

가

Agilent DC

654xA. 655xA. 657xA

664xA, 665xA. 667xA, 668xA



Agilent Technologies

Agilent

5961-5163

Microfiche

5961-xxxx

2000 6

가

1 .()
LED IEC 825-1 Class1 LED

가

II, 2

가

가

가

()
가

3-

ac

()

가

가

가 ac () ()

(normal, blow, time delay)

가

가

가

가

가

5.0mA



()

가

가



가



() 가



가

1.

654xA	200W	Agilent 6541A, 6542A, 6543A, 6544A, 6545A		가
664xA	200W	Agilent 6641A, 6642 A, 6643A, 6644A, 6645A	GPIB	가
655xA	500W	Agilent 6551A, 6552A, 6553A, 6554A, 6555 A		가
665xA	500W	Agilent 6651A, 6652A, 6653A, 6654A, 6655A	GPIB	가
657xA	2000W	Agilent 6571A, 6572A, 6573A, 6574A 6575A		가
667xA	2000W	Agilent 6671A, 6672A, 6673A, 6674A, 6675A	GPIB	가
668xA	500W	Agilent 6680 A, 6681A, 6682A, 6673A, 6674A	GPIB	가

가

2.

*Operating Manual for 654xA,655xA,and 657xA Supplies	5959-3374
*Operating Guide for Series 664xA.665xA,667xA and 668xA Supplies	5961-2579
*Programming Guide for Series 664xA,665xA,667xA, and 668xA Supplies	5960-5597
**Service Manual for Series 654xA. 655xA,664xA and 665xA Supplies	5959-3376
** Service Manual for Series 657xA and 657xA Supplies	5961-2583
* . ** 910 가	

3.

		654xA 664xA	655xA 665xA	657xA 667xA	668xA
100	100VAC, .	X	X		
200	200VAC, .			X	
220	220VAC, .	X	X		
230	230VAC, .	X	X		
240	240VAC, .	X	X		
400	360-400VAC , 3 .				X
601					X
602					X
831	, 12AWG, UL listed. CSA , .			X	
832	,4mm ² . harmonized. .			X	
834	, 10AWG. UL listed.CSA .			X	
841	, 12 AWG UL listed, CSA NEMA 6-20P 20A/250V .			X	
842	, 4mm ² , harmonized, IEC 309 32A/220V			X	

Installing the Power Supply

3. ()

		654xA 655xA	655xA 665xA	657xA 667xA	668xA
843	. 12 AWG UL listed. CSA JIS C8303 25A/250V			X	
844	. 10 AWG UL listed. CSA NEMA L6-30P 20A/250V			X	
861	. 10 AWG 300V. UL listed,4-				X
862	2.5mm ² .450V. 4- .harmonized,				X
908	(Agilent 5062-3974). (Agilent 5062-3977). (Agilent 5062-3974+5062-3977).	X	X	X	X
909	(Agilent 5062-3974) (Agilent 5062-3977) (Agilent 5062-3974+5062-3977)	X	X	X	X
910		X	X	X	X

4

가

4.

	Agilent 654xA,664xA, 655xA,665xA	Agilent 657xA,667xA,	Agilent 668xA,
	40°C~55 °C 0°C~40 °C	0°C~55 °C	40°C~55 °C 0°C~55 °C
	CSA 22.2 NO.231 ; IEC348 ; UL 1244, IEC 1010		
RFI	CISPR-11		

가

25mm

668xA

601(3)

(908 909)

가 1 3-

가

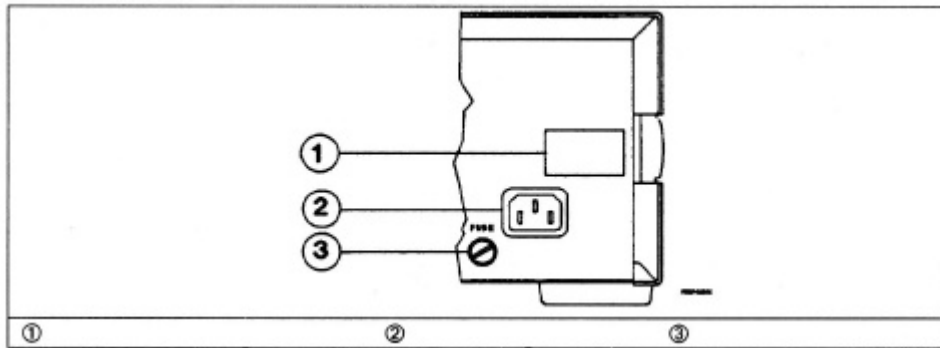


(1)

654xA, 655xA, 664xA 665xA

5a

가 1a



1a. 654xA, 655xA, 664xA, 665xA

Table 5a. - Series 654xA, 655xA, 664xA 665xA

	654xA/664xA	655xA/665xA
AC (rms):		
.120 VAC (-13%+6%)	3.8A	10A
100,100VAC (-13%+6%)	4.4A	12A
220,220VAC (-13%+6%)	2.2A	5.7A
230,230VAC (-13%+6%)	2.1A	5.5A
240,240VAC (-13%+6%)	2.0A	5.3A
:	47-63Hz	
:	480VA, 400W; 60W	1380VA, 1100W; 120W

Installing the Power Supply

657xA 667xA



3

5b

가

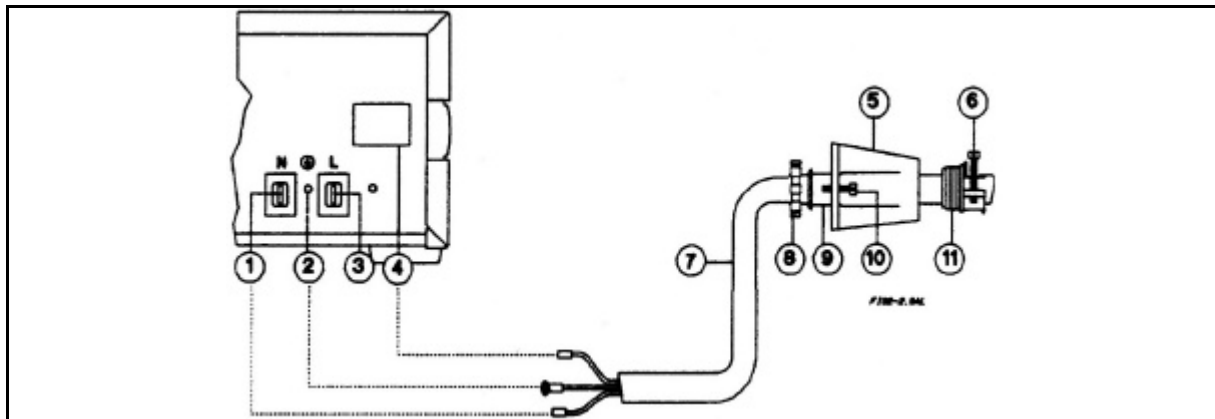
1b

5b.

657xA, 667xA

AC (rms): 200VAC ¹ (174-220VAC) 230VAC (191-250VAC)	19A 19A
	47-63Hz
	3800VA: 2600W: 100W

¹185 VAC



1- ()	A.
2- (/)	B
3- ()	C N
4-	L
5-	D
6-	E
7- (3)	
8-	
9-	
10-	
11-	

1b. 657xA 667xA

668xA

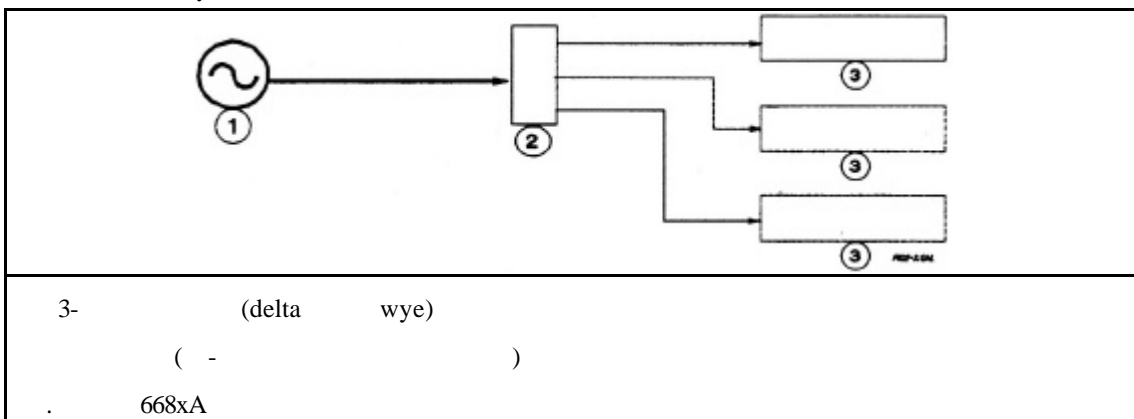


3
가 5c 가
lc 3- (delta
wye)
668xA 가

5c. - 668xA

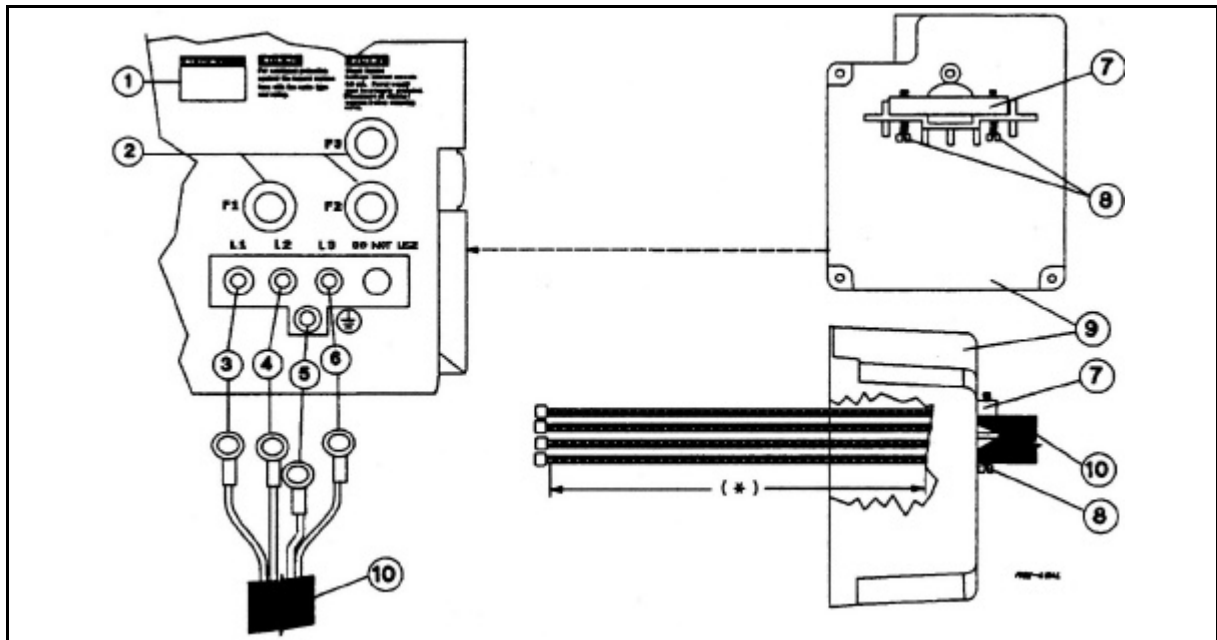
AC (rms):	
1 (180-235VAC)	21.4A(27 A) ¹
2 (360-440VAC)	10.7A(14.4) ¹
	47-63Hz ²
	7350VA: 6000W: 160W
¹ 5%	
² 1 53Hz	200Vac 100% 180Vac 95%

가 ()



1c. 668xA

Installing the Power Supply



1-			
2-		a.	(7) (10)
3-	1	b.	(8)
4-	2	c.	1(3) L1 .
5-		d.	2(4) L2 .
6-	3	e.	3(6) L3 .
7-		f.	(5)
8-		g.	(9)
9-			
10-			

* 가 , 가 100mm

1d. 668xA

 "DO NOT USE"



Shift

Recall

6.

Addr	가 (Listen) (talk) ^{1.}
Cal	가 ^{2.}
CC	가
Check Fuses	(668xA) 가
CV	-
Dew	(668xA) 가
Dis	
Err	가 ^{1.}
OC	
OCP	가 가
OV	
Prot	가
Rmt	가 ^{1.}
Shift	()
SRQ	가 ^{1.}
Unr	가 (CV CC 가).
¹ GPIB	(1)
²	

EEPROM

0

가

(* RST)

가

0

가

.(

)

Connections

654xA, 655xA, 664xA, 665xA

7a. 654xA, 655xA, 664xA, 665xA

0	LINE	가 Off(0)	.	
1			가	
2		(3. 1a)	.	
3	가	(1. 1a)	.	
4				
5	SENSE	(4. 2a)가 Local	.	
6		(+) (-) (2. 2a)	.	
7				
8		On(1)	.	
9		(가 가)	.	
10	가		(LCD)	:
	654xA, 655xA:	(*****)	가	.
	664xA, 665xA:	GPIB (ADDR 5)	가	.(
	VOLTS AMPS 가	.)	
	:	가	,	“
	”	.		
11		VOLTS AMPS 가 0	.	Dis
12	output/off	.	Dis가 CV가	.

657xA 667xA

7b. 657xA 667xA

0	LINE	가 Off(0)	.	
1		(4. 1b)	가	
2		(1. 2b)	.	
3		(657xA) (667xA)	(10.	
	2b)	가	,	(AWG #22
)	.		
4				
5				
6		On(1)	.	
7		(가 가)	.	
8	가		(LCD)	.
	657xA:	(*****)	PWR ON INIT	가
	667xA:	GPIB (ADDR 5)	PWR ON INIT	가
	(VOLTS AMPS 가	.)	
	:	가	,	
	“	”	.	
9		VOLTS AMPS 가 0	.	Dis
10	Output on/off	.	Dis가 CV가	.

668xA

7c. 668xA

0	LINE 가 Off(0)
1	(x. 1c) 가
2	(X. 1c) 가
3	(x. xc) (10. 2b) 가 (AWG #22)
4	가
5	
6	On(1)
7	Check Fuses Dew LED , “
8	가 (LCD) a. (*****) GPIB 가 b. PWR On INIT 가 10 667xA GPIB c. Dis 가 (VOLTS AMPS 가) : 가 “
9	가
10	Output on/off . Dis 가 CV가

()

Table 8.

Dis가	Output on/off	
Voltage	VOLT 0.000	CC 가 CV 가 Current (CC CV가 가)
4	VOLT4	4
Enter	4.000	가 () AMPS
Voltage		가 millivolts millivolts (11)
Voltage		가 milivolts
Voltage		Voltage Voltage
Voltage 4 Enter	4.000	40
OV		가 OVP() (11)
3	OV 3	OVP 3
Enter	0.000	OVP 0 , CV OVP 가 , Prot 가

Connections

Protect	OV_-----	OVP 가 가
<input type="checkbox"/>		.()
OV 4 5 Enter	0.000	OVP 4.5 : OVP
Prot Clear Shift Protect	4.000	OVP 가 . Prot가 CV가

()

(668xA) 2V 240VA 가

9. ()

		.(12)
		. Dis 가
voltage 4 Enter	VOLT4	4
Current 1 Enter	CURR1	
Output on /off	1.000	Dis 가 CC 가 AMPS 가
Current		Current 가 (milliampere (11)
Current		Current 가
Current		Current Current 가
Current 2 Enter	CURR2	2
OCP	0.000	가 .CC 가 OCP Prot 가 0 가
Output on/off		Dis 가
Protect	-OC--	가
<input type="checkbox"/>		.()
OCP		가 OCP OCP 가
Prot Clear Shift Protect		가 OC . Prot 가
Output On/Off	2.000	가 가 . Dis 가 CC가
	Output On/Off	()

	664xA 665 xA	가							
	()								

Table 10.

1	Voltage 4 Enter	4.000
2	OV 4.1 Enter	OVP 4.100
3	Dis 가 Output On/Off	on
4	OCP가 OCP	OCP 가
5	Shift Save Enter	1 4 1
6	Voltage 2 Enter	40.00
7	OV 2.1 Enter	OVP 2.100
8	Dis 가 Output On/Off	ON
9	OCP 가 OCP	OCP
10	Shift Save 2 Enter	5 9 2
11	Recall 1	1 4
12	Recall 2	6 10 가
:		
가 , 0		
(*RST) () 1 0		
1.	가 가	
2.	0	
3.		
4.	8 0 RCL 0 PWR-ON	가
:		9
		0
	RST PWR-ON	

Connections

11

가

11a. 654xA, 655xA, 664xA 665xA

		6541A	6542A	6543A	6544A	6545A
		6641A	6642A	6643A	6644A	6645A
		6551A	6552A	6553A	6554A	6555A
		6651A	6652A	6653A	6654A	6655A
(가):						
:		8.190V	20.475V	35.831V	61.425V	122.85V
:		8.8V	22.0V	38.5V	66.0V	132.0V
:		20.475A	10.237A	6.142A	3.583A	1.535A
:		20.475A	10.237A	6.142A	3.583A	1.535A
:		51.188A	25.524A	15.356A	9.214A	4.095A
:		51.188A	25.524A	15.356A	9.214A	4.095A
:		2mV	5mV	10mV	15mV	30mV
:		13 mV	30mV	54mV	93mV	190mV
:		6 mA	3mA	2mA	1mA	0.5mA
:		6 mA	3mA	2mA	1mA	0.5mA
:		15 mA	7mA	4mA	2.5mA	1.25mA
:		15 mA	7mA	4mA	2.5mA	1.25mA
(± 15%)						
		5.8A	2.5A	1.5A	0.9A	0.75A
		5.8A	2.5A	1.5A	0.9A	0.75A
		11.6A	5A	3A	1.8A	1.5A
		11.6A	5A	3A	1.8A	1.5A
:	1.					
:	2.	654xA	655xA	GPIB		

11b. 657xA 667xA

		6571A	6572A	6573A	6574A	6575A
		6671A	6672A	6673A	6674A	6675A
(가)						
:		8.190V	20.475V	35.831V	61.425V	122.85V
:		10.0V	24.0V	42.0V	72.0V	144.0V
:		225.23A	102.37A	61.43A	35.83A	18.43A
:		2mV	5mV	10mV	15mV	30mV
:		15 mV	35 mV	65 mV	100 mV	215 mV
:		55mA	25mA	15mA	8.75mA	4.5mA
:	1.					
:	2.	667xA	GPIB			

11c. 668xA					
	6680A	6681A	6682A	6683A	6684A
(가)					
:	5.125V	8.190V	21.50V	32.75V	41.0V
:	6.25V	10.0V	25.2V	38.4V	48.0V
:	895A	592A	246A	164A	131A
:					
:	1.35mV	2.15mV	5.7mV	8.6mV	10.8mV
:	30 mV	45 mV	120 mV	180 mV	225mV
:	235mA	155mA	64mA	43mA	34mA
:					
1.					
2. 668xA	GPIB				

()

12 AWG(American Wire Gage)

, 가

가

,

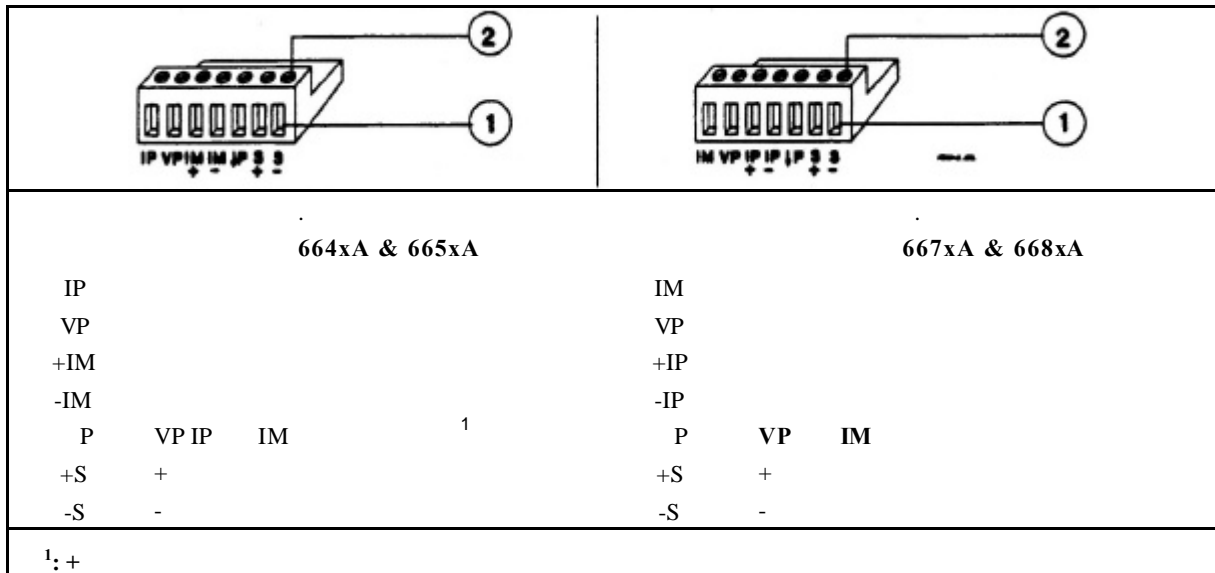
(668xA) ,

12.					
AWG	Ampacity ¹	² (/m)	AWG	Ampacity ¹	² (/m)
14	25	0.0103	2	140	0.00064
12	30	0.0065	1/0	195	0.00040
10	40	0.0041	2/0	225	0.00032
8	60	0.0025	3/0	260	0.00025
6	80	0.0016	4/0	300	0.00020
4	105	0.0010			
1.	Ampacity 가 60 °C : 30°C ampacity (°C) (°C) 21-25 1.08 41-45 0.71 26-30 1.00 46-50 0.58 31-35 0.91 51-55 0.41 36-40 0.82				
2.	75 °C				

Connections

()

AWG 22 AWG 12

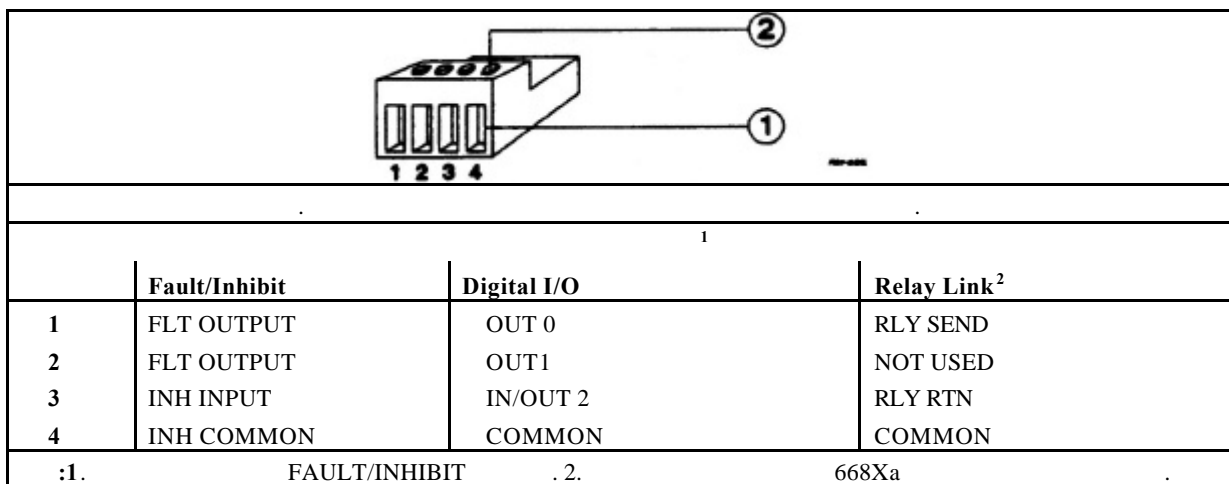


2.

()

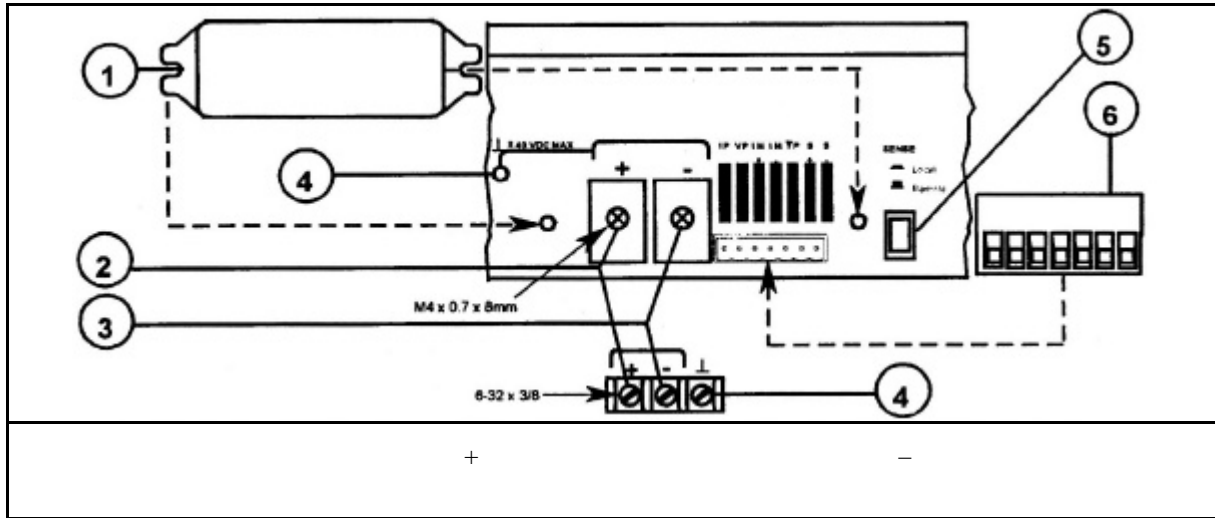
fault/inhibit, digital I/O relay link

AWG 22 AWG 12

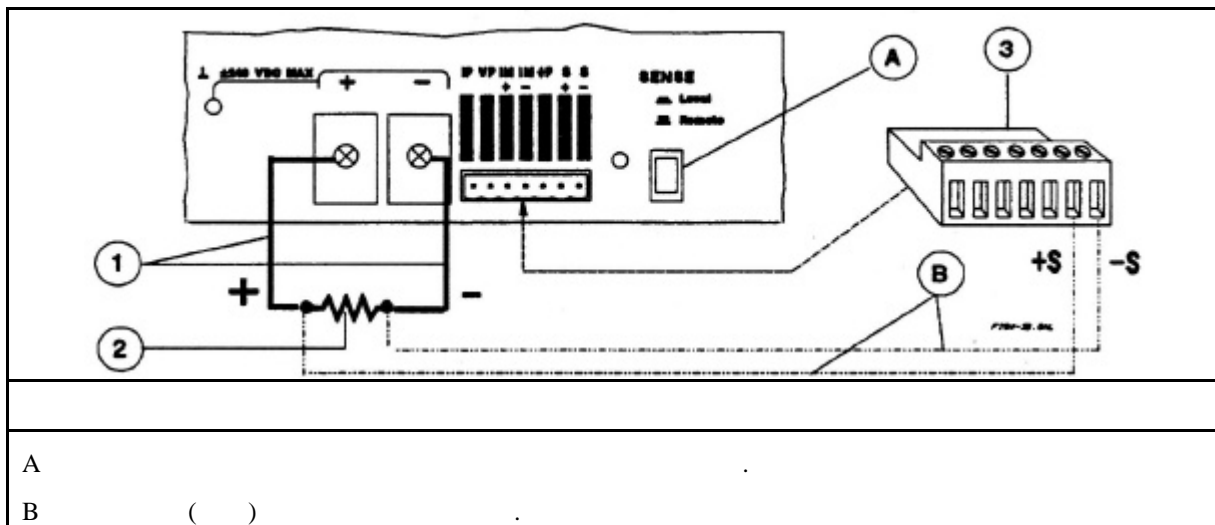


3.

654xA, 655xA, 664xA 665xA



4a. 654xA, 655xA, 664xA, 665xA



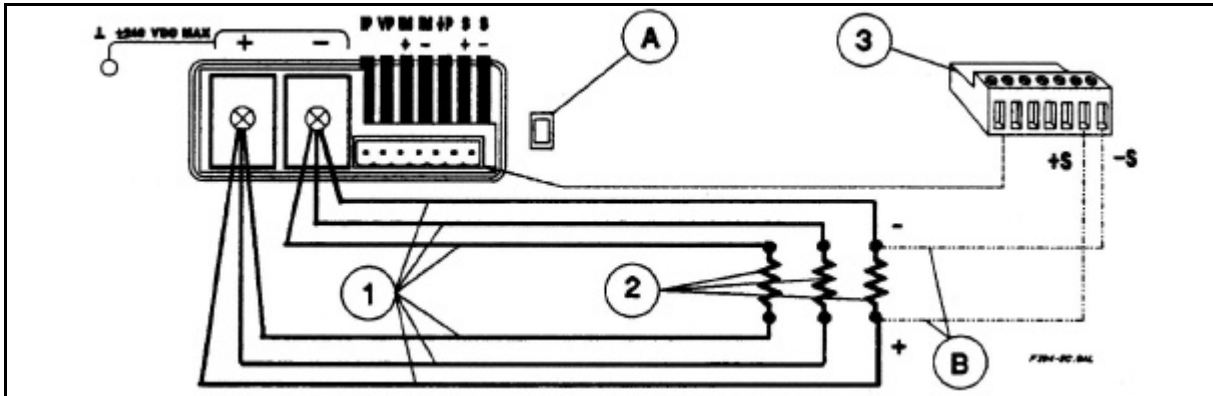
4b. 654xA, 655xA, 664xA 665xA

A

B

()

()

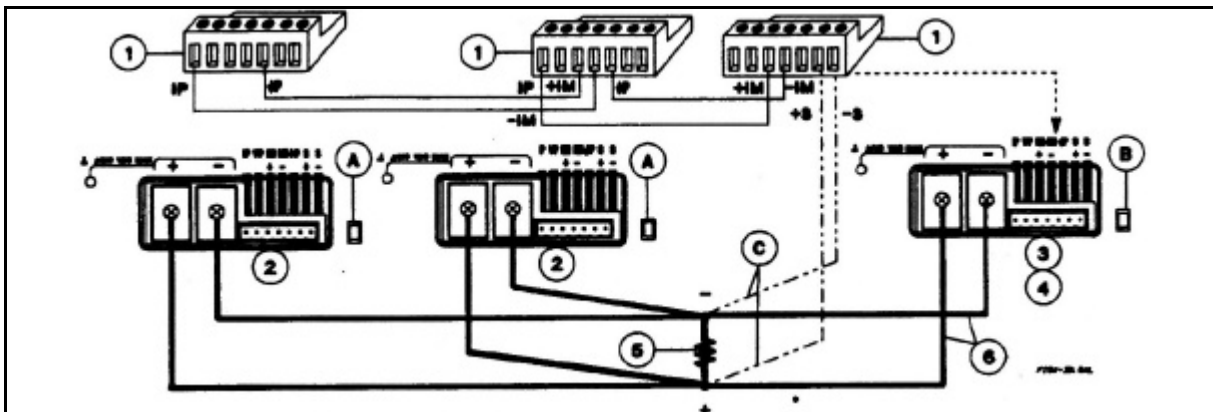


A ()

B ()

4c. 654xA, 655xA, 664xA 665xA

()



CC OVP

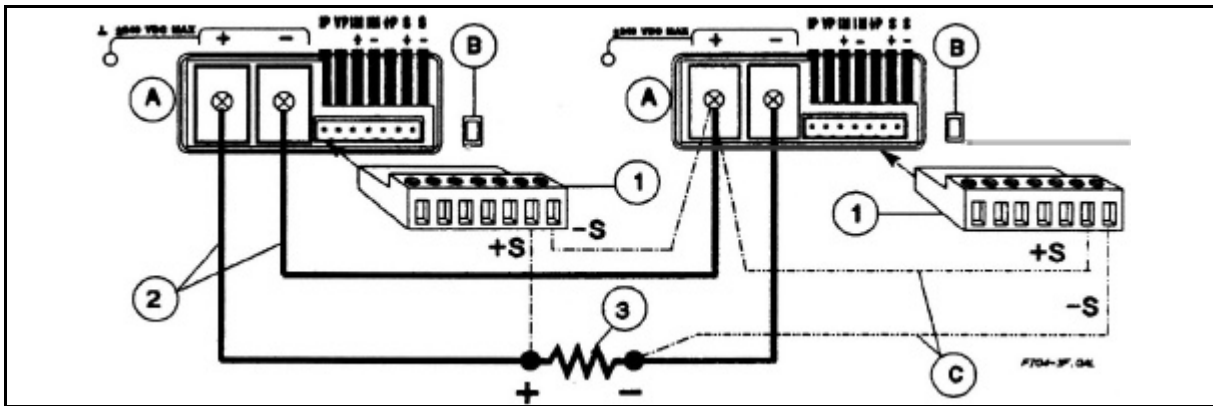
A

B

C ()

4d. 654xA, 655xA, 664xA, 665xA

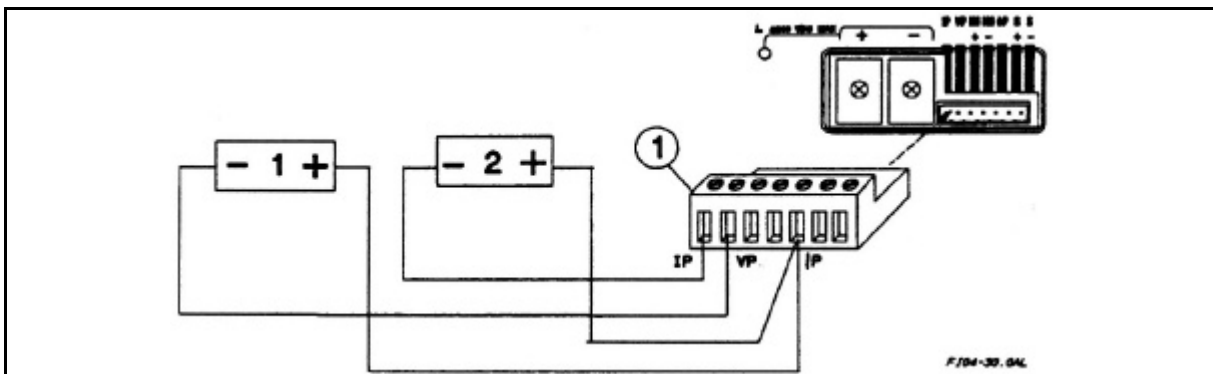
()



- A 1/2
- B ()
- C ()

± 240 VDC
240V

4e. 654xA, 655xA, 664xA 665xA
()

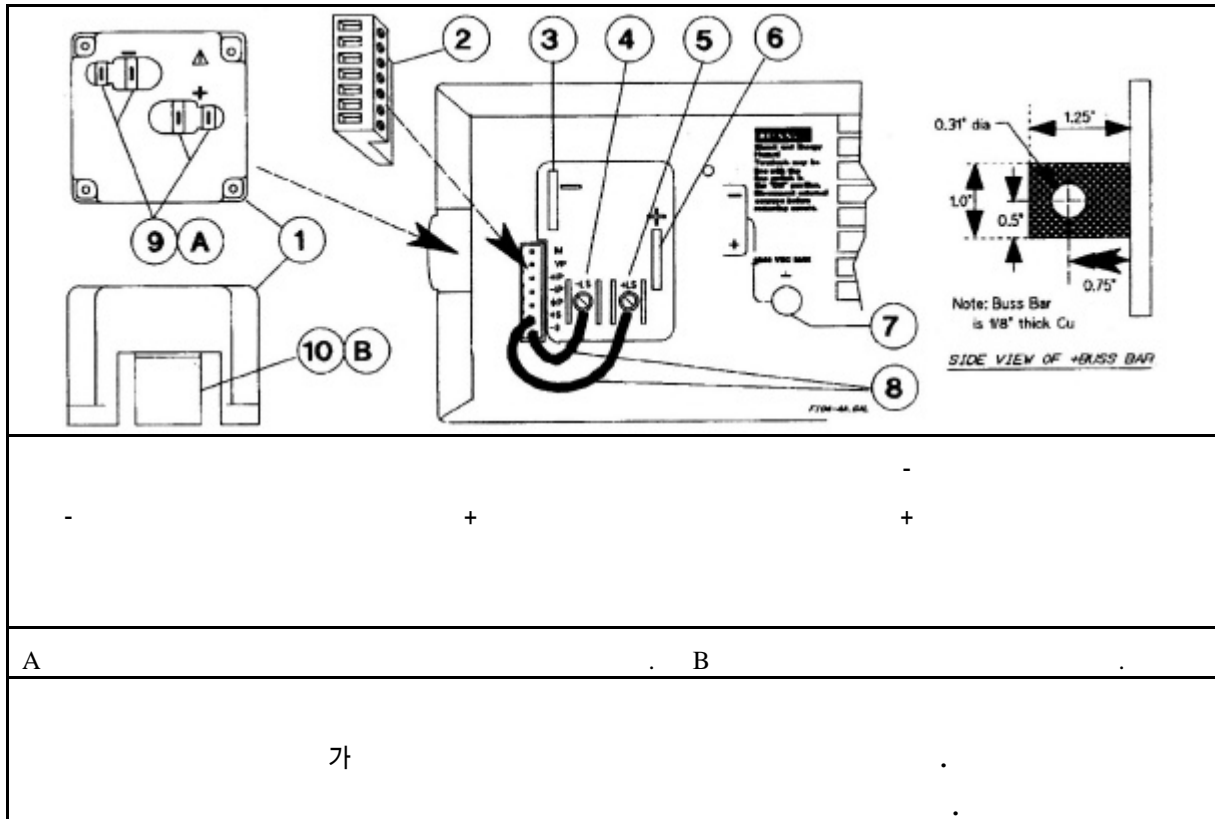


1=0 -5V 2=0 +10V

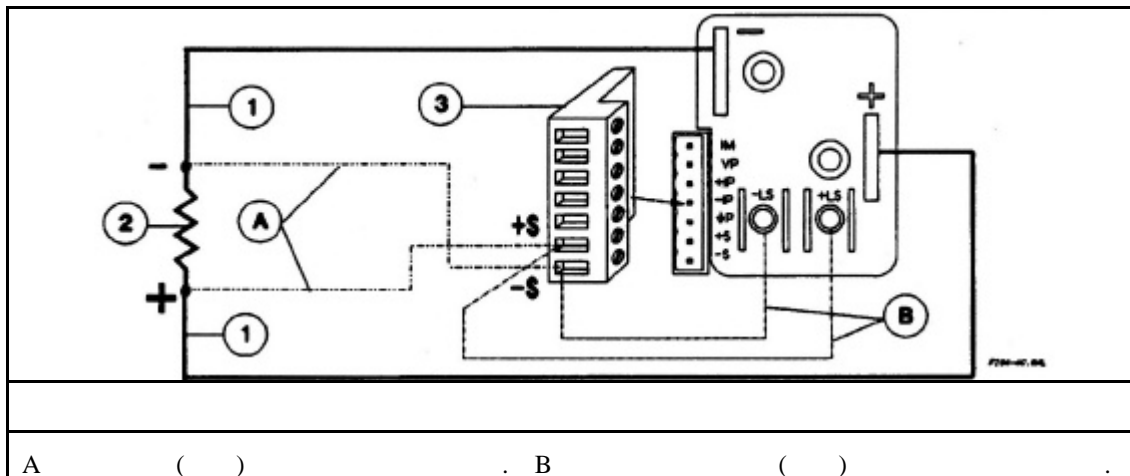
4f. 654xA, 655xA, 664xA, 665xA

Connections

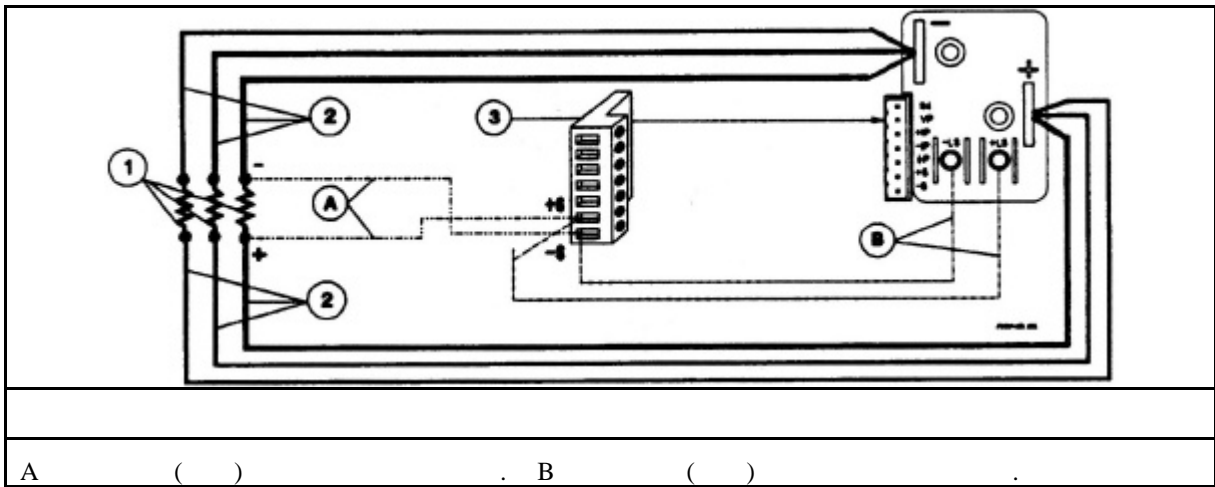
657xA 667xA



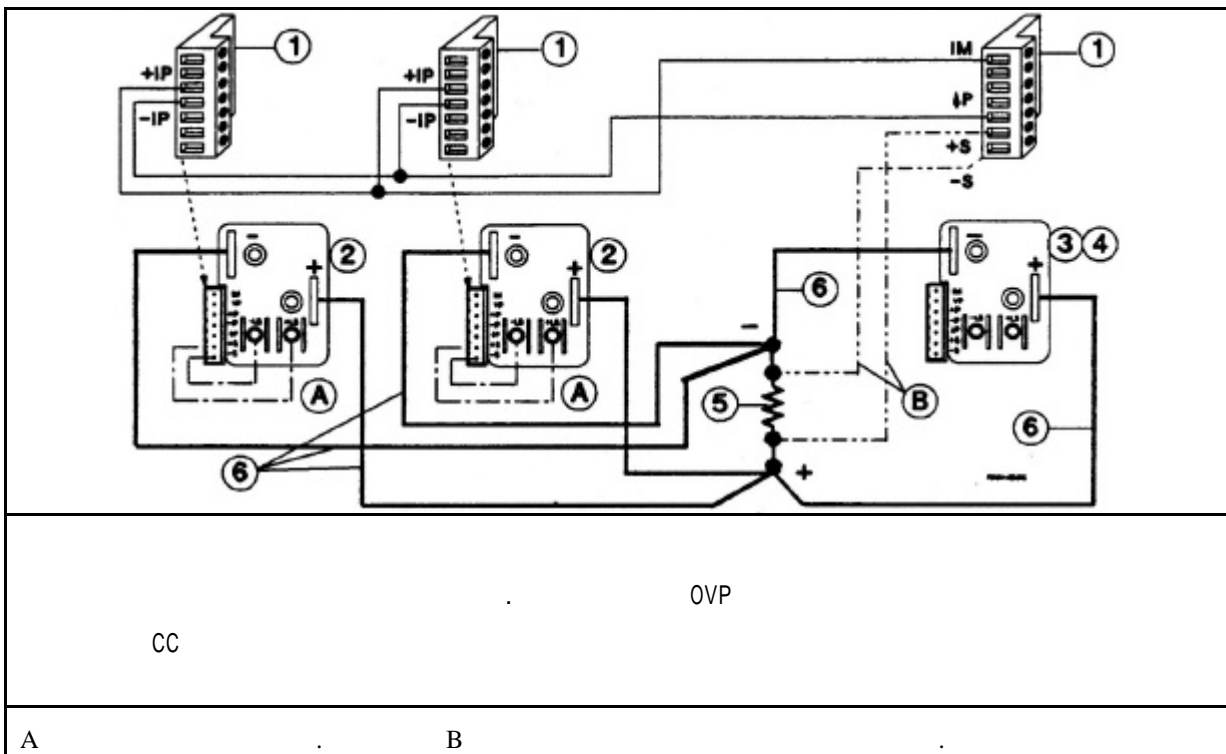
5a. 657xA 667xA



4-4c. 657xA 667xA ()

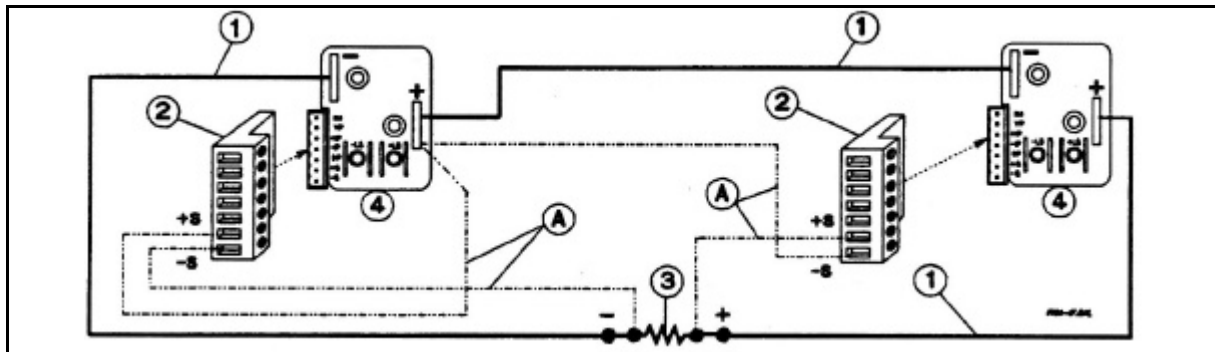


5 c. 657xA 667xA ()



5d 657xA 667xA ()

Connections

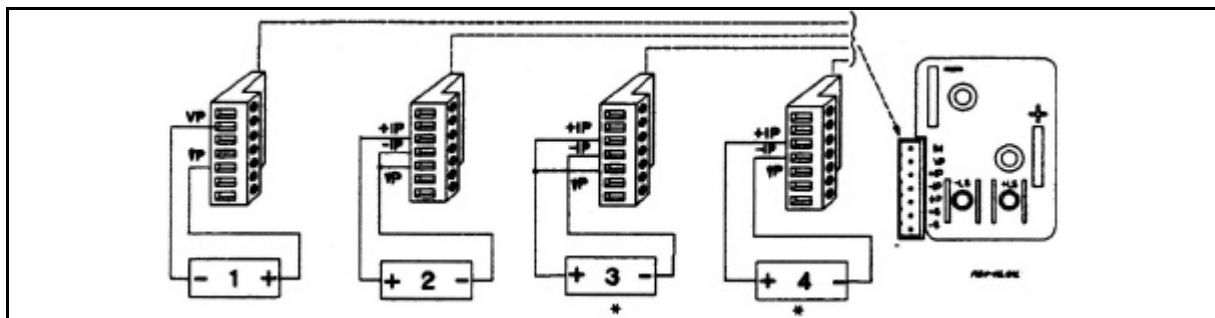


1/2

A

± 240VDC
240V

5e. 657xA 667xA ()



1 0 -5
2 0 +10
3 0 -10
4 0 10V ()

* -IP P ± 15V

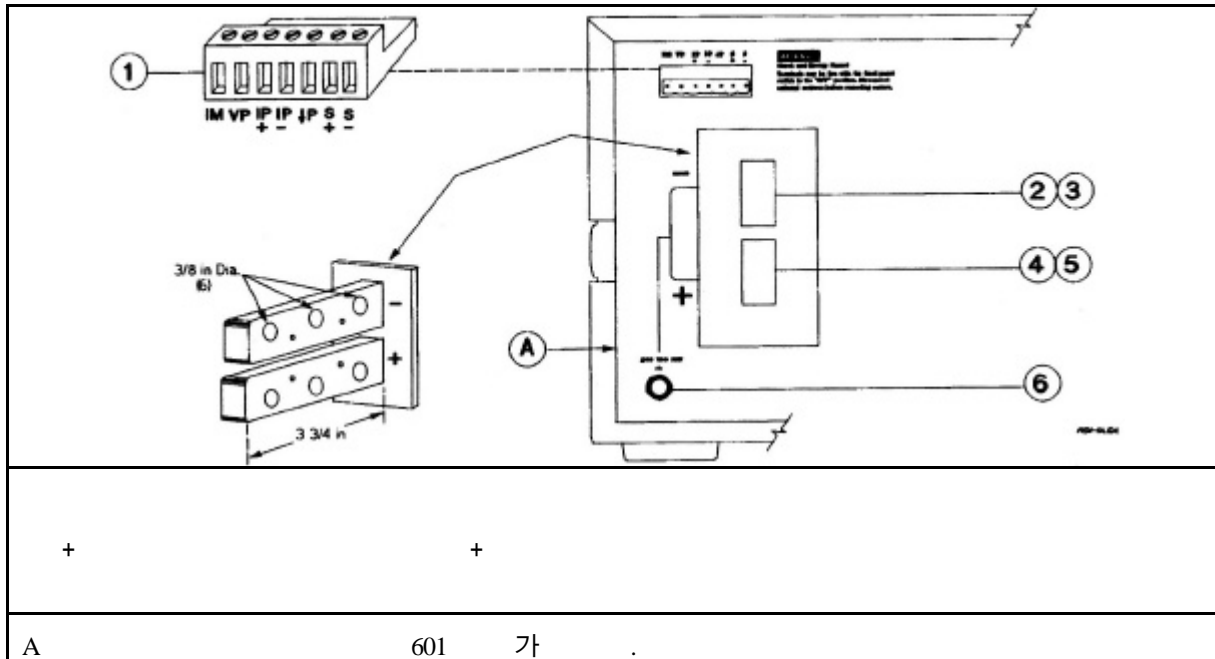
5f. 657 xA 667xA

668xA

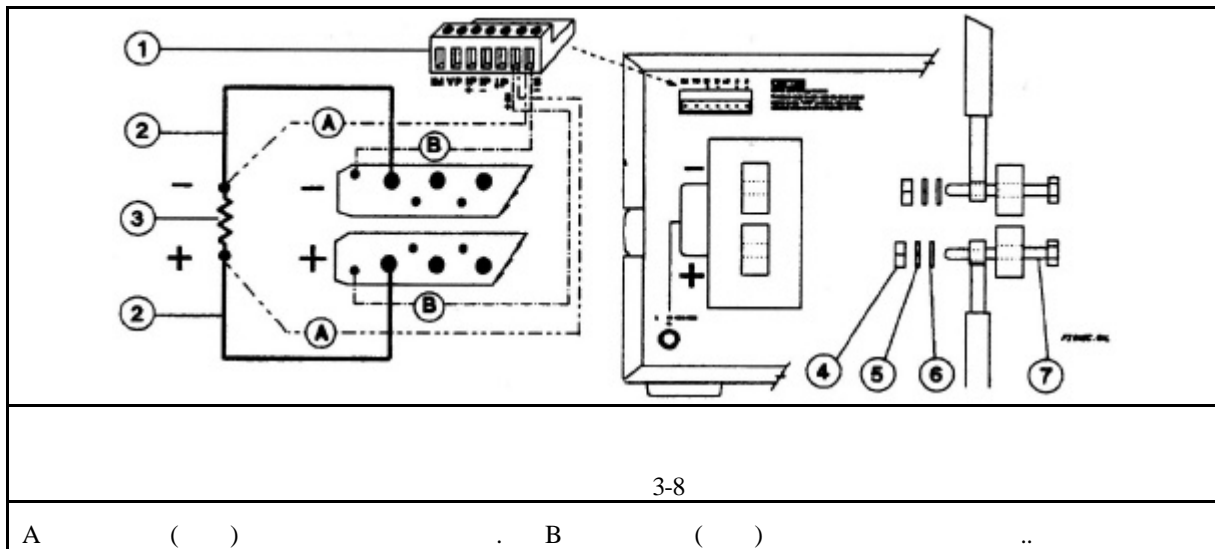
2V 240VA

가

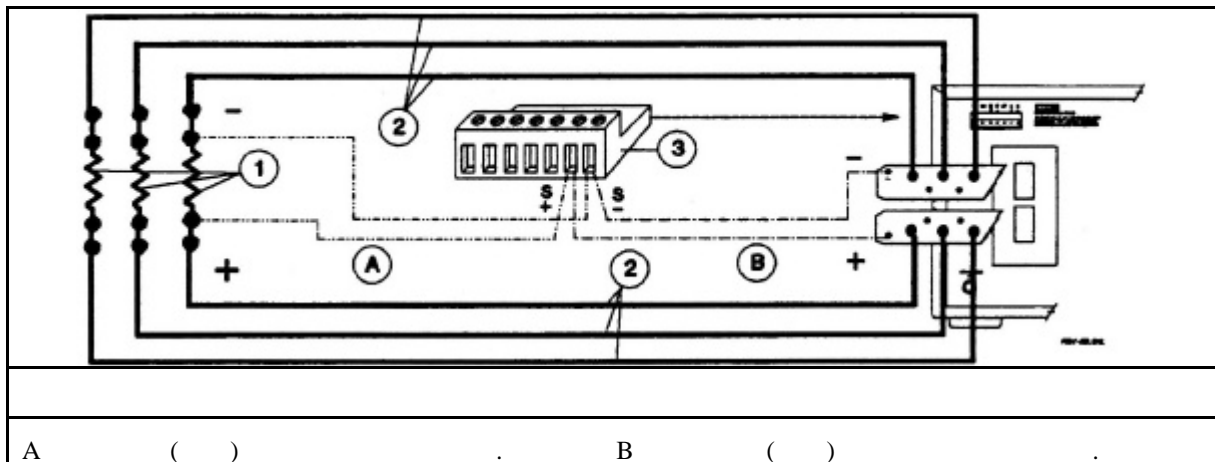
가



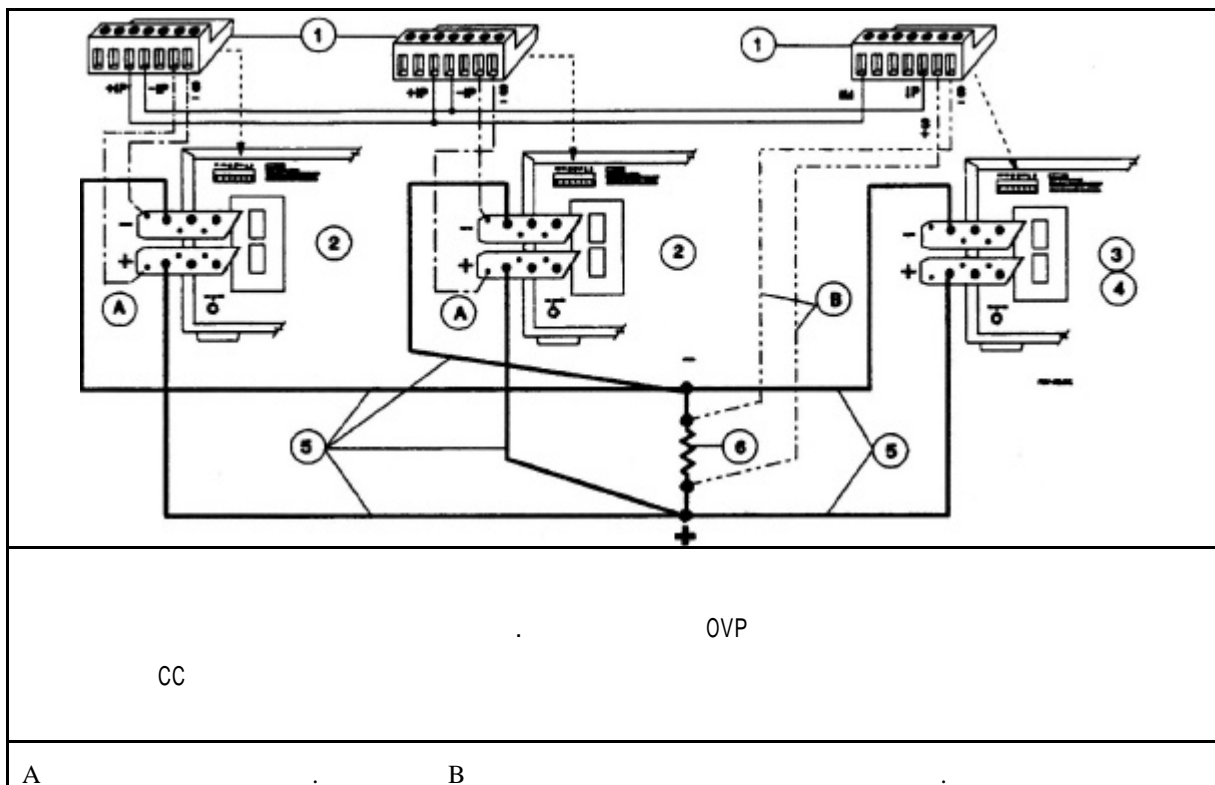
6a. 668xA



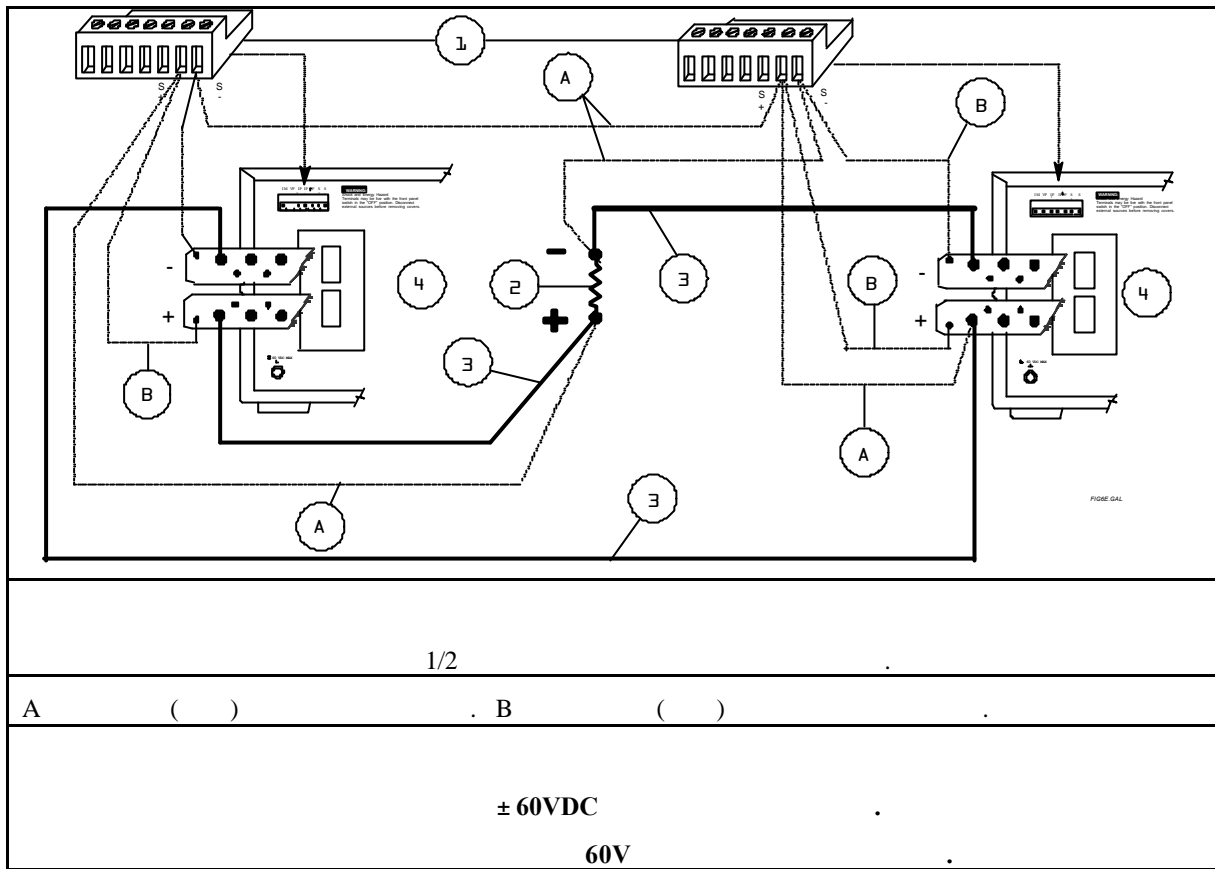
6b. 668xA () ()



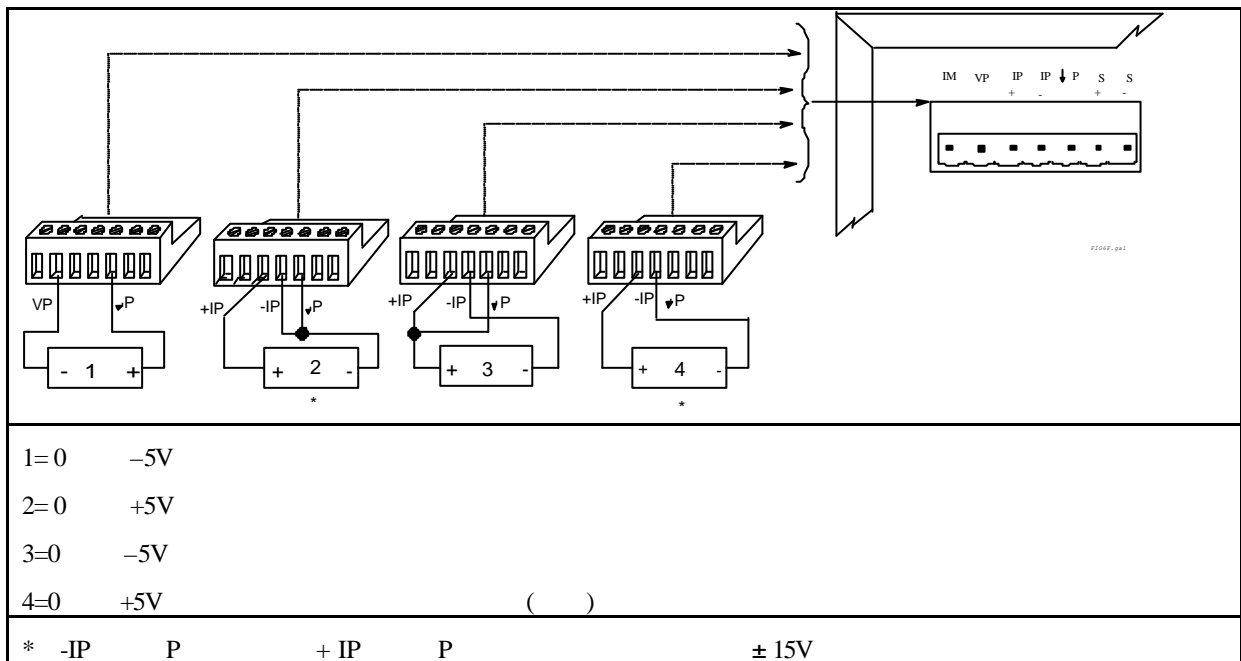
6c. 668xA ()



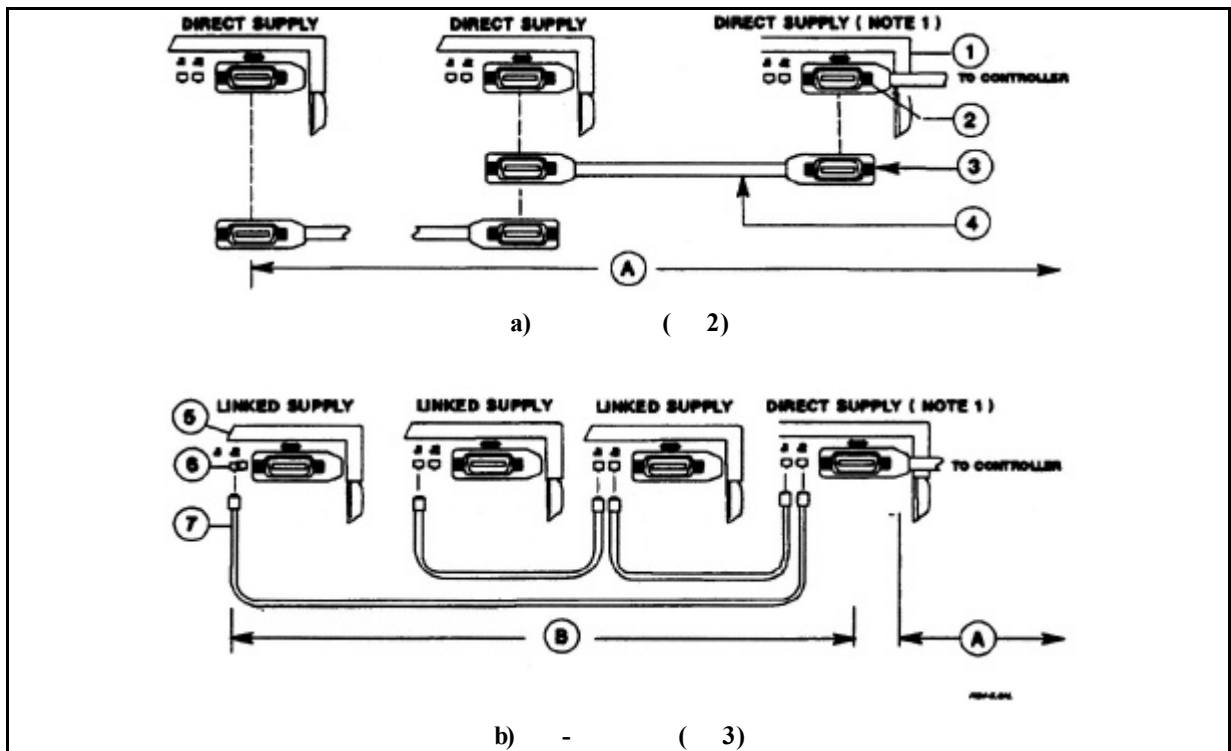
6d. 668xA ()



6e. 668xA ()



6f. 668xA



1	16	GPIB	
	GPIB	3	
GPIB	(,)
10833D	0.5	10833B	2.0
10833A	1.0	10833C	3.0
1	15		
	(J1 J2)가		
2	(1)
A	GPIB (20)
4	가		
B		30	

1	가	GPIB
2		
3	2	GPIB
	가	

7. (664xA, 665xA, 667xA, 668xA)

654xA, 655xA, 664xA 665xA
 .(1a) 13a 가 가

13a. 654xA, 665xA, 664xA, 665xA 가 *

654xA/664xA	100Vac ,6A	2110-0056
654xA/664xA	120Vac ,5A	2110-0010
654xA/664xA	220/230/240 Vac ,3A	2110-0003
655xA/665xA	100Vac ,15A	2110-0054
655xA/665xA	120Vac ,12A	2110-0249
655xA/665xA	220/230/240Vac ,7A	2110-0614
* (time-delay)		

657xA 667xA

. 13b 가

가

13b. 657xA 667xA 가 *

657xA/667xA	220/230Vac ,25A **	2110-0849
* (time-delay)		
** 가		

668A

Check Fuses 가 , 3 가

, Check Fuses

.(1c) 13 가 가 , 가

13c. 668xA 가 *

668xA	180-235 Vac ,30A	5060-3513
668xA	360-440Vac ,16A	5060-3512
* (time-delay)		

In Case of Trouble

(668xA)
 Dew가 , (100%) 가 .
 ()
 . 14
 가
 .(3) .

14. ()

E1	FP RAM	RAM	E9	SEC ROM	2 ROM
E2	FP ROM	ROM	E10	SEC 5V	2 5V ADC
E3	EE	*EEPROM	E11	TEMP	2
	CHKSUM		E12	DACS	2 VDAC/IDAC
E4	PRI XRAM	** RAM	* EE CHKSUM		
E5	PRI IRAM	** RAM	** GPIB		
E6	PRI ROM	** ROM	.(1) .		
E7	GPIB	**			
		GPIB R/W			
E8	SEC RAM	2 RAM			

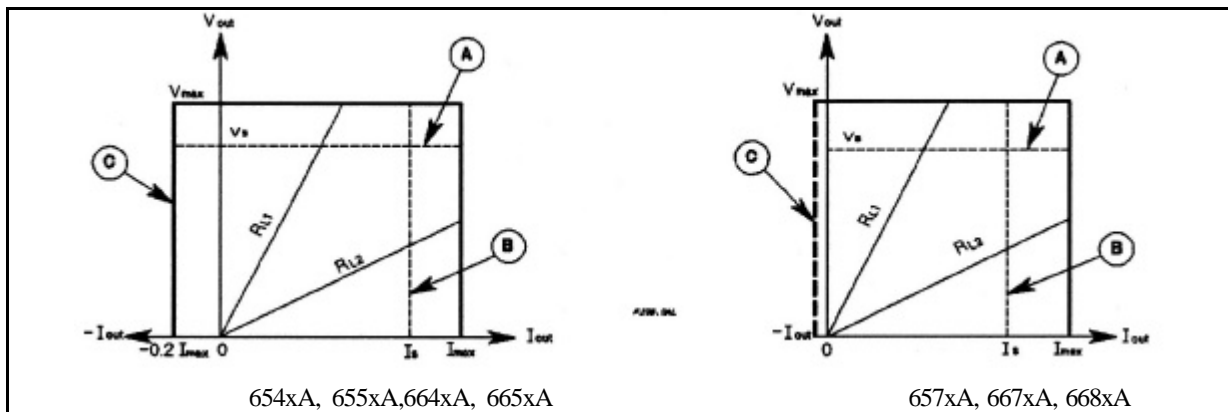
가 ()
 15 가 가
 가 .

, VOLT AMPS +OL -OL
 가 가 .

3-4. 가 ()

EE WRITE ERR	EEPROM	UART FRAMONG	UART
SBUV FULL	가	UART OVERRUN	UART 가
SERIAL DOWN	GPIB가	UART PARTY	UART
STK OVERFLOW			

CV ()
 CC
 8 가 (Vs)
 (Is) , (RL) CV CC Vs
 가 Is (8, RL1,) Vs ÷ RL
 CV
 Is
 가 Is (RL2) Is
 CC 가 , 가
 가 , 0 가
 가 CV CC가 가 , Unr
 Unr (GPIB
 UNR).
 ac



A CV
 B CC
 C 4 2 (657xA, 667xA, 668xA)

	Vout	Iout	-Iout		Vout	Iout
6541A 6641A	8V	20A	5.8A	6571A 6671A	8V	220A
6542A 6642A	20V	10A	2.5A	6572A 6672A	20V	100A
6543A 6643A	35V	6A	1.5A	6573A 6673A	35V	60A
6544A 6644A	60V	3.5A	0.9A	6574A 6674A	60V	35A
6545A 6645A	120V	1.5A	0.75A	6575A 6675A	120V	18A
6551A 6651A	8V	50A	11.6A	6680A	5V	875A
6552A 6652A	20V	25A	5A	6681A	8V	580A
6553A 6653A	35V	15A	3A	6682A	21V	240A
6554A 6654A	60V	9A	1.8A	6683A	32V	160A
6555A 6655A	120V	4A	1.5A	6684A	40V	128A