ISO 9001, ISO 14001, ISO 45001

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No. 2024-KTP-005

OSS-CTTS

Closed Transition Transfer Switches

BYPASS ATS

ATS with Built-in Bypass Switch



csemco

O-Sung Electric Machinery Co., Ltd.

Company History



Established O-Sung Industrial	1986.12	오성산업사 설립
Become member of Korea Electrical Manufacturers Cooperative (KEMC)	1987.01	한국전기공업협동조합(KEMC) 가입
Incorporated as O-Sung Electric Machinery Co., LTD.	1989.08	오성기전 주식회사 법인 설립
Awarded honor of KOEMA for products development	1990.02	한국전기공업협동조합 표창.(개발건, 수출실적)
Nominated as "Technology Intensive Enterprises" by the Ministry of commerce & Industry	1990.03	상공부 기술집약형 업체 선정
Moved Company to Paju-si, Gyeonggi-do	1993.08	본사 이전 (서울 마포 → 경기도 파주)
Awarded the Presidential Prize at contest for Quality Control	1993.11	대통령상 수상 (전국품질기술 분임조 경진대회)
Awarded Certificate of Quality System (ISO 9001)	1999.02	ISO 9001 인증 획득
ASTA certified for 2000A 50kA Air Circuit Breaker	1999.04	ASTA 인증 획득 (SB 2000A, 50kA)
ASTA certified for 1600A, 3200A, 5000A 65kA Air Circuit Breaker	2000.02	ASTA 인증 획득 (SB 1600A, 3200A, 5000A 65kA)
Certified by Taiwan Power Corporation (TPC)	2000.05	대만전력공사 승인취득 (저압기중차단기, 자동절체 개폐기)
CE certified for 200A Automatic Transfer Switch by TUV	2003.05	CE 인증 획득 (ATS TN 200A)
CB Test Certified by KTL for Air Circuit Breaker (SB-606~616 3P 4P 600V 50kA)	2006.11	CB 인증 획득 (SB-606~616 3P 4P 600V 50kA)
CE certified for 600A~1600A 3P, 4P 600V 50kA Air Circuit Breaker	2006.11	CE 인증 획득 (SB-606~616 3P 4P 600V 50kA)
CB Test Certified b for Air Circuit Breaker (SB-620~632 3P 4P 600V 65kA)	2007.05	CB 인증 획득 (SB-620~632 3P 4P 600V 65kA)
Certified by Innovation Business Association.(INNO-BIZ)	2007.07	기술혁신형 중소기업(INNO-BIZ) 인증
Awarded Certificate of Environment Management System (ISO 14001)	2008.06	ISO 14001 인증 획득
V-Check MARK Certificate for Automatic Transfer Circuit Breaker(KESCO)	2008.10	KAS공인 V-Check마크 인증 (자동절체차단기:OSS-ATCB)
CE certified for 2000A~3200A 3P, 4P 600V 65kA Air Circuit Breaker	2009.04	CE 인증 획득 (SB-620~632 3P, 4P 600V 65kA)
NET (New Excellent Technology) Certification : Automatic Transfer Circuit Breaker	2009.04	NET(신기술)인증 : 자동절체차단기(ATCB)
Awarded honor of Small and Medium Business Administration	2012.09	중소기업청장 표창 수상
Awarded honor of The Ministry of Knowledge Economy	2012.09	지식경제부장관 표창 수상
NEP (New Excellent Product) Certification : Automatic Transfer Circuit Breaker (2,000A or less, 60Hz, 42 kA, 1s)	2013.10	신제품(NEP) 인증 획득 : 단일구동일체식 ATCB (2,000A 이하, 60Hz, 42 kA, 1s)
Certified by PRODUCT-SPECIFIC APPROVED EXPORTER (010-14-200194)	2014.06	품목별 원산지인증수출자 인증 획득
Certified by KEPCO Trusted Partner (2014-KTP-008)	2014.12	Certified by KEPCO Trusted Partner
Awarded the Grand Prize at contest for Quality Control in a Field Improvement(Gyeonggi-do)	2015.06	경기도 품질분임조 경진대회 현장개선부문 최우수상 수상
New Excellent Transport Technology Certification	2015.06	교통신기술(NET) 인증 획득
Certificate of Authentication by the Gyeonggi Provincial Government	2016.10	경기도 유망중소기업 인증
NEP (New Excellent Product) Certification : Automatic Transfer Circuit Breaker	2017.03	신제품(NEP) 인증 연장 : 단일구동일체식 ATCB
Certificate of Electrical Construction Business	2017.05	전기공사업 등록
Women's Company Certification	2018.02	여성기업 인증
Awarded honor of Public Procurement Service	2018.02	조달청장 표창
Awarded honor of Ministry of Trade, Industry and Energy	2018.11	산업통상자원부 장관 표창
Awarded honor of Korea International Trade Association(A million dollars Exporting)	2018.12	백만불 수출의 탑 수상
Awarded honor of National Tax Service(Model Taxpayer)	2019.02	국세청장 표창(모범납세자)
CE / CB test certified for Automatic Transfer Switch (TN , PCN) by INTERTEK	2021.07	CE / CB 인증 획득 (ATS TN , PCN)
CE / CB test certified for Automatic Transfer Switch (ATS-PCN 4000~6300A) by INTERTEK	2022.04	CE / CB 인증 획득 (ATS-PCN 4000~6300A)
ISO 45001 Certification Obtained	2023.08	ISO45001 인증 획득
CE / CB test certified for Automatic Transfer Switch (ATS-PCN 1600~3200A) by INTERTEK	2024.02	CE / CB 인증 획득 (ATS-PCN 1600~3200A)
CB test certified for Automatic Transfer Switch (PSB-CTTS 630~2000A) by INTERTEK	2024.08	CB 인증 획득 (PSB-CTTS 630~2000A)
CB test certified for Automatic Transfer Switch (ATCB 5000A, PSB-CTTS 6300A) by INTERTEK	2025.03	CB 인증 획득 (ATCB 5000A, PSB-CTTS 6300A)

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OSS - CTTS Type

CTTS (100A~6300A)

◆ About CTTS_ 개요

In general ATS, momentary power failure occurs when switching between two sources. The Major computer and medical equipment connected to the load will be turned off due to power failure.

CTTS is an automatic changeover switch that can be switched uninterrupted to [Normal Power → Emergency Power] or [Emergency Power → Normal Power] at the time of power demand control (peak control) of Normal Power or during a power failure.

The use of CTTS is required where there is a great expectation of huge economic losses and impacts in the case of power outages. Such as hospitals, banks, computer centers, airports, security centers, and plant facilities.

일반적인 ATS는 상용전원과 예비전원 간 절체 시 순간 정전이 발생하게 되며. 부하에 연결된 주요 전산 및 의료 장비 등은 정전으로 전원이 꺼지게 된다.

CTTS는 상용전원의 전력 수요제어(피크제어) 시 또는 예고 정전 시, [상용전원→예비전원], [예비전원→상용전원] 으로 무정전 절체할 수 있는 자동 절체 스위치이다.

병원, 은행, 전산센터, 공항, 보안센터, 플렌트 시설 등 정전 발생 시 막대한 경제적 손실과 그 파급효과가 크게 예상되는 곳에 CTTS의 사용이 요구된다.

◆ Uses of CTTS_ 용도

CTTS can be applied in the following cases.

- Prevention of A-Power : Uninterrupted transfer after generator start before scheduled power failure time.

- In case of a momentary power failure due to abnormal weather : Uninterrupted transfer after generator start.

- When power peak control : Uninterrupted transfer after generator start before peak time.

- When A-Power is restored and re-transferred from the generator to A-Power : Uninterrupted transfer.

- Load operation test of equipment such as generator : Uninterrupted transfer.

CTTS는 다음과 같은 경우에 적용할 수 있다.

- 상용전원의 정전 예고 시
  : 예고 정전시간 전에 발전기 기동 후 무정전 절체

- 기상이변 등에 의한 순간 정전 예상 시
  : 발전기 기동 후 무정전 절체

- 전력 피크 제어 시
  : 피크 시간 전에 발전기 기동 후 무정전 절체

- 상용전원이 복전되어 발전기에서 상용전원으로 재 절체 시
  : 무정전 절체

- 발전기 등 설비의 부하운전 테스트 시
  : 무정전 절체

◆ CTTS Operating Conditions_ 동작 조건

CTTS is an uninterruptible switching method that switches between the two power sources at the same time when A-power sources and B-power sources are used.

The synchronous condition is a switch system that switches between uninterrupted parallel operation (within 100 ms) and uninterrupted transfer when the phase voltage difference of both power sources is less than 10 V, the frequency difference is less than 1.0 Hz, and the phase electrical degree is less than 5 degrees. Can be protected.

A controller of the switch for precise synchronous calculation by the microprocessor is needed for overlap switching between the commercial power supply and the standby power supply.

The other power supply should be opened within 0.1 second (100ms) after switching the load from one power source to the other power source by overlapping both power sources with correct synchronization.

상용전원과 예비전원(발전기)를 사용하고 있을 때, CTTS는 양 전원의 동기가 맞는 시점에서 절환시키는 무정전 절체 방식이다.

동기 조건은 양 전원의 상 전압차 10 V 이내, 주파수 차 1.0 Hz 이내, 위상 동기각 5도 이내 일 때, 순간 병렬운전(100 ms 이내) 후 절체하여 무정전 절체시키는 스위치 시스템으로 발전기 및 부하 설비를 보호할 수 있다.

상용전원과 예비전원의 중첩절체를 위해 마이크로프로세서에 의한 정밀한 동기계산을 위한 개폐기의 컨트롤러가 필요하다.

양 전원을 정확한 동기 상태에서 중첩을 시켜 한 전원에서 다른 전원으로 부하를 전환시킨 후 0.1초(100ms)이내에 다른 전원을 개방하여야 한다.

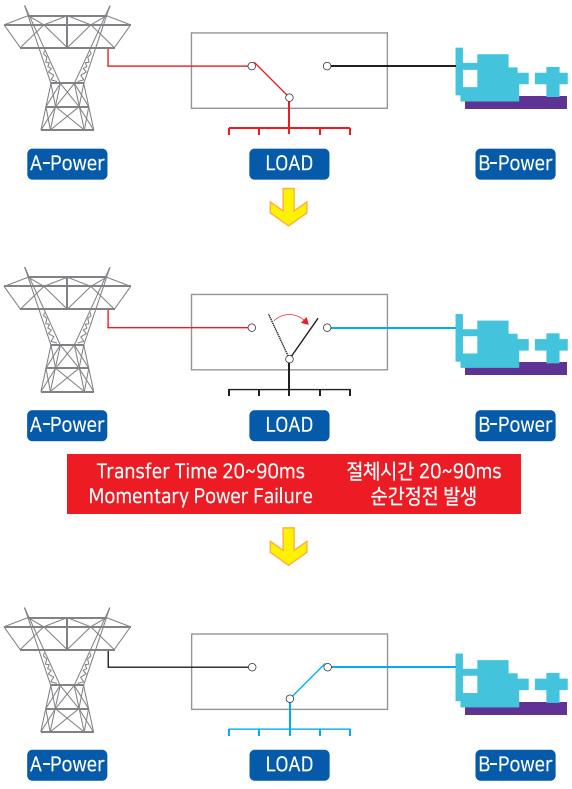


OSS - CTTS Type

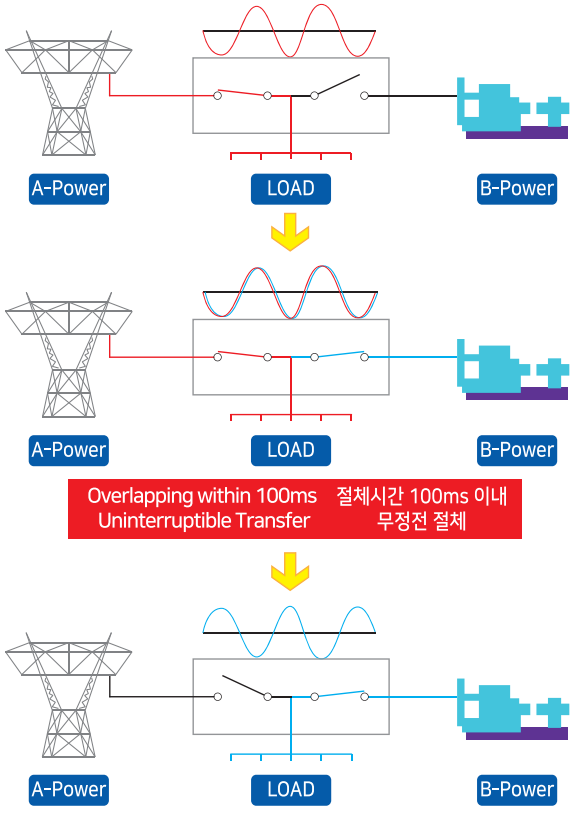
CTTS (100A~6300A)

◆ Switching Method of CTTS_ 절체 방법

ATS Transfer Method

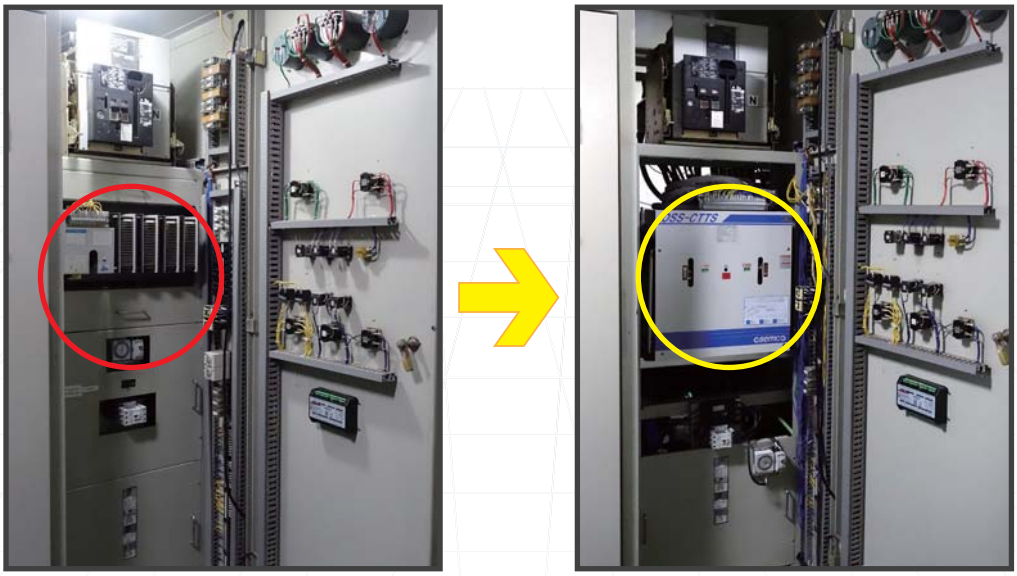


CTTS Switching Method



An example of replacing exisiting ATS with CTTS without panel replacement

판넬교체 없이 기존 ATS를 CTTS로 교체





OSS - CTTS Type

CTTS (100A~400A)

◆ Information to Order_ 주문정보

OSS - 6□ - CTTS - □ - □P - □
A B C D

A Rated Current (정격전류)

1S	2S	4S
100A	200A	400A

B Connection (접속방식)

- F : Front (표면)
- B : Back (배면)
- D : Draw-out (인출형)

C Number of Poles

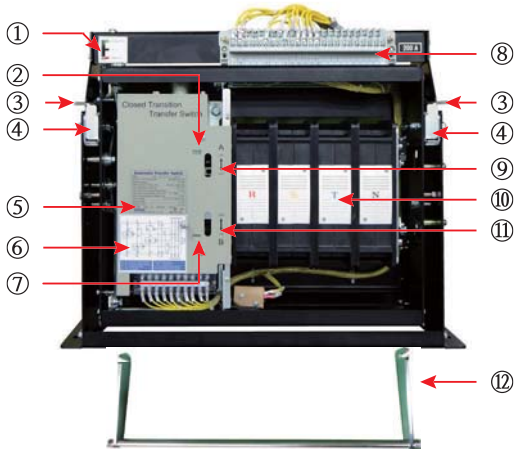
- 3 : 3P
- 4 : 4P

D Operating Voltage

- A2 : AC 220V

◆ External View_ 외관명칭

①	Draw_in & Draw_out Location Indicator (인,입출 위치 표시기)
②	A-Power ON-OFF Indicator (A-전원측 ON-OFF 표시기)
③	Lever for Draw_in & Draw_out (인,입출 레버)
④	Rail for Draw_in & Draw_out (인,입출 레일)
⑤	Name Plate (명판)
⑥	Circuit Diagram (회로도)
⑦	B-Power ON-OFF Indicator (B-전원측 ON-OFF 표시기)
⑧	Auto Connection Terminal (자동연결 단자대)
⑨	A-Power Manual handle hole (A-전원측 수동핸들 삽입구)
⑩	Arc-Extinguishing Chamber (소호실)
⑪	B-Power Manual handle hole (B-전원측 수동핸들 삽입구)
⑫	Handle for Draw_in & Draw_out (인,입출용 핸들)



◆ Specification_ 정격사양

TYPE			61S-CTTS		62S-CTTS		64S-CTTS	
Rated Operational Voltage (VAC) (정격사용전압) Ue			AC 600 V					
Rated Insulation Voltage (VAC) (정격 절연 전압) Ui			AC 600 V					
Rated Impulse Withstand Voltage (정격 임펄스 내전압) Uimp			AC 8000 V					
Rated Current (정격전류) Ie			100 A		200 A		400 A	
Neutral Phase Current (중성극전류)			100 A		200 A		400 A	
Kind of Throw (투수)			Double Throw (쌍투)					
Connection (접속방식)			Front (표면 : F), Back (배면 : B), Draw-out (인출형 : D)					
Number of Poles (극수)			3P	4P	3P	4P	3P	4P
Weight (중량) kg	Fixed (고정)		21	24	21	24	22	25
	Draw-out (인출)		42	48	42	48	43	49
Rated Short-Time Withstand Current (정격 단시간 내전류) Icw			10 kA		10 kA		12 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류) (peak) Icm			17 kA		17 kA		24 kA	
Switching Capacity (개폐용량)			AC - 33B (10 Ie making / 10 Ie breaking cos Ø= 0.35)					
Switching Frequency (개폐빈도)			60 Time / Hour					
Operating Current (조작전류) (peak)	Closing	AC 200V ~ 240V	8 A		8 A		8 A	
	Tripping	AC 200V ~ 240V	11 A		11 A		11 A	
Operating Time (동작시간)	"A" Power	Making	≤ 70 ms		≤ 70 ms		≤ 70 ms	
		Breaking	≤ 40 ms		≤ 40 ms		≤ 40 ms	
	"B" Ppwer	Making	≤ 70 ms		≤ 70 ms		≤ 70 ms	
		Breaking	≤ 40 ms		≤ 40 ms		≤ 40 ms	
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000		10,000		10,000	
	With Current (통전)		3,000		3,000		3,000	
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.					



OSS - CTTS Type

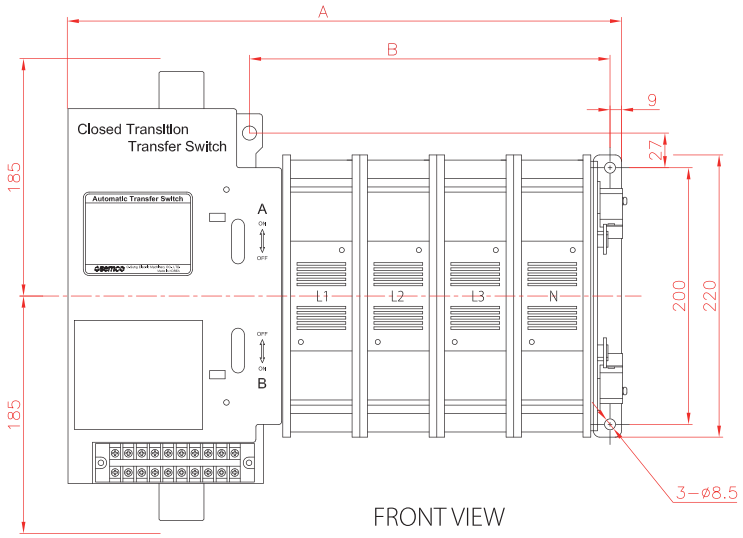
CTTS (100A~400A)

◆ Outline Dimension_ 외형도

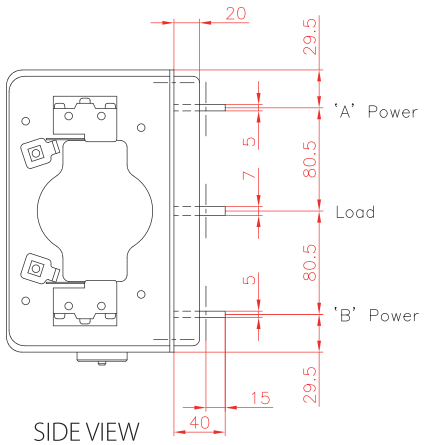
Unit : mm

Fixed Type

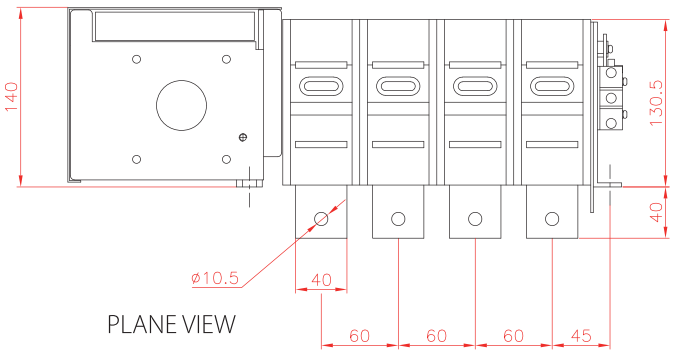
OSS-61S~64S-CTTS-B



FRONT VIEW



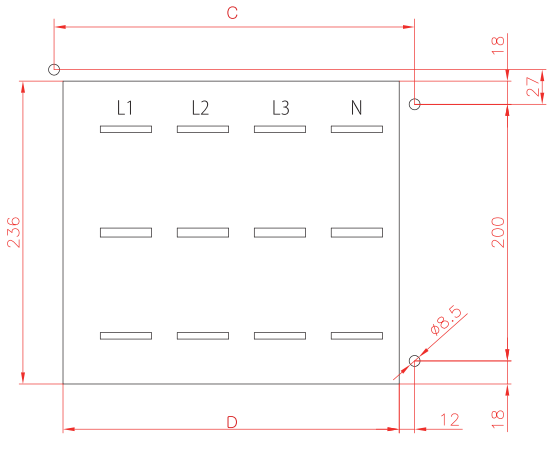
SIDE VIEW



PLANE VIEW

	Dimension (mm)	
Pole	A	B
3P	372	221
4P	432	281

* Arc space for main circuit
  - 30mm for AC 220V
  - 60mm for AC 600V



PANEL CUTTING

	Dimension (mm)	
Pole	C	D
3P	221	202
4P	281	262



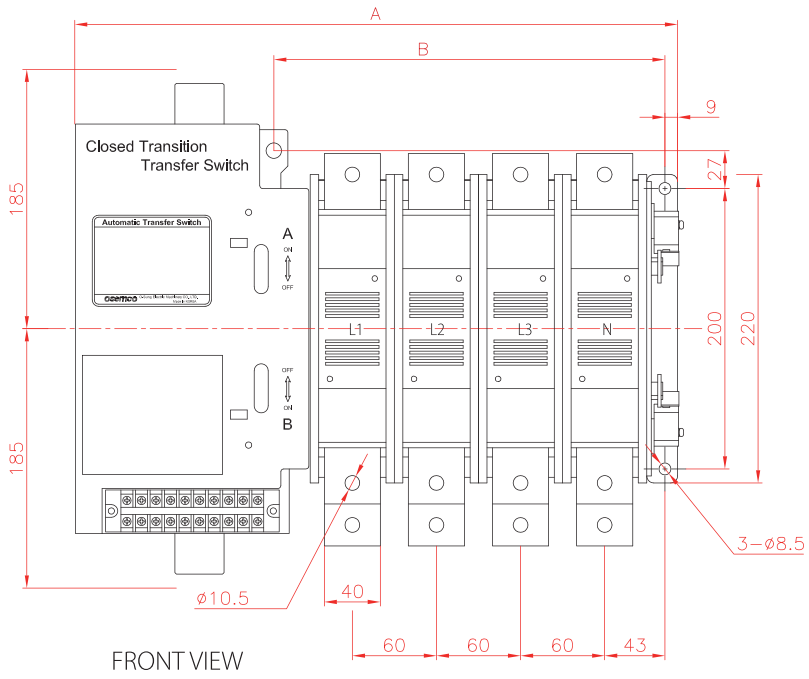
OSS - CTTS Type

CTTS(100A~400A)

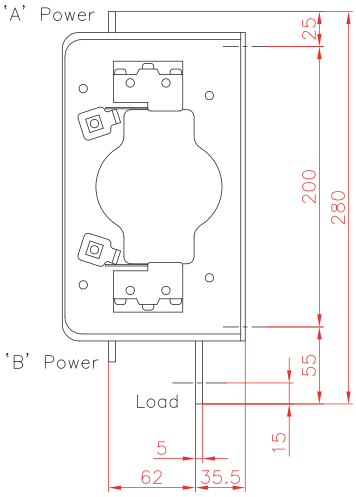
◆ Outline Dimension_ 외형도

Fixed Type

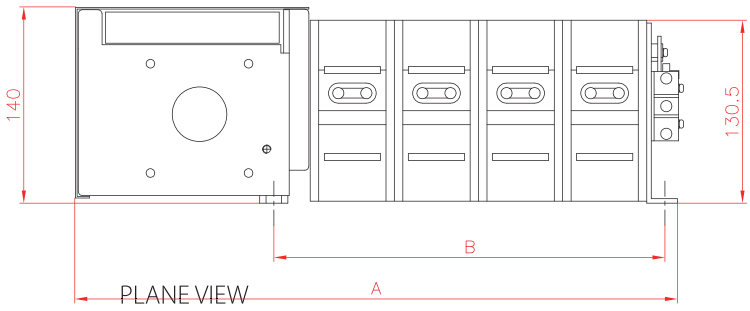
OSS-61S~64S-CTTS-F



FRONT VIEW



SIDE VIEW



PLANE VIEW

	Dimension (mm)	
Pole	A	B
3P	370	219
4P	430	279

* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 600V



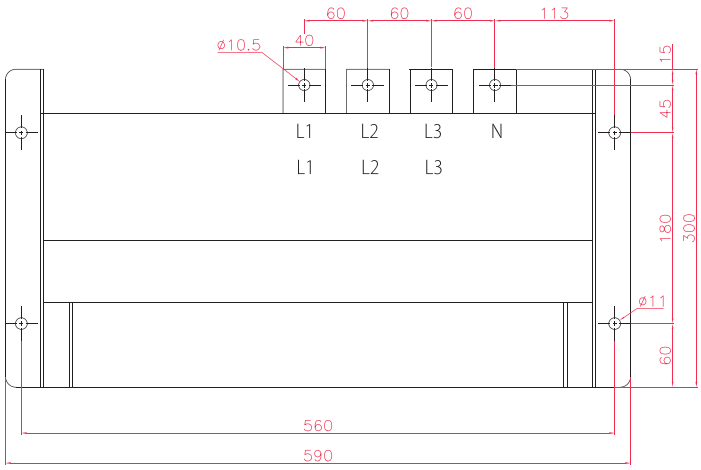
OSS - CTTS Type

CTTS(100A~400A)

◆ Outline Dimension_ 외형도

Draw-out

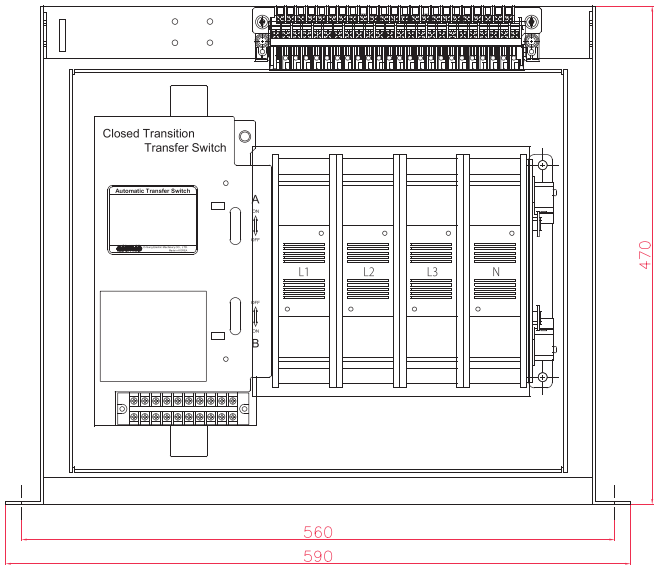
OSS-61S~64S-CTTS-D



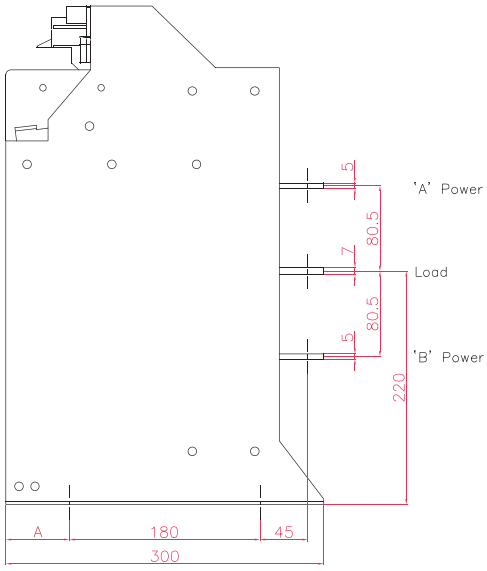
Top view

POSITION	A
CONNECTED	60
TEST	97
DISCONNECTED	127

* Arc space for main circuit
  - 30mm for AC 220V
  - 60mm for AC 600V



Front view



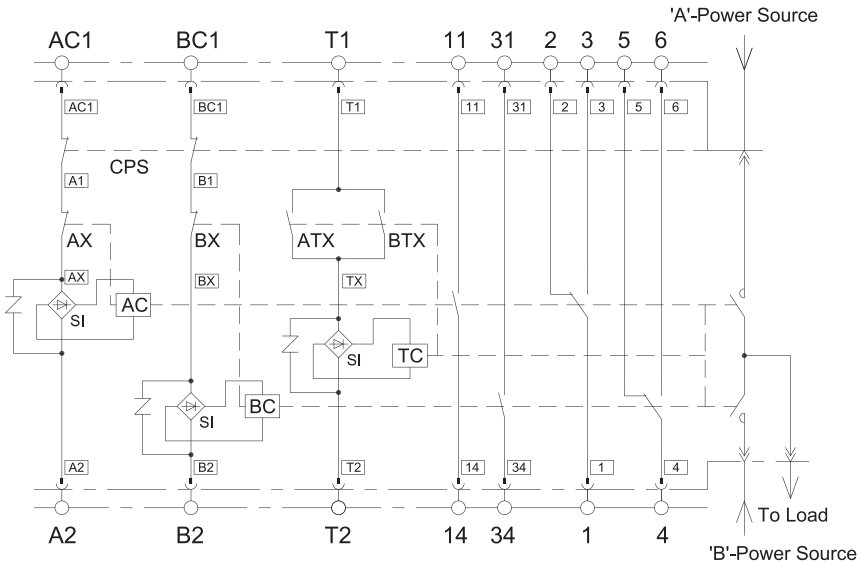
Side view

OSS - CTTS Type

CTTS(100A~400A)



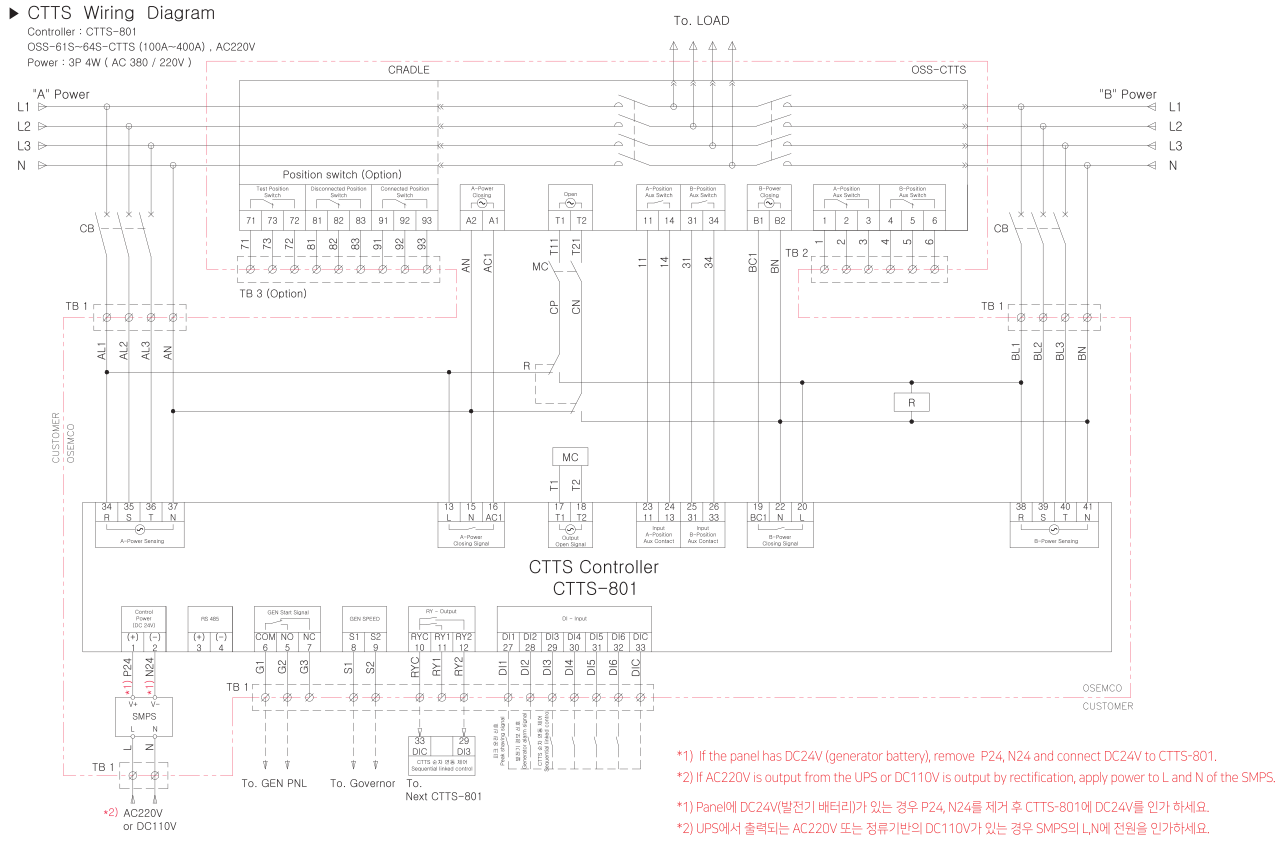
◆ Circuit Diagram_ 회로도



AC1, A2	A-Power closing terminal
BC1, B2	B-Power closing terminal
T1, T2	Tripping terminal
11 ~ 34	Aux switch
1 ~ 6	Aux switch

AC, BC	Closing Coil
TC	Tripping Coil
AX, BX	Closing control switch
ATX, BTX	Tripping control switch
CPS	Closing preventing switch

◆ Wiring Diagram_ 결선도 (CTTS 100~400A)



*1) If the panel has DC24V (generator battery), remove P24, N24 and connect DC24V to CTTS-801.
*2) If AC220V is output from the UPS or DC110V is output by rectification, apply power to L and N of the SMPS.

*1) Panel에 DC24V(발전기 배터리)가 있는 경우 P24, N24를 제거 후 CTTS-801에 DC24V를 인가 하세요.
*2) UPS에서 출력되는 AC220V 또는 정류기반의 DC110V가 있는 경우 SMPS의 L,N에 전원을 인가하세요.



OSS - CTTS Type

CTTS(400A~6300A)

◆ Information to Order_ 주문정보

OSS - 6□ - CTTS - □ - □P - □
A B C D

A Rated Current

04	06	08	10	12	16	20	25	32	40	50	63
400A	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A

B Connection (접속방식)
- F : Fixed (고정형)
- D : Draw-out (인출형)

C Number of Poles
- 3 : 3P
- 4 : 4P

D Operating Voltage
- A2 : AC 220V

◆ External View_ 외관명칭

Draw-out



①	A-Power Manual handle hole (A-전원측 수동핸들 삽입구)
②	B-Power Manual handle hole (B-전원측 수동핸들 삽입구)
③	A-Power ON-OFF Indicator (A-전원측 ON-OFF 표시기)
④	B-Power ON-OFF Indicator (B-전원측 ON-OFF 표시기)
⑤	Trip Manual Handle Hole (중립위치 수동 핸들 삽입구)
⑥	Auto Connection Terminal (자동연결 단자대)
⑦	Name Plate (명판)
⑧	Circuit Diagram (회로도)
⑨	Drawout Handle Inlet (인출 핸들 삽입구)
⑩	Drawout Position Indicater (인출 위치 표시기)
⑪	Handle for Draw_in & Draw_out (인, 입출용 핸들)



OSS - CTTS Type

CTTS (400A~6300A)

◆ Specification_ 정격사양

TYPE			604-CTTS	606-CTTS	608-CTTS	610-CTTS	612-CTTS	616-CTTS
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V					
Rated Insulation Voltage (정격 절연 전압)		Ui	AC 600 V					
Rated Impulse Withstand Voltage (정격 임펄스 내전압)		Uimp	AC 8000 V					
Rated Current (정격전류)		Ie	400 A	630 A	800 A	1000 A	1250 A	1600 A
Neutral Phase Current (중성극전류)			400 A	630 A	800 A	1000 A	1250 A	1600 A
Kind of Throw (투수)			Double Throw (쌍투)					
Connection (접속방식)			Fixed (고정형), Draw-out (인출형)					
Number of Poles (극수)			3P / 4P	3P / 4P	3P / 4P	3P / 4P	3P / 4P	3P / 4P
Weight (중량 : kg)	Fixed (고정)		60 / 70	60 / 70	65 / 75	65 / 75	70 / 80	75 / 85
	Draw-out (인출)		130 / 145	130 / 145	135 / 150	135 / 150	145 / 160	150 / 165
Rated Short-Time Withstand Current (정격 단시간 내전류)		Icw	25 kA				35 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류)	peak	Icm	52.5 kA				73.5 kA	
Switching Capacity (개폐용량)			AC - 33B (10 Ie making / 10 Ie breaking cos Ø= 0.35)					
Switching Frequency (개폐빈도)			60 Time / Hour				20 Time / Hour	
Operating Current (조작전류) peak	Closing Coil	DC 110V ~ 125V	70 A					
		AC 100V ~ 110V	70 A					
		AC 200V ~ 240V	50 A					
	Trip Coil		DC 110V ~ 125 V = 15 A, AC 100 V ~ 110 V = 15 A, AC 200 V ~ 240 V = 7A					
Operating Time (동작시간)	"A" Power	Making	≤ 120 ms					
		Breaking	≤ 80 ms					
	"B" Power	Making	≤ 120 ms					
		Breaking	≤ 80 ms					
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000					
	With Current (통전)		5,000					
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source is provided to A side and B side simultaneously, Coil may be damaged. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. 2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다.					

TYPE			620-CTTS	625-CTTS	632-CTTS	640-CTTS	650-CTTS	663-CTTS
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V					
Rated Insulation Voltage (정격 절연 전압)		Ui	AC 600 V					
Rated Impulse Withstand Voltage (정격 임펄스 내전압)		Uimp	AC 8000 V					
Rated Current (정격전류)		Ie	2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
Neutral Phase Current (중성극전류)			2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
Kind of Throw (투수)			Double Throw (쌍투)					
Connection (접속방식)			Fixed (고정형), Draw-out (인출형)					
Number of Poles (극수)			3P / 4P	3P / 4P	3P / 4P	3P / 4P	3P / 4P	3P / 4P
Weight (중량 : kg)	Fixed (고정)		105 / 125	105 / 125	110 / 130	180 / 210	250 / 300	250 / 300
	Draw-out (인출)		165 / 195	165 / 195	180 / 210	220 / 275	360 / 460	360 / 460
Rated Short-Time Withstand Current (정격 단시간 내전류)		Icw	40 kA	50 kA			65 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류)	peak	Icm	84 kA	105 kA			143 kA	
Switching Capacity (개폐용량)			AC - 33B (10 Ie making / 10 Ie breaking cos Ø= 0.35)					
Switching Frequency (개폐빈도)			10 Time / Hour					
Operating Current (조작전류) peak	Closing Coil	DC 110V ~ 125V	100 A				80 A	사양서 및 성적서 프로그램에 반영
		AC 100V ~ 110V	100 A				80 A	
		AC 200V ~ 240V	75 A				65 A	
	Trip Coil		DC110~125V=15A, AC100~110V=15A, AC200~240V=7A				AC220V=25A	
Operating Time (동작시간)	"A" Power	Making	≤ 120 ms				≤ 150 ms	
		Breaking	≤ 80 ms				≤ 90 ms	
	"B" Power	Making	≤ 120 ms				≤ 200 ms	
		Breaking	≤ 80 ms				≤ 90 ms	
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		5,000			3,000		
	With Current (통전)		3,000			1,500		
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source is provided to A side and B side simultaneously, Coil may be damaged. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. 2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다.					



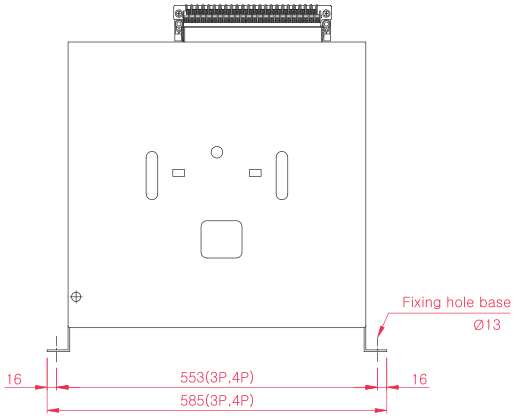
OSS - CTTS Type

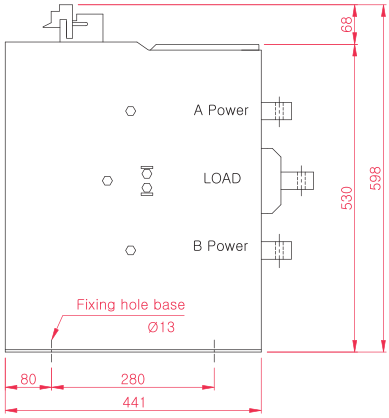
CTTS (400A~6300A)

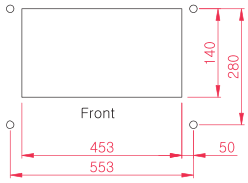
◆ Outline Dimension_ 외형도

400~3200A Fixed

Unit : mm

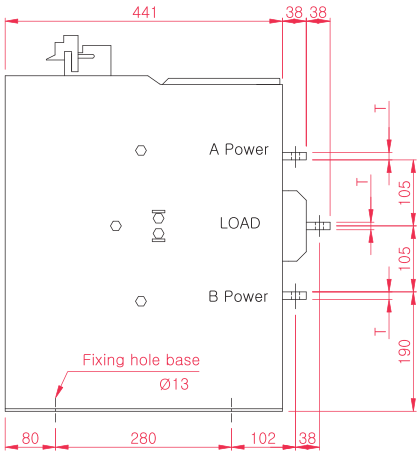




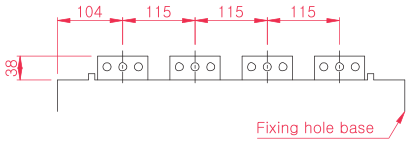


Panel cutting
(Fixing hole)

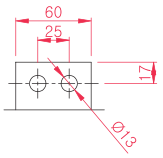
OSS-604~625-CTTS



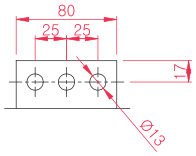
R S T N (4P)
R S T (3P)



Current	T
400A~1600A	12
2000A	15
2500A	24

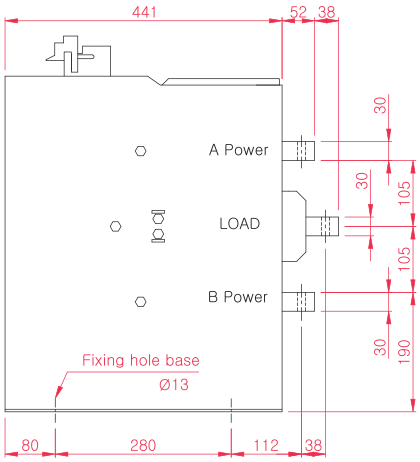


400A~1000A

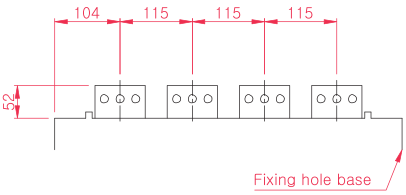


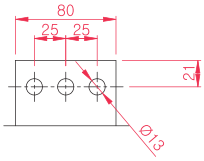
1250A~2500A

OSS-632-CTTS



R S T N (4P)
R S T (3P)





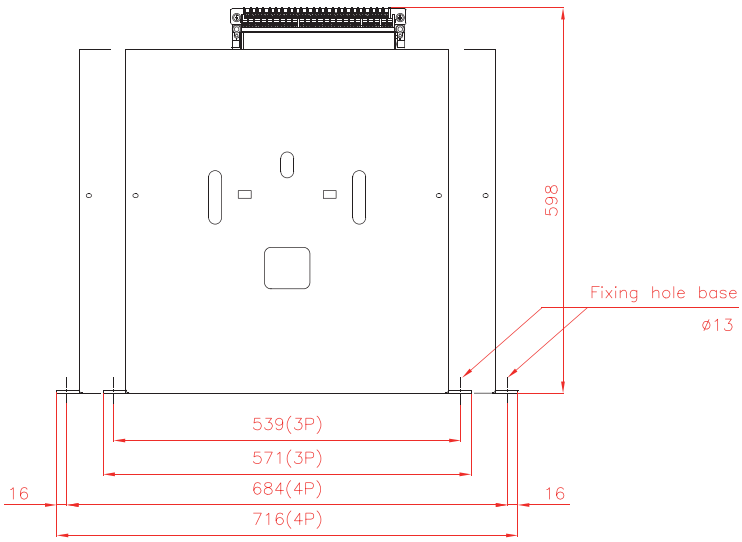


OSS - CTTS Type

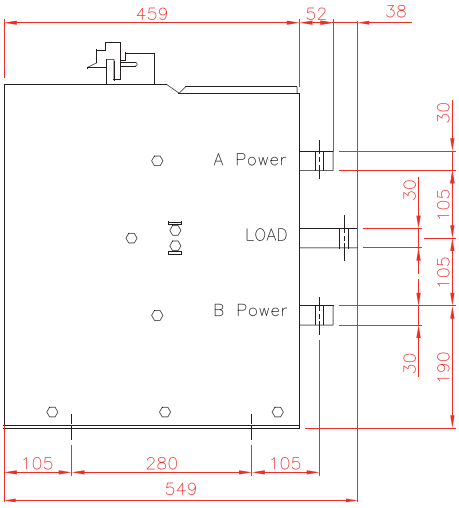
CTTS(400A~6300A)

◆ Outline Dimension_ 외형도

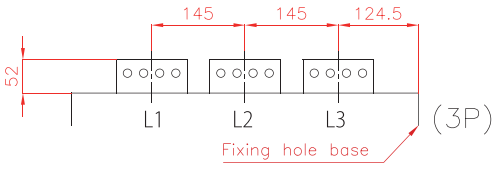
4000A Fixed

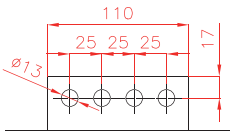


Front View

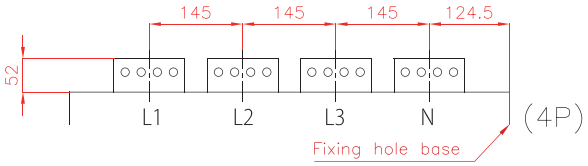


Side View

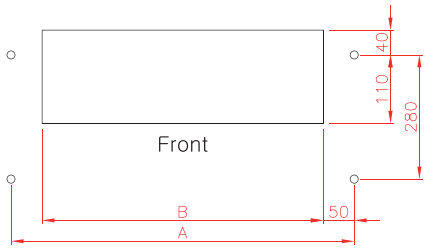




Terminal



Panel cutting (Fixing hole)



Poles	A	B
3P	539	439
4P	684	584



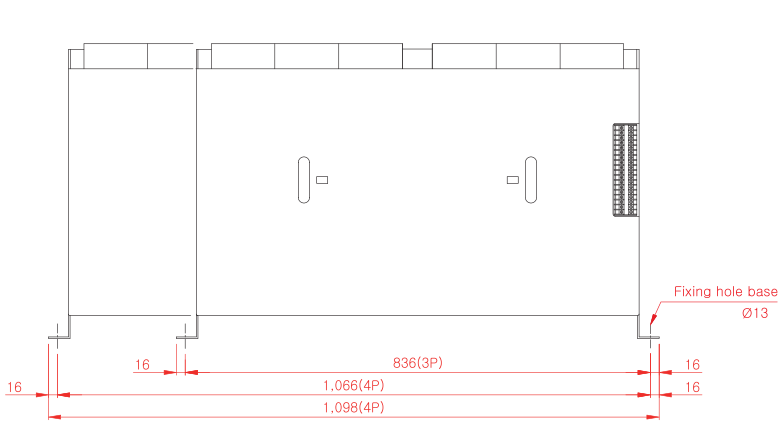
OSS - CTTS Type

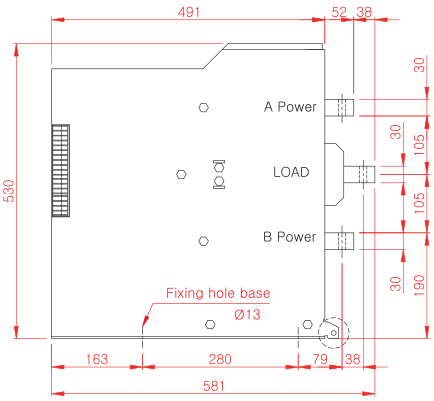
CTTS (400A~6300A)

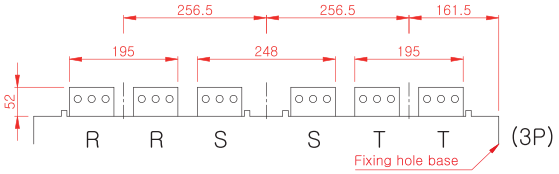
◆ Outline Dimension_ 외형도

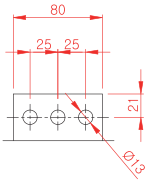
5000~6300A Fixed

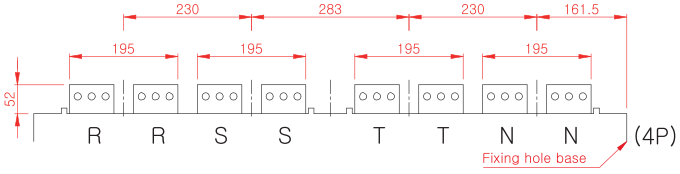
Unit : mm



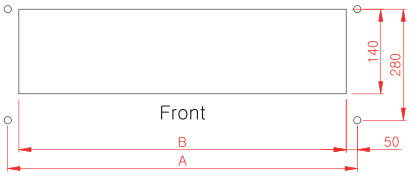




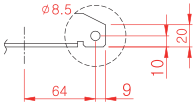




Panel cutting (Fixing hole)



Poles	A	B
3P	836	736
4P	1066	966



Earthing Hole

OSS - CTTS Type

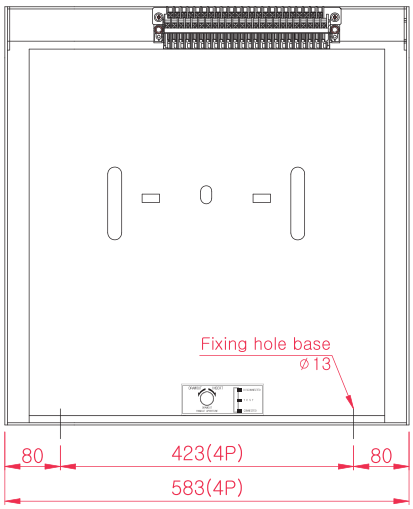
CTTS(400A~6300A)



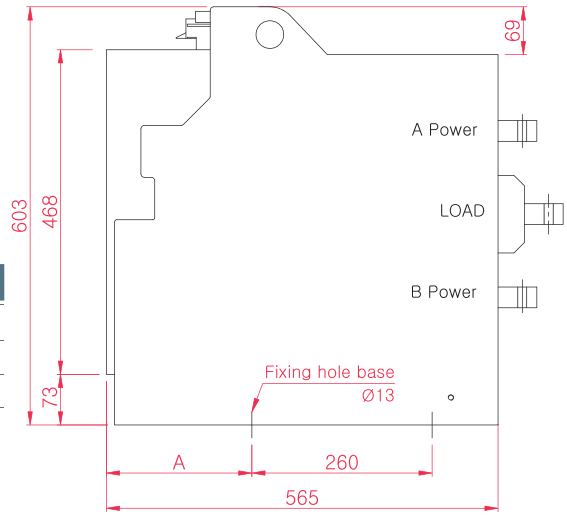
◆ Outline Dimension_ 외형도

400~3200A Draw-out

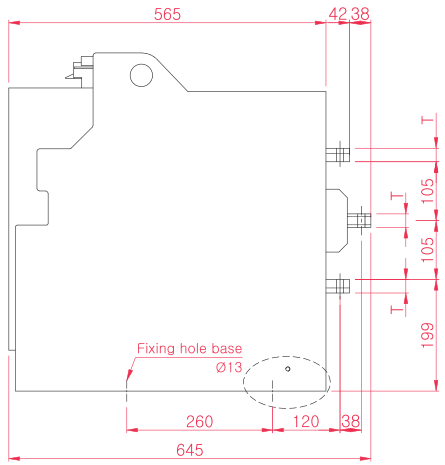
Unit : mm

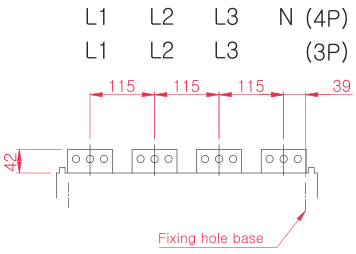


POSITION	A
CONNECTED	210
TEST	251
DISCONNECTED	280

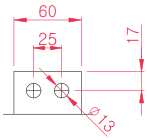


OSS-604~625-CTTS

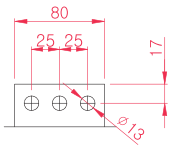




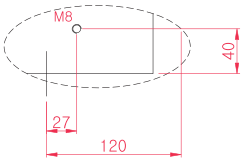
Current	T
400A~1600A	12
2000A	15
2500A	24



OSS-604~610-CTTS

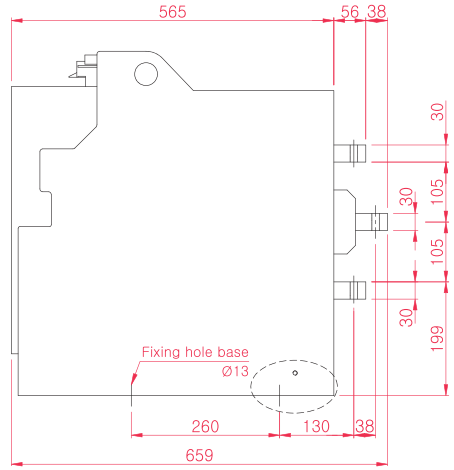


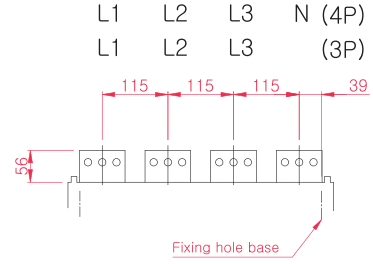
OSS-612~625-CTTS

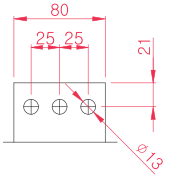


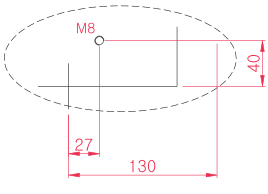
Earthing Hole

OSS-632-CTTS









Earthing Hole



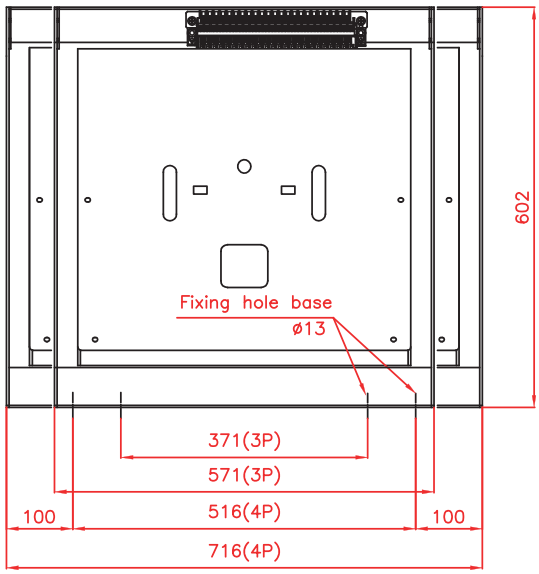
OSS - CTTS Type

CTTS(400A~6300A)

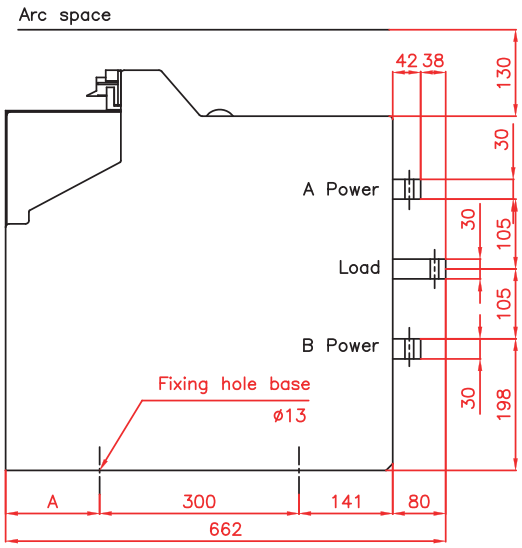
◆ Outline Dimension_ 외형도

4000A Draw-out

Unit : mm

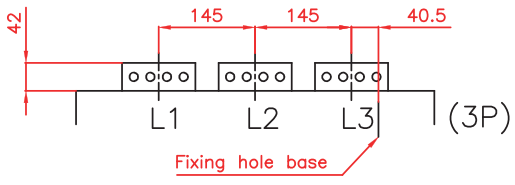


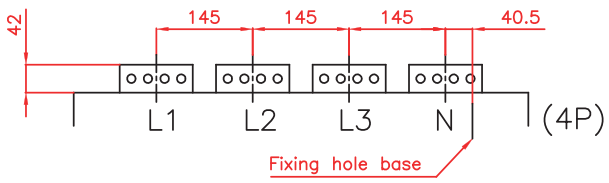
Front View

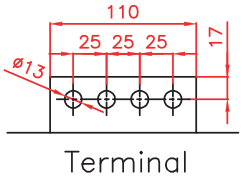


Side View

POSITION	A
CONNECTED	141
TEST	182
DISCONNECTED	211







Terminal



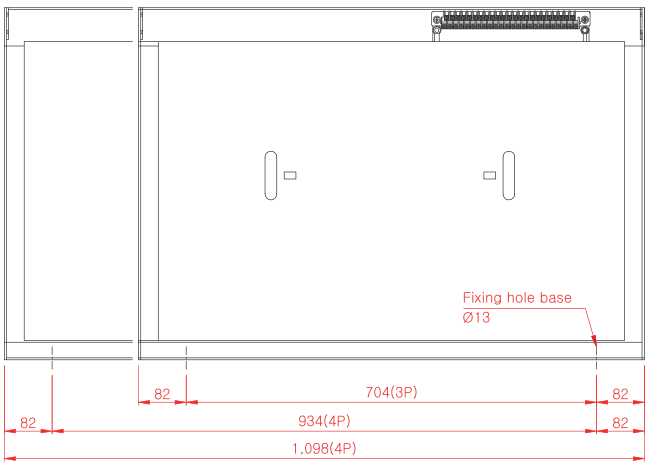
OSS - CTTS Type

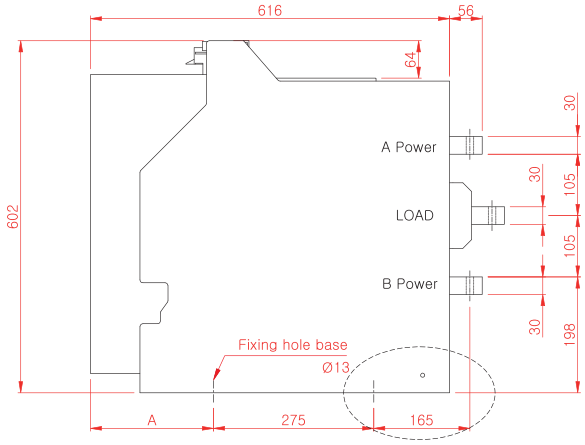
CTTS(400A~6300A)

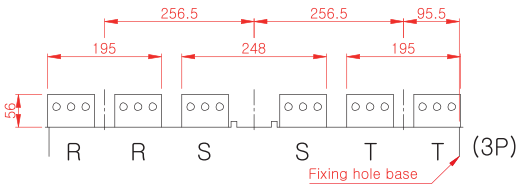
◆ Outline Dimension_ 외형도

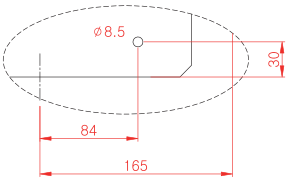
5000A~6300A Draw-out

Unit : mm

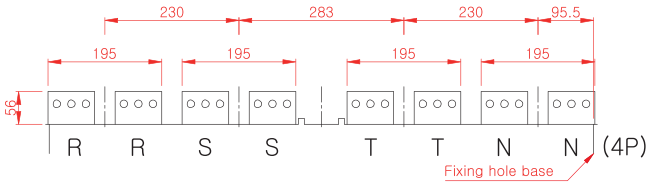


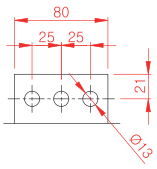






Earthing Hole





POSITION	A
CONNECTED	211
TEST	252
DISCONNECTED	281

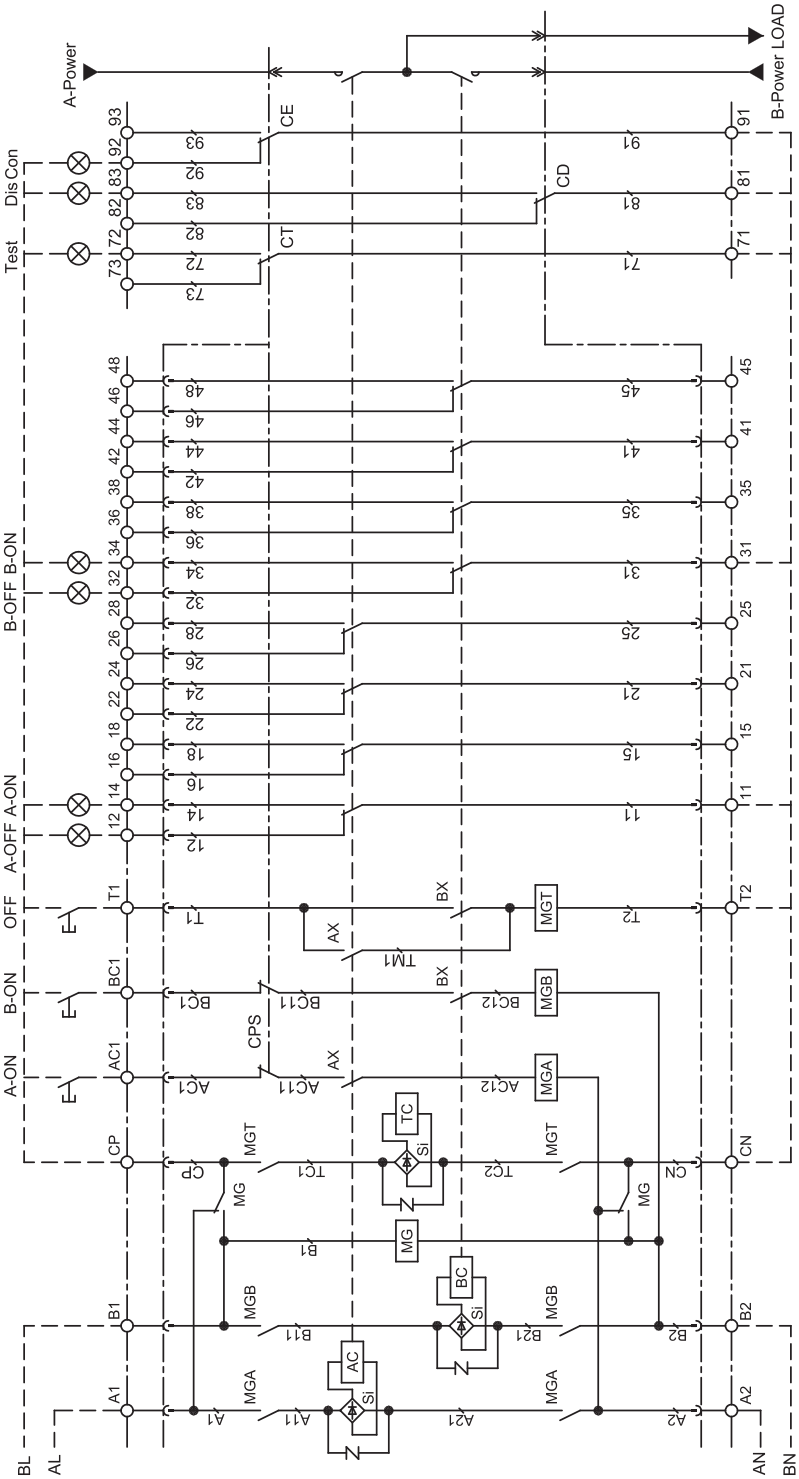


OSS - CTTS Type

CTTS(400A~6300A)

◆ Circuit Diagram(AC)_ 회로도(AC)

◎ 400A ~ 4000A



A1, A2	A-Power Terminal	MG	Source Selection Contactor	AX, BX	Control Switch
B1, B2	B-Power Terminal	AC, BC	Closing Coil	CT	Contacts for Test Position(Option)
AC1, BC1	Closing Terminal	TC	Tripping Coil	CD	Contacts for Disconnected Position(Option)
T1, T2	Tripping Terminal	MGA, MGB	Closing Magnetic Contactor	CE	Contacts for Connected Position(Option)
11 ~ 28	A-Power Indication Contacts	MGT	Tripping Magnetic Contactor	Si	Silicon Rectifier
31 ~ 48	B-Power Indication Contacts	CPS	Closing Preventing Switch		

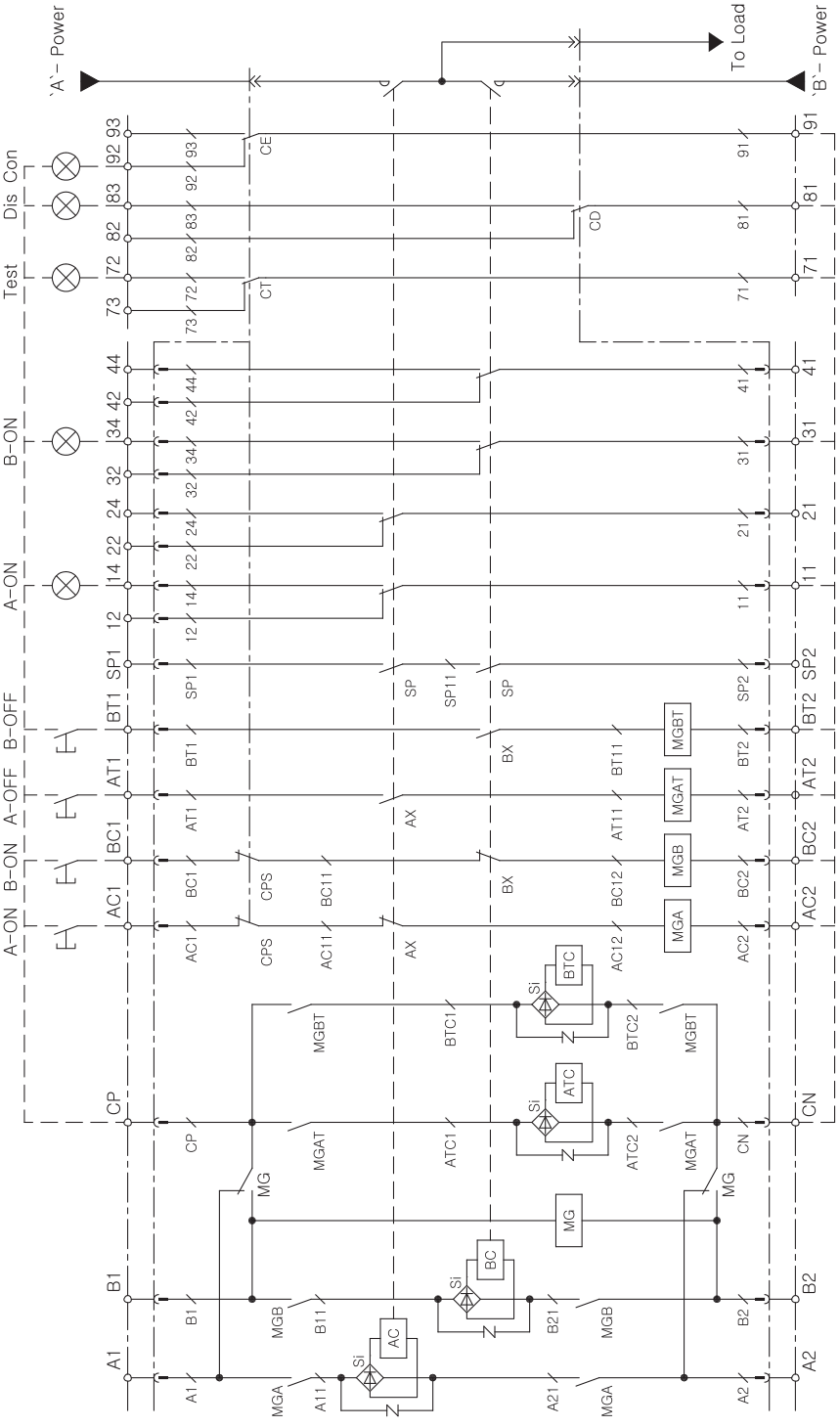


OSS - CTTS Type

CTTS(400A~6300A)

◆ Circuit Diagram(AC)_ 회로도(AC)

◎ 5000A ~ 6300A



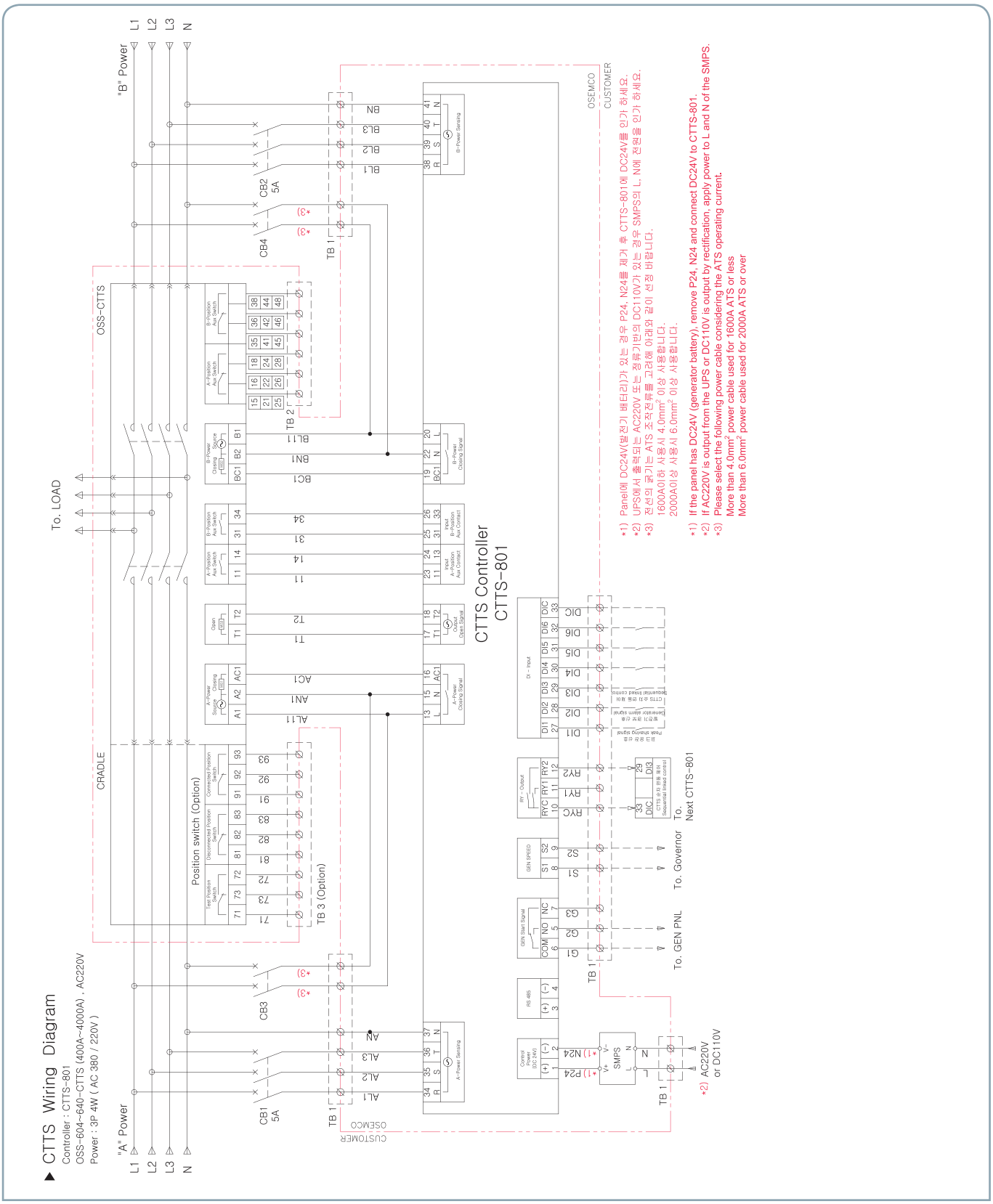
A1, A2	A-Power terminal	AC , BC	Closing coil	SP	Source Parallelization state contacts
B1, B2	B-Power terminal	ATC , BTC	Tripping coil	11 ~ 24	A-Power indication contacts
CP , CN	Control source output terminal	MG	Source selection contactor	31 ~ 44	B-Power indication contacts
AC1 , AC2	A-Power Closing terminall	MGA , MGB	Closing magnetic contactor	CT	Contacts for test position (option)
BC1 , BC2	B-Power Closing terminall	MGAT, MGBT	Tripping magnetic contactor	CD	Contacts for disconnected position (option)
AT1 , AT2	A-Power Tripping terminal	CPS	Closing preventing switch	CE	Contacts for connected position (option)
BT1 , BT2	B-Power Tripping terminal	AX , BX	Control switch	Si	Silicon rectifier



OSS - CTTS Type

CTTS(400A~6300A)

◆ Wiring Diagram_ 결선도 (CTTS 400~4000A)

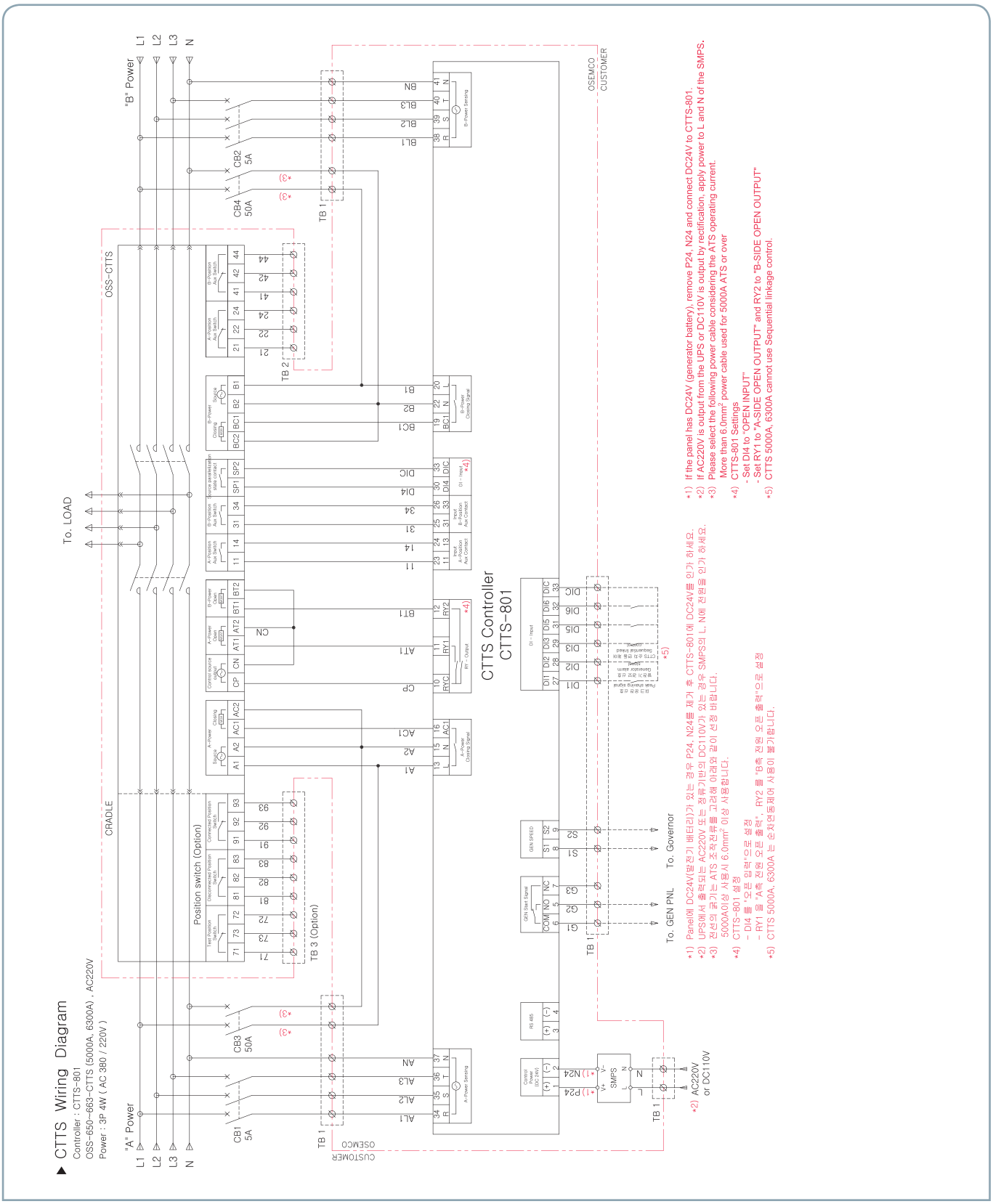




OSS - CTTS Type

CTTS(400A~6300A)

◆ Wiring Diagram_ 결선도 (CTTS 5000~6300A)





OSS - CTTS Type

CTTS(400A~6300A)

MEMO



OSS - CTTS Type (병렬운전용)

CTTS -P (400A~6300A)

◆ CTTS-P for Parallel Operation Features_ 병렬운전용 CTTS 특장점

- Overcoming the limitations of instantaneous input load capacity of diesel generators
- Diesel generators require high output when an instantaneous load is applied, but combustion air cannot be increased instantaneously, resulting in unstable combustion due to lack of oxygen.
- Actively controlled by connecting control lines to the governor and AVR of the generator, synchronizing commercial power and generator power, enabling parallel operation with overlapping connection for infinite time
- Soft loading of commercial and generator power loads enables load sharing in an uninterrupted state
- No voltage and frequency transients in superimposed transfer.

- 디젤 발전기의 순시 투입 부하용량의 한계를 극복

- 디젤발전기는 순간적인 부하가 걸릴 때 연소공기를 순간적으로 늘릴 수 없으므로 산소부족에 의한 불안전 연소가 발생하여, 실린더 내 압력을 올릴 수 없어 회전수가 저하되고, 심한 경우 기관정지가 발생.
- 발전기의 가버너(Governor) 및 AVR에 제어선을 연결하여 능동적으로 제어하여 상용전원과 발전전원을 동기화하여 무한시간 중첩 접속한 상태로 병렬운전이 가능
- 상용전원과 발전전원의 부하를 Soft Loading 하여 무정전상태에서 부하분담이 가능
- 중첩 절체 시 과도 전압 및 주파수가 발생하지 않음.

◆ CTTS-P for Parallel Operation Transfer Concept_ 병렬운전용 CTTS 절체 개념

- Generator start signal transmission
- When the generated power reaches constant voltage and constant frequency, the generator is controlled through the governor and AVR.
- Synchronize the voltage, frequency, and phase between commercial power and generated power, and maintain that state continuously.
- Parallel operation is executed when the synchronization state between the two power sources satisfies the transfer condition of CTTS-P.
- Load sharing in uninterrupted state by gradually increasing or decreasing the specific amount of electricity.

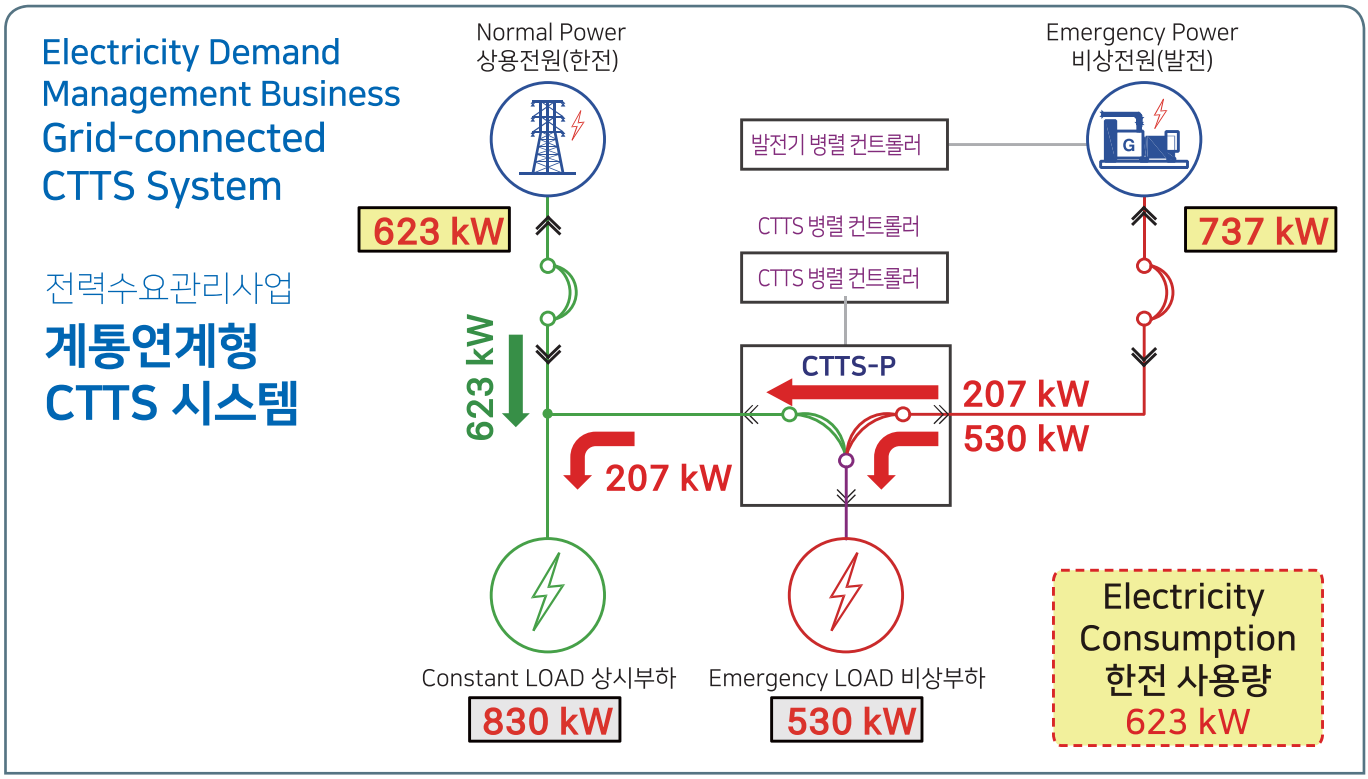
발전기 기동 신호 송출

발전 전원이 정전압, 정주파수에 도달하면 거버너(Governor) 및 AVR을 통해 발전기를 제어

상용전원과 발전전원 간에 전압, 주파수 및 위상을 동기화시키고, 그 상태를 지속적으로 유지

두 전원간에 동기화 상태가 CTTS-P의 절체조건을 충족하면 병렬운전을 시행

특정 전력량을 점차적으로 증감하여 무정전 상태에서 부하분담 시행





OSS - CTTS Type (병렬운전용)

CTTS-P (400A~6300A)

◆ Specification_ 정격사양

TYPE			604-CTTS-P		606-CTTS-P		608-CTTS-P		610-CTTS-P		612-CTTS-P	
Rated Operational Voltage (정격사용전압) Ue			AC 600 V									
Rated Insulation Voltage (정격 절연 전압) Ui			AC 600 V									
Rated Impulse Withstand Voltage (정격 임펄스 내전압) Uimp			AC 8000 V									
Rated Current (정격전류) Ie			400 A		630 A		800 A		1000 A		1250 A	
Neutral Phase Current (중성극전류)			400 A		630 A		800 A		1000 A		1250 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Draw-out (인출형)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Draw-out (인출)		130	145	130	145	135	150	135	150	145	160
Rated Short-Time Withstand Current (정격 단시간 내전류) Icw			25 kA								35 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류) peak Icm			52.5 kA								73.5 kA	
Switching Capacity (개폐용량)			AC - 33B (10 Ie making / 10 Ie breaking cos Ø= 0.35)									
Switching Frequency (개폐빈도)			60 Time / Hour								20 Time / Hour	
Operating Current (조작전류) peak	AC 220 V	Making	35 A									
		Breaking	35 A									
Operating Time (동작시간)	"A" Power	Making	≤ 120 ms									
		Breaking	≤ 70 ms									
	"B" Power	Making	≤ 120 ms									
		Breaking	≤ 70 ms									
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000									
	With Current (통전)		5,000									
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source is provided to A side and B side simultaneously, Coil may be damaged. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. 2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다.									

TYPE			616-CTTS-P		620-CTTS-P		625-CTTS-P		632-CTTS-P		640-CTTS-P	
Rated Operational Voltage (정격사용전압) Ue			AC 600 V									
Rated Insulation Voltage (정격 절연 전압) Ui			AC 600 V									
Rated Impulse Withstand Voltage (정격 임펄스 내전압) Uimp			AC 8000 V									
Rated Current (정격전류) Ie			1600 A		2000 A		2500 A		3200 A		4000 A	
Neutral Phase Current (중성극전류)			1600 A		2000 A		2500 A		3200 A		4000 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Draw-out (인출형)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Draw-out (인출)		150	165	165	195	165	195	180	210	220	310
Rated Short-Time Withstand Current (정격 단시간 내전류) Icw			35 kA		40 kA		50 kA					
Rated Short-Circuit Making Capacity (단락 투입 전류) peak Icm			73.5 kA		84 kA		105 kA					
Switching Capacity (개폐용량)			AC - 33B (10 Ie making / 10 Ie breaking cos Ø= 0.35)									
Switching Frequency (개폐빈도)			20 Time / Hour		10 Time / Hour							
Operating Current (조작전류) peak	Closing Coil	Making	35 A								55 A	
		Breaking	35 A								55 A	
Operating Time (동작시간)	"A" Power	Making	≤ 120 ms		≤ 120 ms							
		Breaking	≤ 70 ms		≤ 100 ms							
	"B" Power	Making	≤ 120 ms		≤ 120 ms							
		Breaking	≤ 70 ms		≤ 100 ms							
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000		5,000						3,000	
	With Current (통전)		5,000		3,000						1,500	
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source is provided to A side and B side simultaneously, Coil may be damaged. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. 2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다.									

OSS - CTTS Type (병렬운전용)

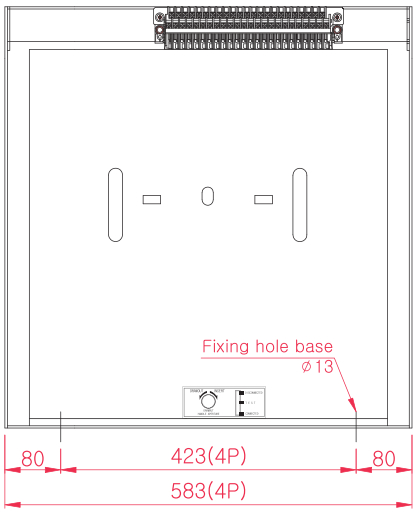
CTTS-P (400A~6300A)



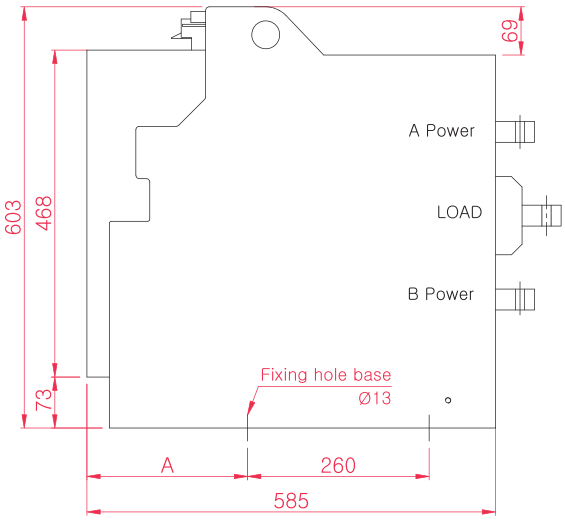
◆ Outline Dimension_ 외형도

400~3200A Draw-out

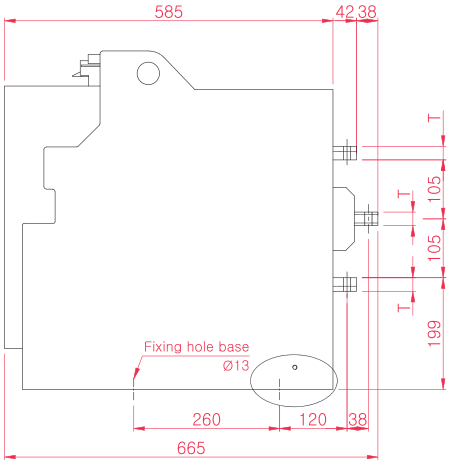
Unit : mm

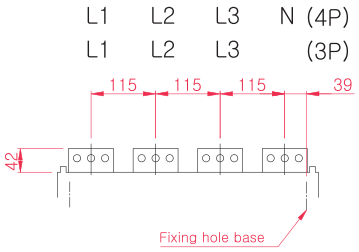


POSITION	A
CONNECTED	230
TEST	271
DISCONNECTED	300

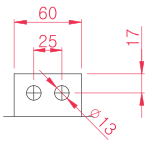


OSS-604~625-CTTS-P

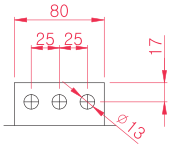




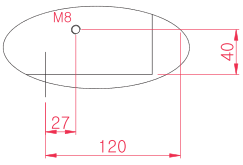
Current	T
400A~1600A	12
2000A	15
2500A	24



OSS-604~610-CTTS-P

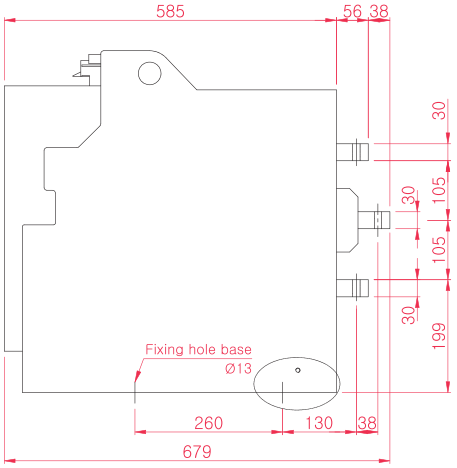


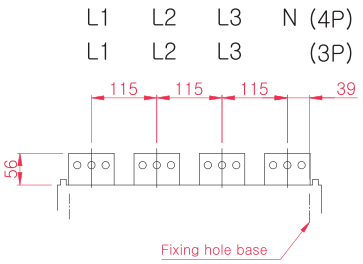
OSS-612~625-CTTS-P

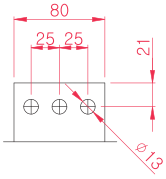


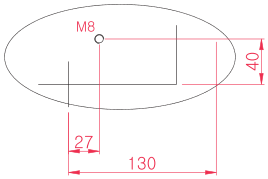
Earthing Hole

OSS-632-CTTS-P









Earthing Hole

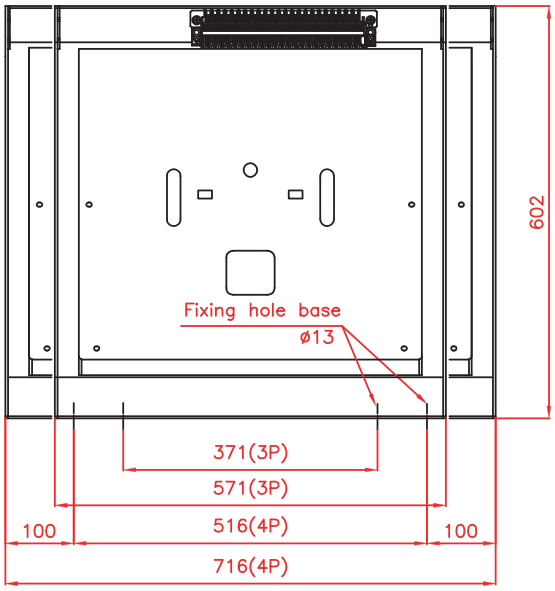


OSS - CTTS Type (병렬운전용)

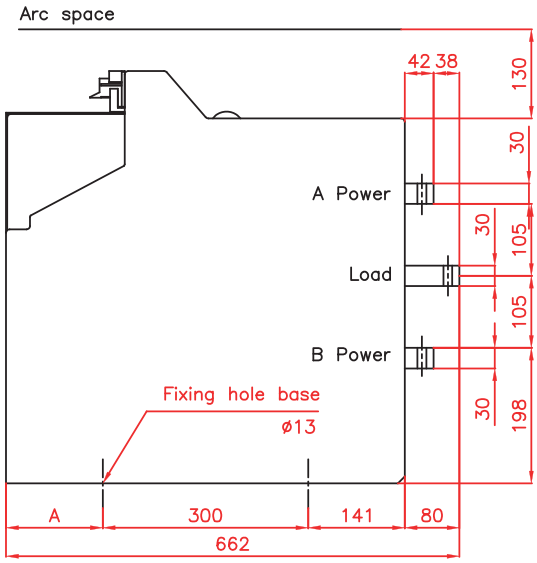
CTTS-P (400A~6300A)

◆ Outline Dimension_ 외형도

4000A Draw-out

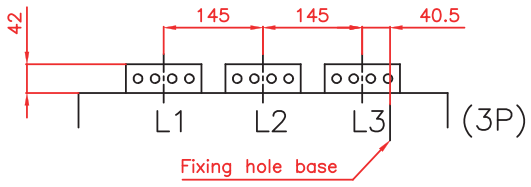


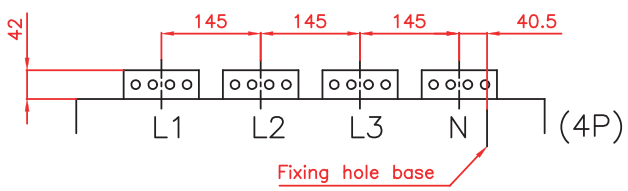
Front View

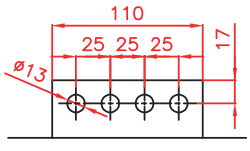


Side View

POSITION	A
CONNECTED	141
TEST	182
DISCONNECTED	211







Terminal

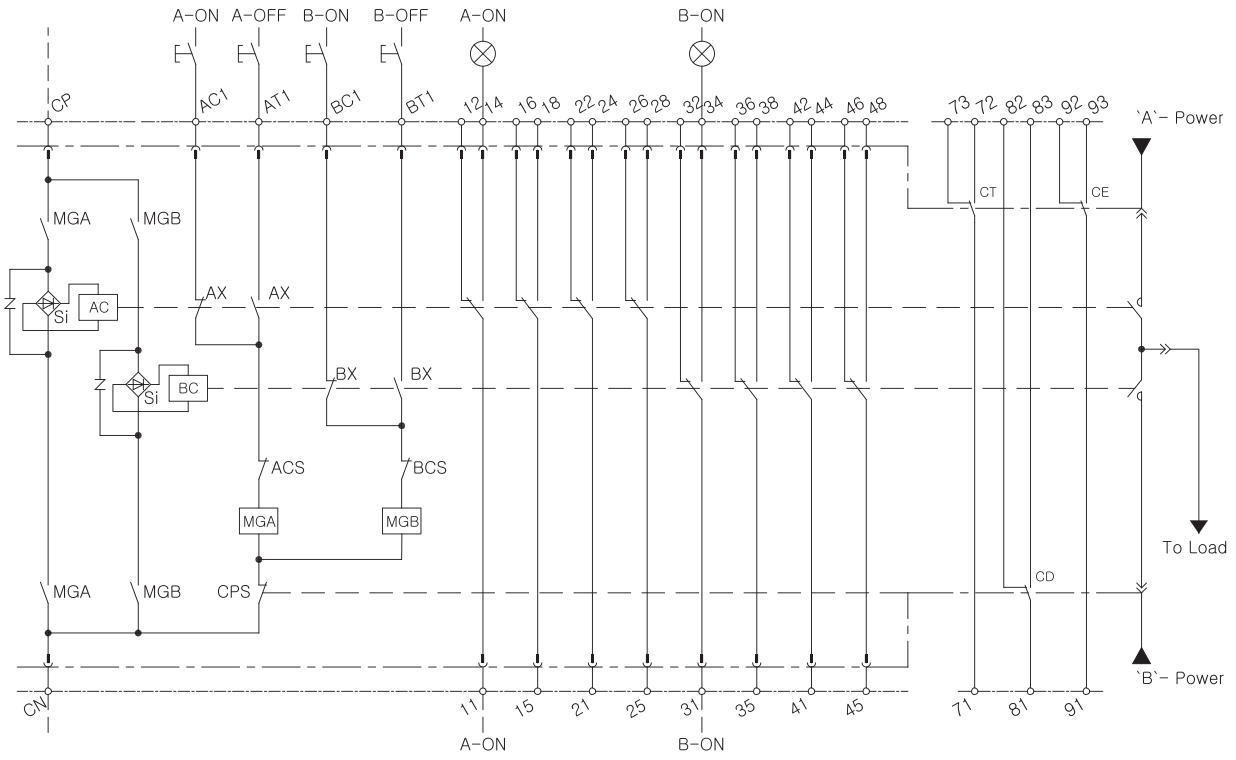


OSS - CTTS Type (병렬운전용)

CTTS-P (400A~6300A)

◆ Circuit Diagram_ 회로도

Drawout Type



CP, CN	Control Power Terminal	AX, BX	Control Switch
AC1	A-Power Closing Terminal	11 ~ 28	A-Power Indication Contacts
BC1	B-Power Closing Terminal	31 ~ 48	B-Power Indication Contacts
AT1	A-Power Tripping Terminal	ACS, BCS	Coil Control Switch
BT1	B-Power Tripping Terminal	CPS	Closing Preventing Switch
AC	A-Power Coil	CD	Contacts for Disconnected Position (Option)
BC	B-Power Coil	CT	Contacts for Test Position (Option)
MGA	A-Power Magnetic Contactor	CE	Contacts for Connected Position (Option)
MGB	B-Power Magnetic Contactor	Si	Silicon Rectifier



BYPASS ATS

BYPASS ATS (100A~6300A)

◆ About Bypass ATS_ 개요

The Bypass switch is systematically coupled to the main ATS(CTTS), allowing operation without interruption in maintenance or inspection of the main switch. The Bypass Switch is an additional manual switch with a mechanical interlock to prevent mixed contact that causes short circuit with the main ATS.

- Continuity of power supply
  Bypass switch is installed in parallel with the Main ATS. When Main ATS needs to be checked, Main ATS can be checked by supplying power continuously through Bypass switch.

- System reliability
  Interlock circuit is configured to move the Bypass contact in the same direction as the operation position of Main ATS, so that system short-circuit can be prevented.

메인 ATS(CTTS)에 Bypass 스위치가 시스템적으로 결합되어 있어 메인 ATS의 정비 또는 검사 시 부하의 중단 없이 운영이 가능하다.

Bypass 스위치는 메인 ATS와 혼촉 방지를 위한 기계적 인터록으로 안전 장치가 되어 있는 추가적인 수동 조작 스위치이다.

- 전원공급의 지속성
  Bypass 스위치는 Main ATS와 병렬로 설치된다. ATS의 점검이 필요할 경우, Bypass 스위치를 통해 전원을 공급하고 Main ATS를 인출하므로 지속적으로 전원이 공급된다.

- 계통의 신뢰성
  Main ATS의 동작위치와 동일한 방향으로 Bypass 스위치가 이동할 수 있도록 Interlock 회로가 구성되어 계통의 단락사고를 차단할 수 있다.

◆ Specification_ 정격사양

The rated specifications of Bypass products conform to the rated specifications of the main ATS.

The applicable main ATS are as follows.

- OSS-TN (100 A to 400 A)
- OSS-CTTS (100 A to 6300 A)
- OSS-PC (630 A to 6300 A)
- OSS-PCN (630 A to 6300 A)
- OSS-PSO (630 A to 6300 A)

The appearance of the Bypass product depends on the main ATS applied.

바이패스 제품의 정격사양은 메인 ATS의 정격사양을 따릅니다.

적용 가능한 메인 ATS는 아래와 같습니다.

- OSS-TN (100 A ~ 400 A)
- OSS-CTTS (100 A ~ 6300 A)
- OSS-PC (630 A ~ 6300 A)
- OSS-PCN (630 A ~ 6300 A)
- OSS-PSO (630 A ~ 6300 A)

바이패스 제품의 외형은 적용되는 메인 ATS에 따라 달라 집니다.



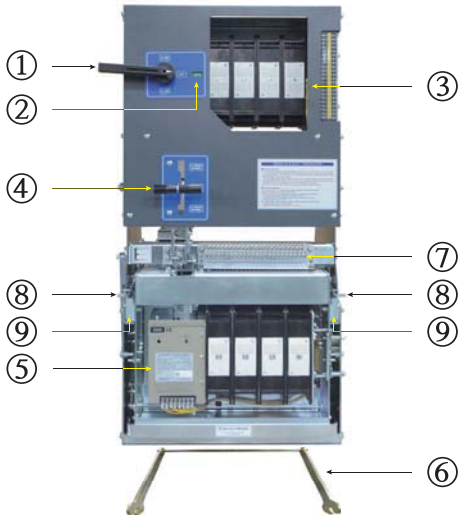


BYPASS ATS

BYPASS ATS (100A~6300A)

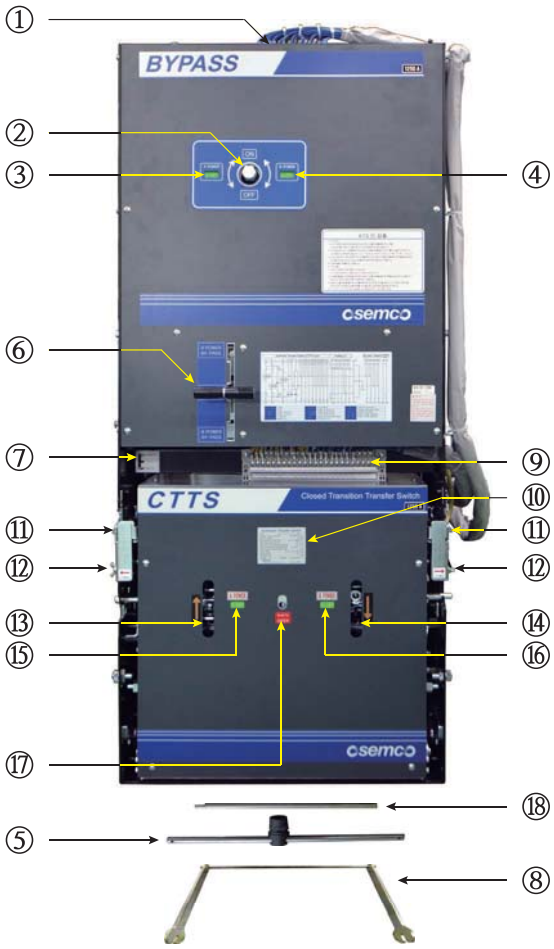
◆ External View_ 외관명칭

100 A ~ 400 A



1)	Manual Handle Lever (수동 핸들 레버)
2)	ON-OFF Indicator (ON-OFF 표시기)
3)	Bypass Switch (바이패스 스위치)
4)	Operating Lever (조작 레버)
5)	Main ATS (메인 ATS)
6)	Handle for Draw_in & Draw_out (인,입출용 핸들)
7)	Auto Connection Terminal (자동연결 단자대)
8)	Lever for Draw_in & Draw_out (인,입출 레버)
9)	Cover for Draw_in & Draw_out Lever(인,입출 레버 덮개)

400 A ~ 6300 A



Bypass Switch

1)	Terminal (단자대)
2)	Manual Handle Lever (수동 핸들 레버)
3)	A-Power ON-OFF Indicator (A-전원측 ON-OFF 표시기)
4)	B-Power ON-OFF Indicator (B-전원측 ON-OFF 표시기)
5)	Manual Handle (수동 핸들)
6)	Operating Lever (조작 레버)

Main ATS

7)	Draw_in & Draw_out Location Indicator (인,입출 위치 표시기)
8)	Handle for Draw_in & Draw_out (인,입출용 핸들)
9)	Auto Connection Terminal (자동연결 단자대)
10)	Name Plate (명판)
11)	Lever for Draw_in & Draw_out (인,입출 레버)
12)	Cover for Draw_in & Draw_out Lever(인,입출 레버 덮개)
13)	A-Power Manual handle hole (A-전원측 수동핸들 삽입구)
14)	B-Power Manual handle hole (B-전원측 수동핸들 삽입구)
15)	A-Power ON-OFF Indicator (A-전원측 ON-OFF 표시기)
16)	B-Power ON-OFF Indicator (B-전원측 ON-OFF 표시기)
17)	Trip Manual Handle Hole (중립위치 수동 핸들 삽입구)
18)	Manual Handle (수동 핸들)

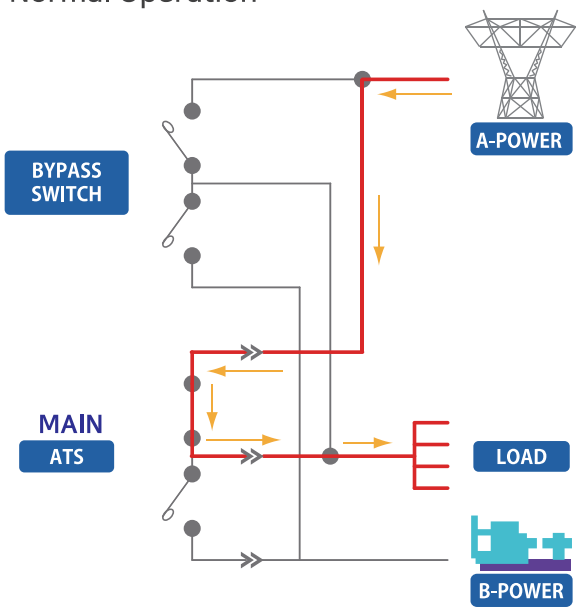


BYPASS ATS

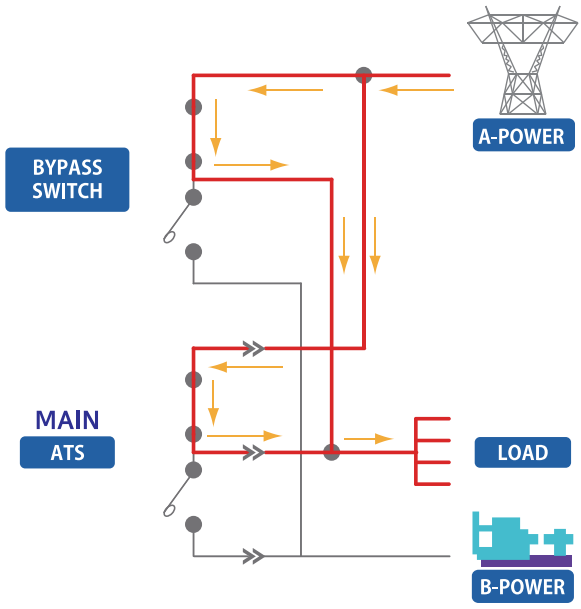
BYPASS ATS (100A~6300A)

◆ Switching Method of Bypass ATS_ 절체 방법

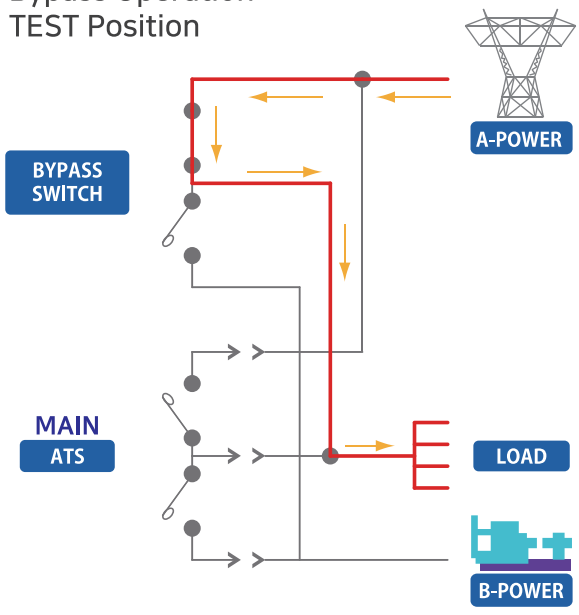
정상운전
Normal Operation



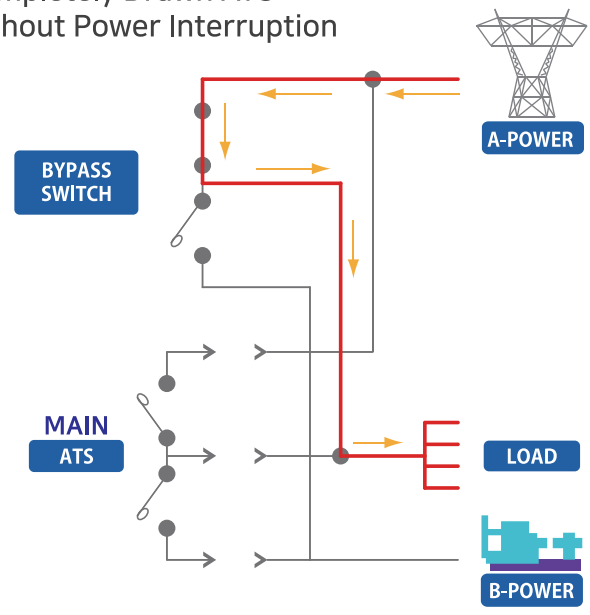
바이패스 스위치 투입 상태
Bypass Switch Closed



Bypass 운전 상태
Bypass Operation
TEST Position



부하 정전없이 완전 인출 상태
Completely Drawn ATS
without Power Interruption



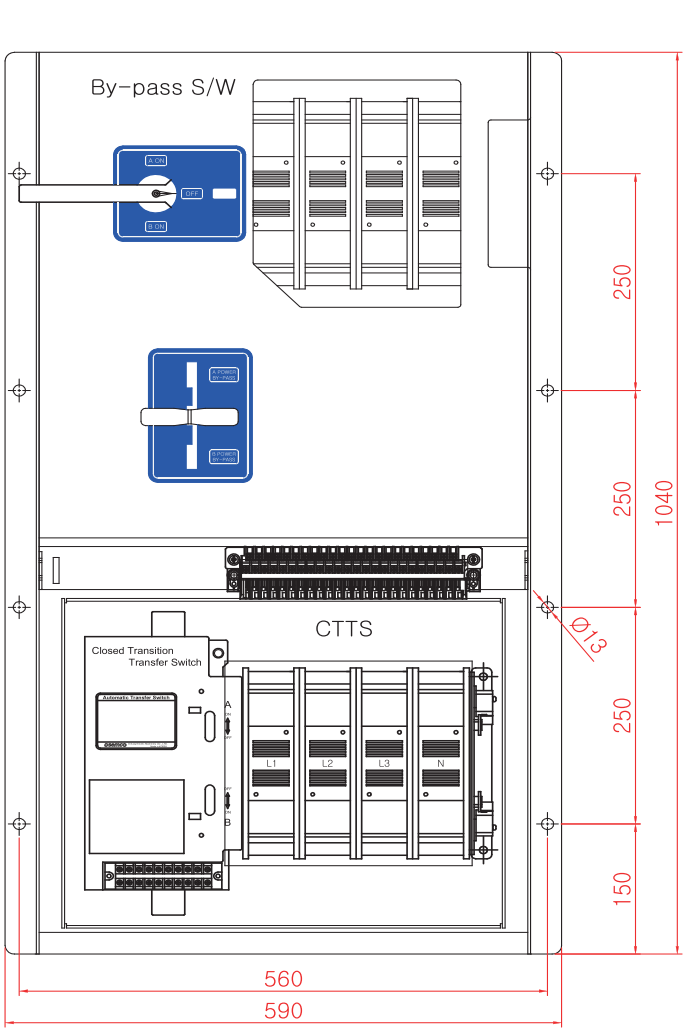


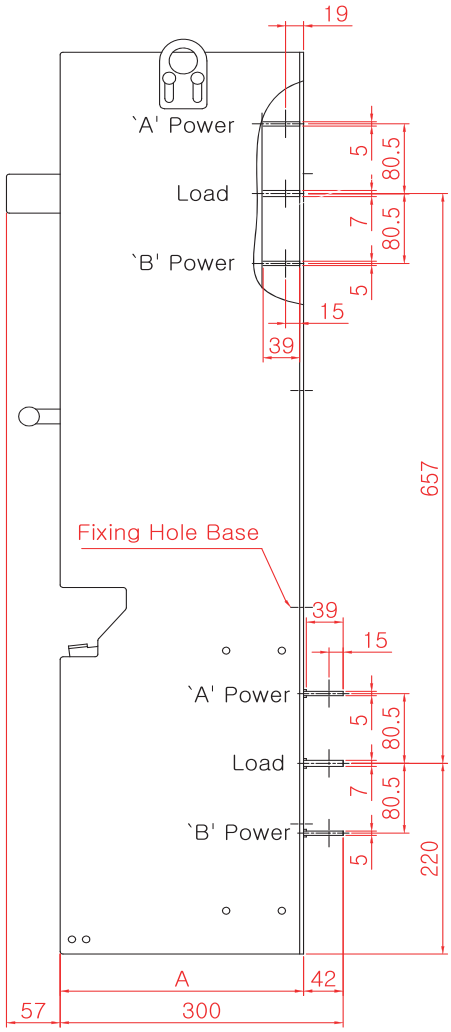
OSS - PSB-CTTS

BYPASS CTTS (100A~400A)

◆ Outline Dimension_ 외형도

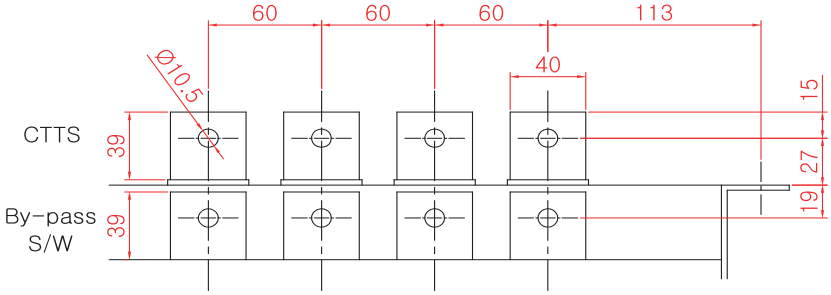
PSB-61S~64S-CTTS





Terminal

L1	L2	L3	N	4P
L1	L2	L3		3P



POSITION	A
CONNECTED	258
TEST	295
DISCONNECTED	325

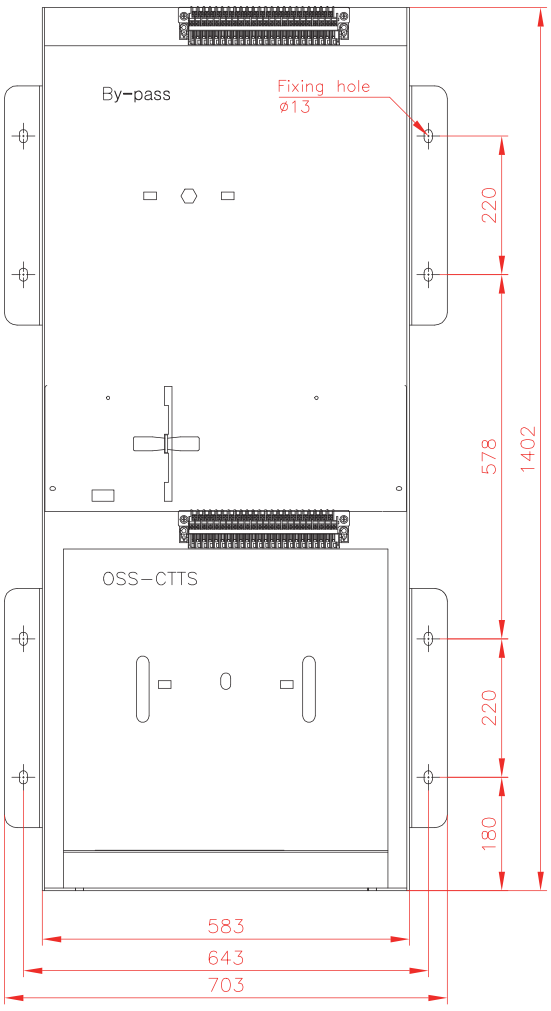


OSS - PSB-CTTS

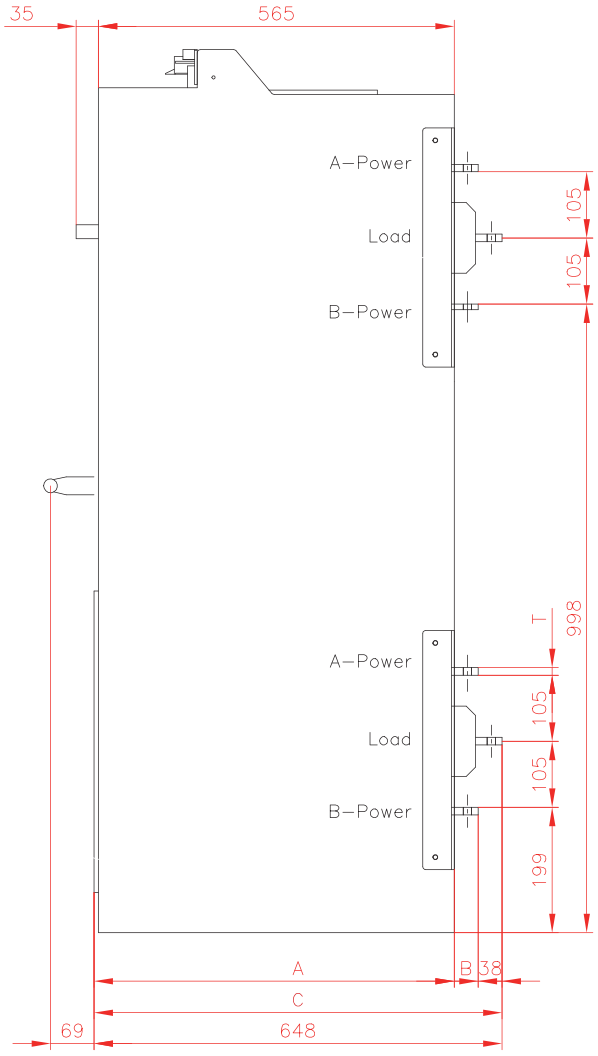
BYPASS CTTS(400A~6300A)

◆ Outline Dimension_ 외형도

PSB-604~632-CTTS

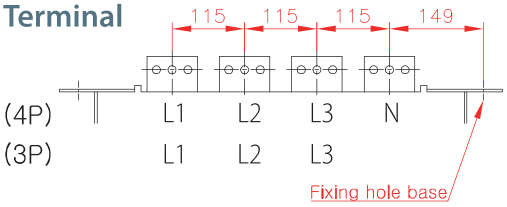


Front View



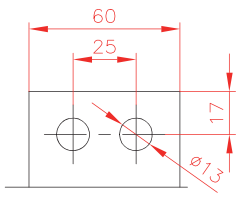
Side View

Terminal

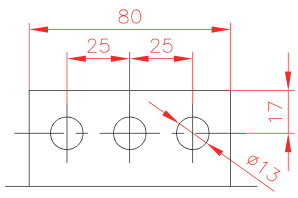


POSITION	A
CONNECTED	572
TEST	613
DISCONNECTED	642

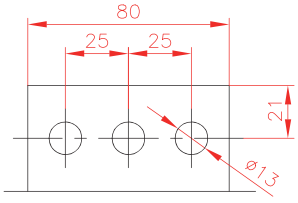
Current	B	C	T
400A~1600A	38	648	12
2000A			15
2500A			24
3200A	52	662	30



400A~1000A



1250A~2500A



3200A

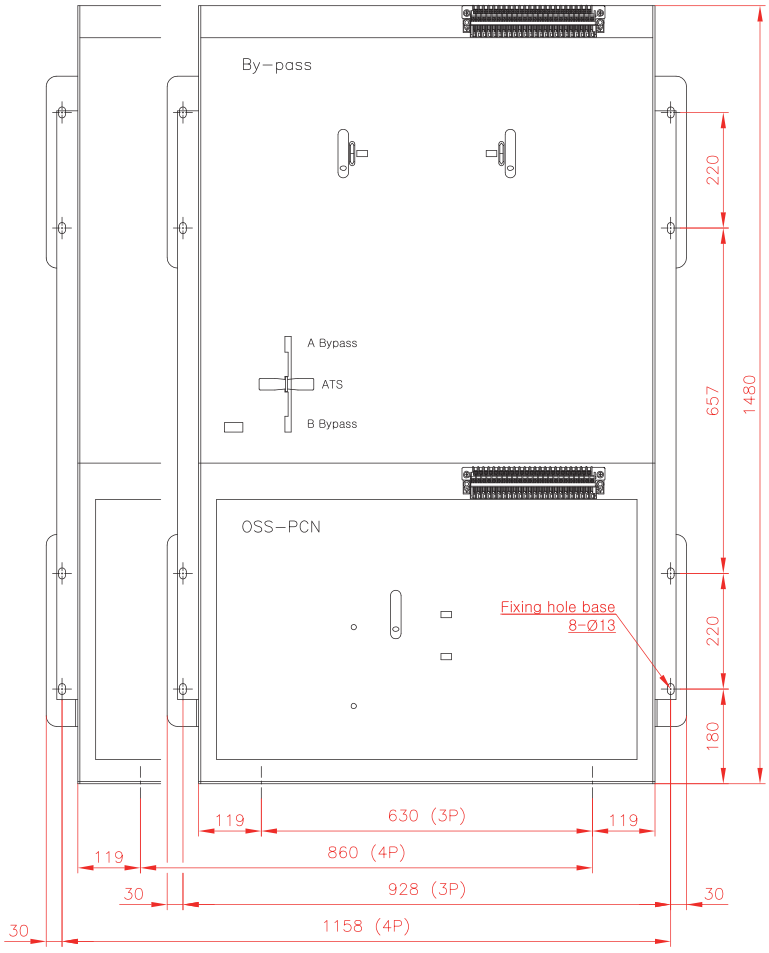


OSS - PSB-CTTS

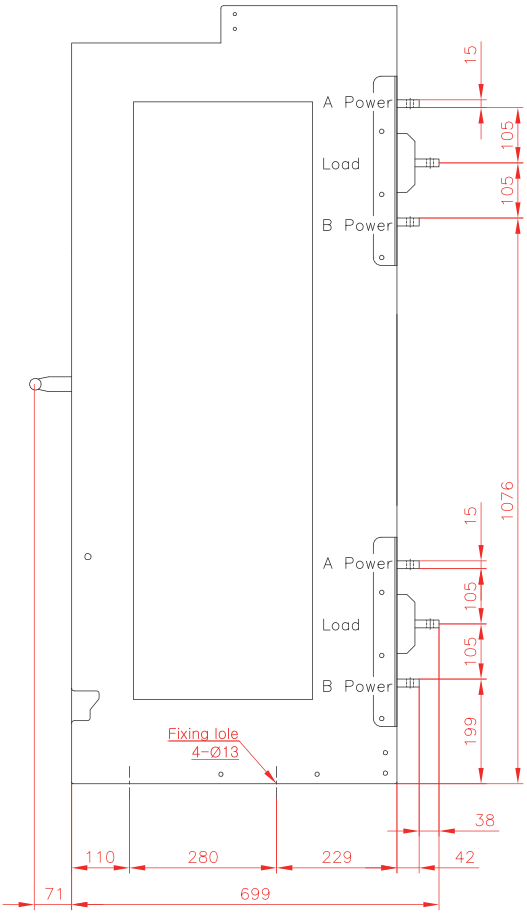
BYPASS CTTS (400A~6300A)

◆ Outline Dimension_ 외형도

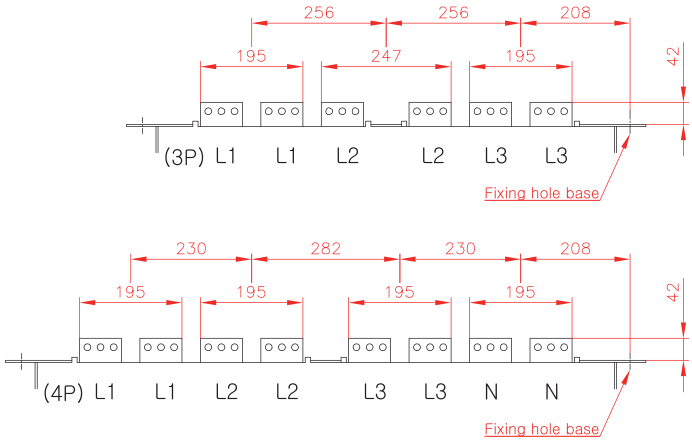
PSB-640-CTTS

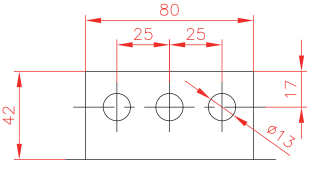


Front view



Side view





Terminal

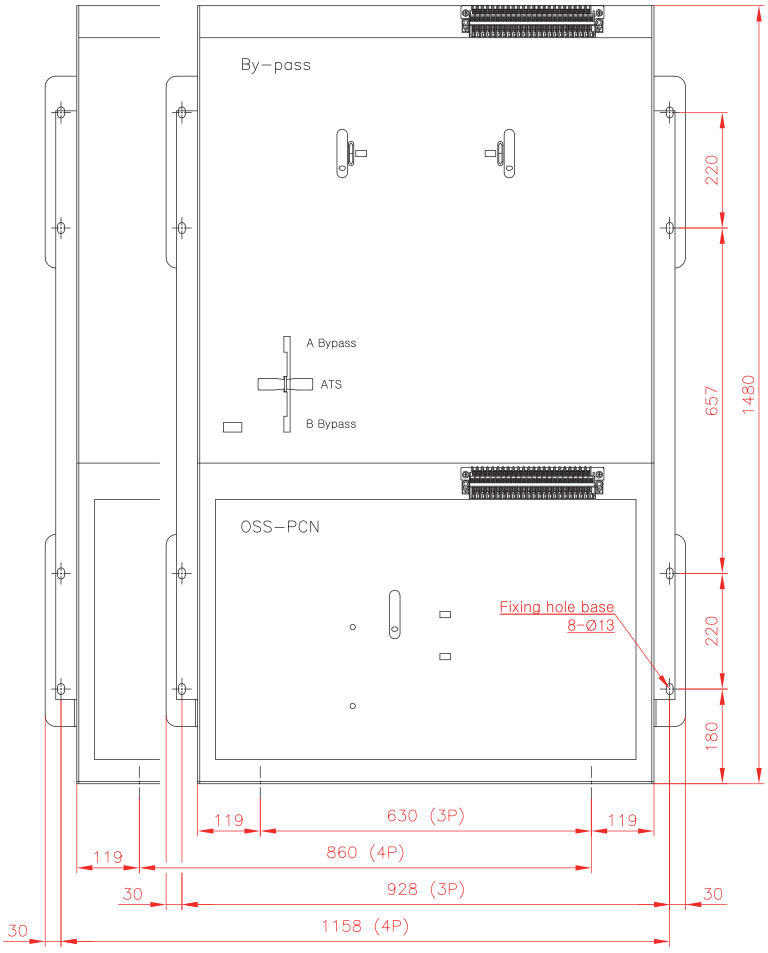


OSS - PSB-CTTS

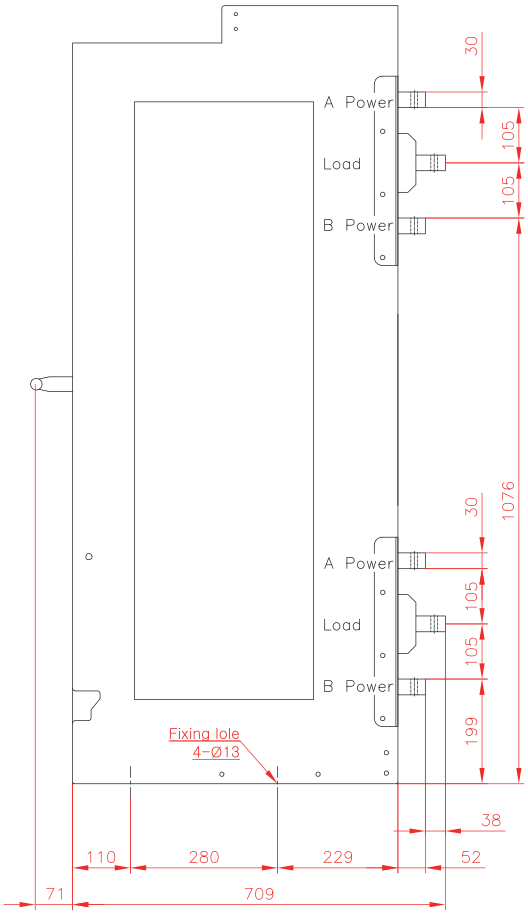
BYPASS CTTS(400A~6300A)

◆ Outline Dimension_ 외형도

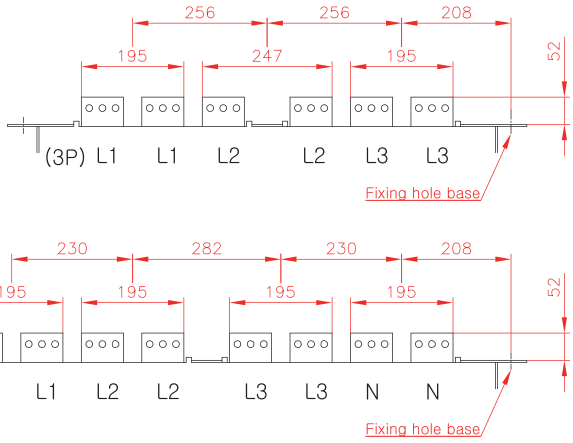
PSB-650~663-CTTS

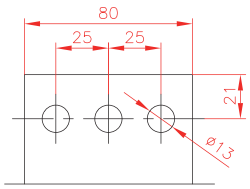


Front view



Side view





Terminal

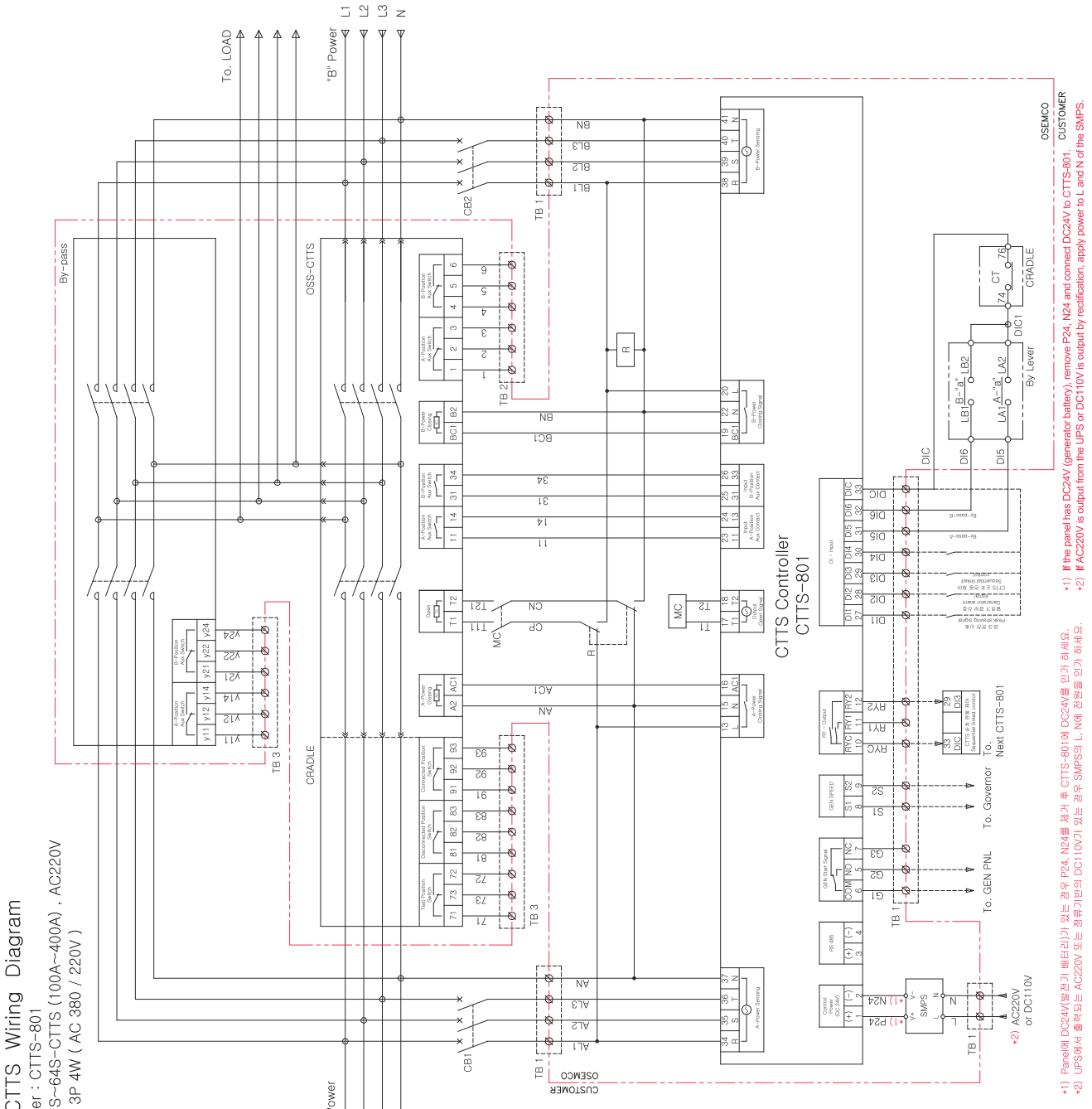


OSS - PSB-CTTS

BYPASS CTTS (100A~400A)

◆ Wiring Diagram_ 결선도

PSB-61S~64S-CTTS



▲ PSB-CTTS Wiring Diagram
Controller : CTTS-801
PSB-61S~64S-CTTS (100A~400A) , AC220V
Power : 3P 4W (AC 380 / 220V)

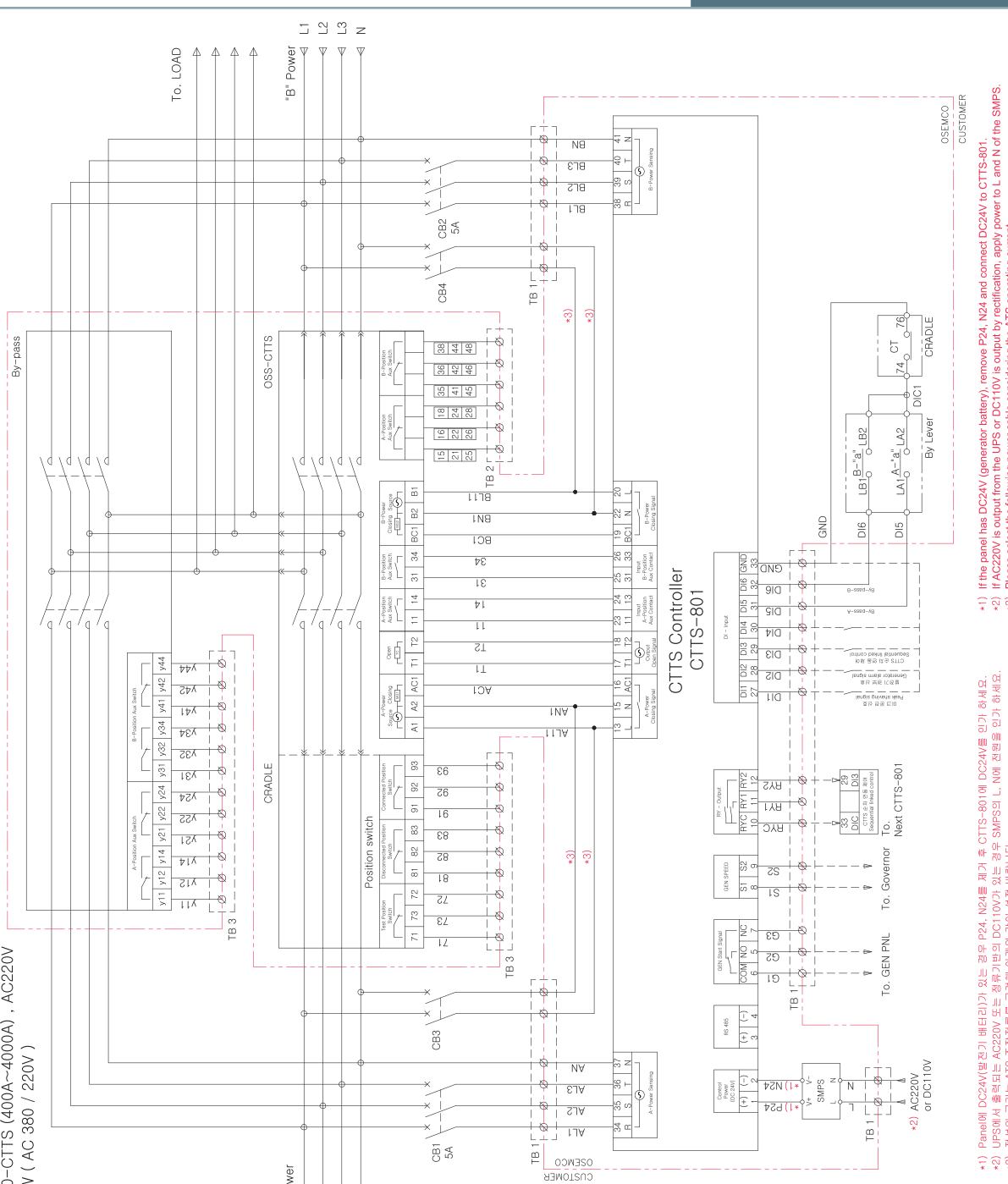


OSS - PSB-CTTS

BYPASS CTTS(400A~6300A)

◆ Wiring Diagram_ 결선도

PSB-604~632-CTTS



▲ PSB-CTTS Wiring Diagram
Controller : CTTS-801
PSB-604~640-CTTS (400A~4000A) , AC220V
Power : 3P 4W (AC 380 / 220V)

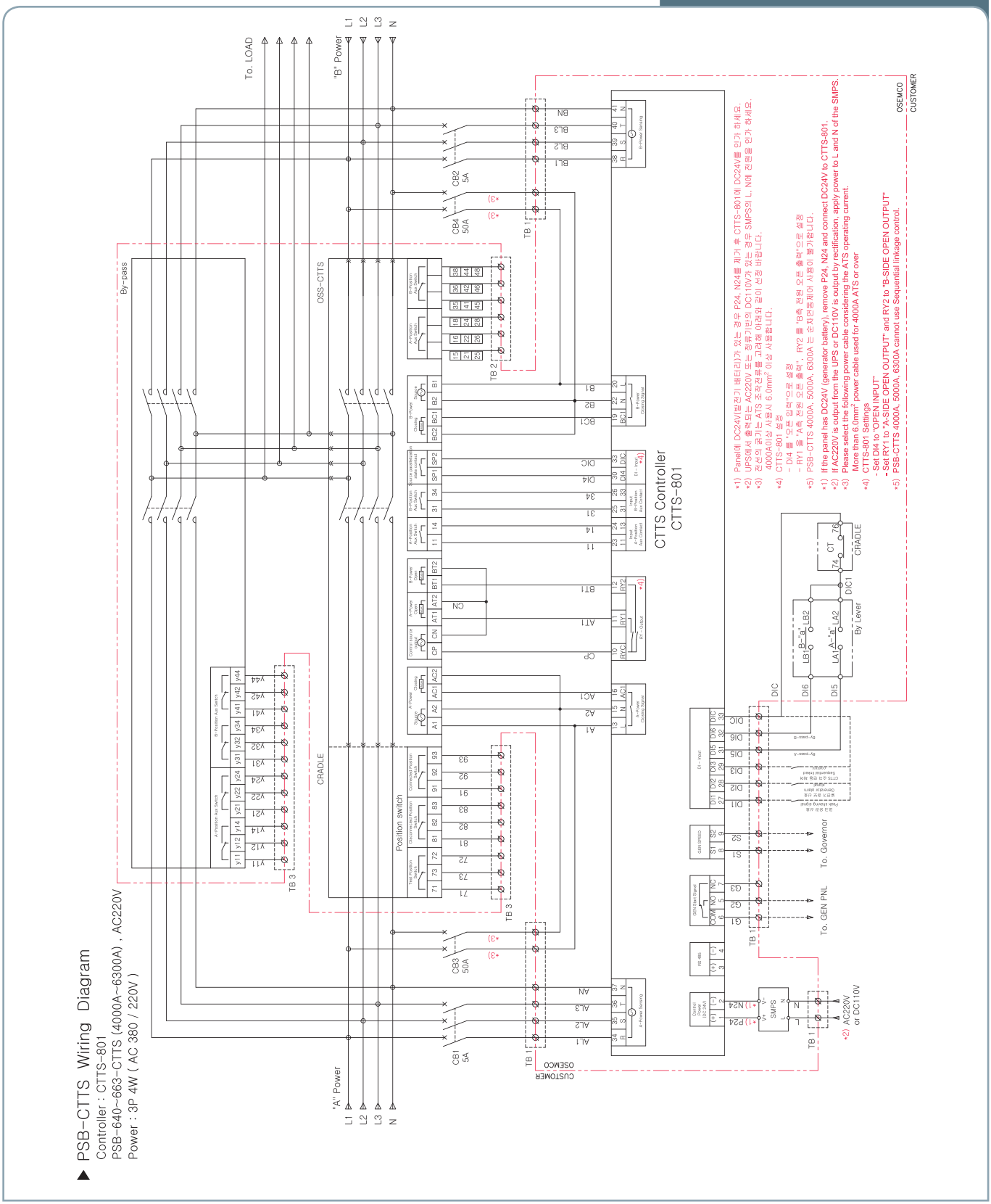


OSS - PSB-CTTS

BYPASS CTTS (400A~6300A)

◆ Wiring Diagram_ 결선도

PSB-640~663-CTTS





OSS - PSB-CTTS

BYPASS CTTS(400A~6300A)

MEMO



CTTS Controller

CTTS-801

◆ External View_ 외관명칭

• LED DISPLAY

① RUN
② SETUP
③ A ERROR
④ B ERROR
⑤ ERROR
⑥ A-POWER
⑦ A ON/OFF
⑧ B ON/OFF
⑨ B-POWER
⑩ AUTO/MANUAL
⑪ LOCAL/REMOTE

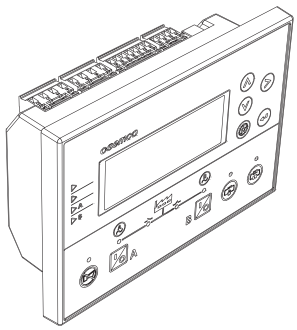


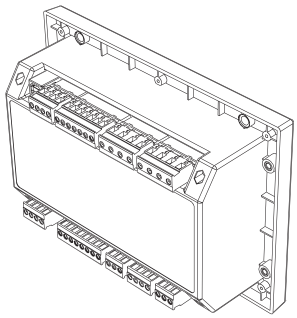
• BUTTON

ⓐ UP
ⓑ NEXT
ⓒ DOWN
ⓓ SETUP
ⓔ ENTER
ⓕ MUTE
ⓖ A-POWER ON/OFF
ⓗ B-POWER ON/OFF
ⓘ AUTO/MANUAL
ⓙ LOCAL/REMOTE

◆ Specification_ 정격사양

Power 전원	24[VDC] / 7.2[W]
Size 크기	(W) 200㎜ x (H) 140㎜ X (D) 70㎜
Product Weight 제품 중량	1.0 kg
Operating Temperature 사용 온도	-25℃ ~ 70℃
LCD DISPLAY	192 x 64 Graphic LCD
LED DISPLAY	High-brightness LED Chips
Input Voltage 전압 입력	Max L-L 550[VAC] / L-N 317 [VAC]. 5[Hz] ~ 100[Hz]
CTTS Control Relay CTTS 제어 릴레이	277[VAC] / 16[A] 4a
Auxiliary Relay 보조 릴레이	250[VAC] / 5[A] 2a, Enable Setup
Generator Activation Relay 발전기 기동 릴레이	125[VAC] / 1[A], 30[VDC] / 2[A] 1c
Generator Speed Adjustment 발전기 속도 조정	Variable-resistance Output 1a
Contact Inpuit 접점 입력	CTTS Status Contact 2a, Parameter Setup 6a. 24[VDC]
Communication Port 통신 포트	RS485 1port
Language 지원 언어	KO, EN 한글, 영어







CTTS Controller

CTTS-801

◆ Main Function_ 주요 기능

● Uninterrupted Phase Transfer

- Synchronous switching when both power sources are normally input during manual or automatic operation.
- Conditions of synchronous switching:
  There should be no phase loss, overvoltage, undervoltage, reverse phase within ± 10% of voltage difference of both power sources, frequency difference within ± 1.0Hz, phase angle ± 5 degrees.

● Synchroscope function for phase comparison

● Priority selection function

● Peak shaving (peak control)

● Interlock control

● Interlock bypass control feature

● Generator test, start signal output, speed adjustment

● Protective action : REVERSE PHASE , OPEN PHASE , UNDERVOLTAGE , OVERVOLTAGE, UNDER FREQUENCY , OVER FREQUENCY

※ Please check the manual for details

● 무정전 위상 동기 절체

- 수동 또는 자동 운전 중에 양 전원이 정상 입전되면 동기 절체

- 동기절체의 조건 :
  양 전원의 상 전압차가 10 V 이내, 주파수 차이가 1.0Hz 이내,
  위상 각 5 도 이내에서 결상, 과전압, 저전압, 역상이 없어야 한다.

● 위상 비교가 가능한 싱크로 스코프

● 우선권 선택 기능

● 피크쉐이빙(피크제어)

● 연동 순차 제어

● 바이패스 연동 기능

● 발전기 테스트, 기동신호 출력, 속도 조정

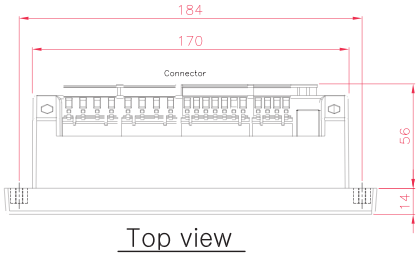
● 보호 동작 : 역상, 결상, 저전압, 과전압, 저주파수, 과주파수

※ 자세한 내용은 매뉴얼을 확인하세요.

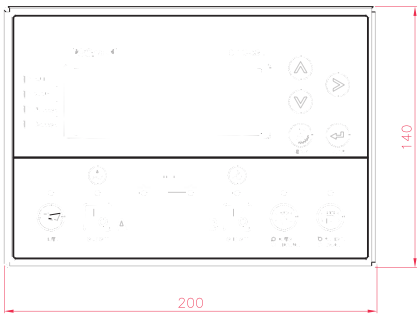


국가통합인증마크
Korea Certification Mark

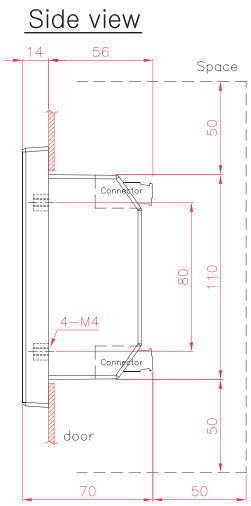
◆ Outline Dimension_ 외형도

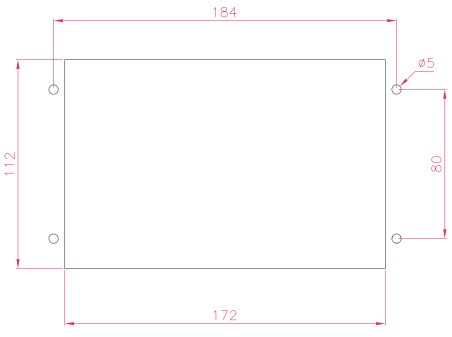


Top view



Front view





Panel cutting

CTTS Order Form 주문서



작 성	검 토	승 인	전 산

CTTS Order Form (주문서)

▶ 고객 정보 확인

20 . . .

업 체 명		납 기 일	
담 당 자 / 직 위		전 화 / 팩 스 번 호	/
수용가(Project)명		이 메 일	
요 청 사 항			

▶ 제품 주문 확인

제품 사양	정격 ☐ 3 P / ☐ 4 P A	제어전압 ☐ AC 220 V / ☐ V	
옵션	☐ 인출형 (Draw-out)	☐ 고정형 (Fixed)	☐ Bypass Type
	☐ 출장 시운전 (장소 :)		
모선 전압 정보	☐ 3Ø 4W 380 V / 220 V	☐ 기타 전압 (※ 사전 협의 필요)	
판넬에서 제어전압 정보	☐ DC 110 V	☐ DC 24 V	☐ UPS 출력 AC 220 V
발전기 정보	☐ 전자식 거버너	☐ 기계식 거버너 (※ CTTS에는 사용 불가.)	

▶ CTTS 발전기 설치 조건 확인서 (확인 후 ☐에 V 체크 부탁드립니다.)

☐	무정전 동기절체를 위하여 발전기는 반드시 전자식 거버너가 설치된 발전기를 사용해야 합니다.
☐	권장 주파수 60.1Hz 조정이 가능해야합니다.
☐	상용전원과 예비전원은 AC 220 V 기준 전압 차 10 V 이내, 주파수 차 1Hz 이내로 공급 되어야 합니다.
☐	상용전원과 예비전원은 RST상 회전 방향이 반드시 일치하여야 합니다.
☐	컨트롤러(CTTS-801)는 기본 조작 전압이 DC 24V 입니다. 사용편의를 위하여 입력 AC/DC 100~240V 파워 써플라이가 함께 제공됩니다.
☐	CTTS 와 CTTS-801 제어용 배선(3m)셋트가 제품과 함께 기본 제공 됩니다.
☐	위 사양을 감리 또는 감독, 발전기 제조회사와 협의 하여야 합니다. - ☐ 감리 또는 ☐ 감독 담당자 : 전화번호 : - 발전기 제조회사 담당자 : 전화번호 :

※ 고객요구 변동사항

작 성	검 토	승 인	전 산

※ 양식은 복사하여 사용하시기 바랍니다.
※ 작성한 양식은 팩스 031-944-3525 또는 이메일 ousung@chol.com 로 회신해 주시기 바랍니다.

▶ Standard Operating Conditions (표준사용환경)

Ambient Temperature: -5° C~+40° C(but, the average temperature for 24 hours shall be lower than +35° C)
Altitude: Below 2000m
Environmental conditions
Relative humidity shall be less than 85% at max. temp. +40°C, less than 90% at 20°C
It shall not be allowed to use or store within the area of petrochemicals, ammonia, and corrosive gas.
Storage Temp.: -20°C~+60°C(but, the average temperature for 24 hours shall be lower than +35°C)
주위온도 : -5°C ~ +40°C (단, 24시간 평균온도가 + 35BC이하}
표고 2000m이하
환경조건
최대온도 +40°C에서 상대습도 85%이하, 20°C에서는 90%이하
유화, 암모니아 및 부식성가스 범위에서는 l용 또는 보관 불가 H2S≤0.01ppm, S02≤0.01ppm, NH3≤a few ppm)
보관온도 : -2°C ~ +60°C (단, 24시간 평균온도가 +35°C 이하)

▶ Applicable current by the temperature (온도별 사용전류)

Under the environment with over than 40° C, please follow the rating current as written below
기준 주위온도인 40°C를 넘는 환경에서 사용하는 경우는 아래 표와 같이 정격전류를 보정하여 사용하여 주시기 바랍니다.

Unit / 단위: Ampere

Ambient temperature \ Rated current	630A	800A	1000A	1250A	1600A	2000A	2500A	3150A	4000A	5000A
40°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
45°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
50°C	630	800	1,000	1,250	1,600	2,000	2,500	3,150	4,000	5,000
55°C	630	800	1,000	1,250	1,550	2,000	2,450	3,000	3,900	4,850
60°C	630	800	1,000	1,200	1,500	2,000	2,350	2,900	3,750	4,700
60°C ~ 100°C	315	400	500	630	700	1,000	1,200	1,300	2,000	2,500

Note) IEC 60947-1 Standard is applied to the data for 40°C. 주) 주위온도 40°C의 Data는 IEC 60947-1의 규격을 적용하였습니다.

▶ Main Circuit Terminal Connection Tightening Torques (주회로 단자 접속 체결 토르그)

Unit / 단위 : kgf.cm

	M5	M6	M8	M10	M12
Torque	28 ~ 37	48 ~ 65	85 ~ 130	400 ~ 500	400 ~ 500

▶ Selection of TR Capacity

TR capacity should be selected more than the value calculated by the following formula.
Operation Voltage x Operation Current x 0.5 = ( )VA
e.g.) Operation Voltage AC 220V, Operation Current 4A
220 x 4 x 0.5 = 440VA, TR capacity of more than 440 VA is recommended.

▶ Selection of Control Relay

The capacity of UVR, Operating Relay and Timer contactor should be higher than ATS operating current.

Note : If the control power source is not stable, it is recommended to use Automatic Voltage Regulator.

▶ 조작용 TR용량 선정

조작회로용 TR 용량은 하기 계산식에 의한 계산치 이상의 용량을 사용하여 주십시오.
조작전압 x 조작전류 x 0.5 = ( )VA
예) 조작전압 AC220V 조작전류 4A 220 x 4 x 0.5 = 440VA
440VA 이상의 TR을 사용하여 주십시오.

▶ 제어 Relay의 선정

전압 Relay 27, 84 및 Timer는 접점 통전 전류가 ATS 조작전류 이상의 것을 사용하여 주십시오. 제어 Relay의 Chattering등을 고려하여 조작 전류의 차단이 가능한 Relay를 선정하여 사용하시면 보다 안전합니다.

주) 조작전원이 불안정한 경우에는 전압 확립 Relay를 사용하여 주십시오.



MEMO



MEMO

Safety Manual | 안전 지침서

▶ Safety Notice

This safety manual describes major informations for safe operation. Before handling this machinery, please be acquainted thoroughly with this manual, product handling, safety information and all other precautions before installation or maintenance.

이 지침서는 취급시 안전을 위한 주요한 내용을 기술하였습니다.

기기 취급에 앞서 취급설명서와 안전지침서를 숙지하시어 올바르게 사용하여 주십시오.
기기의 지식, 안전의 정보 그리고 주의사항의 모든 것을 습득한 뒤 사용하십시오.

Danger 위험

Can cause death or serious personal injury in urgent if failure to follow the instructions.
취급을 잘못했을 경우 사망 또는 중대한 재해가 발생 될 수 있는 급박한 상황

Caution 주의

Can cause lesion or light personal injury in potential if failure to follow the instructions.
취급을 잘못했을 경우 약한 장해나 경상을 야기할 수 있는 잠재적 상황

These safety notices are divided as "Danger" and "Caution" according to the hazard level.
이 주의서에는 안전주의 사항의 Level을 위험정도에 따라 [위험], [주의]로 구분하고 있습니다.



Caution 주의

Do not enter the area under the Automatic Transfer Switches (ATS) when it is lifted or suspended using a lifter or chain block. The ATS may suddenly drop.
The ATS is heavy. Entering such an area may cause serious injury.

Lifter로 들어올리거나 Hoist 등으로 고정하여 들어올릴 때는 ATS의 아래에는 절대 들어가지 마십시오.
ATS는 제품의 중량에 따라 낙하시 위험을 초래할 수 있습니다.



Caution 주의

Installation should be performed by qualified persons.
Prior to any installation, open the upstream circuit breaker to isolate all power/voltage sources.
Otherwise, electric shock may occur.
Tighten terminal screws securely according to the specified torque.
Otherwise, a fire may occur.
Fix the Drawout type ATS firmly on a flat level using mounting screws.
Otherwise, drawout operation may cause the ATS to fall.
Avoid blocking of ATS's arc gas vents to ensure the adequate arc space.
Blocking of the arc gas vents could result in failure of ATS.
Do not place the ATS in such area of high temperature, high humidity, dusty air, corrosive gas, strong vibration and shock or other unusual conditions.
Installation in such areas could cause a fire or malfunction.
Be careful to prevent foreign material of debris, concrete powder, iron powder, etc and rainwater from entering into the ATS.
These materials inside the ATS could cause a fire or malfunction.
For 4 pole ATS, connect the neutral wire of 3-phase, 4-wire cable to N-phase (on the right side).

설치는 유자격자 (전기공사기사 , 전기공사기능사)가 행하십시오.
설치에 앞서 모든 전원을 차단하기 위해 앞단의 차단기나 또는 그러한 종류의 제품을 반드시 Open 시키십시오.
감전의 위험이 있습니다.
단자 Bdt는 표준체결 Torque로 확실하게 체결하십시오. 화재의 위험이 있습니다.
수평하고 평평한 면에 단단하게 취부하여 고정시키십시오. 인출조작시 전도의 위험이 있습니다.
아크가스 배출구는 막히지 않도록 아크공간(절연거리)을 충분히 확보하십시오. 개폐성능을 저하시킵니다.
고온 , 다습 , 분진 , 부식성가스 , 진동 , 충격 등 좋지 못한 환경에 설치하지 마십시오.
화재 및 오동작이 발생될 수 있습니다.
먼지 , 콘크리트가루 , 철분 등의 이물질 및 빗물 등이 ATS내부에 들어가지 않도록 시공하십시오.
화재 및 오동작이 발생될 수 있습니다.
4극형의 경우 중성 선은 반드시 N 상극(우측)에 접속하십시오.

Operation Precautions
조작시의 주의사항

Danger 위험

Do not touch the live terminal parts.
Otherwise, electric shock may occur.
Do not leave the ATS in the drawout position.
The ATS is heavy. Dropping the ATS could cause serious injury.

통전되고 있는 주회로 및 제어회로 단자부에는 접촉하지 마십시오. 감전의 위험이 있습니다.
인출 위치상에 ATS를 방치하지 마십시오. ATS는 중량물이어서 낙하시 비상한 위험을 초래할 수 있습니다.
ATS 인출시에는 무 부하상태에서 조작하십시요.

Caution 주의

The cable size of control power should be selected considering operation current.
Otherwise, a fire could occur.
ATS should be operated by manual handle only under no-load condition. Operation by manual handle is strictly prohibited except emergency case.
Otherwise, damage to the ATS may occur.

조작전원의 전선의 굵기는 조작전류를 감안하여 선정하여 주십시요.
절체실패시 화재를 일으킬 수 있습니다.
ATS 수동 핸들에 의한 조작은 무부하 상태에서 조작하며, 비상시 외에는 사용을 금합니다.
조작미숙시 개폐특성을 보증할 수 없습니다.

Maintenance and Inspection Precautions
보수, 점검과 부품 교환시의 주의사항

Caution 주의

Maintenance, inspection or components replacement should be performed by qualified persons.
Prior to any work, open the upstream circuit breaker to isolate all power/voltage sources.
Otherwise, electric shock may occur.
Prior to internal inspection for ATS, Be sure that main circuit and control source of ATS is turned off.
Otherwise, fingers or tools could be pinched in the internal mechanism, causing injury
Retighten the terminal screws periodically according to the specified torque.
Otherwise, a fire may occur.
Retighten the arcing contact mounting screws periodically according to the specified torque.
Otherwise, a fire or malfunction may occur.
Be sure to reinstall the arc chute if removed.
Failure to do so or incorrect installation may result in a fire or cause burns.
Do not touch the live parts or structural parts close to live parts immediately after stop of power supply to ATS.
Otherwise, remaining heat may cause burns.
Do not approach near the arc gas vent of arc chute while ATS is under transfer.
Otherwise, burns may result from high temperature of arc gas.

보수, 점검과 부품교환은 전문지식을 보유한 사람이 행하십시오.
작업은 상위차단기를 OFF 시키고 주회로, 제어회로 모두 충전되어 있지 않은 것을 확인한 뒤 행하십시오.
감전의 위험이 있습니다.
내부점검은 주회로 전원 및 조작전원을 차단 후 행하십시오.
손가락 및 공구가 기구부에 끼여 다칠 위험이 있습니다.
주회로 단자볼트는 정기적으로 표준 취부 Torque로써 증가시켜 취부하십시오.
풀림은 화재 발생의 원인이 될 수 있습니다.
아크 접점 Screw를 정기적으로 표준 취부 Torque로써 다시 취부하십시오.
화재나 오동작의 원인이 될 수 있습니다.
외부의 소호실은 반드시 취부하십시오.
잘못된 취부 또는 취부가 되지 않을시 화상 또는 화재의 원인이 됩니다.
통전정지 직후는 개폐기도전부, 특히 접점과 도전부에 근접된 구조물에 접촉하지 마십시오.
잔류 열에 의해 화상의 위험이 있습니다.
절체중 소호실 아크가스 배출구에 신체를 근접하지 마십시오.
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