ISO 9001, ISO 14001

OSS series

Automatic Transfer Switches

osemco

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 by Korea Management Association Quality Assurance (KSA9001:1998, ISO9001:1994)	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 by KTL 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 (KS I ISO 14001:2009 / ISO 14001:2004)	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 (2,000A or less, 60Hz, 42 kA, 1s)	2017.03	신제품(NEP) 인증 연장 : 단일구동일체식 ATCB (2,000A 이하, 60Hz, 42 kA, 1s)
Certificate of Electrical Construction Business	2017.05	전기공사업 등록
Women's Company Certification	2017.12	여성기업 인증

Contents


Quality Management System Certificate
O-Sung Electric Machinery Co., Ltd.


CERTIFICATE OF Inno-Biz
Ministry of SMEs and Startups
Republic of Korea


EC Attestation of Conformity
TÜV


신제품인증서
산업통상자원부장관

OSS - T3, TB3 Type

ATS(100~600A)

◆ Information to Order_ 주문정보

OSS - 6□ - □ - □P - □ - □c
A B C D E

A Rated Current 정격전류

1	2	4	6
100A	200A	400A	600A

B Connection 접속방식

- T3 : Front (표면)
- TB3 : Back (배면)

C Number of Poles 극수

- 2 : 2P
- 3 : 3P
- 4 : 4P

D Operation Voltage 조작전압

- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch 보조접점

- 1 : 1 c (기본)
- 2 : 2 c (옵션)

◆ Features_ 특징

■ Direct transfer method
A ⇒B, B ⇒A

■ One-coil mechanism
One-coil mechanism is applied

■ Excellent Breaking Capacity
Designed forsuffciently large chamber to extinguish the arc when transferred. Arc-extinguishing area is designed for convenient inspection and maintenance.

■ Transfer indicator provided
Transfer indicator is fitted to indicate the transfer status.

■ Perfect transfer mechanism
By spring transfer mechanism, ATS can be completely and perfectly transferred. There will be no unattached position in any case.

■ Mechanically Interlock
Electrically held and mechanically interlock to prevent parallel two live source.

■ Protection against the remaining power source
Mechanical protection against the contact confliction caused by remaining power source of input and load side.

■ Last Break, 1st make Neutral contact
Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

■ Construction for Safety
For safe operation, molded constructionn is employed on breaking parts.

■ Compact & Lightweight design
Compact & lightweight design maked the minimized mounting space eand convenient installation

■ 직접 절체 방식
A ⇒ B, B ⇒ A

■ 단일 코일 절체 기구
한 개의 코일로 절체하는 기구

■ 강력한 차단능력
독특한 소호구조설계로 아크차단이 짧고 접점의 소모가 적어 장시간 사용 가능하며 전면에서 소호실을 탈착하여 내부점검이 편리합니다.

■ 절체표시기 부착
절체의 상태를 확인할 수 있는 절체표시기 부착

■ 불완전 투입요소 완전 제거
스프링 절체방식에 의해서 완전하고 완벽한 절체

■ 기계적 인터록
A–Power와 B–Power의 혼촉을 기계적 인터록으로 방지

■ 부하측 잔류전원 혼촉방지
절체시 기구적으로 전원과 부하측의 잔류전압으로 인한 혼촉을 방지

■ 중성선 선 투입 후 개방
투입 시 중성선이 삼상(RST)보다 먼저 투입되고 개방 시 나중에 끊어지는 구조로 순간적으로 중성선이 개방되어 발생될 수 있는 사고 방지 효과 (IEEE 242 Clause 7.5.5)

■ 안전 구조 설계
차단부가 분진 방지형 몰드구조로 설계

■ 소형 경량
작고 가벼워 공간 활용 및 작업자 능률 극대화

OSS - T3, TB3 Type

ATS(100~600A)

◆ Application and Selection_ 적용과 선정

■ Applicable Standards
- IEC 60947-6-1
- UL 1008

■ Control Order
It is recommended to give more than 0.5sec for operation, though transfer time is completed

■ Interlock
Interlocking is required for control circuit so that control order should not supply to both A power source side and B power source side simultaneously.

■ 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 440VA is recommended.

■ Control Circuit
ATS is designed so that operation current should be off by internal switch after completion of operation. If operation current is off with auxiliary switch of the unit, it may cause a malfunction.

■ 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.

■ Caution on operation of manual handle
Manual operation of ATS should be done for the emergency and maintenance purpose while no load condition only.

■ 관련 규격
– IEC 60947–6–1
– UL 1008

■ 제어 지령
절체동작은 0.3초 이내에 완료되지만 0.5초 이상의 제어지령으로 동작될 수 있도록 Sequence를 설정하여 주십시오.

■ 인터록
조작회로에는 A 전원 측과 B 전원 측에 동시지령이 되지 않도록 인터록(전기적)을 설치하여 주십시오.

■ 조작용 TR 용량
조작회로용 TR 용량은 하기 계산식에 의한 계산치 이상의 용량을 사용하여 주십시오.
조작전압 x 조작전류 x 0.5 = ( )VA
예) 조작전압 AC 220V, 조작전류 4A
220 x 4 x 0.5 = 440VA,
440VA 이상의 TR을 사용하여 주십시오.

■ 제어회로
ATS는 동작완료 후 내부 SW에 의해 조작전류를 OFF 하도록 설계되어 있습니다. 본체의 보조 SW로 조작전류를 OFF하면 오동작의 원인이 됩니다.

■ 제어 Relay의 선정
전압 Relay 27, 84 및 Timer는 접점 통전전류가 ATS 조작전류 이상의 것을 사용하여 주십시오. 제어 Relay의 Chattering 등을 고려하여 조작전류의 차단이 가능한 Relay를 선정하여 사용하시면 보다 안전합니다.

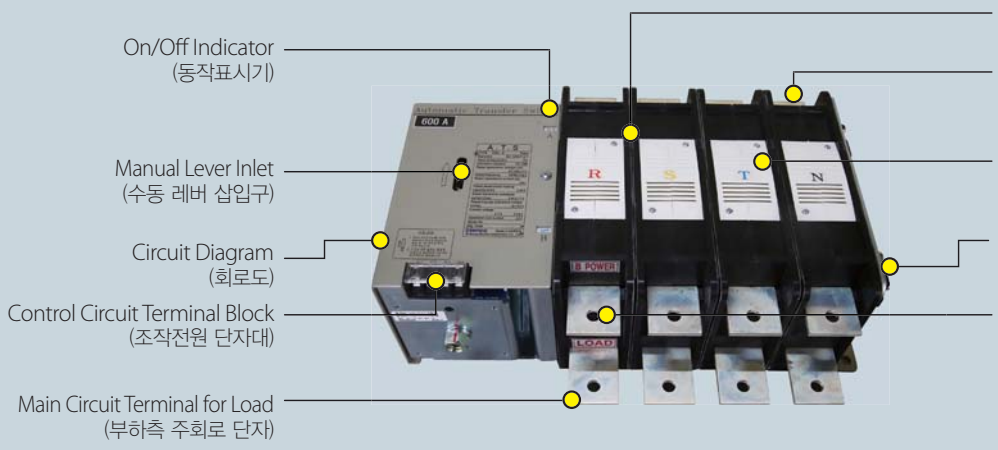
주) 조작전원이 불안정한 경우에는 전압확립 Relay를 사용하여 주십시오.

■ 수동핸들 조작 시 주의
ATS의 수동조작은 무부하 상태에서 응급조치 및 정비의 목적으로만 작동하여 주십시오. 수동조작은 조작자에 따라 개폐력과 개폐속도 등의 차이가 있으므로 ATS의 개폐특성을 보증할 수 없습니다.

OSS - T3 Type

ATS(100~600A)

◆ External View_ 외관명칭



◆ Specification_ 정격사양

TYPE			61-T3 61-TB3			62-T3 62-TB3			64-T3 64-TB3			66-T3 66-TB3		
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V											
Rated Current (정격전류)		Ie	100 A			200 A			400 A			600 A		
Neutral Phase Current (중성극전류)			100 A			200 A			400 A			600 A		
Kind of Throw (투수)			Double Throw (쌍투)											
Connection (접속방식)			Front (표면 : T3), Back (배면 : TB3)											
Number of Poles (극수)			2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight [kg] (중량)			7	8	9	9	10	12	16	19	22	16	19	22
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	5 kA			10 kA			12 kA			12 kA		
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	7.5 kA			17 kA			24 kA			24 kA		
Switching Capacity (개폐용량)			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)											
Switching Frequency (개폐빈도)			60 Time / Hour											
Operating Current (조작전류) peak	DC 110V ~ 125V		18 A						25 A					
	AC 100V ~ 110V		18 A						25 A					
	AC 200V ~ 240V		8 A						8 A					
Operating Time (동작시간)	Change-over Time		≤ 130 ms						≤ 160 ms					
	Opening Time		≤ 50 ms						≤ 60 ms					
	Contact Transfer Time		≤ 80 ms						≤ 120 ms					
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		250,000											
	With Current (통전)		50,000											
Cautions (주의사항)			1. For complete operation, Besure to provide control source for more than 0.5sec. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.											

OSS - T3, TB3 Type

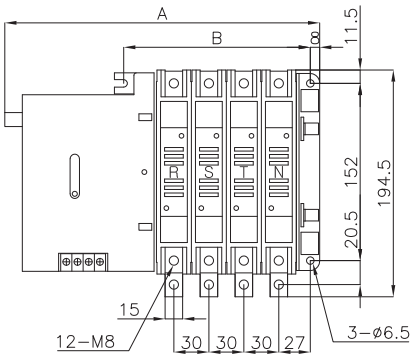
ATS(100~600A)

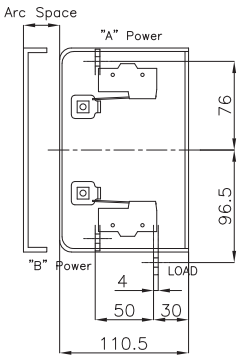
◆ Outline Dimension_ 외형도

Unit : mm

100A

OSS-61-T3

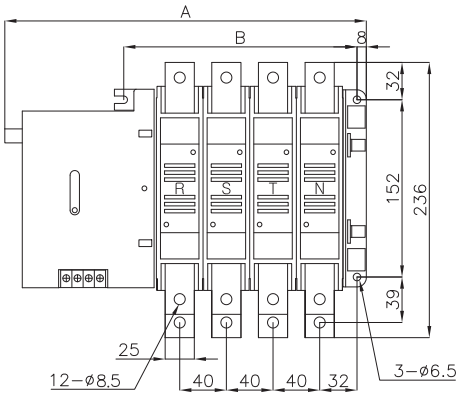


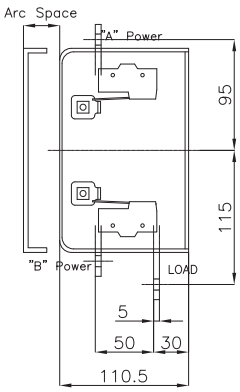


	Dimension (mm)	
Pole	A	B
2P	204	100
3P	234	130
4P	264	160

200A

OSS-62-T3

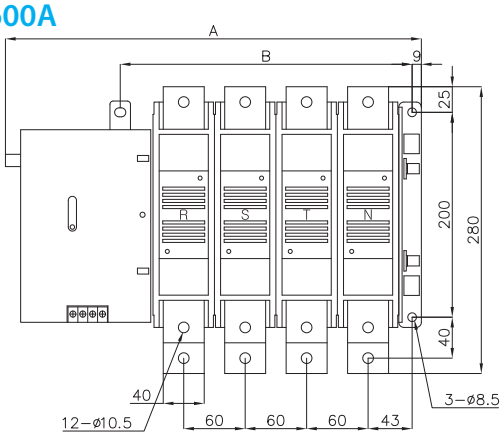


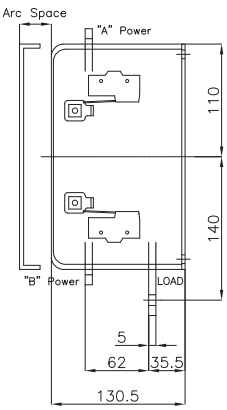


	Dimension (mm)	
Pole	A	B
2P	224	120
3P	264	160
4P	304	200

400A, 600A

OSS-64~66-T3





* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

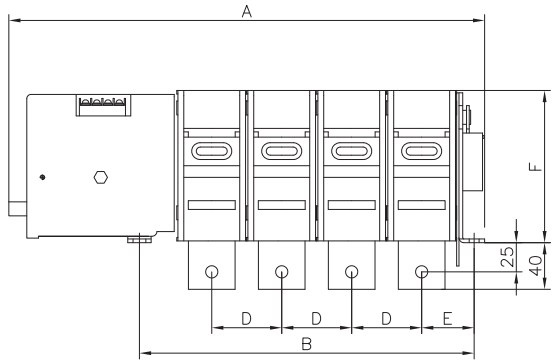
	Dimension (mm)	
Pole	A	B
2P	283	165
3P	343	225
4P	403	285

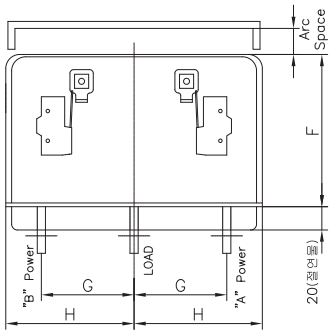
OSS - TB3 Type

ATS(100~600A)

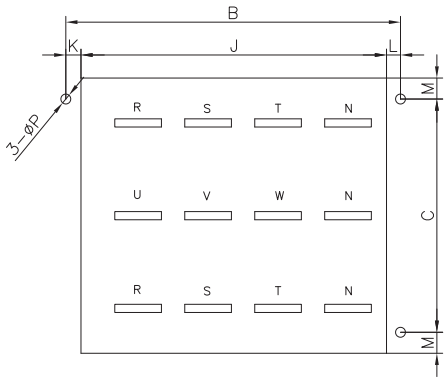
◆ Outline Dimension_ 외형도

OSS-61~66-TB3

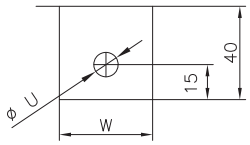




* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		61-TB3	62-TB3	64-TB3	66-TB3
W		15	25	40	
U		Ø 8.5		Ø 10.5	
T	LINE	4	5	5	
	LOAD	4	5	7	

TERMINAL THICKNESS

Unit : mm

		A	B	C	D	E	F	G	H	J	K	L	M	P
61-TB3	2P	206	102	152	30	29	110.5	62.5	87.5	82	9	11	19	Ø 6.5
	3P	236	132							112				
	4P	266	162							142				
62-TB3	2P	226	122	152	40	34	110.5	63	87.5	102	9	11	19	Ø 6.5
	3P	266	162							142				
	4P	306	202							182				
64-TB3 66-TB3	2P	285	167	200	60	45	130.5	80.5	110	142	13	12	18	Ø 8.5
	3P	345	227							202				
	4P	405	287							262				

OSS - TO, TBO Type

ATS(100~400A)

◆ Information to Order_ 주문정보

OSS - 6□ - □ - □P - □ - □c
A B C D E

A Rated Current 정격전류

1	2	4
100A	200A	400A

B Connection 접속방식
- TO : Front (표면)
- TBO : Back (배면)

C Number of Poles 극수
- 4 : 4P

D Operation Voltage 조작전압
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch 보조접점
- 1 : 1 c (기본)
- 2 : 2 c (옵션)

◆ Features_ 특징

In addition to every function of OSS-T3, TB3 Type ATS, OSS-TO, TBO Type ATS has additional function of Overlapping Neutral Contact. (ON-ON Type ATS)

■ Function of Overlapping Neutral Contact

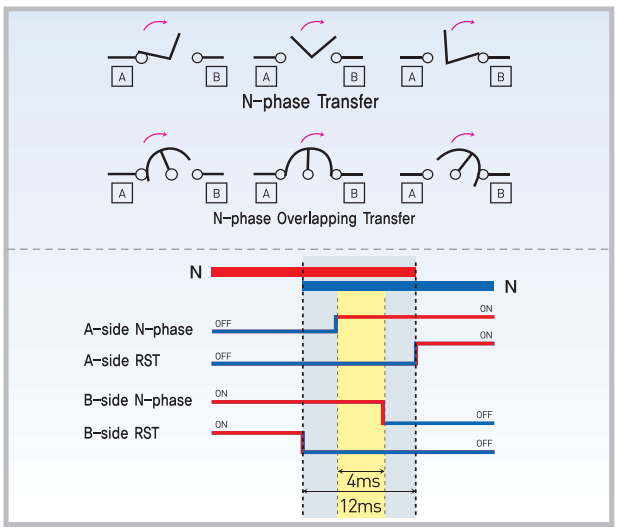
When general ATS will be transferred, Arc will be generated between fixed contacts and moving contacts. Thus, current flows between contacts and arc will be eliminated when current will be at zero level.
Eliminating time of arc is 10~12ms. Therefore, various device of load side can be protected when neutral contacts should be opened 10~12ms later than other 3-phases contacts. Load side devices of general ATS cannot be sufficiently protected because opening time gap between neutral contacts and other 3-phases contacts is less than 10ms. In order to solve this problem, Overlapping between neutral contacts of A-power (Normal) and B-power (Emergency) during transfer of switch functions to protect various devices of load side more safely.
In addition, Non-linear load increases the earth potential and potential difference is occurred between earth and neutral line. When general ATS will be transferred, Neutral line is separated from load and reference potential difference cannot be established. Thus, Floating is occurred and electronic devices can be malfunctioned. When ATS with overlapping neutral contact will be applied, Floating can be protected.

OSS-TO, TBO Type ATS는 OSS-T3, TB3 Type ATS의 모든 기능에 N상 중첩 절체 기능을 추가로 가지고 있습니다. (ON-ON Type ATS)

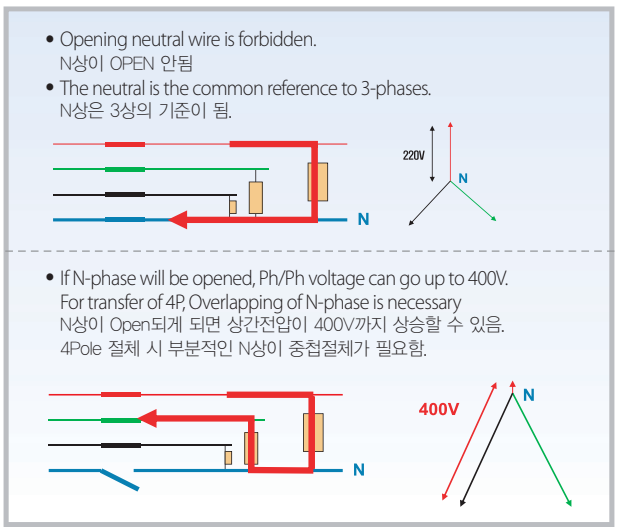
■ N상 중첩절체 기능

일반적인 절체 시 고정자와 가동자의 접점 사이에서 ARC가 발생하여 접촉자 간에 전류를 지속시키게 되며, ARC는 전류의 영점에서 사라져 없어지게 됩니다. 이때 ARC의 소멸시간은 대략 10~12ms 정도가 됩니다. 그러므로 중성접점 (N상)은 다른 삼상 (R, S, T상) 보다 10~12ms 후에 떨어져야 부하측의 각종 장비가 보호됩니다. 그러나 일반적인 ATS는 중성접점(N상)과 다른 삼상 (R, S, T상)의 시간차가 10ms 이내가 되므로 부하측의 설비를 보호하는데 다소 미흡하다 할 수 있습니다.
이러한 문제를 해결하기 위하여 상용전원의 중성접점과 예비전원의 중성접점을 중첩시켜 절체시킴으로써 보다 안전하게 부하측의 각종 장비를 보호할 수 있습니다.
또한 비선형 부하는 대지전위를 상승시켜 대지와 중성선 간에 전위차가 생기므로 일반적인 ATS는 절체 시 중성선이 부하측과 분리되어 기준 전위가 확립되지 않아 플로팅 현상이 발생되어 전자장비의 오동작을 유발합니다. 그러므로 중첩절체 기능이 내장된 ATS를 사용함으로써 플로팅 현상을 예방할 수 있습니다.

■ N-phase Transfer (N상 절체방식)



■ Limits of 4P Transfer (4Pole 절체시 문제점)



OSS - TO, TBO Type

ATS(100~400A)

◆ Specification_ 정격사양

TYPE			61-TO 61-TBO	62-TO 62-TBO	64-TO 64-TBO
Rated Operational Voltage (정격사용전압)		Ue	AC 600 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 : TO), Back (배면 : TBO)		
Number of Poles (극수)			4P	4P	4P
Weight [kg] (중량)			9	12	22
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	5 kA	10 kA	12 kA
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	7.5 kA	17 kA	24 kA
Switching Capacity (개폐용량)			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)		
Switching Frequency (개폐빈도)			60 Time / Hour		
Operating Current (조작전류) peak	DC 110V ~ 125V		18 A	25 A	
	AC 100V ~ 110V		18 A	25 A	
	AC 200V ~ 240V		8 A	8 A	
Operating Time (동작시간)	Change-over Time		≤ 130 ms	≤ 160 ms	
	Opening Time		≤ 50 ms	≤ 60 ms	
	Contact Transfer Time		≤ 80 ms	≤ 120 ms	
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		250,000		
	With Current (통전)		50,000		
Cautions (주의사항)			1. For complete operation, Besure to provide control source for more than 0.5sec. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.		

OSS - TO, TBO Type

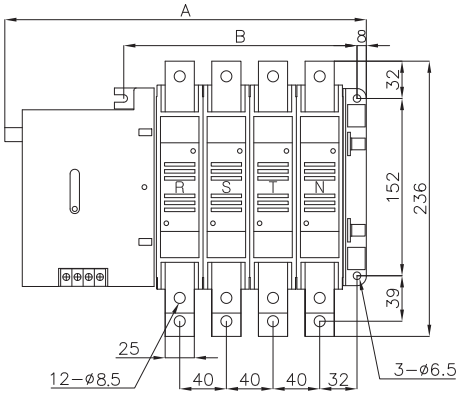
ATS(100~400A)

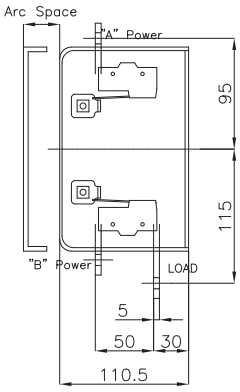
◆ Outline Dimension_ 외형도

Unit : mm

100A

OSS-61-TO

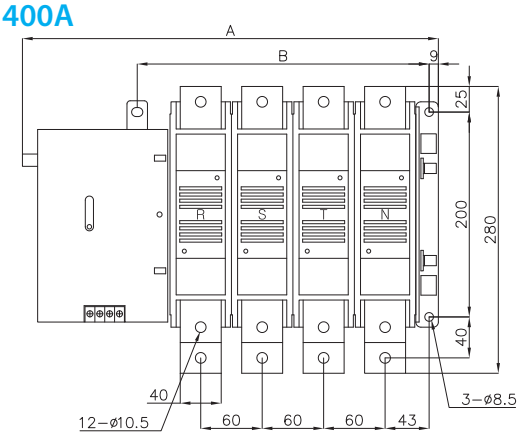


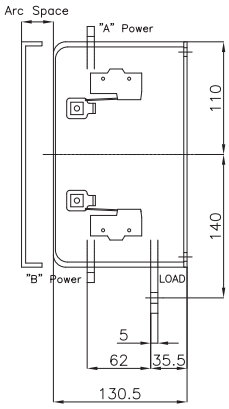


	Dimension (mm)	
Pole	A	B
4P	304	200

200A, 400A

OSS-62~64-TO





* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

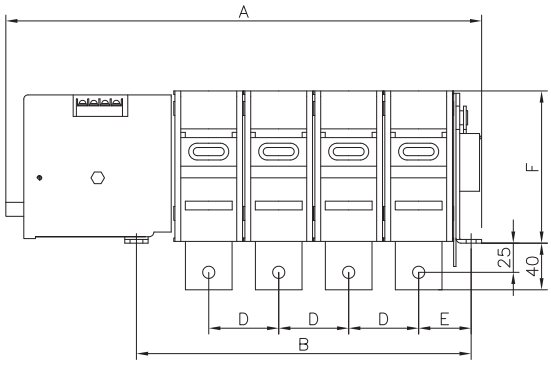
	Dimension (mm)	
Pole	A	B
4P	403	285

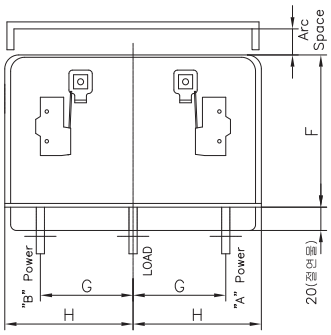
OSS - TBO Type

ATS(100~400A)

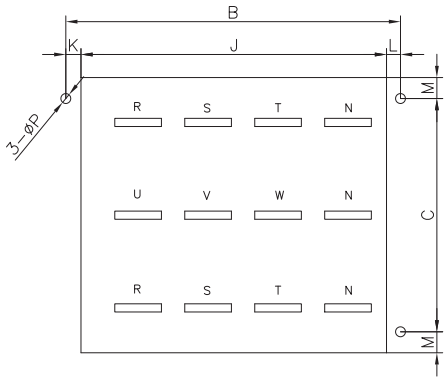
◆ Outline Dimension_ 외형도

OSS-61~64-TBO

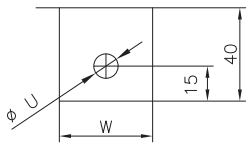




* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		61-TBO	62-TBO	64-TBO
W		15	25	40
U		Ø 8.5		Ø 10.5
T	LINE	4	5	5
	LOAD	4	5	7

TERMINAL THICKNESS

Unit : mm

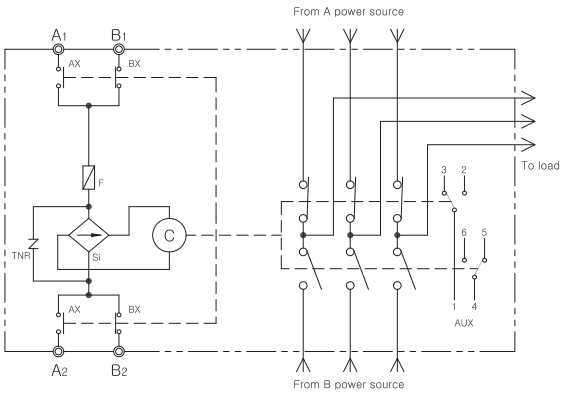
		A	B	C	D	E	F	G	H	J	K	L	M	P
61-TBO	4P	306	202	152	40	34	110.5	63	87.5	182	9	11	19	Ø 6.5
64-TBO 66-TBO	4P	405	287	200	60	45	130.5	80.5	110	262	13	12	18	Ø 8.5

OSS - T3, TB3 / TO, TBO Type

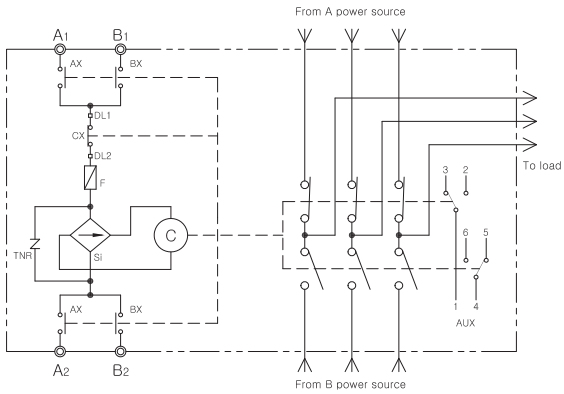
ATS

Circuit Diagram (회로도)

AC 100~240V



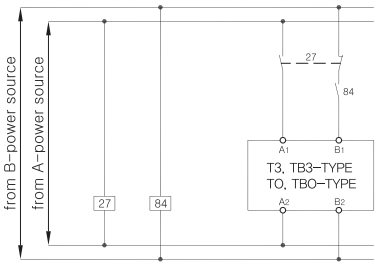
DC 110~125V



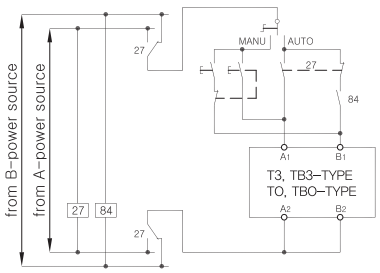
A1, A2	A-Power Closing Terminal	AX, BX, CX	Closing Switch	Si	Silicon Rectifier
B1, B2	B-Power Closing Terminal	B1, B2	Aux Switch	F	Fuse
C	Closing coil	TNR	Varistor for Surge suppression		

Typical Operating Circuit (대표적 조작회로 예)

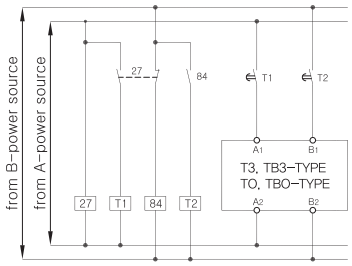
Standard
(일반적인 절체)



In Case of using a changeover switch
(수동-자동 절체)

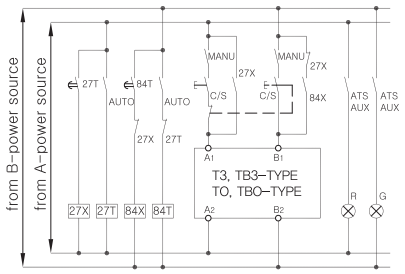


In Case of using a timer
(타이머를 이용한 절체)

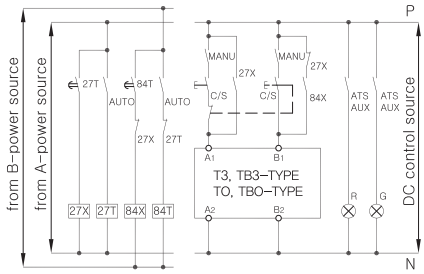


Wiring Diagram (결선도)

AC Operating and Control



DC Operating and Control



27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Timer	84T	84X Operating Delay Timer
AUTO, MANU	Automatic, Manual	C/S	Control Switch

OSS - TN, TBN Type

ATS(60~600A)

◆ Information to Order_ 주문정보

OSS - 6□ - □ - □P - □ - □c
A B C D E

A Rated Current 정격전류

06	1	2	4	6
60A	100A	200A	400A	600A

C Number of Poles 극수
- 2 : 2P
- 3 : 3P
- 4 : 4P

B Connection 접속방식
- TN : Front (표면)
- TBN : Back (배면)

D Operation Voltage 조작전압
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Aux Switch 보조접점
- 1 : 1 c (기본)
- 2 : 2 c (옵션)

◆ Features_ 특징

■ **Off position stop method**
In case with the uninterrupted power system, it is recommended to stop at the OFF position set by tripping mechanism for the stable power. Instantaneous transfer without stop can be also performed by operating signal.
A ⇒ Off ⇒ B, B ⇒ Off ⇒ A, and A ⇒ Off ⇒ A, B ⇒ Off ⇒ B
And also, instantaneous transfer can be performed by operating signal.
A ⇒ B, B ⇒ A

■ **One-Coil Application**
One-coil is employed for the transfer to normal power source and emergency power source.

■ **Compact & Lightweight Design**
Compact & Lightweight Design makes the minimized mounting space and convenient installation.

■ **Excellent Breaking Capacity**
Designed for suffciently large chamber to extinguish the arc when transferred. Arc-extinguishing area is designed for convenient inspection and maintenance.

■ **Protection against the remaining power source**
Time delay to transfer is available so that the remaining power can not be induced to the main power to protect the load.

■ **Last Break, 1st make Neutral contact**
Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

■ **Construction for Safety**
For safe operation, molded construction is employed on breaking parts. And also, latching indicator is prepared to indicate the operating condition.

■ **중간정지 방식**
무정전 전원장치가 있는 경우 정전 또는 복전 시 긴급 절체되는 것 보다는 회로의 안정 및 안전을 확인한 후 절체할 수 있는 방식으로 트립장치에 의해 중간위치(Off)가 가능합니다.
A ⇒ Off ⇒ B, B ⇒ Off ⇒ A, and A ⇒ Off ⇒ A, B ⇒ Off ⇒ B
또한 조작 지령에 의해 종전품과 동일하게 긴급절체도 가능합니다.
A ⇒ B, B ⇒ A

■ **단일코일 방식**
한 개의 코일로 절체하는 방식입니다.

■ **소형 경량**
작고 가벼워 공간 활용 및 작업자 능률이 높아집니다.

■ **강력한 차단 능력**
독특한 구조의 소호실 설계로 아크차단이 짧고 접점의 소모가 작아 장기간 사용 가능하며 전면에서 소호실을 열 수 있어 내부 접점의 점검이 편리합니다.

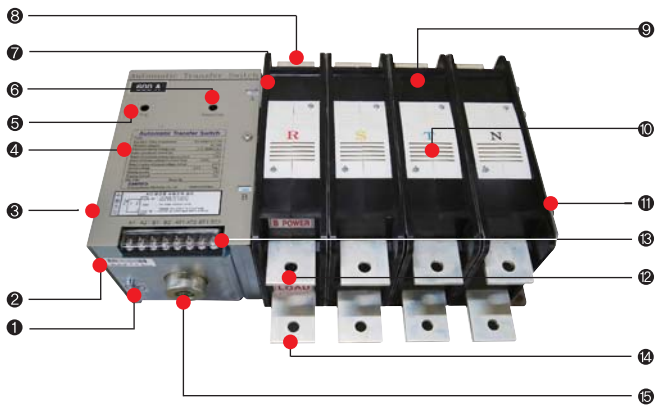
■ **부하측 잔류전원 혼촉방지**
Neutral(OFF)부의 TN형은 외부 시퀀스에 의해 절체시간을 임의 설정하여 전원과 부하측 잔류 전압과의 혼촉을 확실하게 방지할 수 있습니다.

■ **중성선 선 투입 후 개방**
투입 시 중성선이 삼상(RST)보다 먼저 투입되고 개방 시 나중에 끊어지는 구조로 순간적으로 중성선이 개방되어 발생될 수 있는 사고 방지 효과 (IEEE 242 Clause 7.5.5)

■ **안전 구조 설계**
차단부가 분진방지형 몰드구조로 설계되었고, 동작 위치 표시기가 있어 수명이 길고 사용자가 안전합니다.

◆ External View_ 외관명칭

❶ Earthing Terminal (접지단자)
❷ Manual Operating Shaft (Anti-Clockwise) (수동조작 바)
❸ Circuit Diagram (회로도)
❹ Name Plate (명판)
❺ Trip Button (트립 버튼)
❻ Selective Button for "B" Power-Closing (선택 버튼)
❼ On/Off Indicator (동작표시기)
❽ Circuit Terminal for "A" Power (A전원측 주회로 단자)
❾ Contacts (접점부)
❿ Arc-Extinguishing Chamber (소호실)
⓫ Aux Switch (보조스위치)
⓬ Circuit Terminal for "B" Power (B전원측 주회로 단자)
⓭ Control Circuit Terminal Block (조작전원 단자대)
⓮ Main Circuit Terminal for Load (부하측 주회로 단자)
⓯ Amateur for Closing Coil (투입 코일)



OSS - TN, TBN Type

ATS(60~600A)

◆ Application and Selection_ 적용과 선정

■ Applicable Standards
- IEC 60947-6-1 - JEM 1038 - UL 1008

■ Control Order
It is recommended to give more than 0.5sec for operation, though transfer time is completed

■ Interlock
Interlocking is required for control circuit so that control order should not supply to both A power source side and B power source side simultaneously.

■ Control Circuit
ATS is designed so that operation current should be off by internal switch after completion of operation. If operation current is off with auxiliary switch of the unit, it may cause a malfunction.

■ 관련 규격
– IEC 60947–6–1 – JEM 1038 – UL 1008

■ 제어 지령
투입 및 트립 절체동작은 0.3초 이내에 완료되지만 0.5초 이상의 제어지령으로 동작될 수 있도록 Sequence를 설정하여 주십시오.

■ 인터록
조작회로에는 A 전원 측과 B 전원 측에 동시지령이 되지 않도록 인터록(전기적)을 설치하여 주십시오. TN, TBN형의 경우 동일 방향으로 투입, 트립 지령이 되지 않도록 Sequence를 설정하여 주십시오.

■ 제어회로
ATS는 동작완료 후 내부 SW에 의해 조작전류를 OFF 하도록 설계되어 있습니다. 본체의 보조 SW로 조작전류를 OFF하면 오동작의 원인이 됩니다.

◆ Specification_ 정격사양

TYPE			606-TN, TBN 61-TN, TBN			62-TN, TBN			64-TN, TBN 66-TN, TBN		
Rated Operational Voltage (정격사용전압)	Ue		AC 600 V								
Rated Current (정격전류)	Ie		60 A, 100 A			200 A			400 A, 600 A		
Neutral Phase Current (중성극전류)			60 A, 100 A			200 A			400 A, 600 A		
Kind of Throw (투수)			Double Throw (쌍투)								
Connection (접속방식)			Front (표면 : TN), Back (배면 : TBN)								
Number of Poles (극수)			2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight [kg] (중량)			7	8	9	9	10	12	16	19	22
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)	Icw		5 kA			10 kA			12 kA		
Rated Short-Circuit Making Capacity (단락 투입 전류)	Icm peak		7.5 kA			17 kA			24 kA		
Switching Capacity (개폐용량)			AC-33B (10 Ie making / 10 Ie breaking, Ie ≤ 100A cos Ø= 0.45, Ie > 100A cos Ø= 0.35) (1 Ie making / 1 Ie breaking cos Ø= 0.8)								
Switching Frequency (개폐빈도)			60 Time / Hour								
Operating Current (조작전류) peak	DC 110V ~ 125V		7 A			7 A			8 A		
	AC 100V ~ 110V		7 A			7 A			8 A		
	AC 200V ~ 240V		6 A			6 A			6 A		
	Trip Coil Current		DC 110V = 3A, AC110V = 3A, AC 220V = 3A								
Operating Time (동작시간)	"A"Power	Making	≤ 55 ms			≤ 55 ms			≤ 60 ms		
		Breaking	≤ 20 ms			≤ 20 ms			≤ 25 ms		
	"B"Power	Making	≤ 80 ms			≤ 80 ms			≤ 90 ms		
		Breaking	≤ 20 ms			≤ 20 ms			≤ 25 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 will be provided to A side and B side simultaneously, Coil may be damaged. 3. Control Relay should be selected considering sufficient contact capacity to withstand against more than control current. 1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. 2. A측, B측 동시 조작지령 시 코일 소손의 원인이 됩니다. 3. 조작 Relay는 조작전류 이상의 충분한 접점용량을 선정하여 주십시오.								

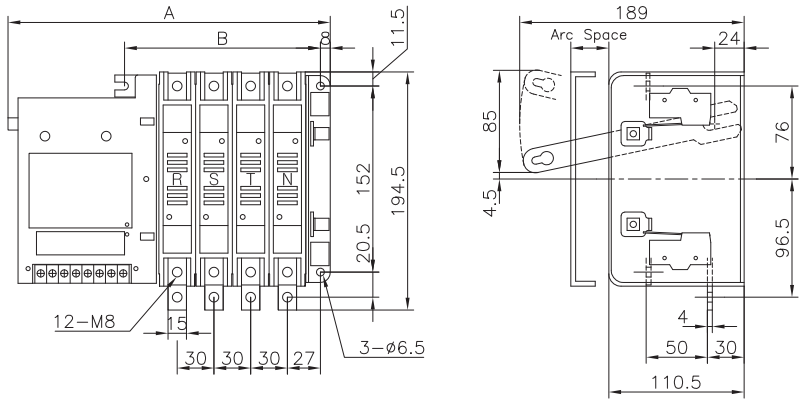
OSS - TN Type

ATS(60~600A)

◆ Outline Dimension_ 외형도

Unit : mm

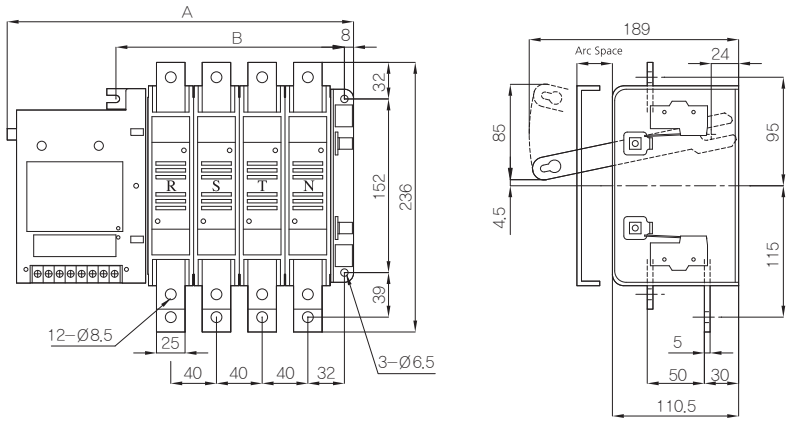
60A, 100A



OSS-606~61-TN

	Dimension (mm)	
Pole	A	B
2 P	204	100
3 P	234	130
4 P	264	160

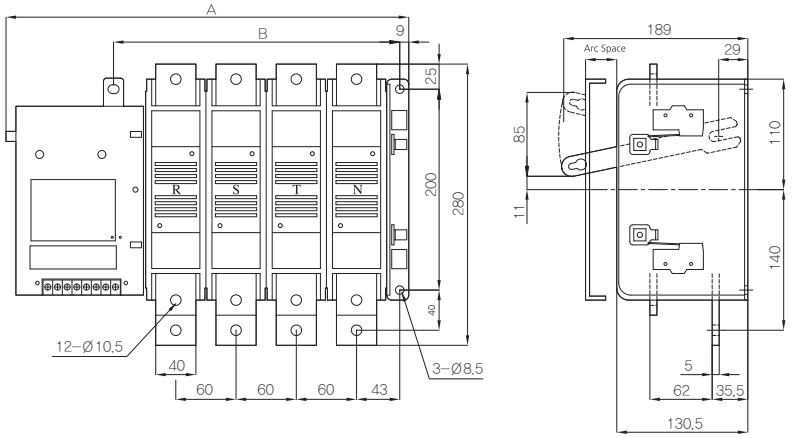
200A



OSS-62-TN

	Dimension (mm)	
Pole	A	B
2P	224	120
3P	264	160
4P	304	200

400A, 600A



OSS-64~66-TN

* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V

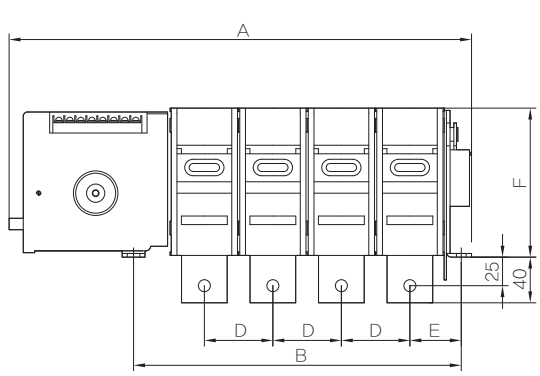
	Dimension (mm)	
Pole	A	B
2P	283	165
3P	343	225
4P	403	285

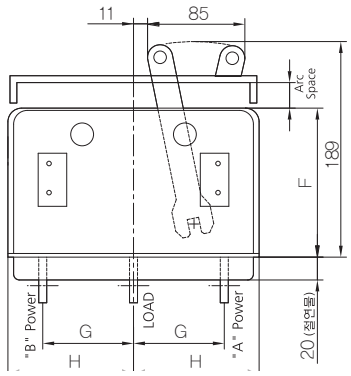
OSS - TBN Type

ATS(60~600A)

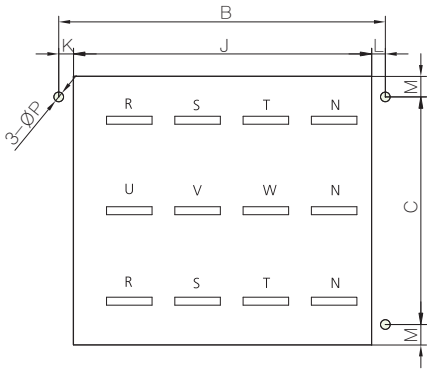
◆ Outline Dimension_ 외형도

OSS-606~66-TBN

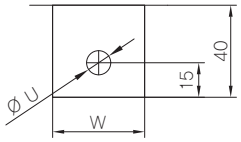




* Arc space for main circuit
- 30mm for AC 220V
- 60mm for AC 660V



PANEL CUTTING



		606-TBN 61-TBN	62-TBN	64-TBN	66-TBN
W		15	25	40	
U		Ø 8.5		Ø 10.5	
T	LINE	4	5	5	
	LOAD	4	5	7	

TERMINAL THICKNESS

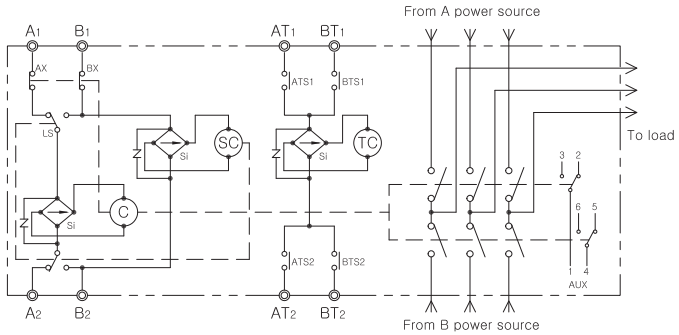
Unit : mm

		A	B	C	D	E	F	G	H	J	K	L	M	P
606-TBN 61-TBN	2P	206	102	152	30	29	110.5	62.5	87.5	82	9	11	19	Ø 6.5
	3P	236	132							112				
	4P	266	162							142				
62-TBN	2P	226	122	152	40	34	110.5	63	87.5	102	9	11	19	Ø 6.5
	3P	266	162							142				
	4P	306	202							182				
64-TBN 66-TBN	2P	285	167	200	60	45	130.5	80.5	110	142	13	12	18	Ø 8.5
	3P	345	227							202				
	4P	405	287							262				

OSS - TN, TBN Type

ATS(60~600A)

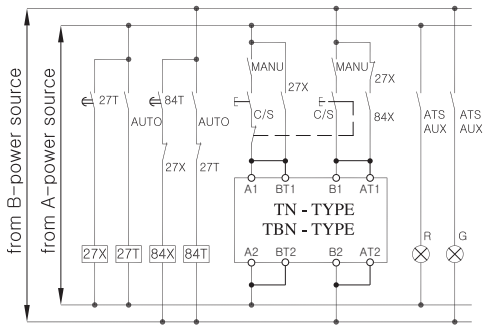
Circuit Diagram (회로도)



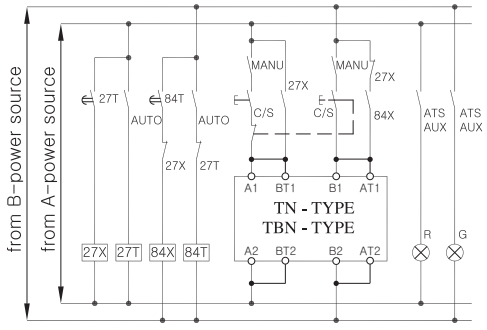
A1, A2	A-Power Closing Terminal	C	Closing Coil
B1, B2	B-Power Closing Terminal	SC	Selective Coil
AT1, AT2	A-Power Tripping Terminal	TC	Tripping Coil
BT1, BT2	B-Power Tripping Terminal	AX, BX	Control Switch
AUX	AUX Switch	ATS1, ATS2 BTS1, BTS2	Trip Control Switch
Si	Silicon Rectifier	LS	Selective Switch

Wiring Diagram (결선도)

AC Operating and Control



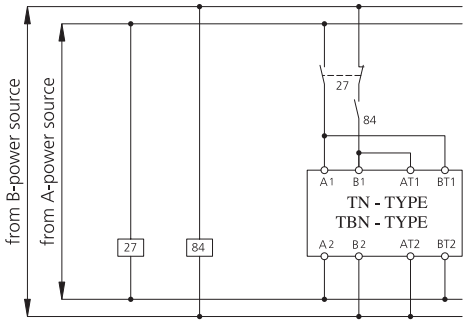
DC Operating and Control



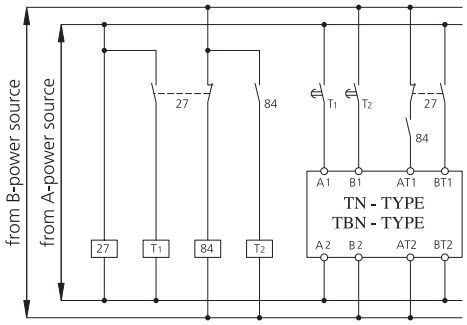
27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Timer	84T	84T Operating Delay Timer
AUTO, MANU	Automatic, Manual	C/S	Control Switch

Typical Operating Circuit (대표적 조작회로 예)

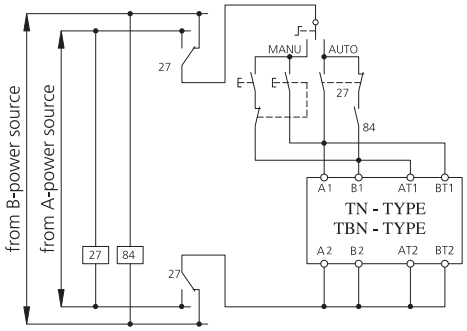
Standard (일반적인 절체)



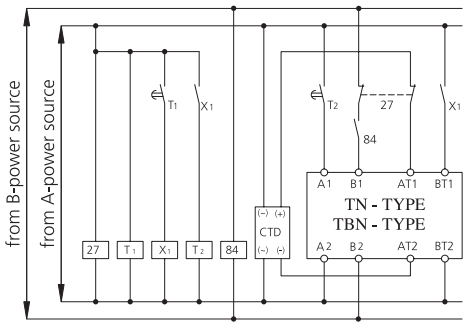
In Case of using a timer (타이머를 이용한 절체)



In Case of using a changeover switch (수동–자동 절체)



In Case of using a condensor tripping device (수동–자동 절체))



OSS - PC Type

ATS(800~6300A)

◆ Information to Order_ 주문정보

OSS - 6□ - PC - □P - □ - □
A B C D

A Rated Current

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

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

C Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

D Mounting System
- F : Fixed
- D : Draw out

◆ External View_ 외관명칭

①	Arc-Extinguishing Chamber (소호실)
②	Manual Lever Inlet (수동 레버 삽입구)
③	Manual Lever (수동 레버)
④	Name Plate (명판)
⑤	Lifting Hook (견인고리)
⑥	Circuit Diagram (회로도)
⑦	ON-OFF Indicator (절체상태표시기)
⑧	Terminal Block (단자대)

◆ Features_ 특징

- **Direct transfer method**
  A ⇒B, B ⇒A
- **One coil mechanism**
  One coil mechanism is applied
- **Transfer indicator provided**
  Transfer indicator is fitted to indicate the transfer status.
- **Easier busbar arrangement**
  If the ATS is installed with the ACB in switchgear, Busbar can be easily arranged.
- **Fixed Type & Drawout Type available**
  Fixed Type and Drawout Type, Can satisfy a variety of customer needs.
- **Quick replacement of ATS**
  If malfunction occurs, Drawout Type of ATS can be changed within 5 minutes.
- **Perfect transfer mechanism**
  By spring transfer mechanism, ATS canbe completely and perfectly transferred. There will be NO unattached position in any case.
- **Sufficient current capacity**
  Sufficient current carrying contacts are designed to withstand against over current.
- **Minimized opening & closing impact**
  Opening and closing impact is minimized.
- **Last Break, 1st make Neutral contact**
  Last Break, 1st make Neutral contact to reduce nuisance tripping in th ground fault protection system. IEEE 242 (Clause 7.5.5)

- **직접 절체 방식**
  A ⇒ B, B ⇒ A
- **1 코일 절체 기구**
  정평이 있는 순시 여자 방식의 1 코일 절체 기구를 채택했습니다.
- **절체 표시기 부착**
  절체의 상태를 확인할 수 있는 절체 표시기를 부착하였습니다.
- **부스바 작업 간편**
  ACB와 함께 배전반 설치 시 부스바 작업이 간편합니다.
- **다양한 고객요구 만족**
  고정형과 인출형이 있어 다양한 고객욕구를 만족시킬 수 있습니다.
- **ATS 교체시간 단축**
  인출형의 경우, 사고 발생 시 ATS 교체시간은 5분 이하입니다.
- **불완전 투입요소 완전 제거**
  스프링 절체방식에 의해서 완전하고 완벽한 절체가 되도록 하였습니다.
  양쪽 전원 중 어느 한쪽으로 반드시 접촉되도로 구조가 이루어져 있습니다.
- **접점부 과전류 설계**
  통전부의 독특한 접점구조에 의해서 과전류에 충분히 이겨낼 수 있도록 설계되어 있습니다.
- **개폐 쇼크 미미**
  개폐 조작 시 개폐 쇼크가 극소합니다.
- **중성선 선 투입 후 개방**
  투입 시 중성선이 삼상(RST)보다 먼저 투입되고 개방 시 나중에 끊어지는 구조로 순간적으로 중성선이 개방되어 발생될 수 있는 사고 방지 효과 (IEEE 242 Clause 7.5.5)

OSS - PC Type

ATS(800~6300A)

◆ Specification_ 정격사양

TYPE			608-PC		610-PC		612-PC		616-PC		620-PC	
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V									
Rated Current (정격전류)		Ie	800 A		1000 A		1250 A		1600 A		2000 A	
Neutral Phase Current (중성극전류)			800 A		1000 A		1250 A		1600 A		2000 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Back (배면)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Fixed (고정)		55	60	55	60	55	65	60	70	90	115
	Drawout (인출)		80	95	80	95	90	105	95	110	110	140
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	25 kA				30 kA		35 kA		40 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	52.5 kA				63 kA		73.5 kA		84 kA	
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency (개폐빈도)			60 Time / Hour				20 Time / Hour				10 Time / Hour	
Operating Current (조작전류) peak	DC 110V ~ 125V		45 A				50 A				65 A	
	AC 100V ~ 110V		45 A				50 A				65 A	
	AC 200V ~ 240V		30 A				40 A				50 A	
Operating Time (동작시간)	Change-over Time		≤ 120 ms								≤ 150 ms	
	Opening Time		≤ 90 ms								≤ 120 ms	
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000								5,000	
	With Current (통전)		5,000								3,000	
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be 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			625-PC		632-PC		640-PC		650-PC		663-PC	
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V									
Rated Current (정격전류)		Ie	2500 A		3200 A		4000 A		5000 A		6300 A	
Neutral Phase Current (중성극전류)			2500 A		3200 A		4000 A		5000 A		6300 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Back (배면)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Fixed (고정)		95	125	100	130	180	210	195	230	200	250
	Drawout (인출)		110	140	125	155	220	275	230	285	245	305
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	50 kA				65 kA					
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	105 kA				143 kA					
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency (개폐빈도)			10 Time / Hour									
Operating Current (조작전류) peak	DC 110V ~ 125V		65 A				80 A					
	AC 100V ~ 110V		65 A				80 A					
	AC 200V ~ 240V		50 A				60 A					
Operating Time (동작시간)	Change-over Time		≤ 150 ms									
	Opening Time		≤ 120 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 will be 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.									

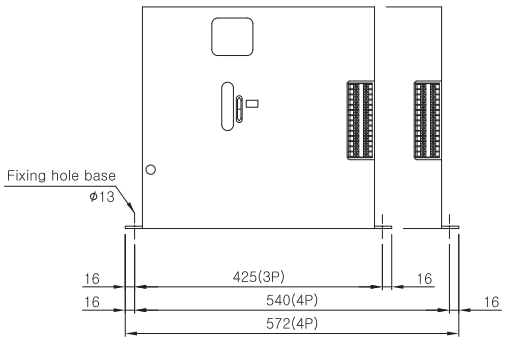
OSS - PC Type

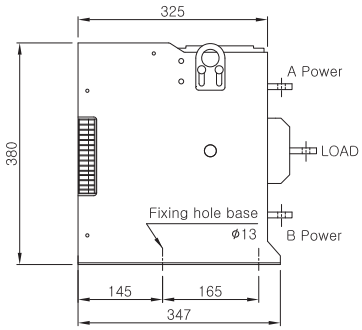
ATS(800~6300A)

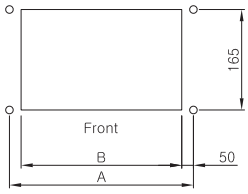
◆ Outline Dimension_ 외형도

800~1600A Fixed

Unit : mm



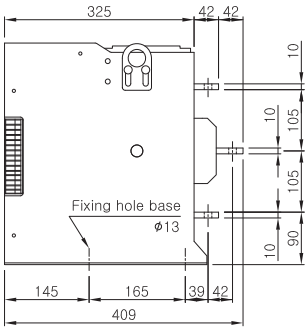


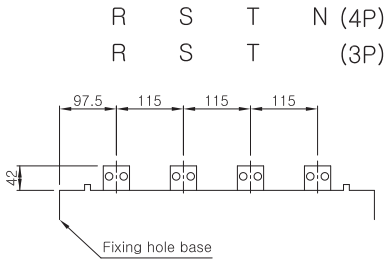


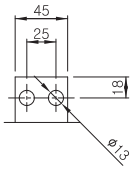
Poles	A	B
3P	425	325
4P	540	440

Panel Cutting
(Fixing Hole)

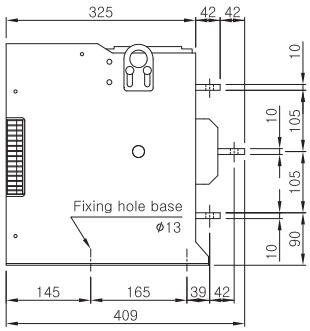
OSS-608~610-PC

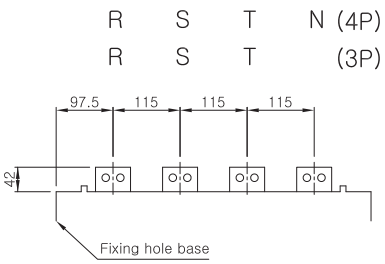


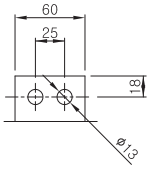




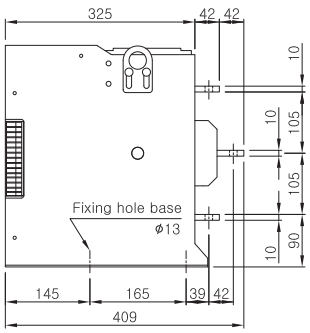
OSS-612-PC

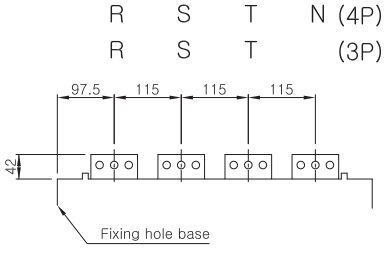


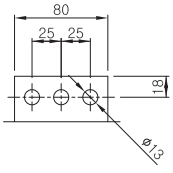




OSS-616-PC







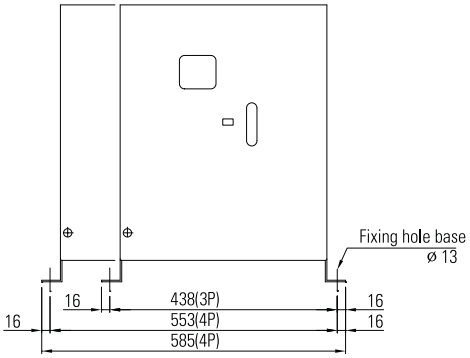
OSS - PC Type

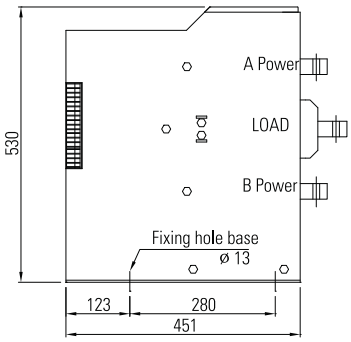
ATS(800~6300A)

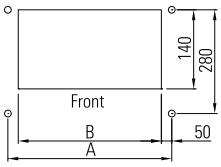
◆ Outline Dimension_ 외형도

2000~3200A Fixed

Unit : mm



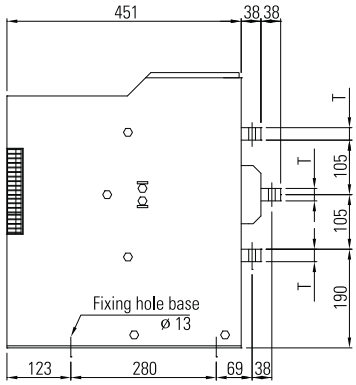




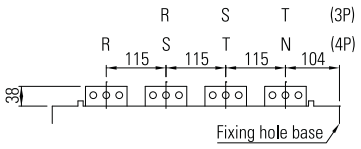
Poles	A	B
3P	438	338
4P	553	453

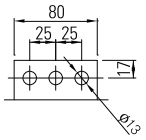
Panel Cutting
(Fixing Hole)

OSS-620~625-PC

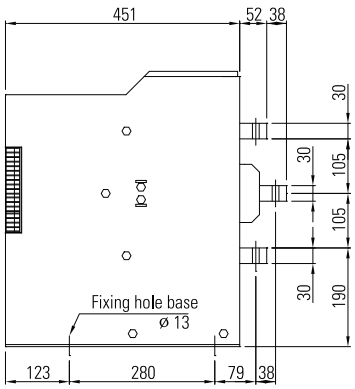


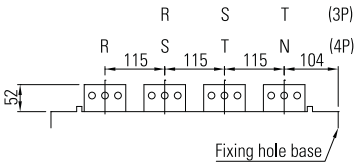
Current	T
2000A	15
2500A	24

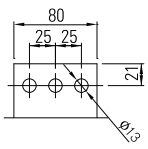




OSS-632-PC







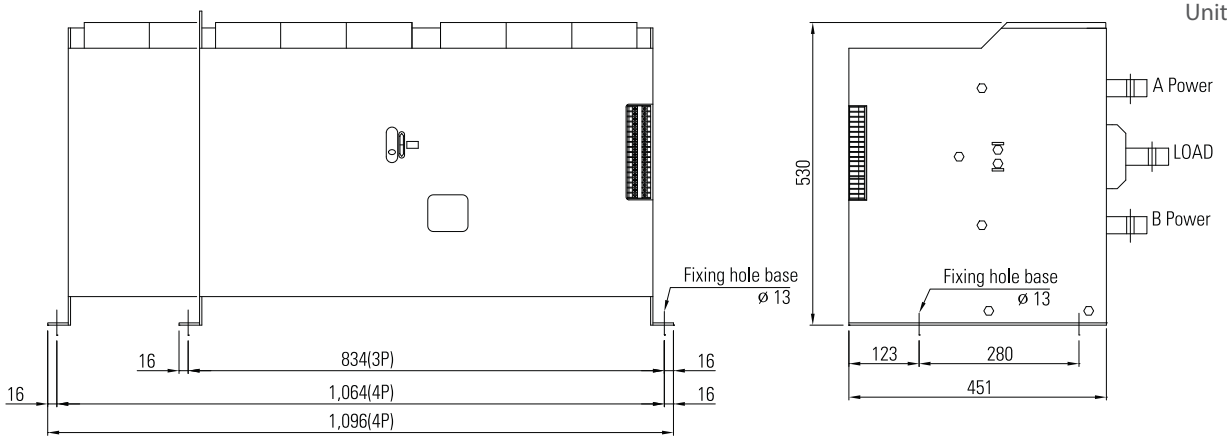
OSS - PC Type

ATS(800~6300A)

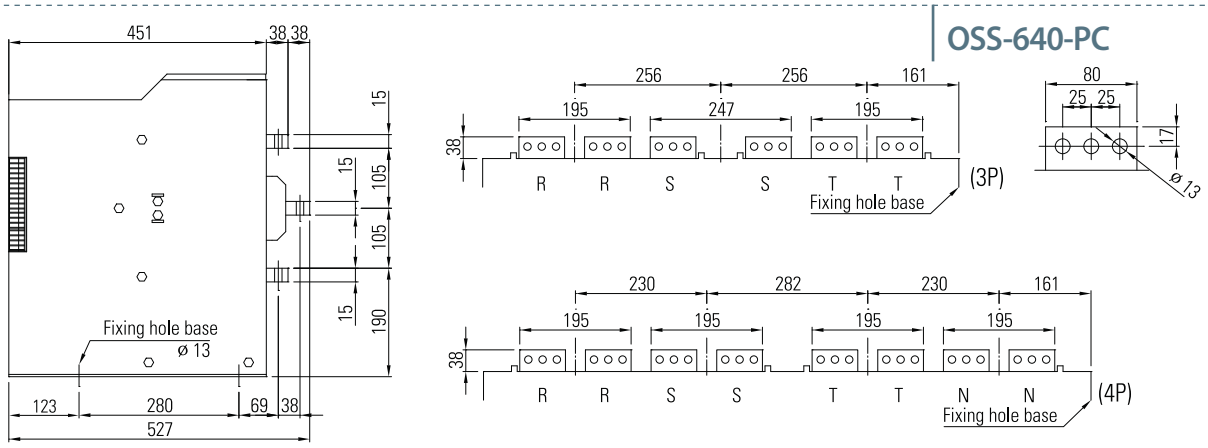
◆ Outline Dimension_ 외형도

4000~6300A Fixed

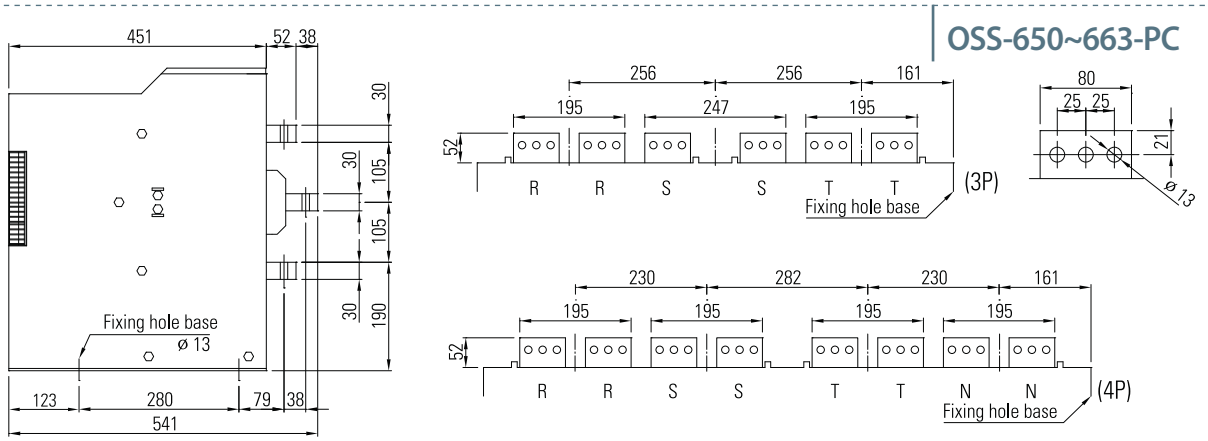
Unit : mm



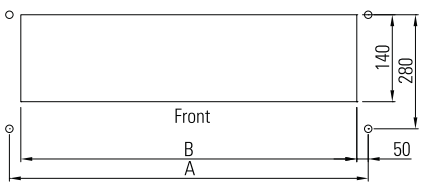
OSS-640-PC



OSS-650~663-PC



Panel cutting (Fixing hole)



Poles	A	B
3P	834	734
4P	1064	964

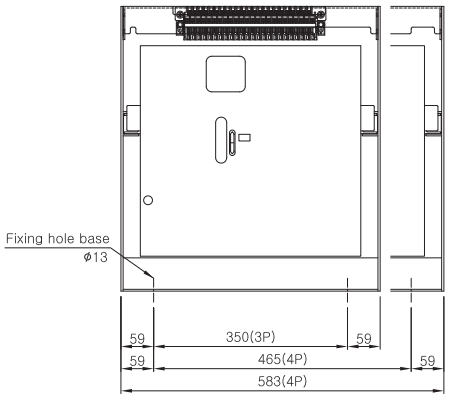
OSS - PC Type

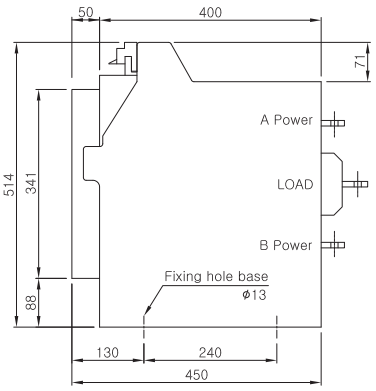
ATS(800~6300A)

◆ Outline Dimension_ 외형도

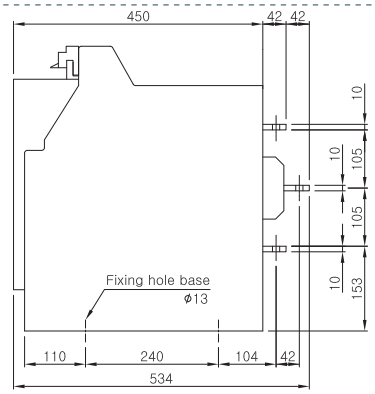
800~1600A Draw Out

Unit : mm

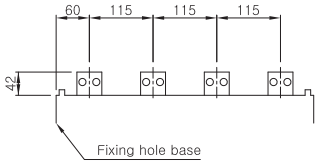


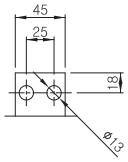


OSS-608~610-PC

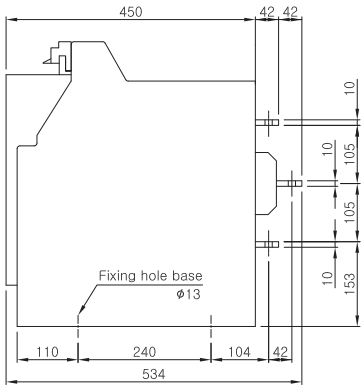


R S T N (4P)
R S T (3P)

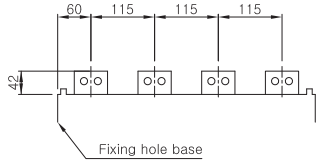


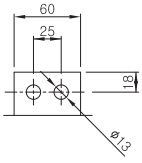


OSS-612-PC

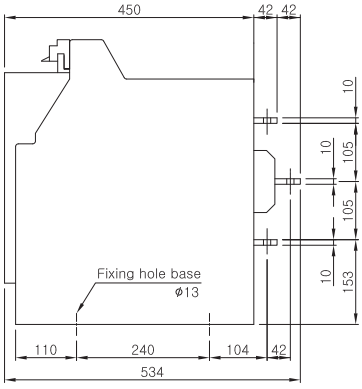


R S T N (4P)
R S T (3P)

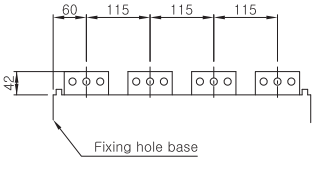


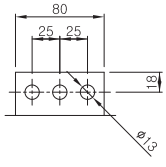


OSS-616-PC



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





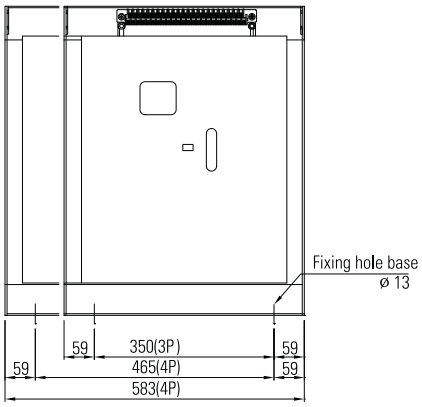
OSS - PC Type

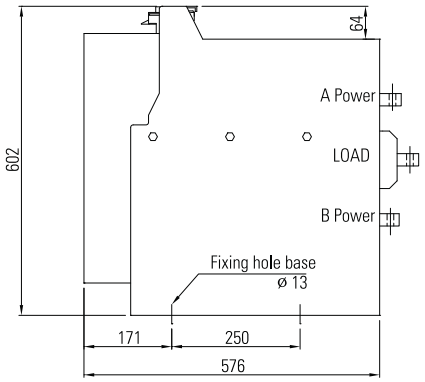
ATS(800~6300A)

◆ Outline Dimension_ 외형도

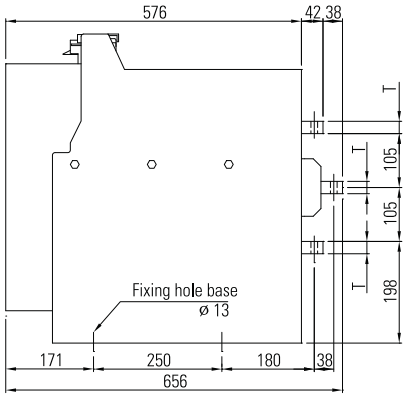
2000~3200A Draw Out

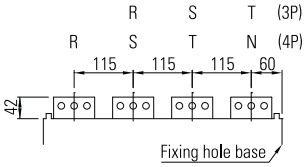
Unit : mm

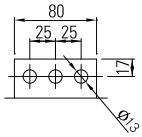




OSS-620~625-PC

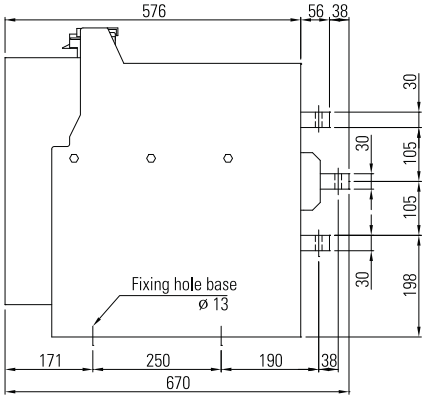


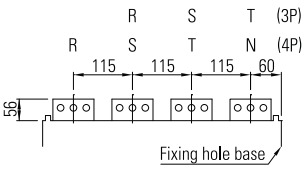


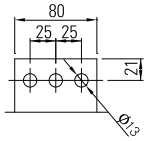


Current	T
2000A	15
2500A	24

OSS-632-PC







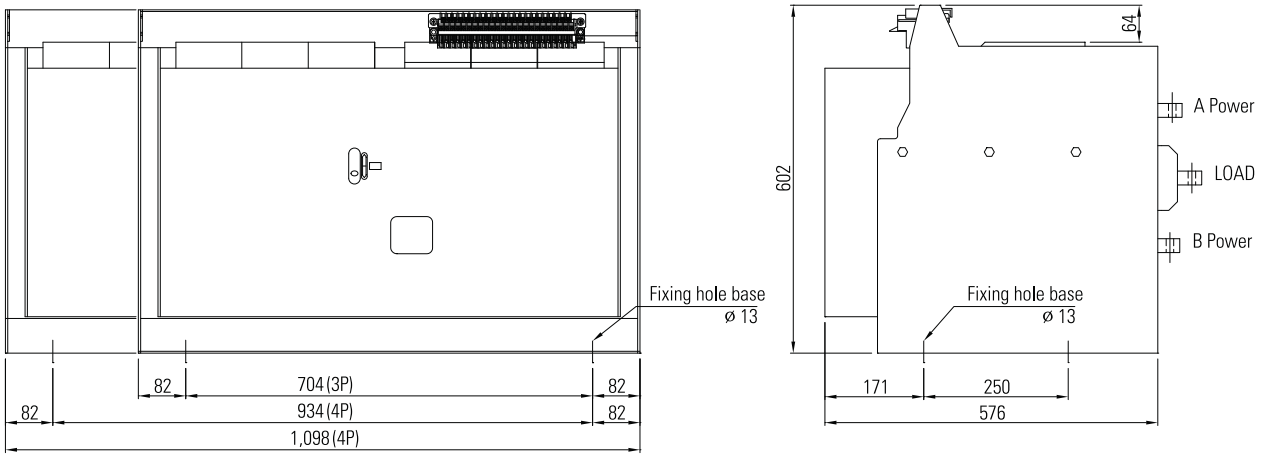
OSS - PC Type

ATS(800~6300A)

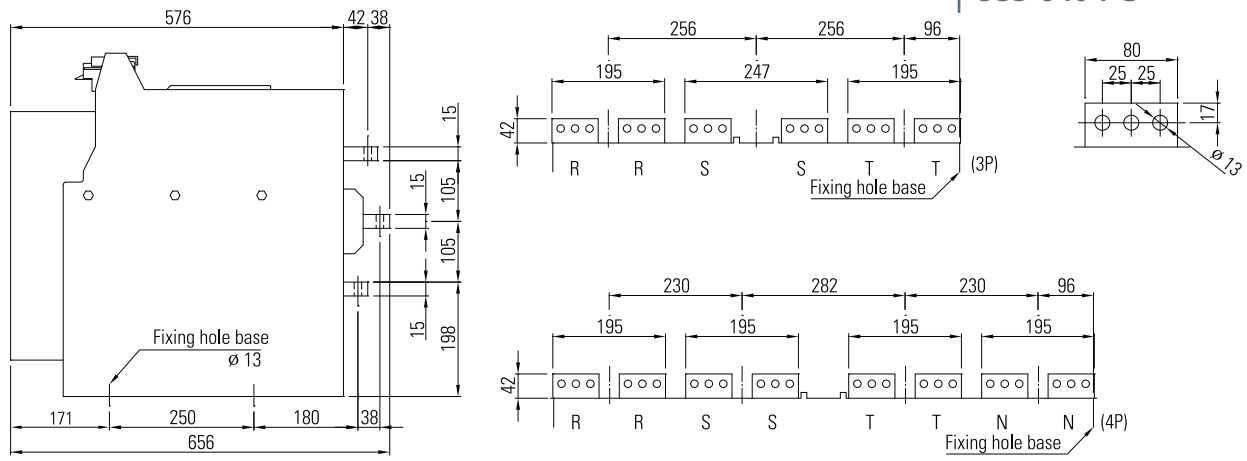
◆ Outline Dimension_ 외형도

4000~6300A Draw Out

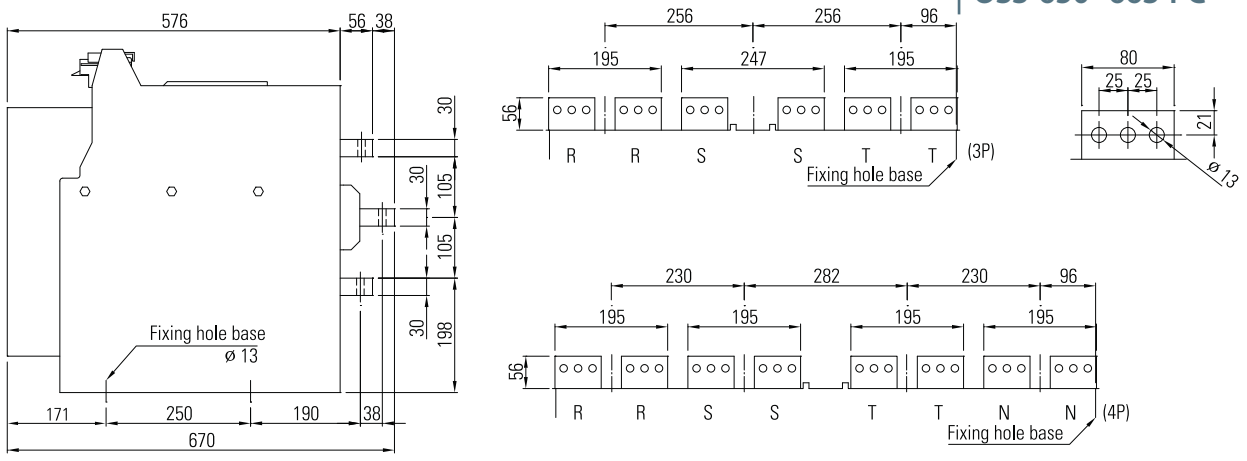
Unit : mm



OSS-640-PC



OSS-650~663-PC



OSS - PSO Type

ATS(600~6300A)

◆ Information to Order_ 주문정보

OSS - 6□ - PSO - □P - □ - □
A B C D

A Rated Current

06	08	10	12	16	20	25	32	40	50	63
600A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A

B Number of Poles
- 4 : 4P

C Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

D Mounting System
- F : Fixed
- D : Draw out

◆ Features_ 특징

In addition to every function of OSS-PC Type ATS, OSS-PSO Type ATS has additional function of Overlapping Neutral Contact. (ON-ON Type ATS)

■ Function of Overlapping Neutral Contact

When general ATS will be transferred, Arc will be generated between fixed contacts and moving contacts. Thus, current flows between contacts and arc will be eliminated when current will be at zero level. Eliminating time of arc is 10~12ms. Therefore, various device of load side can be protected when neutral contacts should be opened 10~12ms later than other 3-phases contacts. Load side devices of general ATS cannot be sufficiently protected because opening time gap between neutral contacts and other 3-phases contacts is less than 10ms. In order to solve this problem, Overlapping between neutral contacts of A-power (Normal) and B-power (Emergency) during transfer of switch functions to protect various devices of load side more safely.

In addition, Non-linear load increases the earth potential and potential difference is occurred between earth and neutral line. When general ATS will be transferred, Neutral line is separated from load and reference potential difference cannot be established. Thus, Floating is occurred and electronic devices can be malfunctioned. When ATS with overlapping neutral contact will be applied, Floating can be protected.

OSS-PSO Type ATS는 OSS-PC Type ATS의 모든 기능에 N상 중첩 절체 기능을 추가로 가지고 있습니다. (ON-ON Type ATS)

■ N상 중첩절체 기능

일반적인 절체 시 고정자와 가동자의 접점 사이에서 ARC가 발생하여 접촉자 간에 전류를 지속시키게 되며, ARC는 전류의 영점에서 사라져 없어지게 됩니다. 이때 ARC의 소멸시간은 대략 10~12ms 정도가 됩니다. 그러므로 중성접점 (N상)은 다른 삼상 (R, S, T상) 보다 10~12ms 후에 떨어져야 부하측의 각종 장비가 보호됩니다. 그러나 일반적인 ATS는 중성접점 (N상)과 다른 삼상 (R, S, T상)의 시간차가 10ms 이내가 되므로 부하측의 설비를 보호하는데 다소 미흡하다 할 수 있습니다.

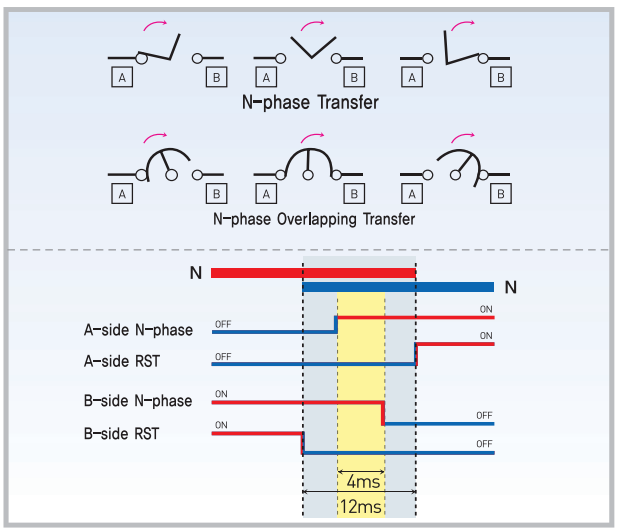
이러한 문제를 해결하기 위하여 상용전원의 중성접점과 예비전원의 중성접점을 중첩시켜 절체시킴으로써 보다 안전하게 부하측의 각종 장비를 보호할 수 있습니다.

또한 비선형 부하는 대지전위를 상승시켜 대지와 중성선 간에 전위차가 생기므로 일반적인 ATS는 절체 시 중성선이 부하측과 분리되어 기준전위가 확립되지 않아 플로팅 현상이 발생되어 전자장비의 오동작을 유발합니다. 그러므로 중첩절체 기능이 내장된 ATS를 사용함으로써 플로팅 현상을 예방할 수 있습니다.

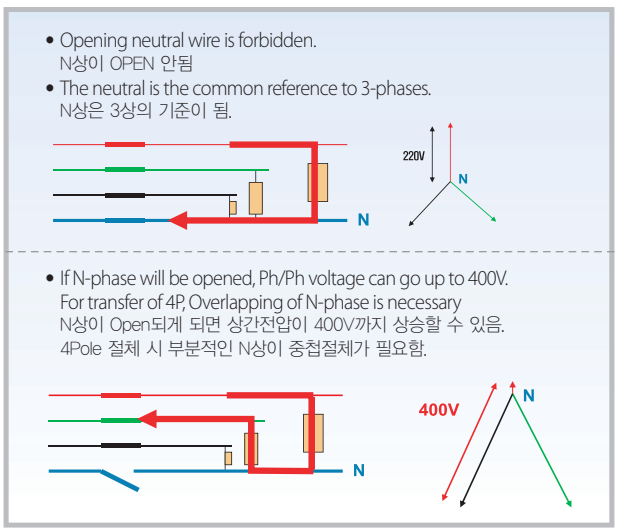
■ Location Needed for Overlapping Neutral Contact (중첩절체기능을 필요로하는 장소)

- Broadcasting System and Telecommunication System (방송국 및 전신전화국)
- Military Communication System and Radar Facilities (군 통신 및 레이더 시설)
- Bank and Computer Center (은행 및 전산시설)
- Large Harmonic Load : Elevator & Escalator, etc.) (다량의 고조파 발생 부하 : 엘리베이터, 에스컬레이터 등)
- Arc Furnace (각종 전기로)
- Petrochemical Plant (석유화학 플랜트)

■ N-phase Transfer (N상 절체방식)



■ Limits of 4P Transfer (4Pole 절체시 문제점)



OSS - PSO Type

ATS(600~6300A)

◆ Specification_ 정격사양

TYPE			606-PSO	608-PSO	610-PSO	612-PSO	616-PSO
Rated Operational Voltage (정격사용전압)		Ue	AC 600 V				
Rated Current (정격전류)		Ie	630 A	800 A	1000 A	1250 A	1600 A
Neutral Phase Current (중성극전류)			630 A	800 A	1000 A	1250 A	1600 A
Kind of Throw (투수)			Double Throw (쌍투)				
Connection (접속방식)			Back (배면)				
Number of Poles (극수)							
Weight (중량 : kg)	Fixed (고정)		70	75		80	85
	Drawout (인출)		100	105		115	120
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	25 kA			30 kA	35 kA
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	52.5 kA			63 kA	73.5 kA
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)				
Switching Frequency (개폐빈도)			60 Time / Hour			20 Time / Hour	
Operating Current (조작전류) peak	DC 110V ~ 125V		45 A			50 A	
	AC 100V ~ 110V		45 A			50 A	
	AC 200V ~ 240V		30 A			40 A	
Operating Time (동작시간)	Change-over Time		≤ 150 ms				
	Opening Time		≤ 120 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 will be 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-PSO	625-PSO	632-PSO	640-PSO	650-PSO	663-PSO
Rated Operational Voltage (정격사용전압)		Ue	AC 600 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)				Back (배면)				
Number of Poles (극수)			4P					
Weight (중량 : kg)	Fixed (고정)		115	125	125	210	230	250
	Drawout (인출)		140	140	155	275	285	305
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류)		Icw	40 kA	50 kA		65 kA		
Rated Short-Circuit Making Capacity (단락 투입 전류)		Icm peak	84 kA	105 kA		143 kA		
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)					
Switching Frequency (개폐빈도)			10 Time / Hour					
Operating Current (조작전류) peak	DC 110V ~ 125V		65 A				80 A	
	AC 100V ~ 110V		65 A				80 A	
	AC 200V ~ 240V		50 A				65 A	
Operating Time (동작시간)	Change-over Time		≤ 150 ms					
	Opening Time		≤ 120 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 will be 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.					

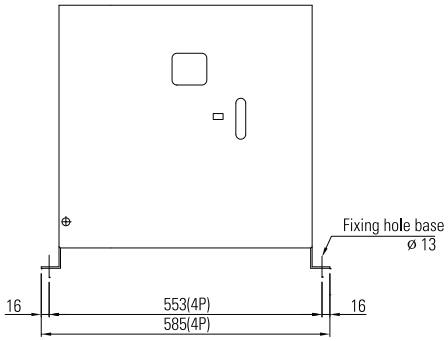
OSS - PSO Type

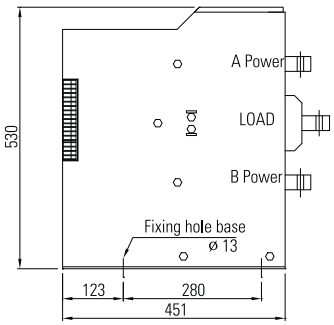
ATS(600~6300A)

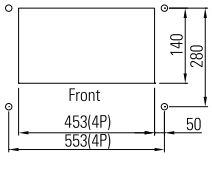
◆ Outline Dimension_ 외형도

600~3200A Fixed

Unit : mm

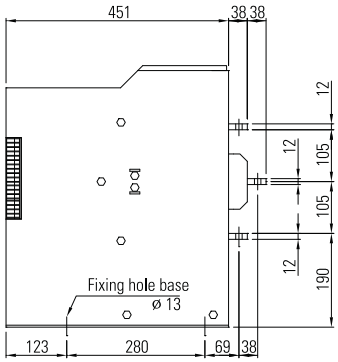


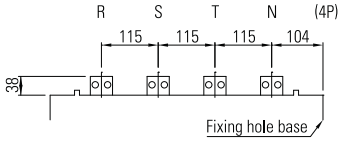




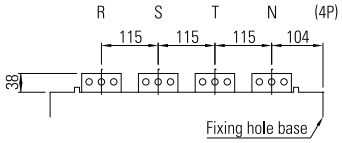
Panel Cutting
(Fixing Hole)

OSS-606~616-PSO

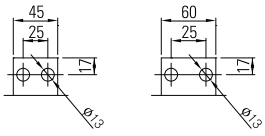




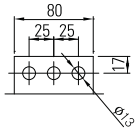
OSS-606~612-PSO



OSS-616-PSO

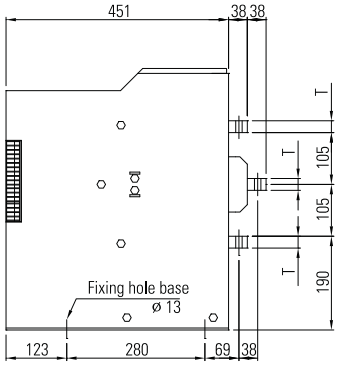


OSS-606~610-PSO OSS-612-PSO

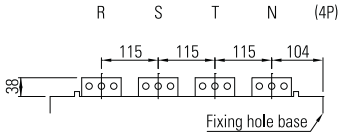


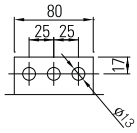
OSS-616-PSO

OSS-620~625-PSO

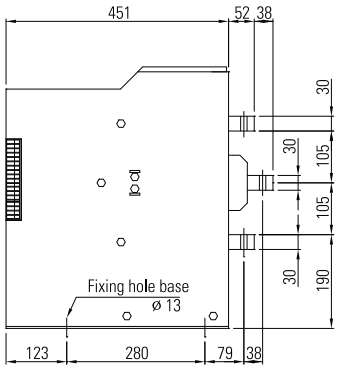


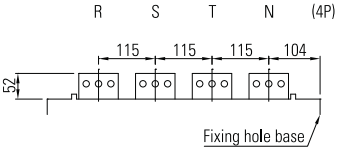
Current	T
2000A	15
2500A	24

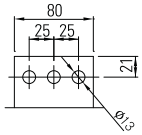




OSS-632-PSO







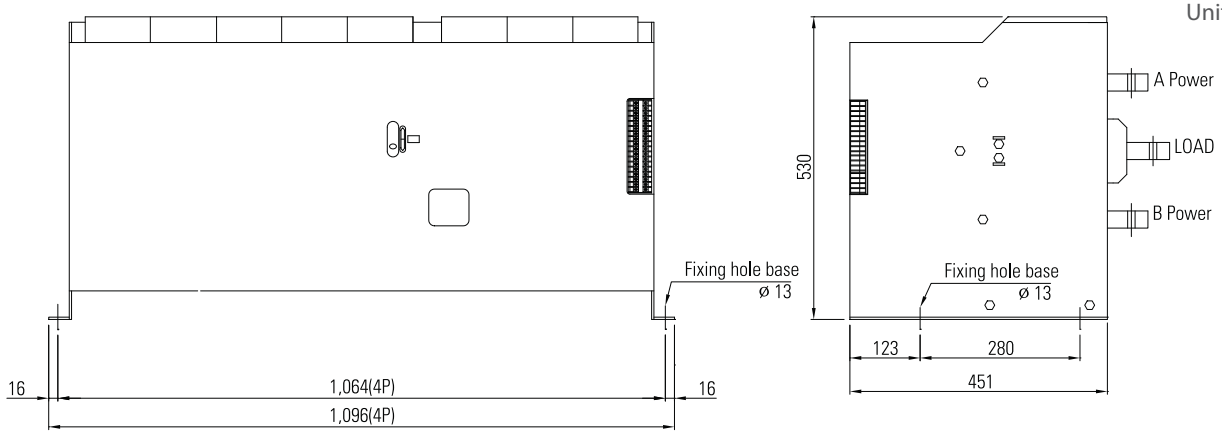
OSS - PSO Type

ATS(600~6300A)

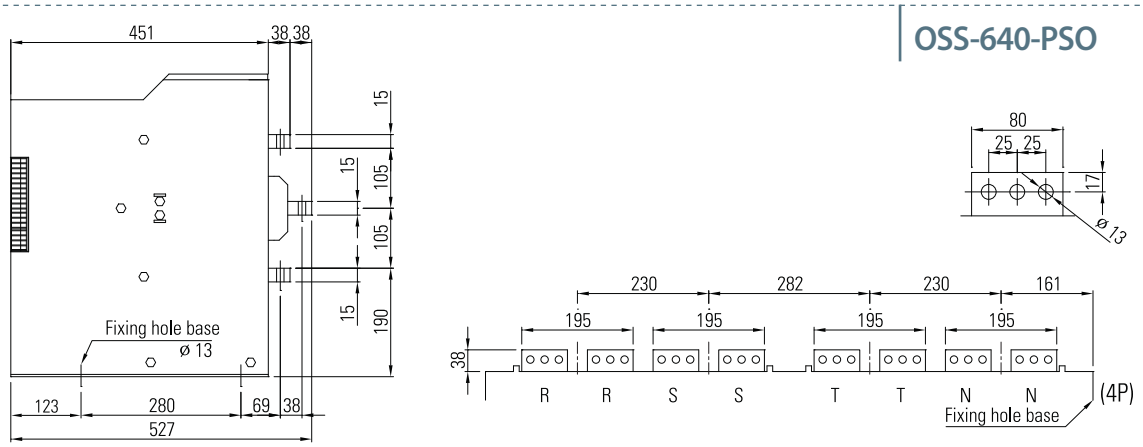
◆ Outline Dimension_ 외형도

4000~6300A Fixed

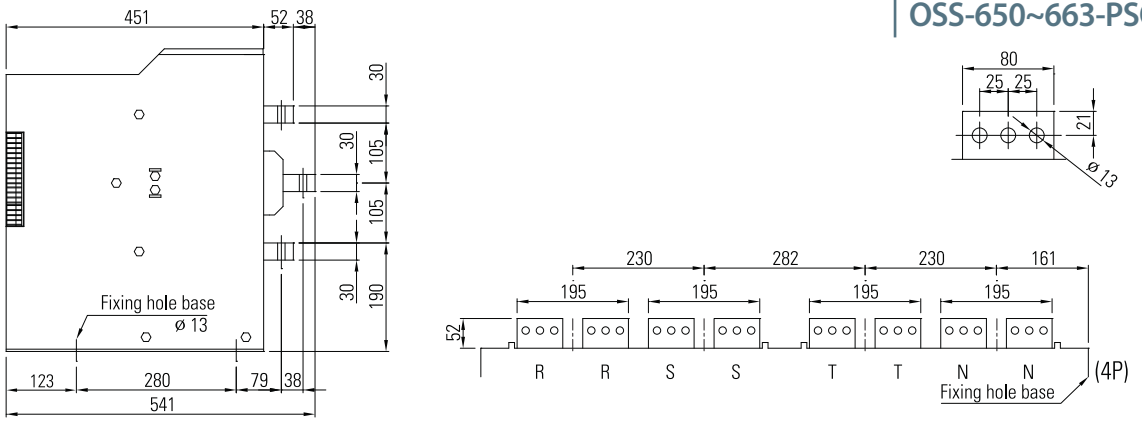
Unit : mm



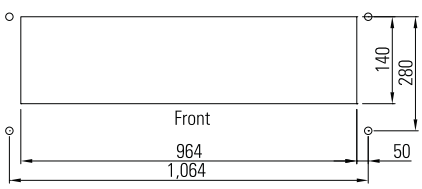
OSS-640-PSO



OSS-650~663-PSO



Panel cutting (Fixing hole)



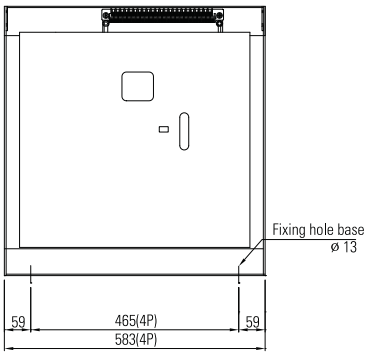
OSS - PSO Type

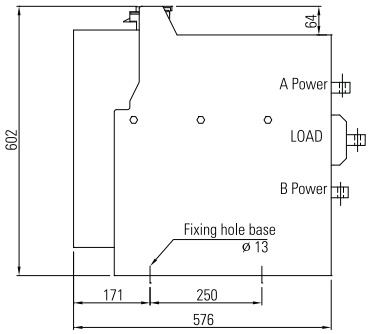
ATS(600~6300A)

◆ Outline Dimension_ 외형도

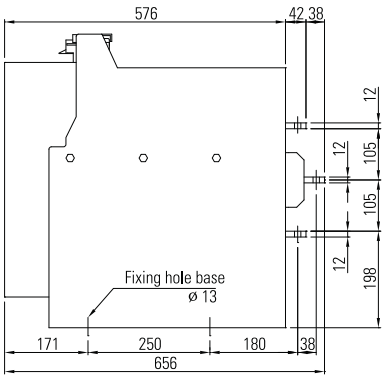
600~3200A Draw Out

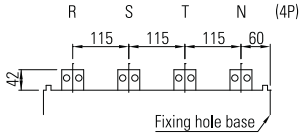
Unit : mm



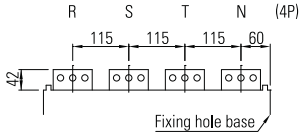


OSS-606~616-PSO

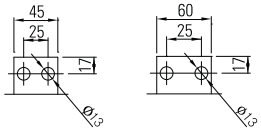




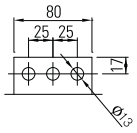
OSS-606~612-PSO



OSS-616-PSO

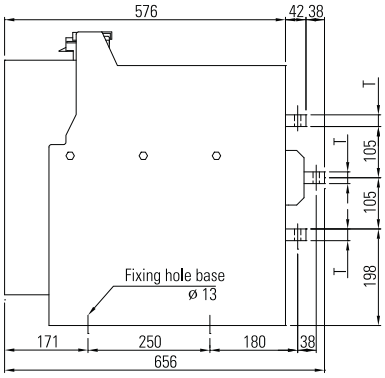


OSS-606~610-PSO OSS-612-PSO

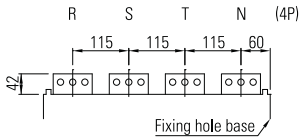


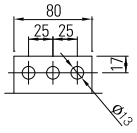
OSS-616-PSO

OSS-620~625-PSO

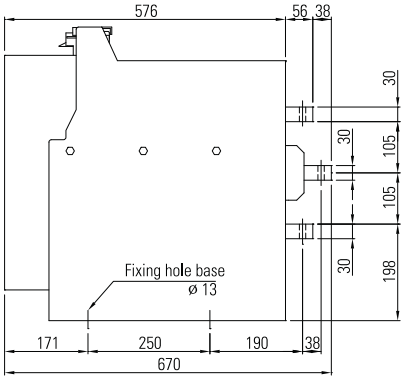


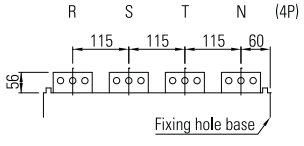
Current	T
2000A	15
2500A	24

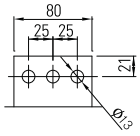




OSS-632-PSO







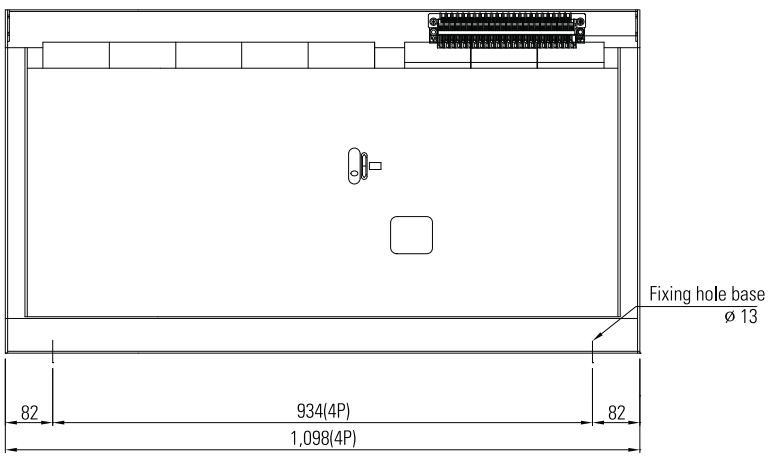
OSS - PSO Type

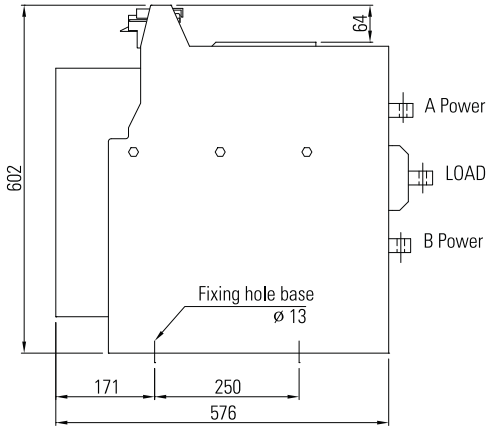
ATS(600~6300A)

◆ Outline Dimension_ 외형도

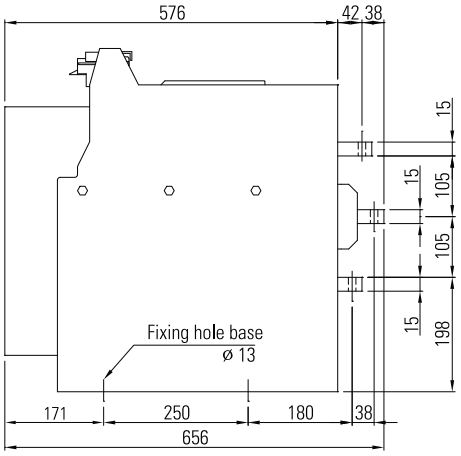
4000~6300A Draw Out

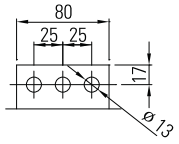
Unit : mm

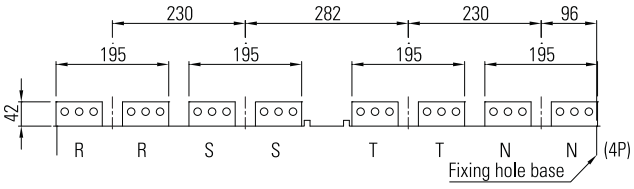




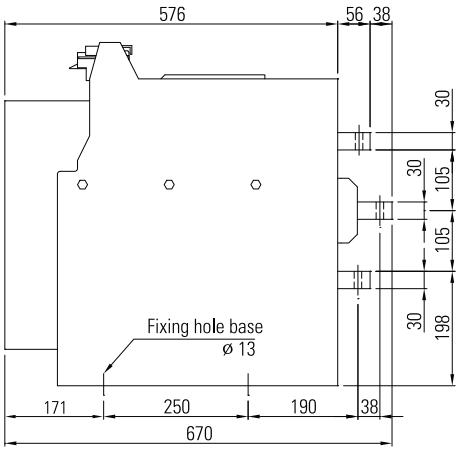
OSS-640-PSO

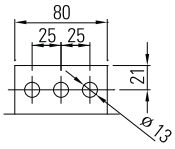


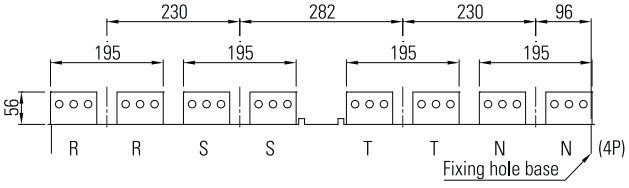




OSS-650~663-PSO





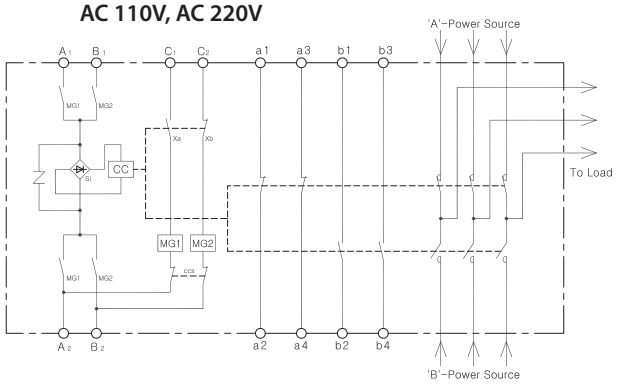


OSS - PC, PSO Type

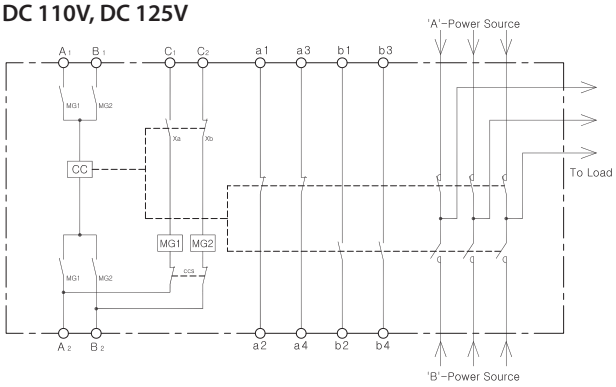
ATS

Circuit Diagram (회로도)

AC 110V, AC 220V



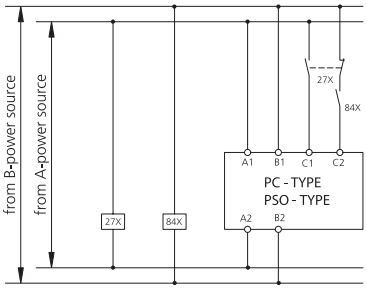
DC 110V, DC 125V



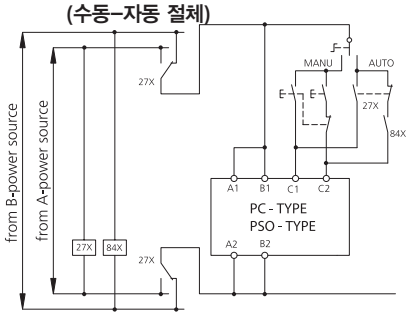
A1, A2	A-Power Closing Terminal	Xa, Xb	Control Switch
B1, B2	B-Power Closing Terminal	MG1, MG2	Magnetic coil
CC	Closing coil	a1, a2, a3, a4	A-Power Aux Switch
C	Closing coil state switch	b1, b2, b3, b4	B-Power Aux Switch

Typical Operating Circuit (대표적 조작회로 예)

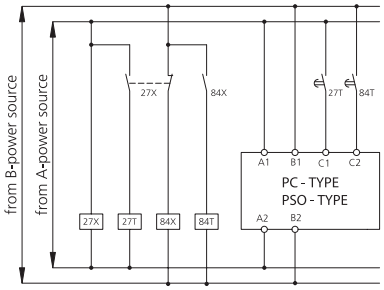
Standard
(일반적인 절체)



In Case of using a changeover switch
(수동–자동 절체)

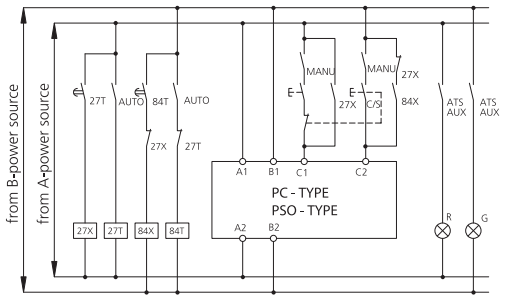


In Case of using a timer
(타이머를 이용한 절체)

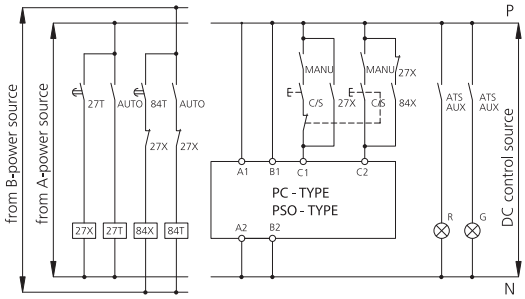


Wiring Diagram (결선도)

AC Operating and Control



DC Operating and Control



27X	Source-A Operating Relay	84X	Source-B Operating Relay
27T	27X Operating Delay Timer	84T	84X Operating Delay Timer
AUTO, MANU	Automatic, Manual	C/S	Control Switch

Caution) More than 2.5㎟ power cable used for 1600A ATS or less.
More than 4.0㎟ power cable used for 2000A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

주의) ATS 1600A 이하 사용 시 전선의 굵기는 2.5㎟ 이상 사용합니다.
ATS 2000A 이상 사용 시 전선의 굵기는 4.0㎟ 이상 사용합니다.
ATS 4000A 이상 사용 시 전선의 굵기는 6.0㎟ 이상 사용합니다.

OSS - PCN Type

ATS(800~6300A)

◆ Information to Order_ 주문정보

OSS - 6□ - □ - □P - □ - □
A B C D E

A Rated Current

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

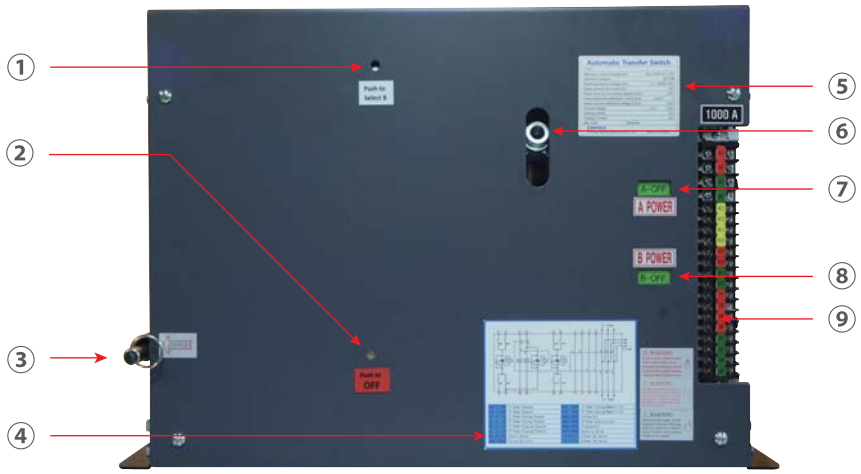
B Type
- PCN : PCN-Type

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

D Operating Voltage
- A1 : AC 110V
- A2 : AC 220V
- D1 : DC 110V
- D2 : DC 125V

E Mounting System
- F : Fixed
- D : Draw out

◆ External View_ 외관명칭



①	Selective Button for "B"–Power Closing (B전원 투입 선택 버튼)
②	Trip Button (트립 버튼)
③	Manual Lever (수동 레버)
④	Circuit Diagram (회로도)
⑤	Name Plate (명판)
⑥	Manual Lever Inlet (수동 레버 삽입구)
⑦	"A"–Power ON/OFF Indicator (A전원 동작 표시기)
⑧	"B"–Power ON/OFF Indicator (B전원 동작 표시기)
⑨	Terminal Block (단자대)

◆ Features_ 특징

- Neutral position is functioned to cut off both power sources
  In case UPS is applied, It is available to transfer to neutral position by tripping mechanism after checking circuit stability and safety instaneous transfer as follows. A ⇒ Off ⇒ B, B ⇒ Off ⇒ A and A ⇒ Off ⇒ A, B⇒ Off ⇒ B instaneous transfer can be avaiable also by operating signal.
- Sufficient contact capacity against accidental current.
  (20 times of operating current)
- On-load break and make type.
- Easy busbar arrangement.
- Prevent the simultaneous closing by complete mechanical and electrical tripping mechanism
- Current carrying capacity of of N-phase is 100% same as other phases.
- N-phase is closed earlier and opened later.

- 중간정지 방식
  무정전 전원장치가 있는 경우 정전 또는 복전 시 긴급 절체되는 것 보다는 회로의 안정 및 선로의 안전을 확인한 후 절체할 수 있는 방식으로 트립장치에 의해 중간위치(OFF)가 가능합니다.
  A ⇒ Off ⇒ B, B ⇒ Off ⇒ A and A ⇒ Off ⇒ A, B ⇒ Off ⇒ B
  또한 조작 지령에 의해 긴급 절체도 가능합니다.
- 사고전류(20배)에 대비한 충분한 접점 설계
- 부하개폐 가능한 ON–LOAD TYPE ATS
- 부스바 작업 간편
- 완벽한 기계적, 전기적 트립 설계로 혼촉사고 방지
- 전 기종 N상, 통전용량 100% 구현 (N상 동일)
- N상 선투입 후개방 개폐 구조

OSS - PCN Type

ATS(800~6300A)

◆ Specification_ 정격사양

TYPE			608-PCN		610-PCN		612-PCN		616-PCN		620-PCN	
Rated Operational Voltage (정격사용전압) Ue			AC 600 V									
Rated Insulation Voltage (정격 절연 전압) Ui			AC 800 V									
Rated Impulse Withstand Voltage (정격 임펄스 내전압) Uimp			AC 8000 V									
Rated Current (정격전류) Ie			800 A		1000 A		1250 A		1600 A		2000 A	
Neutral Phase Current (중성극전류)			800 A		1000 A		1250 A		1600 A		2000 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Back (배면)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Fixed (고정)		60	70	60	70	65	75	75	85	105	125
	Drawout (인출)		130	145	130	145	140	155	150	165	165	195
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류) Icw			25 kA		25 kA		30 kA		35 kA		40 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류) peak Icm			52.5 kA		52.5 kA		63 kA		73.5 kA		84 kA	
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency (개폐빈도)			60 Time / Hour				20 Time / Hour				10 Time / Hour	
Operating Current (조작전류) peak	DC 110V ~ 125V		25 A				40 A				65 A	
	AC 100V ~ 110V		25 A				40 A				65 A	
	AC 200V ~ 240V		15 A				30 A				50 A	
Operating Time (동작시간)	"A" Power	Making	≤ 150 ms								≤ 150 ms	
		Breaking	≤ 40 ms								≤ 90 ms	
	"B" Ppwer	Making	≤ 150 ms								≤ 200 ms	
		Breaking	≤ 40 ms								≤ 90 ms	
Number of Operating Cycles (정격 개폐 회수)	Without Current (무통전)		10,000								5,000	
	With Current (통전)		5,000								3,000	
Cautions (주의사항)			1. For complete operation, Be sure to provide control source for more than 0.5sec. 2. When control source will be 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			625-PCN		632-PCN		640-PCN		650-PCN		663-PCN	
Rated Operational Voltage (정격사용전압) Ue			AC 600 V									
Rated Insulation Voltage (정격 절연 전압) Ui			AC 800 V									
Rated Impulse Withstand Voltage (정격 임펄스 내전압) Uimp			AC 8000 V									
Rated Current (정격전류) Ie			2500 A		3200 A		4000 A		5000 A		6300 A	
Neutral Phase Current (중성극전류)			2500 A		3200 A		4000 A		5000 A		6300 A	
Kind of Throw (투수)			Double Throw (쌍투)									
Connection (접속방식)			Back (배면)									
Number of Poles (극수)			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Weight (중량 : kg)	Fixed (고정)		105	125	110	130	180	220	200	250	200	250
	Drawout (인출)		165	195	180	210	220	275	245	400	300	400
Rated Short-Time Withstand Current (1sec) (정격 단시간 내전류) Icw			50 kA		50 kA		65 kA		65 kA		65 kA	
Rated Short-Circuit Making Capacity (단락 투입 전류) peak Icm			105 kA		105 kA		143 kA		143 kA		143 kA	
Switching Capacity (개폐용량)			AC -33B (10 Ie making / 10 Ie breaking cos Ø= 0.35), (1 Ie making / 1 Ie breaking cos Ø= 0.8)									
Switching Frequency (개폐빈도)			10 Time / Hour									
Operating Current (조작전류) peak	DC 110V ~ 125V		65 A				80 A					
	AC 100V ~ 110V		65 A				80 A					
	AC 200V ~ 240V		50 A				65 A					
Operating Time (동작시간)	"A" Power	Making	≤ 150 ms									
		Breaking	≤ 90 ms									
	"B" Ppwer	Making	≤ 200 ms									
		Breaking	≤ 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 will be 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.									

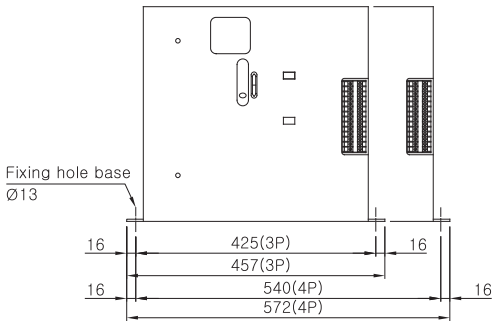
OSS - PCN Type

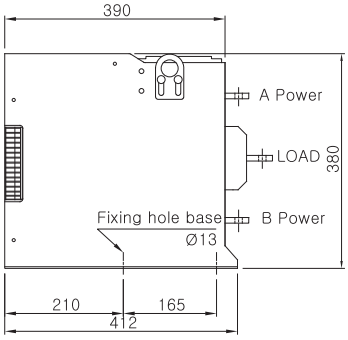
ATS(800~6300A)

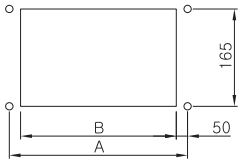
◆ Outline Dimension_ 외형도

800~1600A Fixed

Unit : mm



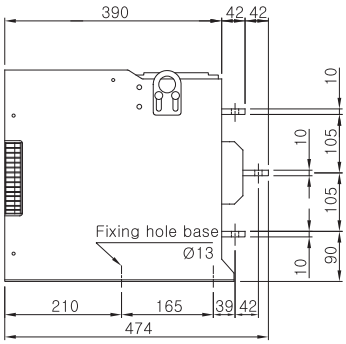


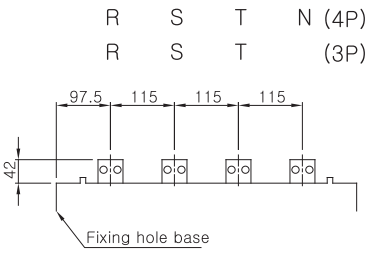


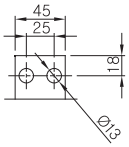
Poles	A	B
3P	425	325
4P	540	440

Panel Cutting
(Fixing Hole)

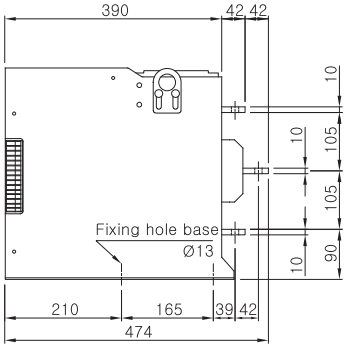
OSS-608~610-PCN

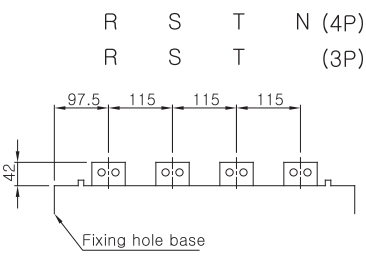


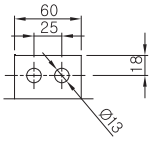




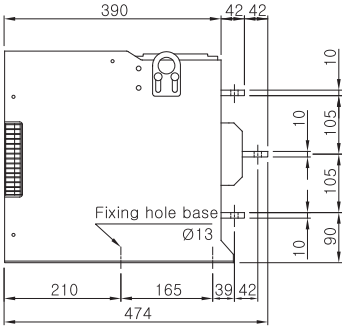
OSS-612-PCN

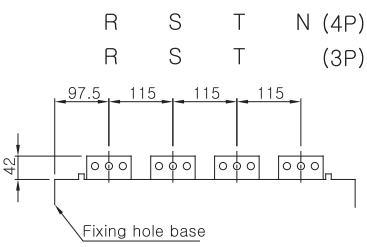


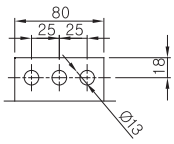




OSS-616-PCN







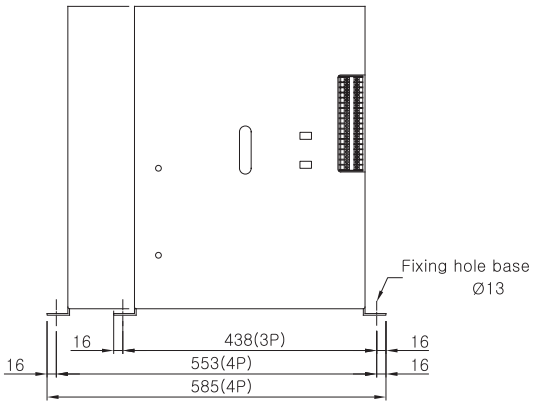
OSS - PCN Type

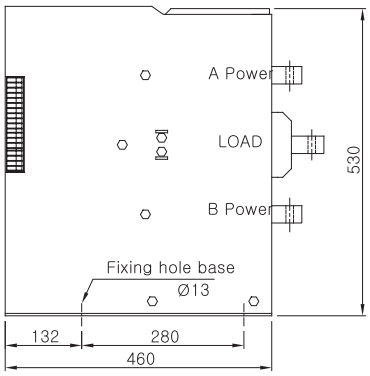
ATS(800~6300A)

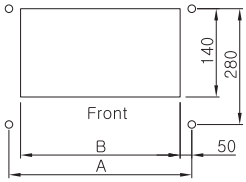
◆ Outline Dimension_ 외형도

2000~3200A Fixed

Unit : mm



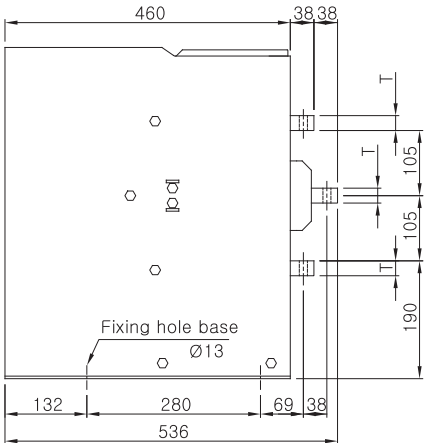


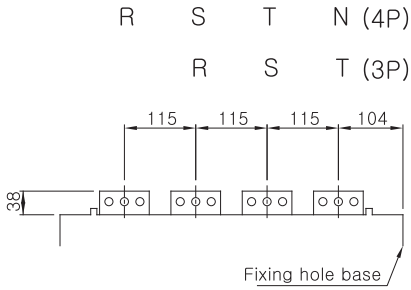


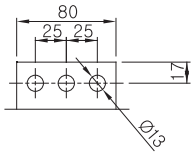
Poles	A	B
3P	438	338
4P	553	453

Panel Cutting
(Fixing Hole)

OSS-620~625-PCN

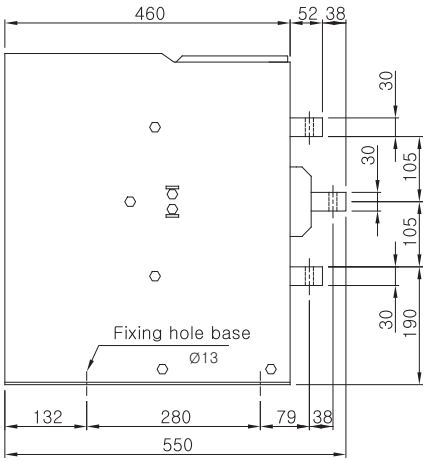


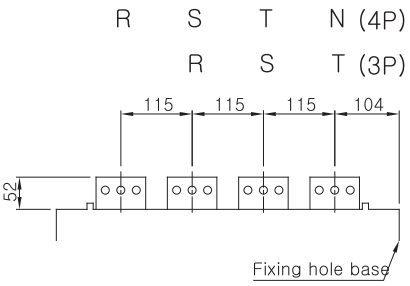


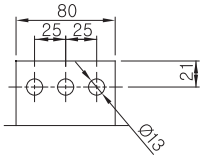


Current	T
2000A	15
2500A	24

OSS-632-PCN







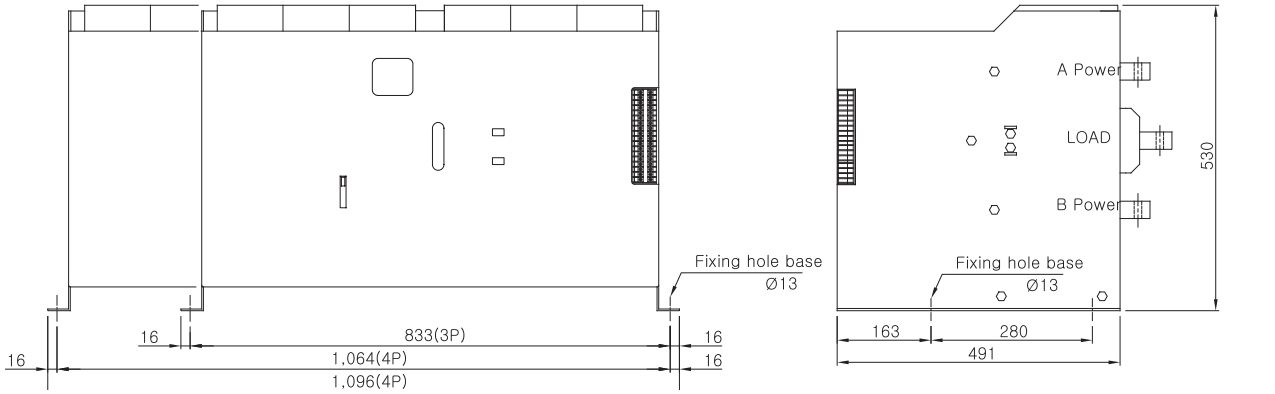
OSS - PCN Type

ATS(800~6300A)

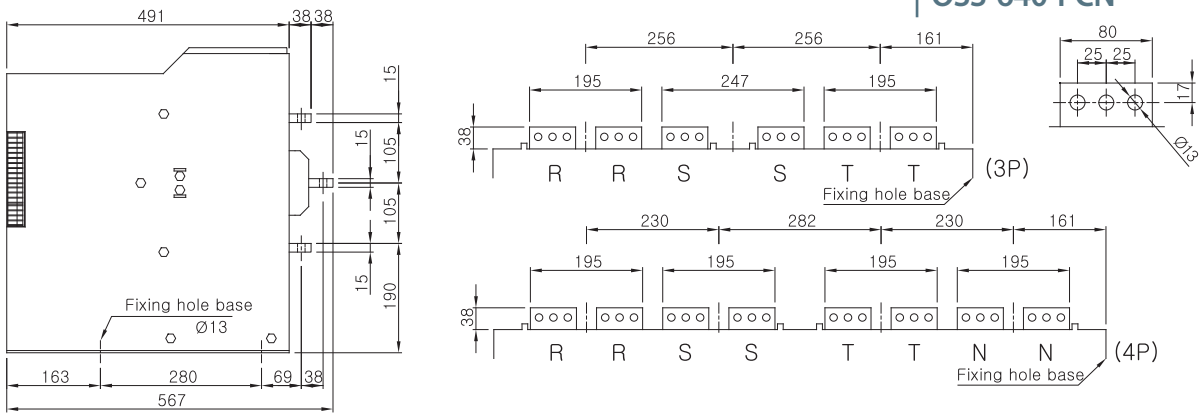
◆ Outline Dimension_ 외형도

4000~6300A Fixed

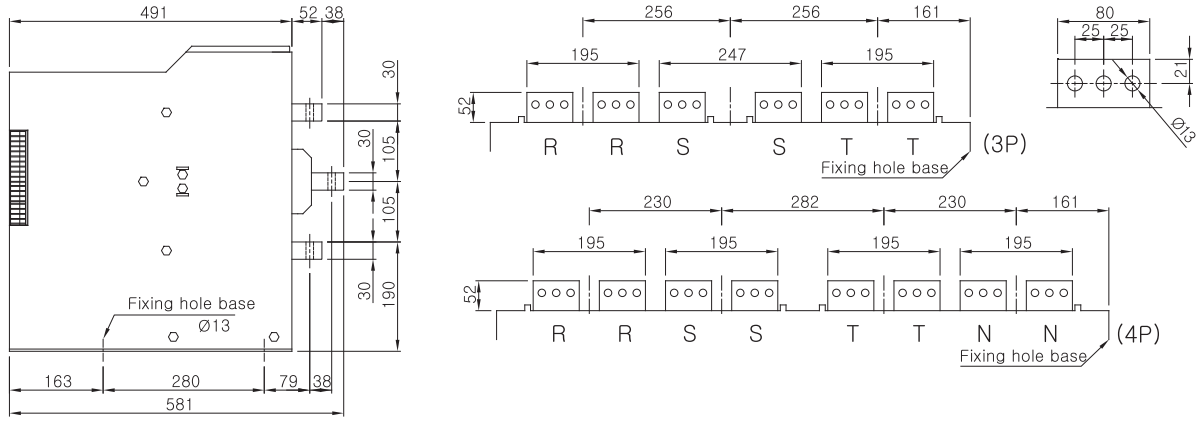
Unit : mm



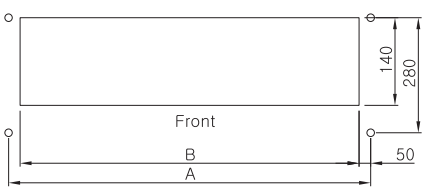
OSS-640-PCN



OSS-650~663-PCN



Panel cutting (Fixing hole)



Poles	A	B
3P	834	734
4P	1064	964

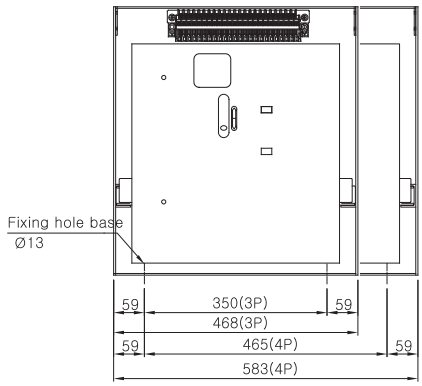
OSS - PCN Type

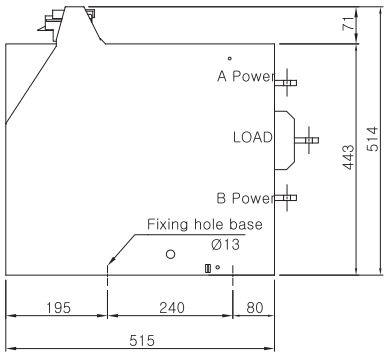
ATS(800~6300A)

◆ Outline Dimension_ 외형도

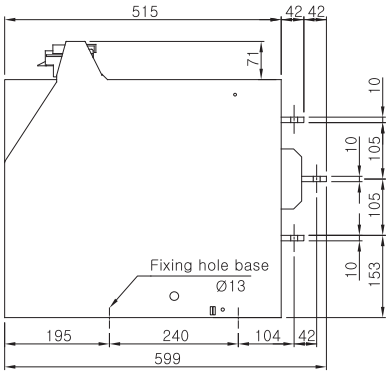
800~1600A Draw Out

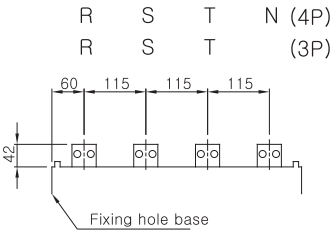
Unit : mm

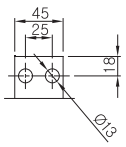




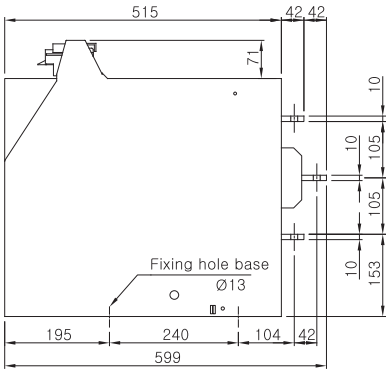
OSS-608~610-PCN

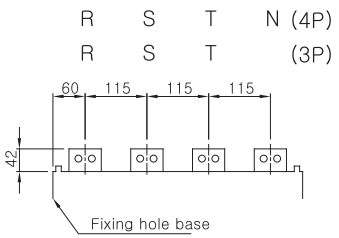


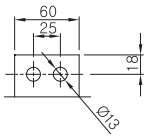




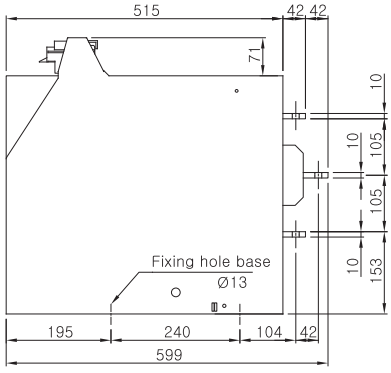
OSS-612-PCN

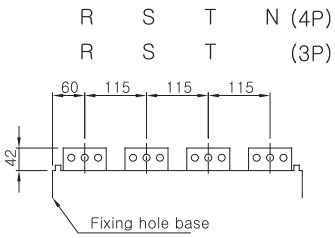


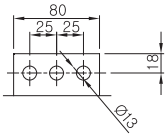




OSS-616-PCN







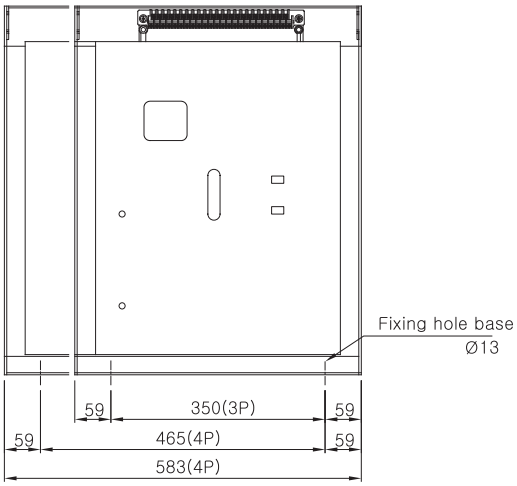
OSS - PCN Type

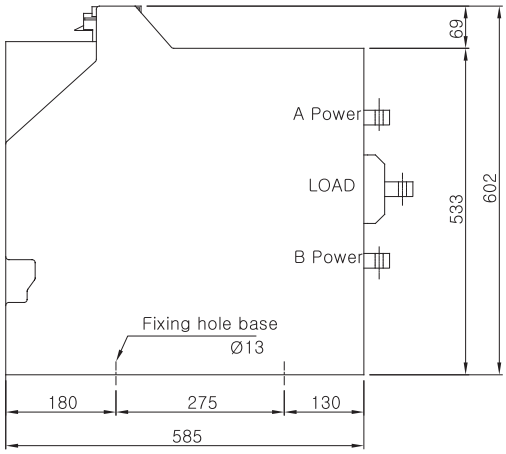
ATS(800~6300A)

◆ Outline Dimension_ 외형도

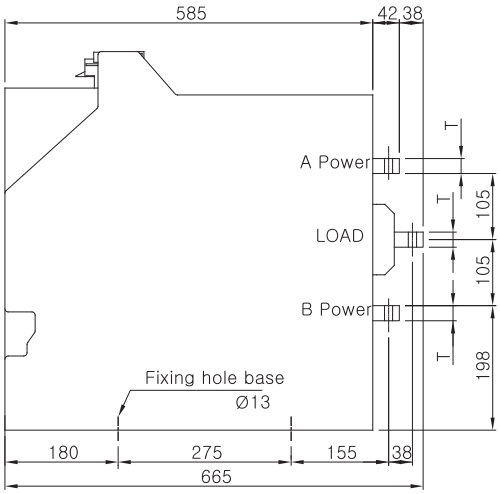
2000~3200A Draw Out

Unit : mm

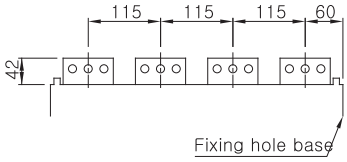


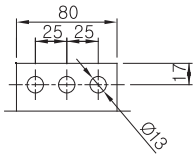


OSS-620~625-PCN



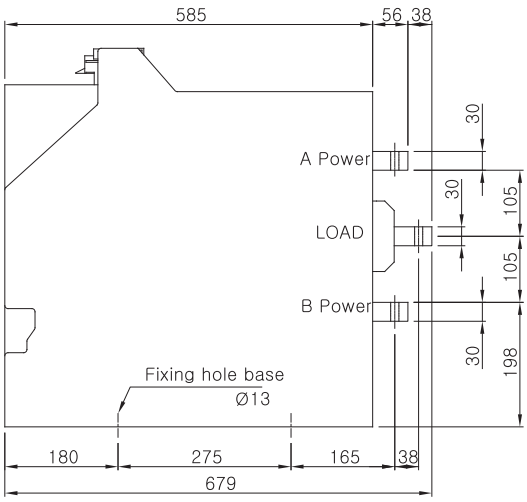
R S T N (4P)
R S T (3P)



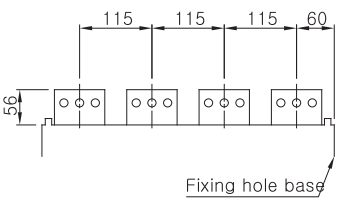


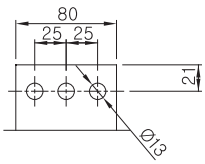
Current	T
2000A	15
2500A	24

OSS-632-PCN



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





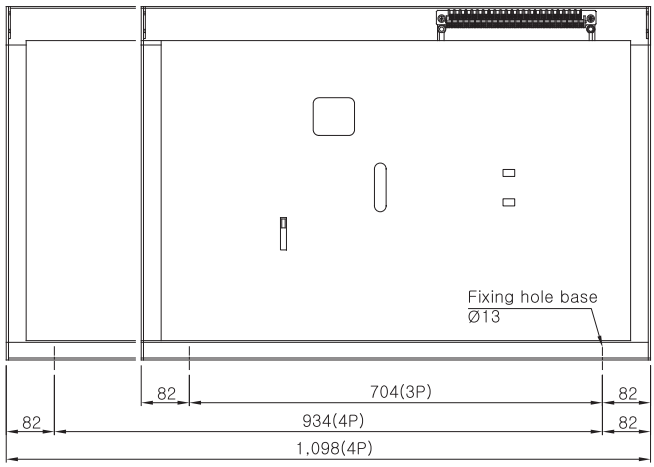
OSS - PCN Type

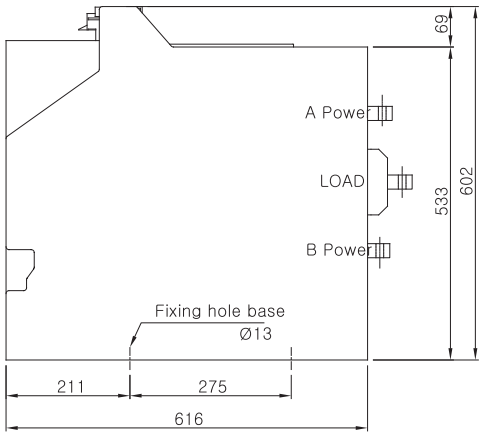
ATS(800~6300A)

◆ Outline Dimension_ 외형도

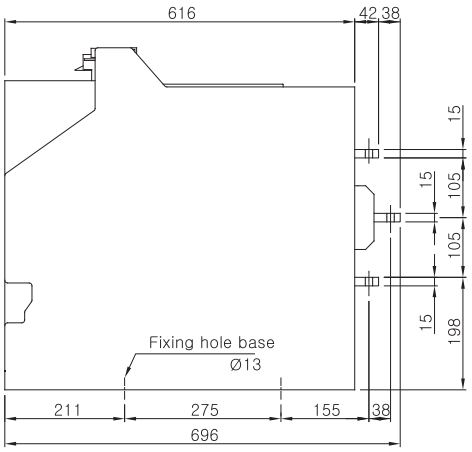
4000~6300A Draw Out

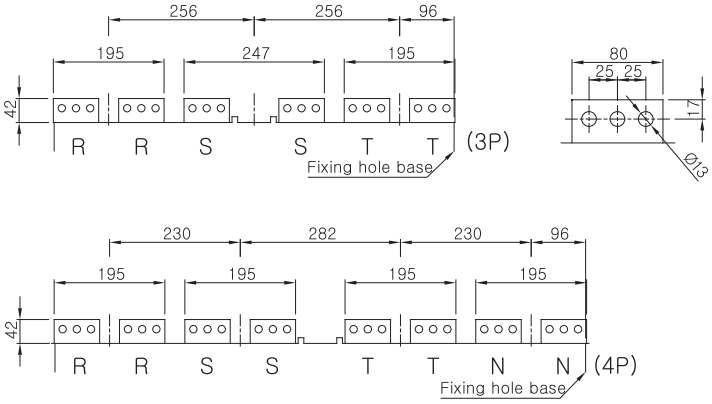
Unit : mm



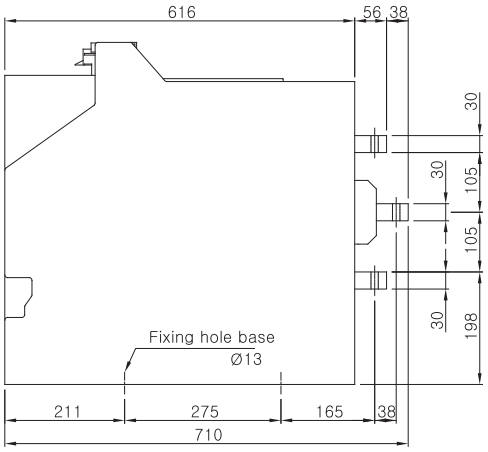


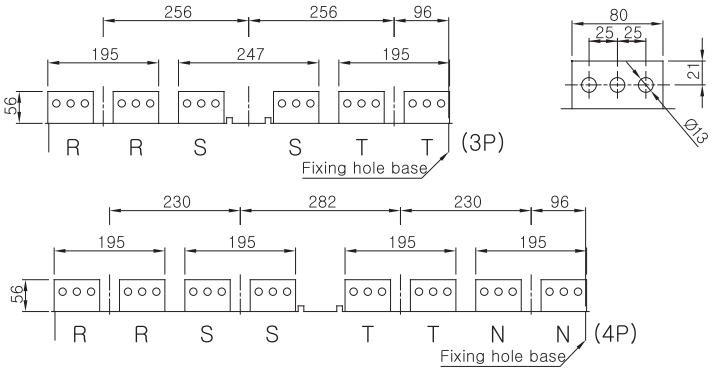
OSS-640-PCN





OSS-650~663-PCN



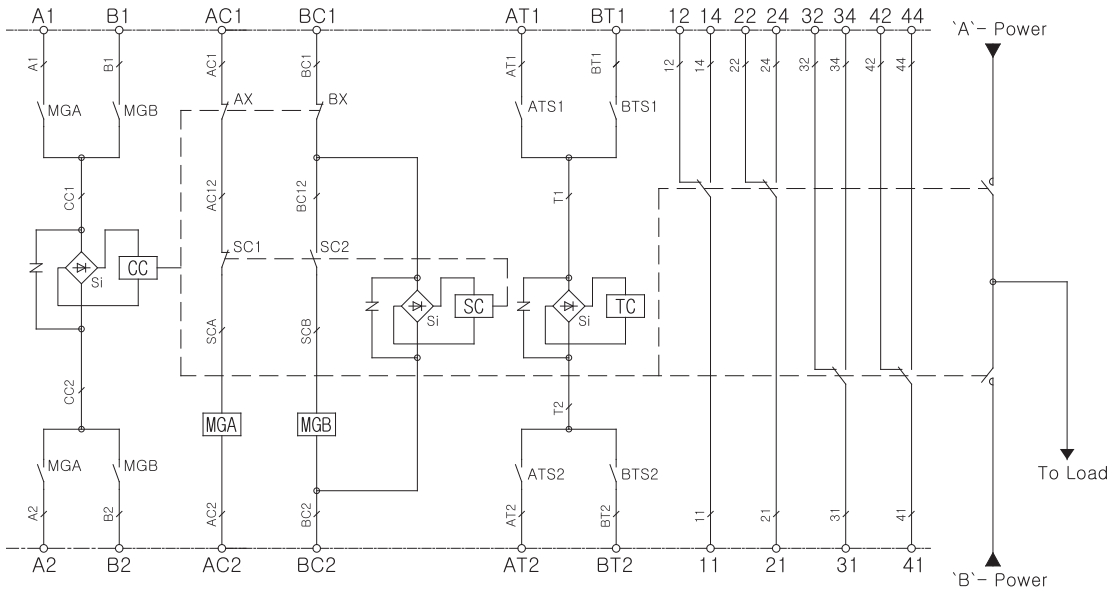


OSS - PCN Type

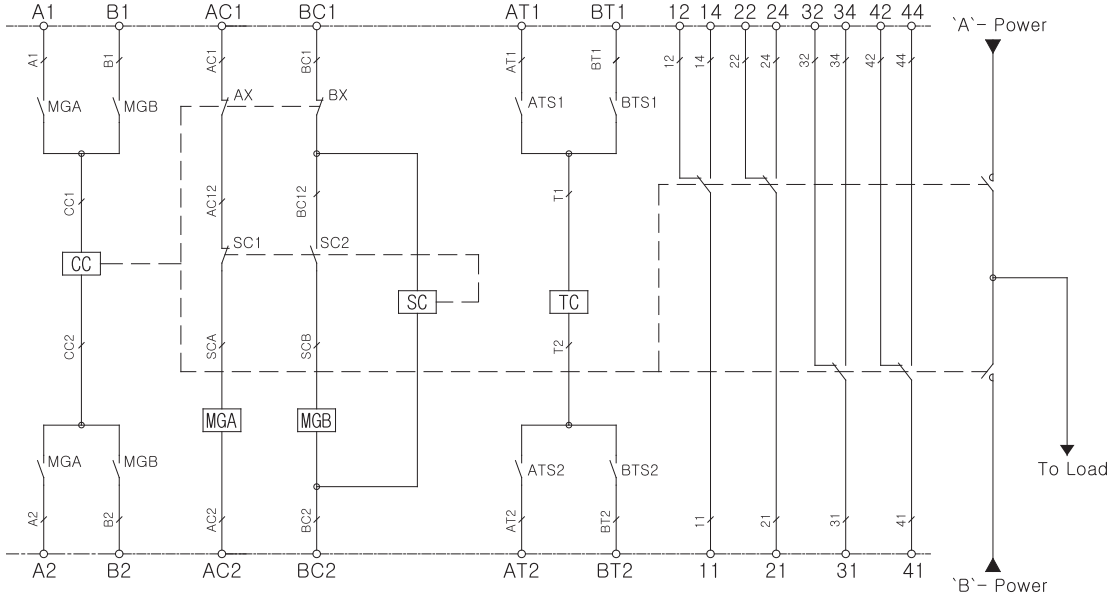
ATS(800~6300A)

Circuit Diagram (회로도) 800A~1600A Fixed

AC 110V, AC 220V



DC 110V, DC 125V



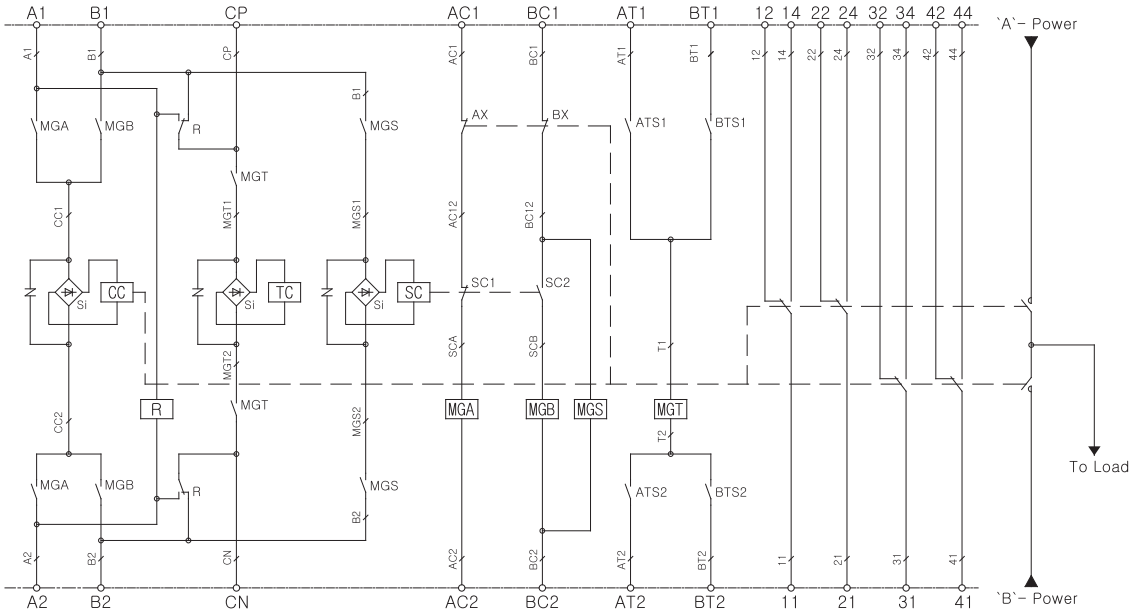
A1, A2	A-Power Terminal	MGA	A-Power Closing Magnetic Coil
B1, B2	B-Power Terminal	MGB	B-Power Closing Magnetic Coil
AC1, AC2	A-Power Closing Terminal	AX, BX	Controller Switch
BC1, BC2	B-Power Closing Terminal	11 ~ 24	A-Power AUX Switch
AT1, AT2	A-Power Tripping Terminal	31 ~ 44	B-Power AUX Switch
BT1, BT2	B-Power Tripping Terminal	ATS1, ATS2	A-Power Tripping Control Switch
CC	Closing Coil	BTS1, BTS2	B-Power Tripping Control Switch
SC	B-Power Selective Coil	SC1, SC2	Selective Switch
TC	Tripping Coil	Si	Silicon Rectifier

OSS - PCN Type

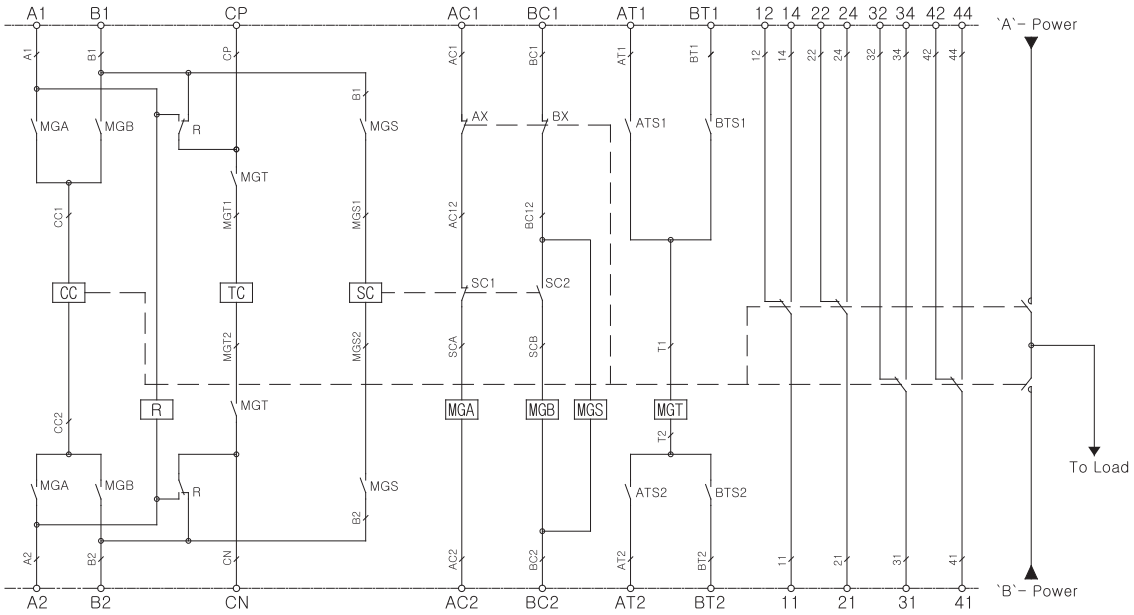
ATS(800~6300A)

Circuit Diagram (회로도) 2000A~6300A Fixed

AC 110V, AC 220V



DC 110V, DC 125V



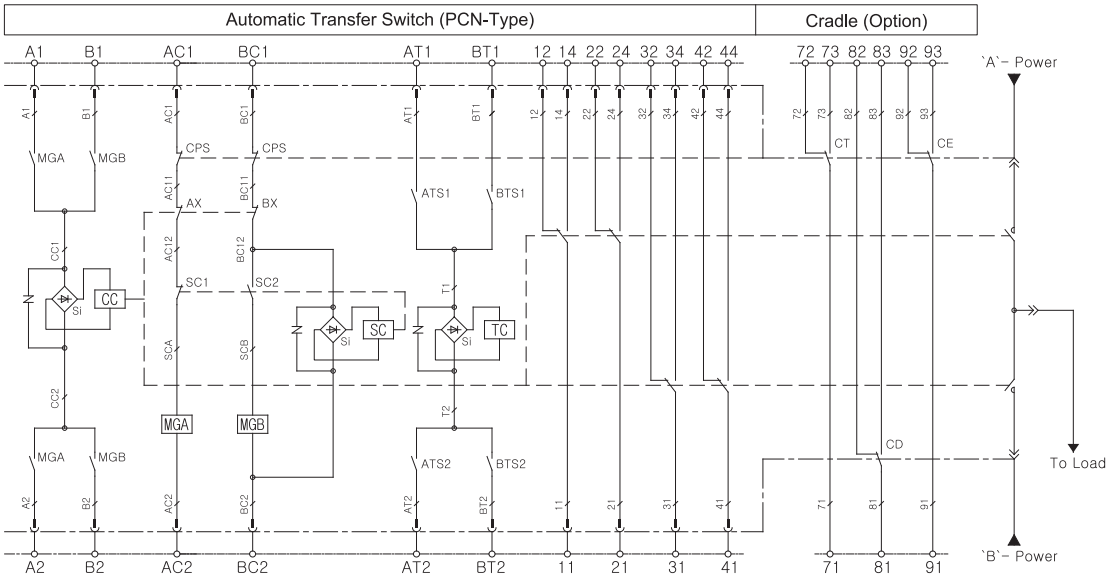
A1, A2	A-Power Terminal	MGB	B-Power Closing Magnetic Coil
B1, B2	B-Power Terminal	MGS	Selective Magnetic Coil
AC1, AC2	A-Power Closing Terminal	MGT	Tripping Magnetic Coil
BC1, BC2	B-Power Closing Terminal	AX, BX	Controller Switch
AT1, AT2	A-Power Tripping Terminal	11 ~ 24	A-Power AUX Switch
BT1, BT2	B-Power Tripping Terminal	31 ~ 44	B-Power AUX Switch
CC	Closing Coil	ATS1, ATS2	A-Power Tripping Control Switch
SC	B-Power Selective Coil	BTS1, BTS2	B-Power Tripping Control Switch
TC	Tripping Coil	SC1, SC2	Selective Switch
MGA	A-Power Closing Magnetic Coil	Si	Silicon Rectifier

OSS - PCN Type

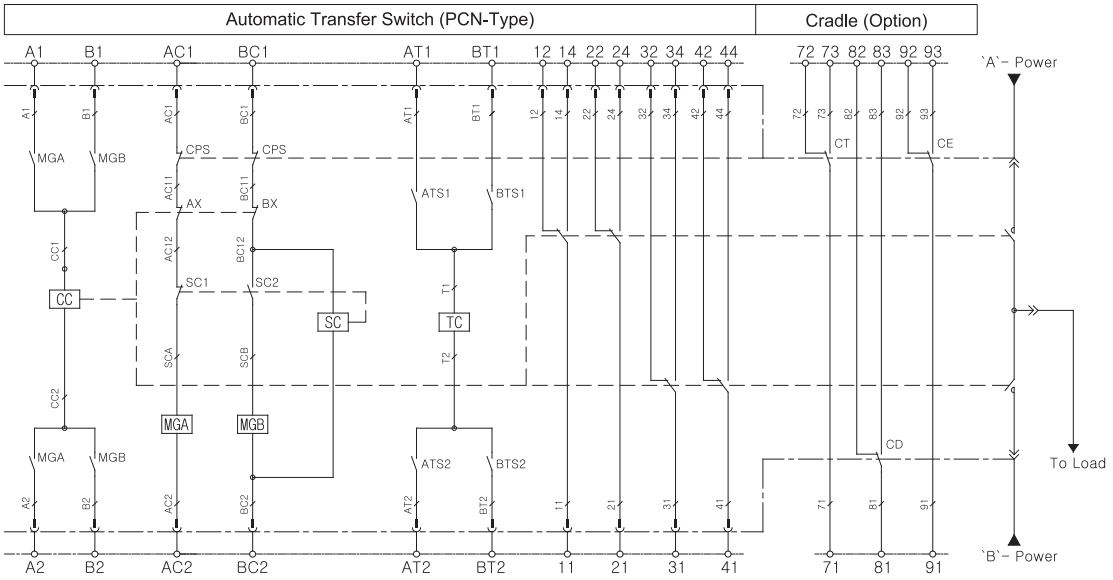
ATS(800~6300A)

Circuit Diagram (회로도) 800A~1600A Draw Out

AC 110V, AC 220V



DC 110V, DC 125V



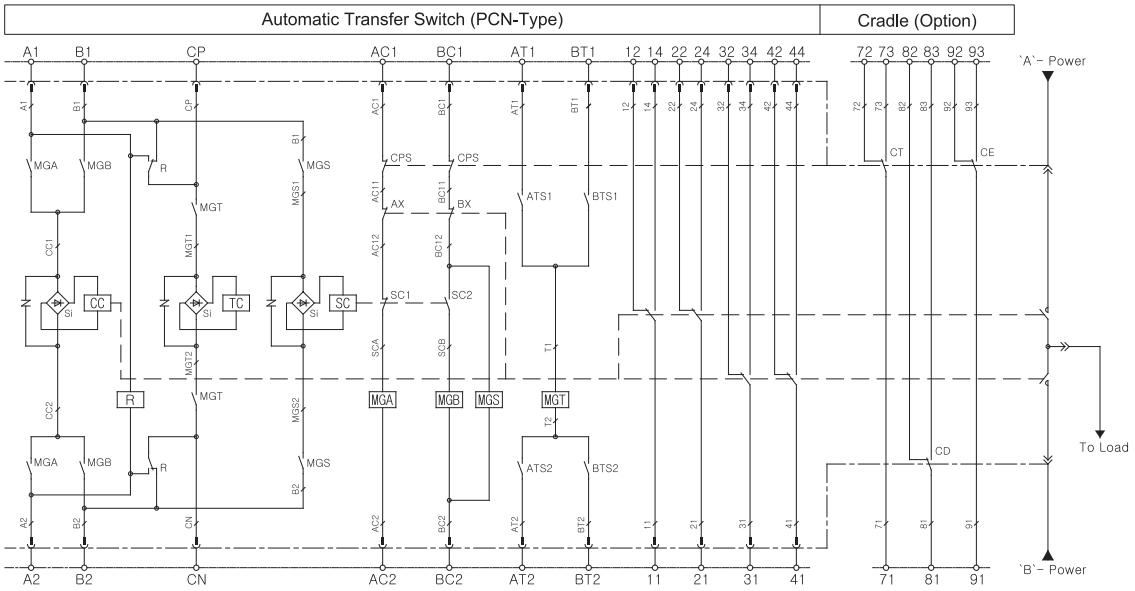
A1, A2	A-Power Terminal	AX, BX	Controller Switch
B1, B2	B-Power Terminal	11 ~ 24	A-Power AUX Switch
AC1, AC2	A-Power Closing Terminal	31 ~ 44	B-Power AUX Switch
BC1, BC2	B-Power Closing Terminal	ATS1, ATS2	A-Power Tripping Control Switch
AT1, AT2	A-Power Tripping Terminal	BTS1, BTS2	B-Power Tripping Control Switch
BT1, BT2	B-Power Tripping Terminal	SC1, SC2	Selective Switch
CC	Closing Coil	Si	Silicon Rectifier
SC	B-Power Selective Coil	CPS	Closing Preventing Switch
TC	Tripping Coil	CD	Contacts of Disconnected Position
MGA	A-Power Closing Magnetic Coil	CT	Contacts of Test Position
MGB	B-Power Closing Magnetic Coil	CE	Contacts of Connected Position

OSS - PCN Type

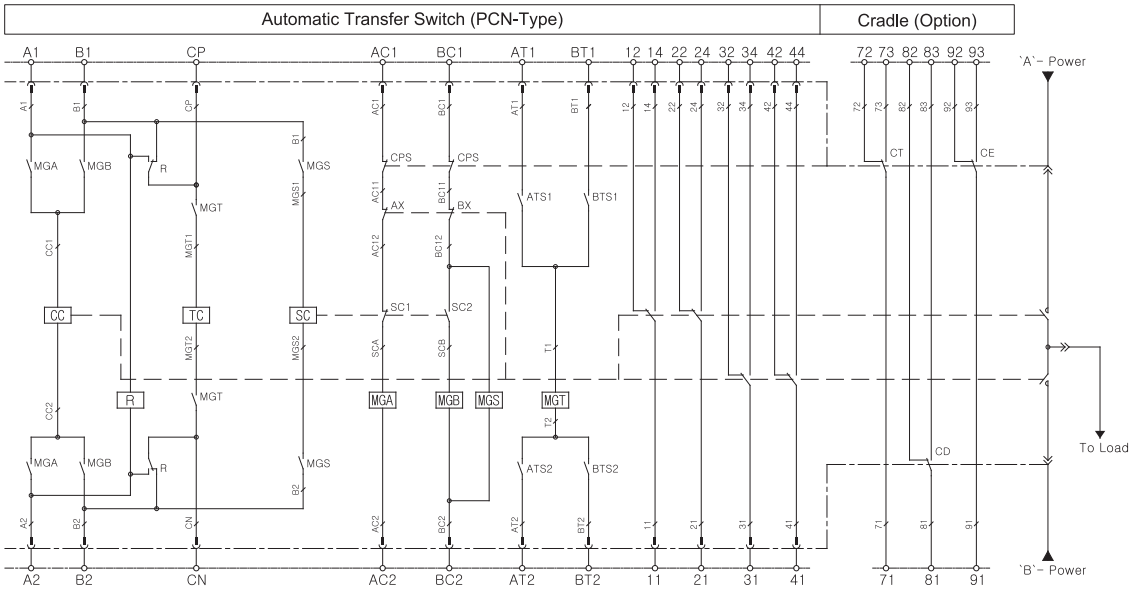
ATS(800~6300A)

Circuit Diagram (회로도) 2000A~6300A Draw Out

AC 110V, AC 220V



DC 110V, DC 125V



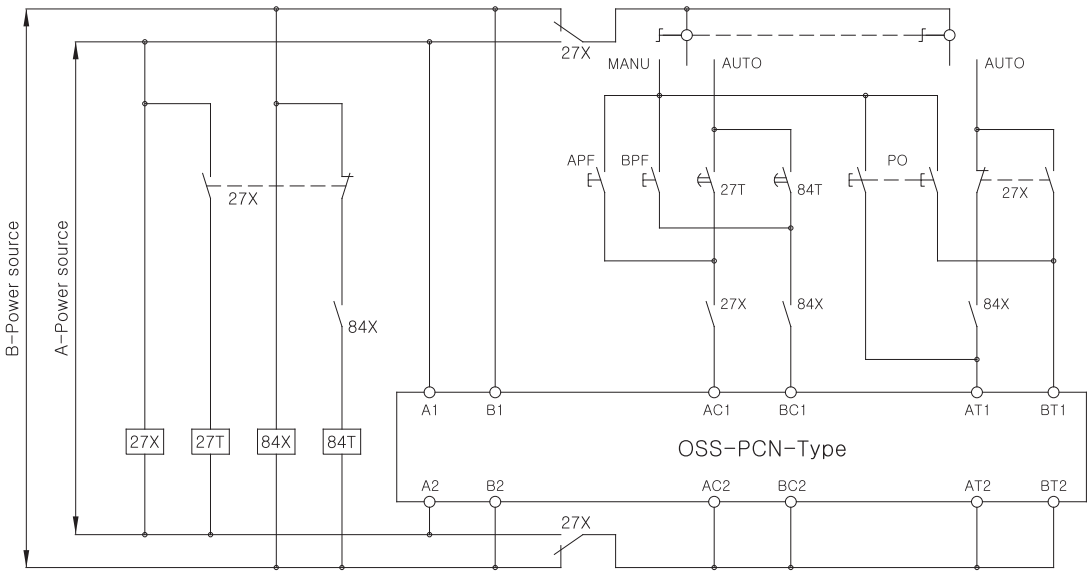
A1, A2	A-Power Terminal	MGT	Tripping Magnetic Coil
B1, B2	B-Power Terminal	AX, BX	Controller Switch
AC1, AC2	A-Power Closing Terminal	11 ~ 24	A-Power AUX Switch
BC1, BC2	B-Power Closing Terminal	31 ~ 44	B-Power AUX Switch
AT1, AT2	A-Power Tripping Terminal	ATS1, ATS2	A-Power Tripping Control Switch
BT1, BT2	B-Power Tripping Terminal	BTS1, BTS2	B-Power Tripping Control Switch
CC	Closing Coil	SC1, SC2	Selective Switch
SC	B-Power Selective Coil	Si	Silicon Rectifier
TC	Tripping Coil	CPS	Closing Preventing Switch
MGA	A-Power Closing Magnetic Coil	CD	Contacts of Disconnected Position
MGB	B-Power Closing Magnetic Coil	CT	Contacts of Test Position
MGS	Selective Magnetic Coil	CE	Contacts of Connected Position

OSS - PCN Type

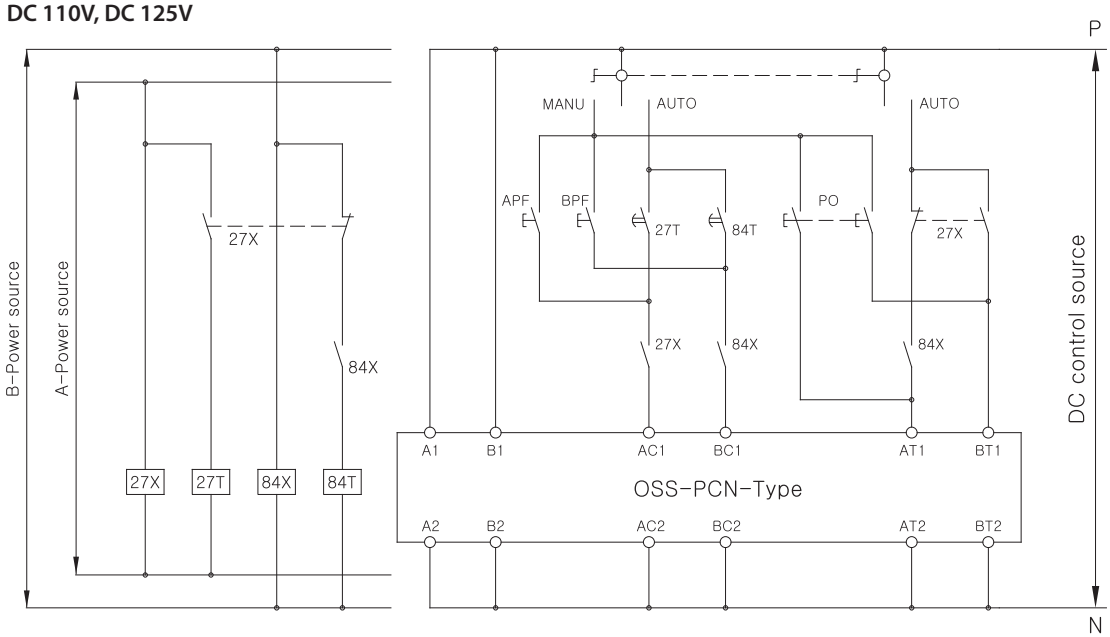
ATS(800~6300A)

Wiring Diagram (결선도) 800A~1600A

AC 110V, AC 220V



DC 110V, DC 125V



27X	Source-A Operating Relay	AUTI, MAMU	Automatic, Manual
27T	27 Operating Delay Timer	APF	A-Power Closing Push Button
84X	Source-B Operating Relay	BPF	B-Power Closing Push Button
84T	84 Operating Delay Timer	PO	A, B-Power Trip Push Button

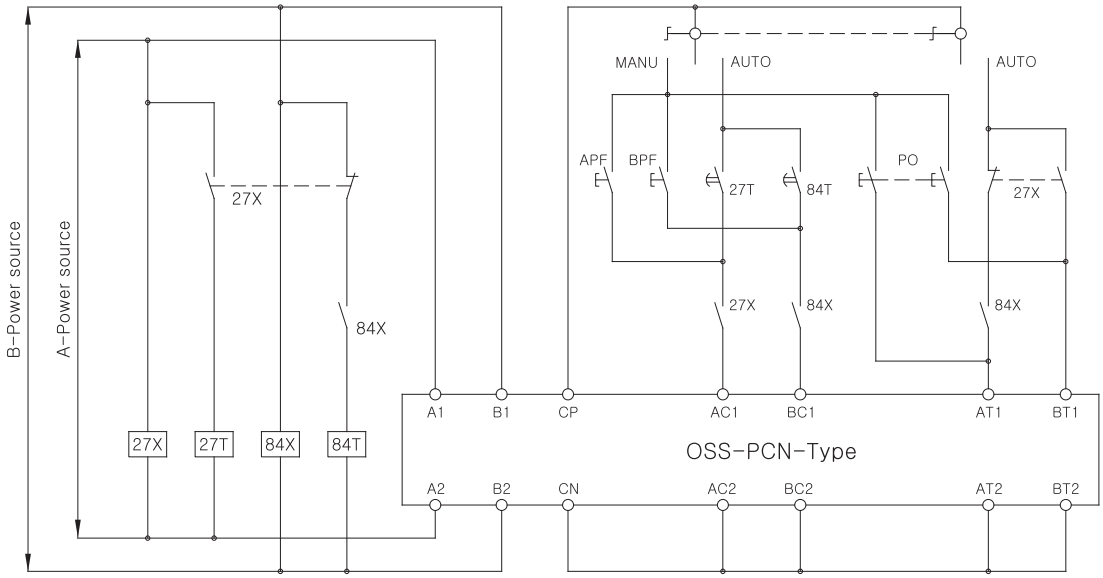
※ Caution : More than 2.5 ㎟ Power Cable used for 1600A ATS or Less.
ATS 1600A 이하 사용 시 전선의 굵기는 2.5 ㎟ 이상 사용합니다.

OSS - PCN Type

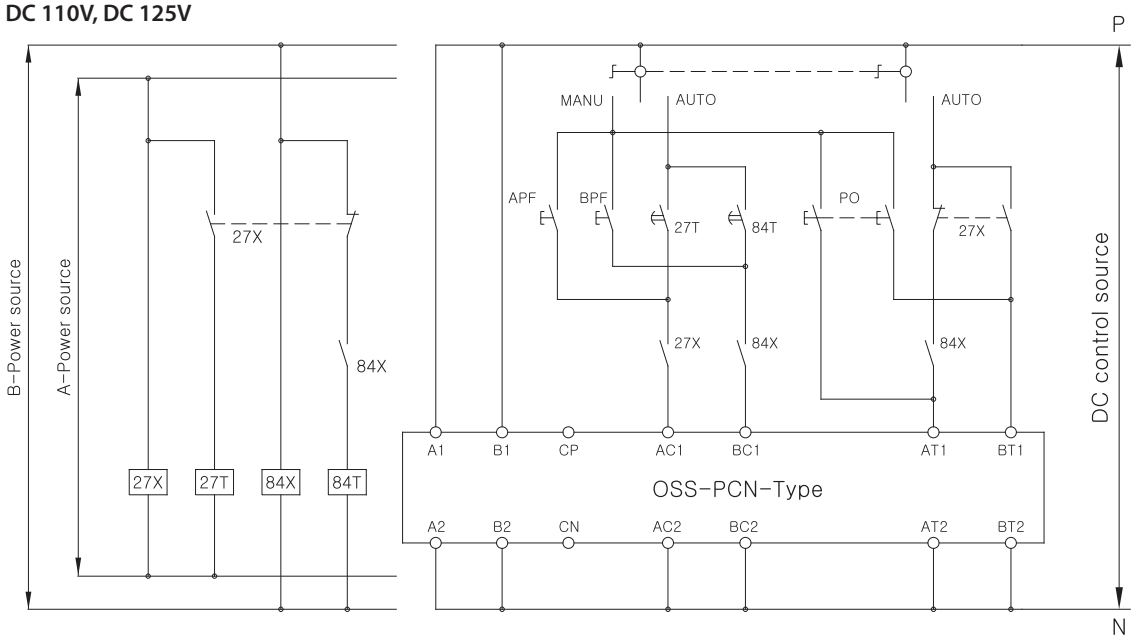
ATS(800~6300A)

Wiring Diagram (결선도) 2000A~6300A

AC 110V, AC 220V



DC 110V, DC 125V



27X	Source-A Operating Relay	AUTO, MAMU	Automatic, Manual
27T	27 Operating Delay Timer	APF	A-Power Closing Push Button
84X	Source-B Operating Relay	BPF	B-Power Closing Push Button
84T	84 Operating Delay Timer	PO	A, B-Power Trip Push Button

※ Caution : More than 4.0 ㎟ power cable used for 2000A ATS or Over.
ATS 2000A 이상 사용 시 전선을 굵기는 선의 굵기는 4.0 ㎟ 이상 사용합니다.

More than 6.0 ㎟ power cable used for 4000A ATS or Over.
ATS 4000A 이상 사용 시 전선을 굵기는 선의 굵기는 6.0 ㎟ 이상 사용합니다.

ATS Controller

ACD

◆ Information to Order_ 주문정보

ACD - □ - □ - □
Ⅰ Ⅱ Ⅲ

Ⅰ Type

- **A** : ATS A⇔B Transfer
- **S** : ATS A⇔B Transfer + Synchronized + RS 485 + By-pass ATS
- **NA** : ATS A⇔OFF⇔B Transfer
- **NS** : ATS A⇔OFF⇔B Transfer+ Synchronized + RS 485 + By-pass ATS
- **Ⅲ** : ATS A⇔B Transfer + Sensing three phases of A-Power + Contact for Starting Generator
- **Ⅲ-D** : ATS A⇔B, A⇔OFF⇔B Transfer + Sensing three phases of A-Power + Contact for Starting Generator + LCD Display + I/O

Ⅱ Option

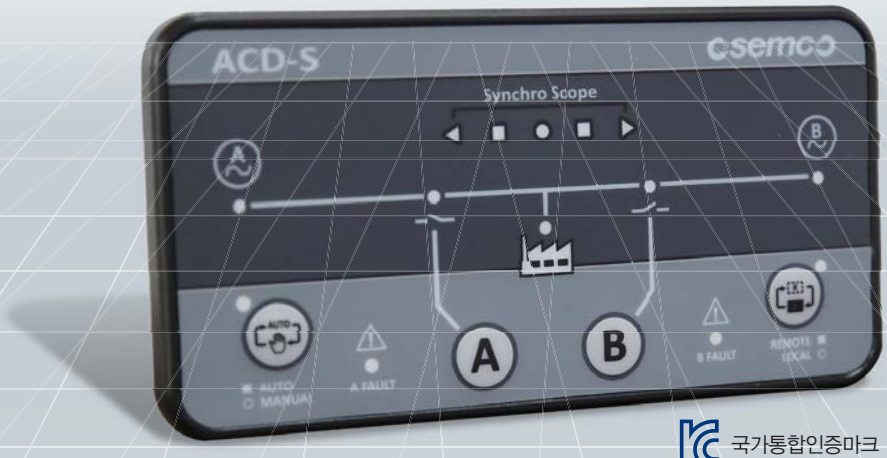
- **C** : RS 485
- **B** : By-pass ATS
- **CB** : RS 485 + By-pass ATS
- **-** : None (무표시)

Ⅲ Wiring Cable 배선용

- **2** : 2M
- **3** : 3M
- **-** : None (무표시)

◆ Basic Function_ 기본기능

	Basic Function 기본기능	Applicable ATS 적용 ATS	Functions 기능
ACD-A	ATS A ⇔ B Transfer	PC, PCN, PSO, T3, TB3, TO, TBO, TN, TBN	Optional Functions Applicable / 옵션 선택 가능
ACD-S			Built-in Functions : Synchronized Transfer (within 30°) / RS 485, By-pass ATS Interface 내장 기능: 동기절체 (30° 이내) / RS 485 통신, By-pass ATS 연동
ACD-III			Built-in Functions : Sensing three phases of A-Power, Generator Starting Contact * RS 485 (Optional) 내장 기능 : A측 3상 감지, 발전기동접점, 통신 옵션 선택 가능
ACD-III-D	ATS A ⇔ B Transfer, ATS A ⇔ OFF ⇔ B Transfer		Built-in Functions : LCD Display(KR/EN) Sensing Three Phases of A-Power, Generator Starting Contact, I/O, RS 485, Reserve Operation, Interlock Eelevator, Event Recording * Control Power Required (DC 12~24 V) 내장 기능 : LCD 디스플레이(한글/영문) A측 3상 감지, 발전기동접점, I/O 포트, RS 485 통신, 예약운전, 엘리베이터 연동, 이벤트 기록 * 별도의 제어전원 필요 (DC 12~24 V)
ACD-NA	ATS A ⇔ OFF ⇔ B Transfer	PCN, ATCB, TN, TBN	Optional Functions / 옵션 선택 가능
ACD-NS			Built-in Functions : Synchronized Transfer (within 30°) / RS 485, By-pass ATS Interface 내장기능 : 동기절체 (30° 이내) / RS 485 통신, By-pass ATS 연동



국가통합인증마크
Korea Certification Mark

ATS Controller

ACD

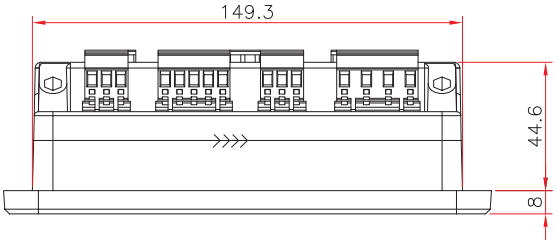
◆ Comparative Summary_ 제품별 기능 및 적용

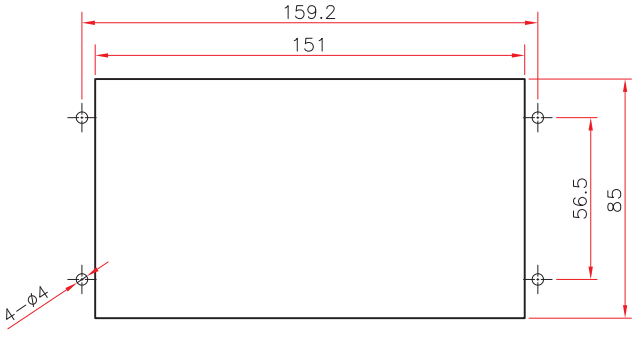
Classification (구분)		ACD-A	ACD-S	ACD-III	ACD-III-D	ACD-NA	ACD-NS
Function 기능	Transition Method 절체 방법	A ⇔ B	A ⇔ B	A ⇔ B	A ⇔ B A ⇔ OFF ⇔ B	A ⇔ OFF ⇔ B	A ⇔ OFF ⇔ B
	Synchronized Transition 동기 절체	X	O	X	X	X	O
	Remote Control (Communication) 원격 제어 (통신)	△ (Optional)	O	△ (Optional)	O	△ (Optional)	O
	By-pass ATS Interface 바이패스 연동	△ (Optional)	O	X	O	△ (Optional)	O
	Automatic Control Fault Alarm 자동운전 고장경보	O	O	O	O	O	O
	Priority Selection 우선권 선택	O	O	O	O	O	O
	Voltage Setting 전압 설정	O (220V or 230V)	O (220V or 230V)	O (220V or 230V)	O (220V or 230V)	O (220V or 230V)	O (220V or 230V)
	Frequency Setting 주파수 설정 (50/60)	O	O	O	O	O	O
	Over-voltage Sensing 과전압 감지	O	O	O	O	O	O
	Under-voltage Sensing 저전압 감지	O	O	O	O	O	O
	Low-frequency Sensing 저주파수 감지	O	O	O	O	O	O
	High-frequency Sensing 과주파수 감지	O	O	O	O	O	O
	Time Setting Range 시간 설정 범위	0~99sec	0~99sec	0~99sec	0~90min	0~99sec	0~99sec
	Sensing three phases of A-Power A측 3상 감지	X	X	O	O	X	X
	Generator Starting Contact 발전 기동 접점	X	X	O	O	X	X
Applicable Models 적용제품	TN / TBN	O	O	O	O	O	O
	T3 / TB3, TO / TBO	O	O	O	O	X	X
	PC / PSO	O	O	O	O	X	X
	PCN	O	O	O	O	O	O
	ATCB	X	X	X	O	O	O

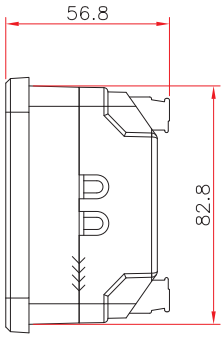
※ ATS 조작전원이 DC인 경우, 당사와 협의 바랍니다.

※ If the ATS control power is DC voltage, please request us to make consulation.

◆ Outline Dimension_ 외형도





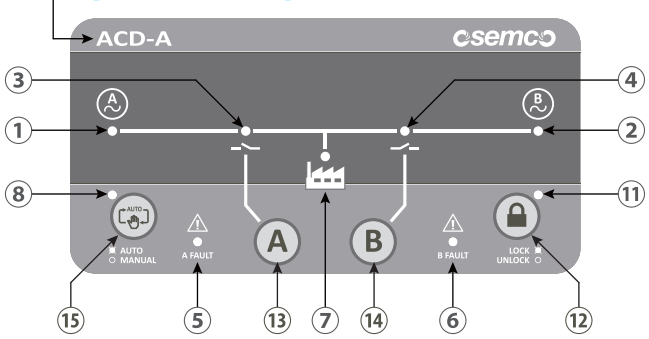


ATS Controller

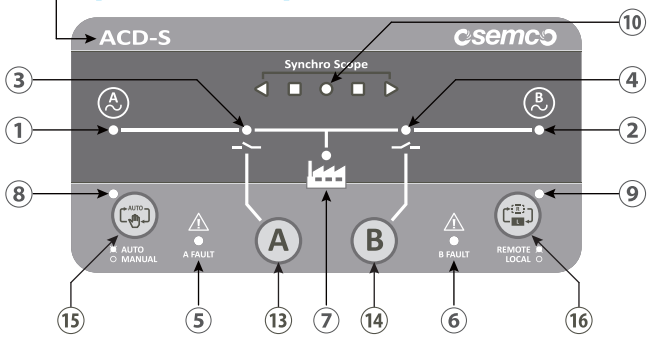
ACD-A / ACD-S

◆ External View_ 외관명칭

[모델명 : ACD-A]



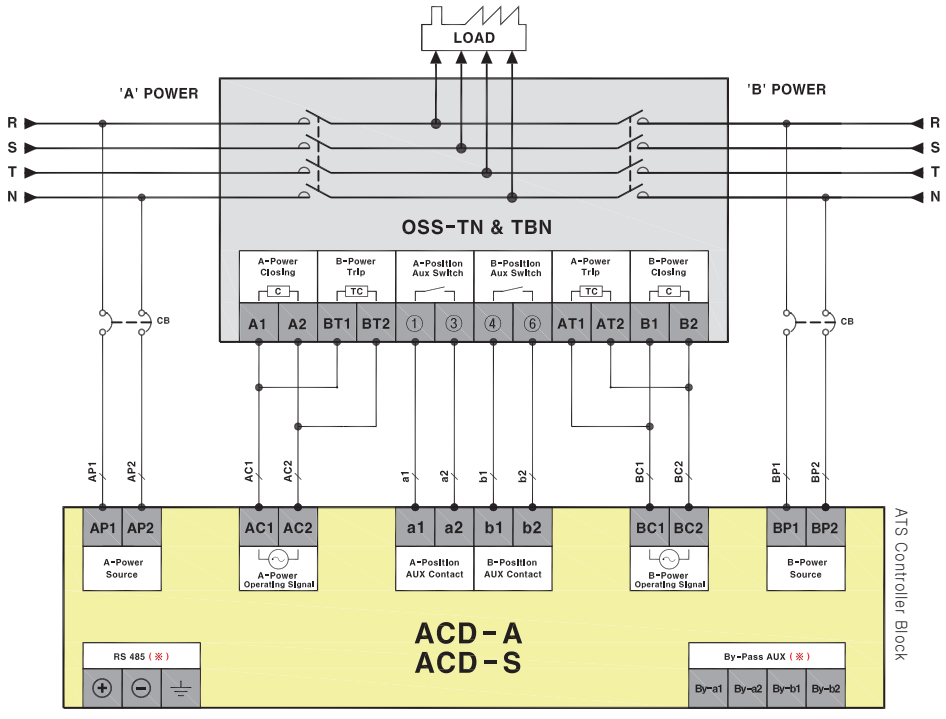
[모델명 : ACD-S]



①	A-POWER Lamp	⑤	ATS A-Fault Lamp	⑨	Remote/Local Status Lamp	⑬	ATS A-Closing Button
②	B-POWER Lamp	⑥	ATS B-Fault Lamp	⑩	Synchronizing Status Lamp	⑭	ATS B-Closing Button
③	ATS A-Closing Status Lamp	⑦	LOAD-POWER Lamp	⑪	Lock/Unlock Status Lamp	⑮	Auto/Manual Selection Button
④	ATS B-Closing Status Lamp	⑧	Auto/Manual Status Lamp	⑫	Lock/Unlock Selection Button	⑯	Remote/Local Selection Button

Wiring Diagram (결선도)

OSS - TN, TBN Type (AC 220V)
3Ø4W 380/220V



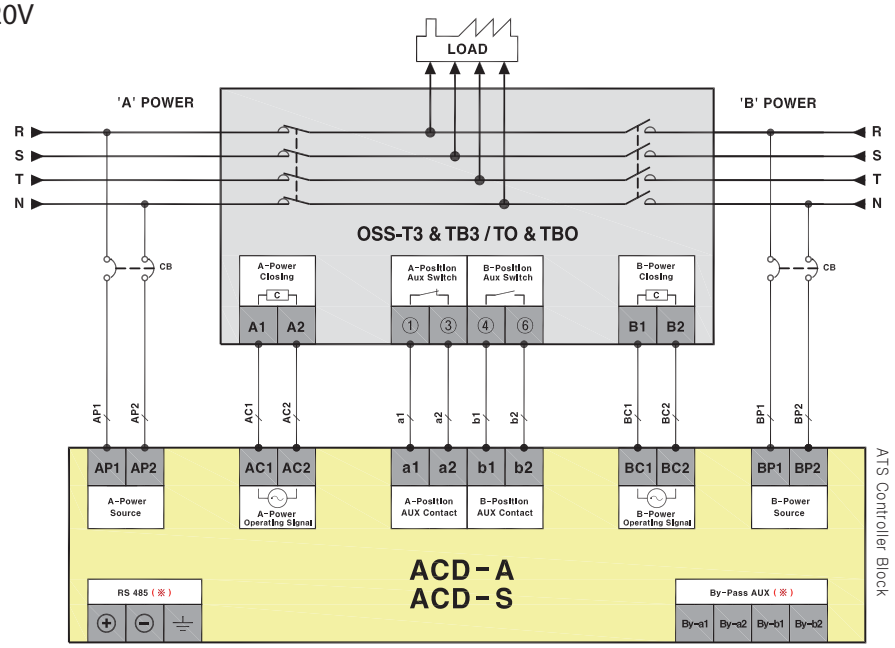
※ ACD-A모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다. ※ RS 485 and By-pass AUX Terminals on the ACD-A is optional.

ATS Controller

ACD-A / ACD-S

Wiring Diagram (결선도)

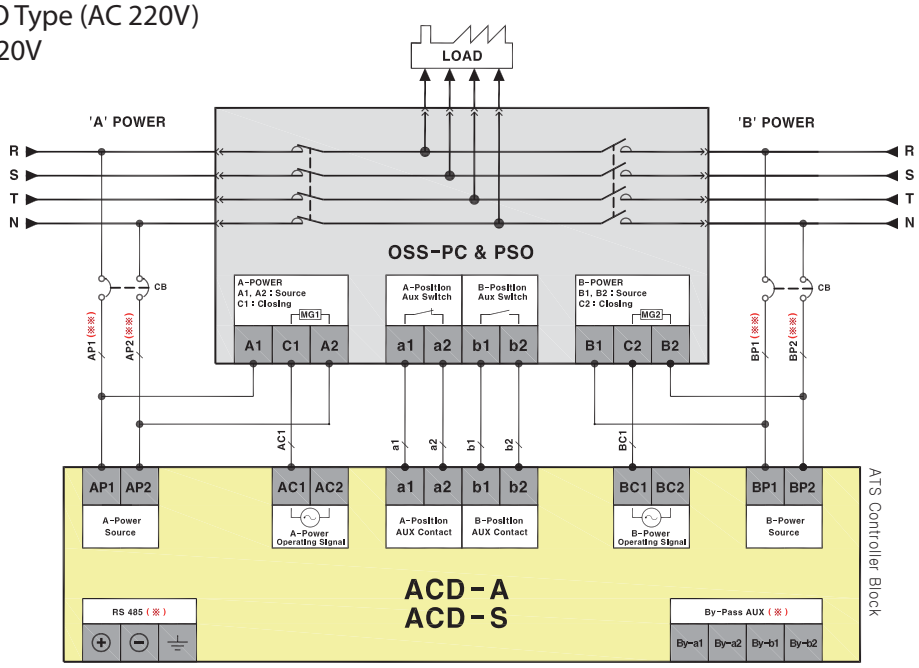
OSS-T3, TB3 / TO, TBO Type (AC 220V)
3Ø4W 380/220V



※ ACD-A모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다.

※ RS 485 and By-pass AUX Terminals on the ACD-A is optional.

OSS - PC, PSO Type (AC 220V)
3Ø4W 380/220V



※ ACD-A모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다.

※ RS 485 and By-pass AUX Terminals on the ACD-A is optional.

※ ATS 1600A 이하 사용 시 전선의 굵기는 2.5㎟ 이상 사용합니다.
ATS 2000A 이상 사용 시 전선의 굵기는 4.0㎟ 이상 사용합니다.
ATS 4000A 이상 사용 시 전선의 굵기는 6.0㎟ 이상 사용합니다.

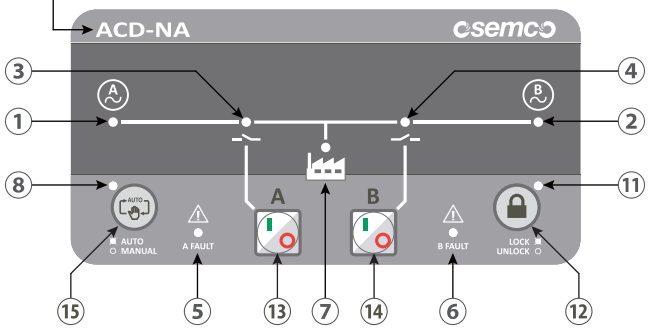
※ More than 2.5㎟ power cable used for 1600A ATS or less.
More than 4.0㎟ power cable used for 2000A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

ATS Controller

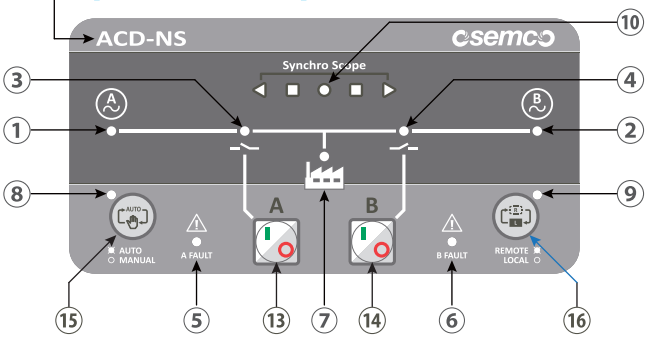
ACD-NA / ACD-NS

◆ External View_ 외관명칭

[모델명 : ACD-NA]



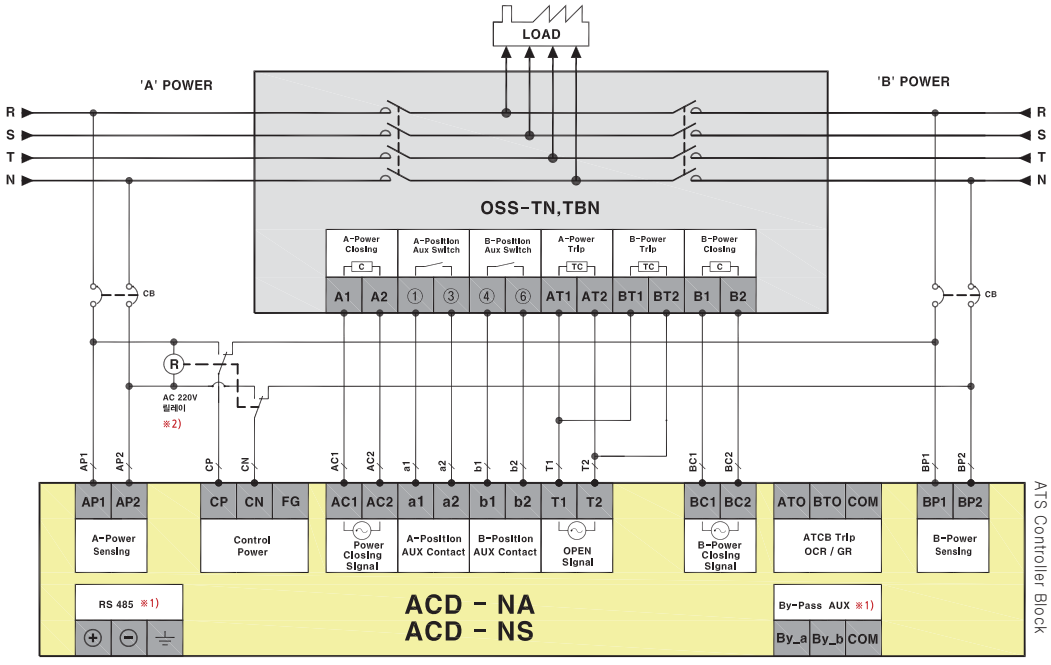
[모델명 : ACD-NS]



①	A-POWER Lamp	⑤	ATS A-Fault Lamp	⑨	Remote/Local Status Lamp	⑬	ATS A-Closing / Open Button
②	B-POWER Lamp	⑥	ATS B-Fault Lamp	⑩	Synchronizing Status Lamp	⑭	ATS B-Closing / Open Button
③	ATS A-Closing Status Lamp	⑦	LOAD-POWER Lamp	⑪	Lock/Unlock Status Lamp	⑮	Auto/Manual Sellection Button
④	ATS B-Closing Status Lamp	⑧	Auto/Manual Status Lamp	⑫	Lock/Unlock Selection Button	⑯	Remote/Local Selection Button

Wiring Diagram (결선도)

OSS - TN, TBN Type (AC 220V)
3Ø4W 380/220V



FG(Frame Ground) : 접지단자입니다.

※ 1) ACD- NA모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다.
※ 2) TN/TBN 배선 시 AC 220V 릴레이가 추가됩니다.
릴레이 또는 마그네트 접점은 AC 220V 10A 이상 사용하셔야 합니다.

FG(Framd Ground) : The ground terminal.

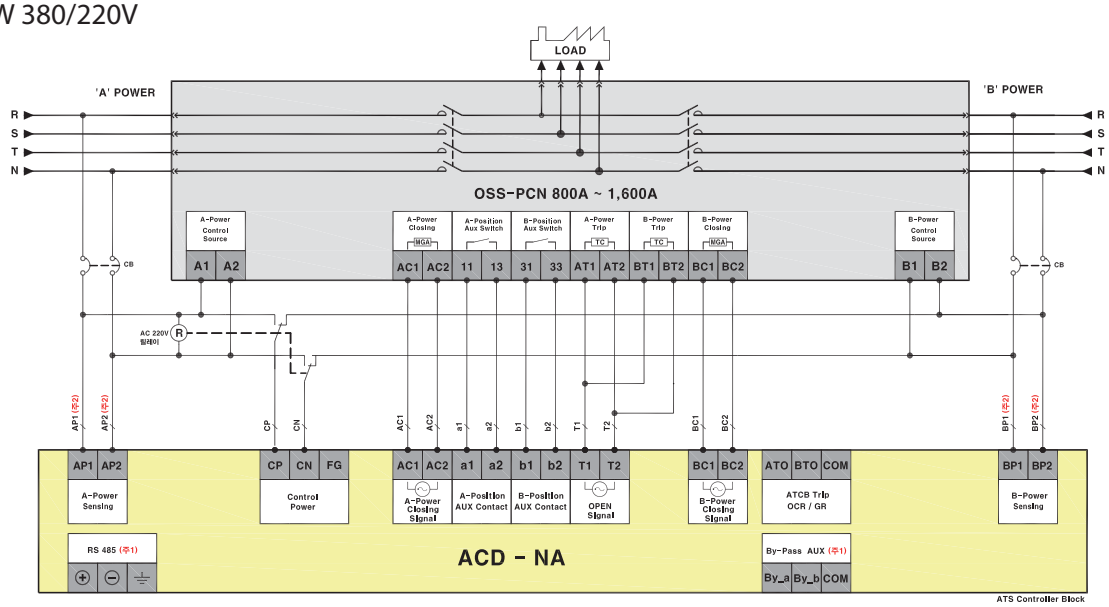
※ 1) RS 485 and By-pass AUX Terminals on the ACD-NA is optional.
※ 2) Relay, 220vac is required when you make wiring for TN or TBN type.
Relay or Magnet Contacts have to be used more than AC 220V 10A.

ATS Controller

ACD-NA

Wiring Diagram (결선도)

OSS-PCN (800~1600A) Type (AC 220V)
3Ø4W 380/220V



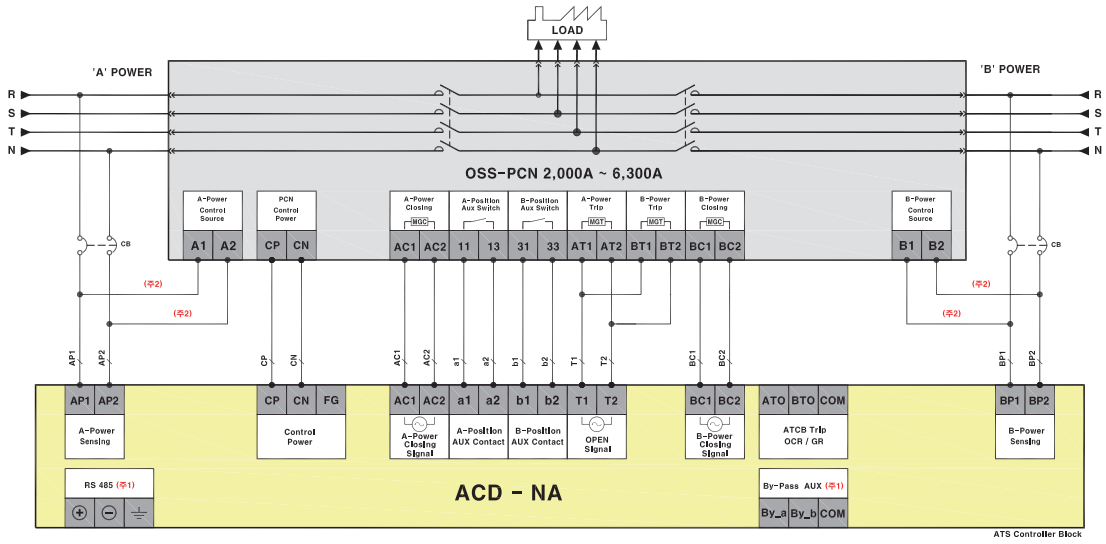
FG(Frame Ground) : 접지단자입니다.

※ 1) ACD- NA모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다.
※ 2) 전선의 굵기는 2.5㎟ 이상 사용합니다.
릴레이 또는 마그네트 접점은 AC 220V 10A 이상 사용하셔야 합니다.

FG(Framd Ground) : The ground terminal.

※ 1) RS 485 and By-pass AUX Terminals on the ACD-NA is optional.
※ 2) More than 2.5㎟ power cable used
Relay or Magnet Contacts have to be used more than AC 220V 10A.

OSS-PCN (2000~6300A) Type (AC 220V)
3Ø4W 380/220V



FG(Frame Ground) : 접지단자입니다.

※ 1) ACD- NA모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다.
※ 2) ATS 3200A 이상 사용 시 전선의 굵기는 4.0㎟ 이상 사용합니다.
ATS 4000A 이상 사용 시 전선의 굵기는 6.0㎟ 이상 사용합니다

FG(Framd Ground) : The ground terminal.

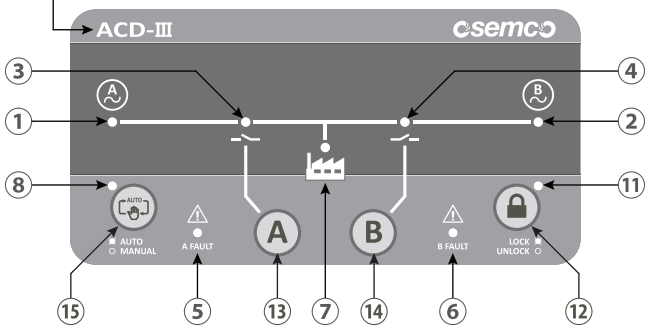
※ 1) RS 485 and By-pass AUX Terminals on the ACD-NA is optional.
※ 2) More than 4.0㎟ power cable used for 3200A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

ATS Controller

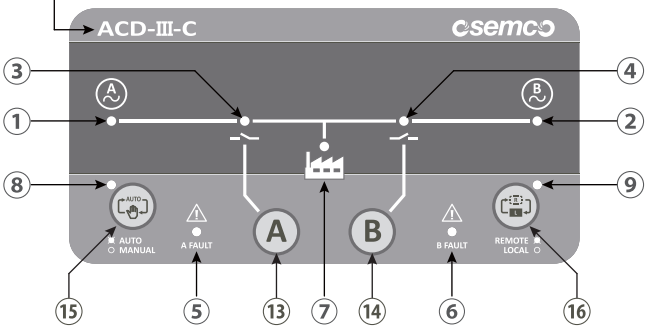
ACD-Ⅲ

◆ External View_ 외관명칭

[모델명 : ACD-III]



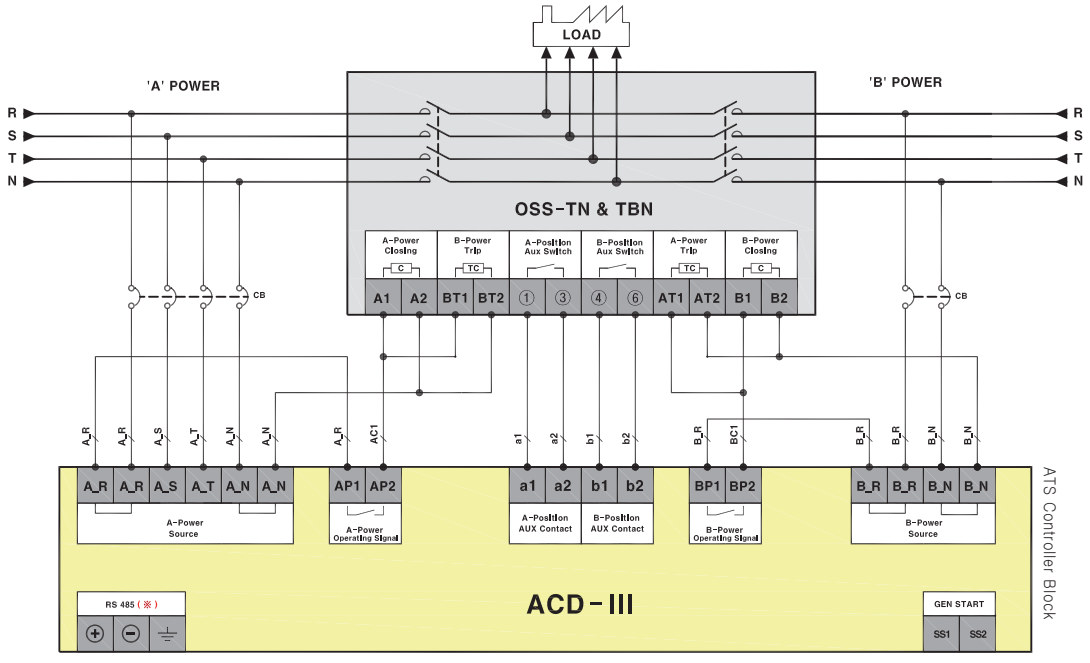
[모델명 : ACD-III-C]



①	A-POWER Lamp	⑤	ATS A-Fault Lamp	⑨	Remote/Local Status Lamp	⑬	ATS A-Closing Button
②	B-POWER Lamp	⑥	ATS B-Fault Lamp			⑭	ATS B-Closing Button
③	ATS A-Closing Status Lamp	⑦	LOAD-POWER Lamp	⑪	Lock/Unlock Status Lamp	⑮	Auto/Manual Sellection Button
④	ATS B-Closing Status Lamp	⑧	Auto/Manual Status Lamp	⑫	Lock/Unlock Selection Button	⑯	Remote/Local Selection Button

Wiring Diagram (결선도)

OSS - TN, TBN Type (AC 220V)
3Ø4W 380/220V



※ RS485 통신 단자는 ACD-III-C 사양입니다.

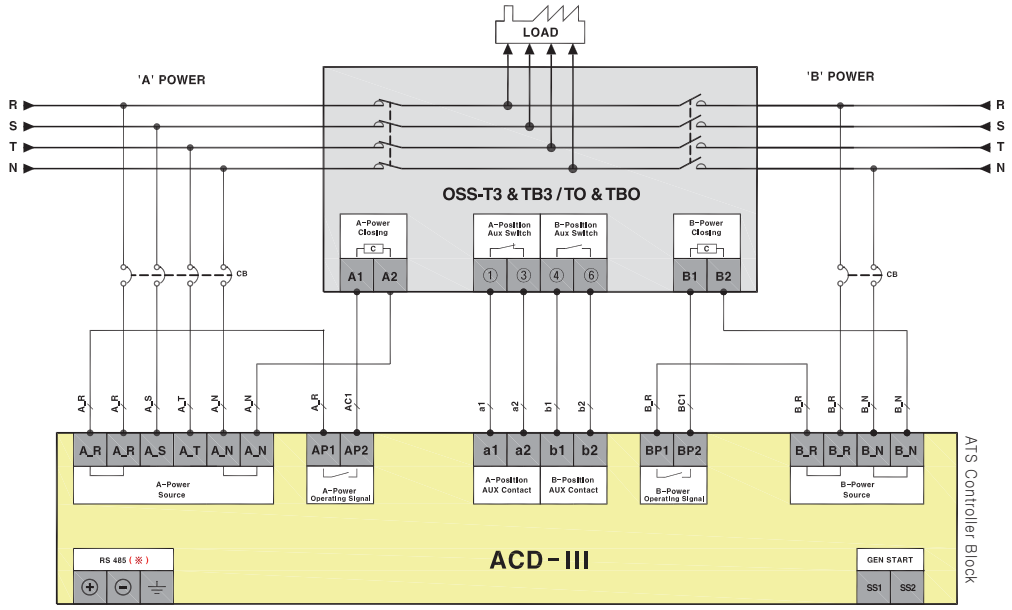
※ The RS485 communication port is ACD-III-C specification.

ATS Controller

ACD-Ⅲ

Wiring Diagram (결선도)

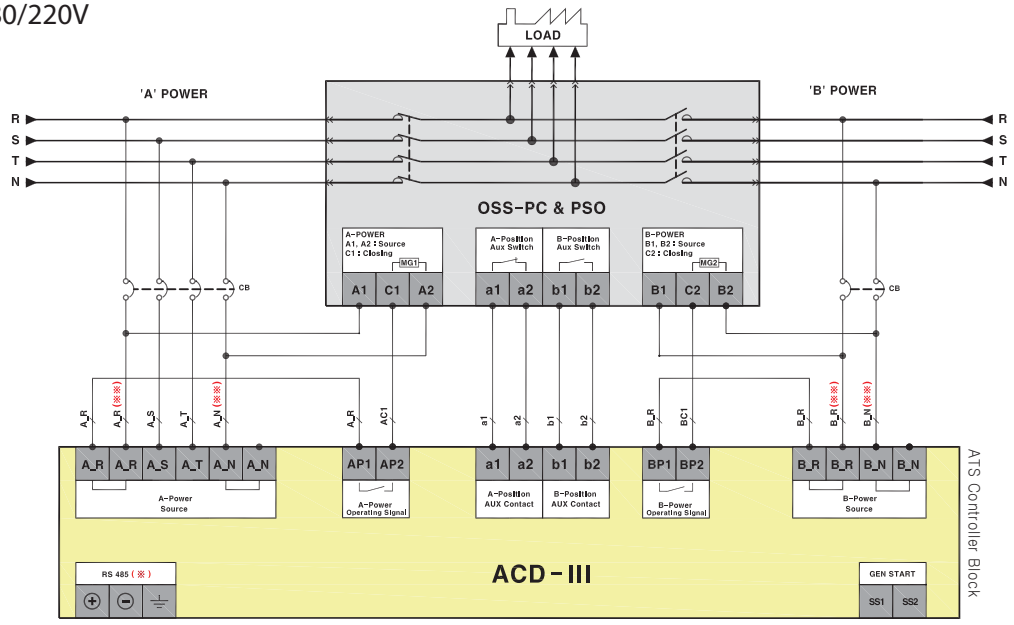
OSS-T3, TB3 / TO, TBO Type (AC 220V)
3Ø4W 380/220V



※ RS485 통신 단자는 ACD-Ⅲ-C 사양입니다.

※ The RS485 communication port is ACD-II-C specification.

OSS - PC, PSO Type (AC 220V)
3Ø4W 380/220V



※ RS485 통신 단자는 ACD-Ⅲ-C 사양입니다.

※ ATS 1600A 이하 사용 시 전선의 굵기는 2.5㎟ 이상 사용합니다.
ATS 2000A 이상 사용 시 전선의 굵기는 4.0㎟ 이상 사용합니다.
ATS 4000A 이상 사용 시 전선의 굵기는 6.0㎟ 이상 사용합니다.

※ The RS485 communication port is ACD-II-C specification.

※ More than 2.5㎟ power cable used for 1600A ATS or less.
More than 4.0㎟ power cable used for 2000A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

ATS Controller

ACD-Ⅲ-D

◆ External View_ 외관명칭

①	Normal Power (Green)
②	Generator Power (Green)
③	Normal On (Red)
④	Generator On (Red)
⑤	Test (White)

◆ Control Button_ 조작버튼

Button Shape 버튼 모양	Button Name 버튼 이름	Function of Button 버튼 동작 설명
	ATS "A"(Normal) Manual Control Button ATS "A"(상용)측 수동제어 버튼	Manual input or manual open ATS to "A"(Normal) on manual condition (Operate after pressing about 0.5 seconds) * ON(input) function can be used according to ATS model or Operation set-up. 수동모드에서 ATS를 "A"(상용)측으로 수동 투입 또는 수동 오픈 시킴 (약 0.5초간 누를 경우 동작) * ATS 모델 및 조작 설정에 따라 ON(투입) 기능만 사용 될 수 있습니다.
	ATS "B"(Generating) Manual Control Button ATS "B"(발전)측 수동제어 버튼	Manual input or manual open ATS to "B"(Generating) on manual condition (Operate after pressing about 0.5 seconds) * ON(input) function can be used according to ATS model or Operation set-up. 수동모드에서ATS를 "B"(발전)측으로 수동 투입 또는 수동 오픈 시킴 (약 0.5초간 누를 경우 동작) * ATS 모델 및 조작 설정에 따라 ON(투입) 기능만 사용 될 수 있습니다
	Test 테스트	Use or cancel the automatic test to "B"(Generating) on automatic mode (Operate after pressing about 0.5 seconds) 자동모드에서 "B"(발전)측으로 자동 테스트 사용 또는 해지 (약 0.5초간 누를 경우 동작)
	Override 즉시실행	Use it when you ignore the set-up time to operate immediately on automatic mode. 자동모드에서 지연 대기 중인 설정 시간을 무시하고 즉시 진행할 경우 사용.

◆ Set-up Button_ 설정버튼

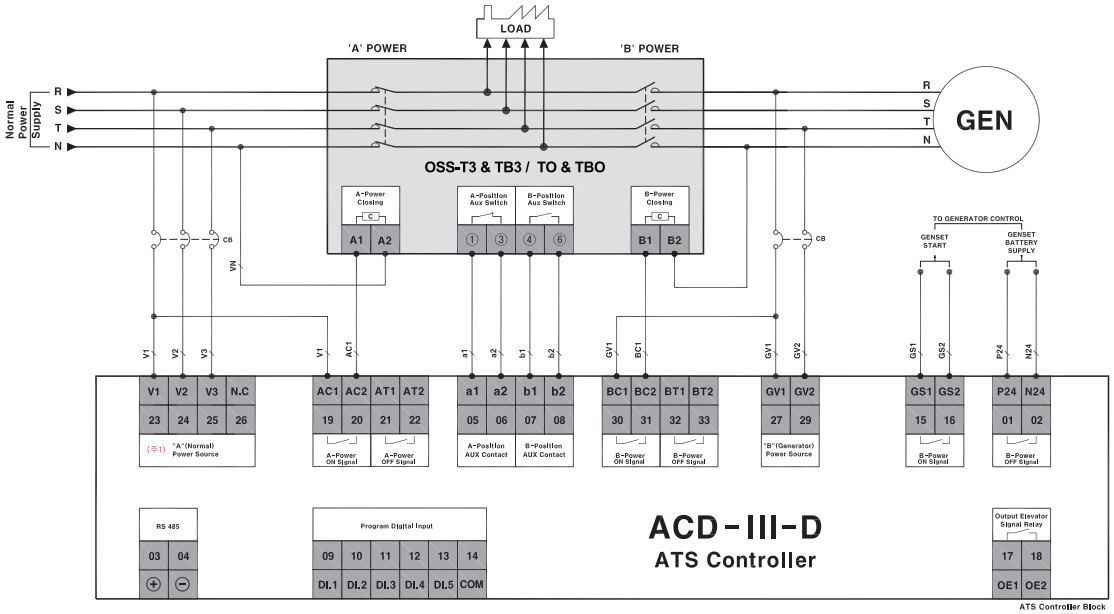
Button Shape 버튼 모양	Button Name 버튼 이름	Function of Button 버튼 동작 설명
	Setup / Enter 설정 / 저장	Change main screen to set-up screen (Press about 1 seconds) / Change set-up screen to main screen or enter changed value * Automatic operation and ATS control function can be stopped when you set up. 메인 화면에서 설정 화면으로 전환 (1초 이상 누름 유지) / 설정 화면에서 메인 화면으로 전환 또는 변경값 저장 * 설정 중 자동운전 및 ATS 조작기능은 정지됩니다.
	UP 증가	Change the screen from main screen / Shift or increase the set-up value from the set-up screen 메인 화면에서 화면 전환 (상용전원 3상 사용시 전압 상태 표시 전환기능) 설정 화면에서 이동 및 설정값 증가
	DOWN 감소	Change the screen from main screen / Shift or decrese the set-up value from the set-up screen 메인 화면에서 화면 전환 (상용전원 3상 사용시 전압 상태 표시 전환기능) 설정 화면에서 이동 및 설정값 감소
	MOVE 이동	Move to detailed set-up from the set-up screen / Move to set-up value from set-up screen 설정 화면에서 해당 메뉴 세부 설정 진입 / 설정중인 화면에서 설정중인 값의 자릿수 이동

ATS Controller

ACD-Ⅲ-D

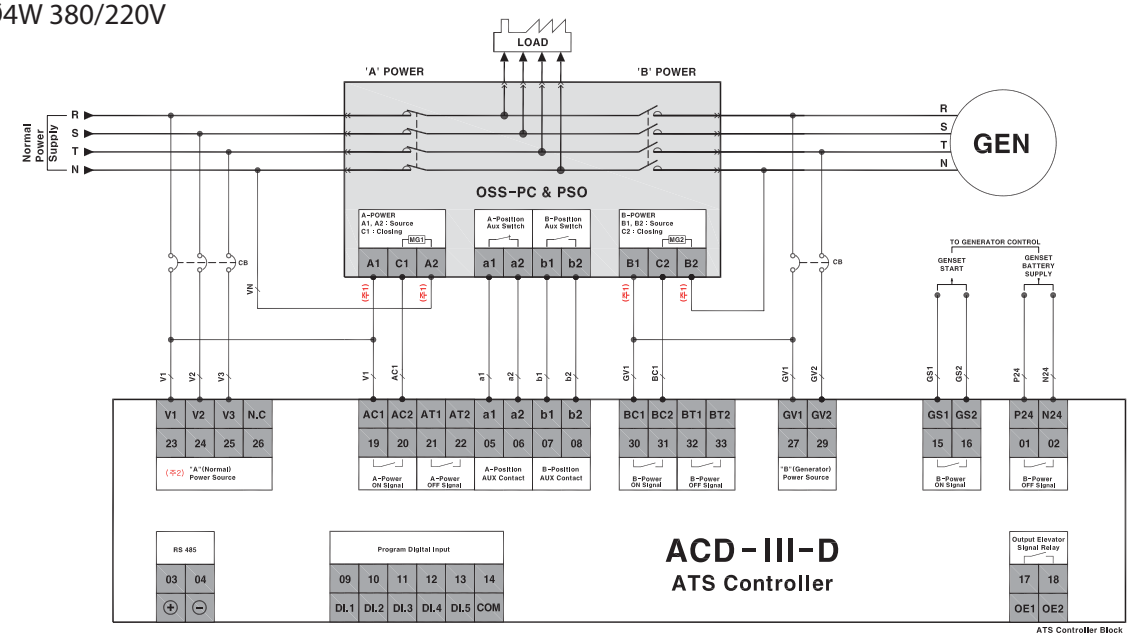
Wiring Diagram (결선도)

OSS - T3, TB3 / TO, TBO Type (AC 220V)
3Ø4W 380/220V



※ 1) "A" (Normal) POWER Source 입력이 단상인 경우 V1, V3 단자에 전원을 입력 합니다.

OSS - PC, PSO Type (AC 220V)
3Ø4W 380/220V



※ ATS 1600A 이하 사용 시 전선의 굵기는 2.5㎟ 이상 사용합니다.
ATS 2000A 이상 사용 시 전선의 굵기는 4.0㎟ 이상 사용합니다.
ATS 4000A 이상 사용 시 전선의 굵기는 6.0㎟ 이상 사용합니다.

※ More than 2.5㎟ power cable used for 1600A ATS or less.
More than 4.0㎟ power cable used for 2000A ATS or over.
More than 6.0㎟ power cable used for 4000A ATS or over.

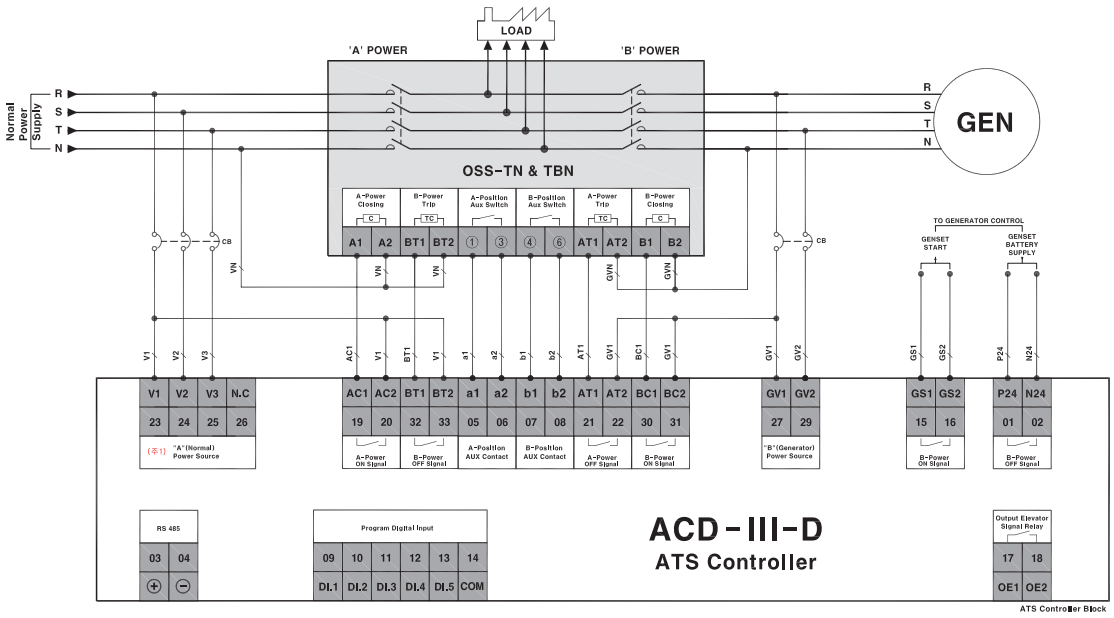
※ 1) "A" (Normal) POWER Source 입력이 단상인 경우 V1, V3 단자에 전원을 입력 합니다.

ATS Controller

ACD-Ⅲ-D

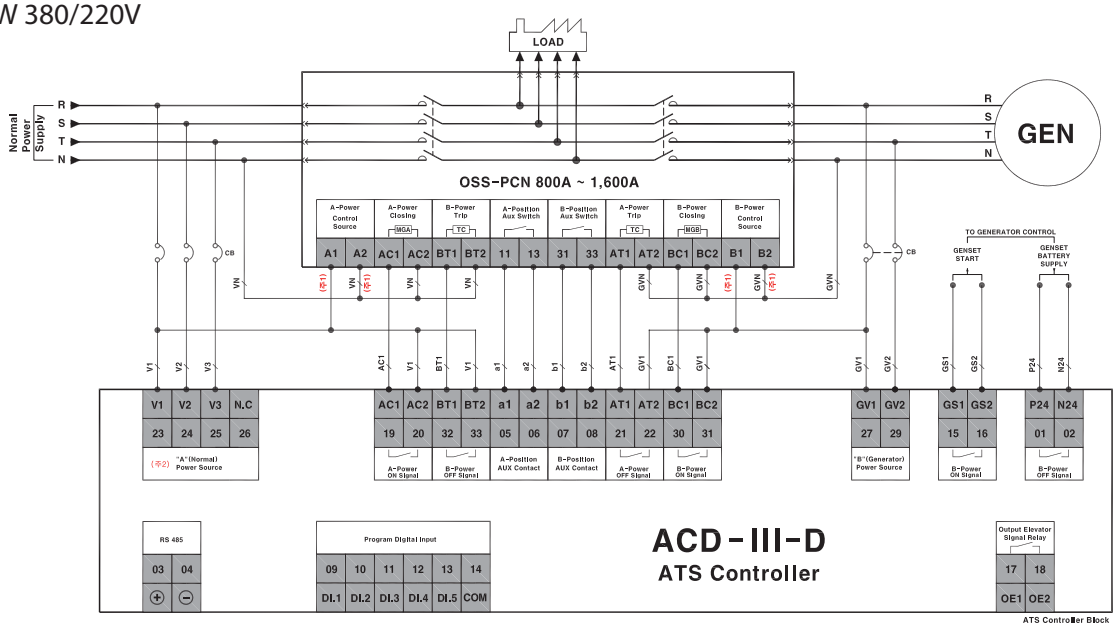
Wiring Diagram (결선도)

OSS - TN, TBN Type (AC 220V)
3Ø4W 380/220V



※ 1) "A" (Normal) POWER Source 입력이 단상인 경우 V1, V3 단자에 전원을 입력 합니다.

OSS - PCN(800~1600A) Type (AC 220V)
3Ø4W 380/220V



※ 1) ATS 1600A 이하 사용 시 전선의 굵기는 2.5㎟ 이상 사용합니다.
※ 2) "A" (Normal) POWER Source 입력이 단상인 경우 V1, V3 단자에 전원을 입력 합니다.

※ More than 2.5㎟ power cable used for 1600A ATS or less.

Technical Details

▶ 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 사용 또는 보관 불가 $H_2S \leq 0.01$ppm, $SO_2 \leq 0.01$ppm, $NH_3 \leq$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 note the rating current as follow
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.

▶ Bolt tightening torque (for nut) (볼트 체결 토르크_너트의 경우)

Class : 8.8

	M4	M5	M6	M8	M10	M12	M16	M20
Torque (N.m)	2.5~3.2	5.0~6.3	8.7~10.9	21.1~26.4	41,6~52	71.6~89.5	117.6~222	358.4~448

▶ 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 TR용량은 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 통전전류가 ATS조작전류 이상의 것을 사용하여 주십시오. 제어 REUAY의 Chattering등을 고려하여 조작전류의 차단이 가능한 Relay를 선정하여 사용하시면 보다 안전합니다.

주) 조작전원이 불안정한 경우에는 전압확립 Relay를 사용하여 주십시오.

Technical Details

기술자료 I ATS 선정 시 고려사항

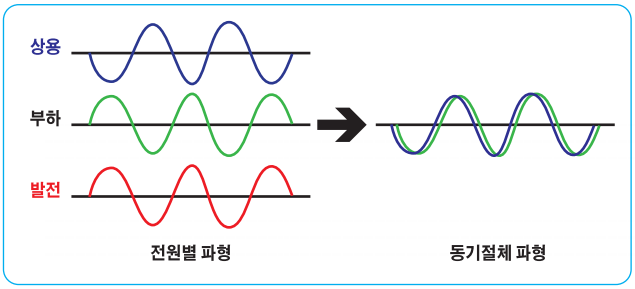
I 동기절체 기능을 갖는 ATS (ATS + 동기 컨트롤러)

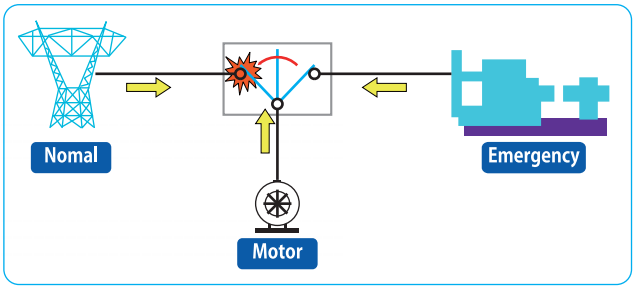
부하 측에 회전기기(Fan, Compressor)가 존재할 때, 상용 측으로 재 전환 시 매우 유효합니다.

예를 들면, 전동기 부하가 발전기 측에 연결된 상태에서 상용전원으로 복전 시 전동기는 발전기의 전기특성(전압, 주파수 등)을 그대로 지닌 채 상용전원으로 절체됩니다.

이때, 만약 발전기와 상용전원의 위상간에 정반대 180도 위상차가 생기면 정격전류 이상의 과도한 전류가 발생합니다. 이를 방지하기 위하여 발전기와 상용전원 간의 위상각을 고려한 동기절체(위상각 30도 이내)를 하여 큰 위상각 차이로 인한 사고를 방지할 수 있습니다.

(CONTROLLER : ACD-S, ACD-NS)



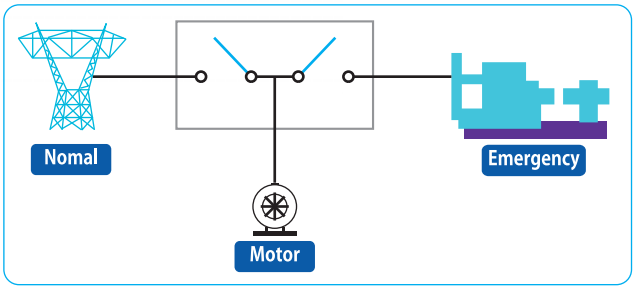


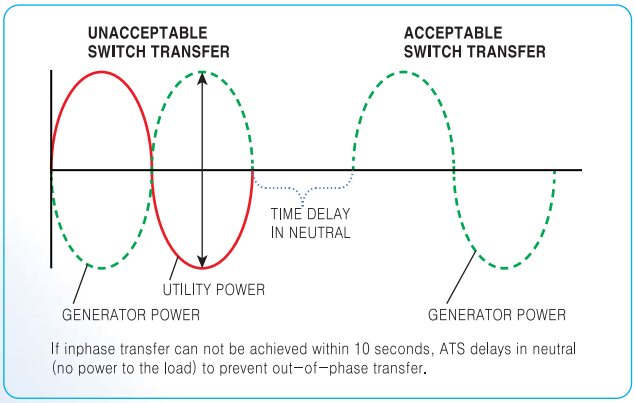
I 중간정지형 ATS (적용모델 : TN, TBN, PCN, ATCB 등)

전동기와 같은 유도성 부하의 경우, 상용전원이 정전되었을 경우에도 관성에 의해 회전을 하게 됩니다.

이때, 전동기는 발전기로 동작하게 되며 모선 측으로 역기전력(BEMF)이 유기되므로 ATS를 중립위치에 위치하여 모선 측으로 역기전력이 유입되는 것을 방지하고 전동기가 완전히 멈춘 후 예비전원으로 절체하여 전동기에 안정적인 전원을 공급합니다.

(CONTROLLER : ACD-NA, ACD-NS)





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

Emergency situation, which may cause death or serious disaster if there is mistake.
취급을 잘못했을 경우 사망 또는 중대한 재해가 발생 될 수 있는 급박한 상황

Caution 주의

A potentially problematic situation, which may cause slight personal injury and/or damage.
취급을 잘못했을 경우 사망 또는 중대한 재해가 발생될 수 있는 급박한 상황

These safety notices are devided 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 commencing 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 unsual 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 commencing any work, open the upstream circuit breaker to isolate all power/voltage sources.
  Otherwise, electric shock may occur.
- Prior to commencing internal inspection for ATS, Be sure that main circuit and control source of ATS should be 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 of 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.
  전류차단시 고온가스가 배출되어 화상의 위험이 있습니다.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