

Changes for the Better

MITSUBISHI

미쓰비시 벡터 인버터

FREQROL-V500

400V 클래스 추가로 라인업 완성!!

현장을 바꾼다.



미쓰비시전기주식회사 나고야제작소는 환경매니지먼트시스템 ISO14001 및 품질시스템 ISO 9001의 인증 취득 공장입니다.



신기술 만재!

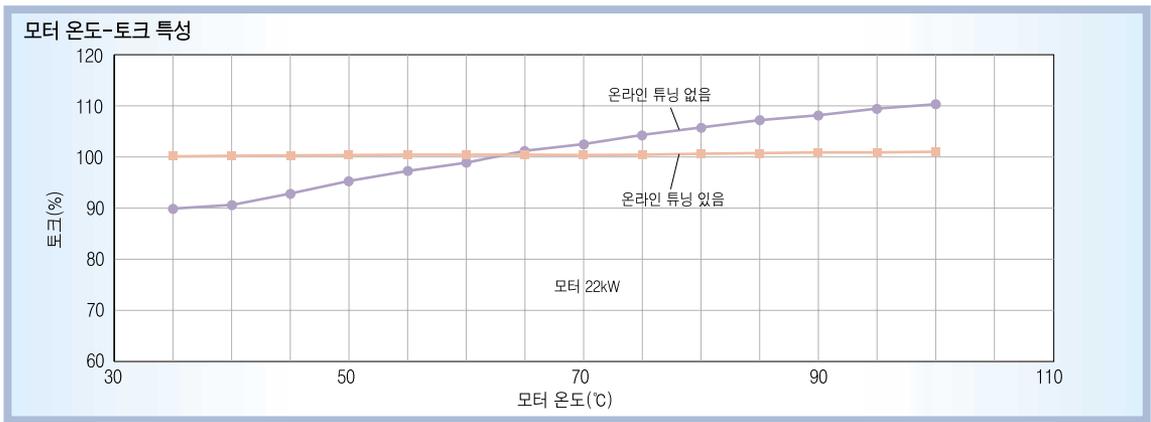


고성능과 사용의 편리함을 결집한 실력의 V.

V1.

가

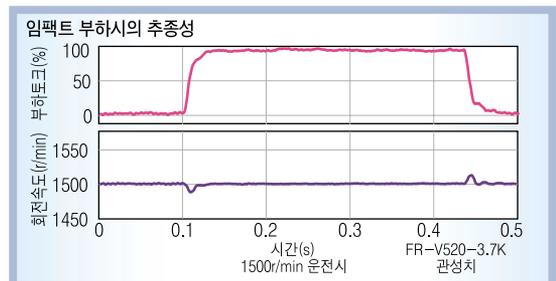
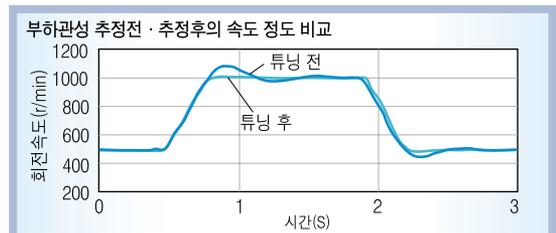
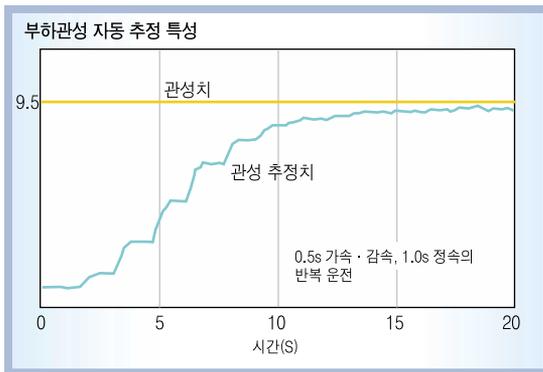
2



V2.

가

, 15

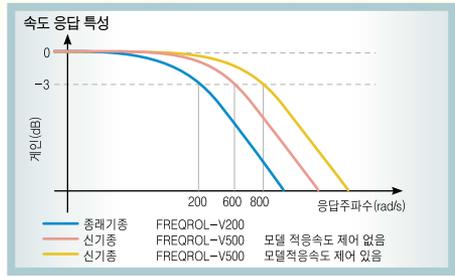


CONTENTS	.....4	.....17	.....27
	.....6	.....18	.....28
	.....8	.....19	.....29
	.....9	.....19	.....30
	.....10	.....20	.....36
	.....11	.....23	.....39
	.....15	.....24	FA .....41
	.....16	.....26	

V3.

가

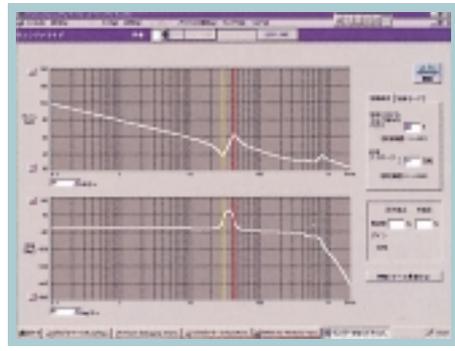
(800rad/s 4 , 1:1500)
(理想)



가

V4.

가 . 가 (加振) , 가



V5.

ASIC 1/3

V6.

가가

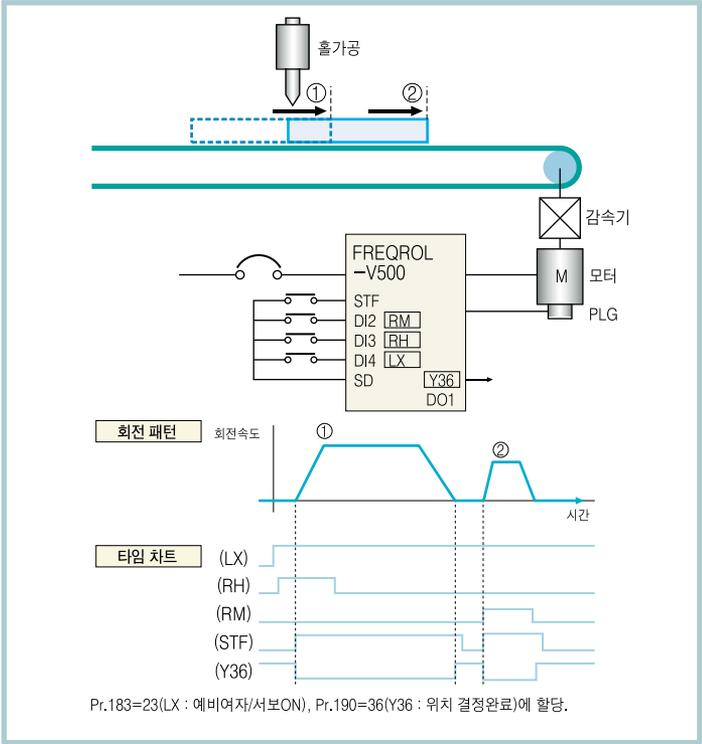
(.)

V7.

5.5V/12V/24V 가 . (2048P/R, / 12V . ())
(SF - V5RU)

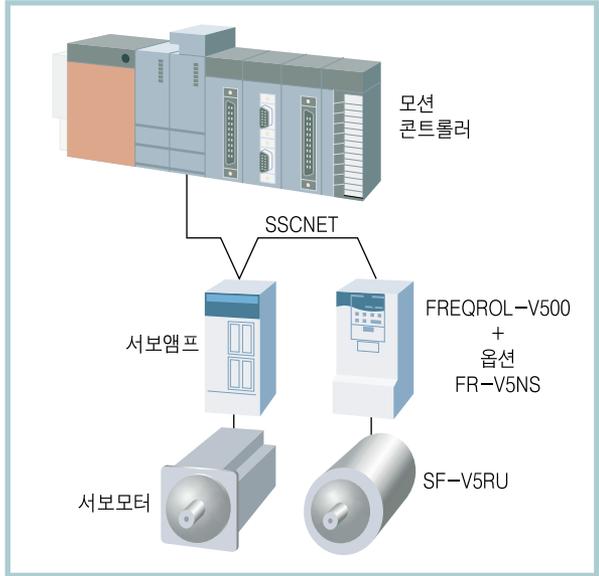
FREQROL-V500 (FR-V5AH) 사양

가 .(15) ON/OFF)
 feed forward .
 .가 .
 16 (FR-V5AX), 16 (FR-V5AH) 가 .
 가 0.1r/min
 15kW .
 5.5kW .
 PLC ON/OFF) ON/OFF .()
 가 . (FR-CV) 가 .



FREQROL-V500 (FR-V5NS) 사양

SSCNET 가 .(FR-V5NS) SSCNET 8 . SSCNET
 FR-A5NC CC-Link 가
 Ethernet 가 .(FR-V5NE) LAN 가
 가 . (RS-485, DeviceNet™, Profibus - DP)
 * DeviceNet™, Profibus - DP, Ethernet, CC - Link



FREQROL-V500



(ON/OFF)
 RS-485 PC
 ()
 FR-DU04-1
 ()
 가



() 10 (87600)
 : 40 ,
 : (4P)
 (SF-V5RU)

400V 3 400V
 400V 11kW



FR - DU04-1

FR - PU04V



Soft-PWM
 가 DCL() 가 .
 (K5=0) (FR-HC) 가 .



UL, cUL, EN()
 UL, CSA cUL CSA
 240V (15kW), 480V ()
 () 가 .
 (FR-PU04V) 8

FR - V5 2 0 - 5.5K

2	200V
4	400V

1.5K~55K	(kW)
----------	------

		1.5K	2.2K	3.7K	5.5K	7.5K	11K	15K	18.5K	22K	30K	37K	45K	55K
3 200V	FR - V520 -													
3 400V	FR - V540 -													

SF - V5RU F H 5K 1 B T

F		H	200V	400V										
---	--	---	------	------	--	--	--	--	--	--	--	--	--	--

	(kW)		(kW)
1K	1.5	18K	18.5
2K	2.2	22K	22
3K	3.7	30K	30
5K	5.5	37K	37
7K	7.5	45K	45
11K	11	55K	55
15K	15		

B	T

	(r/min)	(r/min)
	1500	3000
1	1000	2000
3	1000	3000
4	500	2000

: 1500r/min (4)

		(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
			90L	100L	112M	132S	132M	160M	160L	180M	180M	200L	200L	200L	225S
	SF - V5RU(H)														
	SF - V5RUF(H)														—
	SF - V5RU(H) B														
	SF - V5RUF(H) B									—	—	—	—	—	—

: 1000r/min (4)

: 2000r/min 1:2

		(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37
			100L	112M	132S	132M	160M	160L	180M	180L	200L	200L	225S
	SF - V5RU(H) 1												
	SF - V5RUF(H) 1												—
	SF - V5RU(H) B1												
	SF - V5RUF(H) B1								—	—	—	—	—

: 1000r/min (4)

: 3000r/min 1:3

		(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
			112M	132S	132M	160M	160L	180M	180L	200L	200L	225S
	SF - V5RU(H) 3											
	SF - V5RUF(H) 3											—
	SF - V5RU(H) B3											
	SF - V5RUF(H) B3								—	—	—	—

: 500r/min (4)

: 2000r/min 1:4

		(kW)	1.5	2.2	3.7	5.5	7.5	11	15
			132M	160M	160L	180L	200L	225S	225S
	SF - V5RU(H) 4								
	SF - V5RUF(H) 4							—	—
	SF - V5RU(H) B4								
	SF - V5RUF(H) B4							—	—

() 1. 400V
2.

1500r/min

0.4kW, 0.75kW

1000r/min, 500r/min 400V

SF - V5RU, SF - V5RU1, 3, 4

SF - V5RU(H)						
200V			400V			
1000r/min						
50Hz						
3000r/min						
			INV			INV
1.5kW	90L	SF - V5RU1K	FR - V520 - 1.5K	90L	SF - V5RUH1K	FR - V540 - 1.5K
2.2kW	100L	SF - V5RU2K	FR - V520 - 2.2K	100L	SF - V5RUH2K	FR - V540 - 2.2K
3.7kW	112M	SF - V5RU3K	FR - V520 - 3.7K	112M	SF - V5RUH3K	FR - V540 - 3.7K
5.5kW	132S	SF - V5RU5K	FR - V520 - 5.5K	132S	SF - V5RUH5K	FR - V540 - 5.5K
7.5kW	132M	SF - V5RU7K	FR - V520 - 7.5K	132M	SF - V5RUH7K	FR - V540 - 7.5K
11kW	160M	SF - V5RU11K	FR - V520 - 11K	160M	SF - V5RUH11K	FR - V540 - 11K
15kW	160L	SF - V5RU15K	FR - V520 - 15K	160L	SF - V5RUH15K	FR - V540 - 15K
18.5kW	180M	SF - V5RU18K	FR - V520 - 18.5K	180M	SF - V5RUH18K	FR - V540 - 18.5K
22kW	180M	SF - V5RU22K	FR - V520 - 22K	180M	SF - V5RUH22K	FR - V540 - 22K
30kW	200L (3)	SF - V5RU30K	FR - V520 - 30K	200L (3)	SF - V5RUH30K	FR - V540 - 30K
37kW	200L (3)	SF - V5RU37K	FR - V520 - 37K	200L (3)	SF - V5RUH37K	FR - V540 - 37K
45kW	200L (3)	SF - V5RU45K	FR - V520 - 45K	200L (3)	SF - V5RUH45K	FR - V540 - 45K
55kW	225S (2)	SF - V5RU55K	FR - V520 - 55K	225S (2)	SF - V5RUH55K	FR - V540 - 55K

SF - V5RU 1				SF - V5RU 3			SF - V5RU 4		
200V (1)									
1000r/min			1000r/min			500r/min			
33.33Hz			33.33Hz			16.67Hz			
2000r/min			3000r/min			2000r/min			
			INV			INV		INV	
1.5kW	100L	SF - V5RU1K1	FR - V520 - 1.5K	112M	SF - V5RU1K3	FR - V520 - 2.2K	132M	SF - V5RU1K4	FR - V520 - 2.2K
2.2kW	112M	SF - V5RU2K1	FR - V520 - 2.2K	132S	SF - V5RU2K3	FR - V520 - 2.2K	160M	SF - V5RU2K4	FR - V520 - 3.7K
3.7kW	132S	SF - V5RU3K1	FR - V520 - 3.7K	132M	SF - V5RU3K3	FR - V520 - 3.7K	160L	SF - V5RU3K4	FR - V520 - 5.5K
5.5kW	132M	SF - V5RU5K1	FR - V520 - 5.5K	160M	SF - V5RU5K3	FR - V520 - 5.5K	180L	SF - V5RU5K4	FR - V520 - 7.5K
7.5kW	160M	SF - V5RU7K1	FR - V520 - 7.5K	160L	SF - V5RU7K3	FR - V520 - 11K	200L	SF - V5RU7K4	FR - V520 - 11K
11kW	160L	SF - V5RU11K1	FR - V520 - 11K	180M	SF - V5RU11K3	FR - V520 - 15K	225S	SF - V5RU11K4	FR - V520 - 15K
15kW	180M	SF - V5RU15K1	FR - V520 - 15K	180L	SF - V5RU15K3	FR - V520 - 15K	225S	SF - V5RU15K4	FR - V520 - 18.5K
18.5kW	180L	SF - V5RU18K1	FR - V520 - 18.5K	200L	SF - V5RU18K3	FR - V520 - 22K	-	-	-
22kW	200L	SF - V5RU22K1	FR - V520 - 22K	200L	SF - V5RU22K3	FR - V520 - 22K	-	-	-
30kW	200L (4)	SF - V5RU30K1	FR - V520 - 30K	225S (2)	SF - V5RU30K3	FR - V520 - 37K	-	-	-
37kW	225S	SF - V5RU37K1	FR - V520 - 37K	-	-	-	-	-	-
45kW	-	-	-	-	-	-	-	-	-
55kW	-	-	-	-	-	-	-	-	-

- () 1. SF - V5RU1, 3, 4 400V
 2. 2400r/min
 3. 80% (2400r/min)
 4. 90% (1000r/min)

200V ([SF - V5RU(1500r/min)])

FR - V520 - K	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
(kVA) (5)	3.1	4.5	6.9	9.8	13.0	18.7	25.2	30.4	35.8	43.8	58.1	68.5	91.0
(A)	9.0	13.0	20.0	28.5	37.5	54	72.8	88	103.5	126.5	168	198	264
(1)	150% 60s, 200% 0.5s()												
	100% . 3%ED (2)(8)			100% 2%ED (2)(8)			20% . (8)						
	3 200~220V 50Hz, 200~240V 60Hz							3 200~220V 50Hz, 200~230V 60Hz					
	170~242V 50Hz, 170~264V 60Hz							170~242V 50Hz, 170~253V 60Hz					
	±5%												
	165V						165V			15ms			
(3) (kVA)	5.0	6.5	10	14	19	23	33	39	48	57	77	90	123
(JEM 1030)	(IP20 NEMA1)(4)							(IP00)					
(kg)	3.5	3.5	6.0	6.0	6.0	14.0	14.0	21.0	30.0	40.0	40.0	55.0	58.0
	SF - V5RU 1K	SF - V5RU 2K	SF - V5RU 3K	SF - V5RU 5K	SF - V5RU 7K	SF - V5RU 11K	SF - V5RU 15K	SF - V5RU 18K	SF - V5RU 22K	SF - V5RU 30K	SF - V5RU 37K	SF - V5RU 45K	SF - V5RU 55K
(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
(N · m)	9.55	14.1	23.6	35.0	47.7	70.0	95.5	118	140	191	235	286	350
150%60s(N · m)	14.3	21.1	35.4	52.4	71.6	105	143	176	211	287	353	429	525
(r/min)	1500												
(r/min)	3000(7)												2400
Flange	90L	100L	112M	132S	132M	160M	160L	180M	180M	200L	200L	200L	225S
(× 10 ⁻⁴ kg · m ²)	67.5	105	175	275	400	750	875	1725	1875	3250	3625	3625	6850
(11)	70dB									80dB			85dB
	200V/50Hz 200~230V/60Hz						3 200V/50Hz 3 200~230V/60Hz						
(9)	36/55W (0.26/0.32A)			22/28W (0.11/0.13A)			55/71W (0.37/0.39A)			100/156W (0.47/0.53A)			85/130W (0.46/0.52A)
	-10~+40 () 90% RH (가)												
	(: IP44, : IP23S) (10)												
	PLG2048P/RA , B , Z DC+12V												
	PLG,												
	F												
	V10												
(kg)	24	33	41	52	62	99	113	138	160	238	255	255	320

- () 1. % 가100% 가
2. 5s
3. ()
4. (IP00)
5. 200V 200V
6. 1 Pr.80 : , Pr.81 :
7. 3.7kW 3600r/min
8. FR - ABR() , 1.5kW~7.5kW 100% 10%ED, 11kW, 15 kW , 100% 6%ED가
9. 50Hz/60Hz ()
10. IP20 . IP23S S 가
11. (Pr.72=6, Pr.240=0)

400V ([SF - V5RUH(1500r/min)])

FR - V540 - K	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	
(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	
(kVA) (5)	3.1	4.5	6.9	10.0	12.8	19.0	24.6	30.4	35.8	46.3	59.5	68.5	91.0	
(A)	4.5	6.5	10.0	14.5	18.5	27.5	35.5	44	51.8	67	86	99	132	
(1)	150% 60s, 200% 0.5s()													
	100% . 2%ED (2)(8)						20% . (8)							
	3 380~480V 50Hz/60Hz													
	323~528V 50Hz/60Hz													
	±5%													
	330V						330V			15ms				
(3) (kVA)	5.0	6.5	10	14	19	23	33	39	48	57	77	90	123	
(JEM 1030)	(IP20 NEMA1)(4)								(IP00)					
(kg)	3.5	3.5	6.0	6.0	14.0	14.0	14.0	14.0	24.0	35.0	35.0	50.0	52.0	
	SF - V5RU H1K	SF - V5RU H2K	SF - V5RU H3K	SF - V5RU H5K	SF - V5RU H7K	SF - V5RU H11K	SF - V5RU H15K	SF - V5RU H18K	SF - V5RU H22K	SF - V5RU H30K	SF - V5RU H37K	SF - V5RU H45K	SF - V5RU H55K	
(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	
(N · m)	9.55	14.1	23.6	35.0	47.7	70.0	95.5	118	140	191	235	286	350	
150%60s(N · m)	14.3	21.1	35.4	52.4	71.6	105	143	176	211	287	353	429	525	
(r/min)	1500													
(r/min)	3000(7)												2400	
Flange	90L	100L	112M	132S	132M	160M	160L	180M	180M	200L	200L	200L	225S	
(× 10 ⁻⁴ kg · m ²)	67.5	105	175	275	400	750	875	1725	1875	3250	3625	3625	6850	
(11)	75dB										80dB		85dB	
	200V/50Hz 200~230V/60Hz						3 380~400V/50Hz 3 400~460V/60Hz							
(9)	36/55W (0.26/0.32A)			22/28W (0.11/0.13A)			55/71W (0.19/0.19A)			100/156W (0.27/0.30A)			85/130W (0.23/0.26A)	
	-10~+40 () 90% RH (가)													
	(: IP44, : IP23S) (10)													
	PLG2048P/R A , B , Z DC+12V													
	PLG,													
	F													
	V10													
(kg)	24	33	41	52	62	99	113	138	160	238	255	255	320	

- () 1. % , 가100% 가
2. 5s
3. ()
4. (IP00)
5. 400V 400V
6. 1 Pr.80 : , Pr.81 :
7. 3.7kW 3600r/min
8. FR - ABR - H() , 1.5kW~7.5kW 100% 10%ED, 11kW, 15 kW , 100% 6%ED가
9. 50Hz/60Hz ()
10. IP20 . IP23S S 가
11. (Pr.72=6, Pr.240=0)

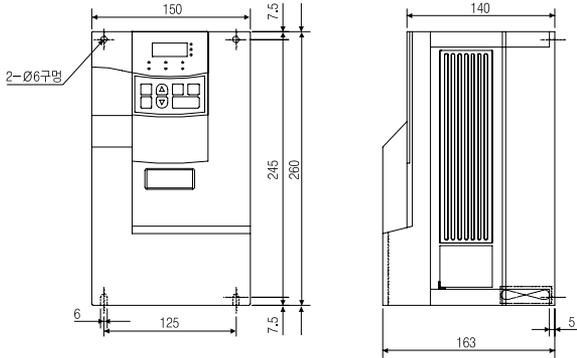


		Soft - PWM		PWM	가 .	,V/F	가
				0.03%			
				0.003%(	0.1 r/min)		
가 ,				0~3600s(0.1)		
가 ,				S (3),	가 가		
				가 (0~400%가)			
				800rad/s()		
				(	300rad/s)		
				1:1500			
				±0.01%	/		
				±5%()		
				2	0~10V(	0.03%)	
				1	0~±10V(	0.05%)	(/ /)
				3	0~±10V(	0.05%)	/
	(FR - V5AX)			6	0~±10V(	0.003%)	(2)/ (2)/ (3)
	(FR - V5AH)			16	(BCD	가)	
				3			
				5			(15), JOG (1), 2, 3, S,
	(FR - V5AX)			6			PID, 1, 2, P, PU / ON, HC,
							PU/ 가
				1C	(AC230V 0.3A, DC30V 0.3A)		
				3			3, PU, 2, (), 2,
	(FR - V5AY)			3			, PID, PID, PID,
	(FR - V5AM)			1			, 2,
	(FR - V5AY)			7			2, 3, 2, 가,
	(FR - V5AY)				0~±10V 12 ×1CH 0~10V 10 ×1CH		
					0~10V 10 ×1CH 0~20mA 10 ×1CH		가
	PLG (FR - V5AY)			A, B, Z (A, B	(分周)가)		가
							가
							2, 3, PID, 12bit (FR - A5AX), 16bit (FR - V5AX)
	(FR - DU04 - 1/FR - PU04V)						(4), (4),
							가 가
							8 (4)
							(가 , ,), (가 , ,), (DC12V/24V/), CPU,
							, PU,
							-10~+50 ()
							90% RH (가)
	(3)						-20~+65
							(가 , 가 , 가)
							1000m, 5.9m ³ , (JIS C 0040)

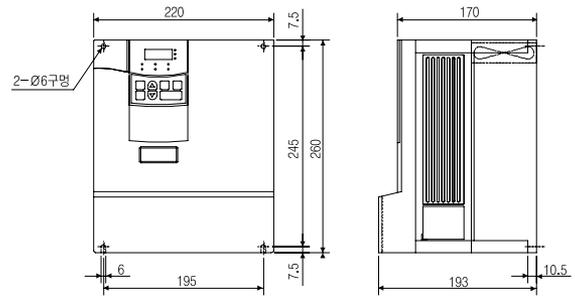
- () 1. (FR - PU04V) Jog
- 2. FR - V520 - 18.5K - 55K, FR - V540 - 18.5K - 55K
- 3.
- 4. (FR - DU04 - 1)

(: mm)

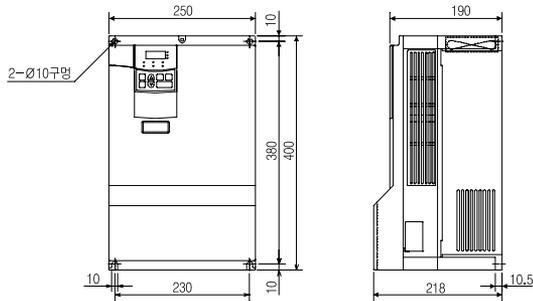
FR-V520-1.5K, 2.2K
FR-V540-1.5K, 2.2K



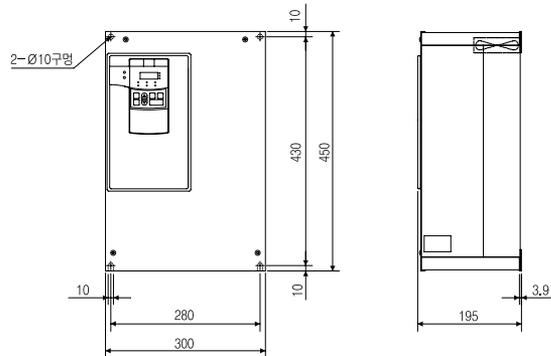
FR-V520-3.7K, 5.5K, 7.5K
FR-V540-3.7K, 5.5K



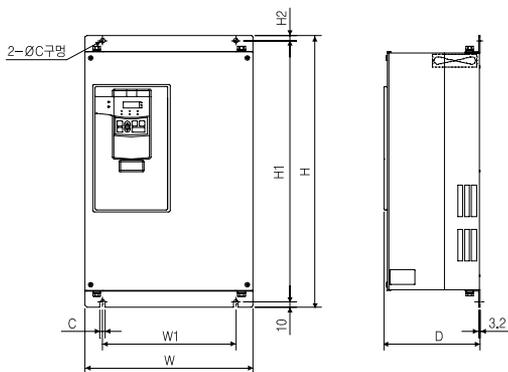
FR-V520-11K, 15K
FR-V540-7.5K, 11K, 15K, 18.5K



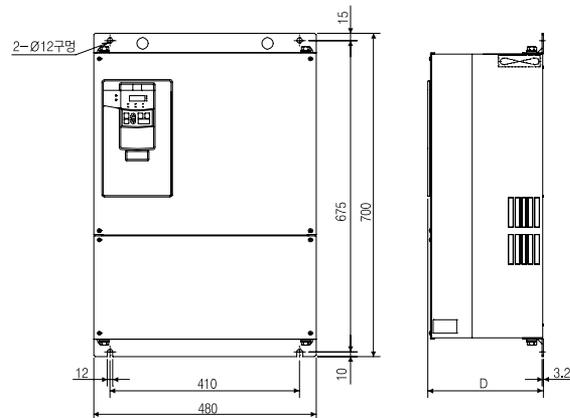
FR-V520-18.5K



FR-V520-22K, 30K, 37K
FR-V540-22K, 30K, 37K



FR-V520-45K, 55K
FR-V540-45K, 55K

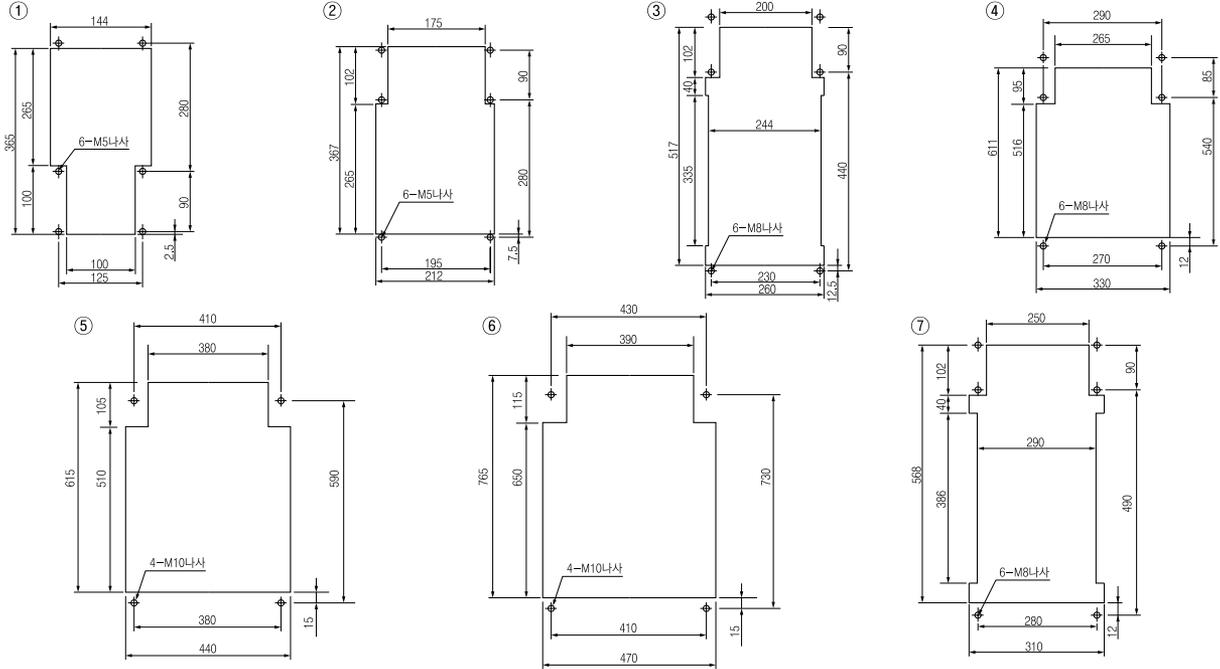


인버터 형식	W	W1	H	H1	H2	D	C
FR-V520-22K FR-V540-22K	340	270	550	530	10	195	10
FR-V520-30K, 37K FR-V540-30K, 37K	450	380	550	525	15	250	12

인버터 형식	D
FR-V520-45K FR-V540-45K	250
FR-V520-55K FR-V540-55K	270

200V	400V	
FR - V520 - 1.5K/2.2K	FR - V540 - 1.5K/2.2K	FR - A5CN01
FR - V520 - 3.7K~7.5K	FR - V540 - 3.7K/5.5K	FR - A5CN02
FR - V520 - 11K/15K	FR - V540 - 7.5K~18.5K	FR - A5CN04
FR - V520 - 22K	FR - V540 - 22K	FR - A5CN05
FR - V520 - 30K/37K	FR - V540 - 30K/37K	FR - A5CN06
FR - V520 - 45K/55K	FR - V540 - 45K/55K	FR - A5CN07
FR - V520 - 18.5K	-	FR - A5CN08

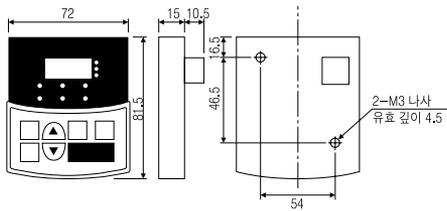
() 1. FR - A5CN
 2. 가 FREQROL - V200 (1.5K~55K)
 (FR - A5CN)



(: mm)

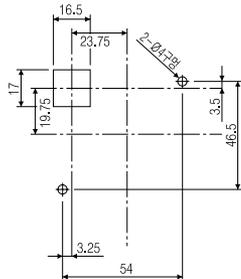
조작 패널

FR-DU04-1



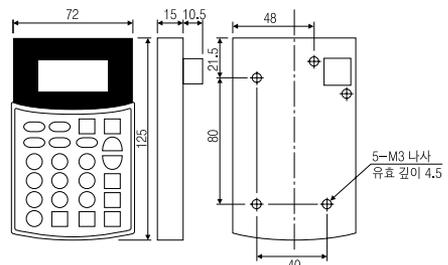
부착나사의 길이는 부착나사 유효깊이를 넘지않도록 선정해 주십시오.

●패널 단면도



파라미터 유닛(옵션)

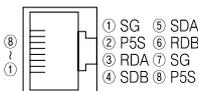
FR-PU04V



부착나사의 길이는 부착나사 유효깊이를 넘지않도록 선정해 주십시오.

●패널 단면도

PU커넥터 배열
 <인버터 본체(리셉터클측) 정면에서 볼때>



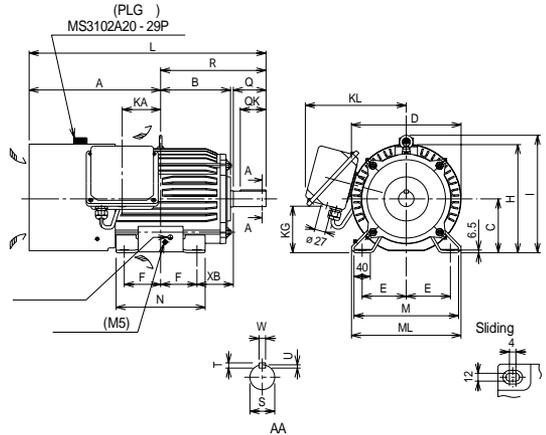
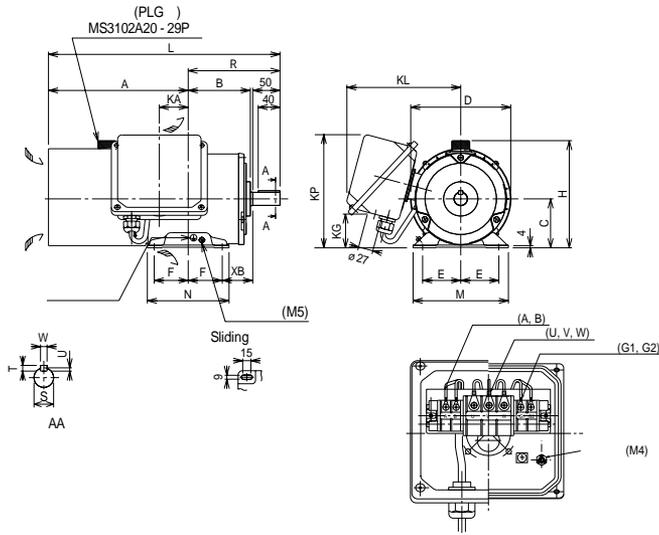
() 1. LAN , FAX

2. (P5S)
 RS - 485

()

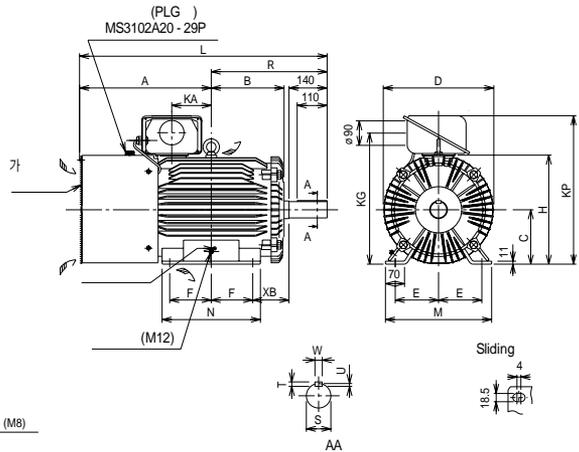
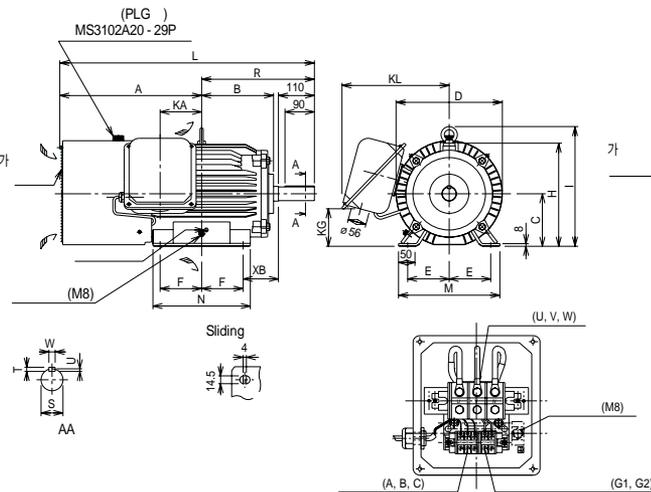
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<100~132Fr> SF-V5RU(H) 2K 3K 5K 7K
 SF-V5RU(H) 1K1 2K1 3K1 5K1
 SF-V5RU(H) 1K3 2K3 3K3
 SF-V5RU(H) 1K4



<160, 180Fr> SF-V5RU(H) 11K 15K 18K 22K
 SF-V5RU(H) 7K1 11K1 15K1 18K1
 SF-V5RU(H) 5K3 7K3 11K3 15K3
 SF-V5RU(H) 2K4 3K4 5K4

<200, 225Fr> SF-V5RU(H) 30K 37K 45K 55K
 SF-V5RU(H) 22K1 30K1 37K1
 SF-V5RU(H) 18K3 22K3 30K3
 SF-V5RU(H) 7K4 11K4 15K4



(:mm)

SF-V5RU(H)	SF-V5RU(H) 1	SF-V5RU(H) 3	SF-V5RU(H) 4	(kg)	A	B	C	D	E	F	H	I	KA	KG	KL(KP)	L	M	ML	N	XB	Q	QK	R	S	T	U	W	U,V,W	A,B,C	G1,G2	
1K	-	-	-	90L	24	256.5	114	90	183.6	70	62.5	198	-	53	65	220(210)	425	175	-	150	56	-	188.5	246	7	4	8	M6	M4	M4	
2K	1K	-	-	100L	33	284	128	100	207	80	70	203.5	230	65	78	231	477	200	212	180	63	60	45	193	286	7	4	8	M6	M4	M4
3K	2K	1K	-	112M	41	278	135	112	228	95	70	226	253	69	93	242	478	230	242	180	70	60	45	200	286	7	4	8	M6	M4	M4
5K	3K	2K	-	132S	52	303	152	132	266	108	70	265	288	75	117	256	542	256	268	180	89	80	63	239	386	8	5	10	M6	M4	M4
7K	5K	3K	1K	132M	62	322	171	132	266	108	89	265	288	94	117	256	580	256	268	218	89	80	63	258	386	8	5	10	M6	M4	M4
11K	7K	5K	2K	160M	99	412	198	160	318	127	105	316	367	105	115	330	735	310	-	254	108	-	323	426	8	5	12	M8	M4	M4	
15K	11K	7K	3K	160L	113	434	220	160	318	127	127	316	367	127	115	330	779	310	-	298	108	-	345	426	8	5	12	M8	M4	M4	
18K	-	-	-	180M	138	438.5	225.5	180	363	139.5	120.5	359	410	127	139	352	790	335	-	285	121	-	351.5	486	9	5.5	14	M8	M4	M4	
22K	15K	11K	-	180L	160	457.5	242.5	180	363	139.5	139.5	359	410	146	139	352	828	335	-	323	121	-	370.5	556	10	6	16	M8	M4	M4	
30K	-	-	7K	200L	238	483.5	267.5	200	406	159	152.5	401	-	145	487	(546)	909	390	-	361	133	-	425.5	606	-	-	-	M10	M4	M4	
37K/45K	22K/30K	18K/22K	-	200L	255	483.5	267.5	200	406	159	152.5	401	-	145	487	(546)	909	390	-	361	133	-	425.5	606	-	-	-	M10	M4	M4	
55K	37K	30K	11K/15K	225S	320	500	277	225	446	178	143	446	-	145	533	(592)	932	428	-	342	149	-	432	656	-	-	-	M10	M4	M4	

() 1.
 2.

SF-V5R

3. Flange

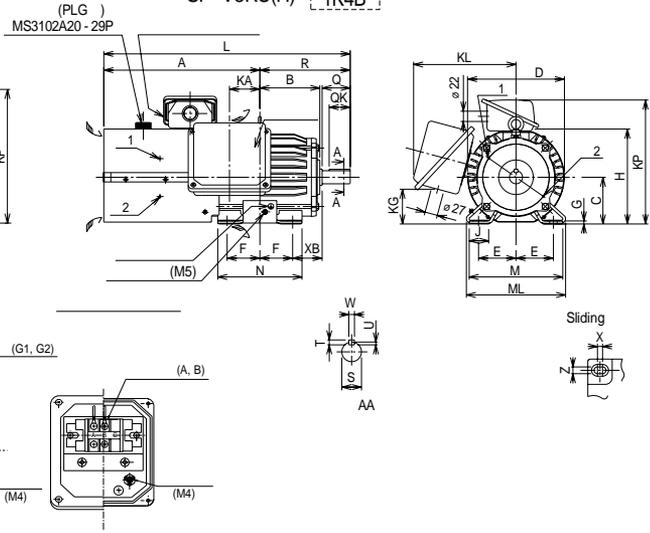
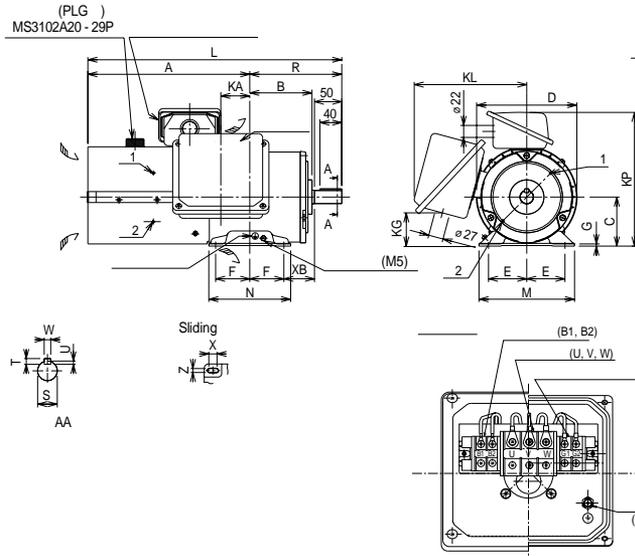
4. C

0.5

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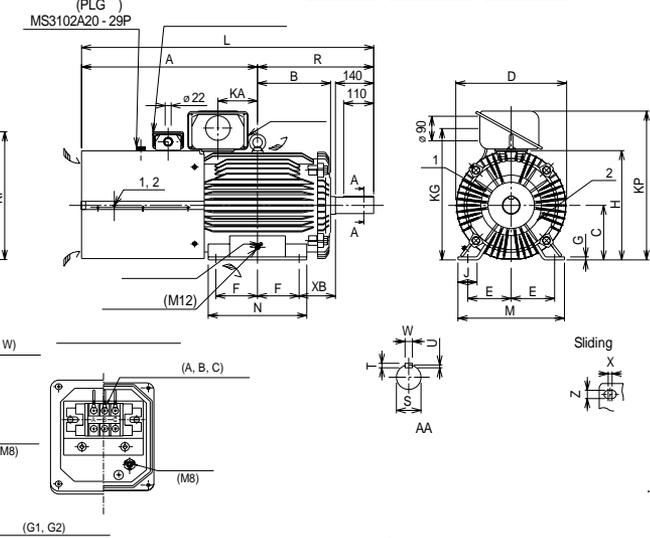
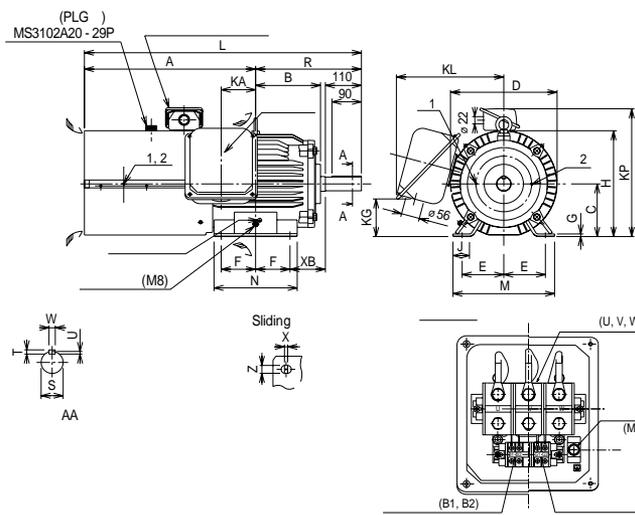
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<100~132Fr> SF-V5RU(H) 2KB 3KB 5KB 7KB
 SF-V5RU(H) 1K1B 2K1B 3K1B 5K1B
 SF-V5RU(H) 1K3B 2K3B 3K3B
 SF-V5RU(H) 1K4B



<160, 180Fr> SF-V5RU(H) 11KB 15KB 18KB 22KB
 SF-V5RU(H) 7K1B 11K1B 15K1B 18K1B
 SF-V5RU(H) 5K3B 7K3B 11K3B 15K3B
 SF-V5RU(H) 2K4B 3K4B 5K4B

<200, 225Fr> SF-V5RU(H) 30KB 37KB 45KB 55KB
 SF-V5RU(H) 22K1B 30K1B 37K1B
 SF-V5RU(H) 18K3B 22K3B 30K3B
 SF-V5RU(H) 7K4B 11K4B 15K4B



(:mm)

SF-V5RU(H) B	SF-V5RU(H) 1B	SF-V5RU(H) 3B	SF-V5RU(H) 4B	(kg)	A	B	C	D	E	F	G	H	I	J	K	KA	KD	KL	KG	KP	L	M	ML	N	X	XB	Z	Q	QK	R	S	T	U	W	UVW	A/B/C	G1/G2	B1/B2
1K	-	-	-	90L	29	296.5	114	90	183.6	70	62.5	4	-	-	-	53	27	220	65	245	465	175	-	150	15	56	9	50	40	188.5	246	7	4	8	M6	M4	M4	M4
2K	1K	-	-	100L	46	333.5	128	100	207	80	70	6.5	-	-	-	65	27	231	78	265	526.5	200	212	180	4	63	12	60	45	193	266	7	4	8	M6	M4	M4	M4
3K	2K	1K	-	112M	53	355	135	112	228	95	70	6.5	-	-	-	69	27	242	93	290	555	230	242	180	4	70	12	60	45	200	266	7	4	8	M6	M4	M4	M4
5K	3K	2K	-	132S	70	416	152	132	266	108	70	6.5	-	-	-	75	27	256	117	329	655	256	268	180	4	89	12	80	63	239	386	8	5	10	M6	M4	M4	M4
7K	5K	3K	1K	132M	80	435	171	132	266	108	89	6.5	-	-	-	94	27	256	117	329	693	256	268	216	4	89	12	80	63	258	386	8	5	10	M6	M4	M4	M4
11K	7K	5K	2K	160M	140	522.5	198	160	318	127	105	8	-	-	-	105	56	330	115	391	845.5	310	-	254	4	108	14.5	110	90	323	426	8	5	12	M8	M4	M4	M4
15K	11K	7K	3K	160L	155	544.5	220	160	318	127	127	8	-	-	-	127	56	330	115	391	889.5	310	-	298	4	108	14.5	110	90	345	426	8	5	12	M8	M4	M4	M4
18K	-	-	-	180S	215	588.5	225.5	180	363	139.5	120.5	8	-	-	-	127	56	362	139	428	920	335	-	285	4	121	14.5	110	90	351.5	486	9	5.5	14	M8	M4	M4	M4
22K	15K	11K	-	180M	255	587.5	242.5	180	363	139.5	139.5	8	-	-	-	146	56	362	139	428	958	335	-	323	4	121	14.5	110	90	370.5	556	10	6	16	M8	M4	M4	M4
30K	-	-	7K	200L	305	644.5	267.5	200	406	159	152.5	11	-	-	-	145	90	-	487	546	1070	390	-	361	4	133	18.5	140	110	425.5	606	11	7	18	M10	M4	M4	M4
37K/45K	22K/30K	18K/22K	-	200L	330	644.5	267.5	200	406	159	152.5	11	-	-	-	145	90	-	487	546	1070	390	-	361	4	133	18.5	140	110	425.5	606	11	7	18	M10	M4	M4	M4
55K	37K	30K	11K/15K	225S	395	659	277	225	446	178	143	11	-	-	-	145	90	-	533	592	1091	428	-	342	4	149	18.5	140	110	432	656	11	7	18	M10	M4	M4	M4

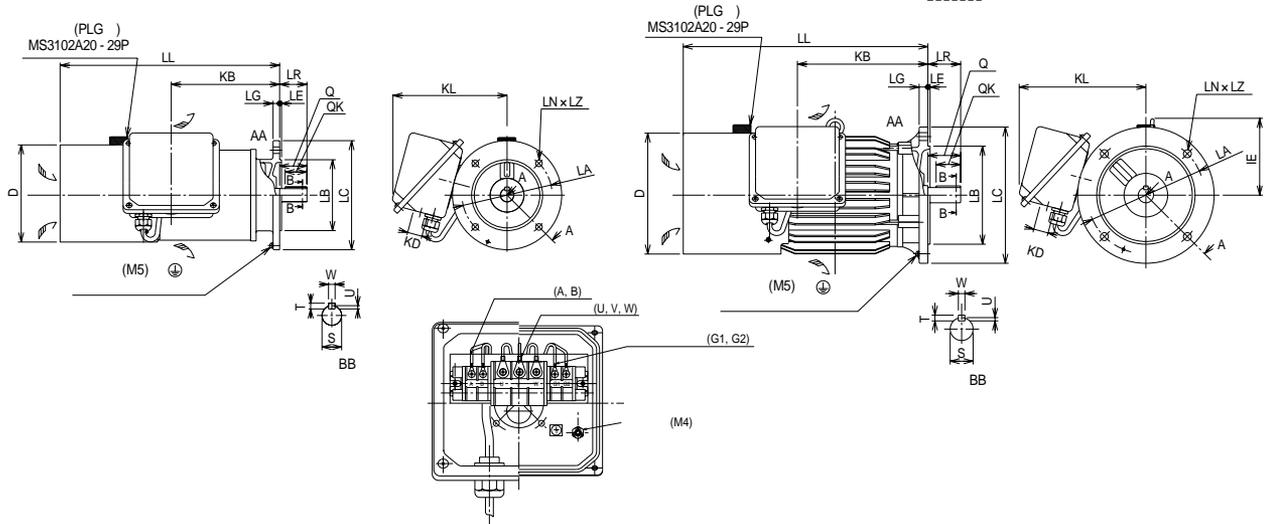
- 1.
- 2.
- 3.
4. 400V 「H」
- 5.

SF-V5R

()

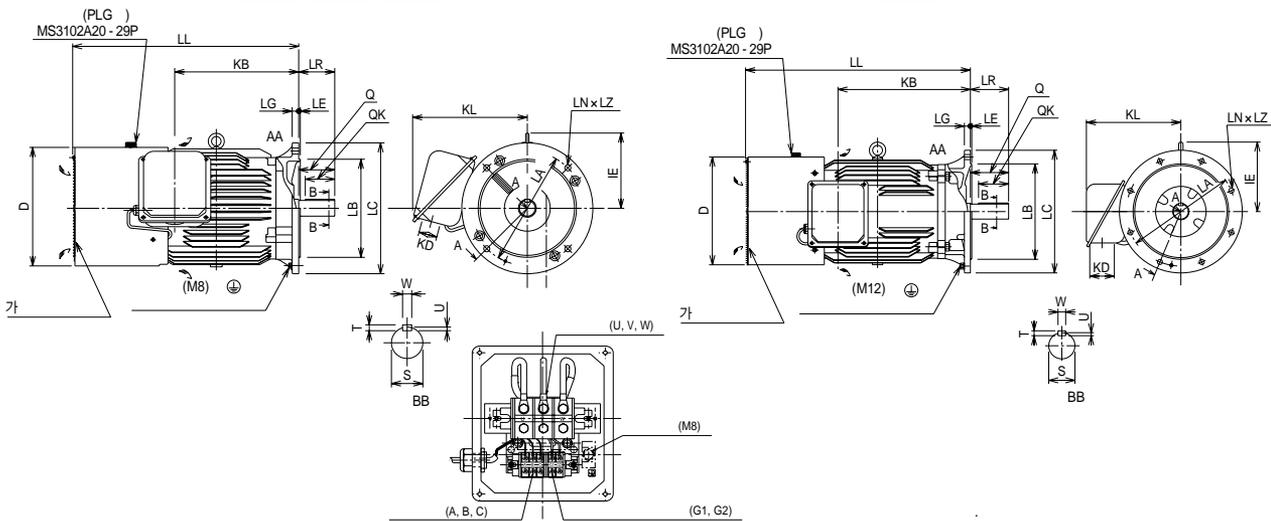
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<100~132Fr> SF-V5RUF(H) 2K 3K 5K 7K
 SF-V5RUF(H) 1K1 2K1 3K1 5K1
 SF-V5RUF(H) 1K3 2K3 3K3
 SF-V5RUF(H) 1K4



<160, 180Fr> SF-V5RUF(H) 11K 15K 18K 22K
 SF-V5RUF(H) 7K1 11K1 15K1 18K1
 SF-V5RUF(H) 5K3 7K3 11K3 15K3
 SF-V5RUF(H) 2K4 3K4 5K4

<200Fr> SF-V5RUF(H) 30K 30K 30K
 SF-V5RUF(H) 22K1 30K1
 SF-V5RUF(H) 18K3 22K3
 SF-V5RUF(H) 7K4



(:mm)

SF-V5RUF(H)	SF-V5RUF(H) 1	SF-V5RUF(H) 3	SF-V5RUF(H) 4		(kg)	KB	D	IE	KD	KL	LA	LB	LC	LE	LG	LL	LN	LZ	LR	Q	QK	S	T	U	W	U,V,W	AB(C)	G1,G2	
1K	-	-	-	FF165	90L	26.5	198.5	183.6	-	27	220	165	130g	200	3.5	12	402	4	12	50	50	40	24g	7	4	8	M6	M4	M4
2K	1K	-	-	FF215	100L	37	213	207	130	27	231	215	180g	250	4	16	432	4	14.5	60	60	45	28g	7	4	8	M6	M4	M4
3K	2K	1K	-	FF215	112M	46	238	228	141	27	242	215	180g	250	4	16	448	4	14.5	60	60	45	28g	7	4	8	M6	M4	M4
5K	3K	2K	-	FF265	132S	65	256	266	156	27	256	265	230g	300	4	20	484	4	14.5	80	80	63	38g	8	5	10	M6	M4	M4
7K	5K	3K	1K	FF265	132M	70	294	266	156	27	256	265	230g	300	4	20	522	4	14.5	80	80	63	38g	8	5	10	M6	M4	M4
11K	7K	5K	2K	FF300	160M	110	318	318	207	56	330	300	250g	350	5	20	625	4	18.5	110	110	90	42g	8	5	12	M8	M4	M4
15K	11K	7K	3K	FF300	160L	125	362	318	207	56	330	300	250g	350	5	20	669	4	18.5	110	110	90	42g	8	5	12	M8	M4	M4
18K	-	-	-	FF350	180	160	378.5	363	230	56	352	350	300g	400	5	20	690	4	18.5	110	110	90	48g	9	5.5	14	M8	M4	M4
22K	15K	11K	-	FF350	180L	225	416.5	363	230	56	352	350	300g	400	5	20	728	4	18.5	110	110	90	55g	10	6	16	M8	M4	M4
30K	-	-	7K	FF400	200L	270	485	406	255	90	346	400	350g	450	5	22	823.5	8	18.5	140	140	110	60g	11	7	18	M10	M4	M4
37K/45K	22K/30K	18K/22K	-			290																							

1).

가HP20가

SF-V5R

2.

3.

C

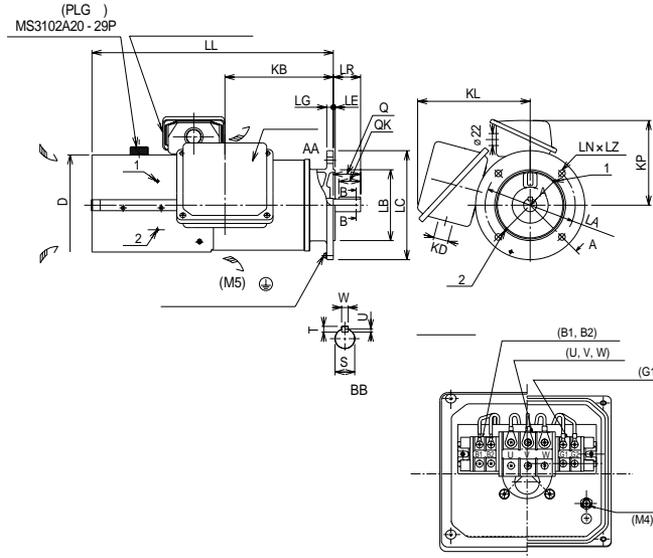
「H」가

0.5

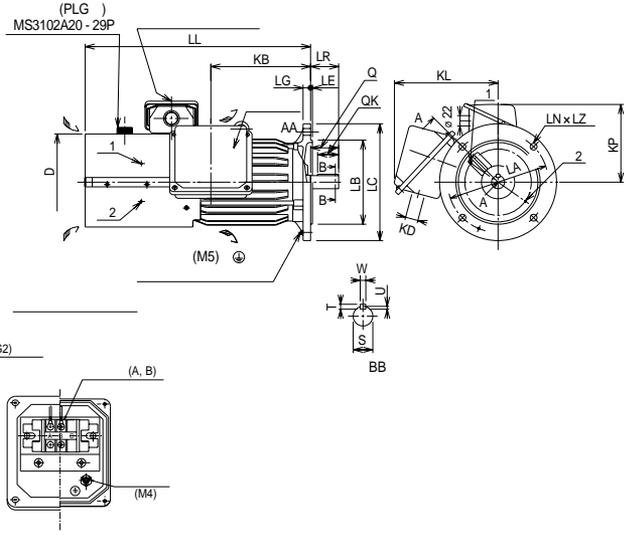
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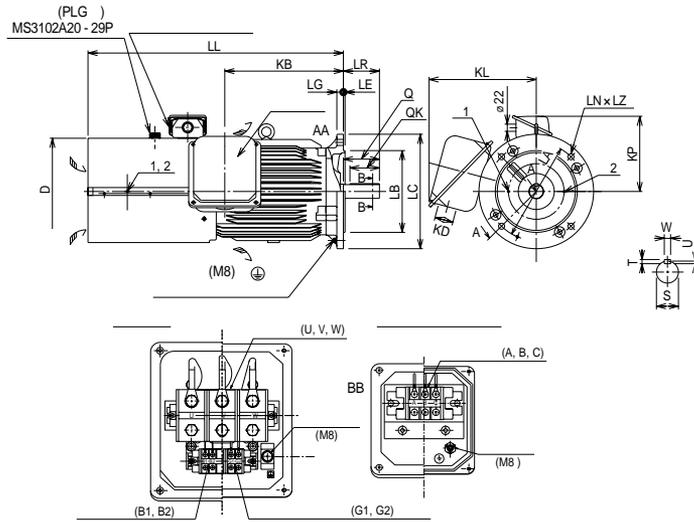
<90Fr> SF-V5RUF 1KB



<100~132Fr> SF-V5RUF 2KB 3KB 5KB 7KB
 SF-V5RUF 1K1B 2K1B 3K1B 5K1B
 SF-V5RUF 1K3B 2K3B 3K3B
 SF-V5RUF 1K4B



<160Fr> SF-V5RUF 11K 15K
 SF-V5RUF 7K1B 11K1B
 SF-V5RUF 5K3B 7K3B
 SF-V5RUF 2K4B 3K4B



(:mm)

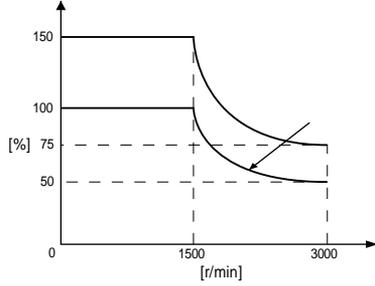
SF-V5RUF(H) B	SF-V5RUF(H) B1	SF-V5RUF(H) B3	SF-V5RUF(H) B4		(kg)	KB	D	KD	KL	KP	LA	LB	LC	LE	LG	LL	LN	LZ	LR	Q	QK	S	T	U	W	U,V,W	A,B,C	G1,G2	B1,B2	
1K	-	-	-	FF165	90L	31.5	198.5	183.6	27	220	155	165	1306	200	3.5	12	442	4	12	50	50	40	246	7	4	8	M6	M4	M4	M4
2K	1K	-	-	FF215	100L	50	213	207	27	231	165	215	1806	250	4	16	481.5	4	14.5	60	60	45	286	7	4	8	M6	M4	M4	M4
3K	2K	1K	-	FF215	112M	58	239	228	27	242	178	215	1806	250	4	16	525	4	14.5	60	60	45	286	7	4	8	M6	M4	M4	M4
5K	3K	2K	-	FF265	132S	83	256	266	27	256	197	265	2306	300	4	20	597	4	14.5	80	80	63	386	8	5	10	M6	M4	M4	M4
7K	5K	3K	1K	FF265	132M	88	294	266	27	256	197	265	2306	300	4	20	635	4	14.5	80	80	63	386	8	5	10	M6	M4	M4	M4
11K	7K	5K	2K	FF300	160M	151	318	318	56	330	231	300	2506	350	5	20	735.5	4	18.5	110	110	90	426	8	5	12	M8	M4	M4	M4
15K	11K	7K	3K	FF300	160L	167	362	318	56	330	231	300	2506	350	5	20	779.5	4	18.5	110	110	90	426	8	5	12	M8	M4	M4	M4

1. 가 IP20가 SF-V5R
- 2.
3. C
4. 400V 「H」가 0.5
5. (.35)

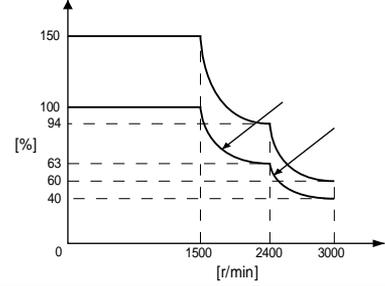
(SF-V5RU)

1500r/min

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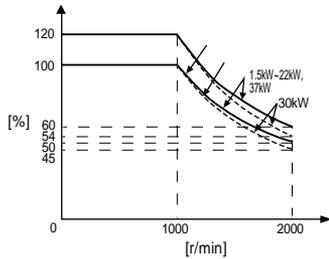
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1000r/min

(1:2)

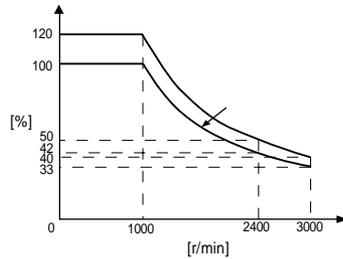
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1000r/min

(1:3)

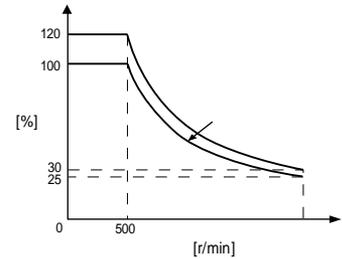
<1.5~30[kW]>



500r/min

(1:4)

<1.5~15[kW]>



1. SF-V5RU - 55kW, SF-V5RU3 - 30kW
2. SF-V5RU - 3.7kW
- 3.

2400r/min
3600r/min
1800r/min

SF-V5RU

SF-V5R

	()	
	SF-V5RU K	SF-V5R K
()	UL규격, CE마크(TÜV Rheinland보다 규격 적합 인증)	—
()	• (防滴) • (KA, KG, KL/KP)가 (A, L)가	—
	: IP44, : IP23S (: IP44, : IP20, : IP20)	: IP44, : IP20
	가 ()	
	.(35)	200V, 400V 1.5~3.7K : 5.5~55K :

) 1500r/min, 1000r/min, 500r/min
UL CE

● ()
()

SF-V5R(H) ()

[:mm]

		(kg)	A	KA	KG	KL/KP	L
SF-V5R (H) 1K	90L	24	231.5	38	58	188	400
SF-V5R (H) 2K	100L	33	259	50	71	200	452
SF-V5R (H) 3K	112M	41	253	54	86	211	453
SF-V5R (H) 5K	132S	52	278	60	110	225	517
SF-V5R (H) 7K	132M	62	297	79	110	225	555
SF-V5R (H) 11K	160M	99	362	105	142	266	685
SF-V5R (H) 15K	160L	113	384	127	142	266	729
SF-V5R (H) 18.5K/22K	180M	138/180	388.5	127	168	289	740
SF-V5R (H) 30K/37K, 45K	200L	238/255	433.5	145	472	548	859
SF-V5R (H) 55K	225S	320	450	145	517	593	882

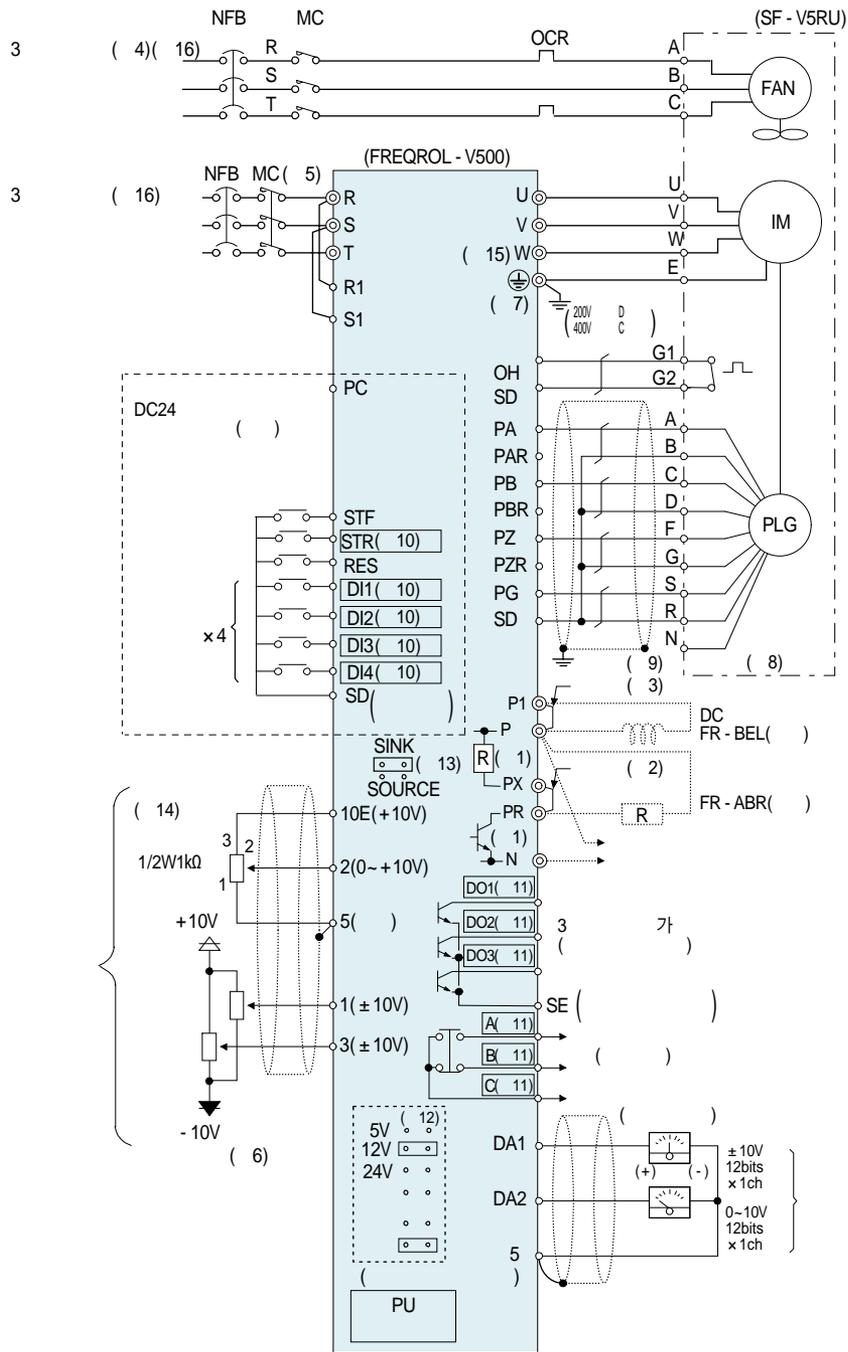
SF-V5RU(H) ()

[:mm]

		(kg)	A	KA	KG	KL/KP	L
SF-V5RU (H) 1K	90L	24	266.5	53	65	220/210	425
SF-V5RU (H) 2K	100L	33	284	65	78	231/225	477
SF-V5RU (H) 3K	112M	41	278	69	93	242	478
SF-V5RU (H) 5K	132S	52	303	75	117	256	542
SF-V5RU (H) 7K	132M	62	322	94	117	256	580
SF-V5RU (H) 11K	160M	99	412	105	115	330	735
SF-V5RU (H) 15K	160L	113	434	127	115	330	779
SF-V5RU (H) 18.5K/22K	180M	138/180	438.5	127	139	352	790
SF-V5RU (H) 30K/37K, 45K	200L	238/255	483.5	145	487	546	909
SF-V5RU (H) 55K	225S	320	500	145	533	592	932

● (KA, KG, KL/KP), (A, L)

● , PLG

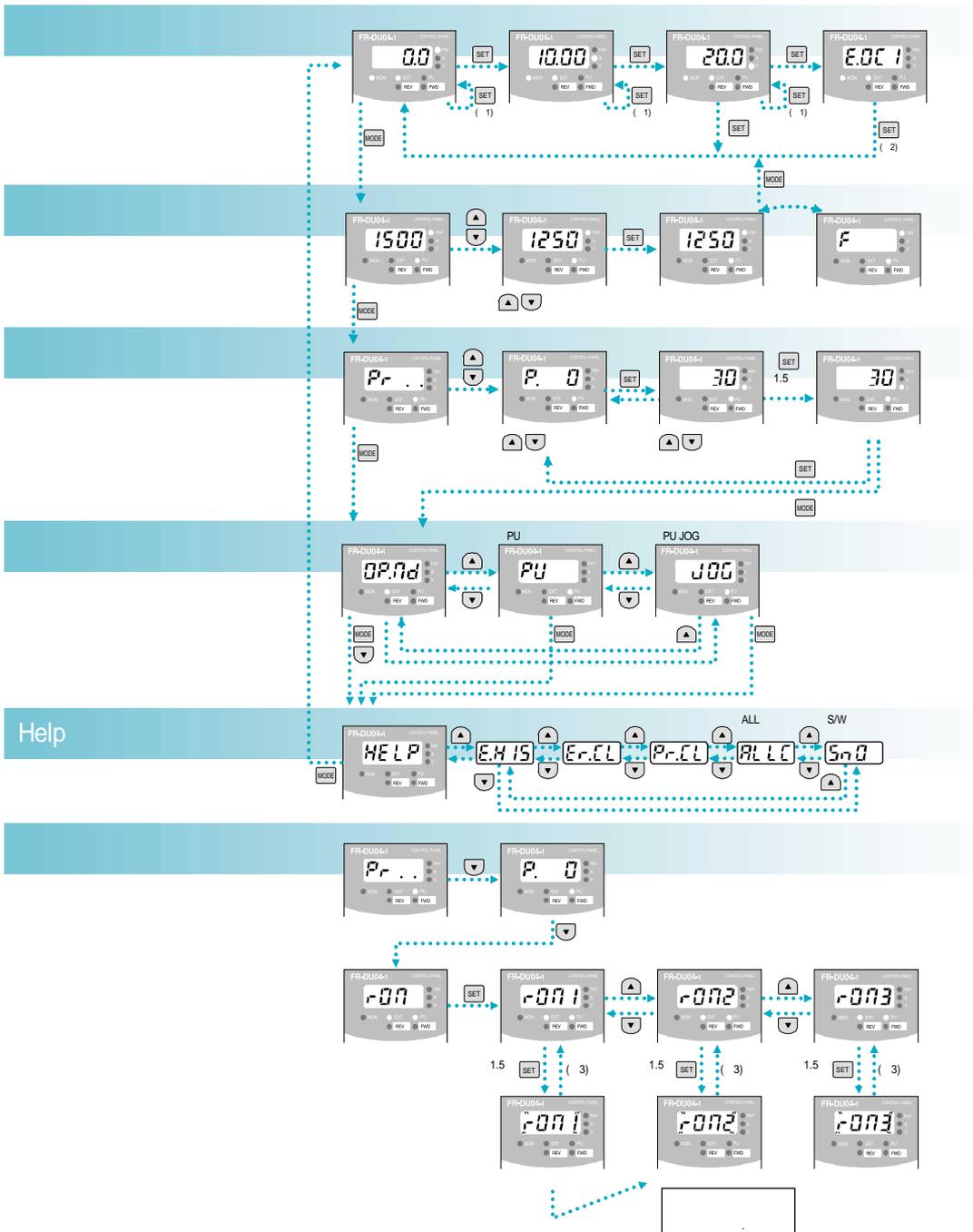
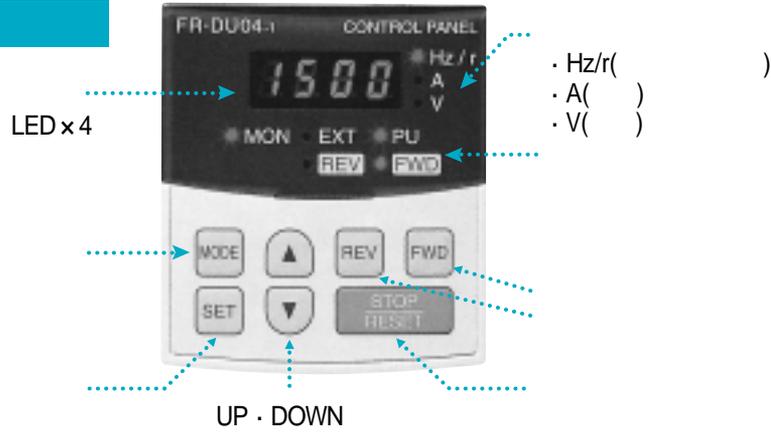


- () 1. PR 15K , PX 5.5K
- 2. 5.5kW FR - ABR
- 3. FR - BEL
- 4. 7.5kW 가
- 5. ON, OFF 가
- 6. 1, 3 ±10V
- 7. Pr.876 0 Pr.9(Pr.452) (2)
- 8. 가
- 9. PLG N 가
- 10. (Pr.180~Pr.183, Pr.187)
- 11. (Pr.190~Pr.192, Pr.195)
- 12. PLG
- 13. 가 2W1kΩ
- 14. 가 2W1kΩ
- 15. 6, 7
- 16. 6, 7



	R, S, T		(FR - HC), (FR - CV)
	U, V, W		, 3 R, S (FR - HC),
	R1, S1		(FR - CV) R - R1, S - S1 (FR - HC),
	P, PR		PR - PX 15K P - PR 가 (FR - ABR)
	P, N		FR - BU (FR - HC) (FR - CV)
	P, P1	DC	P - P1 (FR - BEL)
	PR, PX		PX - PR (), 가 가 .(5.5K .)
P L G	STF		STF ON , OFF
	STR		STR ON , OFF (Pr.187) STF, STR 가 ON
	DI1~DI4	1~4	(Pr.180~183) 8 " "
	OH		
	RES		. RES 0.1s ON , OFF
	SD	()	5, SE PLG
	PC	DC24V ()	(PLC) (가) . PC - SD DC24V, 0.1A 가
	10E		DC10V 10mA
	2	()	DC0~10V 10V 가 10kΩ 20V
	3		DC0~ ±10 V , 10kΩ 가 DC±20V
	1		1 가 가 ±20V
	5		(2, 1 3) , DA1, DA2 SD, SE
	PA	A	PLG A , B , Z PAR, PBR, PZR
	PAR	A	
	PB	B	
PBR	B		
PZ	Z		
PZR	Z		
PG	PLG (+)	PLG .5V/12V/24V 가 가	
SD	()	5, SE PLG	
A, B, C		: B - C (A - C) , : B - C (A - C ^{1c}) . AC230V 0.3A, DC30V 0.3A. (Pr.195)	
DO1	1	DC24V/0.1A(3.4V) (Pr.190~Pr.192) 8 " "	
DO2	2		
DO3	3		
SE		DO1, DO2, DO3 SD, 5	
DA1		18 DC0~ ±10V : 1mA	
DA2		DC0~10V : 1mA	
5		(2, 1 3) , DA1, DA2	
R S · 4 8 5	PU		PU RS - 485 가 : EIA RS - 485 : : MAX 19200bps : 500m

(FR-DU04-1)



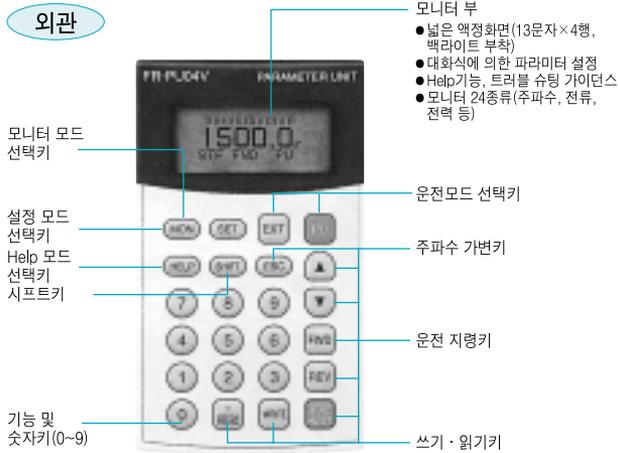
() 1. **SET** 1.5
 2. **SET** 1.5
 3.

가 가 .

4

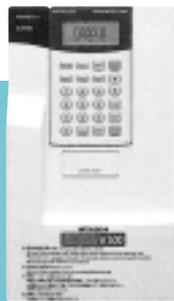
가

파라미터 유닛 FR-PU04V(옵션)



인버터 본체에 FR-PU04V를 취부한 경우

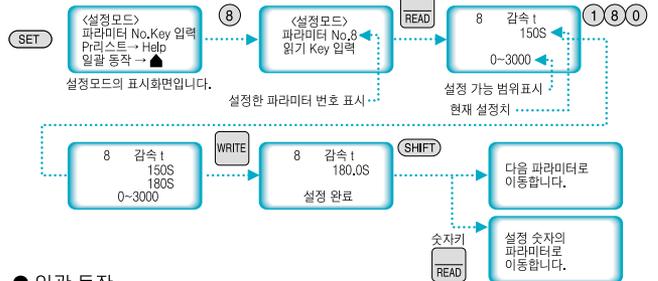
1. FR-PU02V
- 2.



조작예

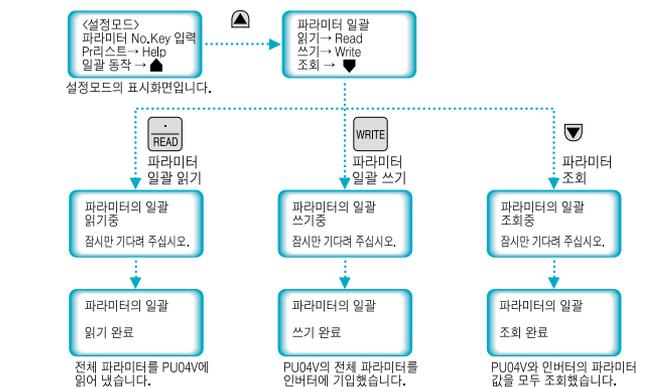
● 파라미터 설정

(SET) 키로 선택. 파라미터에 설정치를 입력합니다.
(예) 파라미터8(감속시간 설정)에 180초를 설정하는 경우



● 일괄 동작

(SET) 키로 선택. 전체 파라미터의 읽기, 쓰기, 조회를 합니다.



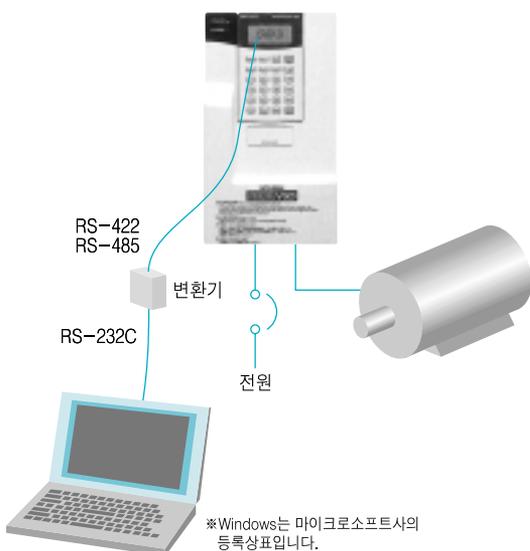
● 변경치 리스트

아래 조작으로 변경치 리스트를 읽어 냅니다.

(HELP) → 파라미터 (읽기) → 변경 리스트 (읽기)

FR-SW1-SETUP-WJ(Windows* 95, 98, ME, XP 대응)(옵션)

PC Windows*



기능 소개

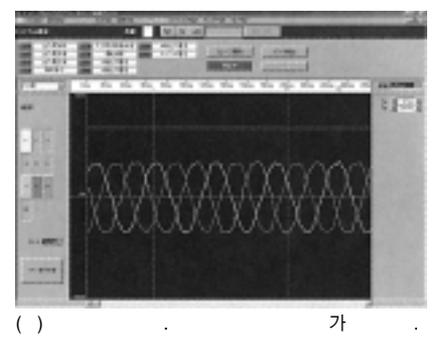
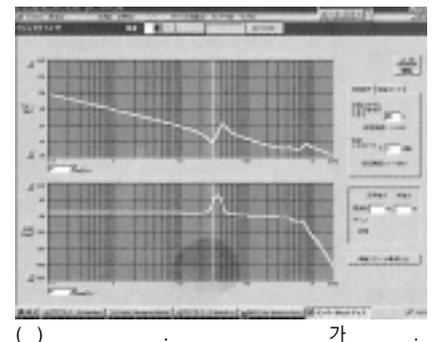
신기능

가

가

종래 기능

Help



	1		0~3600r/min	1r/min	1500r/min
	2		0~3600r/min	1r/min	0r/min
	4	3 ()	0~3600r/min	1r/min	1500r/min
	5	3 ()	0~3600r/min	1r/min	750r/min
	6	3 ()	0~3600r/min	1r/min	150r/min
	7	가	0~3600S/0~360S	0.1S/0.01S	5S/15S (1.5K~5.5K/7.5K~55K)
	8		0~3600S/0~360S	0.1S/0.01S	5S/15S (1.5K~5.5K/7.5K~55K)
	72	PWM	1~6	1	1
	77		0, 1, 2	1	0
	79		0~4, 6~8	1	0
	95		0, 1, 2	1	0
가	160		0, 1	1	0
	800		0~5, 20	1	0
	818		1~15	1	2
	819		0, 1, 2	1	0

160 1 , 가 . ←

	0	()
	1, 2	.
	3	
	4~8	.
	9	
	10	
	11	
	12	
	13	
	15	JOG
	16	JOG 가
	17	MRS
	19	
	20	가
	21	가
	22	
	24	(4)
	25	(5)
	26	(6)
	27	(7)
	28	

	29	가
	30	
	31	1A
	32	1B
	33	2A
	34	2B
	35	3A
	36	3B
	37	
	41	
	42	
	43	
2	44	2가
	45	2
	50	2
	52	DU/PU
	53	PU
	54	DA1
	55	
	56	
	57	
	58	

가	59	
	60	
	65	
	67	
	68	
	69	
	70	
	71	
	72	
	73	
	75	/PU /PU
	77	
	78	
	79	
	80	
	81	



	82()	()
	83	
	84	
	90()	(R1)
	91()	(R2)
	92()	(L1)
	93()	(L2)
	94()	(X)
	95	.
	96	/
3	110	3가
	111	3
	116	3
	117	
	118	
	119	/
	120	
	121	
	122	
	123	
	124	CR · LF
PID	128	PID
	129	PID
	130	PID
	131	
	132	
	133	PU PID
	134	PID
	140	가
	141	가
	142	
	143	
	144	
	145	
	150	
	151	
	152	
	153	
	156	
	157	OL
	158	DA2
	160	.
	162	
	163	1
	164	1
	165	

	171	가
	180	DI1
	181	DI2
	182	DI3
	183	DI4
	187	STR
	190	DO1
	191	DO2
	192	DO3
	195	ABC
	232	(8)
	233	(9)
	234	(10)
	235	(11)
	236	(12)
	237	(13)
	238	(14)
	239	(15)
	240	Soft - PWM
	244	
	250	
	251	
가	252	
	253	
	261	
	262	
	263	
	264	1
	265	2
	266	
	278	
	279	
	280	
	281	
	282	
	283	
	284	
	285	
	286	
(Droop)	287	
	288	
가	342	E2ROM
	350	
	351	
	356	

	357	
	360	
	361	
	362	
	374	
S C	380	가 S 1
	381	S 1
	382	가 S 2
	383	S 2
	393	
	396	(P)
	397	
	398	(D)
	399	
	419	
	420	
	421	
	422	
	423	
	424	가
	425	
	426	
	427	
	430	
	450	2
	451	2
	452	2
	453	2
	454	2
	464	
	465	1 4
	466	1 4
	467	2 4
	468	2 4
	469	3 4
	470	3 4
	471	4 4
	472	4 4
	473	5 4
	474	5 4
	475	6 4
	476	6 4
	477	7 4
	478	7 4
	479	8 4
	480	8 4
	481	9 4
	482	9 4
	483	10 4
	484	10 4
	485	11 4



	486	11	4
	487	12	4
	488	12	4
	489	13	4
	490	13	4
	491	14	4
	492	14	4
	493	15	4
	494	15	4
	495		
	496		1
	497		2
	800		
	801		
	802		
	803		
	804		
	805	(RAM)	
	806	(E ² ROM)	
	807		
	808		
	809		
	810		
	812	()	
	813	(3)	
	814	(4)	
	815		2
	816	가	
	817		
	818, 819		
	820	P	1
	821		1
	822		1
	823		1
	824	P	1
	825		1
	826		1
	827		1
	828		
	830	P	2
	831		2
	832		2
	833		2
	834	P	2
	835		2
	836		2
	837		2

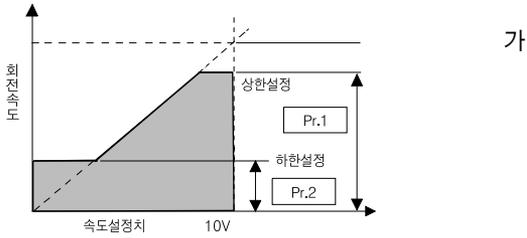
	840		
	841		1
	842		2
	843		3
	844		
	845		
	846		
	847	3	
	848	3	
	849()		
	851	PLG	
	852	PLG	
	854		
	859()		
	862	0~31 0	
	863	0~3	
	864		
	865		
	866		
	867	DA1	
	868	1	
	870		
	871		
	873		
	874	OLT	
	875		
	876		
	877	0: 1: 2:	
	878		
	879		
	880		
	881		
	890		
	891		
	892		

	900	DA1	
	901	DA2	
	902		2
	903		2
	904		3
	905		3
	917	1	()
	918	1	()
	919	1	(/)
	920	1	(/)
가	990		
	991	LCD	

() Pr.77=801 가 .

「Pr.」

Pr.1“ , Pr.2“ ”



Pr.4“ 3 () ”
 Pr.5“ 3 () ”
 Pr.6“ 3 () ”

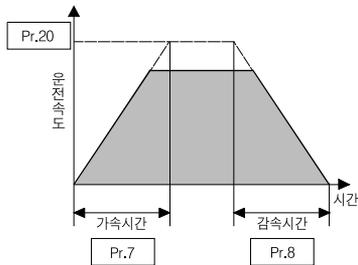
(RH, RM, RL)

0~3600r/min

, 15

Pr.7“ 가 , Pr.8“ ”

가 Or/min 가 Pr.20(Pr.20(Or/min가



Pr.72“ PWM ”

PWM 가 ,
 Pr.72 1~6 , 1 2.25kHz , 6 13.5 kHz가
 ×2.25kHz가
 () Pr.240 Pr.72가 가 가

Pr.77“ ”

0	가 (PU) (1)
1	가(1)
2	가 (1)

(1)

Pr.79“ ”

PU(FR - DU04-1/FR - PU04V) (/PU) (PU () , PU) 가

Pr.79		
0	가 가 :	
1	PU	
2	PU	
3	PU(FR - DU04-1/FR - PU04V) (/)	(STF, STR)
4	(2, 1, JOG,)	PU(FR - DU04-1/FR - PU04V) (FWD, REV)
6		
7	(PU)	
8	(가)	

Pr.95“ ON ”

2

0	
1	()
2	()

Pr.160“ ”

0	
1	

Pr.800“ ”

800	0	0~5, 20
-----	---	---------

Pr.800「 가 」 MC

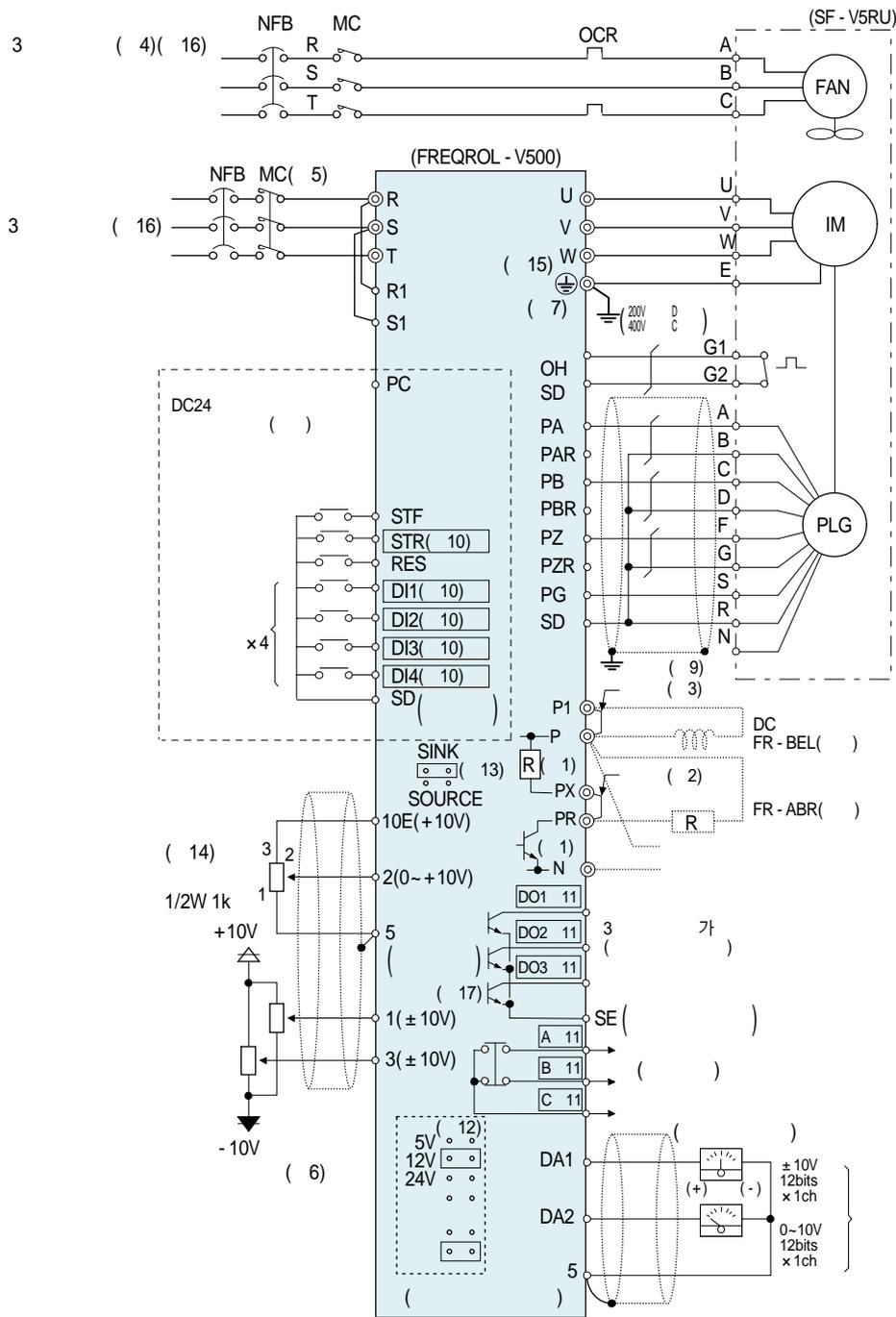
0		
1		
2		-
3		-
4		-
5		-
20	V/f	

Pr.818“ ”

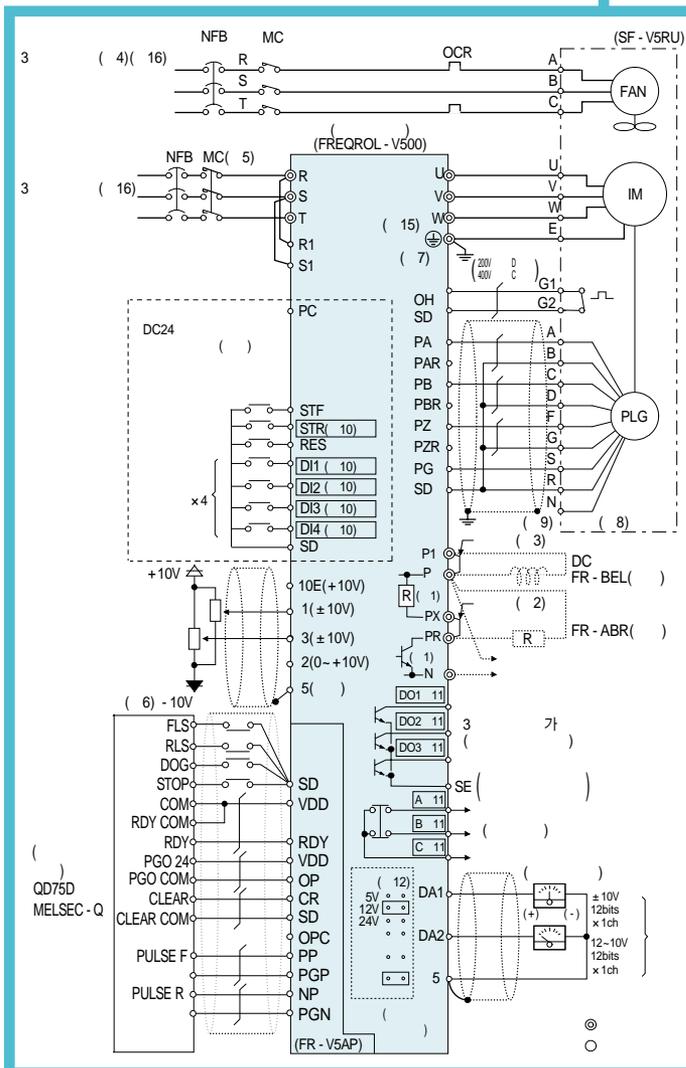
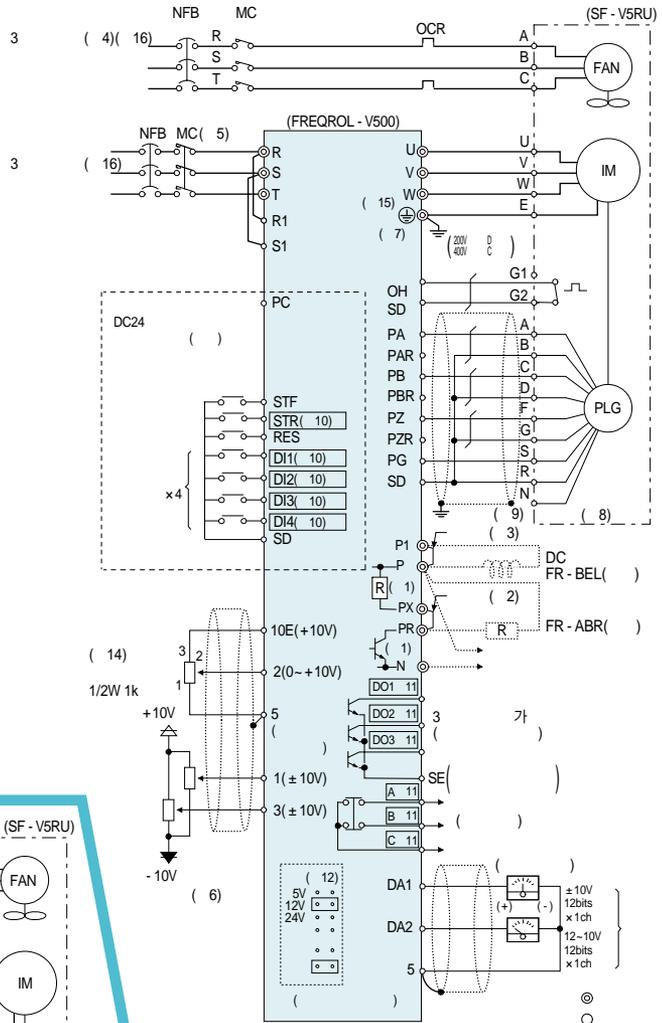
1~15	1 : ~ 15 :
------	------------

Pr.819“ ”

0	
1	
2	



- () 1. PR 15K , PX 5.5K
- 2. 5.5kW FR - ABR
- 3. FR - BEL
- 4. 7.5kW 가
- 5. ON, OFF 가
- 6. 1, 3 ±10V
- 7. Pr.876 0 , Pr.9(Pr.452) (2)
- 8. 가
- 9. PLG N 가
- 10. (Pr.180~Pr.183, Pr.187)
- 11. (Pr.190~Pr.192, Pr.195)
- 12. PLG
- 13. 가 2W1kΩ
- 14. 가 2W1kΩ
- 15. 6, 7
- 16. Pr.868" 1
- 17. 2 가



- () 1. PR 15K, PX 5.5K
2. 5.5kW FR-ABR
3. FR-BEL
4. 7.5kW 가
5. ON, OFF 가
6. 1, 3 ±10V
7. Pr.876 0
8. Pr.9(Pr.452) (2)
9. PLG N 가
10. (Pr.180~Pr.183, Pr.187)
11. (Pr.190~Pr.192, Pr.195)
12. PLG
- 13.
14. 가 2W1k
- 15.
16. 6, 7

						(5)	
가	가 R1, S1	가	200%	가	가	E.OC1	
		가	200%	가	가	E.OC2	
	(가,)	가	200%	가	가	E.OC3	
가	가				가	E.OV1	
					가	E.OV2	
					가	E.OV3	
() (1)(6)	V/F					E.THM	
() (1)	150% 가		(200%)			E.THT	
(2)	15ms () Open(가 ON B - C) Close(A - C)가 .100ms (.15ms)					E.IPF	
	P, P1	가	가		150V 가	E.UVT	
		가				E.FIN	
					가	E.BE	
					가	E.GF	
(7)					(Open)	E.OHT	
						E.OLT	
					()	E.OPT	
					()	E.OP1 -OP3	
						E.1 -E.3	
			(: E2PROM)			E.PE	
PU	Pr.75 ^r PU /PU /PU 가	「2」 「3」 「16」 「17」 PU	RS - 485	Pr.121=「9999」		E.PUE	
			Pr.122			E.RET	
		() 3 (U, V, W) , 1				ELF	
CPU	CPU					E.CPU	
CPU	CPU			CPU		E.6	
						E.7	
DC24V	PC RES	DC24V		가	OFF가	E.P24	
	PU (PU P5S) RS - 485	가	RES	가	()	E.CTE	
		(Pr.278-Pr.285)	가			E.MB1 -7	
		가 (Pr.374)				E.OS	
	PLG	가				E.OSD	
大	FR - V5AM	가	(Pr.427)			E.ECT	
						E.OD	
DC12V	DC12V					E.ECA	
		PLG가				E.P12	
	()		Pr.244 ^a			E.EP	
						FN	
		V/F	150%(3)	가		OL	
						SL	
		가				oL	
PU	Pr.75 ^a 가 /PU 가			(FR - PU04V)		PS	
		Pr.70 ^a	85%가			tb	
		100% (E.OV ₁)				TH	
		가, 85%	100%,	(E.THM)			
	. RES 가 ON PU 가 Pr.77 ^r (STF, STR가 ON)					Err.	
SSCNET						CF	
						MT	

- () 1.
2. (, 가)
3. 가
4. : 150% 가
5. 가 가
6.
7. OH - SD 가



	(kW)		(NFB)(1) (ELB)		AC	DC	(MC)	(mm ²)(2)	
								R, S, T	U, V, T
200V	1.5	FR - V520 - 1.5K	30AF 15A	30AF 15A	FR - BAL - 1.5K	FR - BEL - 1.5K	S - N10	2	2
	2.2	FR - V520 - 2.2K	30AF 20A	30AF 15A	FR - BAL - 2.2K	FR - BEL - 2.2K	S - N10	2	2
	3.7	FR - V520 - 3.7K	30AF 30A	30AF 30A	FR - BAL - 3.7K	FR - BEL - 3.7K	S - N20/N21	3.5	3.5
	5.5	FR - V520 - 5.5K	50AF 50A	50AF 40A	FR - BAL - 5.5K	FR - BEL - 5.5K	S - N25	5.5	5.5
	7.5	FR - V520 - 7.5K	100AF 60A	50AF 50A	FR - BAL - 7.5K	FR - BEL - 7.5K	S - N35	14	8
	11	FR - V520 - 11K	100AF 75A	100AF 75A	FR - BAL - 11K	FR - BEL - 11K	S - N50	14	14
	15	FR - V520 - 15K	225AF 125A	100AF 100A	FR - BAL - 15K	FR - BEL - 15K	S - N65	22	22
	18.5	FR - V520 - 18.5K	225AF 150A	225AF 125A	FR - BAL - 22K	FR - BEL - 18.5K	S - N80	38	38
	22	FR - V520 - 22K	225AF 175A	225AF 150A	FR - BAL - 22K	FR - BEL - 22K	S - N95	38	38
	30	FR - V520 - 30K	225AF 225A	225AF 175A	FR - BAL - 30K	FR - BEL - 30K	S - N125	60	60
400V	1.5	FR - V540 - 1.5K	30AF 10A	30AF 10A	FR - BAL - H1.5K	FR - BEL - H1.5K	S - N10	2	2
	2.2	FR - V540 - 2.2K	30AF 15A	30AF 10A	FR - BAL - H2.2K	FR - BEL - H2.2K	S - N10	2	2
	3.7	FR - V540 - 3.7K	30AF 20A	30AF 15A	FR - BAL - H3.7K	FR - BEL - H3.7K	S - N20/N21	2	2
	5.5	FR - V540 - 5.5K	30AF 30A	30AF 20A	FR - BAL - H5.5K	FR - BEL - H5.5K	S - N20/N21	3.5	2
	7.5	FR - V540 - 7.5K	30AF 30A	30AF 30A	FR - BAL - H7.5K	FR - BEL - H7.5K	S - N20/N21	3.5	3.5
	11	FR - V540 - 11K	50AF 50A	50AF 40A	FR - BAL - H11K	FR - BEL - H11K	S - N20/N21(S - N25)	5.5	5.5
	15	FR - V540 - 15K	100AF 60A	50AF 50A	FR - BAL - H15K	FR - BEL - H15K	S - N25(S - N35)	14	8
	18.5	FR - V540 - 18.5K	100AF 75A	100AF 60A	FR - BAL - H22K	FR - BEL - H18.5K	S - N35(S - N50)	14	8
	22	FR - V540 - 22K	100AF 100A	100AF 75A	FR - BAL - H22K	FR - BEL - H22K	S - N50	22	14
	30	FR - V540 - 30K	225AF 125A	100AF 100A	FR - BAL - H30K	FR - BEL - H30K	S - N65	22	22
37	FR - V540 - 37K	225AF 150A	225AF 125A	FR - BAL - H37K	FR - BEL - H37K	S - N80	38	22	
45	FR - V540 - 45K	225AF 175A	225AF 150A	FR - BAL - H45K	FR - BEL - H45K	S - N80(S - N95)	38	38	
55	FR - V540 - 55K	225AF 200A	225AF 175A	FR - BAL - H55K	FR - BEL - H55K	S - N125	60	60	

1. NFB

- 20m
- (R1, S1) 0.75~2mm²
- () MC

PWM

$$I_{ga} = I_{g1} + I_{gn} + I_{g2} + I_{gm}$$

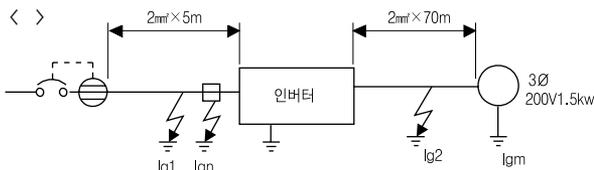
$$I_{n} \approx 10 \times I_{ga}$$

$$I_{gb} = I_{g1} + I_{gn} + 3 \times (I_{g2} + I_{gm})$$

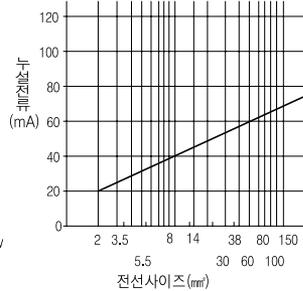
$$I_{n} \approx 10 \times I_{gb}$$

I_{g1}, I_{g2} :
I_{gn} :
I_{gm} :

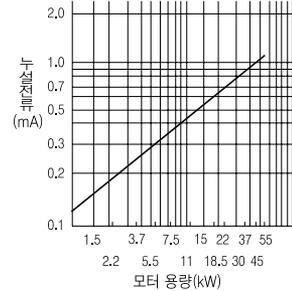
< >



CV케이블을 금속관에 배선한 경우의 전선로의 상용전원 운전시, 1km당 누설전류 예 (200V 60Hz)



3상 유도전동기의 상용전원 운전시, 누설전류 예 (200V 60Hz)



1. NV

- 가
- 가
- 가 C (10)
- ... BV - C1 , BC - V , NVB , NV - L , NV - G2N , NV - G3NA , NV - 2F , (NV - ZH) , 3 NV,
... NV - C - NV - S - MN , NV30 - FA, NV50 - FA, BV - C2, (NF - Z), NV - ZH

3 3

I _{g1} (mA)	20 × $\frac{5m}{1000m} = 0.10$	
I _{gn} (mA)	0(가)	
I _{g2} (mA)	20 × $\frac{70m}{1000m} = 1.40$	
I _{gm} (mA)	0.14	
I _{gm} (mA)	1.66(=I _{ga})	4.78(=I _{gb})
(I _n 10×)	30 16.6	100 47.8

		FR - V5AX	· 25 · (16) ⁶		
(Division)		FR - V5AY	· PLG ³⁷ (Division) ³ 가		
		FR - V5AP	· PLC() 가가 가		
		FR - V5AM	· (PLG) ()		
		FR - TRC50	· ()		
16		FR - V5AH	· 4 BCD 16		
SSCNET		FR - V5NS	·		
Ethernet		FR - V5NE	·		
12		FR - A5AX	· 3 BCD 12 · 가		
		FR - A5AY	· 37 · 3 · DA1 DA2 18 · DC20mA DC5V(10V)		
		FR - A5AR	· 37 3		
		FR - A5AP	· (PLG) ()		
		FR - A5NR	· PC - FA · 가 1		
Profibus DP		FR - A5NPA	·		
Device NET™		FR - A5ND	· PLC		
CC - Link		FR - A5NC	·		
(8)		FR - PU04V	LCD ()		
		FR - CB2 (2)	·		
PLG ()		FR - V5CBL (2)	· (SF - V5R) PLG .5m, 15m, 30m 가		
SSCNET		FR - V5NSCBL (2)	· Q172CPU, SSCNET 0.5m, 1m, 5m, 10m, 20m 가		
		Q172J2BCBL M(-B) (2)	· MR - J2 - B/MR - J2S - B · MR - J2 - 03B5, Q173DV SSCNET .0.5m, 1m, 5m 가		
		FR - A5CN (2)	·	1.5K~55K	
		FR - A5CV (2)	· (IP40) 가	1.5K~15K	
		FR - A5FN (2)	· IP20 가	18.5K~55K	
		FR - A5AT (2)	· FREQROL - V200 EXCELLENT FREQROL - V500	1.5K~7.5K, 15K	
		FR - ABR - (H) (1)(8)	·	1.5K~15K	
DC		FR - BEL - (H) (1)(8)	· (95%)	1.5K~55K	
AC		FR - BAL - (H) (1)(8)	· (90%)	1.5K~55K	
		FR - BIF - (H) (1)(8)	·		
		FR - BSF01	· (3.7kW)		
		FR - BLF	·		
BU		BU - 1500~15K, H7.5K~H30K	· UP ()		
		FR - BU - 15K~55K, H15K~H55K	· UP ()		
		FR - BR - 15K~55K, H15K~H55K	·		
		FR - CV - 7.5K(-AT)-55K, H7.5K(-AT)-H55K(7)	·		
FR - CV		FR - CVL - 7.5k~55K, H7.5K~H55K	· FR - CV		
		FR - HC - 7.5k~55K, H7.5K~H55K	· ()		
		FR - AX	·		
F		FR - AL	· (DC0~5V, 0~10V) (1.5VA)(3)		
3		FR - AT	· 3 (1.5VA)(3)		
		FR - FK	· 가 (5VA)(3)		
		FR - FH	· 5 가 (3VA)(3)		
		FR - FP	· (PG) (2VA)(3)		
		FR - FG	· (35) (5VA)(3)		
		FR - FC	· Soft Start/Stop 가 가 (3VA)(3)		
		FR - FD	· (5VA)(3)		
		FR - FA	· A/V (3VA)(3)		
		QVAH - 10	· AC70V/35V 500Hz(2500r/min)		
		YVGC - 500W - NC	· () AC90V/90,		
		WA2W 1k	· 2W 1k B		
		FR - SW1 - SETUP - WJ	·		

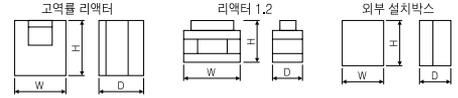
() 1. 5. 3 가 (1 1)
 2. 6. (IP00)
 3. 7. - AT 37k 가 , - AT
 4. FR - F AC200V 50Hz 8. 400 V 「H」가
 AC200V/220V 60Hz, AC115V 60Hz가 9. FR - A AC200V 50Hz, AC200/220V 60Hz가

FR-HC

가 K5=0

가 (: mm)

		FR-HC			FR-HCL01			FR-HCL02			FR-HCB		
		W	H	D	W	H	D	W	H	D	W	H	D
200V	7.5K	220	300	190	160	155	100	240	230	160	190	320	165
	15K	250	400	190	190	205	130	260	270	170			
	30K	340	550	195	220	230	170	340	320	180	270	450	203
	55K	480	700	250	210	260	225	430	470	360			
400V	7.5K	220	300	190	160	150	100	240	220	160	190	320	165
	15K	250	400	190	190	195	130	260	260	170			
	30K	340	550	195	220	215	140	340	310	180	270	450	203
	55K	480	700	250	280	255	190	400	380	285			



가
가
가
FR-HC
FR-HCB가
1FR-HCL01,
2FR-HCL02,

FR-HC-		200V				400V			
()		7.5K	15K	30K	55K	7.5K	15K	30K	55K
		3.7kW~7.5kW	7.5kW~15kW	15kW~30kW	30kW~55kW	3.7kW~7.5kW	7.5kW~15kW	15kW~30kW	30kW~55kW
(A)		3 200V~220V 50Hz 200V~230V 60Hz				3 380V~460V			
		33	61	115	215	17	31	57	110
	(kg)	8	15	29	70	9	16	35	72
	(1,2) (kg)	20.8	31.2	57.6	96.6	23.7	32.4	51.8	92.4

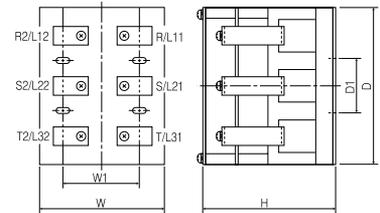
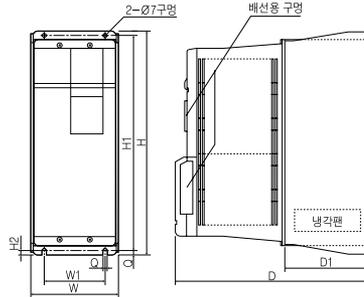
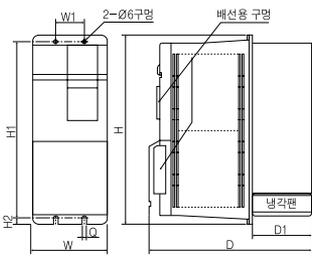
FR-CV

100% 가 , 가 . (150% 60s)

FR-CV-□(4)

FR-CV-□-AT(4)

FR-CVL-□(4)



	W	W1	D	D1	H	H1	H2	Q
7.5K/11K	90	-	303	103	300	280	10	6
15K H7.5K/H11K/H15K	120	-	305	105	300	280	10	6
22K/30K H22K/H30K	150	60	322	122	380	360	10	6
37K/55K H37K/H55K	400	310	250	135	620	590	15	10

	W	W1	D	D1	H	H1	H2	Q
7.5K/11K	110	60	315	115	330	314	8	6
15K H7.5K/H11K/H15K	130	90	320	120	330	314	8	6
22K/30K H22K/H30K	160	120	302	122	410	396	7	7

	W	W1	D	D1	H
7.5K	130	82	165	55	155
11K	130	75	165	55	155
15K	130	105	165	55	155
22K	140	110	165	55	155
30K	160	120	215	70	170
37K	320	120	220	-	200
55K	335	135	250	-	225
H7.5K	135	88	220	200	200
H11K	135	98	220	200	200
H15K	135	98	220	200	205
H22K	150	113	220	200	215
H30K	185	125	245	225	220
H37K	230	125	245	225	265
H55K	230	138	290	270	280

- ()1. 가
1 FR-V500-7.5K FR-CV-11K가
2. FR-CV-H7.5-AT
3. FR-CV 37
4. □

BU

		(kW)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
200V	50%30S	BU - 1500	BU - 3700		BU - 7.5K		BU - 15K		2×BU - 15K		3×BU - 15K		4×BU - 15K		
	100%30S	BU - 3700	BU - 7.5K		BU - 15K		2×BU - 15K		3×BU - 15K		4×BU - 15K		5×BU - 15K		
400V	50%30S	BU - H7.5K				BU - H15K		BU - H30K		BU - H30K		2×BU - H30K		3×BU - H30K	
	100%30S	BU - H7.5K		BU - H15K		BU - H30K		2×BU - H30K		3×BU - H30K		4×BU - H30K			

400V 1.5K 2.2K

				(P, N)
BU - 1500	300W	50	1	2 mm
BU - 3700	300W	10	3	2 mm
BU - 7.5K	450W	5	4	3.5 mm
BU - 15K	600W	2	6	3.5 mm
BU - H7.5K	300W	10	6	2 mm
BU - H15K	450W	5	8	3.5 mm
BU - H30K	600W	2	12	3.5 mm

FR-BU

FR-BR

100%

%ED

		200V	400V	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW
200V	FR - BU - 15K	80	40	15	10	-	-	-	-	-	-	-	-
	FR - BU - 30K	-	-	65	30	25	15	10	-	-	-	-	-
	FR - BU - 55K	-	-	-	90	60	30	20	15	10	-	-	-
400V	FR - BU - H15K	80	40	15	10	-	-	-	-	-	-	-	-
	FR - BU - H30K	-	-	65	30	25	15	10	-	-	-	-	-
	FR - BU - H55K	-	-	-	90	60	30	20	15	10	-	-	-

10%ED 15s

(%)

		200V	400V	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW
200V	FR - BU - 15K	280	200	120	100	80	70	-	-	-	-	-	-
	FR - BU - 30K	-	-	260	180	160	130	100	80	70	-	-	-
	FR - BU - 55K	-	-	-	300	250	180	150	120	100	-	-	-
400V	FR - BU - H15K	280	200	120	100	80	70	-	-	-	-	-	-
	FR - BU - H30K	-	-	260	180	160	130	100	80	70	-	-	-
	FR - BU - H55K	-	-	-	300	250	180	150	120	100	-	-	-

		FR - BR - 15K	FR - BR - 30K	FR - BR - 55K
200V	FR - BU - 15K	3.5 mm	5.5 mm	14 mm
	FR - BU - 30K			
	FR - BU - 55K			
400V	FR - BU - H15K	3.5 mm	3.5 mm	5.5 mm
	FR - BU - H30K			
	FR - BU - H55K			

() 1.

100 가

()

2. P/+, N/-

P/+, N/-

3. 5m

(

10m

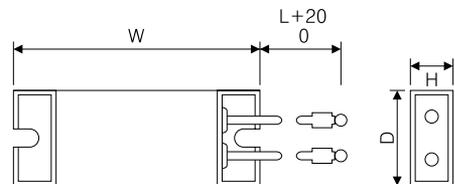
)

4. 5.5K

FR - BU

PR - PX

		(3)	W	D	H	L	()	(kg)
200V	FR - ABR - 2.2K(1)	10%	240	50	26	500	60	0.5
	FR - ABR - 3.7K	10%	215	61	33	500	40	0.7
	FR - ABR - 5.5K	10%	335	61	33	500	25	1.5
	FR - ABR - 7.5K	10%	400	80	40	500	20	2.8
	FR - ABR - 11K	6%	400	100	50	700	13	3.5
	FR - ABR - 15K(5)	6%	300	100	50	700	18/2	2.4
400V	FR - ABR - H1.5K	10%	215	40	21	500	350	0.3
	FR - ABR - H2.2K	10%	240	50	26	500	250	0.5
	FR - ABR - H3.7K	10%	215	61	33	500	150	0.7
	FR - ABR - H5.5K	10%	335	61	33	500	110	1.5
	FR - ABR - H7.5K	10%	400	80	40	500	75	2.8
	FR - ABR - H11K	6%	400	100	50	700	52	3.2
FR - ABR - H15K(5)	6%	300	100	50	700	18×2	2.4	



() 1. 1.5K, 2.2K

2. FR - ABR

5.5k

PR - PX

가

3.

4.

가 360

가

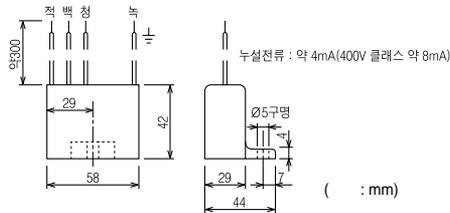
5. FR - ABR - 15K 2

FR - ABR - H15K 2

1

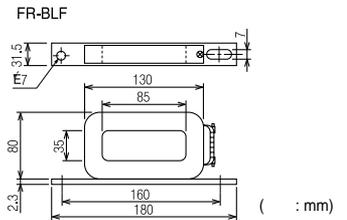
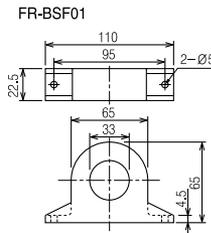
6.

<FR-BIF(-H)>



- () 1. 가
 2. MC 1 (E, UVT) 2. MC ON OFF
 3. 3 3 1
 4.

<FR-BSF01, FR-BLF>



- () 1. 가) 3 (4T)
 2. 4
 3.) 3 (4T)
 4. FR-BSF01 3.7K (38mm) , FR-BLF

EMC SF ()

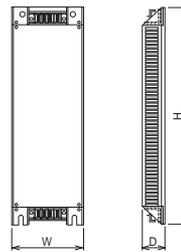
EMC

					(kg)	(mA)	
		W	H	D			
200V	SF1259	FR - V520 - 1.5K/2.2K	142	410	65	2.4	33
	SF1260	FR - V520 - 3.7K~7.5K	222	468	80	5	440
	SF1261	FR - V520 - 11K	253	600	86	9.3	71
	SF1262	FR - V520 - 15K/18.5K	303	650	86	11	71
	SF1263	FR - V520 - 22K	327	730	86	15	71
	SF1265	FR - V520 - 30K~55K	468	913	110	22	1500

					(kg)	(mA)	
		W	H	D			
400V	SF1197	FR - V540 - 1.5K/2.2K	144	360	47.5	1.5	57
	SF1174B	FR - V540 - 3.7K/5.5K	213	360	38	1.8	51
	SF1175	FR - V540 - 7.5K/11K	253	530	60	4.7	76
	SF1176	FR - V540 - 15K/18.5K	303	600	60	5.9	108
	SF1177	FR - V540 - 22K	327	700	80	9.4	156
	SF1178	FR - V540 - 30K/37K	450	770	80	16	156
	SF1179	FR - V540 - 45K/55K	467	920	80	19	156

- () (FR - V520 - 11K, 18.5K~55K, FR - V540 - 7.5K~55K) 가

1. 가
 2. 가 ()
 1. 가
 () , 3 3 3 3 가



FREQROL - V200

<FR-A5AT>

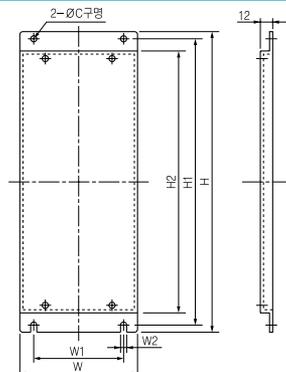
FREQROL - V200

FREQROL - V500

	가	
	FR - V520	FR - V540
FR - A5AT02	1.5K, 2.2K	1.5K, 2.2K
FR - A5AT03	3.7K, 5.5K, 7.5K	3.7K, 5.5K
FR - A5AT04	15K	15K, 18.5K

(: mm)

	W	W1	W2	H	H1	H2	C
FR - A5AT02	150	125	5	300	285	260	6
FR - A5AT03	220	195	6	300	285	265	6
FR - A5AT04	300	280	10	450	430	404	10



DC <FR-BEL-(H) K>

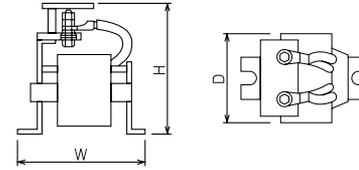
FR-BEL(-H)
가

FR-BAL

가
95%

(: mm)

	W	D	H	(kg)		W	D	H	(kg)	
200V	1.5K	130	65	110	1.1	H1.5K	130	63	89	0.9
	2.2K	130	65	110	1.2	H2.2K	130	63	101	1.1
	3.7K	150	75	102	1.7	H3.7K	150	75	102	1.7
	5.5K	150	75	126	2.2	H5.5K	150	75	124	2.2
	7.5K	150	75	126	2.3	H7.5K	150	75	124	2.3
	11K	170	93	132	3.1	H11K	170	93	132	3.1
	15K	170	93	170	3.8	H15K	170	93	160	3.7
	18.5K	185	94	184	5.1	H18.5K	185	94	173	4.8
	22K	185	119	182	5.4	H22K	185	119	171	5.0
	30K	185	119	201	6.7	H30K	185	119	189	6.7
	37K	195	136	215	7.4	H37K	195	136	199	7.0
	45K	195	136	215	8.0	H45K	195	138	219	8.6
	55K	195	136	246	9.8	H55K	195	138	219	9.0



- () 1.
- () 2.
- () 3.
- () 4.

AC <FR-BAL-(H) K>

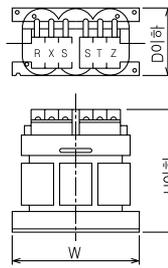
FR-BAL(-H)
가

90%

가

(: mm)

	W	D	H	(kg)		W	D	H	(kg)	
200V	1.5K	160	71	140	3.7	H1.5K	160	87	140	4.7
	2.2K	160	91	140	5.6	H2.2K	160	91	140	4.8
	3.7K	220	90	192	8.5	H3.7K	220	90	190	7.7
	5.5K	220	96	192	9.5	H5.5K	220	96	192	9.5
	7.5K	220	120	194	14.5	H7.5K	220	120	192	12
	11K	280	135	220	19	H11K	280	130	226	18.5
	15K	295	133	275	27	H15K	295	130	244	26
	22K	290	199	235	35	H22K	290	199	263	29
	30K	290	219	295	43	H30K	290	219	284	42.5
	37K	330	235	300	50	H37K	330	219	298	50
	45K	330	235	350	60	H45K	330	219	330	59
	55K	330	240	350	70	H55K	330	219	330	64



- () 1.

<FR-A5CV>

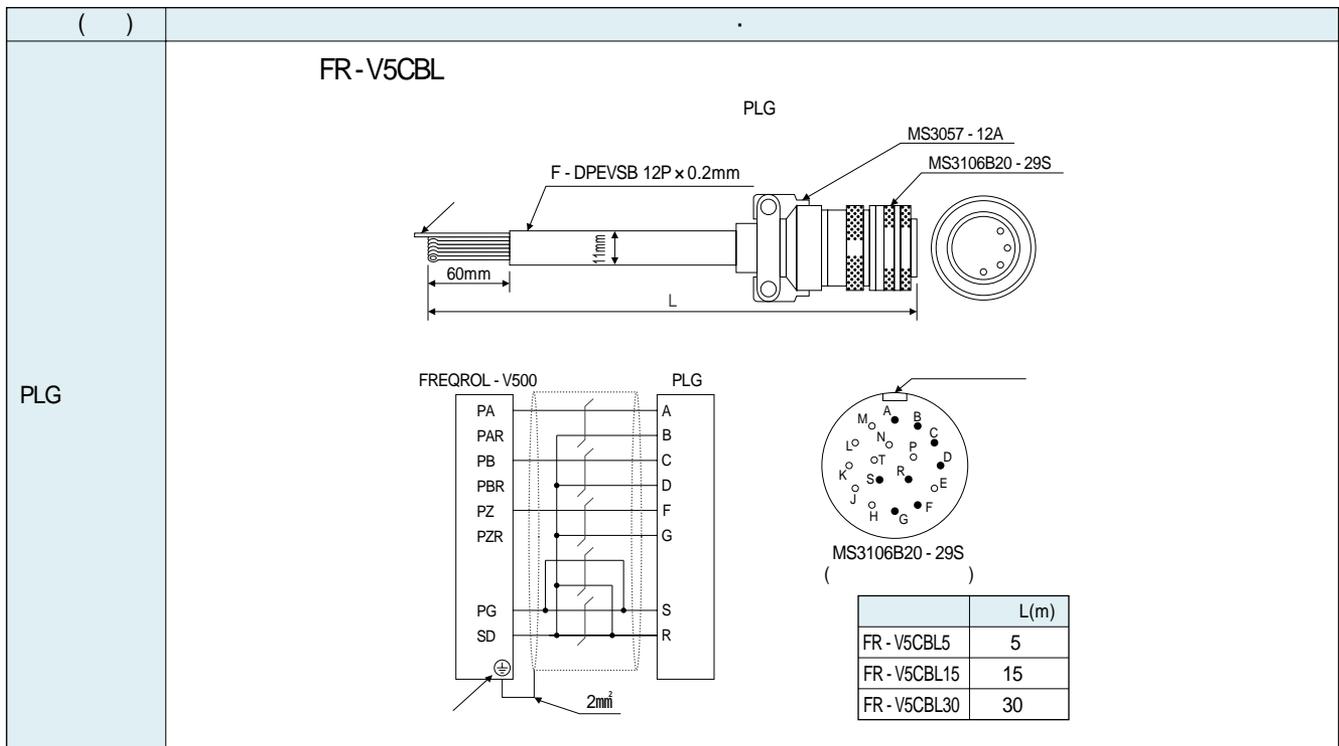
(Slits)

(IP40)

	FR - A5CV01		FR - A5CV02	
	1.5K-7.5K	11K/15K	1.5K-5.5K	7.5K-18.5K
FR - V520				
FR - V540				

<FR-A5FN>

	FR - A5FN01		FR - A5FN02		FR - A5FN03		FR - A5FN04		FR - A5FN05	
	22K	30K/37K	45K	18.5K	55K	-	55K			
FR - V520										
FR - V540										

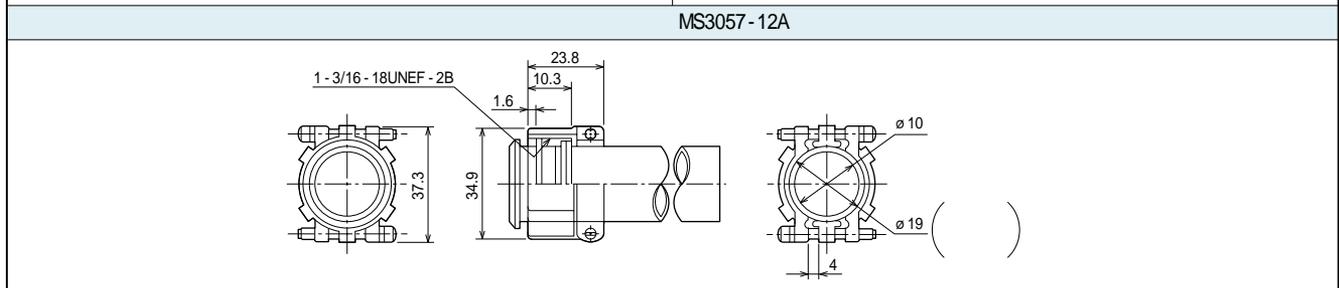
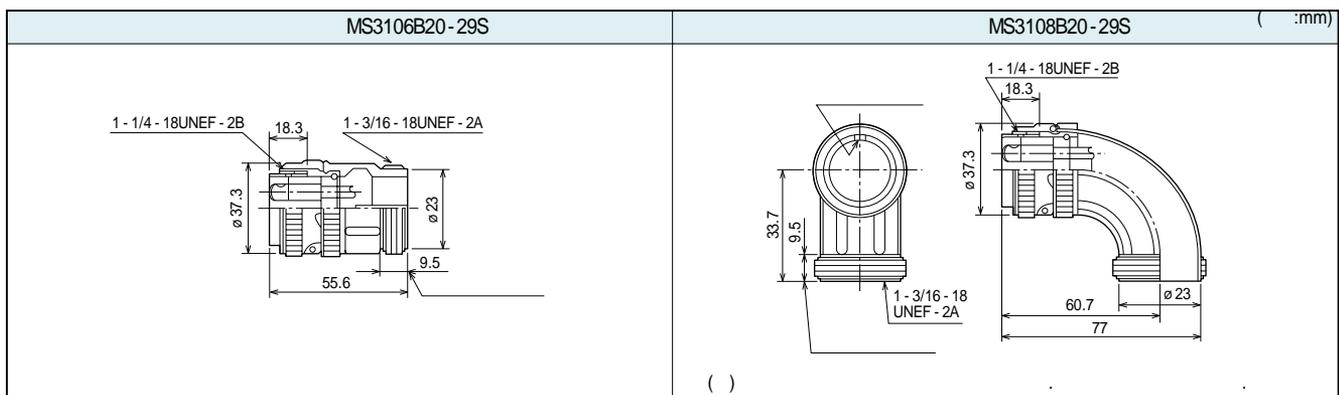


() 1. FR - VCBL/JCBL M3 M3.5 가 M3 FREQROL - V500
2. 30m

	PLG	0.2mm	
5m	FR - V7CBL5	2	0.4mm ²
10m	FR - V7C BL15	2	
15m		4	
20m	FR - V7C BL30	4	0.75mm ²
30m		6	
50m			6
100m			

- 「PG」 「SD」 PLG

PLG () ()



SSCNET

* 가, SSCNET
Ferrite core
1

		(m)		
	FR - V5NSCBL	0.5, 1, 5, 10, 20	UL20276 AWG#28 7pair()	Q172CPUN FR - V5NS FR - V5NS FR - V5NS
	Q172J2BCBL M(- B)	0.5, 1, 5	UL20276 AWG#28 7pair()	Q172CPUN/FR - V5NS MR - J2 - B/ MR - J2S - B MR - J2 - 03B5 Q173DV FR - V5NS
	Q172H2BCBL M(- B)			Q172CPUN/FR - V5NS MR - H - BN
	Q173DVCBL M	0.5, 1	UL20276 AWG#28 13pair()	Q173CPUN Q173DV

● OS

	Q CPU	
	Q173CUPN	Q172CUPN
	32	8
(SV13)	SW6RN - SV13QB	SW6RN - SV13QD
(SV22)	SW6RN - SV22QA	SW6RN - SV22QC
(SV43)	SW5RN - SV43QA	SW5RN - SV43QC

(SV13)	SW6RN - GSV13P
(SV22)	SW6RN - GSV22P
	SW3RN - CAMP
(SV43)	SW6RN - GSV43P
	SW6RN - DOSCP

A
CPU , OS,

(2004 8)

				()
RS232C 485	FA - T - RS40	()	PC	03 - 3288 - 1743
	DAFXIH - CAB DINV - 485CAB	()	(PC)	06 - 4705 - 2100
	DINV - CABV	()	()	
	5 - 554720 - 3	()	RJ45	044 - 844 - 8013
	SGLPEV 0.5mm x 4P	()	EIA568 (10BASE - T)	03 - 3216 - 1566
RS - 485	BMJ - 8	() / 光	RS - 485 PU	03 - 5614 - 7585

					()
	200V	BEM - A - 58	200V	()	: 1.5~3.7K(**)
	400V	BEM - A - 68	400V		: 90~132Fr
	200V	HD - 110M3	200V	()	: 5.5~55K(**)
	400V(*)				: 160~225Fr

() 가 , 가
 (*) : 400V
 (**) : 1500r/min

1 (NFB)

1 (NFB) 23 ()
 NFB 가 2

1 (STF STR)
 1 MC MC
 10 MC
 ,1 MC 가
 ,1 가

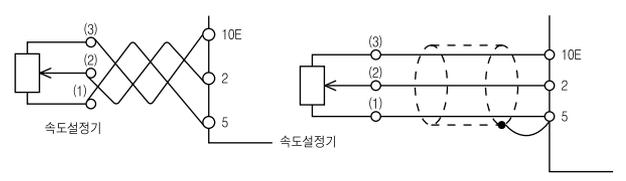
2 OFF ON
 가 가

(OCR)
 0A 1.0 60Hz 1.1 50Hz
 (27) 가 (加味)

2 CT가 가

()
 가 가 가 , DC

가
 가 2% 가
 가 20m 23
 가 100m 가 ()
 30m
 5



가

FR-CV

FREQROL - V500

FREQROL - V500 (K)	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45
FREQROL - CV FREQROL - V500 (K)	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55

: FR - V520 - 7.5K FR - V520 - 15K 11K FR - CV
 FR - V520 - 7.5K 18.5K FR - CV
 FR - V520 - 15K 11K+18.5K = 29.5K FR - CV - 30K

200V	1.5K	FR - V520 - 1.5K	
	2.2K	FR - V520 - 2.2K	
	3.7K	FR - V520 - 3.7K	
	5.5K	FR - V520 - 5.5K	
	7.5K	FR - V520 - 7.5K	
	11K	FR - V520 - 11K	
	15K	FR - V520 - 15K	
	18.5K	FR - V520 - 18.5K	
	22K	FR - V520 - 22K	
	30K	FR - V520 - 30K	
	37K	FR - V520 - 37K	
	45K	FR - V520 - 45K	
	55K	FR - V520 - 55K	
	400V	1.5K	FR - V540 - 1.5K
		2.2K	FR - V540 - 2.2K
		3.7K	FR - V540 - 3.7K
		5.5K	FR - V540 - 5.5K
		7.5K	FR - V540 - 7.5K
		11K	FR - V540 - 11K
		15K	FR - V540 - 15K
18.5K		FR - V540 - 18.5K	
22K		FR - V540 - 22K	
30K		FR - V540 - 30K	
37K		FR - V540 - 37K	
45K		FR - V540 - 45K	
55K		FR - V540 - 55K	
200V	1.5kW	SF - V5RU1K	
	2.2kW	SF - V5RU2K	
	3.7kW	SF - V5RU3K	
	5.5kW	SF - V5RU5K	
	7.5kW	SF - V5RU7K	
	11kW	SF - V5RU11K	
	15kW	SF - V5RU15K	
	18.5kW	SF - V5RU18K	
	22kW	SF - V5RU22K	
	30kW	SF - V5RU30K	
	37kW	SF - V5RU37K	
	45kW	SF - V5RU45K	
	55kW	SF - V5RU55K	
	400V	1.5kW	SF - V5RUH1K
		2.2kW	SF - V5RUH2K
		3.7kW	SF - V5RUH3K
		5.5kW	SF - V5RUH5K
		7.5kW	SF - V5RUH7K
11kW		SF - V5RUH11K	
15kW		SF - V5RUH15K	
18.5kW		SF - V5RUH18K	
22kW		SF - V5RUH22K	
30kW		SF - V5RUH30K	
37kW		SF - V5RUH37K	
45kW		SF - V5RUH45K	
55kW		SF - V5RUH55K	

	FR - V5AX
	FR - V5AY
	FR - V5AP
	FR - V5AM
	T - TRC50
16	FR - V5AH
SSCNET	FR - V5NS
Ethernet	FR - V5NE
12	FR - A5AX
	FR - A5AY
	FR - A5AR
. PLG .	FR - A5AP
	FR - A5NR
Profibus - DP	FR - A5NPA
Device Net™	FR - A5ND
CC - Link	FR - A5NC

8		FR - PU04V	
		FR - A5CN01	
		FR - A5CN02	
		FR - A5CN04	
		FR - A5CN05	
		FR - A5CN06	
		FR - A5CN07	
		FR - A5CN08	
		FR - A5CV01	
		FR - A5CV02	
		FR - A5FN01	
		FR - A5FN02	
		FR - A5FN03	
		FR - A5FN04	
		FR - A5FN05	
		FR - A5AT02	
		FR - A5AT03	
		FR - A5AT04	
	EMC	200V	SF1259
			SF1260
SF1261			
SF1262			
SF1263			
400V		SF1265	
		SF1197	
		SF1174B	
		SF1175	
		SF1176	
200V	FR - ABR - 2.2K		
	FR - ABR - 3.7K		
	FR - ABR - 5.5K		
	FR - ABR - 7.5K		
	FR - ABR - 11K		
	FR - ABR - 15K		
	FR - ABR - H1.5K		
	FR - ABR - H2.2K		
	FR - ABR - H3.7K		
	FR - ABR - H5.5K		
400V	FR - ABR - H7.5K		
	FR - ABR - H11K		
	FR - ABR - H15K		
	FR - BEL - 1.5K		
	FR - BEL - 2.2K		
	FR - BEL - 3.7K		
	FR - BEL - 5.5K		
	FR - BEL - 7.5K		
	FR - BEL - 11K		
	FR - BEL - 15K		
200V	FR - BEL - 18.5K		
	FR - BEL - 22K		
	FR - BEL - 30K		
	FR - BEL - 37K		
	FR - BEL - 45K		
	FR - BEL - 55K		
	FR - BEL - H1.5K		
	FR - BEL - H2.2K		
	FR - BEL - H3.7K		
	FR - BEL - H5.5K		
400V	FR - BEL - H7.5K		
	FR - BEL - H11K		
	FR - BEL - H15K		
	FR - BEL - H18.5K		
	FR - BEL - H22K		
	FR - BEL - H30K		
	FR - BEL - H37K		
	FR - BEL - H45K		
	FR - BEL - H55K		
	FR - BEL - H55K		
DC		FR - BEL - H11K	
		FR - BEL - H15K	
		FR - BEL - H18.5K	
		FR - BEL - H22K	
		FR - BEL - H30K	
		FR - BEL - H37K	
		FR - BEL - H45K	
		FR - BEL - H55K	
		FR - BEL - H55K	
		FR - BEL - H55K	

AC	200V	FR - BAL - 1.5K	
		FR - BAL - 2.2K	
		FR - BAL - 3.7K	
		FR - BAL - 5.5K	
		FR - BAL - 7.5K	
		FR - BAL - 11K	
		FR - BAL - 15K	
		FR - BAL - 22K	
		FR - BAL - 30K	
		FR - BAL - 37K	
		FR - BAL - 45K	
		FR - BAL - 55K	
		400V	FR - BAL - H1.5K
			FR - BAL - H2.2K
	FR - BAL - H3.7K		
	FR - BAL - H5.5K		
	FR - BAL - H7.5K		
	FR - BAL - H11K		
	FR - BAL - H15K		
	FR - BAL - H22K		
	FR - BAL - H30K		
	FR - BAL - H37K		
	FR - BAL - H45K		
	FR - BAL - H55K		
	200V		FR - BIF
	400V		FR - BIF - H
		FR - BSF01	
		FR - BLF	
FR - CB201			
	FR - CB203		
	FR - CB205		
	BU	200V	BU - 1500
BU - 3700			
BU - 7.5K			
BU - 15K			
400V		BU - H7.5K	
BU - H15K			
BU - H30K			
	GRZG300W		
	GRZG200(3)		
	GRZG300(4)		
	GRZG400(6)		
FR - BU	200V	FR - BU - 15K	
		FR - BU - 30K	
		FR - BU - 55K	
	400V	FR - BU - H15K	
		FR - BU - H30K	
		FR - BU - H55K	
FR - BU	200V	FR - BR - 15K	
		FR - BR - 30K	
		FR - BR - 55K	
	400V	FR - BR - H15K	
		FR - BR - H30K	
		FR - BR - H55K	
PLG	5m	FR - V5CBL5	
	15m	FR - V5CBL15	
	30m	FR - V5CBL30	
SSCNET	0.5m	FR - V5NSCBL005	
	1m	FR - V5NSCBL01	
	5m	FR - V5NSCBL05	
	10m	FR - V5NSCBL10	
	20m	FR - V5NSCBL20	
	0.5m	Q172J2BCBL005M	
	1m	Q172J2BCBL01M	
	5m	Q172J2BCBL05M	
	0.5m	Q172J2BCBL005M - B	
	1m	Q172J2BCBL01M - B	
5m	Q172J2BCBL05M - B		

FR - CV	200V	FR - CV - 7.5K	
		FR - CV - 11K	
		FR - CV - 15K	
		FR - CV - 22K	
		FR - CV - 30K	
		FR - CV - 37K	
		FR - CV - 55K	
		400V	FR - CV - 7.5K - AT
			FR - CV - 11K - AT
			FR - CV - 15K - AT
			FR - CV - 22K - AT
			FR - CV - 30K - AT
			FR - CV - H7.5K
			FR - CV - H11K
	FR - CV	200V	FR - CV - H15K
			FR - CV - H22K
			FR - CV - H30K
			FR - CV - H37K
			FR - CV - H55K
			FR - CV - H7.5K - AT
			FR - CV - H11K - AT
		400V	FR - CV - H15K - AT
			FR - CV - H22K - AT
			FR - CV - H30K - AT
			FR - CV - H37K - AT
			FR - CV - H55K - AT
			FR - CV - H7.5K
			FR - CV - H11K
FR - CV	200V	FR - CVL - 7.5K	
		FR - CVL - 11K	
		FR - CVL - 15K	
	400V	FR - CVL - 22K	
		FR - CVL - 30K	
		FR - CVL - 37K	
FR - CV	200V	FR - CVL - 55K	
		FR - CVL - H7.5K	
		FR - CVL - H11K	
	400V	FR - CVL - H15K	
		FR - CVL - H22K	
		FR - CVL - H30K	
FR - CV	200V	FR - CVL - H37K	
		FR - CVL - H55K	
		FR - CVL - H7.5K - AT	
	400V	FR - CVL - H11K - AT	
		FR - CVL - H15K - AT	
		FR - CVL - H22K - AT	
FR - CV	200V	FR - CVL - H30K - AT	
		FR - CVL - H37K - AT	
		FR - CVL - H55K - AT	
	400V	FR - CVL - H7.5K	
		FR - CVL - H11K	
		FR - CVL - H15K	
FR - HC	200V	FR - HC - 7.5K	
		FR - HC - 15K	
		FR - HC - 30K	
	400V	FR - HC - 55K	
		FR - HC - H7.5K	
		FR - HC - H15K	
FR -	3	FR - HC - H30K	
		FR - HC - H55K	
		FR - AX	
	FR - AL		
	FR - AT		
	FR - FK		
FR - FH			
FR - FP			
FR - FG			
FR - FC			
FR - FD			
FR - FA			
QVAH - 10			
YVGC - 500W - NS			
WA2W 1k			
(MR - Configurator)	FR - SW1 - SETUP - WJ		

,가

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