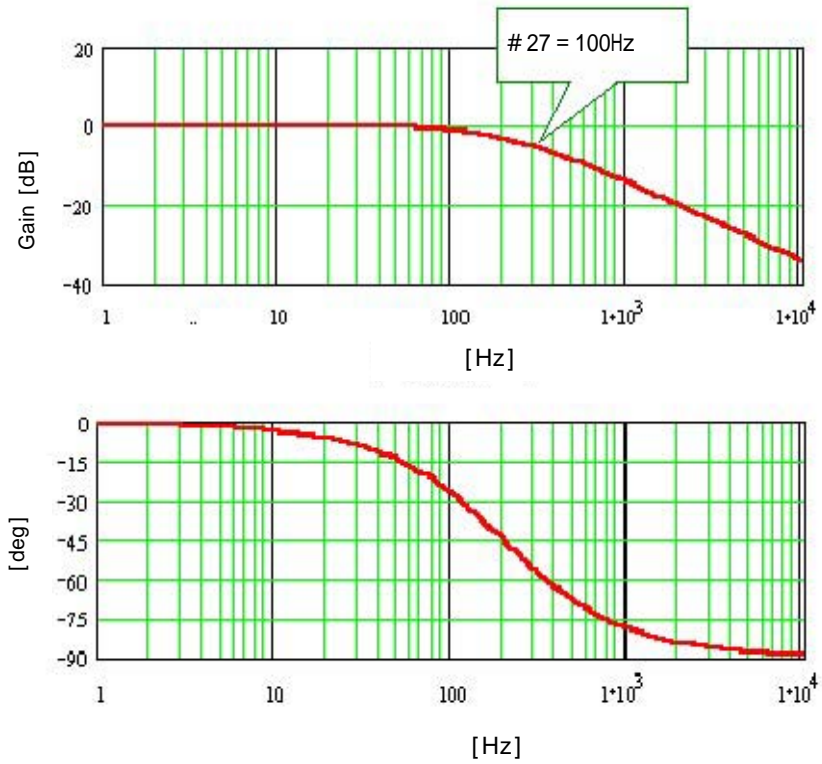
, Notch Filter

Filter



Filter

1 Filter . 3dB가 . 가 는
50~1000Hz . 90 가 .



(3) #Parameter

Step1	Tool	" Main "	[#Parameter]
Step2	[Filter]		
Step3	Filter		
Step4	Filter	, Q	
Step5	Filter		[Display]
Step6	[Regist]		Filter

The screenshot shows the 'Filter setup' window with several sections and annotations:

- Notch filter 1 setup:**
 - ☒ #020 Frequency notch filter #1: 500
 - #021 'Q' value of notch filter #1: 100
- Notch filter 2 setup:**
 - ☒ #022 Frequency notch filter #2: 1042
 - #023 'Q' value of notch filter #2: 100
- First lag compensation filter setup:**
 - ☒ #024 First lag compensation frequency: 201
 - #025 First lag compensation frequency: 799
- Velocity feedback filter:**
 - ☐ #027 Velocity feedback filter bandwidth: 1000
- Velocity command filter:**
 - #026 Velocity command filter bandwidth: 1000
- Actual position value filter setup:**
 - ☐ #028 Actual position value filter bandwidth: 200

Annotations (Callouts):

- 3 Filter의 유효/무효 설정 (Effective/Ineffective setting of the filter)
- 4 커서를 드래그 하는 것으로써, 설정 주파수나 Q값을 바꿉니다. (By dragging the cursor, the setting frequency or Q value is changed.)
- 5 Notch Filter 위상 지연 보상 Filter, 속도 피드백 Filter를 거뜬한 주파수 특성이 표시할 수 있습니다. (With the Notch Filter phase delay compensation Filter, the speed feedback Filter can display the frequency characteristics.)
- 5 Filter의 주파수 특성을 확인할 수 있습니다. (The frequency characteristics of the filter can be confirmed.)
- 6 #Parameter의 [Regist]을 실시합니다. (Perform the [Regist] of #Parameter.)

The 'First lag compensation filter setup' sub-window is also shown, displaying the Gain and Phase plots for the filter.



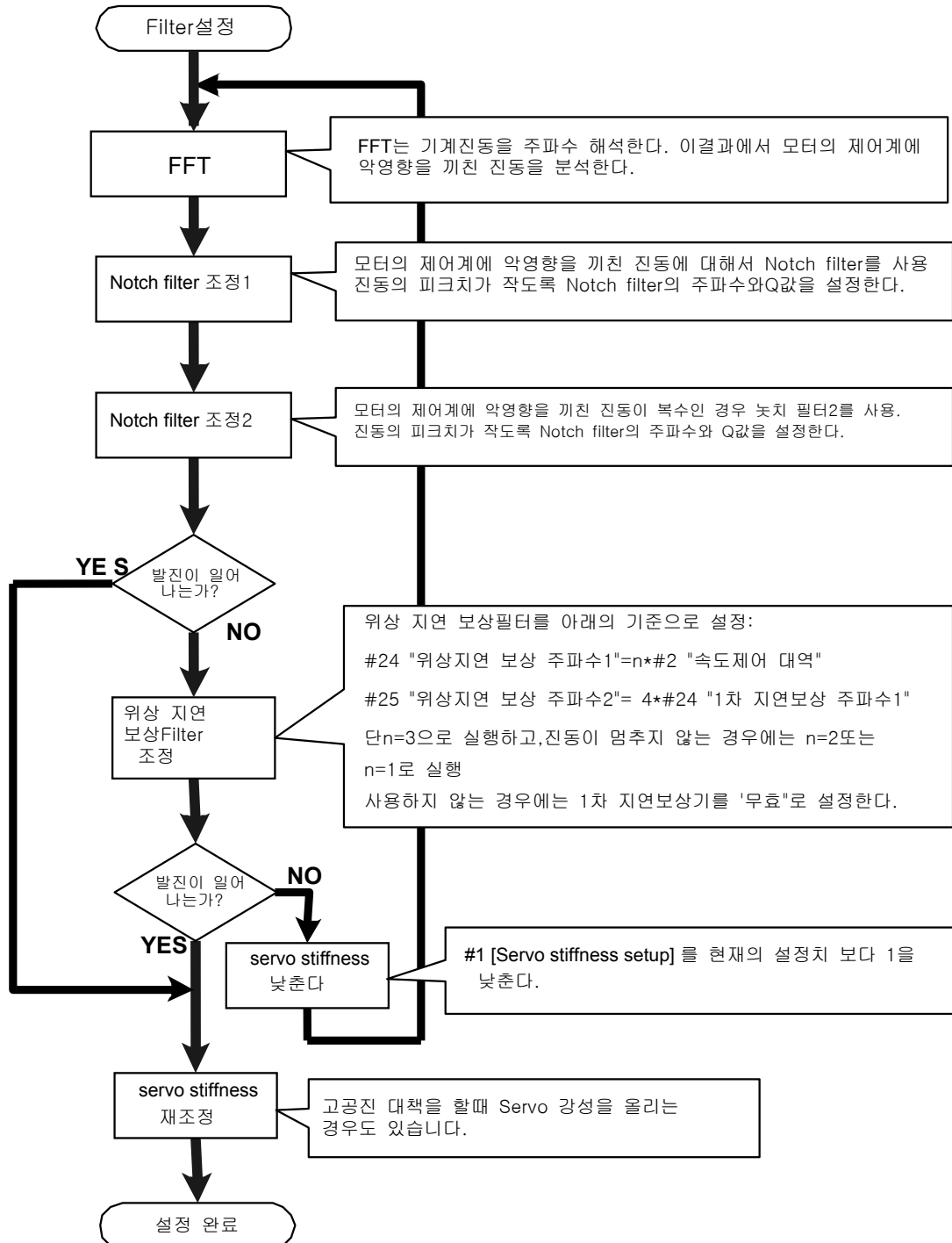
가 가

. Servo

7.2.3 Filters (FFT가 탑재 되어 있는 경우)

(1) Filter 조정 수

Set filters using the flowchart below as reference.



제어계의 밸런스가 무너지면 모터가 발진하거나 경우에 따라서는 폭주하는 것도 생각할 수 있습니다. Servo 조정시에는 모터의 구동 범위나 안전을 충분히 주의해 주십시오.

(2) Filters조정 수순의 예

장치를 구동했을때 발진하는 경우는 아래의 조정을 하여 주십시오.

STEP 1 PC드라이버간을 RS232C케이블로 접속하여 지원툴을 기동합니다.

STEP 2 지원툴의[Main Menu]화면에 의한 [FFT]를 선택한다.

STEP 3 1Hz의 주입신호 진폭에 "3000",1KHz의 주입신호 진폭에 "1000"이 설정되어 있는것을 확인한다.

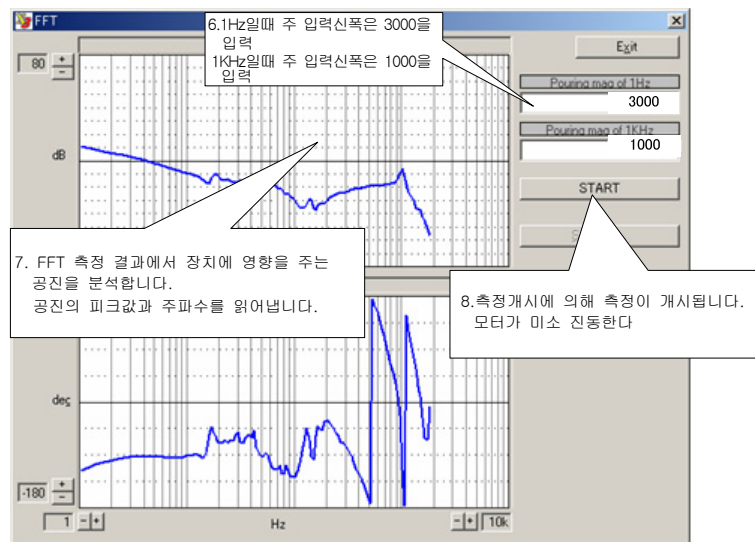
STEP 4 [Servo on]합니다.

STEP 5 [Start]를 선택한다.



CAUTION

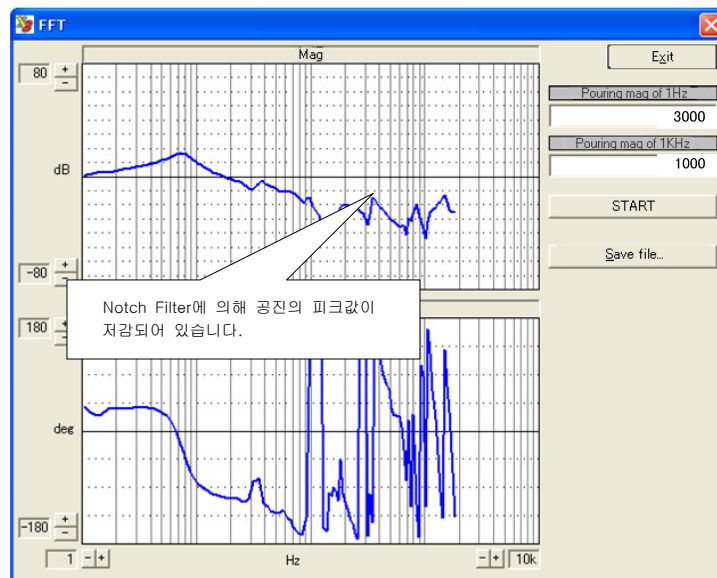
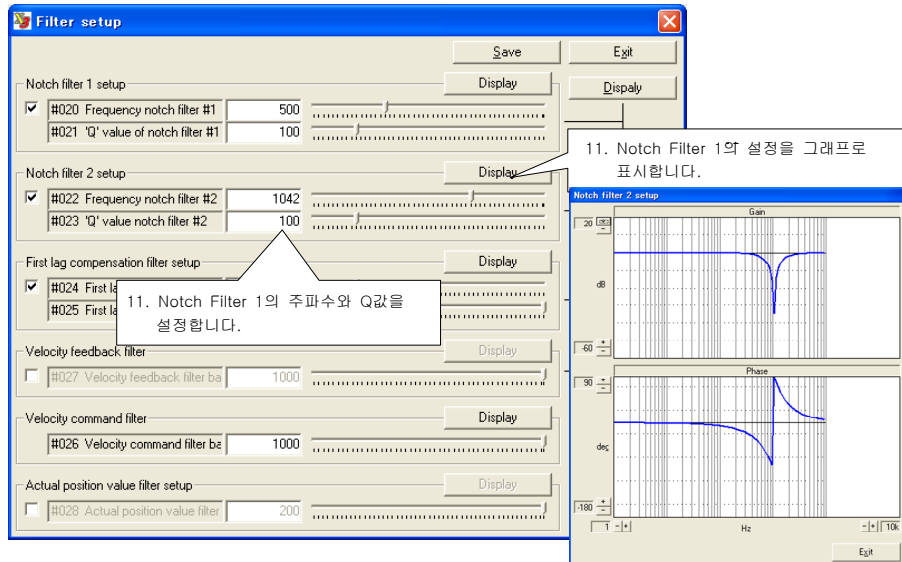
FFT를 시작하기 전에 모터 근처에 사람이나 접촉물이 없는것을 확인해 주십시오.



CAUTION

제어계의 밸런스가 무너지면 모터가 발진하거나 경우에 따라서는 폭주하는 것도 생각할 수 있습니다. Servo 조정시에는 모터의 구동 범위나 안전을 충분히 주의해 주십시오.

- STEP 9 지원 툴의 [Main Menu] 화면에 의한 [#parameter] 를 선택합니다.
 STEP 10 [Filter Setup]의 탭을 선택합니다.
 STEP 11 FFT측정결과를 [-notch 필터의 주파수, Q값]을 설정 하고 등록합니다.
 필터 설정후에 FFT의 결과에서 공진의 감도가 줄어져 있습니다.



CAUTION

FFT를 시작하기 전에 모터 근처에 사람이나 접촉물이 없는것을 확인해 주십시오.



CAUTION

제어계의 밸런스가 무너지면 모터가 발진하거나 경우에 따라서는 폭주하는 것도 생각할 수 있습니다. Servo 조정시에는 모터의 구동 범위나 안전을 충분히 주의해 주십시오.

Notch Filter의 설정후 발진하는 경우는 아래의 조정을 하여 주십시오.

STEP 12 지원툴의[Main Menu]화면에 의한 [#parameter]를 선택하여 주십시오.

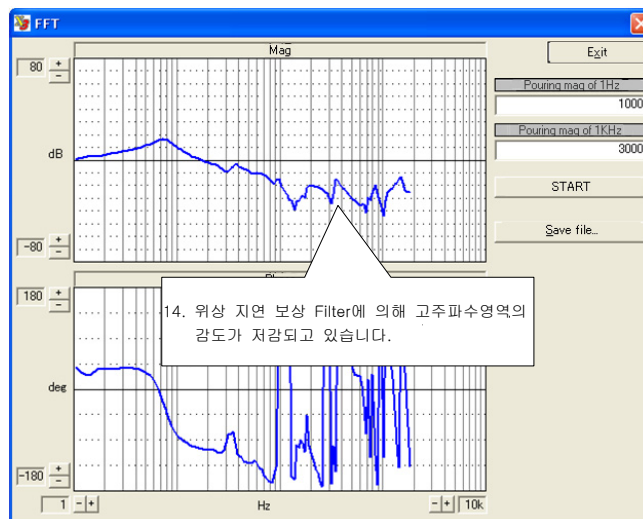
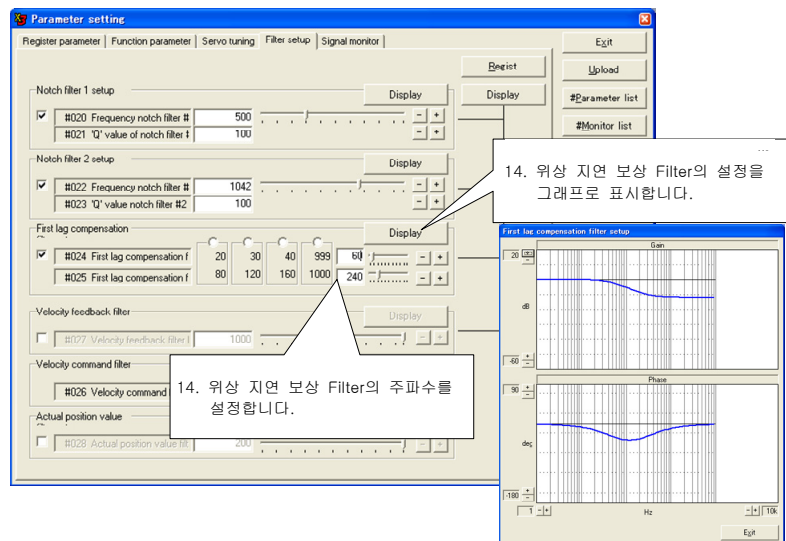
STEP 13 [Filter Setup]의 탭을 선택합니다.

STEP 14 [위상 보상 필터의 주파수1, 주파수2]를 설정하여 등록합니다.

위상 보상 필터의 설정은 [Filter]의 위상 지연 보상 필터의 설정을 수순에 따라해 주십시오. 필터의 설정후에 FFT의 결과에서 고주파수영역의 감도가 떨어져 있습니다. 장치를 구동할때 발진하는 경우는 아래와 같이 조정을 해 주십시오.

STEP 15 [Servo 조정]의[#Servo 강성 설정상태]를 1씩 떨어뜨려 주십시오.

발진이 멈추면 [#1 Servo강성 설정상태]를 등록합니다.



CAUTION

FFT를 시작하기 전에 모터 근처에 사람이나 접촉물이 없는것을 확인해 주십시오.



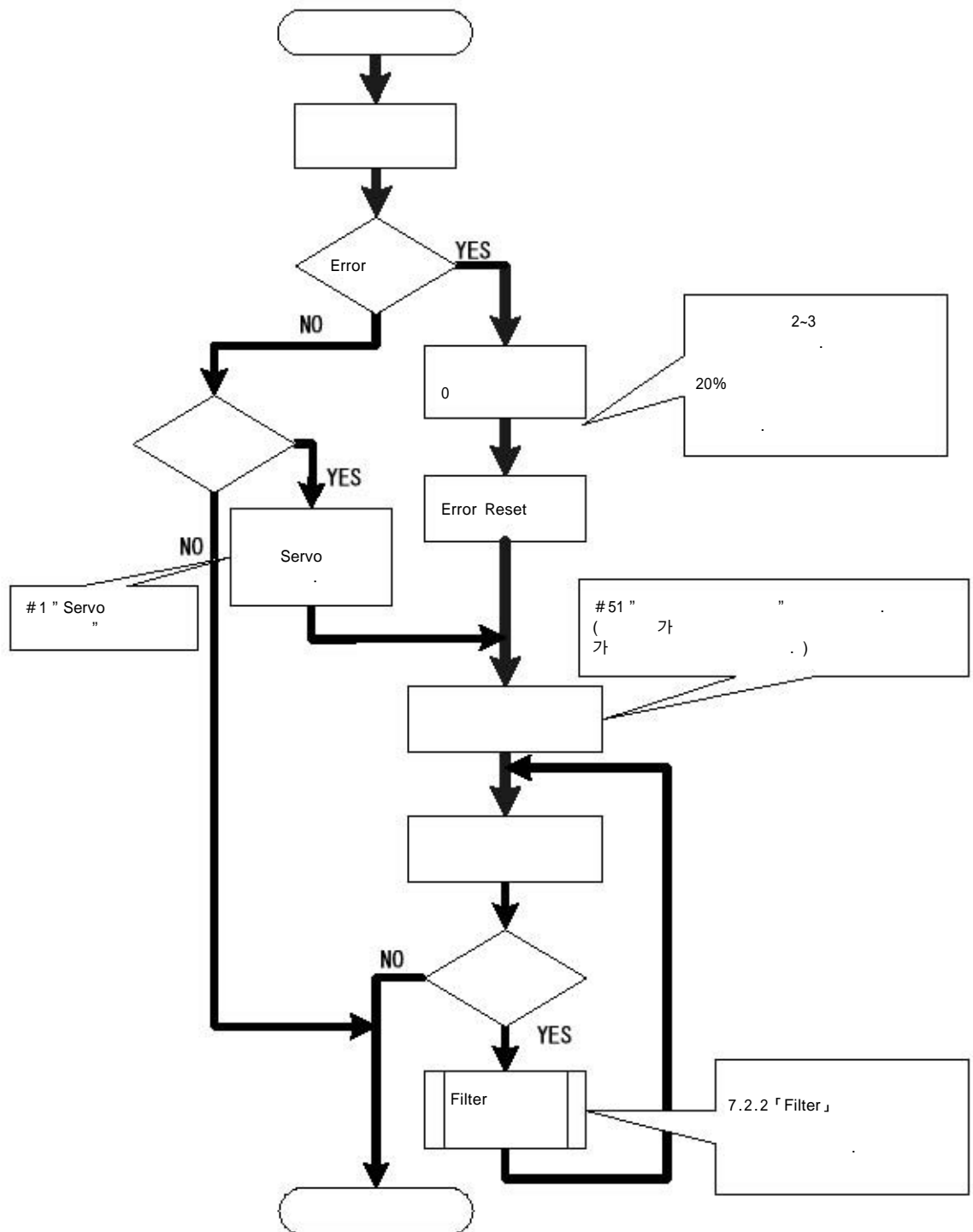
CAUTION

제어계의 밸런스가 무너지면 모터가 발진하거나 경우에 따라서는 폭주하는 것도 생각할 수 있습니다. Servo 조정시에는 모터의 구동 범위나 안전을 충분히 주의해 주십시오.

7.2.3

#Parameter

4.6.3 「Auto-tuning operation」



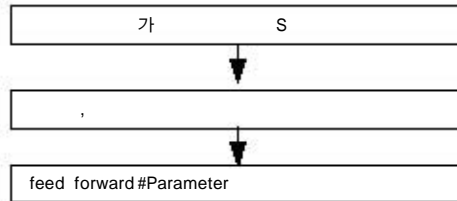
System

System

7.3

7.3.1

#Parameter
Type [S자]를 선택하는것도 유효합니다.
[S] , 이[가]
#Parameter를
큰 값으로



[S] [가] 가 .1(5). [S]
[가] 가 70% 가
. #330

7.3.2 Feed Forward#Parameter

Feed Forward (FF)

#Parameter
FF
FF는 위치 지령값의 변화량에 대해서
조작 하기

FF#Parameter			
#14	FF	(Pos_FF)	90%
#15	FF	(Vel_FF)	100%
#16	가 FF	(Acc_FF)	0%

FF# Parameter
() FF설정을 조정하는것으로
Control
가

Limiter#Parameter
가
경우 FF

FF #Parameter

DrvX3 Support Tool []

FF #Parameter 가

FF #Parameter

#Parameter

Parameter

가

FF 100%

Cancel

[]

. 100%

[Overshoot]하게 됩니다.

overshoot

overshoot

stroke,

overshoot

가

가

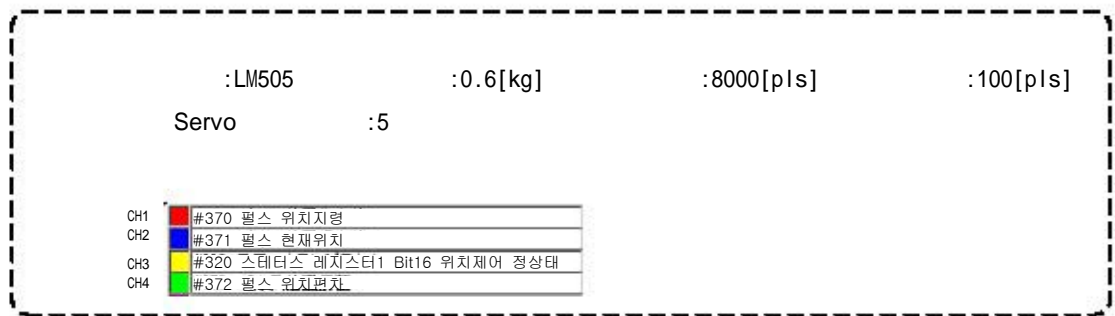
가 FF

가

, Servo

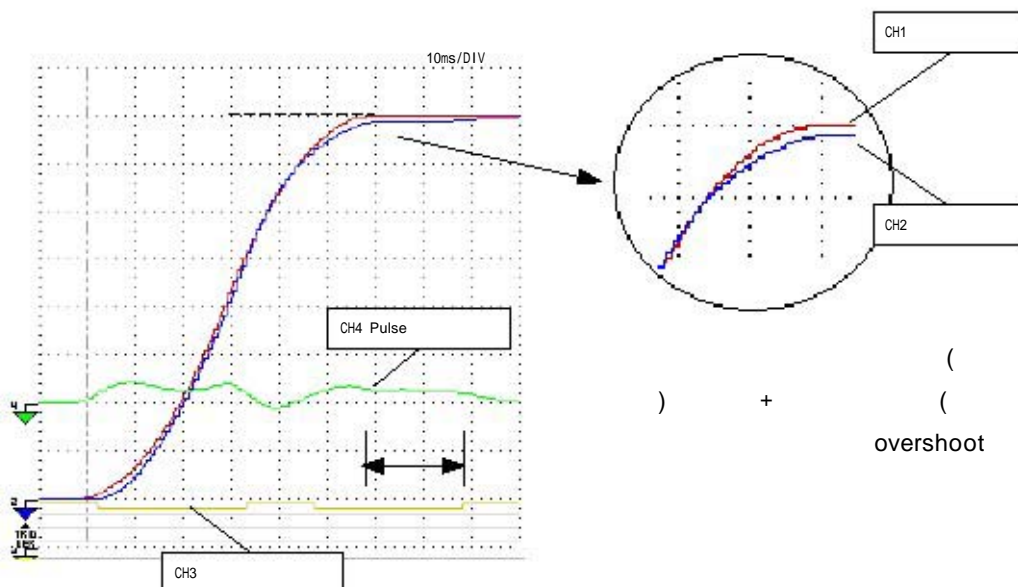
Application

가

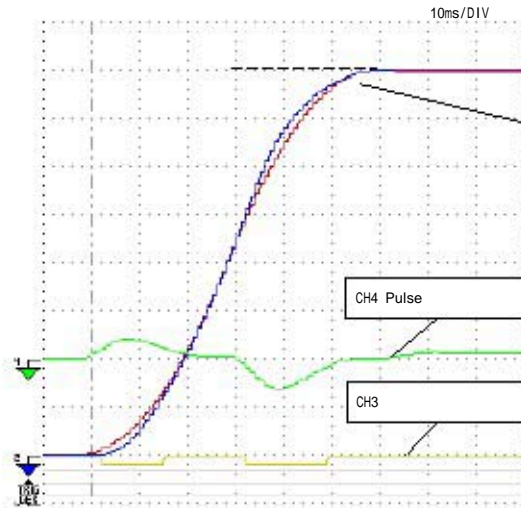


(Default)

Pos_FF(#14)=90%, Vel_FF(#15)=100%, Acc_FF(#16)=0%



Pos_FF(#14)=100%, Vel_FF(#15)=100%, Acc_FF(#16)=0%



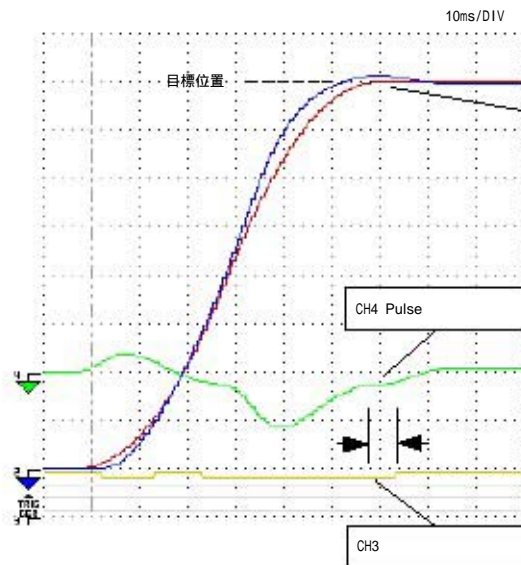
100%

0

FF #Parameter

overshoot가

Pos_FF(#14)=110%, Vel_FF(#15)=100%, Acc_FF(#16)=0%

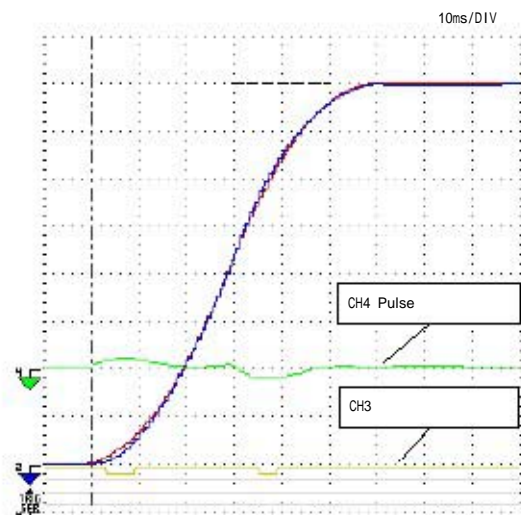


가

overshoot

, Default

Pos_FF(#14)=99%, Vel_FF(#15)=100%, Acc_FF(#16)=100%



FF #Parameter 가 FF #Parameter

가

, 가 FF #Parameter Servo

Blank Page

8.

DrvGIII Series PC Software()
설명합니다.

R1.05.05 .

8.1 Introduction

8.1.1

Hardware

Processor: Celeron 300MHz (equivalent) or higher, or Pentium III 500MHz or higher is recommended.

Memory: 128MB minimum

Hard disk capacity: 50MB minimum

Serial port: 1 port exclusive

OS(Operation Systems)

Windows XP, Windows Vista, Windows 7 have been verified as to their compatibility.

*64bit version is not available.

Display

Resolution 1024 x 768 or higher, 65536 color display minimum

Cable .

Application 가 .

Communication speed: 38,400 bits/sec

Data bits: 8

Parity: None

Stop bit: 1

Flow control: None

RS485 Card

Manufactured by Interface Co., Ltd.

PCI card: PCI-4142PE

8.1.2

Cable

Cable

RS-232C

RS-485 Cable

가

Cable Wiring when RS-232C Cables are Used

Pin No	Signal name
02	RxD
03	TxD
05	SG

PC
D-SUB 9-pin receptable

Pin No	Signal name
03	TxD
02	RxD
10	SG/LG
08	CN1SW
15	SG/LG

CN1
D-SUB 15-pin plug



WARNING

Pin

Driver PC

RS-485

Cable

Send (+)
Send (-)
Receive (+)
Receive (-)
SG

Master

Pin No	Signal name
04	A
11	B
05	Y
12	Z
10	SG/LG
06	485SW
13	SG/LG
08	CN1SW
15	SG/LG

CN1
D-SUB 15-pin plug

Pin No	Signal name
04	A
11	B
05	Y
12	Z
10	SG/LG
06	485SW
13	SG/LG
07	TRMP
14	TRMN
08	CN1SW
15	SG/LG

Network

Driver CN1
D-SUB 15-pin plug



WARNING

Pin

Driver PC

8.1.3 Installing/Uninstalling

" Installing

Version Set-Up File

" Uninstalling

Windows XP :[Panel] - [Application 가]

Windows Vista, Windows 7 :[Panel] - [Program Un - Install]

File

*.prm : #Parameter

*.ioc : I/O

*.tbl : Table

*.wha :Driver User data Back up

*.cnd : Oscilloscope Data, Data

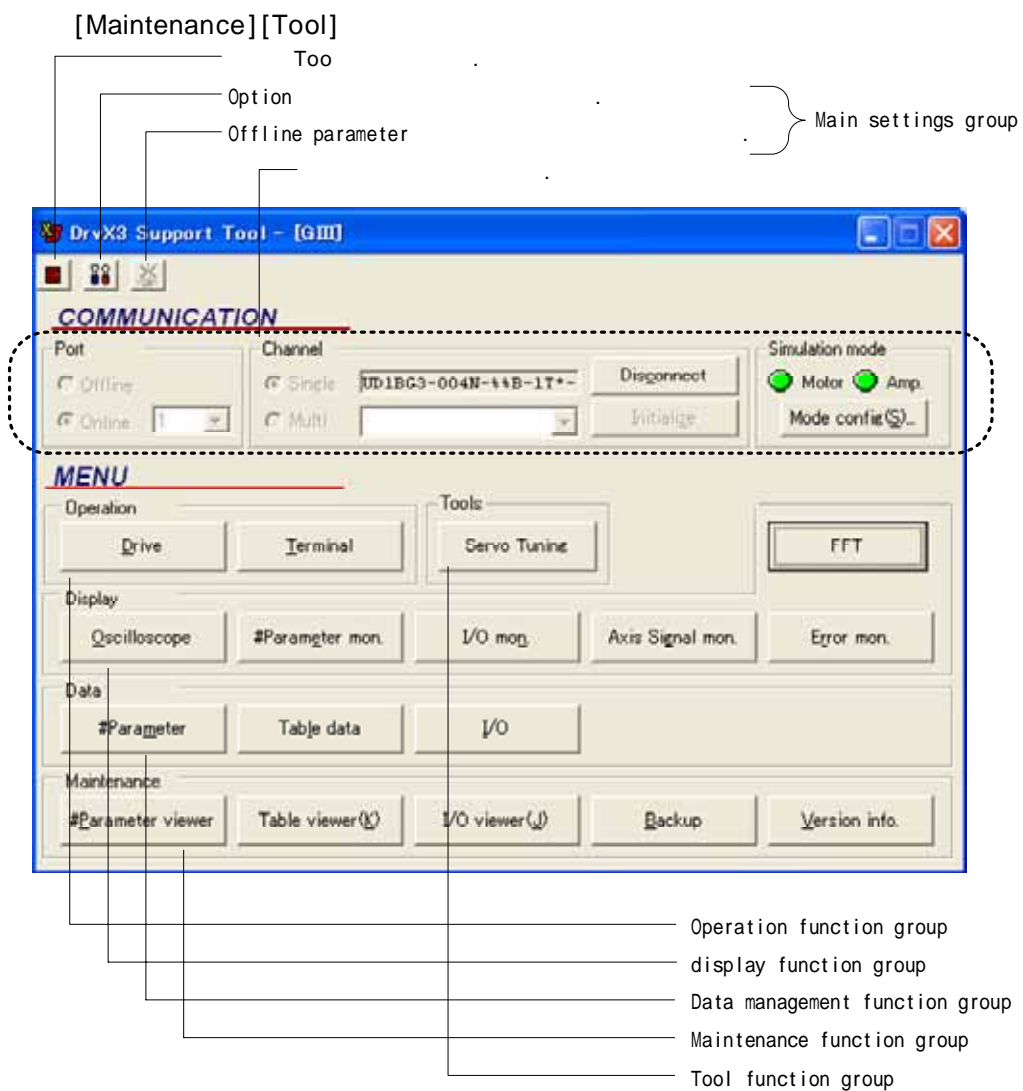
*.csv : , FFT Data

8.2

8.2.1 Group

[Main Setting]		아래 Driver	Group으로 나누어져 있습니다. Driver	
[Operation]			Group	
[Display]	Driver		Group	
[Data Management]		Data	Reads/Edits/Writes	Group
[Maintenance]		PC		
	Write		Group	
[Tool]	Group			
	Dialog Box			

가 하 ,



8.2.2

Main

Online/Offline

[On line]
[OFF line]

Data , OFF Line Table
Data , Data 가 .

Port
PC COM Port .

Single/Multi-channel
RS485 가 Multi
Tool Multi
1 .

Mode (Less , Less)

Japanese, English, Simplified Chinese and Traditional Chinese
[Disconnect] .

Host
PC . PC
가 가
10ms .

Offline parameter .

Operation Group

(Driver)
Driver Command .
Terminal Command , .

Tool Function Group

Servo Tuning
Wizard Servo . 각각의
가 으며 본 .

Display Group

Oscilloscope

#Parameter monitor

Parameter

I/O monitor

I/O

Axis Signal monitor

Error monitor

Error

Error

FFT

Test

Filter를 설정

가

Data Management Group

Parameter

Parameter

가

Table data

Table Data

I/O

I/O

I/O

Maintenance Group

Parameter viewer

에

#Parameter

어

File

Table viewer

에

Table Data

어

File

I/O

에

I/O

어

File

(Back up)

User Data(User

가

Data)

어

File

구

Version information

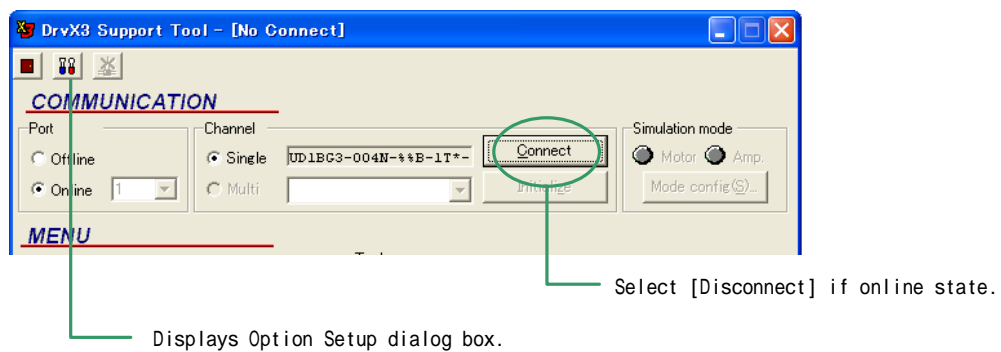
8.3

Tool

8.3.1 Language

Japanese, English, Simplified Chinese and Traditional Chinese

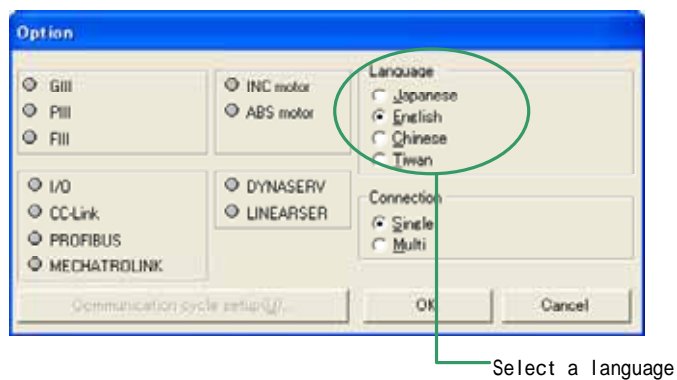
1.Option



2

Option

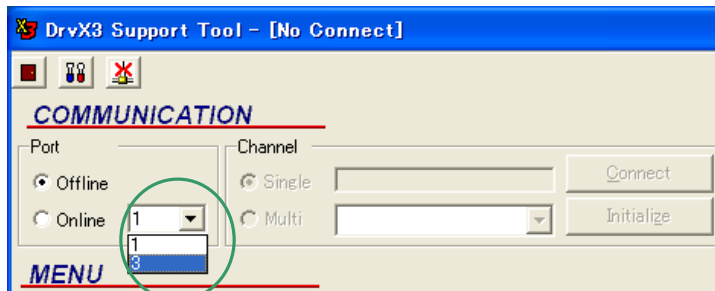
OK



8.3.2

1.Drop down list

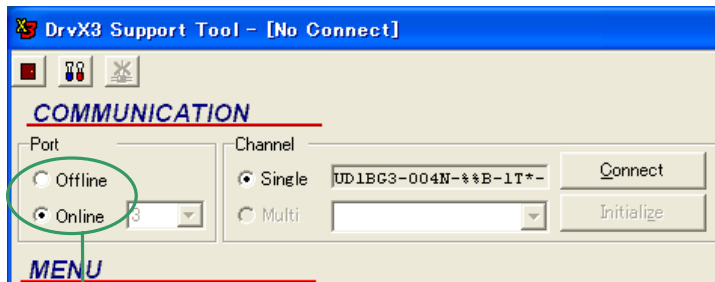
Serial Port



1 . Select the serial port number connected to the driver

2.Online

가
Offline

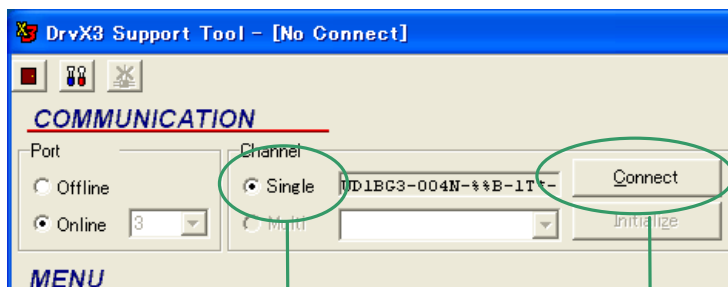


Select "Online "

8.3.3 Single channel

RS-232C

. RS-485
1:1



Select "single "

Click on "Connect "

Click on "Single" . Then click on [Connect]

8.3.4 Multichannel

Multi-channel RS-485

1:N

Multichannel

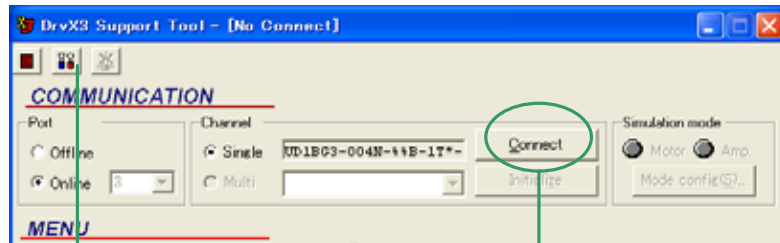
Option

Default

가

1.Option Dialog Box

가

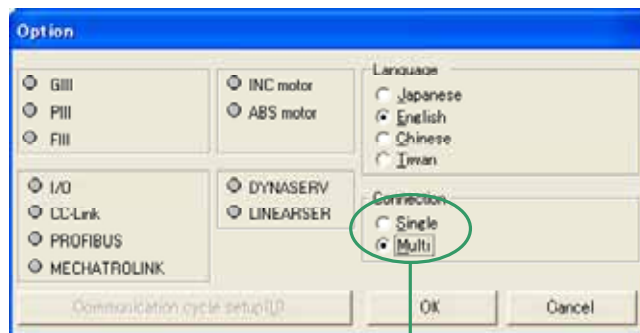


Displays Option Setup dialog box

Make sure that the state is offline

2. Option Dialog [Multi] - [Connection]

OK



Select [Multi]

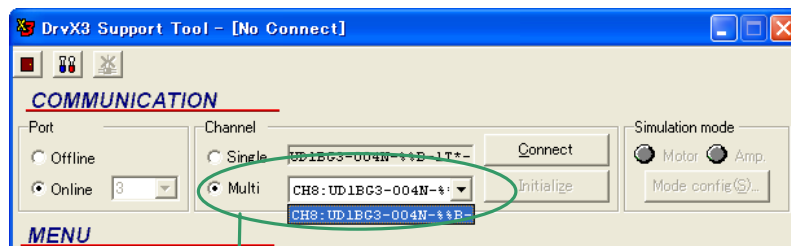
3.

가

Drop down List

것으로

Click



Select [Multi] and select a driver from the drop down list. Then click on [Connect] button



CAUTION

1:1

가

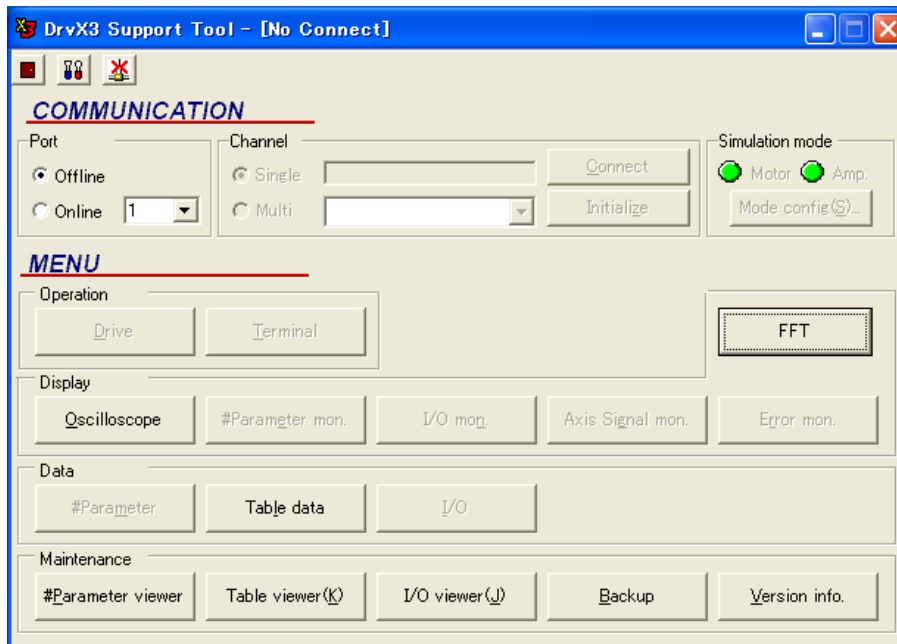
[Disconnect]

ID

재접속을

8.3.5 Offline

- [offline]
- 가 가 .
 - 가 .
 - .
 - FFT
 - .
 - /
 - / ,
 - I/O /



8.3.6 /

Tool 가 [Connected state]

Tool

Tool [Connect]

[Disconnect] Tool [Disconnect]

Tool

[Connect] 가

[Initialize communication] 가 ,

Tool 가

8.3.7 Motorless

less , less

(less) 가 가

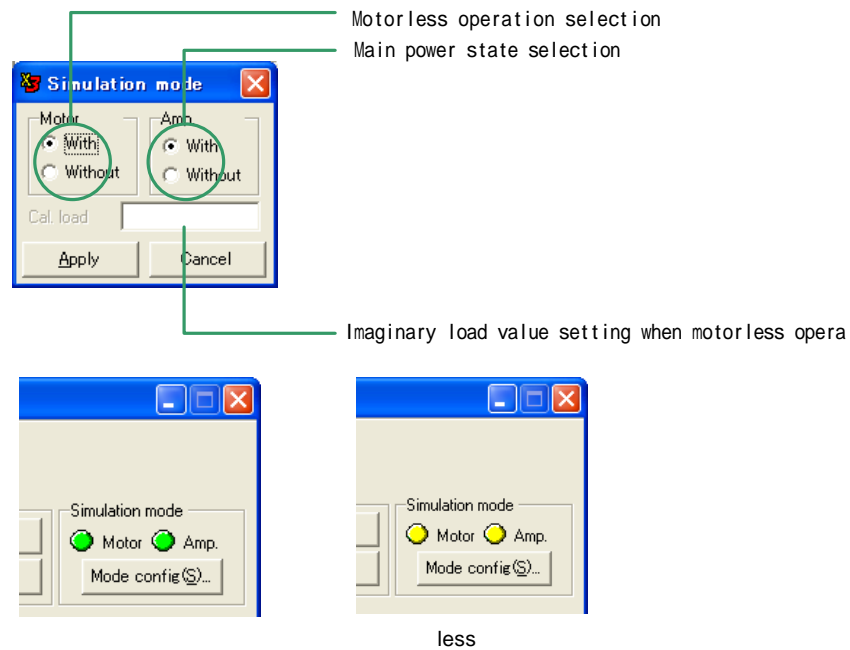
Parameter, Table 가

가 1/1000 kgm², Linear

1/1000 kg

가 less Tool less

less

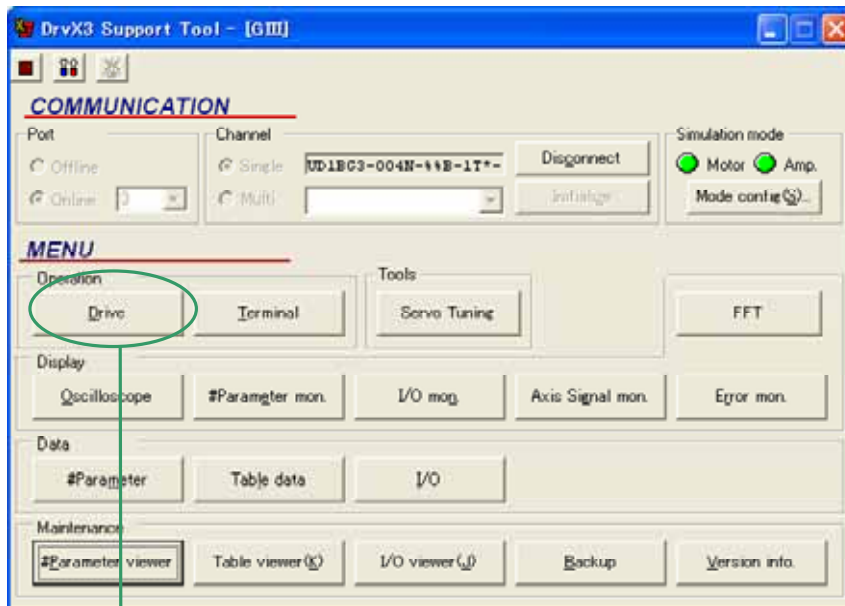


CAUTION

8.4

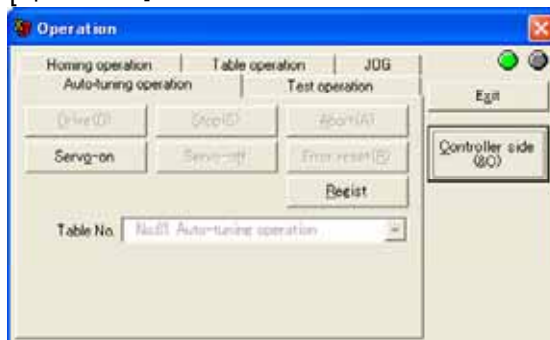
Tab을 고
Parameter [data management]
Group [Parameter]
[display] Group
가능합니다.

[Drive] Group



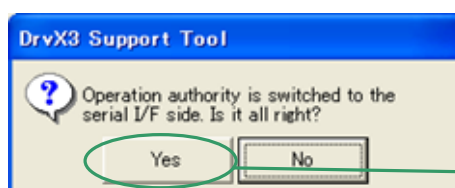
Click on [Drive] button

[Operation]



Open

가 절 환하여



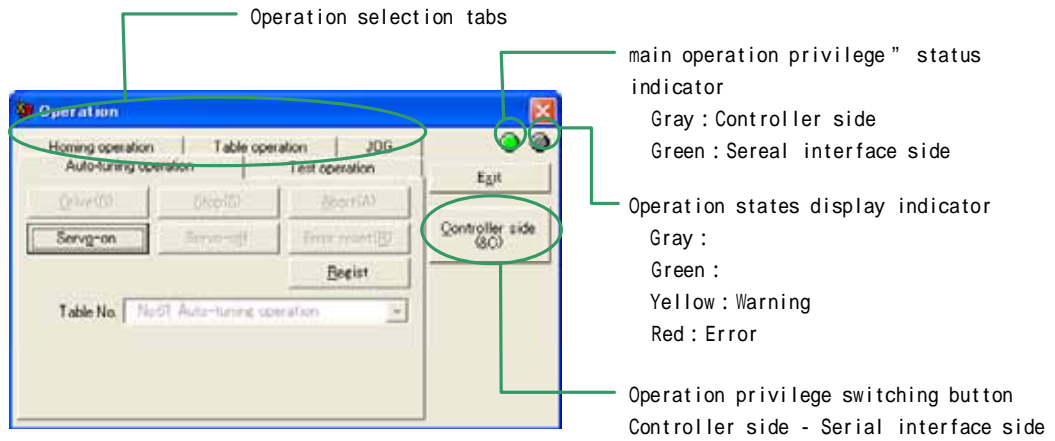
가 Yes



TIP

“Having the main operation privilege”
가

가



Tab

6

Auto-tuning operation -> 6.4.3 Auto-tuning operation

Test operation 6.4.4 Test operation

Homing operation 6.4.5 Homing

Table operation 6.4.1 Table data operation

JOG 6.3 JOG move

8.5 Terminal

Software

Command

가

「Terminal」

가 가

[Terminal]

가

[Terminal]

#Parameter

, #

Command

가



DANGER

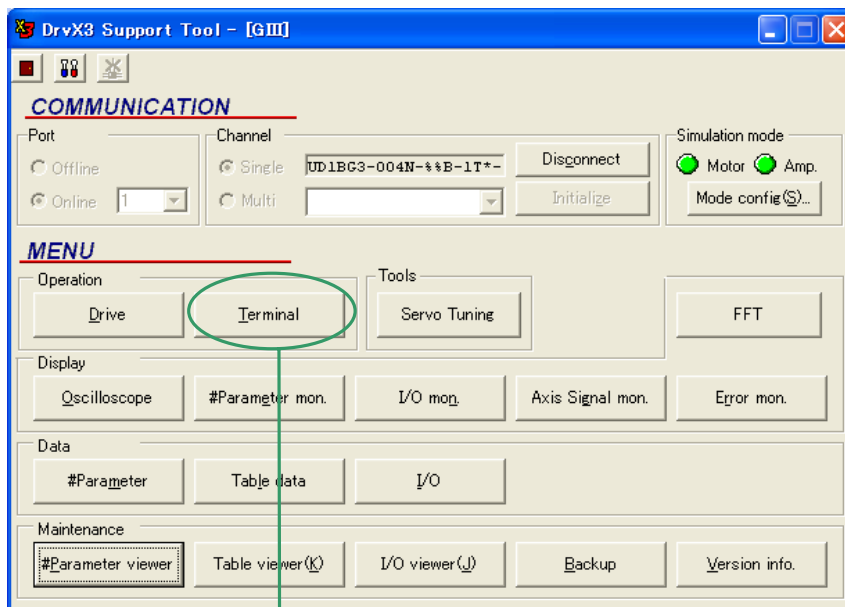
Command가

가

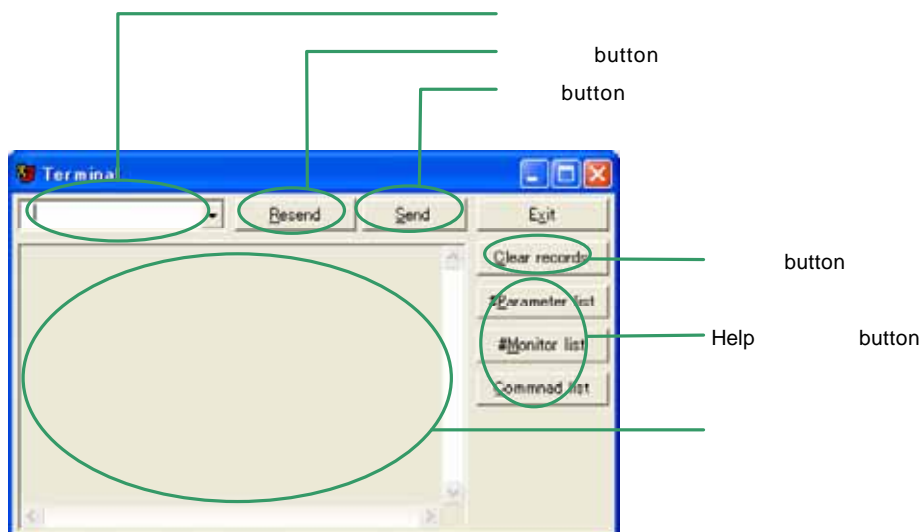
가

가

8.5.1 Display



Click on [Terminal button]

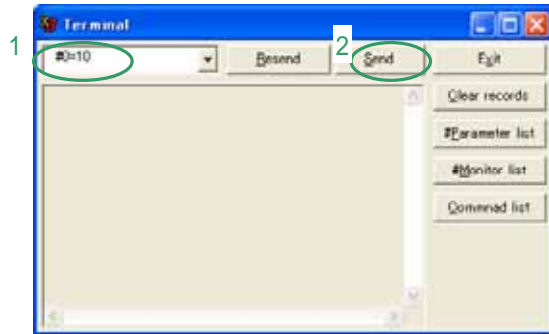


8.5.2

Key board [] fomat 합니다.
[Enter] [transmission]

됩니다.

() (/)
() (Jog) 읍니다.

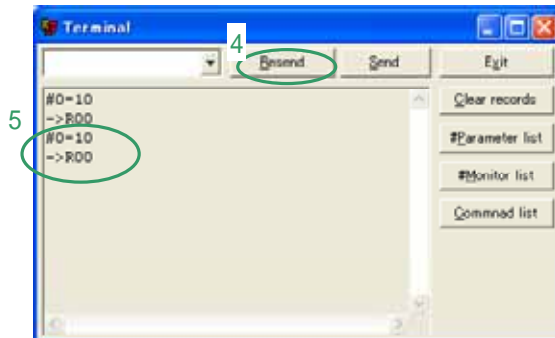


1.
(e.g Set parameter #0 to 10)

2. Click on [Enter] or [Send] key

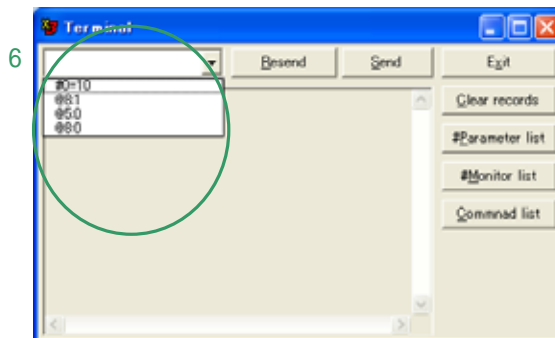


3. 시실행==>응답



4. [Resend] button

5. 번 .



6.drop down list

[Send] 가 ,

8.5.3 @Command

@Command

Command . Command 가
Common(:)

• @command example

@1 : Abort
@8:1 : Servo ON
@8:0 : Servo OFF

@command list

Command name	No.	Syntax	Description (example)
Abort	1	@1	
Stop	2	@2	
Start	3	@3:op1	OP1 : Table
Error reset	4	@4	
Switch main operation privilege	5	@5:op1	OP1 : Option number (0:serial interface 1:Controller interface)
Servo ON/OFF	8	@8:op1	OP1 : (0:Servo off 1:Servo on)
Set homing offset position	10	@10:op1	OP1 : #56 (6 Command 조
Jog move command	11	@11:op1	OP1 : JOG moving direction (-1:-direction 0:stop 1:+direction)
Set coordinate system	13	@13:op1	OP1 :
Self-adjust differential limiter	14	@14	
Write updated parameters	16	@16	
Error reset with history clear	19	@19	
Reset all	90	@90:op1	OP1 : 2003(password)
Reset drive software	96	@96	

@commands

(1) Abort(@1)

Abort
"IN_ABORT"
즉시

(2) Stop(@2)

"IN_STOP"
테이블
않습니다.

(3) Start(@3:op1)

Start
"IN_START"
op1 (0~63)
table data [6.4]
example @3:1 Run table number 1

(4) Error reset (@4)

Reset 가 Error가 Reset이
“IN_ERR_RESET”

(5) Operation privilege switching (@5:op1)

op1 0 Serial , 1
[6.1.4]

(6) Servo on/off(@8:op1)

Servo on/off
Serial
op1 0 Servo off, 1 Servo on
Controller interface “ IN_SERVO ”

(7) Homing offset position setup(@10:op1)

“ #56 Offset distance from home position ”
op1 0,1,2 Parameter
『 Home offset position setting』

(8) JOG move command(@11:op1)

Motor JOG
op1 (- 1: - , 0: , 1: +) 가
“IN_JOG_UP” “IN_JOG_DN”

(9) Coordinate system set up(@13:op1)

[17.2 Outside of command coordinate area]가

[6.4.11 command] [Coordinate system setting]

Example

#375
->R1D Scmd[u]:1000 1000
@13:2500 2500
->R00
#375
->R1D Scmd[u]:2500 가 2500 ()

(10) Self-adjust differential limiter(@14)

Limit
(1 2) Limit Limit

『6.4.11 command』 『 Self-adjust differential limiter』

- (11) parameters Write(@16)
 RAM Parameter EEP-ROM
 가 .
- (12) Error reset with history clear (@19)
 Error Error Reset .
 Driver EEP-ROM 16 Error .
- (13) Reset all (@90:op1)
 EEP-ROM .
 User가 .
 op1 2003 가 .
 [@90:2003] .
- (14) Driver software reset(@96)
 Soft Reset .
 에 따라 RAM 만 Parameter 부 .

8.5.4 #parameter /

#parameter, ## parameter
 Parameter 2 가 재하며, RAM EEP-ROM
 EEP-ROM RAM
 Parameter . RAM Driver reset
 가
 RAM 『save』 EEP-ROM
 『register』
 『6.1.3 #parameter • #monitor』
 / "#()" RAM "##()"
 EEP-ROM . "#()" "##()"

• Examples of the parameter reference

#1 : References the content of parameter No.1
 ##1 : (EEP-ROM) 1

Parameter "#())=()" "##())=()"
 . 10 ,16 가 합니다.
 10 ,16 Prefix"h"
 2 가 합니다.

• Parameter

#100=1 : 100 1
 #100=habc :16 0xABCD
 ##100= : (EEP-ROM) -1
 #100=#101 : 100 번호 101

• Parameter

#100=1+1 : Parameter 100
 #100=#101+1 : (#101) Parameter
 100
 ##100=#101+#102 : Parameter
 100
 ##110=##110 | H00000001 : ##110 System Register 1 bit0 1
 ##110=##110&HFFFFFFFE : ##110System register 1의 bit0을 0로 한다.
 사용가능한 연산자
 가산(+),감산(-),승산(*),제산(/),승여산(%),Bit당AND(&)Bit당OR(|)

8.5.5 #Monitor

```
#monitor
#Monitor #Parameter "#( )
가 .#Monitor Error가 .
```

8.5.6 답

Header		Prompt	1	2	3	...
--------	--	--------	---	---	---	-----

└─ 1 space character

	Header structure	Section	Section	Description
General	R			가
Error	ERR .	Error/Alarm code (main)	Error/Alarm code (sub)	Error
Alarm	ALM .			

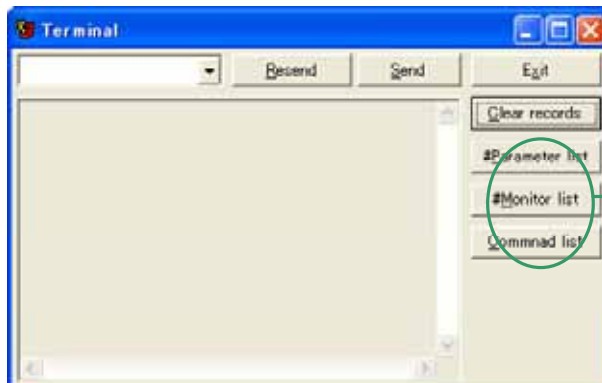
꺾: 일반 반신의

```
O : 가
D : 10
B : Binary ( 8 , 16 , 32 )
H : 16 ( 2 , 4 , 8 )
S :
Z : ( )
```

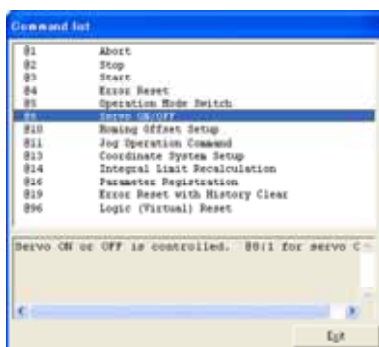
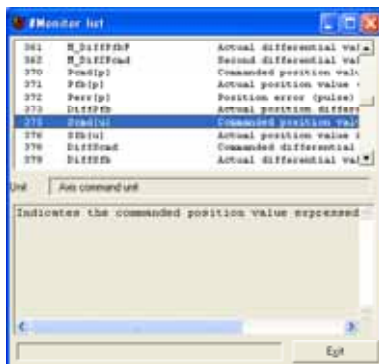
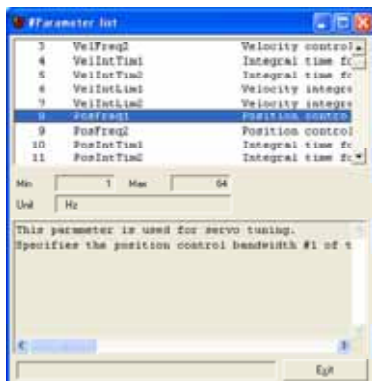
```
R00
R1D ServoRigid:3
R1H StatusReg1:039B00C1
ERR25.3 RegenError
ALM66.0 IlgDevice
```

8.5.6 Help display

Terminal #Parameter , # , @
가 .



가 .



8.6 Oscilloscope

Tool

#Parameter/#

하고

되

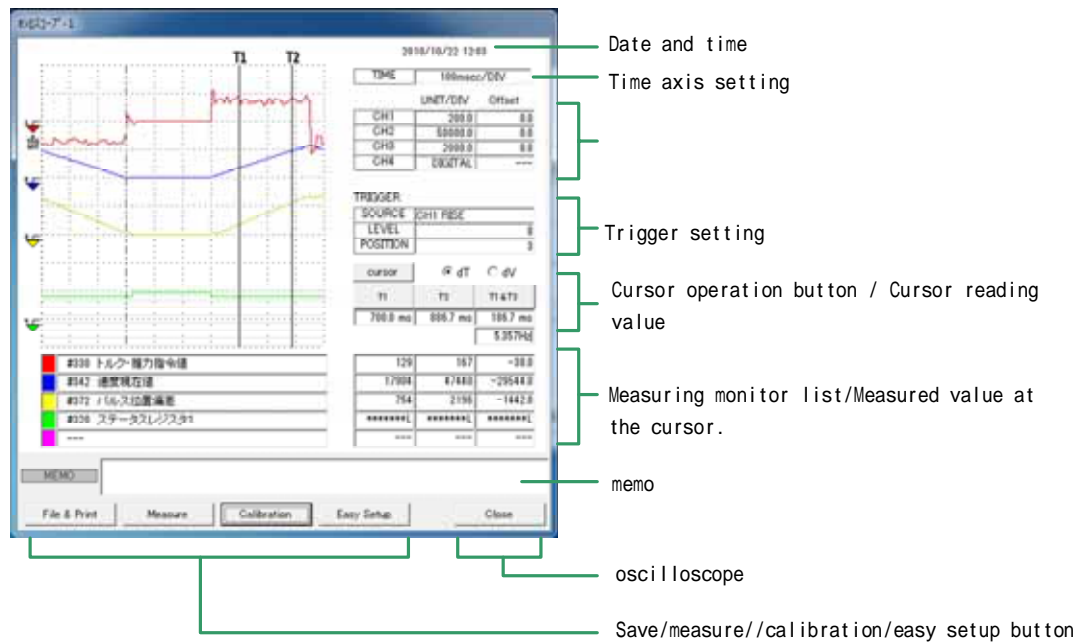
Main

8.6.1 Specification

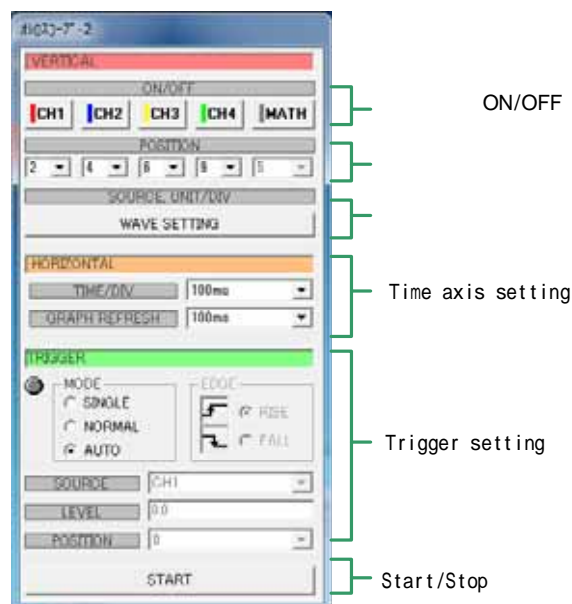
Item	Specification
No. of input channels	4 (CH1 ~ CH4)
Maximum sampling rate	10KS/s
Trigger source	Analog trigger: CH1, CH2, CH3, CH4 Digital trigger: Any of bit 0 to bit 7 of monitor data
Trigger function	Edge trigger: Trigger at the edge of a single trigger source
Trigger mode	Auto: , 100ms/div Buffer Ring 가 Normal: Trigger가 가 Single: Trigger가 1 가
Trigger slope	,
Trigger position	0div ~ 9div 10
DC offset setup range	Any value is available
Time setup range	1ms/div ~ 5s/div
Graph refresh cycle	100ms ~ 1s
No. of display waveforms	Analog display: 4CH Digital display: 8 x 4CH *Four channels in total
No. of waveform configuration data	100
Waveform calculation	Calculation of +, -, *, and / among channels, and waveform display
Cursor measurement	? , ,
Auto waveform measurement	1 , , , , 가
Calibration	,
Screen hardcopy	
File function	Data , , .
Easy setup	

8.6.2

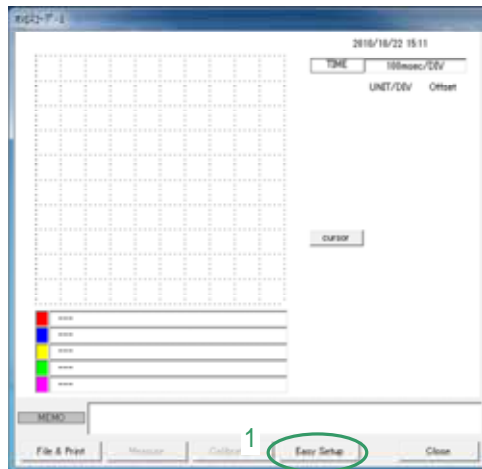
Screen Display



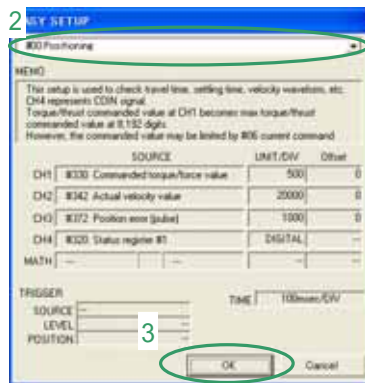
Setup dialog box



8.6.3 Basic usage

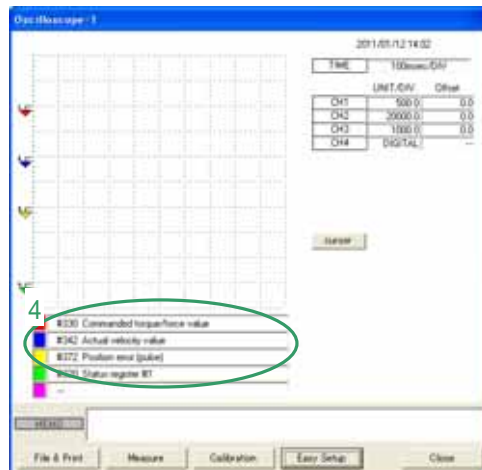


1. Button [Easy Setup]



2. [EASY SETUP]
“#00:positioning”

3. Click on OK.



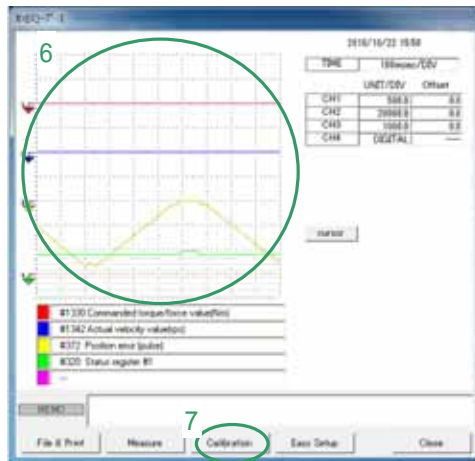
4. Preset



5.

[START]

Click



6.

Real time

7.

위해

클릭하고

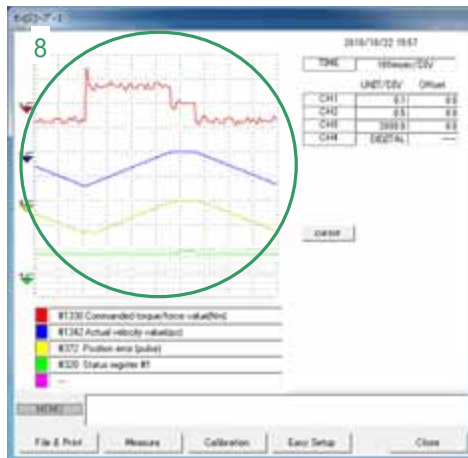
버튼을 Click

[STOP]

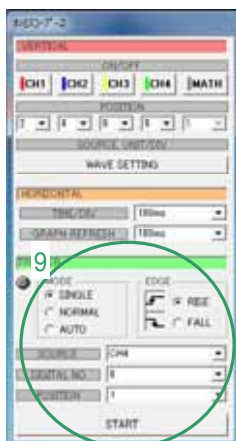
튼

가

[Calibration]



8.



9.

"TRIGGER"

[START]

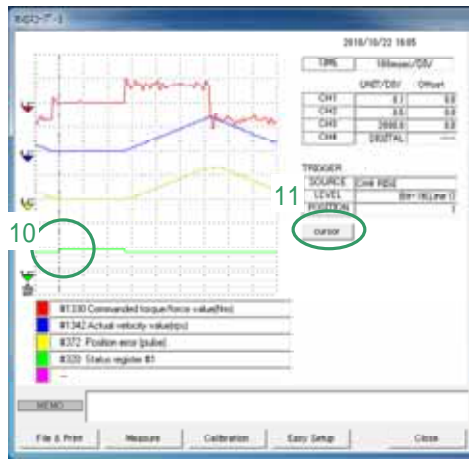
MODE : SINGLE

EDGE : RISE

SOURCE : CH4

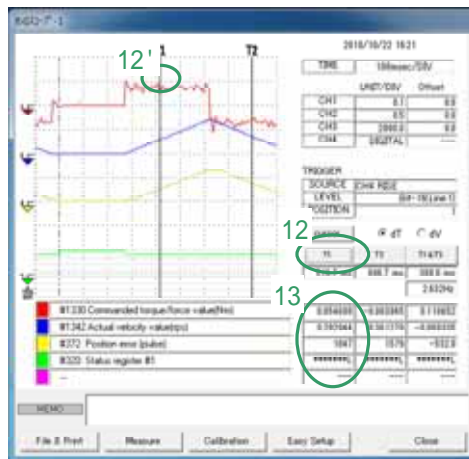
DIGITAL NO : 0

POSITION : 1



10. 위치정정 신호가 입상 타이밍으로 Trigger가 가 합니다.

11. [CURSOR] Click



12.Cursor cursor 가 [T1] Click [T1] cursor Drage [T1] cursor

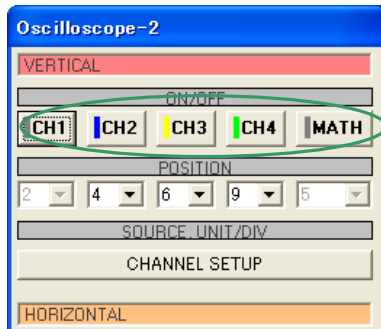
13.[T1] cursor

8.6.4 Monitoring condition setup

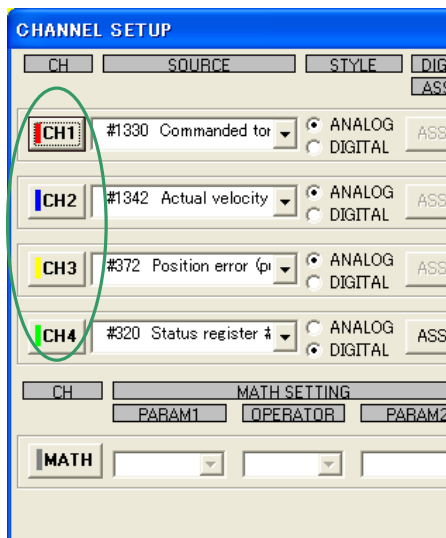
ON/OFF channels

Channel ON/OFF 2가 가 . ON/OFF
려는 ON/OF입니다. ON/OFF

ON/OFF



ON/OFF



"on/off"

on/off 절 가 .
ch

의 "WAVE SETTING" 는

CH

ON/OFF

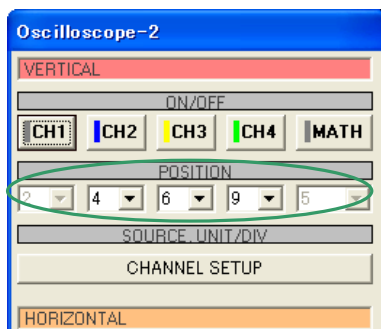
가 .

S/W OFF

, OFF ch

가 .

Waveform position setup



"POSITION"

Drop down list로 ch

ch

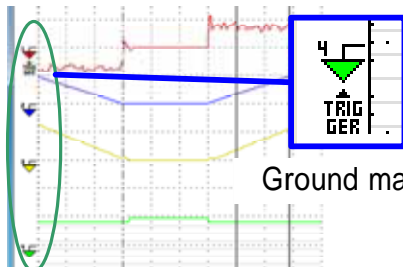
Trigger

가

OFFSET

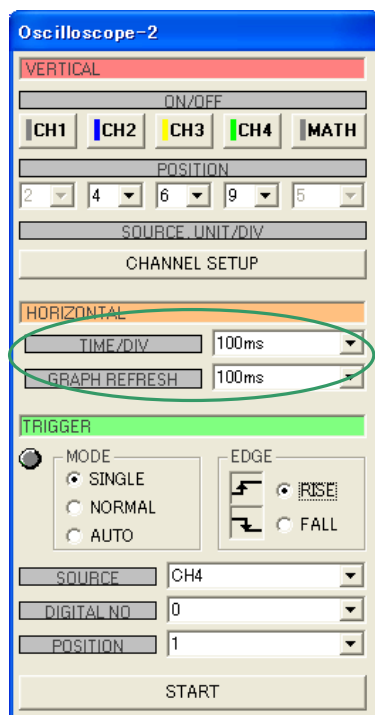
ch

OFFSET



Ground mark

Time axis setup



“TIME/DIV”

Drop down list로

10ms

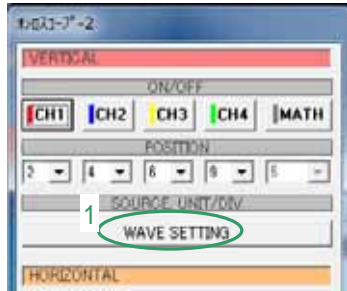
"AUTO"

“GRAPH REFRESH”

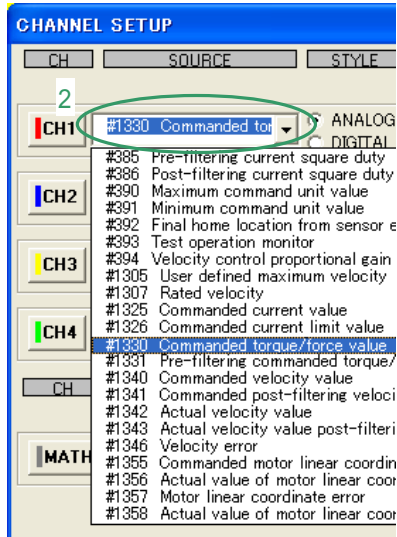
"TRIGGER" "MODE"가

100ms

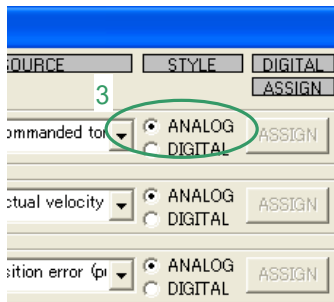
Analog value monitoring setup



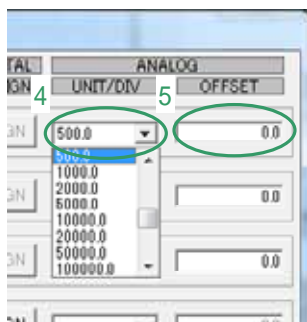
1. [WAVE SETTING]



2. "WAVE SETTING" "SOURCE" ch
[8.6.11]



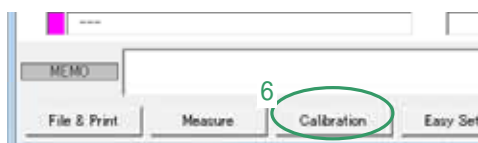
3. "WAVE SETTING" "STYLE" "ANALOG"
"ANALOG" "DIGITAL"
ch 가



4. "WAVE SETTING" "UNIT/DIV"

5. "WAVE SETTING" "OFFSET"

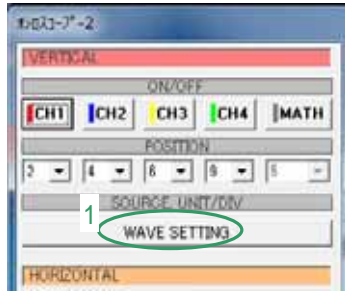
가 "Enter Key"



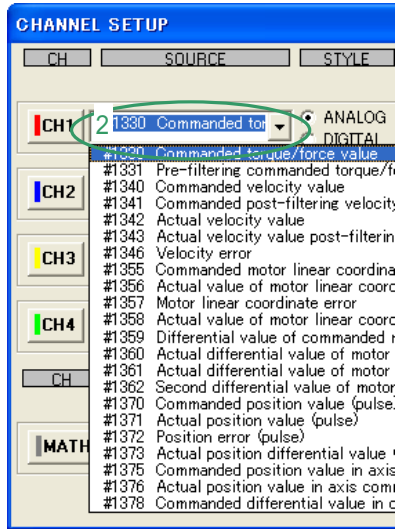
6. "UNIT/DIV" [Calibration]

가

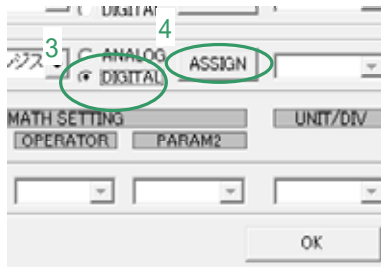
Digital value monitoring setup



1. [WAVE SETTING]

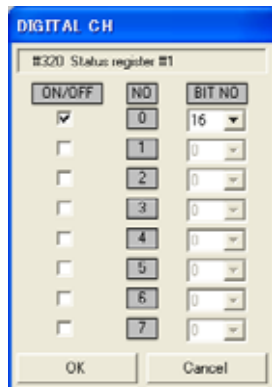


2. "WAVE SETTING" "SOURCE" ch
가
[8.6.11]



3. "WAVE SETTING" "STYLE" "DIGITAL"
"ANALOG" "DIGITAL"
ch 가

4. "WAVE SETTING" "DIGITAL ASSIGN"
"ASSIGN"



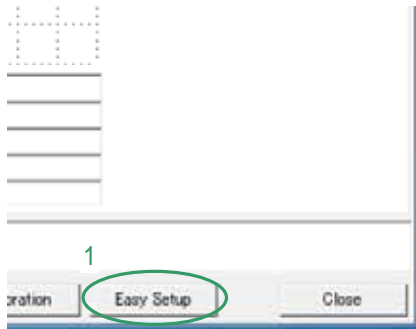
5. ON/OFF 0~7 2
2 8
0,1,2,...,7 가

0 ~ 7 0 ~ 3 Bit
bit Setup 가 bit
[]

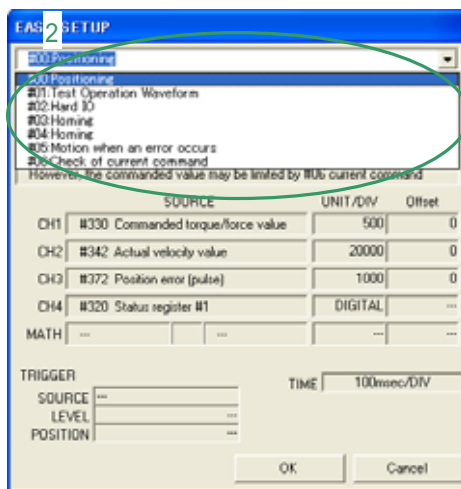
"#320 Status Register" bit 16
No.0 Set up
OK

8.6.5 Easy Setup

Easy Setup 사전에 등록되어 자주



1. [Easy Setup]



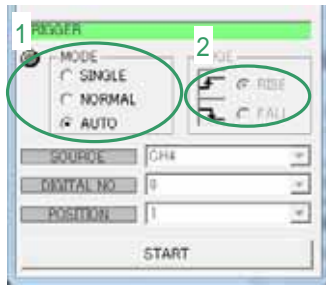
2. Drop down list

OK

"EASY SETUP"

#00: Positioning	
#01: Test Operation Waveform	Test
#02: Hard I/O	CN4
#03: Homing	(50msec/DIV)
#04: Homing	(500msec/DIV)
#05: Motion when an error occurs	Error
#06: Check of current command	가

8.6.6 Trigger setting



1.Trigger mode

SINGLE:Trigger

1

(Stop)

NORMAL:Trigger

AUTO:Trigger

TIME/DIV 100ms

2.Trigger edge

RISE : Analog monitor:

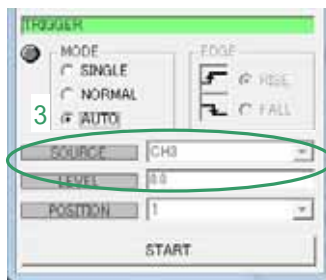
Digital monitor:

입상

FALL : Analog monitor:

가

Digital monitor:



3.Trigger source

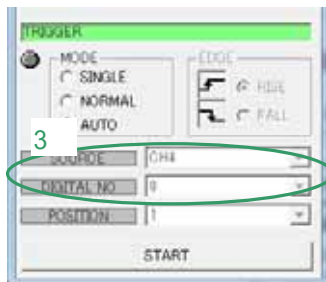
Analog monitor:

III

Digital monitor:1ch

8

1



4.Trigger position

Trigger position

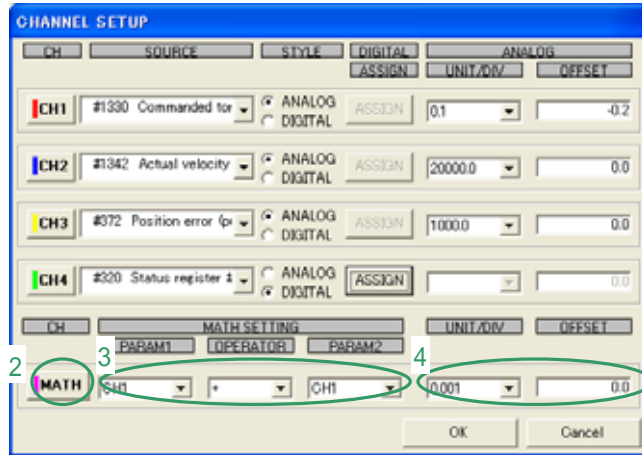
10

8.6.7 Mathematics function

ch

1. [WAVE SETTING]

“ WAVE SETTING ”



2. [MATH]

[MATH]

3. "PARAM1", "PARAM2"로 연산원의CH번호를 "OPERATOR"
?로 2개의 ch간에 적용하는 연산자를 선택합니다. ?

4. 선택가능한 연산자는 “+”, “-”, “*”, “/”의 4종류입니다.

?0으로 제산한 결과는 0으로 취급합니다.

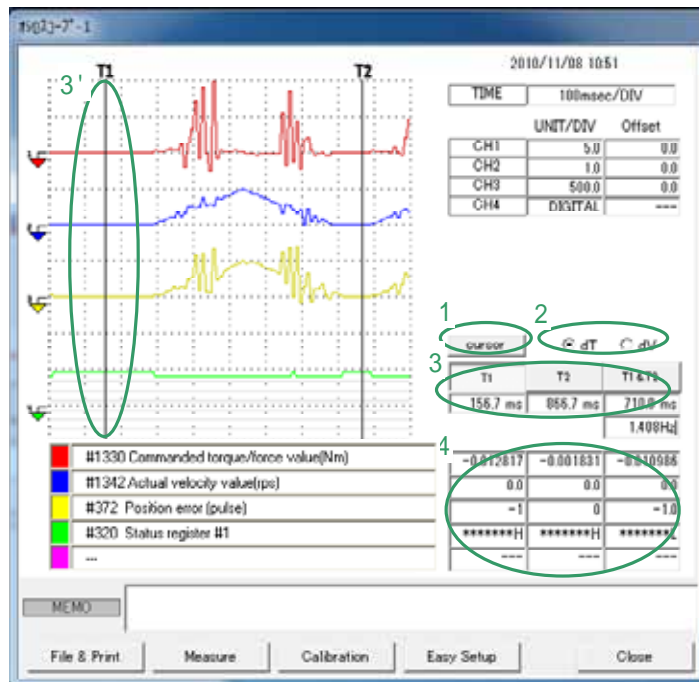
4. Analog

"OFFSET"

“UNIT/DIV”

8.6.8 Cursor function

curosor



1. [Cursor]

2. Select "dT"

3. [T1], [T2], [T1&T2]

가 가

Drag

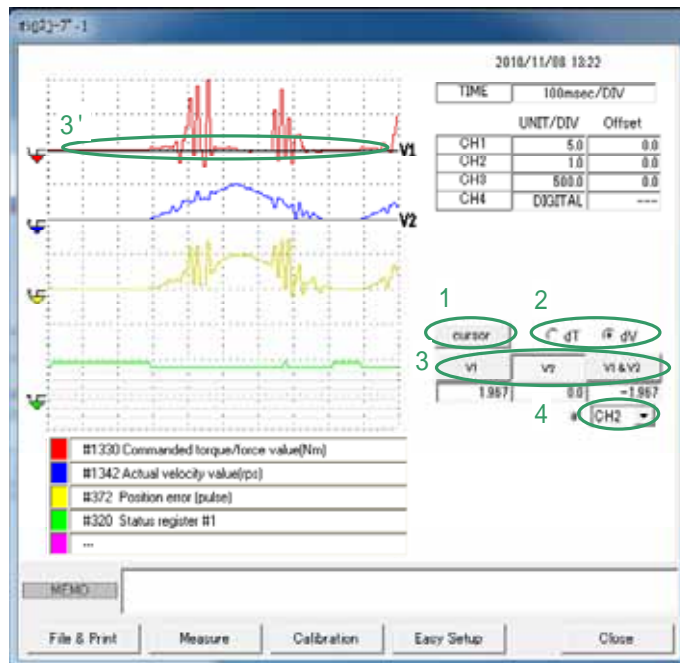
Cursor

가

4. T1&T2

T1 T2

Horizontal cursor



1. Click on [Cursor],

2. Select "dV"

3. [V1], [V2], [V1&V2]

가 가

Drag

Cursor

가

4.

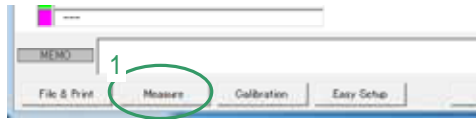
ch

0

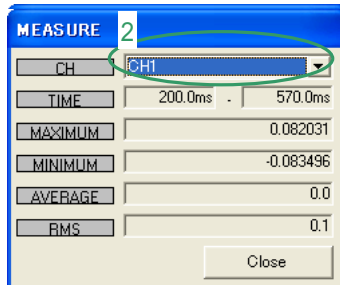
"UNIT/DIV"

8.6.9 Measurement function

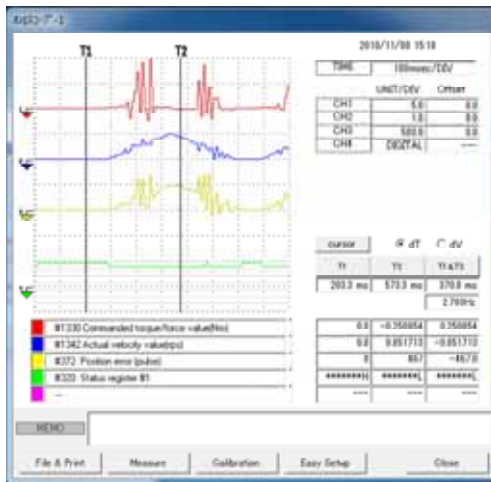
ch , , , Cursor 가 .



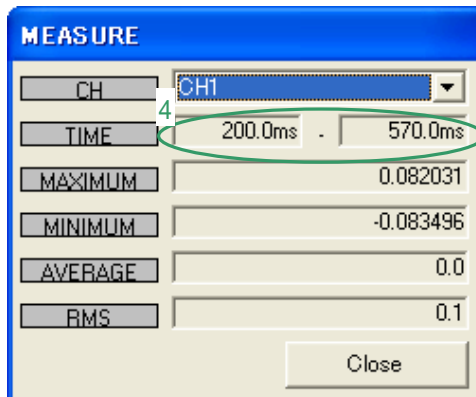
1. [Measure]



2. CH
CH

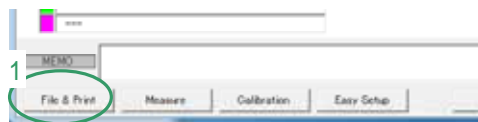


3. "T1" "T2"
[Measure]

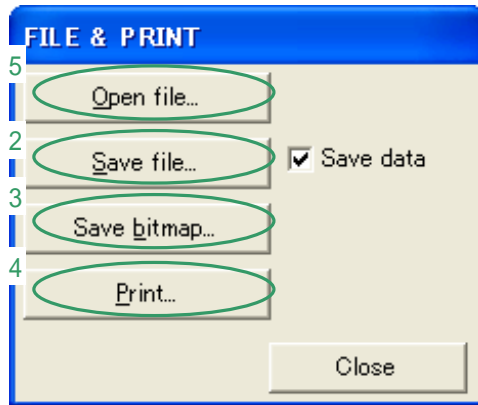


4. 가 .

8.6.10 Save, Open, Print waveform



1. [File & Print]



2. [save to the file] File 가
, File

File(cnd) file(bit map) 2
"Save data" Data

3. [Save bitmap...]

4. [print] PC
가

5. [Open file] File(cnd)
가

8.6.10 Physical value display function

	Digit	.	가
#1000	가	가	.
	[]	.
#1305	Maximum Velocity()	unit: DYNASERV[rps], LINEASERV[m/s]	
#305			
#1307	Rated velocity()	unit: DYNASERV[rps], LINEASERV[m/s]	
#307			
#1325	Command current value()	unit: [A]	
#325			
#1326	Command current limit value()	unit: [A]	
#326			
#1330	Commanded torque/force value(/)	unit: DYNASERV[Nm], LINEASERV[N]	
#330	/		
#1342	Actual velocity value ()	unit: DYNASERV[rps], LINEASERV[m/s]	
#342			
#1355	Commanded motor linear coordinate value ()	unit: DYNASERV[deg], LINEASERV[mm]	
#355			
#1356	Actual value of motor linear coordinate ()	unit: DYNASERV[deg], LINEASERV[mm]	
#356			
#1357	Motor linear coordinate error ()	unit: DYNASERV[argsec], LINEASERV[μm]	
#357			
#1359	Differential value of commanded motor linear coordinate ()	unit: DYNASERV[rps], LINEASERV[m/s]	
#359			
	,Sampling 1ms	.	
#1360	Actual differential value of motor linear coordinate ()	unit: DYNASERV[rps], LINEASERV[m/s]	
#360			
	,Sampling 1ms	.	

#1384 Bus voltage () unit: [V]

#384

#1386 Post-filtering current square duty (Duty) unit: [%]

#386 Filter Duty

#2386 Over load detection value (/ Duty) unit: [%]

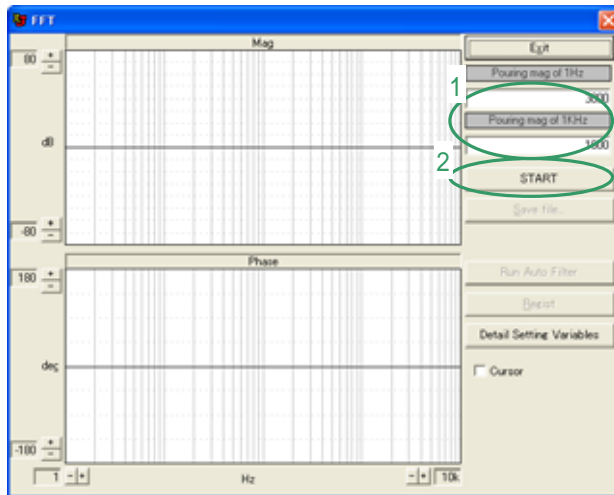
#1386 Duty가 가 Over load

8.7 FFT

FFT 기계진동을 주파수 해석하는 기능입니다.이기능은 서보조정,필터 설정을 할때 사용합니다.
측정 결과에서 자동으로 기계공진 Filter를 설정하는것도 가능합니다.

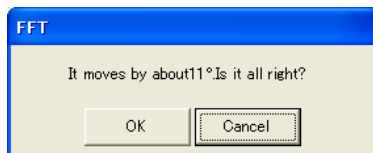
8.7.1 Measuring procedure(측정방법)

SERVO-ON인 상태로 지원툴의 메뉴에서 [FFT]를 클릭하여 FFT화면을 불러주십시오.

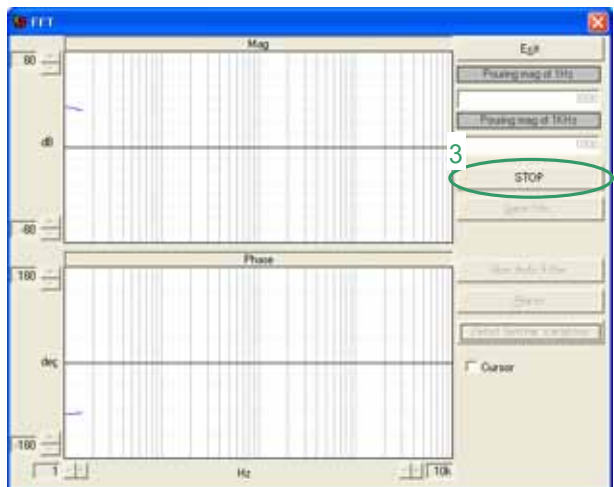


1."1Hz시의 주입 신호진폭"이 3000,"1KHz시의 주입 신호진폭"이 1000으로 있는것을 ?
??확인해 주십시오.?

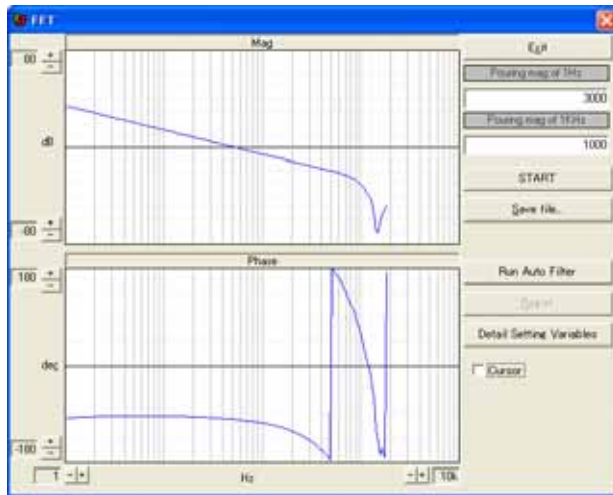
2.[START] 모터의 근처에 사람이나 접촉물이 없는것을 확인하고[START]를 클릭하여 주십시오.



3.모터의 최대 동작량의 예측이 표시되 문제가 없다면 OK를 눌러주십시오.?
측정이 개시되고 모터가 미소 진동을 시작합니다.



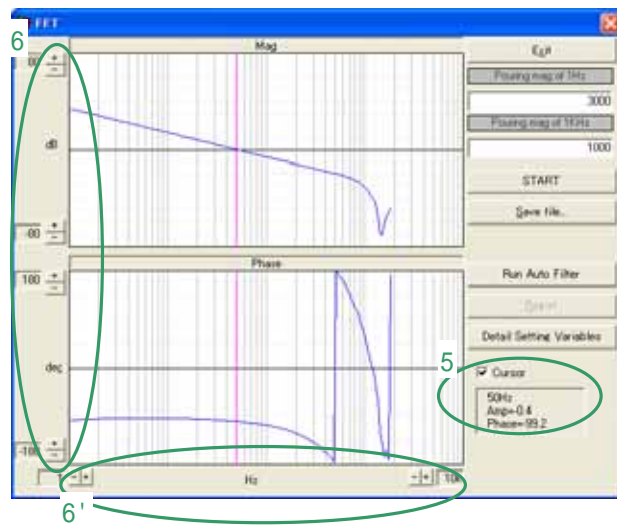
4.측정을 중단한 경우는[STOP]을 눌러 측정을 종료해 주십시오.



5. 측정이 종료하면 [Stop]이 [START]로 복귀됩니다.파형 취득 결과에 의해 자동으로 ??

FFT로 측정한 결과는 위의 그림에 2개의 그래프로 표시됩니다.위의 그래프는 Gain특성

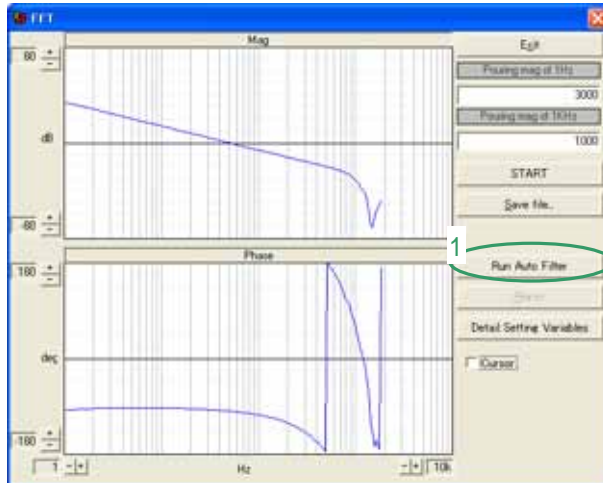
(횡축:frequency[Hz],종축:gain[dB]),아래의 그래프는(횡축:frequency[Hz],종축:위상[deg])



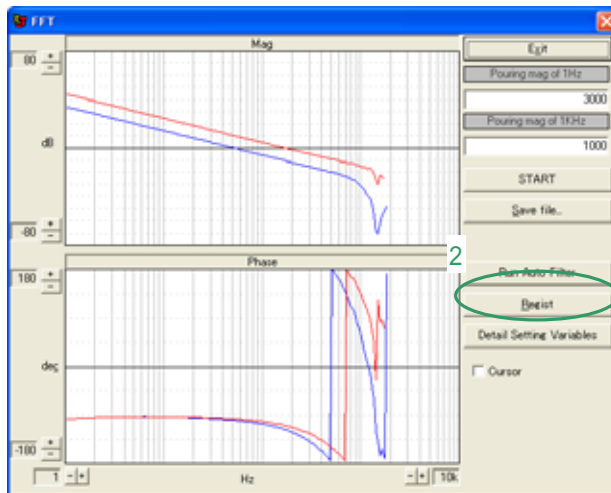
6. “Cursor” 를 체크하면 커서 기능이 사용됩니다.?파형이 표시되고 있는 부분을 ???
드래그하면 커서가 추종하여,커서 위치의 주파수,진폭,위상을 표시합니다.

7.그래프 표시부의 좌측 및 아래측에 있는[+] or [-]의 버튼을 누르는 것으로 종축,횡축의 ?
최대치 최소치를 조정하고 그래프를 확대 하는것이 가능하다.

8.7.2 Auto filter



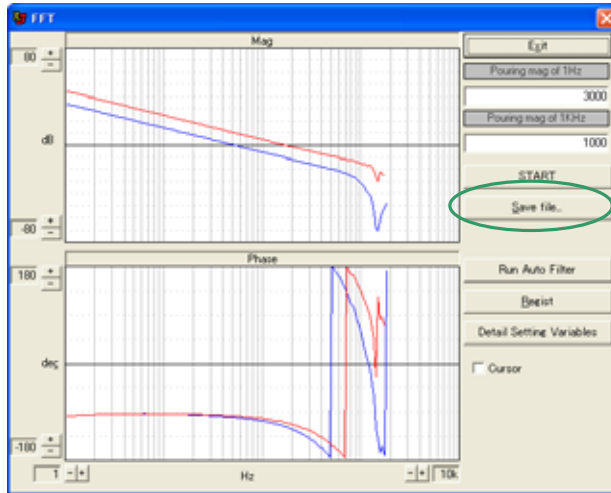
1. [Auto filter] ?측정 종료후에 [Auto filter]를 클릭하여 주십시오.??



2. 자동적으로 필터의 설정이 연산되어 필터의 설정이 가능한 강성(파라미터#1)이 설정됩니다. 이 결과는 측정파형상에 적색으로 표시됩니다. “register”를 누르는것으로 드라이버에 파라메터가 등록됩니다.?

3. 다시 측정을 하지않아도 예측된 파형과 동일한 것을 확인합니다.

8.7.3 Save the waveform(파형의 보존)



[save to the file]을 클릭하는 것으로 측정한 파형의 보존이 가능합니다.

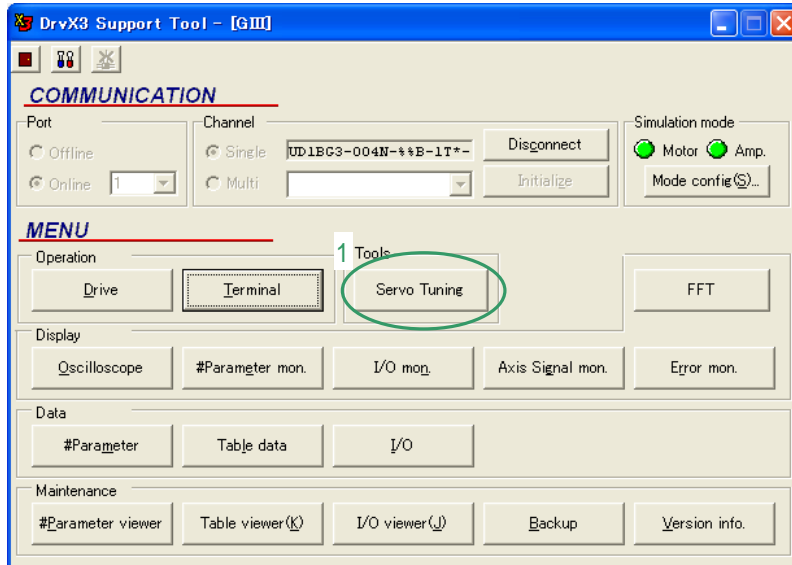
?보존은 데이터 파일(확장자csv)sk 화상파일 (Bit map)의 2개의 동시에 보존됩니다.?

?보존한 파형은 Off-line 모드시에 읽기가 가능합니다.

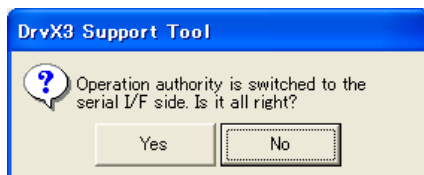
8.8 Servo tuning wizard

Servo tuning wizard는 서보 조정시에 할 필요가 있는 공정을 적절한 순번으로 실행하는 wizard입니다. ?이기능을 이용하는 것에 의해 서보조정을 간단히 하는것이 가능합니다.??

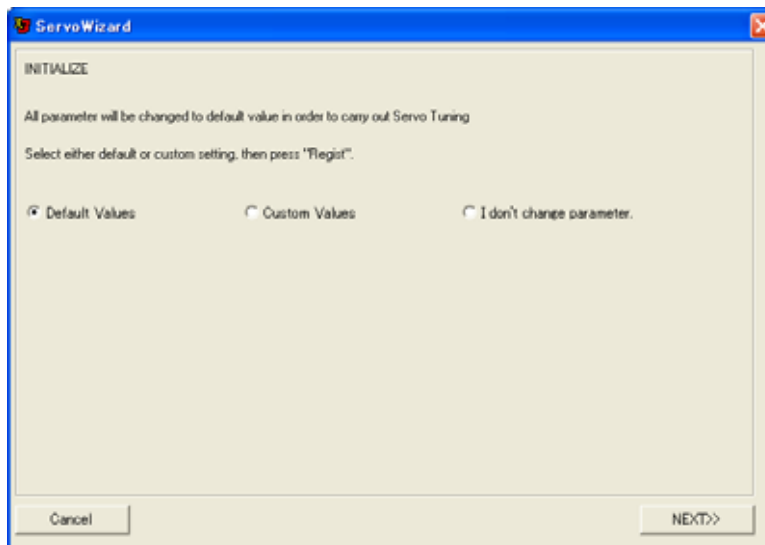
Parameter initialization



1. 메뉴에서 [Servo tuning]을 클릭하여 주십시오.?



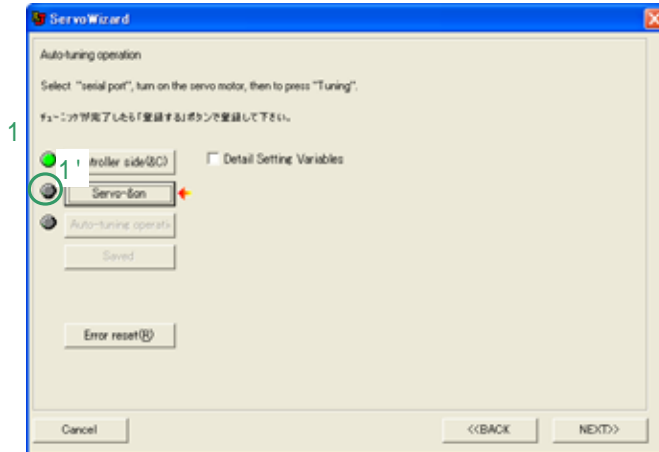
2. 조작 권한을?컨트롤러 측에서 시리얼 인터 페이스측으로 전환 확인이? 가능하며 [YES]를 눌러주십시오.?



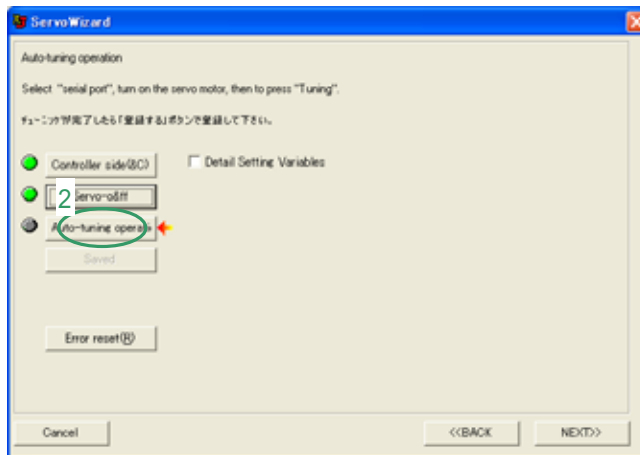
3. 각종파라미터의 초기화를 하여 주십시오. "Default values"를 선택하고 [NEXT>>]를 ?클릭하여 주십시오.?

Auto tuning

Auto-tuning의 상세는 6.4.3[Auto-Tuning동작]을 참조 해 주십시오.



1. 위의 2번째 상태 표시램프가 회색의 경우[servo on]을 클릭하여 주십시오.

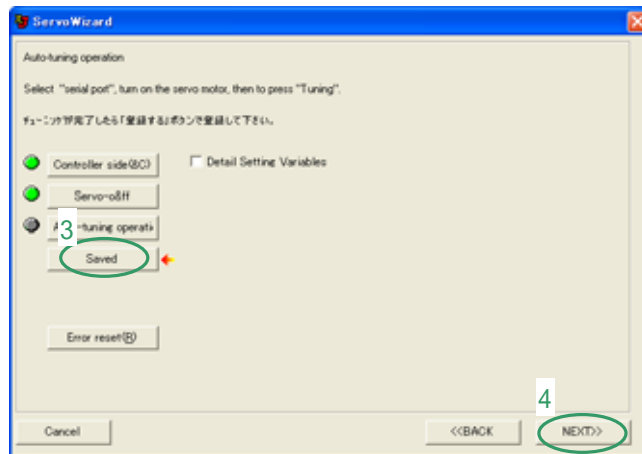


2. [Auto tuning]을 클릭하여 주십시오.?



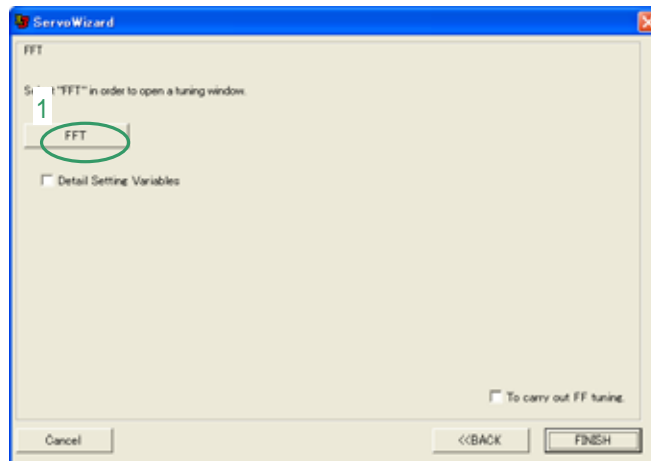
CAUTION

Auto tuning의 동작 방향은 동작개시전의 위치에 대하여 +방향으로 움직입니다만, 동작을 개시할때는? -방향의 Space도 충분히 비워 두십시오.



3. 오토튜닝이 종료하면 [Register]를 클릭하여 주십시오.이 조작에 따라 오토튜닝 된 결과가 드라이버에 보존됩니다. NEXT>>을 클릭하면 다음의 화면으로 이동합니다.

FFT measurement

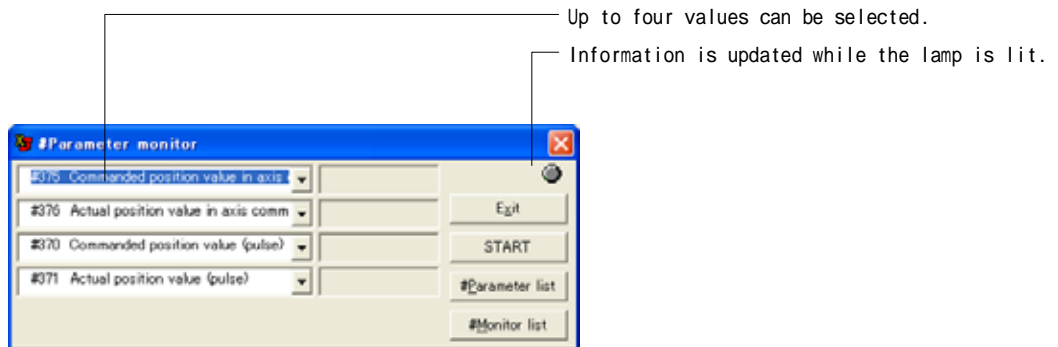


1. [FFT]를 클릭하여 주십시오.?FFT화면이 표시됩니다.8.7을 참조하고 FFT파형을 취득, 오토필터를 실행하여 주십시오. FFT화면에 있어 필터의 적용이 종료하면 화면을 닫고 최종으로 [FINISH]를 눌러 주십시오.이것으로 Servo조정?Wizard는 종료합니다.

8.9 Other display group function

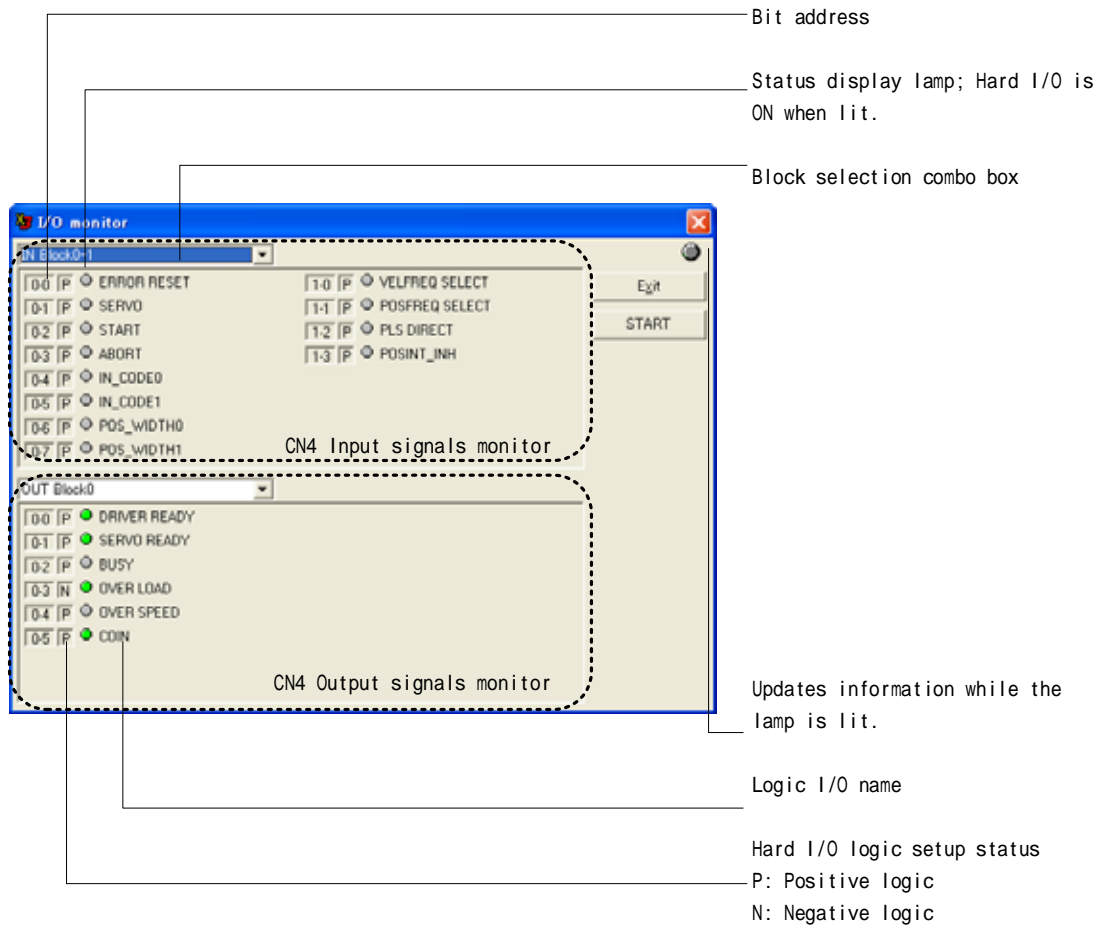
8.9.1 #Parameter/#monitor display

4 #Parameter/#Monitor
Motor에 동작에 된 #
에
[START]



8.9.2 I/O

I/O
I/O
에
[START]



I/O bit 8, 1Block
에서 0 Blok 8bit 1Block 4bit, 0Block 6bit I/O를 가지고
있습니다. 1도에 모니터 가능한 점수가입력,출력공히 2Block단위입니다. 이것이상의 하드웨어I/O
드라이버의 경우는 [Block selection comcombo box]에서 모니터하고 싶은

I/O 가 의 가 입력된지를 확인하는
데에 .

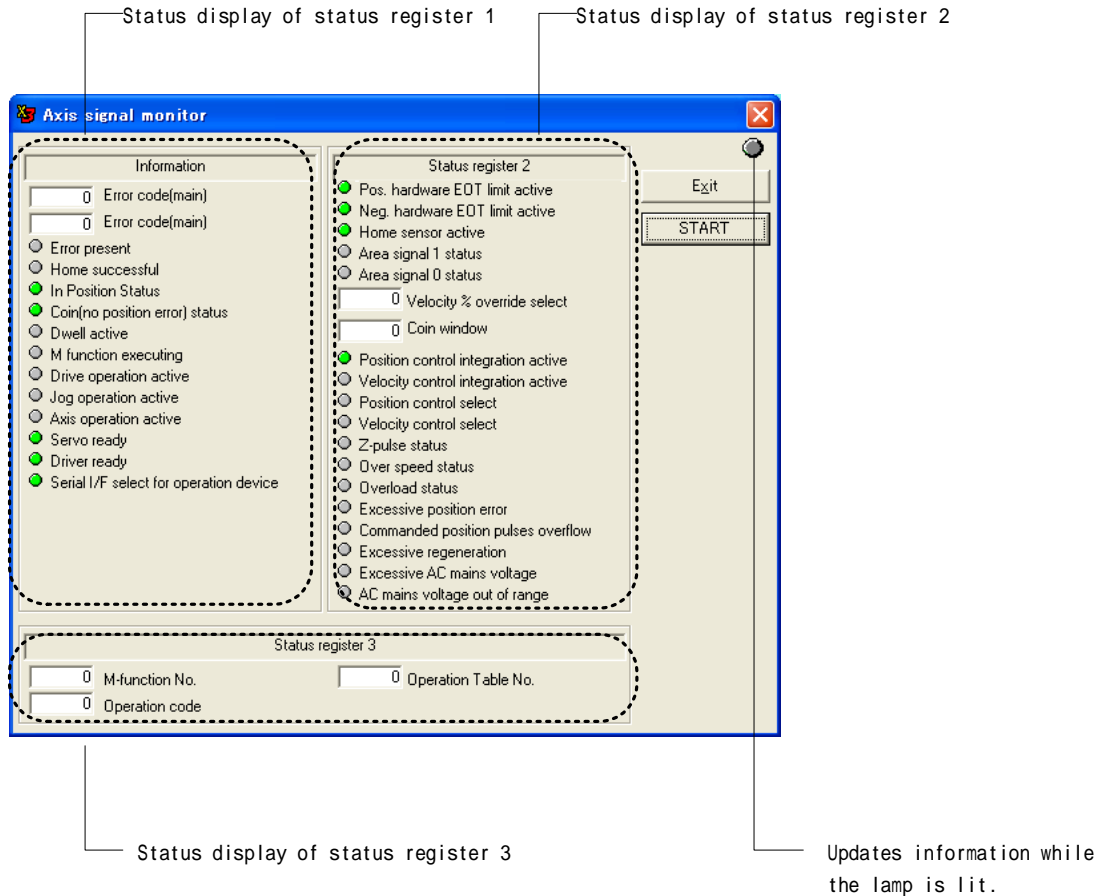
8.9.3 Axis signal monitor

(Status Register1~3)

한

가

[START]



TIP

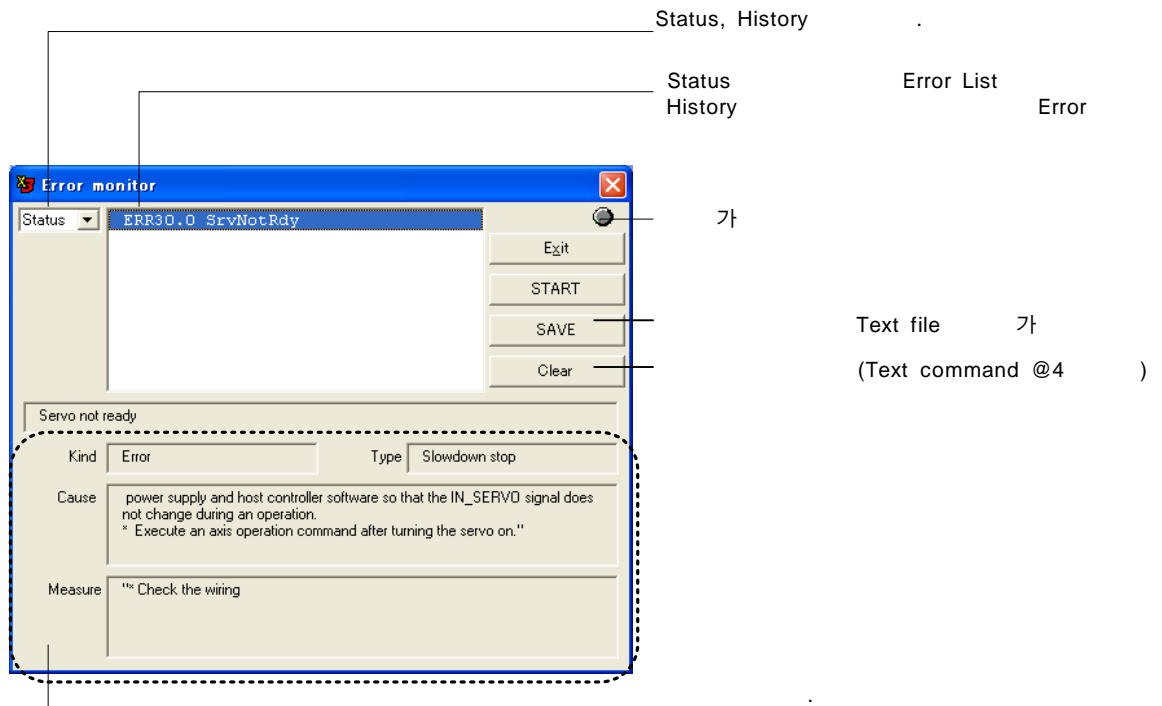
Status Register
I/O

Sensor

[]

8.9.4 Error monitor

Error(, Status) Error (,
History) . History
Status History 16 Error
Error
가
[START]



가 Error 가 1 Error Error 가
가 .Status Error
Error가 가 . Status 1 Error 가
Error (16) Error
History Error 가 Error (16)



TIP

History Error Code 16 1Byte 가
Error가
Free-run counter Calendar 가
Error
가

8.10 Data Management Group

Data , 가 [Data management]

8.10.1 #Parameter

Parameter [Terminal]

가 , # Parameter가 가

가 . [#Parameter]

#Parameter #Parameter

가 .

Register Parameter

System

Register 1~3Error

Register 1~2

Parameter 32Bit

Bit

. [Terminal]

가

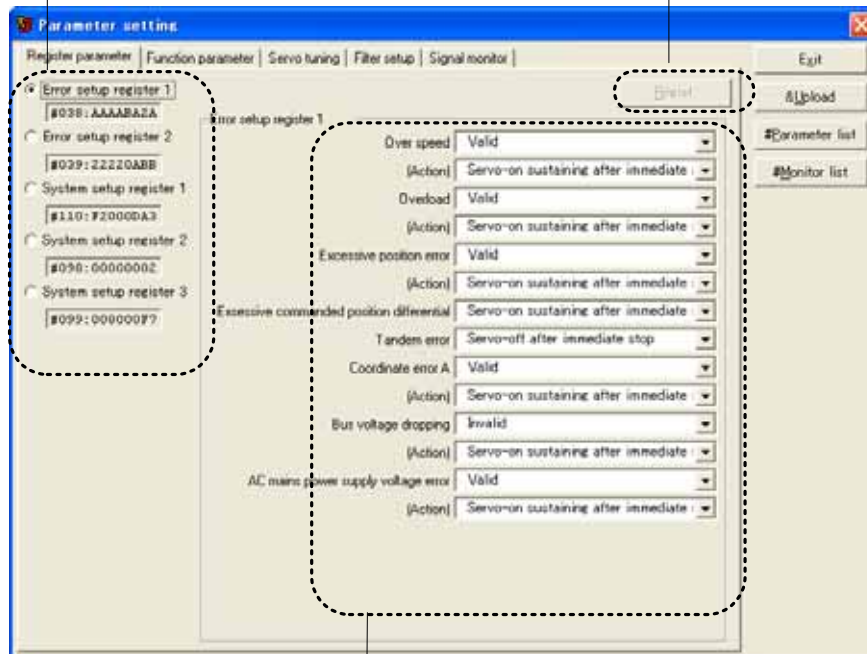
가

Register

Regist:RAM

EEP-ROM

Parameter



DANGER

Register

「Save」

「Register」

[Register]

Tool

Software

Reset

가

. Reset

Servo Off

가

Function Parameter

#Parameter

#Parameter

[Terminal]

Register: RAM EEP-ROM

Name	Value
JOG	1310720
Homing	1310720
Test Move	1310720
Auto Tune	1310720
ABS/INC Move	1310720
BASIC setup	1310720
67 Feeding Velocity #3	1310720
68 Feeding Velocity #4	1310720
69 Feeding Velocity #5	1310720
70 Feeding Velocity #6	1310720
71 Feeding Velocity #7	1310720
72 Acceleration time #0	1000
73 Acceleration time #1	1000
74 Acceleration time #2	1000
75 Acceleration time #3	1000
76 Deceleration time #0	1000
77 Deceleration time #1	1000
78 Deceleration time #2	1000
79 Deceleration time #3	1000
111 Maximum velocity limit	1310720
44 Velocity override percentage 1	10000
45 Velocity override percentage 2	10000

Setup table data and system register depending on the necessity.

Parameter

「Data」 Edit

Write



TIP

가

[Operation Table] Data [System Register]



CAUTION

110

Parameter

가

가

Servo Tuning

Servo

Servo

[Filter Setting]

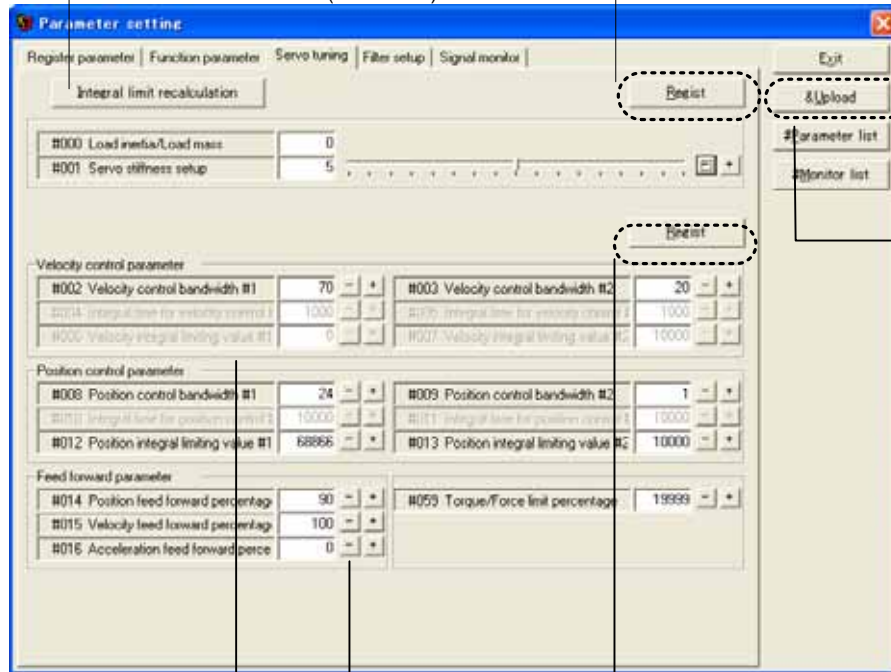
7

#Parameter가

#0 #1

Limiter

.(@14)



Refresh

Increment,
Decrement

#0, #1
가

Parameter

Servo

Edit

Tool

#Parameter

(RAM Parameter)

#Parameter

지워

[Register] ##Parameter (EE - PROM)

가

[Register] #Parameter가 Write

#Parameter

Message가

7

Standard
selections

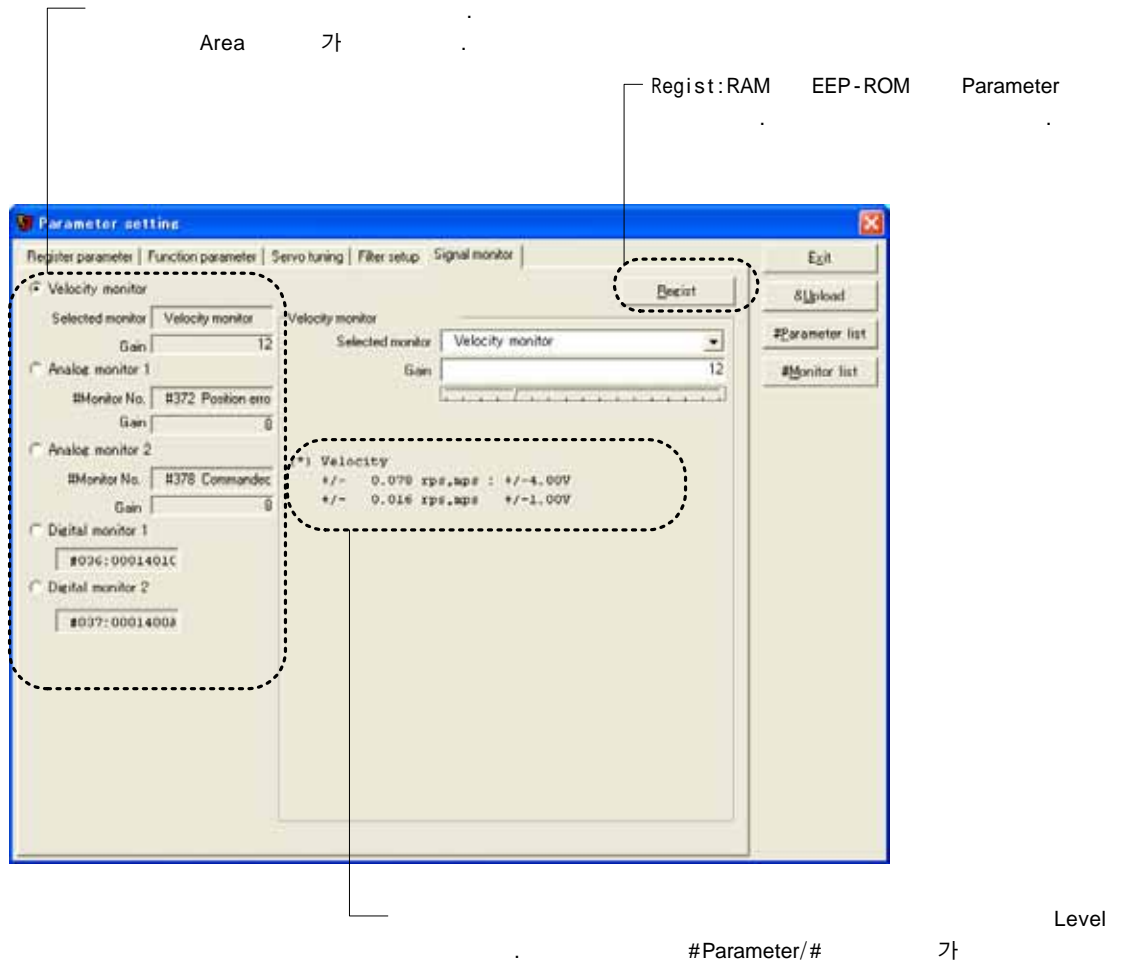


Filter



Signal Monitor

#Parameter / #Monitor



8.10.2 Table Data Function

0 ~ 63 TableData
 Table Data 1 Table 16bit+16bit+32bit 8Byte
 [Table Data] Wizard
 Table Copy & Table Paste Table , Copy,

Table 가 「 」

Code 「 Parameter 0 」
 「 Parameter 1 」



3 Data가 Table Data [Register],
 [Data0], [Data 1] [Register]
 [Data0 , 1] Code

8.10.3 I/O

I/O (, I/O)
I/O (, I/O)

- [1] Hard I/O
- [2] Hard I/O
- [3] Logic I/O

Hard I/O

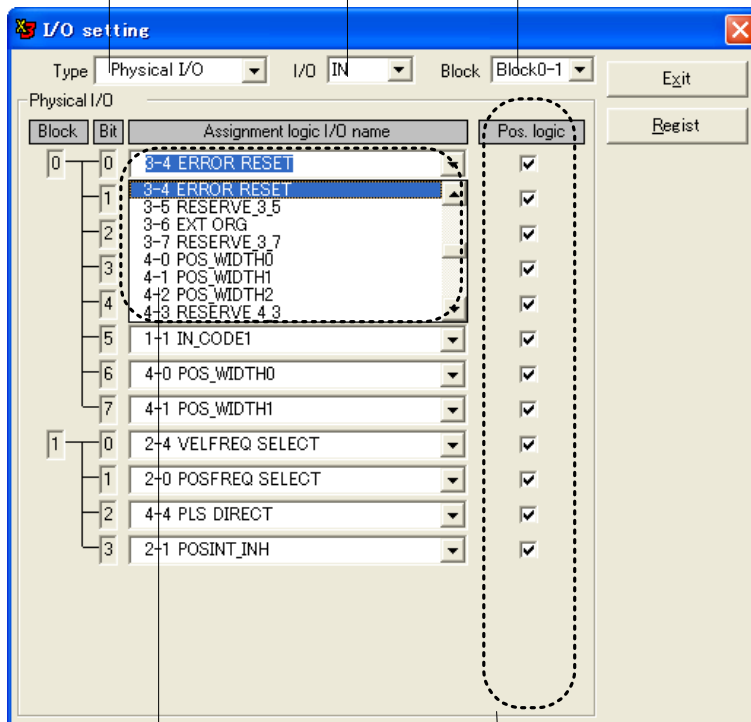
I/O

I/O

/

가

16Bit
combo box



I/O

I/O
Bit

I/O

I/O

Logic I/O

I/O Bit 가 .
 Servo On Application
 [Servo On] I/O I/O Bit On
 Servo On 가 .
 I/O 가 .

I/O .
 Bit 가 .
 가 16Bit I/O
 combo box
 Page

Bit 가 .
 Bit가 On .
 Bit 「 Bit 」 .



DANGER

[Register] , 하 Software Reset
 . Reset Servo Off 가

8.11 Details of the Maintenance Group Function

Data , Download, Up Load()

가 []



TIP

Down load : PC

Data

()

Upload :

PC

()

8.11.1 #Parameter Maintenance

User

#Parameter File

User

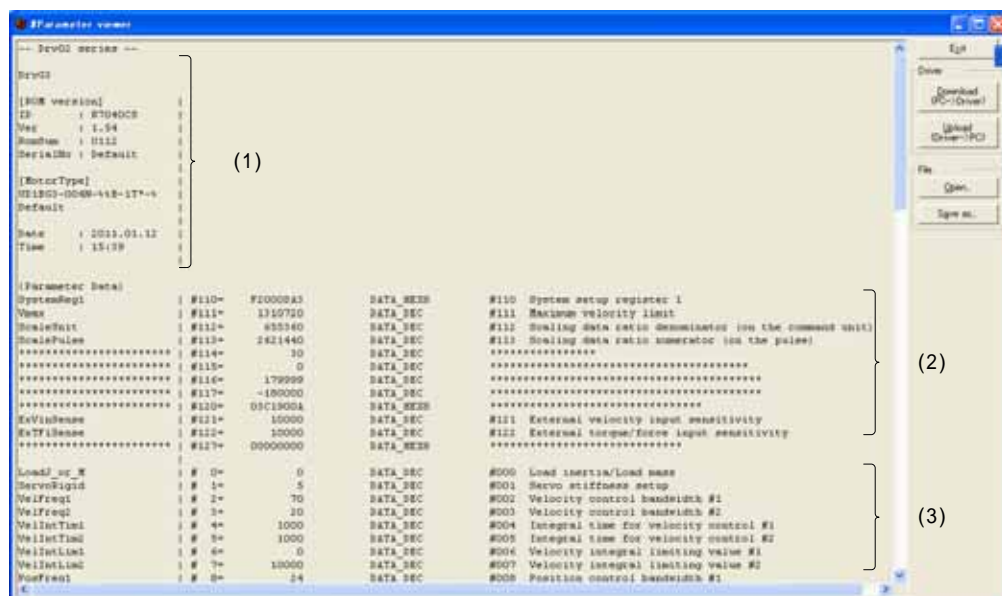
#Parameter

/

#Parameter

Download/Up Load

가



#Parameter File

File

Format

(1)

(2)

(3)

Parameter

Parameter



DANGER

Download

Sequence

(2)

Parameter

Download

Software Reset

Reset

Servo Off

가

8.11.2 Table Data Maintenance

Table Data File Data
/ Up Load 가 Table Data Download /

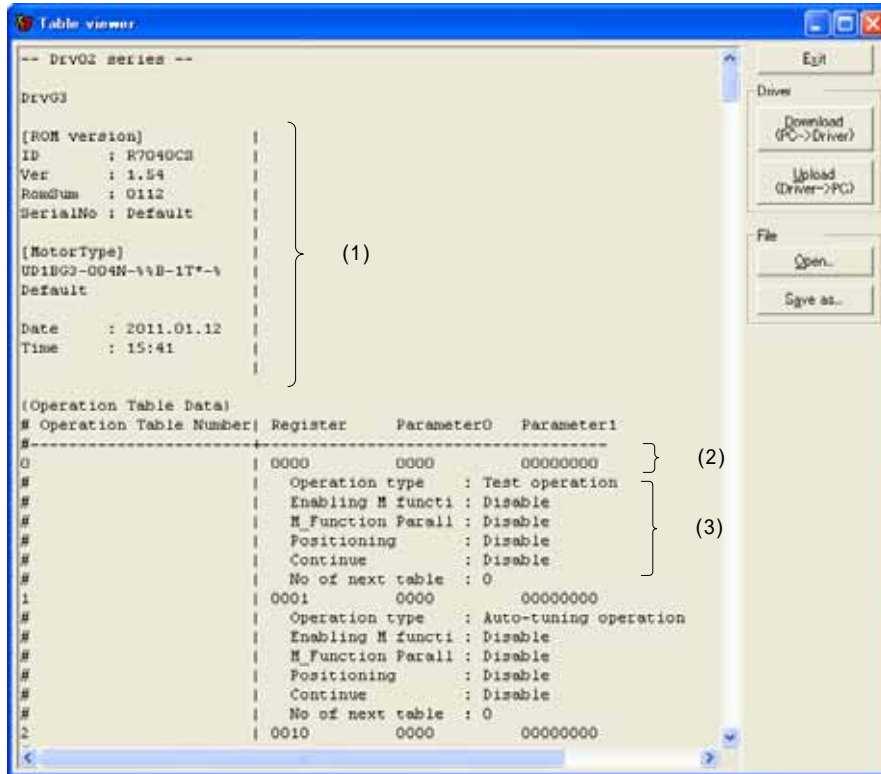


Table Data File File Format

- (1) Comment
- (2) Table , Register, Data 0, Data1
- (3) Comment Register

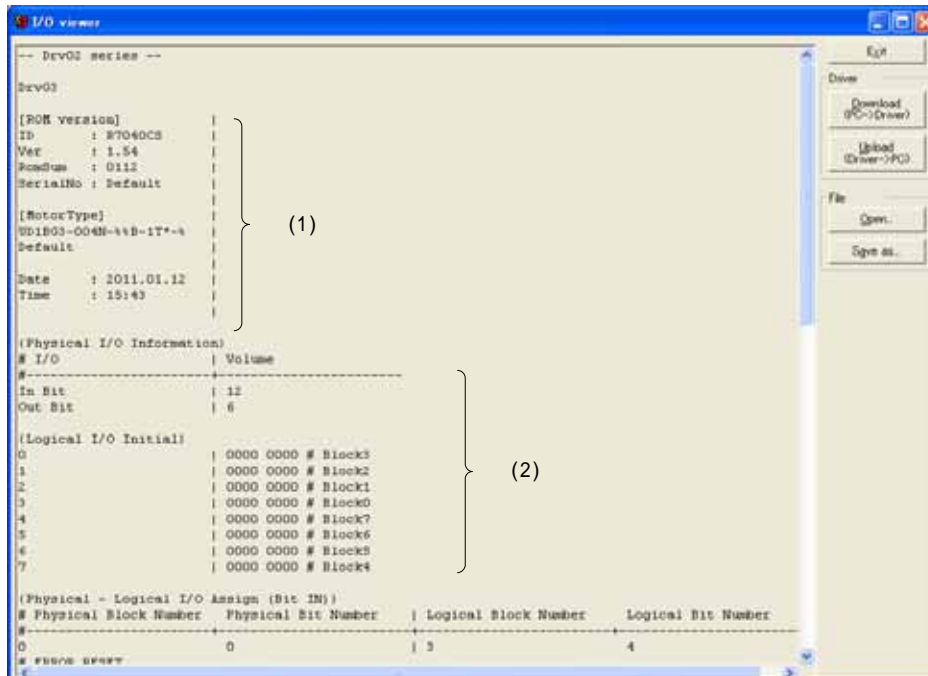


CAUTION

Up Load Data
는 하는 PC 의 가

8.11.3 I/O

I/O File I/O Data
Download/Up Load 가 .



I/O Data File File Format

(1) . Comment
(2) I/O , I/O , I/O
Comment .



DANGER

Tool	Download Sequence	I/O
Download	Software Reset Command	.
Reset	Servo Off 가	.

8.11.4 Backup

에 User Data /
Data 1 File
Copy



User Data Write.

User Data Read.

File . Format
Parameter File, Table File, I/O File



DANGER

Tool	Download Sequence	Software Reset
Command	Servo Off가	가
Reset	Message가	

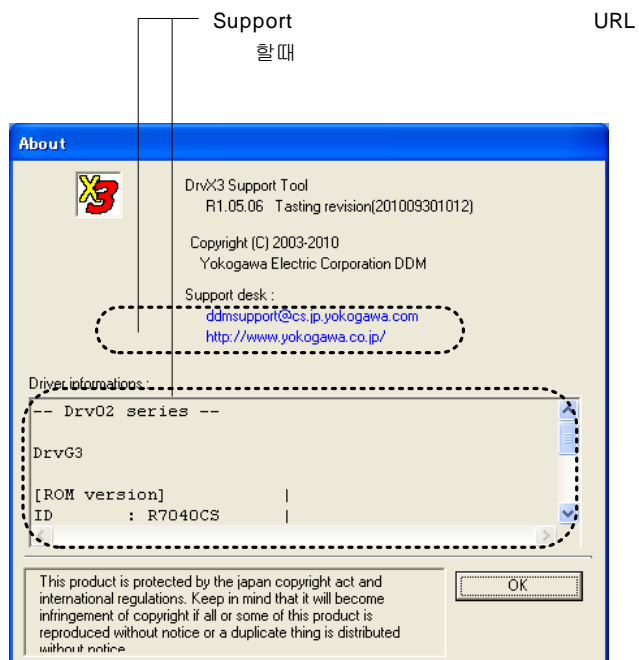


CAUTION

Tool	RDY LED가	User Data
	「10.x Data Sum Error」 r가	가
User Parameter		User Data
Restore()	()	()

8.11.5 Version information

어, Type
Support



8.12 FAQ

Tool에는

Parameter가

Parameter Write (#1=2) RAM
지워 저장된 EEPROM Parameter
(#1=2) @16Command Parameter 써

Tool

PC

가 Application

도 CPU

래 생기 은 주기로

Long Range

Long Range

가

USB - RS232C

Data

경우가 있습니다. 한

드라이버 소프트웨어의 영향에 의해 PC

COM Port

이상이 발생하는 경우도 있습니다.

RS232C / 485 Port

PC

DLL

가

DLL

PC

Visual Basic

Application

가

Support

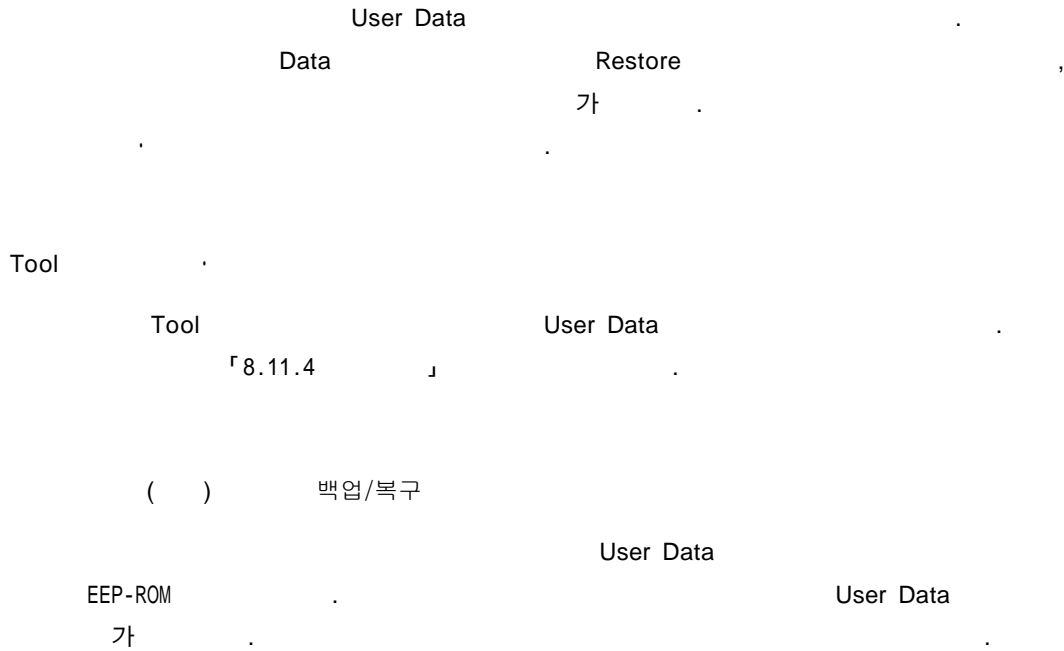
9.

와
20,000 5
가 가
사용 상태를 유지해

9.1

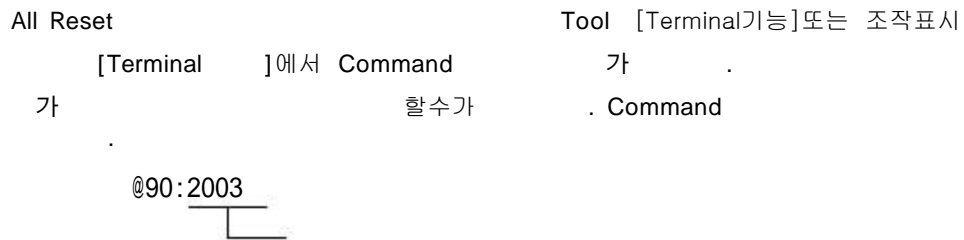
	가	200 ~ 230V+10%-15% (AC200V) 100 ~ 115V+10%-15% (AC100V)
Interface	가	Interface
	가	0 ~ 40 () 0 ~ 50 ()
	가	20 ~ 85% RH () 20 ~ 90% RH ()
	가	가
	가	가
	Connector 가	
	가	
	Cable 가	、
	Cable 가 가	
	가	
	가	
	가	
	가	、Smooth
	가	
	가 、 、 、	、 、 、 、

9.2 User Data



9.3 User Data (All Reset)

User Data 공장 출하시 으로 [All Reset]라고 부릅니다.
1



All Reset 발생하지 . All Reset
5 가 발생하 All Reset
「10.x Data Sum Error」가 가
All Reset

0 /

: 0 Load J or_M 10
 : 200000
 : 0
 : 1/1000kgm² or 1/1000kg
 ()

1 Servo

: -3 ServoRigid 10
 : 13
 : 3
 :

Servo
 Servo : (가 Servo , 가)
 -3: 10Hz 5Hz
 -2: 12Hz 6Hz
 -1: 15Hz 8Hz
 0: 20Hz 9Hz
 1: 30Hz 14Hz
 2: 40Hz 16Hz
 3: 50Hz 19Hz
 4: 60Hz 22Hz
 5: 70Hz 24Hz
 6: 80Hz 26Hz
 7: 90Hz 28Hz
 8: 100Hz 30Hz
 9: 110Hz 32Hz
 10: 120Hz 34Hz
 11: 130Hz 36Hz
 12: 140Hz 38Hz
 13: 150Hz 39Hz

2 1

: 5 VelFreq1 10
 : 400
 : 20
 : Hz

Servo :
 1

3 2

: 5 VelFreq2 10
 : 400
 : 20
 : Hz

Servo :
 2

4	1		
:	1	VelIntTim1	10
:	1000		
:	1000		
:	msec		

Servo

1을 설정합니다.

5	2		
:	1	VelIntTim2	10
:	1000		
:	1000		
:	msec		

Servo

2를 설정합니다.

6	1		
:	0	VelIntLim1	10
:	4999999		
:	10000		
:	なし		

Servo

리미터값 1을

Parameter
Parameter

()

혹은 [Servo강성 설정상태]

7	2		
:	0	VelIntLim2	10
:	4999999		
:	10000		
:			

Servo

2

Parameter
Parameter

()

실행혹은 [Servo강성 설정상태]

8	1		
:	1	PosFreq1	10
:	64		
:	1		
:	Hz		

Servo

대역 1을

9

2

:	1	PosFreq2	10
:	64		
:	1		
:	Hz		

Servo

역2를

10

1

:	10	PosIntTim1	10
:	10000		
:	10000		
:	msec		

Servo

1을 설정합니다.

11

2

:	10	PosIntTim2	10
:	10000		
:	10000		
:	msec		

Servo

2을 설정합니다.

12

1

:	0	PosIntLim1	10
:	4999999		
:	10000		
:	없음		

Servo

터값1

Parameter
Parameter

[Servo강성 설정상태]

13

2

:	0	PosIntLim2	10
:	4999999		
:	10000		
:	없음		

Servo

값1을

Parameter
Parameter

[Servo강성 설정상태]

14 Feed Forward

:	0	Pos_FF	10
:	126		
:	90		
:	%		
	Feed Forward		

15 Feed Forward

:	0	Vel_FF	10
:	126		
:	100		
:	%		
	Feed Forward		

16 가 Feed Forward

:	0	Acc_FF	10
:	200		
:	0		
:	%		
가	Feed Forward	/	

18

:	1	PerrLimit+	10
:	999999		
:			
:	pulse		
	Error		
:	5 %		

19

:	-999999	PerrLimit-	10
:	-1		
:			
:	pulse		
	Error		
:	-(5 %)		

20 Notch Filter1

:	50	Notch1Freq	10
:	1500		
:			
:	Hz		

Notch Filter 1
System Register2 Notch Filter1 Filter가
: 1500 Hz

21 Notch Filter1 Q

:	10	Notch1Q	10
:	500		
:			
:	1/100		

Notch Filter 1 Q
System Register2 Notch Filter1 Filter가
: 1 0 0

22 Notch Filter2

:	50	Notch2Freq	10
:	1500		
:			
:	Hz		

Notch Filter 2
System Register2 Notch Filter2 Filter가
: 1500 Hz

23 Notch Filter2 Q

:	10	Notch2Q	10
:	500		
:			
:	1/100		

Notch Filter 2 Q
System Register2 Notch Filter2 Filter가
: 100

24 1

:	20	LagFreq1	10
:	999		
:	999		
:			

System Register2 Filter Filter가

25

2

:	21	LagFreq2	10
:	1000		
:	1000		
:			

System Register2

Filter

Filter가

26

Filter

:	50	VcmdFilFrq	10
:	1000		
:	1000		
:	Hz		
Filter	Filter /		

27

Filter

:	50	VfbFilFrq	10
:	1000		
:	1000		
:	Hz		

System Register2

Filter

Filter

Filter가

28

Filter

:	1	PfbFilFrq	10
:	200		
:			
:	Hz		

Filter
System Register2

Filter

Filter

Filter가

: 200Hz

29

:	1	COIN_Cycle	10
:	100		
:	1		
:	없음		

1msec

가

가

가
가

30

	:	0	VelMonSel	10
	:	1		
	:	0		
	:			
Analog		Card		
0 :				
1 :		A C		

31

	:	8	VelMonGain	10
	:	24		
	:	8		
	:			
Analog		Card		
			n으로 하면	
$\pm 3.07 \text{ V}$	vs ± 2	n		
		$\pm 4.80 \text{ V}$		

32

Analog	1			
	:	0	A_Mon1Sel	10
	:	399		
	:	372		
	:			
Analog		Card		
Analog	1		Parameter/모니터의 번호를 설정하여 주십시오.	

33

Analog	1			
	:	8	A_Mon1Gain	10
	:	24		
	:	8		
	:			
Analog		Card		
Analog	1		n으로 하면	
$\pm 3.07 \text{ V}$	vs ± 2	n		
		$\pm 4.80 \text{ V}$		

34

Analog	2			
	:	0	A_Mon2Sel	10
	:	399		
	:	378		
	:			
Analog		Card		
Analog	2		Parameter/모니터의 번호를 설정하여 주십시오.	

35	Analog	2		
	:	8	A_Mon2Gain	10
	:	24		
	:	8		
	:			
Analog	Card			
Analog	2			n으로 하면
	$\pm 3.07\text{ V}$	vs $\pm 2\text{ n}$		
		$\pm 4.80\text{ V}$		
36		1		
	:	—	D_Mon1Sel	16
	:	—		
	:			
	:			
Analog	Card			
	1			Parameter/모니터 번호와 Bit번호를
Bit16	8	Parameter		
Bit 4	0	Bit		
		: H00014010		#320 bit16
37		2		
	:	—	D_Mon2Sel	16
	:	—		
	:			
	:			
Analog	Card			
	2			Parameter/모니터 번호와 Bit번호를
Bit16	8	Parameter		
Bit 4	0	Bit		
		: H0001400A		#320 bit10

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40 START Up TABLE

:	0	StrUpTblNo	10
:	59		
:	59		
:	なし		

Register 2 START Up 「 」 TABLE System설정

42 + O T

:	-999999999	+SOT_Limit	10
:	999999999		
:	0		
:			

+ Over travel

43 - O T

:	-999999999	-SOT_Limit	10
:	999999999		
:	0		
:			

- Over travel

44 Override 1

:	0	VelOvrrid1	10
:	20000		
:	10000		
:	1/100 %		

Override1

45 Override 2

:	0	VelOvrrid2	10
:	20000		
:	10000		
:	1/100 %		

Override2

46 Area 0 On

```

:                                     Area0_On          10
:
:
:      0
:
:
Area  0 가 On
: [      ]: 0
: [      ]: -999999999
: [      ]: Scaling_Data(      ) -1
: [      ]: 999999999

```

47 Area 0 Off

```

:                                     Area0_Off          10
:
:
:      0
:
:
Area  0 Off
: [      ]: 0
: [      ]: -999999999
: [      ]: Scaling_Data(      ) -1
: [      ]: 999999999

```

48 Area 1 On

```

:                                     Area1_On          10
:
:
:      0
:
:
Area  1 On
: [      ]: 0
: [      ]: -999999999
: [      ]: Scaling_Data(      ) -1
: [      ]: 999999999

```

49 Area 1 Off

```

:                                     Area1_Off          10
:
:
:      0
:
:
Area  1 Off
: [      ]: 0
: [      ]: -999999999
: [      ]: Scaling_Data(      ) -1
: [      ]: 999999999

```

50 Test

```

:      1                                     TestWidth          10
:      32767
:
:
:
Test
:
[      ]:      0 . 2 %      2 rps      , 2 * 0.002 * 360deg → 1.44deg
[Linear]:      1 mps      , 1 * 0.002 * 1000mm → 2mm

```

52 가

가

가

가

$$\vdots$$
$$\vdots$$

2

56 Offset

:	-9999999	ORG-Offset	10
:	9999999		
:	0		
:			
	Offset	Offset	니다.

57

:		ORG-Scmd	10
:			
:	0		
:			
:	[]: 0		
:	[]: -9999999		
:	[]: Scaling_Data() -1		
:	[]: 9999999		

58 Zero

:	1	ORG-Z_Cyc	10
:	16		
:	1		
:			
	2		

59 Limit

:	0	TF_Limit	10
:	19999		
:	19999		
:	1/100 %		
Parameter	,	가	.

60 OT Search

:	1	ORG-OT-Vel	10
:			
:			
:			
:	/sec		
Hard Overt ravel	Hard Overt ravel	Search	Parameter
:	Search		
:	1 0 %		
:			

61 Search

:	1	ORG-ORGVel	10
:			
:			
:	/sec		
Parameter	Search		경우에는
:	10 %		
:			

62 속도 1

:	1	ORG-Z-Vel1	10
:			
:			
:	/sec		
	1		1도째의
2	외에		
	Over move		
:	5 %		
:			

63 속도 2

:	1	ORG-Z-Vel2	10
:			
:			
:	/sec		
	2		
:	0.1 %		
:			

64 0

:	1	FeedVel0	10
:			
:			
:	/sec		
Table Data	, Jog		
0			
:			
:			

65 1

:	1	FeedVel1	10
:			
:			
:	/sec		
Table Data	, Jog		
1			
:			
:			

66

2

:	1	FeedVel2	10
:			
:			
:	/sec		
Table Data	, Jog		
2			
:			
:			

67

3

:	1	FeedVel3	10
:			
:			
:	/sec		
Table Data	, Jog		
3			
:			
:			

68

4

:	1	FeedVel4	10
:			
:			
:	/sec		
Table Data	, Jog		
4			
:			
:			

69

5

:	1	FeedVel5	10
:			
:			
:	/sec		
Table Data	, Jog		
5			
:			
:			

70

6

:	1	FeedVel6	10
:			
:			
:	/sec		
Table Data	, Jog		
6			
:			
:			

71

7

:	1	FeedVel7	10
:			
:			
:	/sec		
Table Data 7, Jog .			
:			
:			

72

가 0

:	1	Tacc0	10
:	59999		
:	1000		
:	msec		
(#305) 가 0를 설정합니다.			

73

가 1

:	1	Tacc1	10
:	59999		
:	1000		
:	msec		
(#305) 가 1을 설정합니다.			

74

가 2

:	1	Tacc2	10
:	59999		
:	1000		
:	msec		
(#305) 가 2를 설정합니다.			

75

가 3

:	1	Tacc3	10
:	59999		
:	1000		
:	msec		
(#305) 가 3를 설정합니다.			

76 0

:	1	Tdec0	10
:	59999		
:	1000		
:	msec		
(#305)	간0을		

77 1

:	1	Tdec1	10
:	59999		
:	1000		
:	msec		
(#305)	간1을		

78 2

:	1	Tdec2	10
:	59999		
:	1000		
:	msec		
(#305)	간2		

79 3

:	1	Tdec3	10
:	59999		
:	1000		
:	msec		
(#305)	간3을		

80

:	1	TdecHigh	10
:	59999		
:	1		
:	msec		
	도(#305)		

81 Analog Offset

:	-30000	AcmdOffset	10
:	30000		
:	0		
:	digit		

Analog () Offset Analog A/D변환한 값에 이값이 가산되어

90

0

:	0	CoinWidth0	10
:	9999999		
:	5		
:		or Pulse	

0을 설정합니다.

91

1

:	0	CoinWidth1	10
:	9999999		
:	5		
:		or Pulse	

1을 설정합니다.

92

2

:	0	CoinWidth2	10
:	9999999		
:	5		
:		or Pulse	

2를 설정합니다.

93

3

:	0	CoinWidth3	10
:	9999999		
:	5		
:		or Pulse	

3을 설정합니다.

94

4

:	0	CoinWidth4	10
:	9999999		
:	5		
:		or Pulse	

4를 설정합니다.

95

5

:	0	CoinWidth5	10
:	9999999		
:	5		
:		or Pulse	

5를 설정합니다.

96

6

```

: 0 CoinWidth6 10
: 9999999
: 5
: or Pulse
, 6을 설정합니다.

```

97

7

```

: 0 CoinWidth7 10
: 9999999
: 5
: or Pulse
, 7

```

98

System Register2

```

: - SystemReg2 16
: -
:
:
Bit23 Filter
Bit21 Filter
Bit18 Filter
Bit17 Notch Filter2
Bit16 Notch Filter1
Bit 1 Error M ( 0 : , 1 : )
Bit 0 Start Up
: H00030002
Filter [ ] : 0
[ ] : 1
Filter : 0
Filter : 0
Notch Filter2 유효 : 1
Notch Filter1 유효 : 1
Error M : 1
Start Up : 0

```

99

System Register3

```

: - SystemReg3 16
: -
:
:
Bit23 Error
Bit21 Offset Type
Bit20 Offset 가 Type
Bit19 18 Offset
Bit17 16 Offset 가
Bit14 12 Offset
Bit 9 Jog Type
Bit 8 Jog 가 Type
Bit 7 6 Jog
Bit 5 4 Jog 가
Bit 2 0 Jog
: H008000F7
Error : 1
Offset Type : 0 가
Offset 가 Type : 0 가
Offset : 0 0
Offset 가 : 0 가 0
Offset : 0 0
Jog Type : 0 가
Jog 가 Type : 0 가
Jog : 3 3
Jog 가 : 3 가 3
Jog : 7 7

```

100

0

: -
 : -
 : 0
 :

Variable0

10

101

1

: -
 : -
 : 0
 :

Variable1

10

102

2

: -
 : -
 : 0
 :

Variable2

10

103

3

: -
 : -
 : 0
 :

Variable3

10

104

4

: -
 : -
 : 0
 :

Variable 4

10

105

5

: -
 : -
 : 0
 :

Variable5

10

106

6

: -
:
: 0
:

Variable6

10

107

7

: -
:
: 0
:

Variable7

10

108

8

: -
:
: 0
:

Variable8

10

109

9

: -
:
: 0
:

Variable9

10

110 System Register1

	:	—	SystemReg1	16
	:	—		
	:			
	:			
Bit31	28		$= (\quad + 2) * 10 \text{ m sec}$	
Bit25	Jog	Interface		
			(0 : Controller[<input type="checkbox"/>], 1 : <input type="checkbox"/>)	
Bit24	Interface		(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit17	Pulse		(0 : <input type="checkbox"/> , 1 : Pulse)	
Bit16	Servo On		(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit13	Analog	Feed Forward		
			(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/> Feed Forward)	
Bit12	Analog	사용 (ASUB_IN)	(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit11	Servo Off	Brake On. Dynamic Brake		
			(0 : Brake Off[<input type="checkbox"/>], 1 : Brake On[<input type="checkbox"/>])	
Bit10	SoftZero	Edge Hysteresis		
			(0 : Hysteresis [<input type="checkbox"/>], 1 : Hysteresis [<input type="checkbox"/>])	
Bit 9			(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit 8			(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit 7	6	Pulse Type	(0 : UP-DOWN, 1 : A-B, 2 : PLS-SIGN, 3 : reserve)	
Bit 5		Pulse Type	(0 : UP-DOWN, 1 : A-B)	
Bit 4		Range(ACMD_IN, ASUB_IN)	(0 : $\pm 6 \text{ V}$, 1 : $\pm 10 \text{ V}$)	
Bit 3			(0 : I-P , 1 : <input type="checkbox"/>)	
Bit 2			(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/>)	
Bit 1	0	Mode	(0 : <input type="checkbox"/> , 1 : <input type="checkbox"/> , 2 : <input type="checkbox"/> , 3 : <input type="checkbox"/>)	
	:			
	Jog	R S	: 15 170msec	
	Interface		: 1 Interface	
			: 0	
	Pulse		: 0	
	Servo On		: 0	
	Analog	feed forward	: 0	
	Analog	(ASUB_IN)	: 0	
	Servo Off	Brake On	: 1 Brake On	
	SoftZERO	Edge Hysteresis	: 1 Hysteresis	
			[<input type="checkbox"/>]: 0	
			[Linear]: 1	
			[<input type="checkbox"/>]: 1 CW	
			[Linear]: 1	
	Pulse Type		: 2 PLS-SIGN	
	Pulse Type		: 1 A-B	
	Analog	Range	: 0 $\pm 6 \text{ V}$	
			: 0 I-P	
			: 0	
	Mode		: 3	

111

:	1	Vmax	10
:	32000000		
:			
:	/sec		
:	Parameter	/드라이버에 의해 정해진 최대속도[rps,mps]로 부터	
:	[/sec]	가 #305에 표시됩니다.	
:			

112 Scaling Data ()

:	10000	ScaleUnit	10
:	99999999		
:			
:			
	Parameter	Data	Scaling Data (Pulse측)에 좌표계
1		가	
)			
	Read Pitch	[μm]	
Pulse	= #113 / #112 *	[μm]	
:			
[<input type="checkbox"/>]:	DM / 4 [unit/rev]		
DR	/ 2 [unit/rev]		
[Linear]:	/ 2 [unit/m]		

113 Scaling Data (Pulse)

	:	10000	ScalePulse	10
	:	99999999		
	:			
	:	pulse		
		Parameter	Data 가	Scaling Data (경단위측)에 Parameter Pulse
1				
Pulse		= #113 / #112 *		
	:	[] :	[pls/rev]	
		[Linear] :	[pls/m]	

121

	:	2000	ExVinSense	10
	:	49999		
	:			
	:	1/100 %		
Mode		Controller Interface	Analog	지령의
		#307		
System	Register1	Analog	Range	(± 6 V or ± 1 0 V)

122

	:	2000	ExTFiSense	10
	:	19999		
	:			
	:	1/100 %		
Mode		Analog		추력 제한 토오크/추력
Feed Forward		Controller Interface		추력 신호의 감도를 설정합니다.
				System Register1에서 설정한
Analog	Range	(± 6 V or ± 1 0 V)	0	

Blank Page

300

Code

:	DriverCode	16
Code		
Bit11 8	Firmware Version code	
Bit 7 4	Firmware Version code	1
Bit 3 0	Firmware Version code	2

301

Code

:	MotorCode	16
Code		
Bit31		
Bit28 24		
Bit231:ABS	0:INC	
Bit17 16		
Bit15 12		
Bit11 0		

302

:	pulse/rev pulse/m	MotorRes	10
---	-------------------	----------	----

303

:	digit/rps digit/mps	VelSense	10
	단위 (digit)를 rps mps		

304

Pulse

:	pulse/sec	Vmax[p/s]	10
---	-----------	-----------	----

305

:	/sec	Vmax	10
User	속도 [/sec]	속도 [rps,mps]	
[(가 가)	가	가	
Parameter	가	Parameter Mode	전송속도

306

Zero Pulse

:	pulse pulse	ZeroPitch	10
Zero	Pulse		

307

:	/sec	Vrate	10
---	------	-------	----

310

I/O Bit 3..0

:	PbitIn3-0	16
---	-----------	----

I/O (I/O) Bit	Block3	0 (3 2 bit)
-------	-----------	--------	--------------

311

I/O Bit 7..4

:	PbitIn7-4	16
---	-----------	----

I/O (I/O) Bit	Block7	4 (3 2 bit)
-------	-----------	--------	--------------

312

I/O Bit 3..0

:	PbitOut3-0	16
---	------------	----

I/O (I/O) Bit	Block3	0 (3 2 bit)
-------	-----------	--------	--------------

313

I/O Bit 7..4

:	PbitOut7-4	16
---	------------	----

I/O (I/O) Bit	Block7	4 (3 2 bit)
-------	-----------	--------	--------------

314

I/O Bit 3..0

:	LbitIn3-0	16
---	-----------	----

I/O (I/O) Bit	Block 3	0 (3 2 bit)
-------	-----------	---------	--------------

315

I/O Bit 7..4

:	LbitIn7-4	16
---	-----------	----

I/O (I/O) Bit	Block7	4 (3 2 bit)
-------	-----------	--------	--------------

316

I/O Bit 3..0

:	LbitOut3-0	16
---	------------	----

I/O (I/O) Bit	Block3	0 (3 2 bit)
-------	-----------	--------	--------------

317 I/O Bit 7..4

: LbitOut7-4 16

I/O (I/O) Bit Block7 4 (3 2 bit)

320 Status Register1

: StatusReg1 16

Bit31 24 Main Error Code
 Bit23 20 Sub Error Code
 Bit19 Error
 Bit18 가
 Bit17
 Bit16
 Bit14
 Bit13 M
 Bit12
 Bit11 Jog
 Bit10
 Bit 9 Servo Ready
 Bit 8 Ready
 Bit 2 Interface

321 Status Register2

: StatusReg2 16

Bit30 O T U
 Bit29 O T D
 Bit28 O R G
 Bit27 Area 1
 Bit26 Area 0
 Bit25 24 Override
 Bit22 20
 Bit19
 Bit18
 Bit17 (0 : 1 , 1 : 2)
 Bit16 (0 : 1 , 1 : 2)
 Bit15 ZERO
 Bit 7 Overspeed
 Bit 6 Overload
 Bit 5
 Bit 4
 Bit 2 Overload
 Bit 1
 Bit 0

322 Status Register3

: StatusReg3 16

Bit23 16 Code
 Bit15 8 M
 Bit 7 0 Table

325

: digit Icmd 10

.4096digit 가 .

326

: digit IcmdLimit 10
 . 4096digit 가 .

330

: digit TFcmdF 10
 . .8192digit .

331

Filter

: digit TFcmd 10
 Filter, Notch Filter . .8192digit .

333

가 Feed Forward

: digit Aff 10
 가 Feed Forward .

340

: digit Vcmd 10
 . 1rps혹은1mps가 됩니다.

341

Filter

: digit VcmdF 10
 Filter . 1rps혹은1mps가 됩니다.

342

: digit Vfb 10
 . 1rps혹은1mps가 됩니다.

343

Filter

: digit VfbF 10
 Filter . 1rps혹은1mps가 됩니다.

346

:	digit	Verr	10
---	-------	------	----

1rps혹은1mps가 됩니다.

355

:	pulse	MotorPcmd	10
---	-------	-----------	----

356

:	pulse	MotorPfb	10
---	-------	----------	----

357

:	pulse	MotorPerr	10
---	-------	-----------	----

358 Filter

:	pulse	MotorPfbF	10
---	-------	-----------	----

Filter

359

:	kpulse/sec	M_DiffPcmd	10
---	------------	------------	----

(1msec sample)

360

:	kpulse/sec	M_DiffPfb	10
---	------------	-----------	----

(1msec sample)

361 Filter

:	kpulse/sec	M_DiffPfbF	10
---	------------	------------	----

Filter

362	2			
	:	Mpulse/sec^2	M_Dif2Pcmd	10
		2	(.1msec sample)	
370	Pulse			
	:	pulse	Pcmd[p]	10
	Pulse	.		
371	Pulse			
	:	pulse	Pfb[p]	10
	Pulse	.		
372	Pulse			
	:	pulse	Perr[p]	10
	Pulse	.		
373	Pulse			
	:	kpulse/sec	DiffPfb	10
	Pulse	.		
375				
	:		Scmd[u]	10
		.		
376				
	:		Sfb[u]	10
		.		
378				
	:	k /sec	DiffScmd	10
		.		

379

:	k	/sec	DiffSfb	10
---	---	------	---------	----

384

:	1/100 V	PM_Voltage	10
---	---------	------------	----

385

Filter duty

:	digit	DutyI2	10
---	-------	--------	----

Model Filter duty (15bits)를 표시합니다. 32768digit 에서 100%가 됩니다.

386

Filter duty

:	digit	DutyI2F	10
---	-------	---------	----

Model Filter duty(15bits)를 표시합니다. 32768digit 에서 100%가 됩니다.

390

:		SposMax	10
---	--	---------	----

391

:		SposMin	10
---	--	---------	----

392

:	pulse	OrgMeasure	10
---	-------	------------	----

393

Test

単位:	pulse	TstRspns	10
-----	-------	----------	----

Test	Analog	Tool의
------	--------	-------

394

: digit

VelPGain

10

(이하 12bits)를



Error Code

	Error Code				
Memory Error					
ROM Error	1.1	x	Memory check		
RAM Error	1.2				
EEP-ROM	3.0	x	Data EEP-ROM		
Watch dog Error	4.0	x	CPU가	CPU Reset (가)	
Data checksum Error					
Parameter checksum	10.1	x	Data가		가 Up Load가 가
Table checksum	10.3				
I/O Data checksum	10.5				
Data Error					
Data	11.1	x	Data가 Data		
System Data	11.3				
Module	11.4				
Data	11.5				
Error Data	11.6				
Hardware	11.7				
Error					
SIG0 Edge	15.1	x	Connector Cable Cable 가 Cable	Servo off	Connector Cable Cable Shield Cable
SIG1 Edge	15.2				
SIG0	15.3				
SIG1	15.4				
A					
	16.1	x	DM (DM1B-004/006, DM1C-004) 가 케이블 가 가 Cable 가 (0.05rps)	Error Register 1 bit11- 8	가 , Cable Error (< 10 μm) Cable Connector Cable Cable Shield
B					
	17.2		0 (Scaling)		
Pulse	18.0	x	모니터 Pulse로 출력 가능한 3Mhz (A - B 750Khz) 가	Error Register 2 bit11- 8	Pulse Error 컨트롤러 Count Cable, Cable Scaling Data

	Error Code				
Tandem Error					
Error	19.1			Error Register 1	
Error	19.2			bit14~ 12	
Power Module Error					
	20.1			Servo Off Error	가 Level
1 PM fault	20.2		: 150 : 12.5 V : 27A at 500W, 5 μs 54A at 2kW, 5 μs 1msec chattering	Servo off	가 duty가 Cable GND가 ABC 가
	20.3		Level: 15A at 500W, 1 μs 45A at 2kW, 1 μs 1msec chattering	Error Register 1 bit 7~ 4	Cable GND가 ABC 가 ABC () 가
(Servo Off Level)	20.4		< (Servo off)		Level
A, B	20.5		A, B (10Hz Filter)가 110%	Servo off	가
	20.6		Control Board		
()	21.0		XMPSIG : 143VAC Power Module XMPSIG가 System Register1 가	Error Register 1 bit 3~ 0	Level
()	21.1		(1)	Error Register 1 bit 2~ 0 (/ bit)	Level을 3 가 1
Overload					
Coil Overload	22.1		duty Duty	Error Register 1 bit 27~ 24	가 duty #386
Heat Sink	22.2		85, 가		
	23.0		가 User 가 Servo	Register 1 bit23~20	가 재 행. 로 실행 #Parameter (#18, #19)
Over - speed	24.0		SIG0 이 됨 #305 가	Register 1 bit31~ 28	가 재실행, 실행

	Error Code				
Overload	25.1	x	가	Servo off Error	가 Error가 가 가
FET Overload	25.2		FET 가 FET		
	25.3		1msec Sample RGN_FET RGN_ANS 32msec verified On 2digit		
Servo Not Ready	30.0		Servo off 가	Servo off	IN_SERVO 가 Controller Servo On
	31.0		User가 1ms Pulse 가	1 bit18~16	Pulse (#305) Pulse (Controller Controller Pulse 가 Pulse Pulse #111)
+ Overtravel	42.0		+ Overtravel	Error 2 bit31~28	Overtravel Pulse Sensor 가 가? Sensor OTU OTD Error Timing
- Overtravel	43.0		- Overtravel	Error 2 bit27~24	
+ Overtravel ()	44.0		Limit 가+ + Limit 인	Error 2 bit23~20	Over-Limit ? 위치를 확인하여
- Overtravel ()	45.0		Limit 가-방향 - Limit 인	Error 2 bit19~10	
	46.2		User 가 On	Error 2 bit 7~4	Reset Error Off Error Reset 가 1. Parameter 2. Parameter
Interface	47.0	x	Field Bus System Controller Interface ()	Error Register 2 bit 7~4	Reset Error Off Error Reset 가 1. Parameter 2. Parameter
	49.1		가 Edge ZERO Edge		

	Error Code				
가					
	50.2		가		
Error	50.3		가		Error
Data	50.5		Data가		
Access Timing	50.6		Parameter Command Command가	Command	
Mode	50.7		가 Mode Command가		
Data Not Ready	51.2		Data Data가 가	Command	
	52.0				
가					
	53.1		가 Range - Over		#0 / / Servo Servo 0
가	60.0		Command가		
Format	61.0		Format Command가		
Data	62.0		Data 코멘드가	Command	
Parameter	65.0		Command가 Parameter		
Device	66.0		가 Interface Command가		

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																								
Over-speed				Over-load				위치 편차 과대				 위치지령편차과대				 Tandem error				좌표계 이상A				모션 전압 저하				주전원 이상																											
																																무호 영역 불가				무호 영역 불가																			

에러처리 설정 레지스터1

1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

초기값

무효 설정 불가

무효 설정 불가

+방향 Hard OT		-방향Hard OT		+방향 Soft OT		-방향 Soft OT		(reserve)		Inter face비상		(reserve)	

에러처리 설정 레지스터2

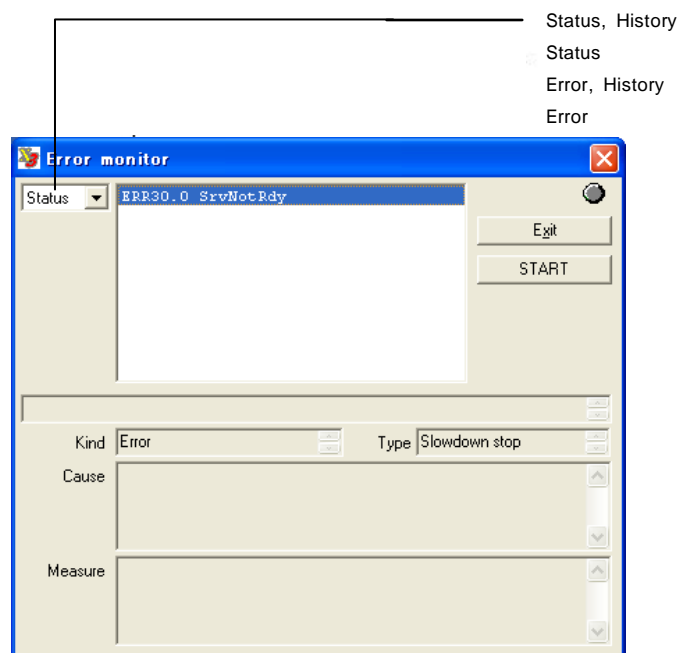
초기값

Drv6Ⅲ	1	0	1	0
DrvPⅢ 점점	0	0	1	0
DrvPⅢ CC-Link	1	0	1	0

Error Code

Error가 [RDY/ERR]LED가 . Error
 Tool Error Code .
 Error 8.5.5 Error .

STEP1 Tool [Error] .
 STEP2 [Status/History] [Status] .
 STEP3 [START] Error 가 .
 STEP4 [STOP] Error Error
 가 .



가 Error 가 1 Error Error 가 가
 . Status Error . Error가
 가 . Status 1도에 발생한 Error수가 최대 보존 Error수
 (16) Error .
 History Error 가 Error (16개)를
 History Error 우측으로8bit .
 Error Timing 했던 가 .

RAM Parameter . 예)#100
 ## EEP-ROM Parameter .)##100
 @ Command . 예@3:10

ABS
 (absolute) . (ABS모터)

AXIS

BCD
 (binary coded decimal) 2 10

BIN
 (binary) 2 Binary

CCW
 (counter clock wise)

CC-Link
 Open Network Field Bus

COIN
 (coincidence) 가

CW
 (clock wise)

DEC
 (decimal) 10 decimal

digit

DM

DR
()

EEP-ROM
Memory. Data User Data가 .

HEX
(hexadecimal) 16 hex

ID

INC
(Increment)

IPM Fault
Power Module IPM Unit가 Error

kpulse
10 3 Pulse

LM
Linear

Mpulse
10 6 Pulse

ORG

OT
(over travel) Over travel OT HardwareOT SoftwareOT가 .

PLC
(programmable logic controller) Controller
. YOKOGAWA Range-free-controller FA-M3입니다.

RxD

SIG0, SIG1
Analog

TxD

unit

「 」 가 .

ZERO

Software Zero Type과 Hardware ZERO

Type .1 1stroke 가 .

@Command
PC

Command

@3 : 10

Idle

가

(,)
Base

” / ”

Up Load

(PC,) Data

Analog Monitor Card

Connector ,

().

Analog Monitor
Analog Card

AM1、AM2

Absolute

Alarm
Error Level

Enable
가 . Parameter

Enable(1)로 설정합니다.

(1ms)

Increment

Interlock

Override 0% .

Watch Dog Timer

Program

Watch Dog Error

가

Error

Level

. Error

Error

Register

가

Error

Aliasing

가

2 1(Nyquist)

가

Aliasing

4 ~ 10

3

1

Pulse

Auto Start Table

[Auto Start] [Enable]

Table 가

Auto tuning

관성/

Parameter

All Reset

User Data

(Default)

가

1

Overflow

Current Transformer
Power Module

DD

(수Hz)

가

Parameter
Parameter

가

(#110 Parameter)

Command

Data

/

User

All Reset

Multi

(,)
Base

면

포정

.

.다시말하면

하중에는

으로

.

Base

면

.

영

.

또

/

0(

)가

.

위치 결정을 7회 반복하여

값 1/2에

±

시한

.

DD 모터에서는 (0)

가

Sum

Firmware

Data

Sum

System Register

#98,99,110 Parameter.

Parameter

System Register Parameter 32bit Data , Bit

Parameter #112

Skew

Scaling

Parameter #112,#113

Pulse

-

Start Up

Table

Status Register

#320,#321,#322 . 모터/

System Register Bit

Slave

Tandem

모터/

가

Control

가

가 가

Parameter 모터/ .

Parameter , Parameter 가 가 .

() 가 1회전 전체에 있어서
1/2 ± .

Parameter 표시/ Command .

Parameter 표시/ Command .
/ 가 .

Command . PLC Interface RS232C Interface .

Profile .
.

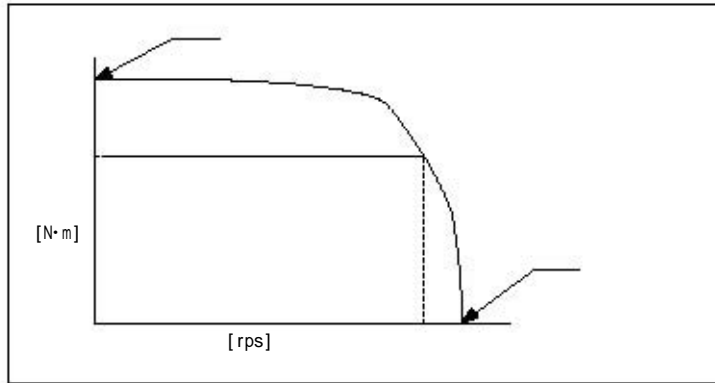
Override
Parameter 100% . 0% 200% 가 .

- (T-N)

DD

[rps]를

[N.m]



I/O

Firm-ware 가

I/O

I/O (I/O)

I/O

I/O()

기값(ON또는 OFF)

I/O

소프트 I/O

가

Software Drive Reset
Tool

표시패널/

Command

Download (PC,) Data .

Tandem Multi-drop /추력을 얻은

Chattering 「 」 ON/OFF Hysteresis
Parameter .

DYNASERV . 가

Servo Parameter .

-999999999 ~ 999999999
Overtravel Error가 .

Disabled . Parameter Disabled (0)로 설정합니다.

Analog Monitor Card . DM1,DM2

Decimal Code
10

Code

Table Data

가

Data 64

Parameter
Parameter

Binary Code
2

Code

(PC,) Data .

Up Load .

I/O

I/O (I/O)

I/O

Bit 논리(점점ON으로 ON) , (ON
OFF) .

Parameter

RAM

Parameter (#100).

Parameter .

Parameter

EEP-ROM

Parameter (##100).

「Parameter 」 Load . Parameter

「Parameter 」 .

Pulse Direct

Pulse . 가 On Scaling

1Pulse 1Pulse .

Command 가 . Command 가 .

Bit AND

Bit AND. Bit .

Bit EXOR

Bit OR

Bit OR

Bit OR. Bit On .

Heat Sink

2kW .

CPU Program Code

Function Key

Filter

<K> = /

branch

. Table - .

Block

I/O, I/O Block .8Bit

I/O Block .

prompt

Tool /

. Parameter , Error .

Hex Code

16

Code

Data

Data. User .

All Reset . (Data, Data)

Tandem 모터/ 가 .

Test Tool

Parameter .

Multi RS485 . PC

DLL .

Base

. " / " .

Pulse

Pulse

Less (Mode)

Mode.

Tool .

User Data Tool / 가 Data. Parameter, Table Data,
I/O .

Reboot Software Reset Command .

Restore Data (PC,)
Data . Download .

. .

.

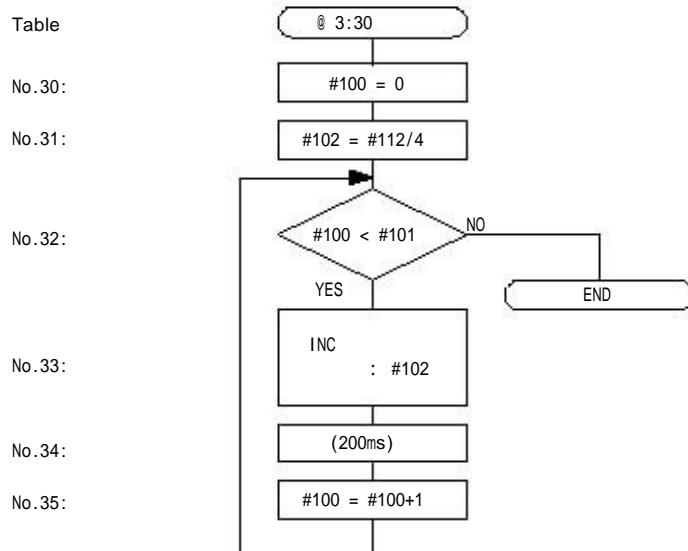
Table, Sample Program

Table	Sample Program	Table
.	Sample Program	가
Sample Program	Dynaserv	Linearserv

(1) Sample Program

No.4~	No.5	90 °	ABS				
	Table	4	User	#100	#112	Scaling Data()
	1/4	.	Table	5	#100	Parameter	ABS
			Tool		@3:4		
No.6~	No.7	180 ° INC					
	Table	6	User	#100	#112	Scaling Data()
	1/2	.	Table	7	#100	Parameter	
	+	INC		Tool		@3:6에서	기동합니다.

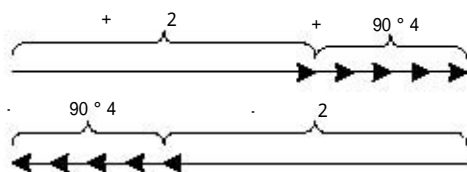
No.30~	No.35	90 ° N	INC				
		#101		+	90 ° INC	.	Sequence
			Tool		@3:6에서		기동합니다.



No.40~ No.51

Table

Sample



Table

No.40:

No.41:

No.42:

No.43:

No.44:

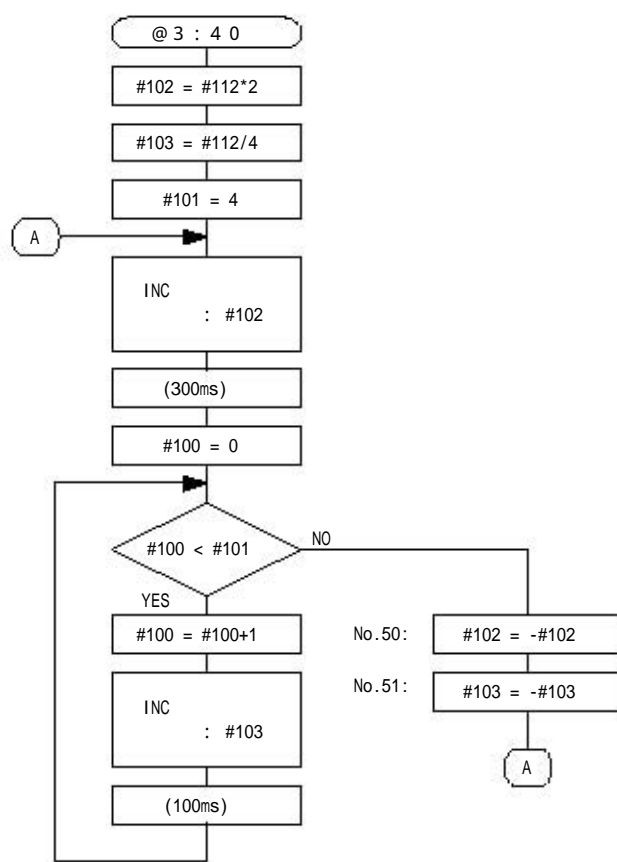
No.45:

No.46:

No.47:

No.48:

No.49:



(2) Linear Sample Program

No.4 ABS

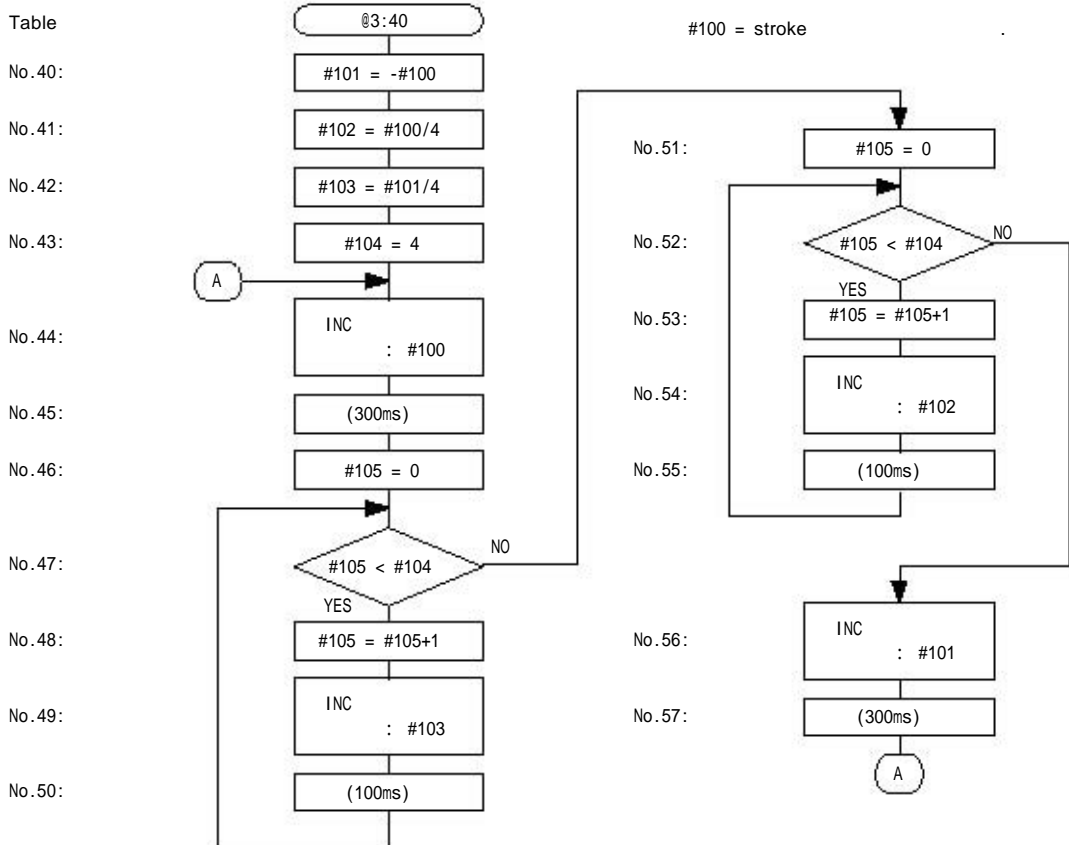
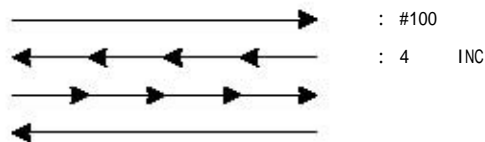
Table	4	User	.#100	ABS
	stroke		#100	Tool
@3:4				

No.6 INC

Table	6	User	#100	+	INC
	stroke		#100		
Tool		@3:6			

No.40~ No.57

stroke	Table	Sample
	#100	



Stroke

가

Start

Blank Page
