



ISO 9001, ISO 14001



# OSS series

## Automatic Transfer Switches



**osemco**

*O-Sung Electric Machinery Co., Ltd.*

# Company History

**Outstanding technology captivates the world!**  
**Superior Quality satisfies our customers!**

Established O-Sung Industrial  
 Become member of Korea Electrical Manufacturers Cooperative (KEMC)  
 Incorporated as O-Sung Electric Machinery Co., LTD.

Awarded honor of KOEMA for products development  
 Nominated as "Technology Intensive Enterprises" by the Ministry of commerce & Industry  
 Moved Company to Paju-si, Gyeonggi-do  
 Awarded the Presidential Prize at contest for Quality Control  
 Awarded Certificate of Quality System by Korea Management Association Quality Assurance (KSA9001:1998, ISO9001:1994)  
 ASTA certified for 2000A 50kA Air Circuit Breaker

ASTA certified for 1600A, 3200A, 5000A 65kA Air Circuit Breaker  
 Certified by Taiwan Power Corporation (TPC)  
 CE certified for 200A Automatic Transfer Switch by TUV  
 CB Test Certified by KTL for Air Circuit Breaker (SB-606~616 3P 4P 600V 50kA)  
 CE certified for 600A~1600A 3P, 4P 600V 50kA Air Circuit Breaker  
 CB Test Certified by KTL for Air Circuit Breaker (SB-620~632 3P 4P 600V 65kA)  
 Certified by Innovation Business Association.(INNO-BIZ)  
 Awarded Certificate of Environment Management System (KS I ISO 14001:2009 / ISO 14001:2004)  
 V-Check MARK Certificate for Automatic Transfer Circuit Breaker(KESCO)  
 CE certified for 2000A~3200A 3P, 4P 600V 65kA Air Circuit Breaker  
 NET (New Excellent Technology) Certification : Automatic Transfer Circuit Breaker

Awarded honor of Small and Medium Business Administration  
 Awarded honor of The Ministry of Knowledge Economy  
 NEP (New Excellent Product) Certification : Automatic Transfer Circuit Breaker (2,000A or less, 60Hz, 42 kA, 1s)  
 Certified by PRODUCT-SPECIFIC APPROVED EXPORTER (010-14-200194)  
 Certified by KEPCO Trusted Partner (2014-KTP-008)  
 Awarded the Grand Prize at contest for Quality Control in a Field Improvement(Gyeonggi-do)  
 New Excellent Transport Technology Certification  
 Certificate of Authentication by the Gyeonggi Provincial Government  
 NEP (New Excellent Product) Certification : Automatic Transfer Circuit Breaker (2,000A or less, 60Hz, 42 kA, 1s)  
 Certificate of Electrical Construction Business  
 Women's Company Certification

Awarded by minister of Public Procurement Service  
 Awarded by minister of Trade, Industry and Energy  
 Winning of award for outstanding export performance (\$1,000,000)

**1986.12** 오성산업사 설립  
**1987.01** 한국전기공업협동조합(KEMC) 가입  
**1989.08** 오성기전 주식회사 법인 설립  
  
**1990.02** 한국전기공업협동조합 표창.(개발건, 수출실적)  
**1990.03** 상공부 기술집약형 업체 선정  
**1993.08** 본사 이전 (서울 마포 → 경기도 파주)  
**1993.11** 대통령상 수상 (전국품질기술 분임조 경진대회)  
**1999.02** ISO 9001 인증 획득  
  
**1999.04** ASTA 인증 획득 (SB 2000A, 50kA)  
  
**2000.02** ASTA 인증 획득 (SB 1600A, 3200A, 5000A 65kA)  
**2000.05** 대만전력공사 승인취득 (저압기중차단기, 자동절체 개폐기)  
**2003.05** CE 인증 획득 (ATS TN 200A)  
**2006.11** CB 인증 획득 (SB-606~616 3P 4P 600V 50kA)  
**2006.11** CE 인증 획득 (SB-606~616 3P 4P 600V 50kA)  
**2007.05** CB 인증 획득 (SB-620~632 3P 4P 600V 65kA)  
**2007.07** 기술혁신형 중소기업(INNO-BIZ) 인증  
**2008.06** ISO 14001 인증 획득  
  
**2008.10** KAS공인 V-Check마크 인증 (자동절체차단기:OSS-ATCB)  
**2009.04** CE 인증 획득 (SB-620~632 3P, 4P 600V 65kA)  
**2009.04** NET(신기술)인증 : 자동절체차단기(ATCB)  
  
**2012.09** 중소기업청장 표창 수상  
**2012.09** 지식경제부장관 표창 수상  
**2013.10** 신제품(NEP) 인증 획득 : 단일구동일체식 ATCB (2,000A 이하, 60Hz, 42 kA, 1s)  
  
**2014.06** 품목별 원산지인증수출자 인증 획득  
**2014.12** Certified by KEPCO Trusted Partner  
**2015.06** 경기도 품질분임조 경진대회 현장개선부문 최우수상 수상  
**2015.06** 교통신기술(NET) 인증 획득  
**2016.10** 경기도 유망중소기업 인증  
**2017.03** 신제품(NEP) 인증 연장 : 단일구동일체식 ATCB (2,000A 이하, 60Hz, 42 kA, 1s)  
  
**2015.05** 전기공사업 등록  
**2015.12** 여성기업 인증  
  
**0. / 6,02**  
**2018.11** 조달청장 표창 수상  
**2018.12** 산업통상자원부 장관 표창 수상  
 백만불 수출의 탑 수상

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# 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 for sufficiently 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 the ground fault protection system. IEEE 242 (Clause 7.5.5)

#### ■ Construction for Safety

For safe operation, molded construction is employed on breaking parts.

#### ■ Compact & Lightweight design

Compact & lightweight design makes the minimized mounting space and 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 능력 극대화



# OSS - T3, TB3 Type

ATS(100~600A)

Automatic Transfer Switches 04 | 05

## ◆ 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  
 $220 \times 4 \times 0.5 = 440VA$ ,  
 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(차기작)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  
 $220 \times 4 \times 0.5 = 440VA$ ,  
 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.



## ATS(100~600A)



| TYPE                                                      |                       | 61-T3<br>61-TB3                                                                                                                       |  |                                                                                                                                  | 62-T3<br>62-TB3 |    |       | 64-T3<br>64-TB3 |    |       | 66-T3<br>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)<br>(정격 단시간 내전류) |                       | Icw                                                                                                                                   |  | 5 kA                                                                                                                             |                 |    | 10 kA |                 |    | 12 kA |                 |    | 12 kA |       |    |  |
| Rated Short-Circuit Making Capacity<br>(단락 투입 전류)         |                       | Icm<br>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)<br>(1 Ie making / 1 Ie breaking cos Ø= 0.8) |                 |    |       |                 |    |       |                 |    |       |       |    |  |
| Switching Frequency (개폐빈도)                                |                       |                                                                                                                                       |  | 60 Time / Hour                                                                                                                   |                 |    |       |                 |    |       |                 |    |       |       |    |  |
| Operating Current (조작전류)<br>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<br>(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.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. |  |                                                                                                                                  |                 |    |       |                 |    |       |                 |    |       |       |    |  |



# OSS - T3, TB3 Type

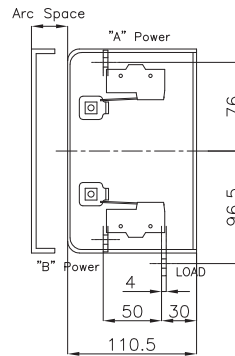
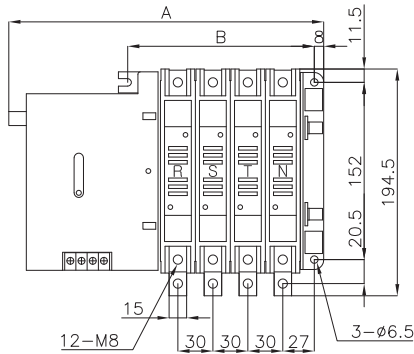
Automatic Transfer Switches 06 | 07

ATS(100~600A)

## ◆ Outline Dimension\_ 외형도

Unit : mm

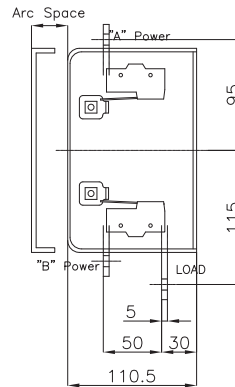
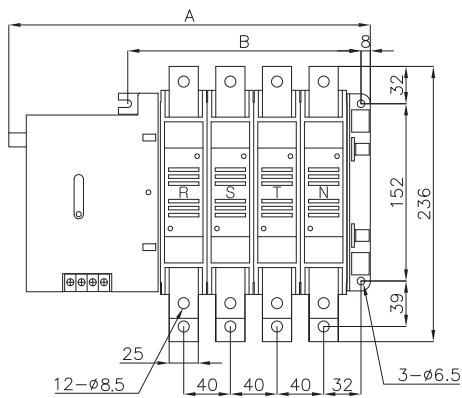
100A



OSS-61-T3

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

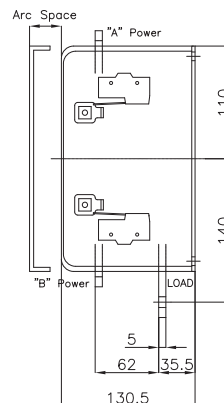
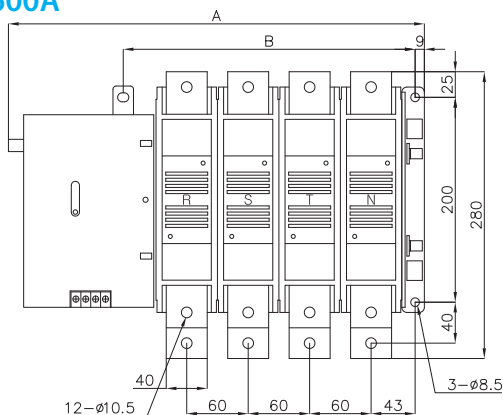
200A



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 |

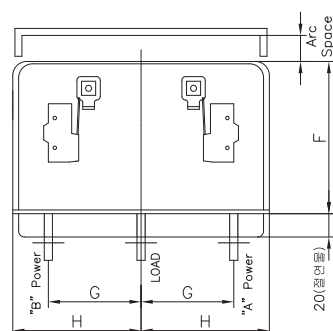
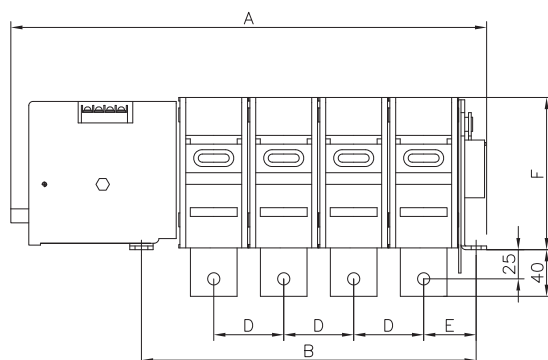
# OSS - TB3 Type

ATS(100~600A)

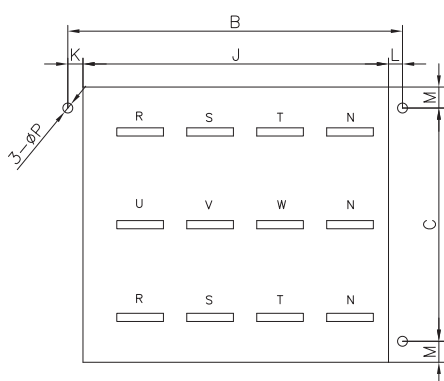


## ◆ Outline Dimension\_ 외형도

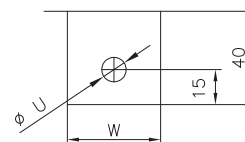
OSS-61~66-TB3



\* 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<br>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)

Automatic Transfer Switches 08 | 09

## ◆ 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)

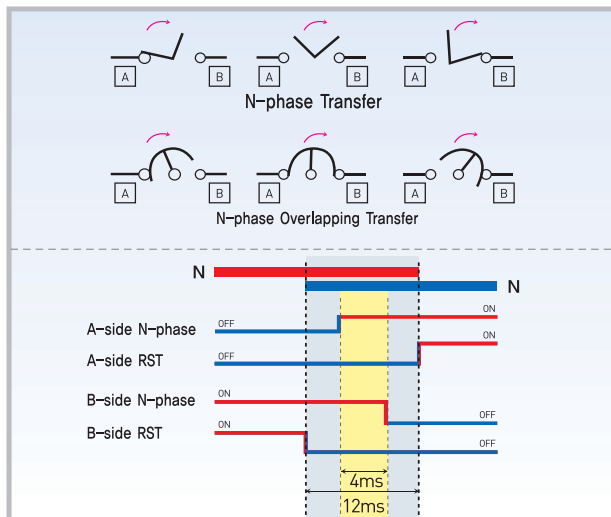
### ■ N상 중첩절체 기능

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 중성 접점을 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)

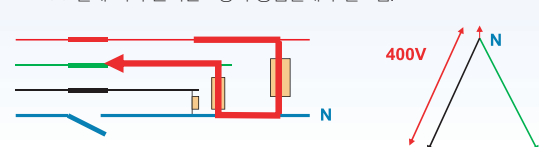


### ■ Limits of 4P Transfer (4Pole 절체시 문제점)

- Opening neutral wire is forbidden.  
N상이 OPEN 안됨
- The neutral is the common reference to 3-phases.  
N상은 3상의 기준이 됨.



- If N-phase will be opened, Ph/Ph voltage can go up to 400V.  
For transfer of 4P, Overlapping of N-phase is necessary  
N상이 Open되게 되면 상간전압이 400V까지 상승할 수 있음.  
4Pole 절체 시 부분적인 N상이 중첩절체가 필요함.





# OSS - TO, TBO Type

ATS(100~400A)

## ◆ Specification\_ 정격사양

| TYPE                                                          |                       | 61-TO<br>61-TBO                                                                                                                       | 62-TO<br>62-TBO | 64-TO<br>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)<br>(정격 단시간 내전류) Icw |                       | 5 kA                                                                                                                                  | 10 kA           | 12 kA           |
| Rated Short-Circuit Making Capacity<br>(단락 투입 전류) Icm<br>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)<br>(1 Ie making / 1 Ie breaking cos Ø= 0.8)      |                 |                 |
| Switching Frequency (개폐빈도)                                    |                       | 60 Time / Hour                                                                                                                        |                 |                 |
| Operating Current (조작전류)<br>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<br>(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.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오. |                 |                 |





# OSS - TO, TBO Type

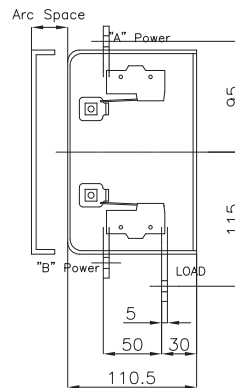
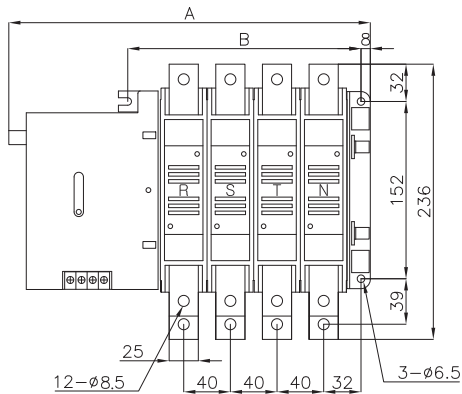
Automatic Transfer Switches 10111

ATS(100~400A)

## ◆ Outline Dimension\_ 외형도

Unit : mm

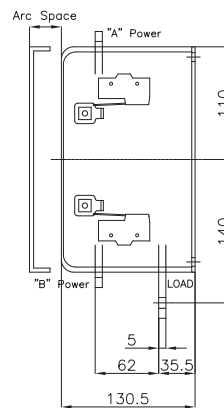
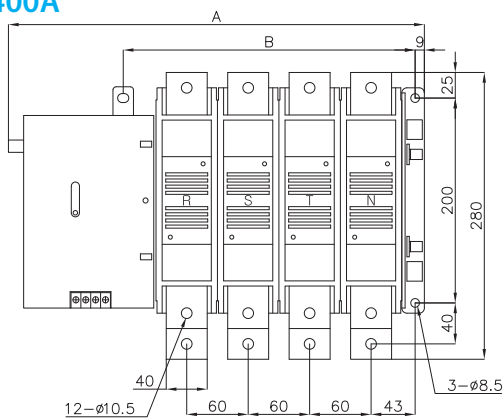
100A



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 |



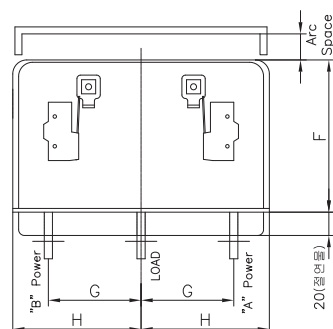
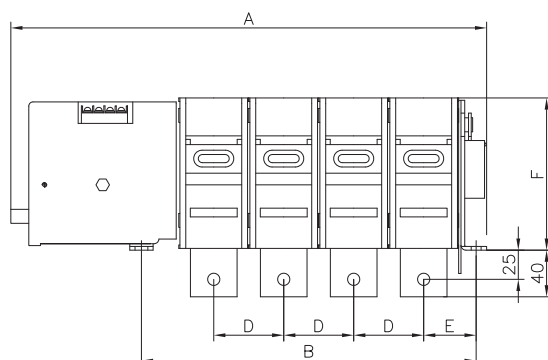
# OSS - TBO Type

ATS(100~400A)

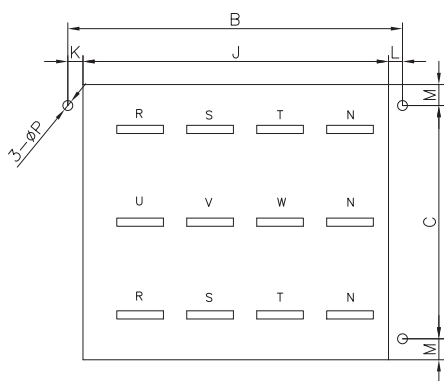


## ◆ Outline Dimension\_ 외형도

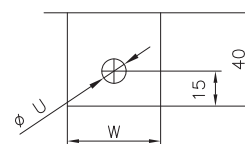
### OSS-61~64-TBO



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



PANEL CUTTING



TERMINAL THICKNESS

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

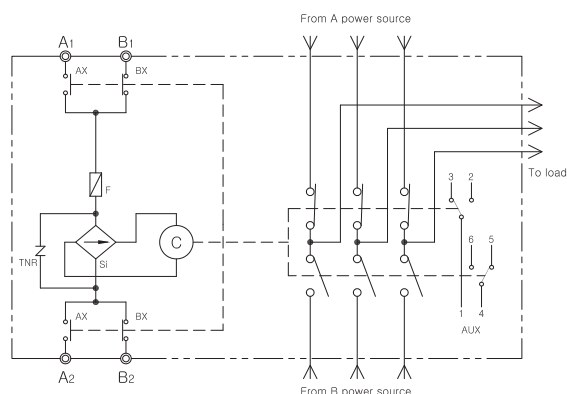
Unit : mm

|                  |    | 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<br>66-TBO | 4P | 405 | 287 | 200 | 60 | 45 | 130.5 | 80.5 | 110  | 262 | 13 | 12 | 18 | Ø 8.5 |

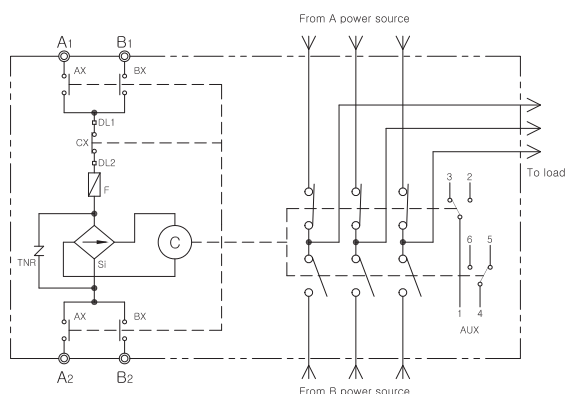


### Circuit Diagram (회로도)

AC 100~240V



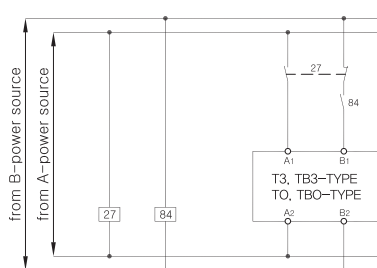
DC 110~125V



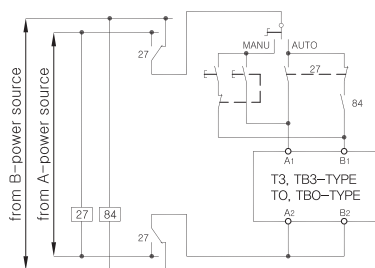
|        |                          |            |                                |    |                   |
|--------|--------------------------|------------|--------------------------------|----|-------------------|
| A1, A2 | A-Power Closing Terminal | AX, BX, CX | Closing Switch                 | 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)

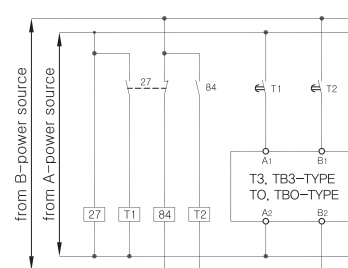
Standard  
(일반적인 절체)



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

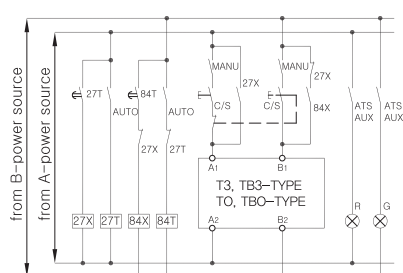


In Case of using a timer  
(타이머를 이용한 절체)

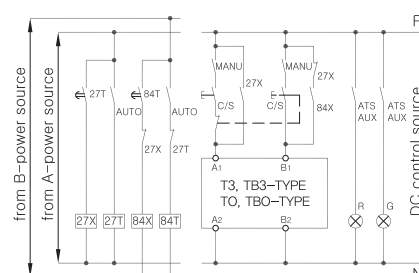


### Wiring Diagram (결선도)

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 ● D1 : DC 110V  
● A2 : AC 220V ● 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 sufficiently 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 the 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 중전품과 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

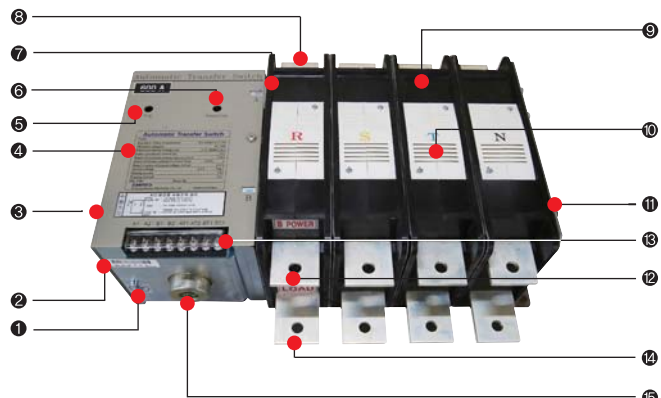
투입 시 중성선이 삼상(RST)보다 먼저 투입되고 개방 시 나중에 끊어지는 구조로 순간적으로 중성선이 개방되어 발생할 수 있는 사고 방지 효과 (IEEE 242 Clause 7.5.5)

### ■ 안전 구조 설계

차단부가 분진방지형 몰드구조로 설계되었고, 동작 위치 표시기가 있어 수명이 길고 사용자가 안전합니다.

## ◆ External View\_ 외관명칭

- 1 Earthing Terminal (접지단자)
- 2 Manual Operating Shaft (Anti-Clockwise) (수동조작 바)
- 3 Circuit Diagram (회로도)
- 4 Name Plate (명판)
- 5 Trip Button (트립 버튼)
- 6 Selective Button for "B" Power-Closing (선택 버튼)
- 7 On/Off Indicator (동작표시기)
- 8 Circuit Terminal for "A" Power (A원전용 주회로 단자)
- 9 Contacts (접점부)
- 10 Arc-Extinguishing Chamber (소호실)
- 11 Aux Switch (보조스위치)
- 12 Circuit Terminal for "B" Power (B원전용 주회로 단자)
- 13 Control Circuit Terminal Block (조작전원 단자대)
- 14 Main Circuit Terminal for Load (부하측 주회로 단자)
- 15 Amateuer for Closing Coil (투입 코일)





## 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

조작화로에는 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<br>61-TN, TBN                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |    | 62-TN, TBN |    |    | 64-TN, TBN<br>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)<br>(정격 단시간 내전류) |                       | Icw         | 5 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    | 10 kA      |    |    | 12 kA                    |    |    |
| Rated Short-Circuit Making Capacity<br>(단락 투입 전류)         |                       | Icm<br>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)<br>(1 Ie making / 1 Ie breaking cos Ø= 0.8)                                                                                                                                                                                                                                                                                                                                    |    |    |            |    |    |                          |    |    |
| Switching Frequency (개폐빈도)                                |                       |             | 60 Time / Hour                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |    |            |    |    |                          |    |    |
| Operating Current (조작전류)<br>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<br>(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.<br>2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.<br>3. Control Relay should be selected considering sufficient contact capacity to withstand against more than control current.<br><br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.<br>2. A측, B측 동시 조작지령 시 코일 소손의 원인이 됩니다.<br>3. 조작 Relay는 조작전류 이상의 충분한 접점용량을 선정하여 주십시오. |    |    |            |    |    |                          |    |    |



# OSS - TN Type

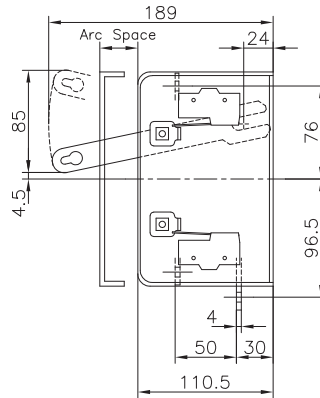
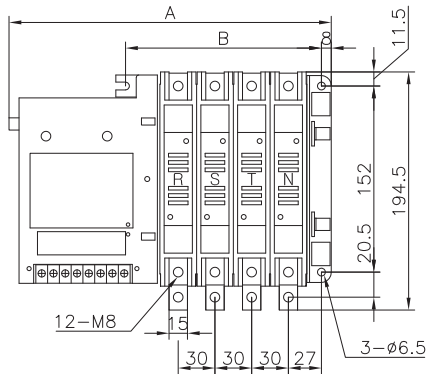
ATS(60~600A)

## ◆ Outline Dimension\_ 외형도

Unit : mm

60A, 100A

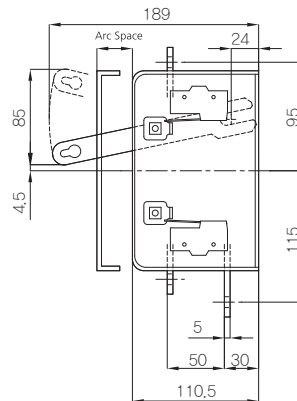
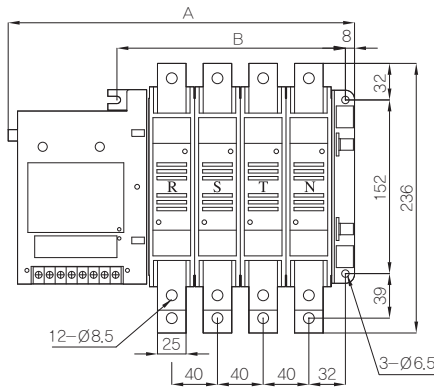
OSS-606~61-TN



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

200A

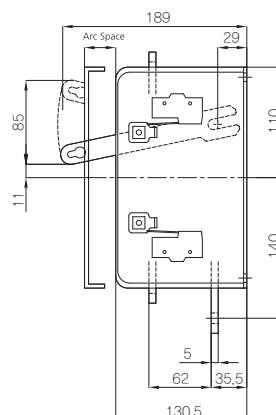
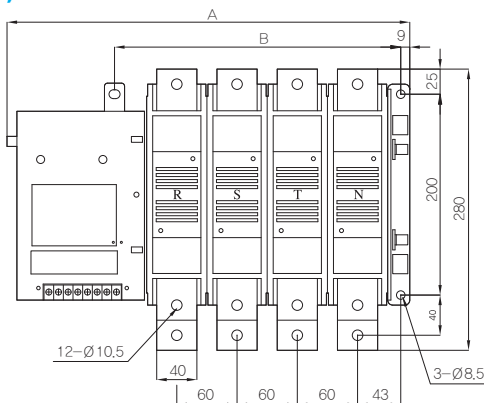
OSS-62-TN



|      | 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

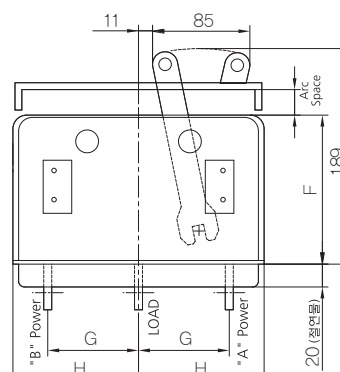
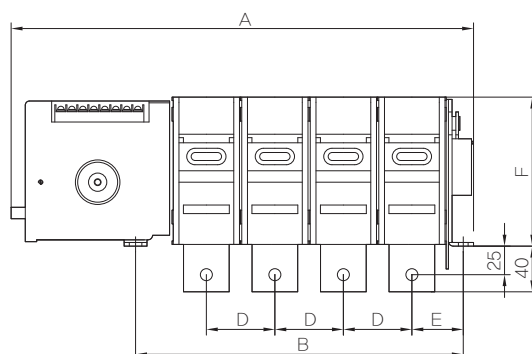
Automatic Transfer Switches 16 | 17



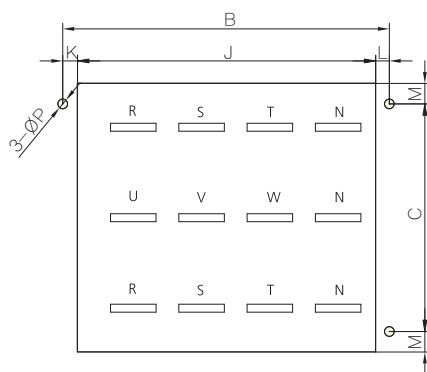
ATS(60~600A)

## ◆ Outline Dimension\_ 외형도

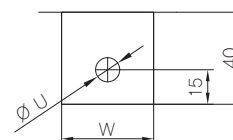
OSS-606~66-TBN



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



PANEL CUTTING



|   | 606-TBN<br>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

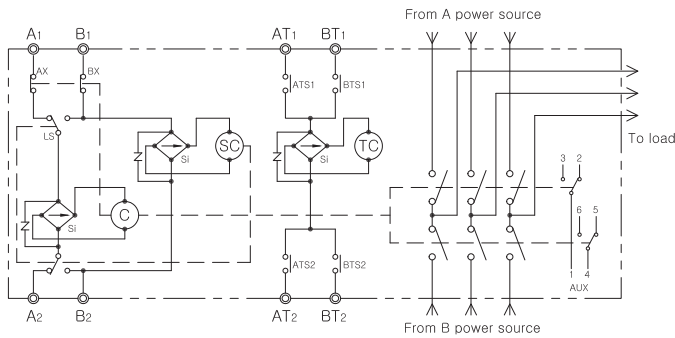
|                   |    | A   | B   | C   | D  | E  | F     | G    | H    | J   | K  | L  | M  | P     |
|-------------------|----|-----|-----|-----|----|----|-------|------|------|-----|----|----|----|-------|
| 606-TBN<br>61-TBN | 2P | 206 | 102 | 152 | 30 | 29 | 110.5 | 62.5 | 87.5 | 82  | 9  | 11 | 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<br>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)



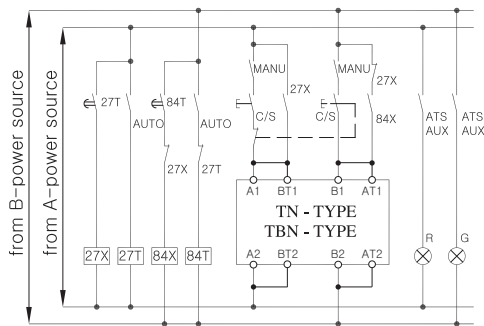
## Circuit Diagram (회로도)



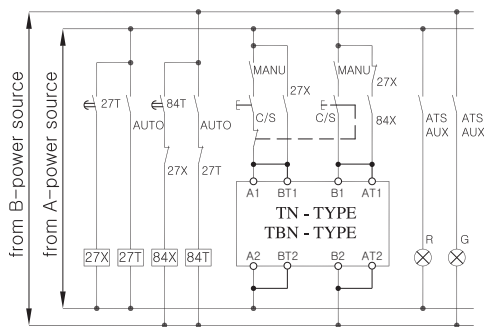
|          |                           |                        |                     |
|----------|---------------------------|------------------------|---------------------|
| A1, A2   | A-Power Closing Terminal  | C                      | Closing Coil        |
| B1, B2   | B-Power Closing Terminal  | 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

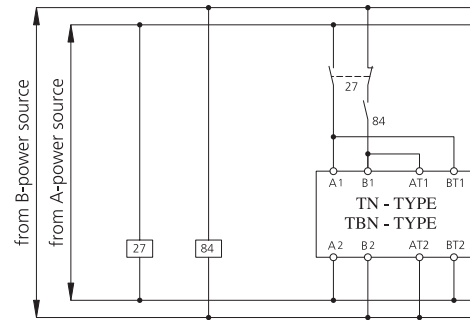


|            |                           |     |                           |
|------------|---------------------------|-----|---------------------------|
| 27X        | Source-A Operating Relay  | 84X | Source-B Operating Relay  |
| 27T        | 27X Operating Delay Timer | 84T | 84T Operating Delay Timer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

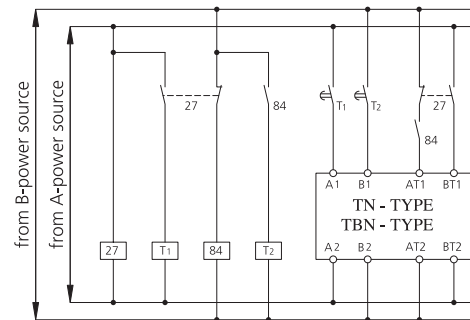
## Typical Operating Circuit

(대표적 조작회로 예)

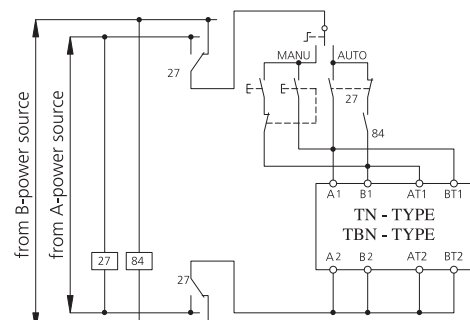
### Standard (일반적인 절체)



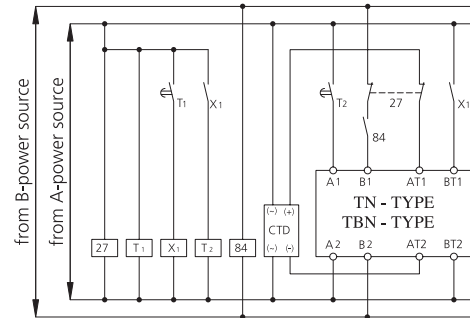
### In Case of using a timer (타이머를 이용한 절체)



### 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

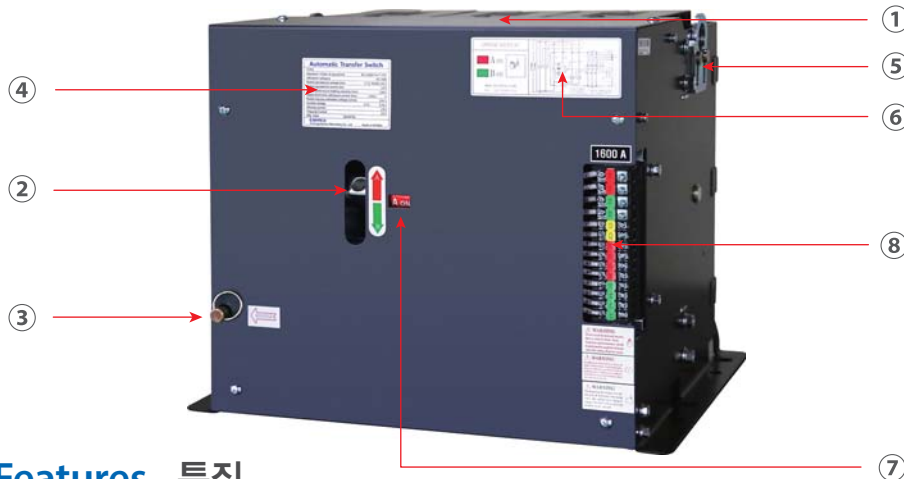
#### C Operating Voltage

- A1 : AC 110V    ● D1 : DC 110V
- A2 : AC 220V    ● 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 can be 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 the ground fault protection system. IEEE 242 (Clause 7.5.5)

#### ■ 직접 절체 방식

A ⇒ B, B ⇒ A

#### ■ 1 코일 절체 기구

정명이 있는 순차 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 고객요구를 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 접촉되도록 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 상상(RST)보다 먼저 투입되고 개방 시 나중에 끊어지는 구조로 순간적으로 중성선이 개방되어 발생할 수 있는 사고 방지 효과 (IEEE 242 Clause 7.5.5)



## ATS(800~6300A)

## ◆ Specification 정격사양

| 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)<br>(정격 단시간 내전류) |  |                       | Icw                                                                                                                                                                                                                                                                                 |  | 50 kA                                                                                         |     |        |     | 65 kA  |     |        |     |        |     |
| Rated Short-Circuit Making Capacity<br>(단락 투입 전류)         |  |                       | Icm<br>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)<br>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<br>(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.<br>2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.<br>2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다. |  |                                                                                               |     |        |     |        |     |        |     |        |     |

# OSS - PC Type

Automatic Transfer Switches 20121

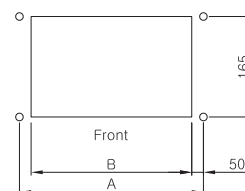
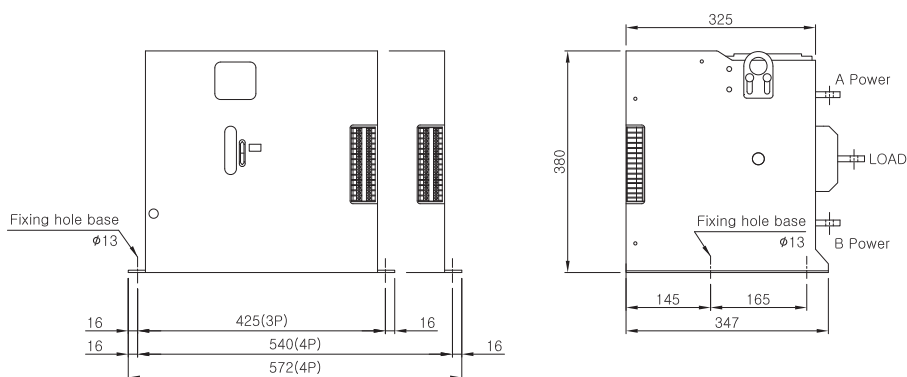
ATS(800~6300A)



## ◆ Outline Dimension\_ 외형도

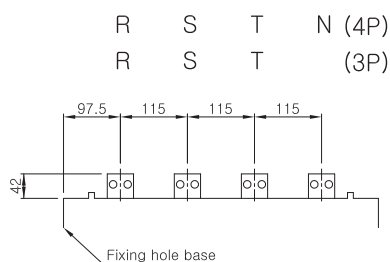
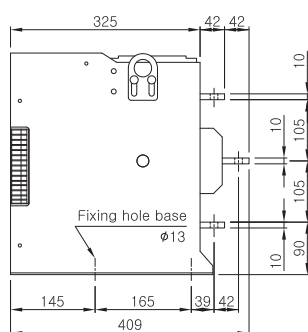
### 800~1600A Fixed

Unit : mm

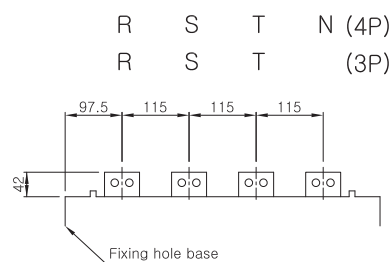
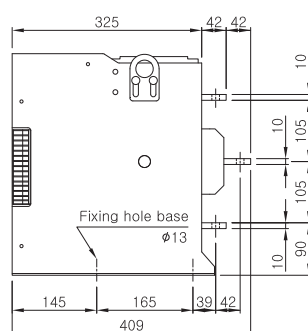
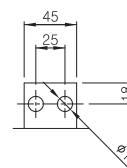


| Poles | A   | B   |
|-------|-----|-----|
| 3P    | 425 | 325 |
| 4P    | 540 | 440 |

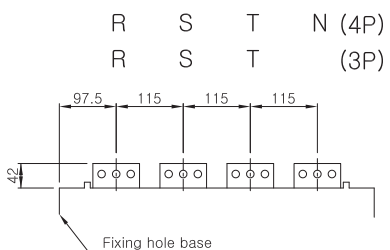
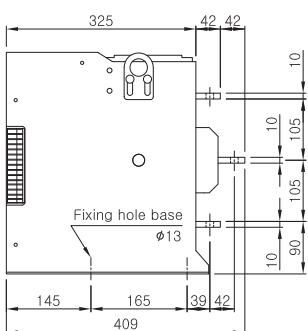
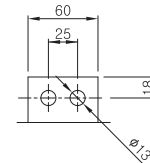
Panel Cutting  
(Fixing Hole)



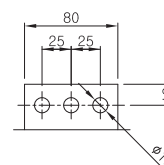
### OSS-608~610-PC



### OSS-612-PC



### OSS-616-PC





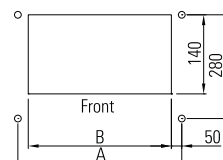
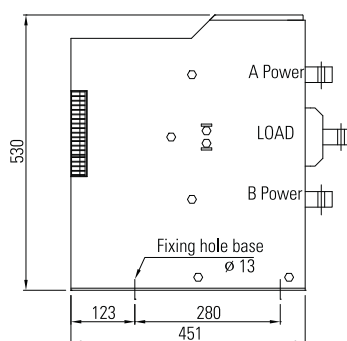
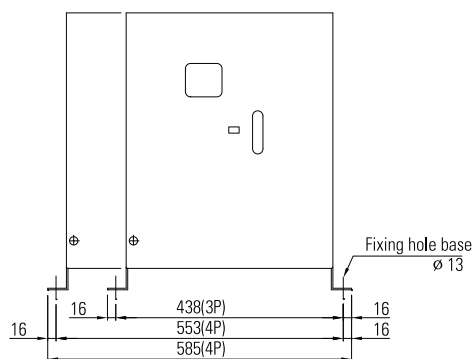
# OSS - PC Type

ATS(800~6300A)

## ◆ Outline Dimension\_ 외형도

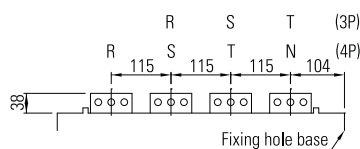
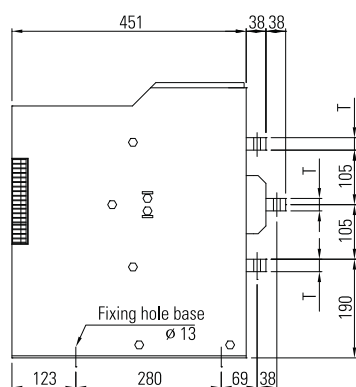
### 2000~3200A Fixed

Unit : mm



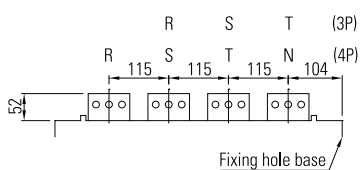
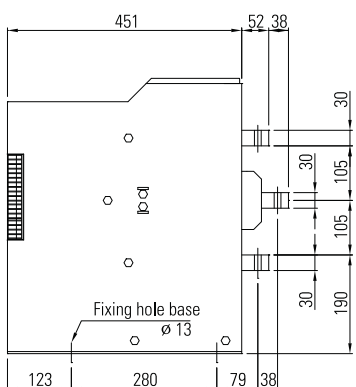
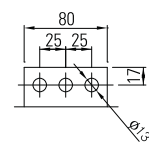
| Poles | A   | B   |
|-------|-----|-----|
| 3P    | 438 | 338 |
| 4P    | 553 | 453 |

Panel Cutting  
(Fixing Hole)

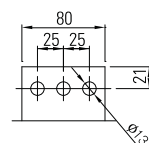


### OSS-620~625-PC

| Current | T  |
|---------|----|
| 2000A   | 15 |
| 2500A   | 24 |



### OSS-632-PC



# OSS - PC Type

Automatic Transfer Switches 22 | 23

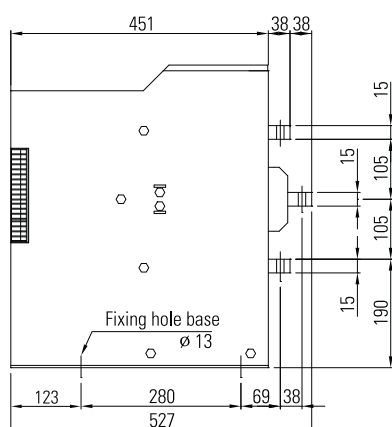
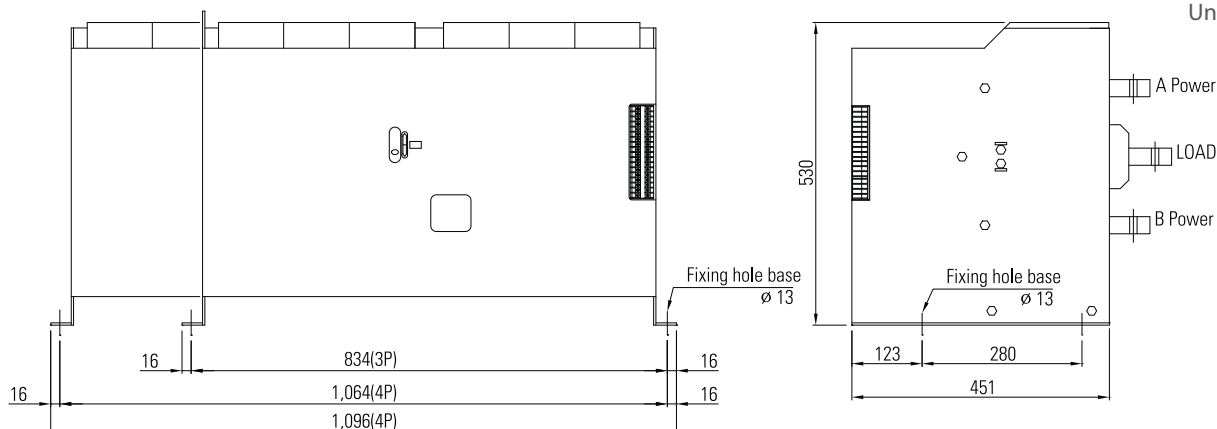
ATS(800~6300A)



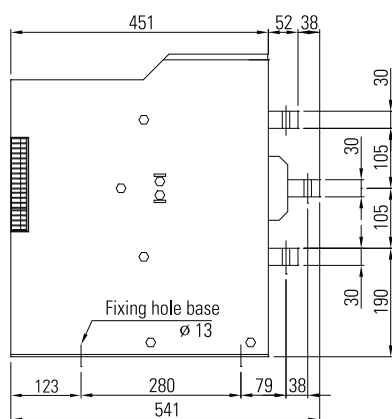
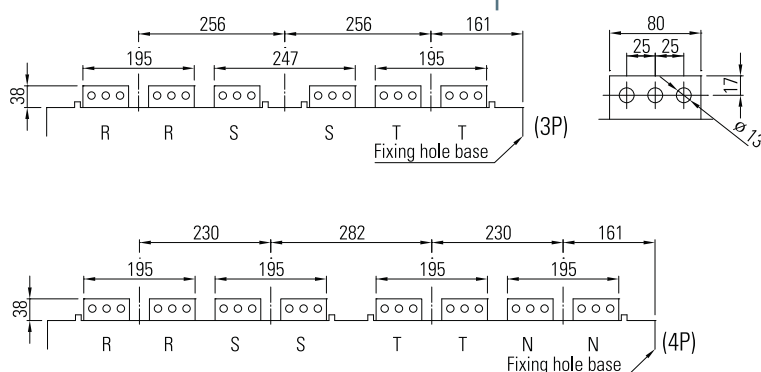
## ◆ Outline Dimension\_ 외형도

### 4000~6300A Fixed

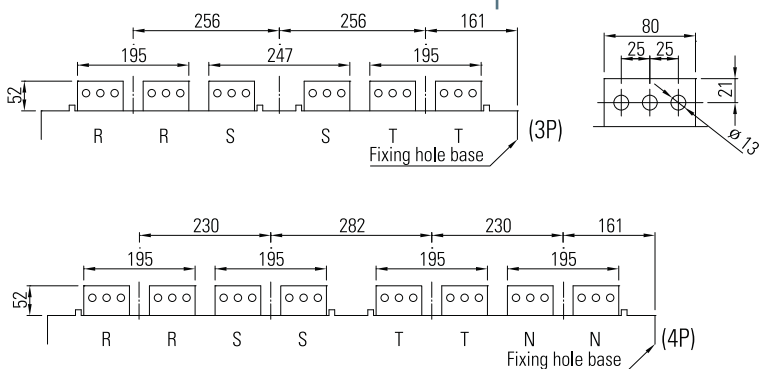
Unit : mm



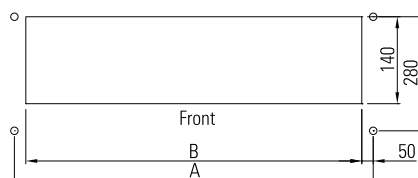
### OSS-640-PC



### OSS-650~663-PC



## Panel cutting (Fixing hole)



| Poles | A    | B   |
|-------|------|-----|
| 3P    | 834  | 734 |
| 4P    | 1064 | 964 |

# OSS - PC Type

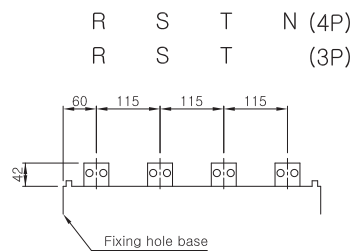
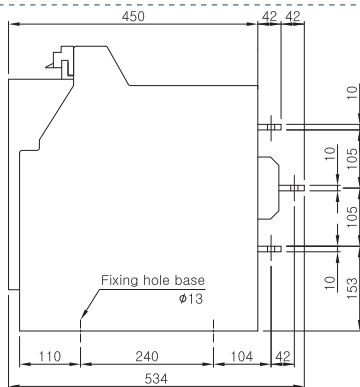
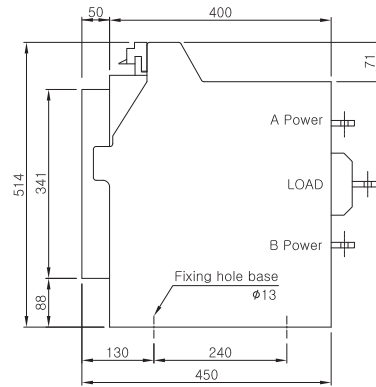
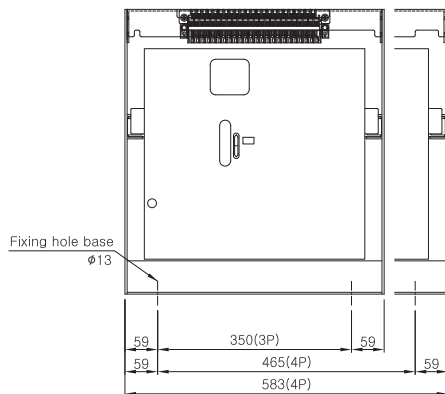
ATS(800~6300A)



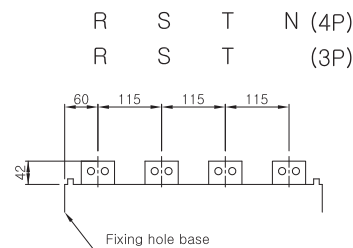
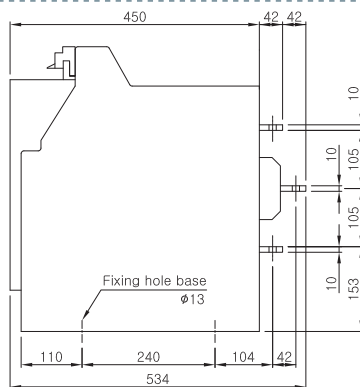
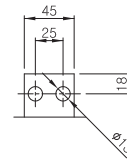
## ◆ Outline Dimension\_ 외형도

### 800~1600A Draw Out

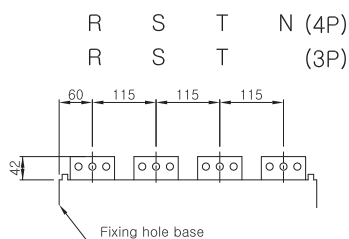
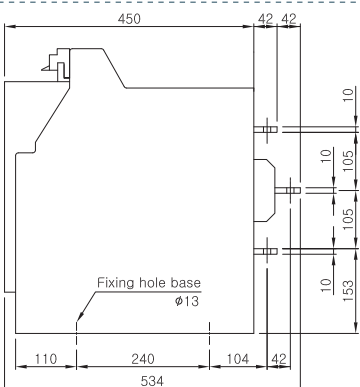
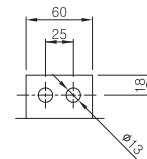
Unit : mm



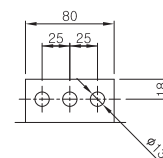
### OSS-608~610-PC



### OSS-612-PC



### OSS-616-PC



# OSS - PC Type

Automatic Transfer Switches 24 | 25

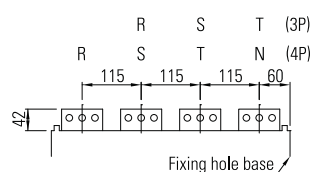
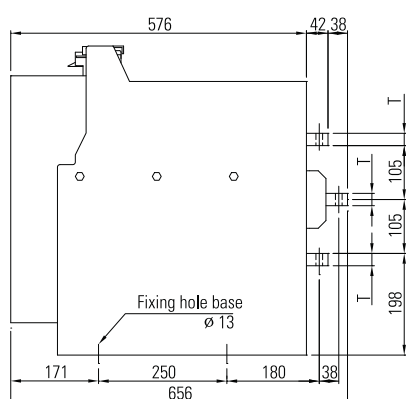
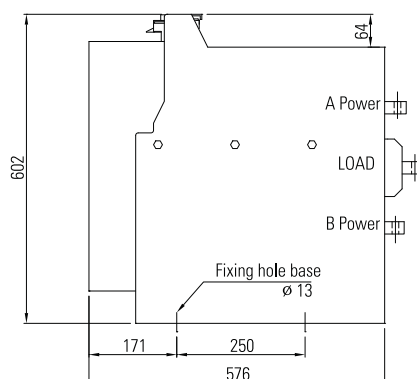
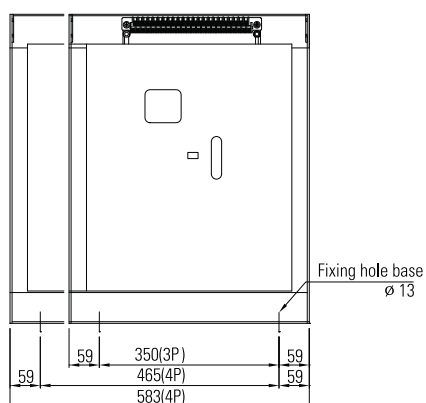
ATS(800~6300A)



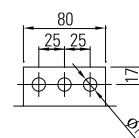
## ◆ Outline Dimension\_ 외형도

### 2000~3200A Draw Out

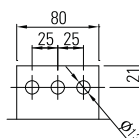
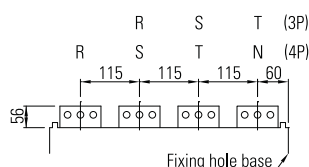
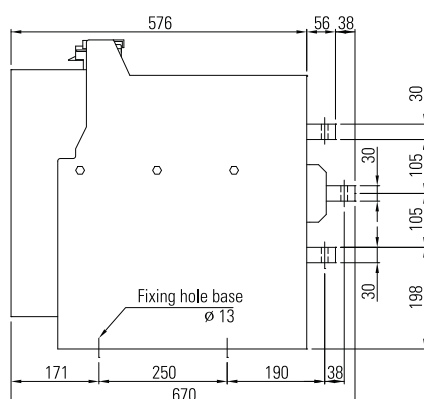
Unit : mm



### OSS-620~625-PC



| Current | T  |
|---------|----|
| 2000A   | 15 |
| 2500A   | 24 |



### OSS-632-PC

# OSS - PC Type

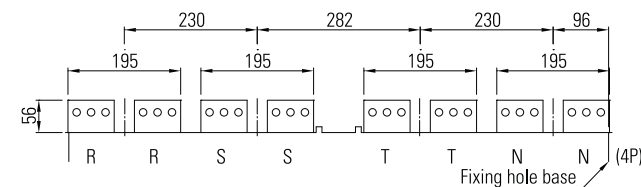
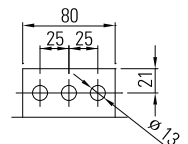
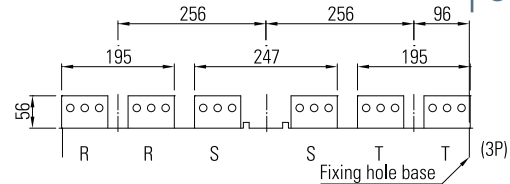
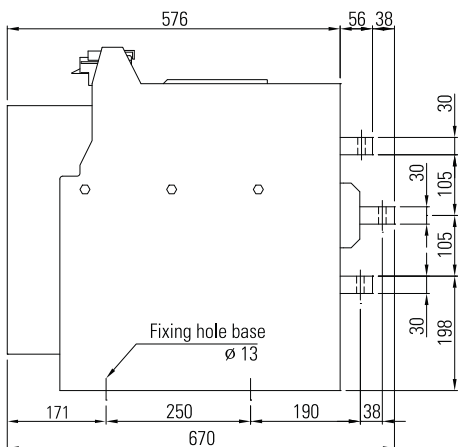
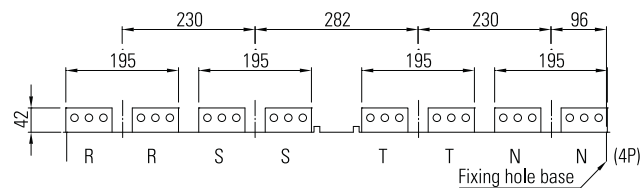
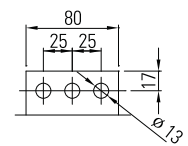
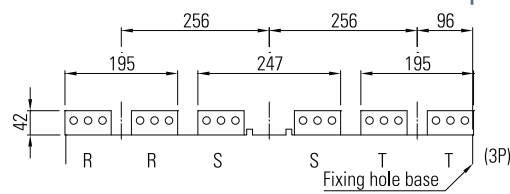
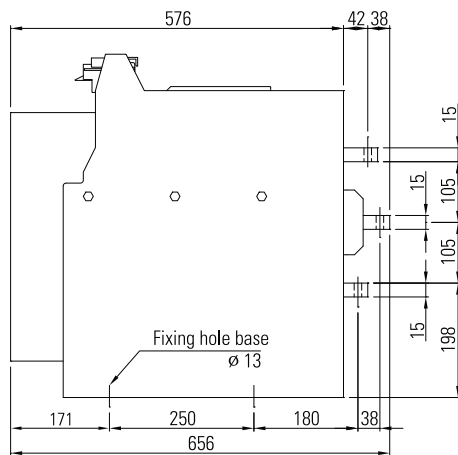
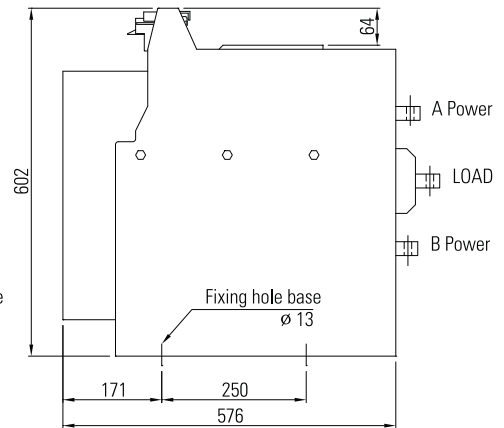
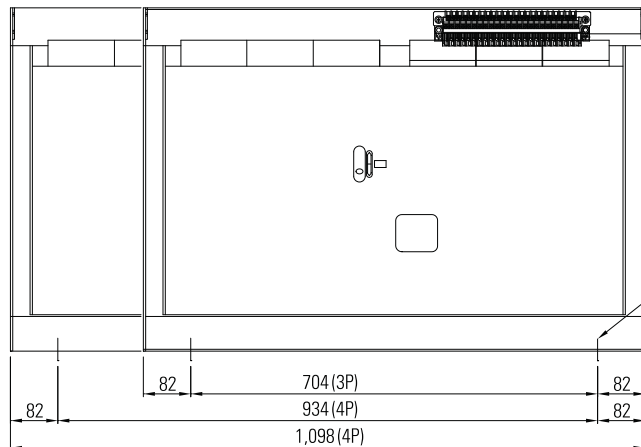
ATS(800~6300A)



## ◆ Outline Dimension\_ 외형도

### 4000~6300A Draw Out

Unit : mm



# OSS - 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    • D1 : DC 110V
- A2 : AC 220V    • 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 중성점접 (N상)은 다른 삼상 (R, S, T상) 보다 10~12ms 후에 떨어 져야 부하측의 각종 장비가 보호됩니다. 그러나 일반적인 ATS는 중성점접 (N상)과 다른 삼상 (R, S, T상)의 시간차가 10ms 이내가 되므로 부하측의 설비를 보호하는데 다소 미흡하다 할 수 있습니다.

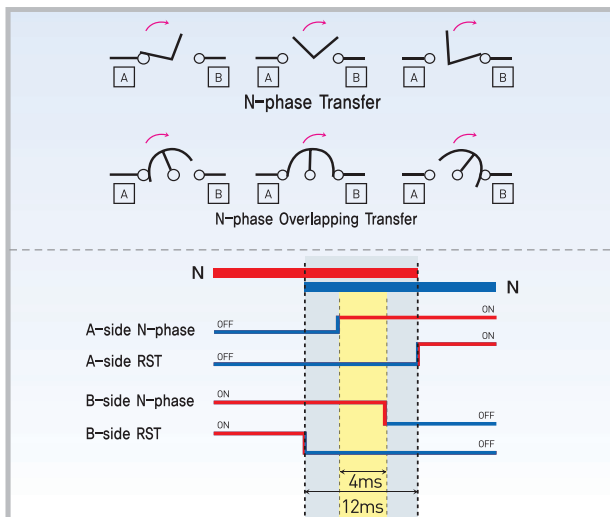
이러한 문제를 해결하기 위하여 상용전원의 중성점접과 예비전원의 중성 점접을 중첩시켜 절체시킴으로써 보다 안전하게 부하측의 각종 장비를 보호할 수 있습니다.

또한 비선형 부하는 대지전위를 상승시켜 대지와 중성선 간에 전위차가 생 기므로 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)

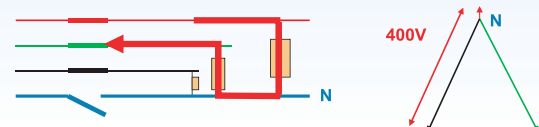


#### ■ Limits of 4P Transfer (4Pole 절체시 문제점)

- Opening neutral wire is forbidden.  
N상이 OPEN 안됨
- The neutral is the common reference to 3-phases.  
N상은 3상의 기준이 됨.



- If N-phase will be opened, Ph/Ph voltage can go up to 400V.  
For transfer of 4P, Overlapping of N-phase is necessary  
N상이 Open되게 되면 상간전압이 400V까지 상승할 수 있음.  
4Pole 절체 시 부분적인 N상이 중첩절체가 필요함.





# 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 600V                                                                                                                                                                                                                                                                             |         |         |                |         |
| 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) Icw<br>(정격 단시간 내전류) |                       | 25 kA                                                                                                                                                                                                                                                                               |         |         | 30 kA          | 35 kA   |
| Rated Short-Circuit Making Capacity Icm<br>(단락 투입 전류) 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<br>(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.<br>2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.<br>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 600V                                                                                                                                                                                                                                                                             |                   |         |         |         |         |
| 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)<br>(정격 단시간 내전류) Icw |                       | 40 kA                                                                                                                                                                                                                                                                               | 50 kA             |         | 65 kA   |         |         |
| Rated Short-Circuit Making Capacity<br>(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)<br>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<br>(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.<br>2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.<br>2. A측, B측 동시 조작 지령 시 코일 소손의 원인이 됩니다. |                   |         |         |         |         |

# OSS - PSO Type

Automatic Transfer Switches 28 | 29

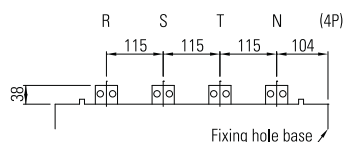
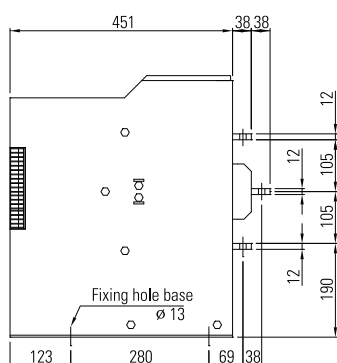
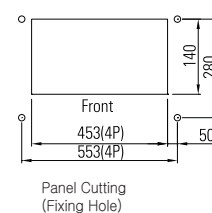
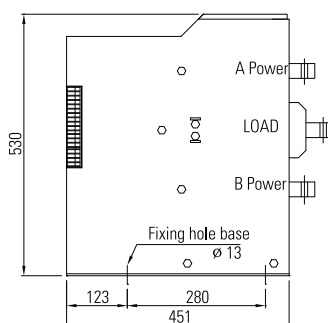
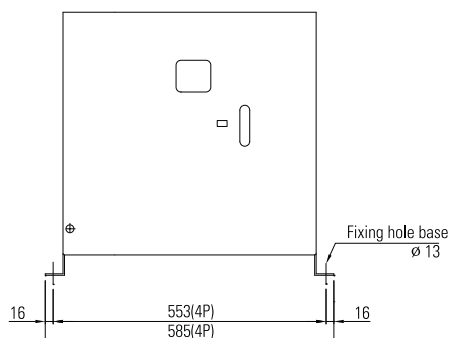
ATS(600~6300A)



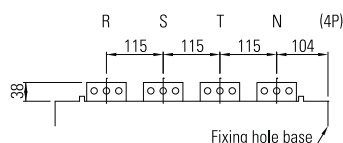
## ◆ Outline Dimension\_ 외형도

600~3200A Fixed

Unit : mm

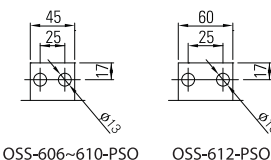


OSS-606~612-PSO

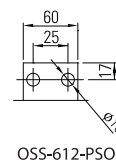


OSS-616-PSO

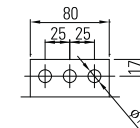
OSS-606~616-PSO



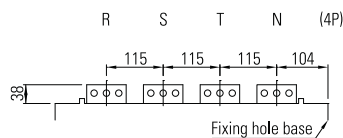
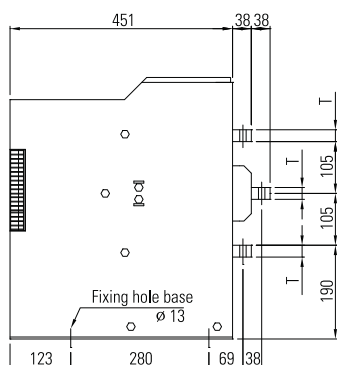
OSS-606~610-PSO



OSS-612-PSO

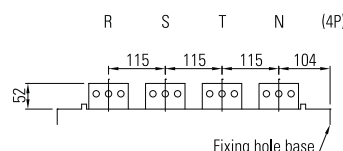
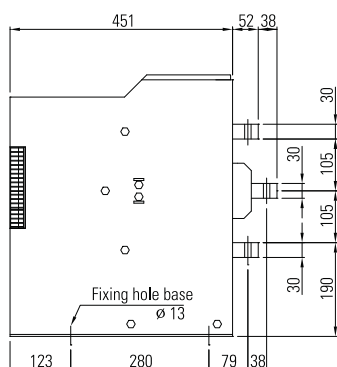
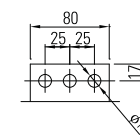


OSS-616-PSO

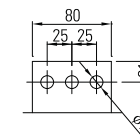


OSS-620~625-PSO

| Current | T  |
|---------|----|
| 2000A   | 15 |
| 2500A   | 24 |



OSS-632-PSO





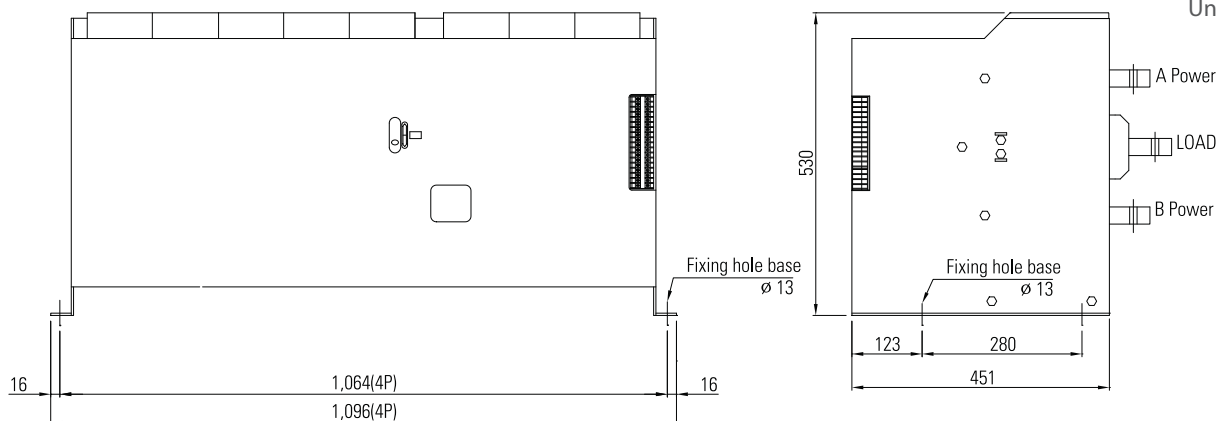
# OSS - PSO Type

ATS(600~6300A)

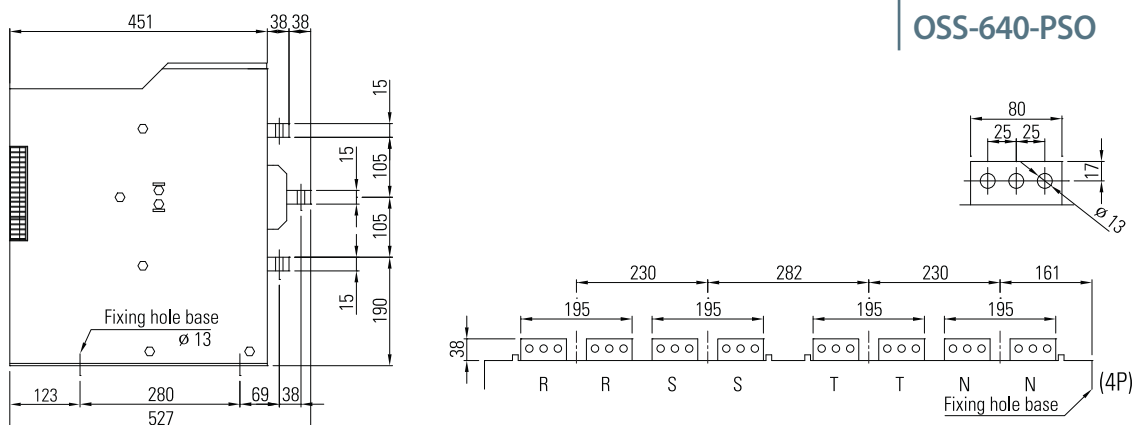
## ◆ Outline Dimension\_ 외형도

### 4000~6300A Fixed

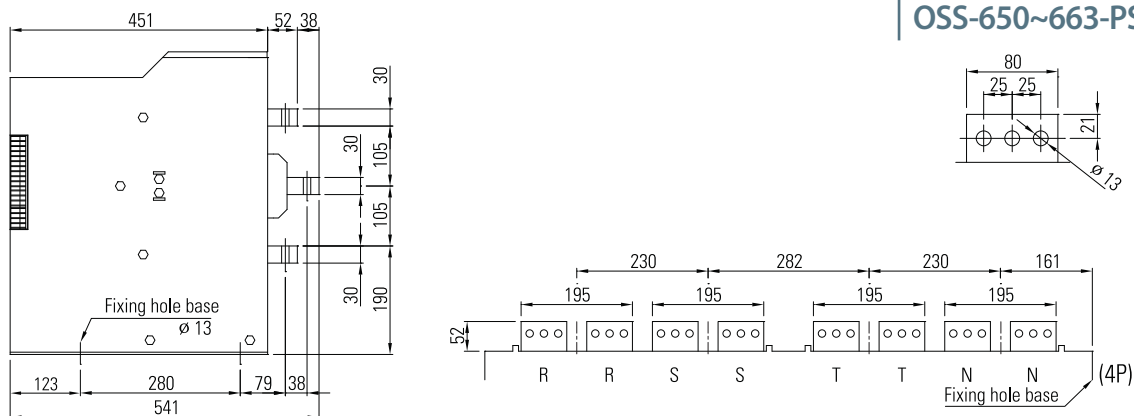
Unit : mm



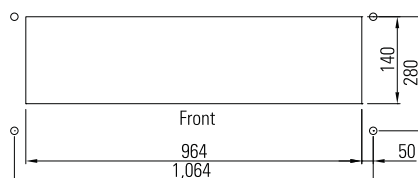
### OSS-640-PSO



### OSS-650~663-PSO



### Panel cutting (Fixing hole)



# OSS - PSO Type

Automatic Transfer Switches 30 | 31

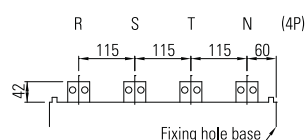
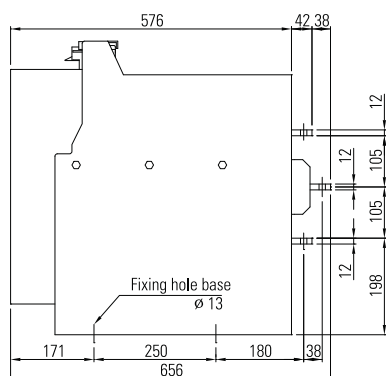
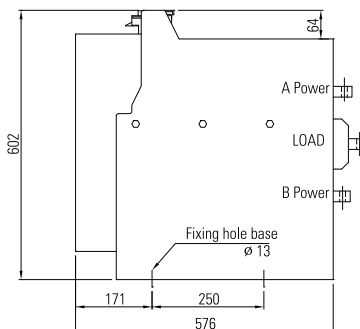
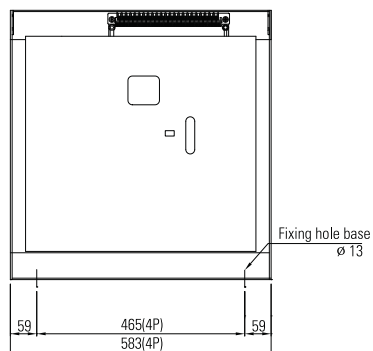
ATS(600~6300A)



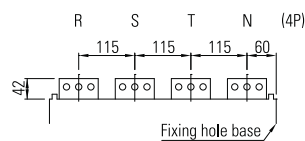
## ◆ Outline Dimension\_ 외형도

### 600~3200A Draw Out

Unit : mm

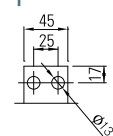


#### OSS-606~612-PSO

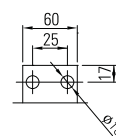


#### OSS-616-PSO

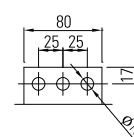
#### OSS-606~616-PSO



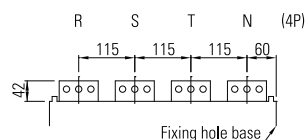
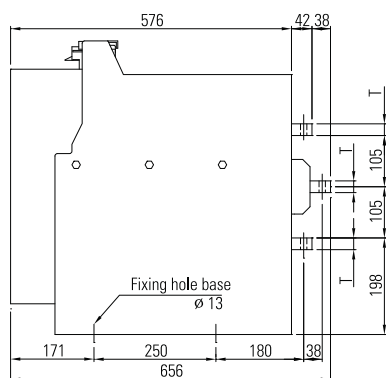
#### OSS-606~610-PSO



#### OSS-612-PSO

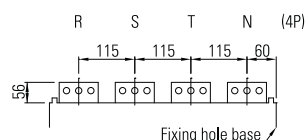
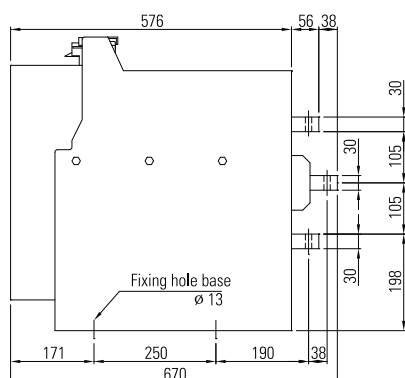
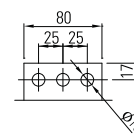


#### OSS-616-PSO

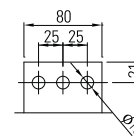


#### OSS-620~625-PSO

| Current | T  |
|---------|----|
| 2000A   | 15 |
| 2500A   | 24 |



#### OSS-632-PSO



# OSS - PSO Type

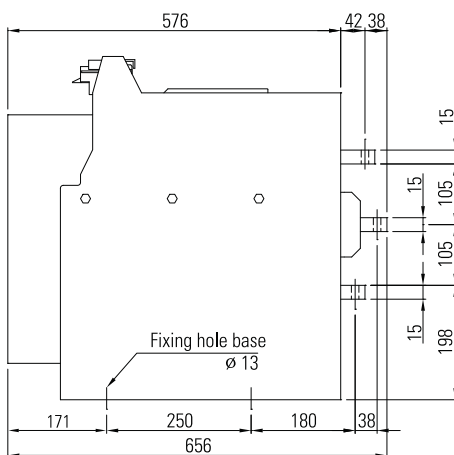
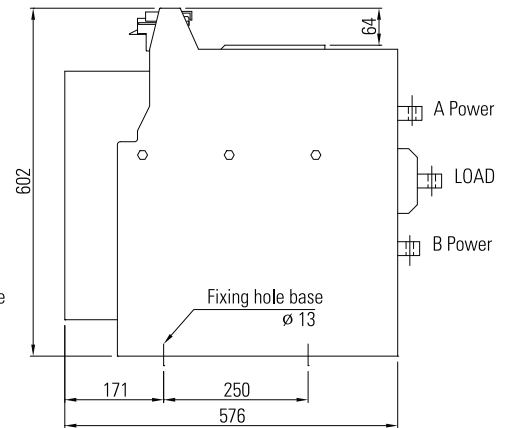
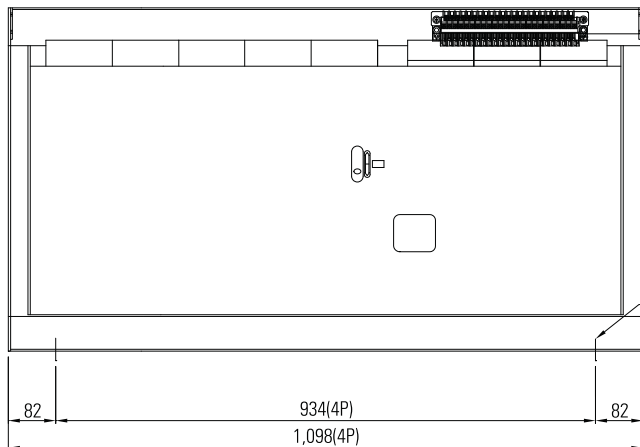
ATS(600~6300A)



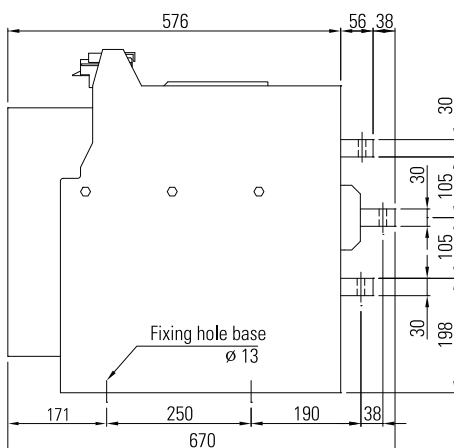
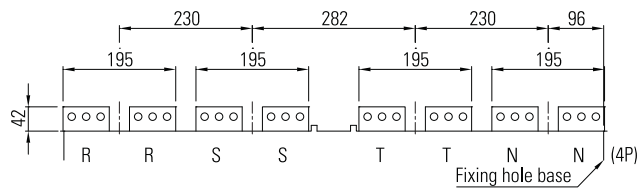
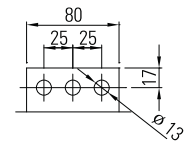
## ◆ Outline Dimension\_ 외형도

### 4000~6300A Draw Out

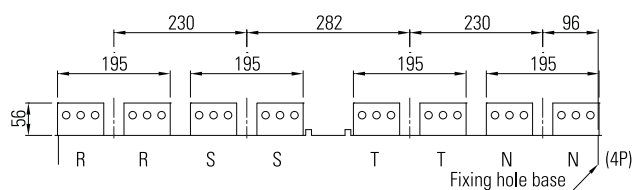
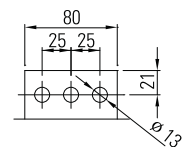
Unit : mm



### OSS-640-PSO



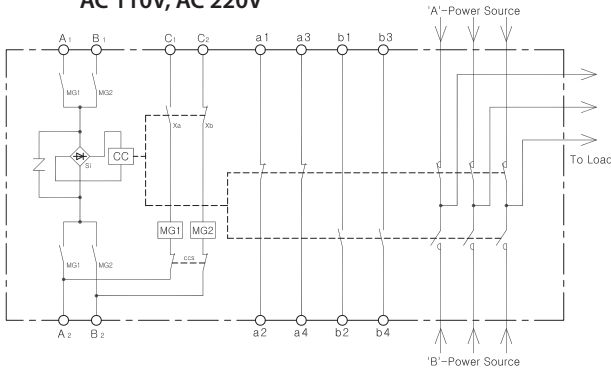
### OSS-650~663-PSO



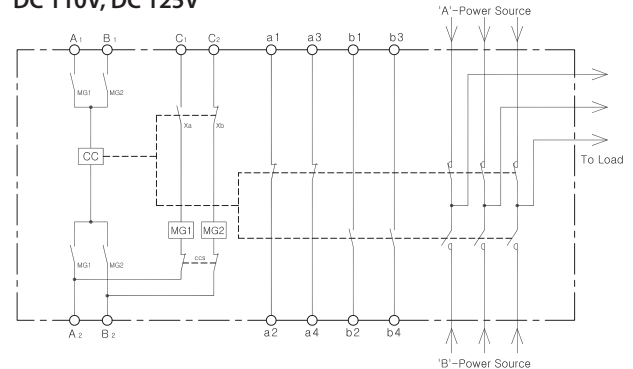


### Circuit Diagram (회로도)

AC 110V, AC 220V



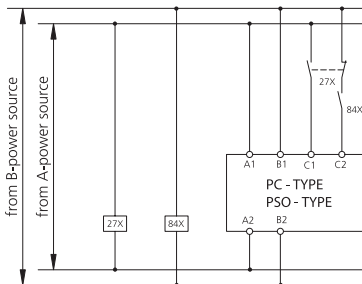
DC 110V, DC 125V



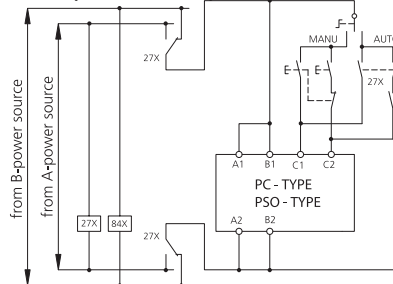
|        |                           |                |                    |
|--------|---------------------------|----------------|--------------------|
| A1, A2 | A-Power Closing Terminal  | Xa, Xb         | Control Switch     |
| B1, B2 | B-Power Closing Terminal  | MG1, MG2       | Magnetic coil      |
| 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)

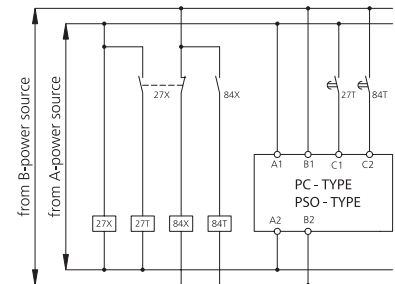
Standard  
(일반적인 절체)



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

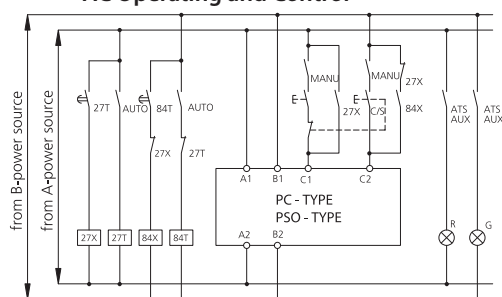


In Case of using a timer  
(타이머를 이용한 절체)

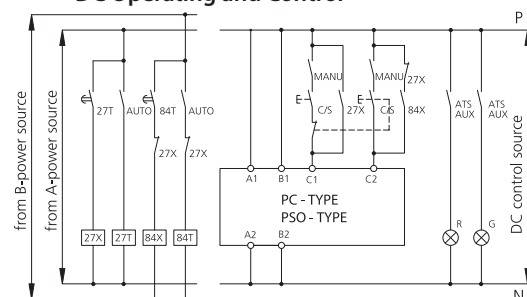


### Wiring Diagram (결선도)

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 2.5mm<sup>2</sup> power cable used for 1600A ATS or less.  
More than 4.0mm<sup>2</sup> power cable used for 2000A ATS or over.  
More than 6.0mm<sup>2</sup> power cable used for 4000A ATS or over.

**주의)** ATS 1600A 이하 사용 시 전선의 굵기는 2.5mm<sup>2</sup> 이상 사용합니다.  
ATS 2000A 이상 사용 시 전선의 굵기는 4.0mm<sup>2</sup> 이상 사용합니다.  
ATS 4000A 이상 사용 시 전선의 굵기는 6.0mm<sup>2</sup> 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

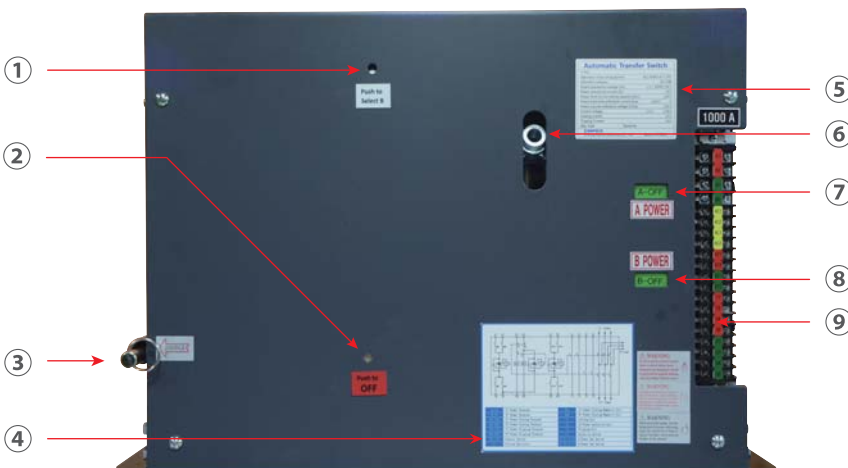
### D Operating Voltage

- 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 instantaneous transfer as follows. A ⇒ Off ⇒ B, B ⇒ Off ⇒ A and A ⇒ Off ⇒ A, B ⇒ Off ⇒ B instantaneous transfer can be available 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



| 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)<br>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<br>(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.<br>2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.<br>1. 조작지령은 0.5sec 이상으로 하여 확실한 동작을 할 수 있도록 하여 주십시오.<br>2. A측, B측 동시 조작 지령 시 코일 소손의 염의이 됩니다. |          |         |     |         |       |         |     |         |     |

# OSS - PCN Type

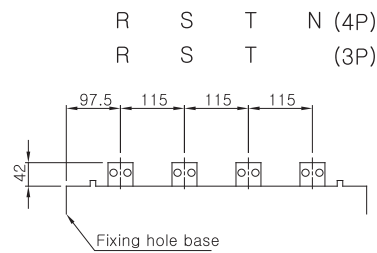
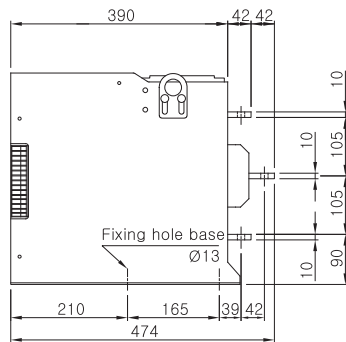
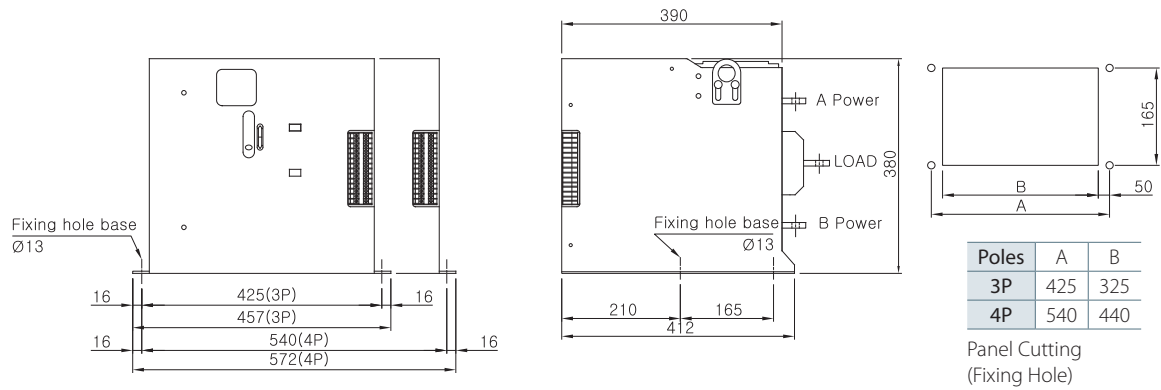
ATS(800~6300A)



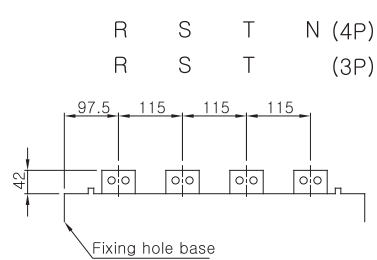
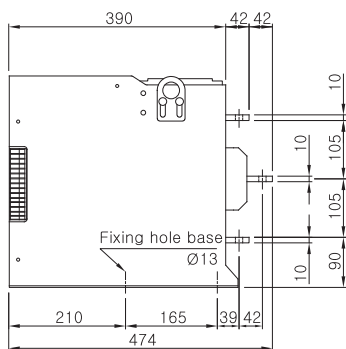
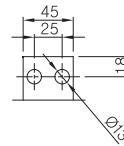
## ◆ Outline Dimension\_ 외형도

800~1600A Fixed

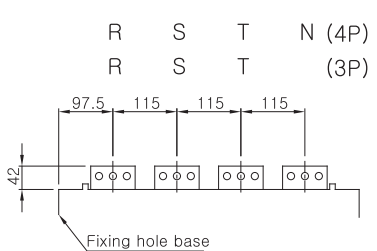
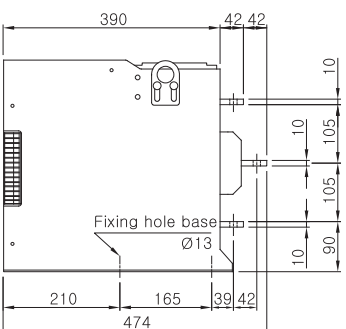
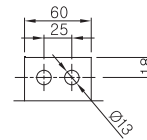
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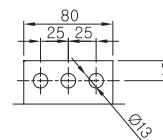
OSS-608~610-PCN



OSS-612-PCN



OSS-616-PCN



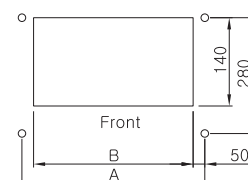
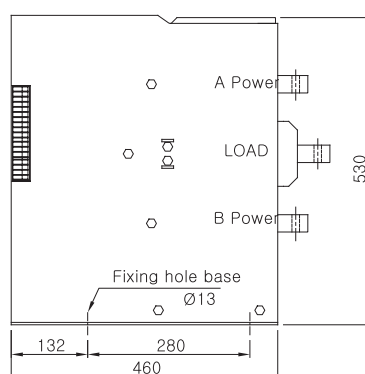
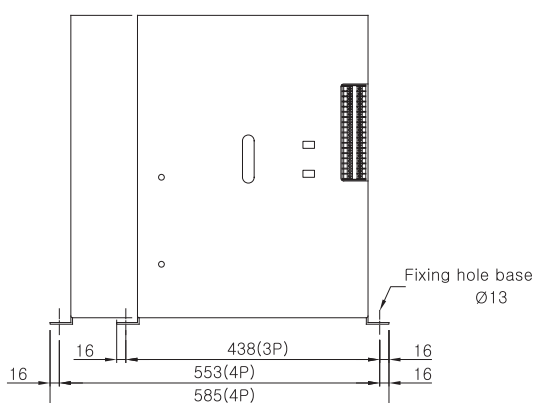


## ATS(800~6300A)

## ◆ Outline Dimension 외형도

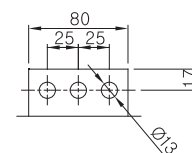
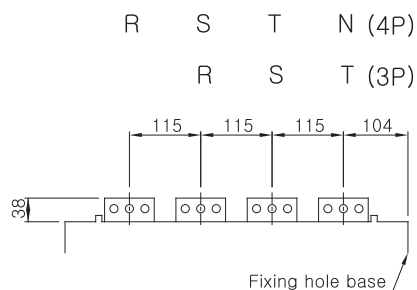
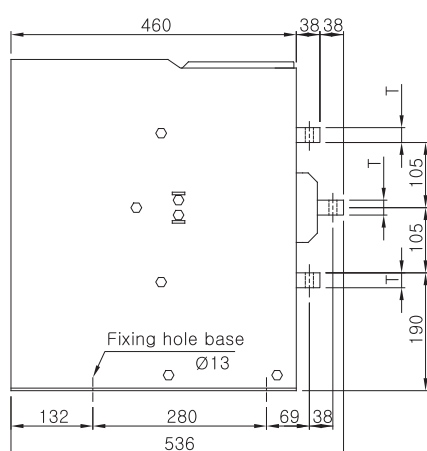
## 2000~3200A Fixed

Unit : mm



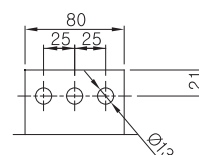
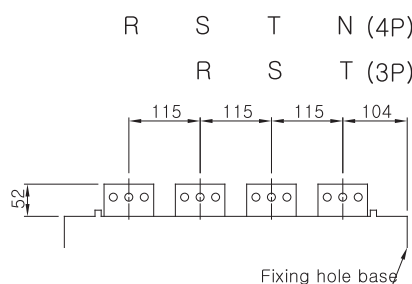
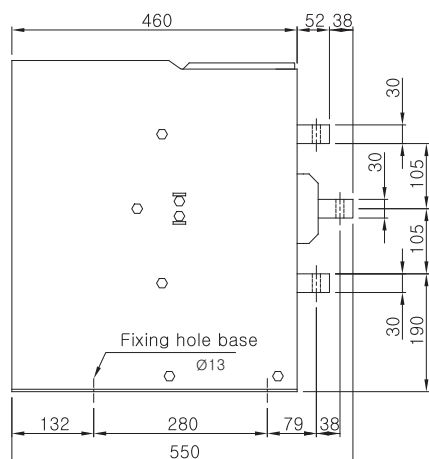
| Poles | A   | B   |
|-------|-----|-----|
| 3P    | 438 | 338 |
| 4P    | 553 | 453 |

### Panel Cutting (Fixing Hole)



|         |    |
|---------|----|
| Current | T  |
| 2000A   | 15 |
| 2500A   | 24 |

OSS-620~625-PCN



OSS-632-PCN

# OSS - PCN Type

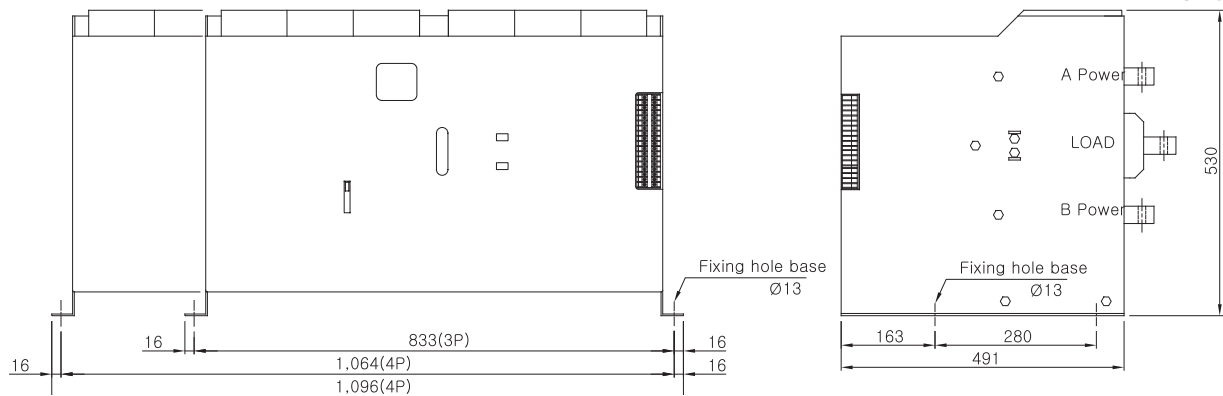
ATS(800~6300A)



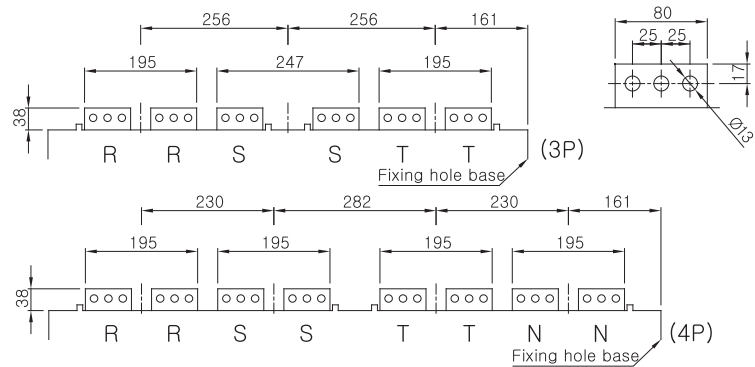
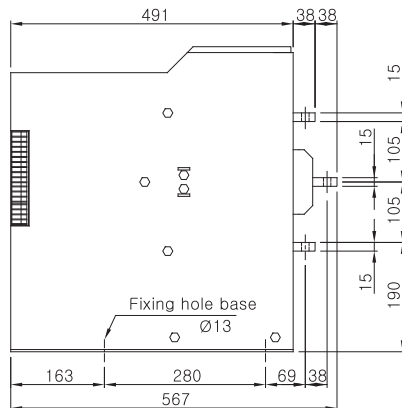
## ◆ Outline Dimension\_ 외형도

### 4000~6300A Fixed

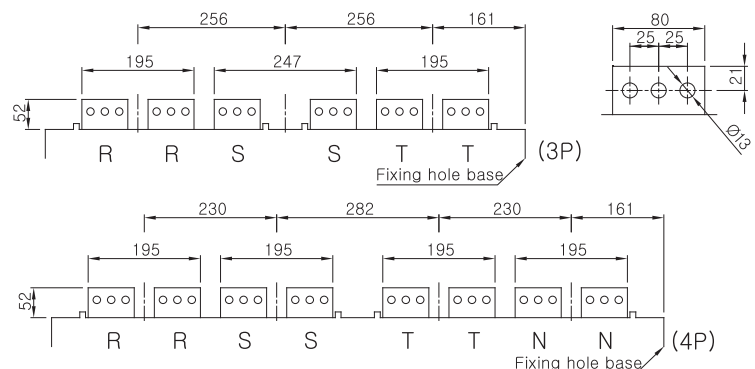
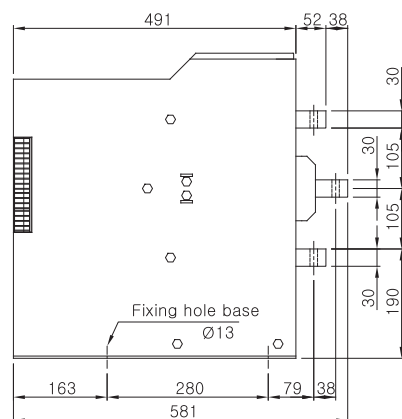
Unit : mm



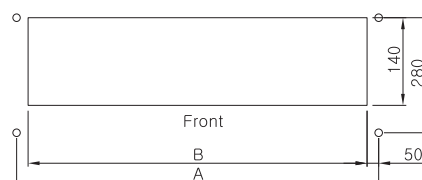
### OSS-640-PCN



### OSS-650~663-PCN



## Panel cutting (Fixing hole)



| Poles | A    | B   |
|-------|------|-----|
| 3P    | 834  | 734 |
| 4P    | 1064 | 964 |

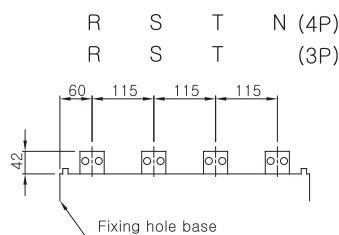
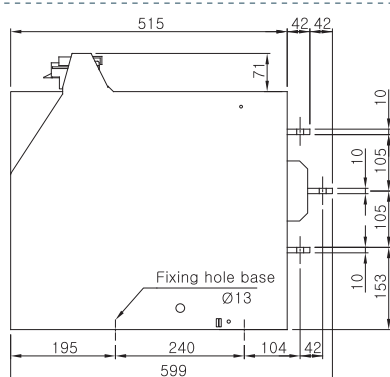
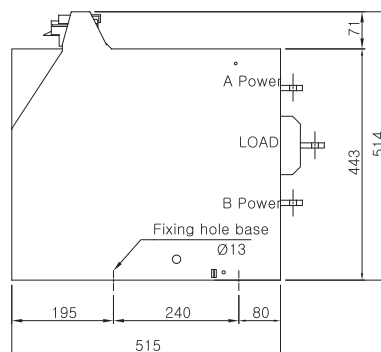
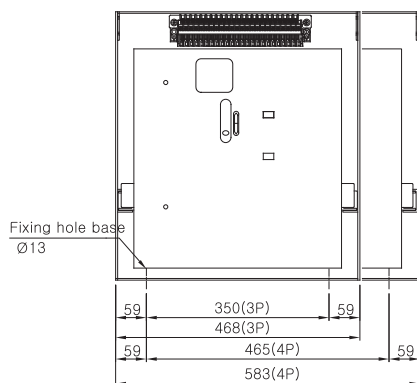


ATS(800~6300A)

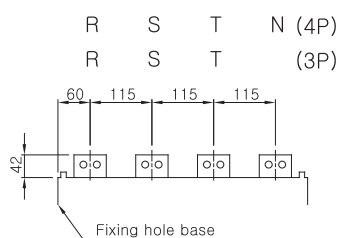
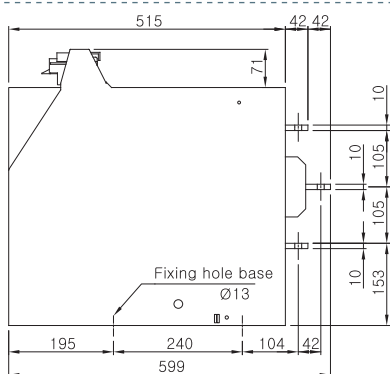
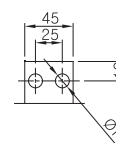
## ◆ Outline Dimension\_ 외형도

### 800~1600A Draw Out

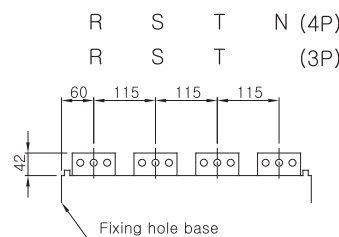
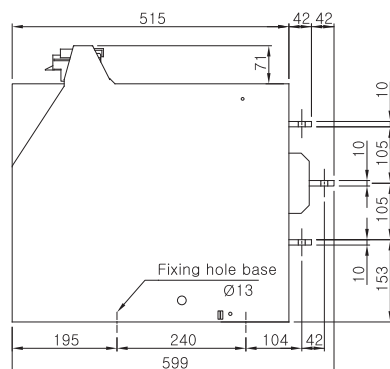
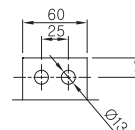
Unit : mm



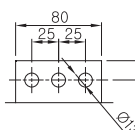
### OSS-608~610-PCN



### OSS-612-PCN



### OSS-616-PCN





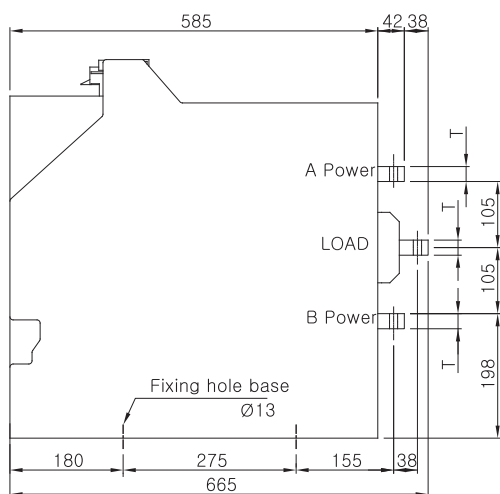
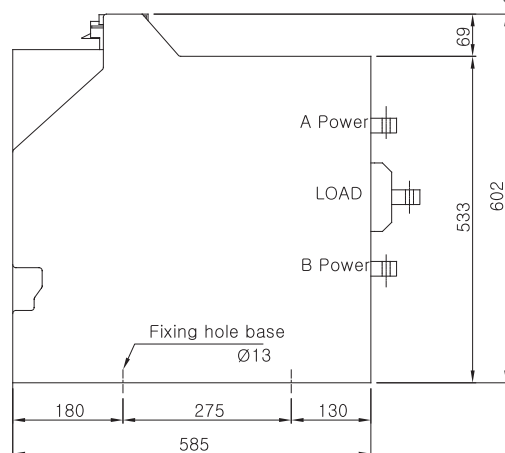
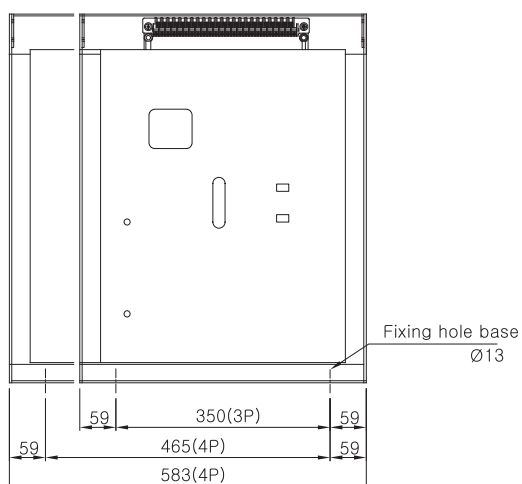
# OSS - PCN Type

ATS(800~6300A)

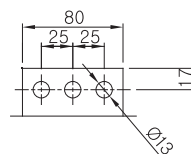
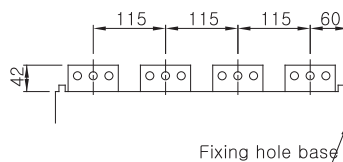
## ◆ Outline Dimension\_ 외형도

### 2000~3200A Draw Out

Unit : mm

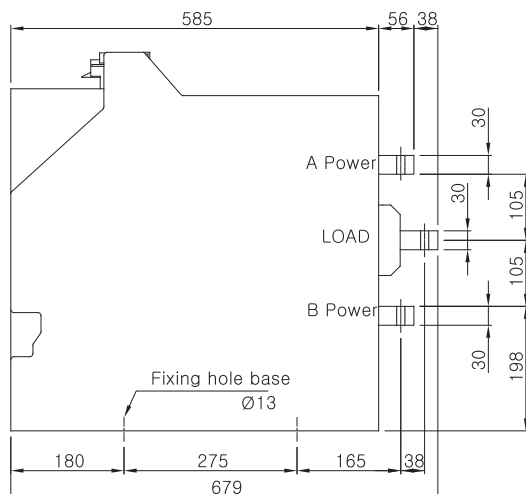


R S T N (4P)  
R S T (3P)

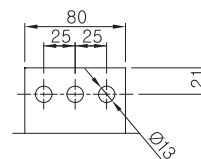
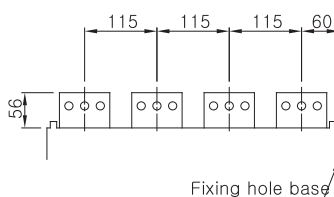


| Current | T  |
|---------|----|
| 2000A   | 15 |
| 2500A   | 24 |

### OSS-620~625-PCN



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



### OSS-632-PCN

# OSS - PCN Type

Automatic Transfer Switches 40 | 41

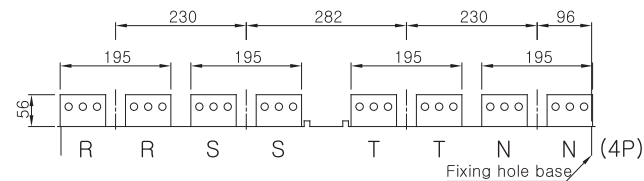
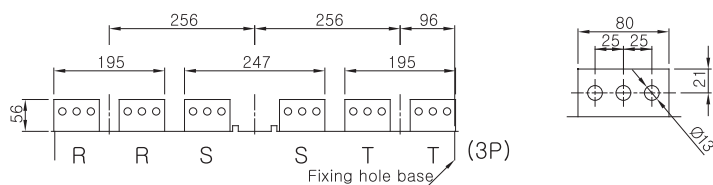
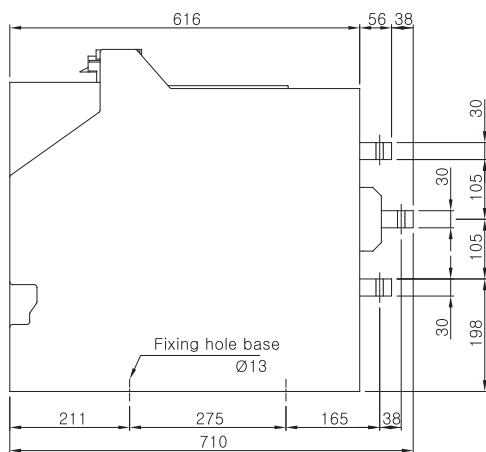
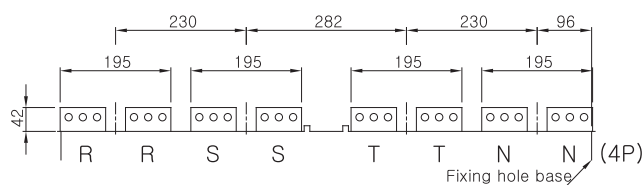
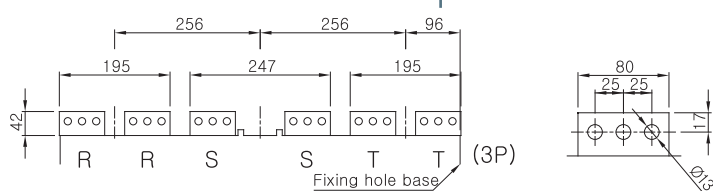
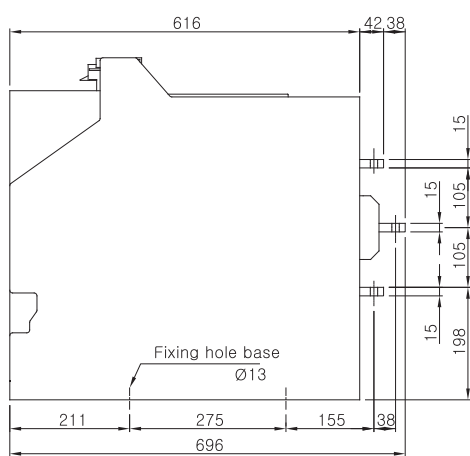
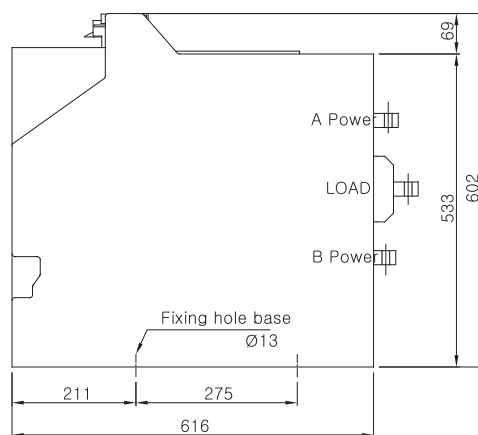
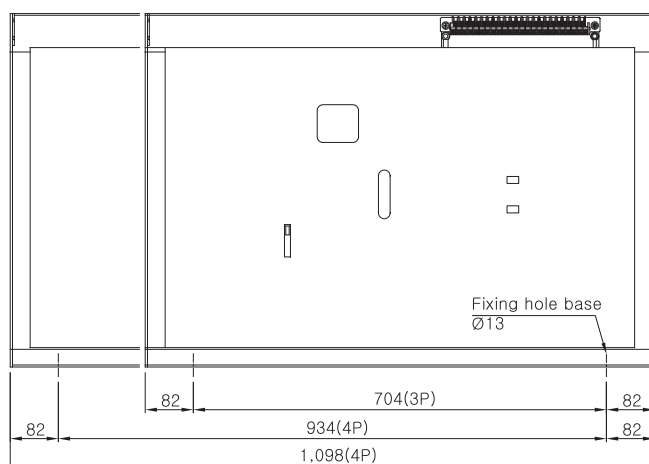
ATS(800~6300A)



## ◆ Outline Dimension\_ 외형도

### 4000~6300A Draw Out

Unit : mm



### OSS-640-PCN

### OSS-650~663-PCN

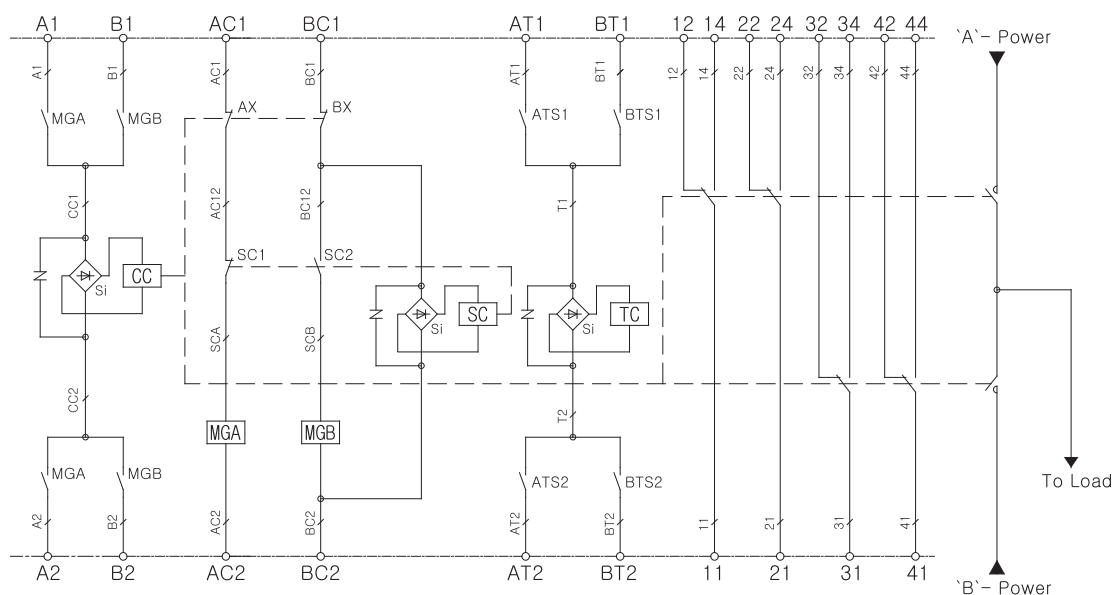
# OSS - PCN Type

ATS(800~6300A)

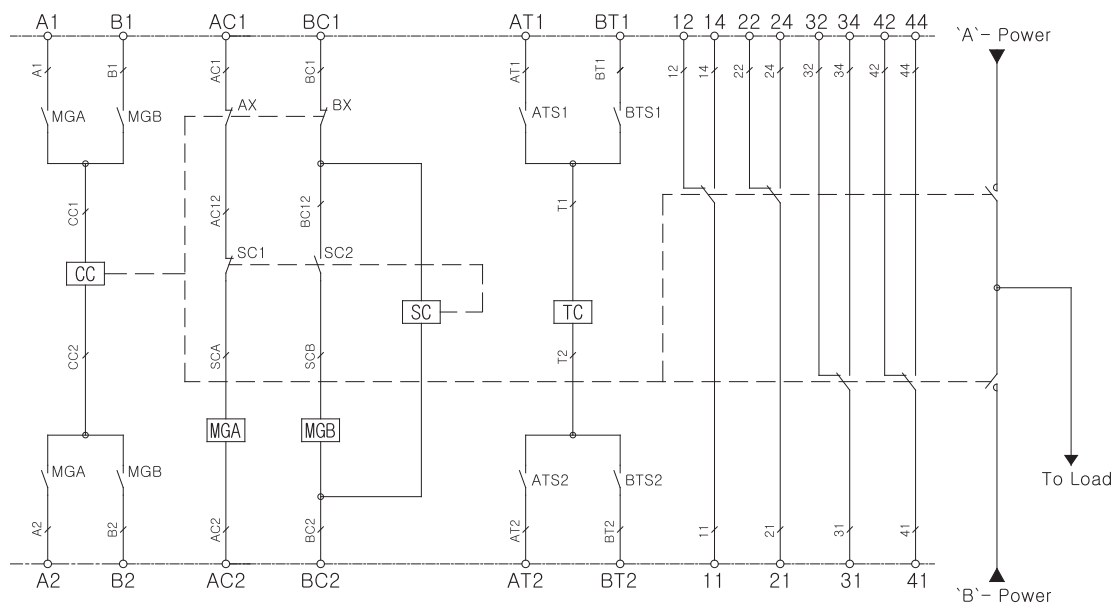


## Circuit Diagram (회로도) 800A~1600A Fixed

### AC 110V, AC 220V



### DC 110V, DC 125V



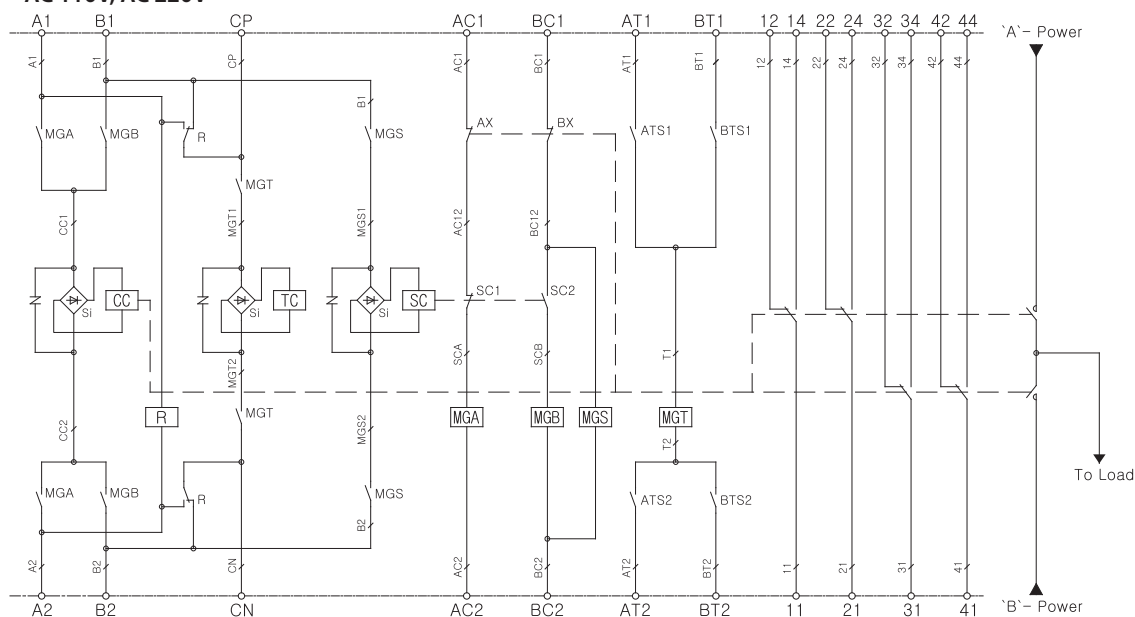
|          |                           |            |                                 |
|----------|---------------------------|------------|---------------------------------|
| A1, A2   | A-Power Terminal          | MGA        | A-Power Closing Magnetic Coil   |
| B1, B2   | B-Power Terminal          | 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               |



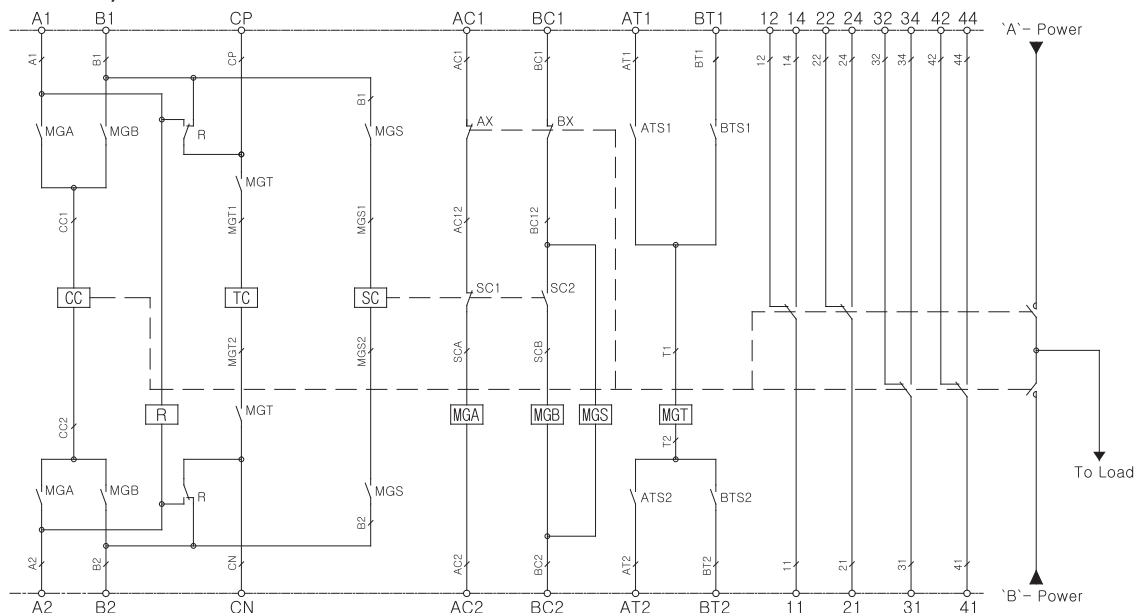
## ATS(800~6300A)

### 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               |

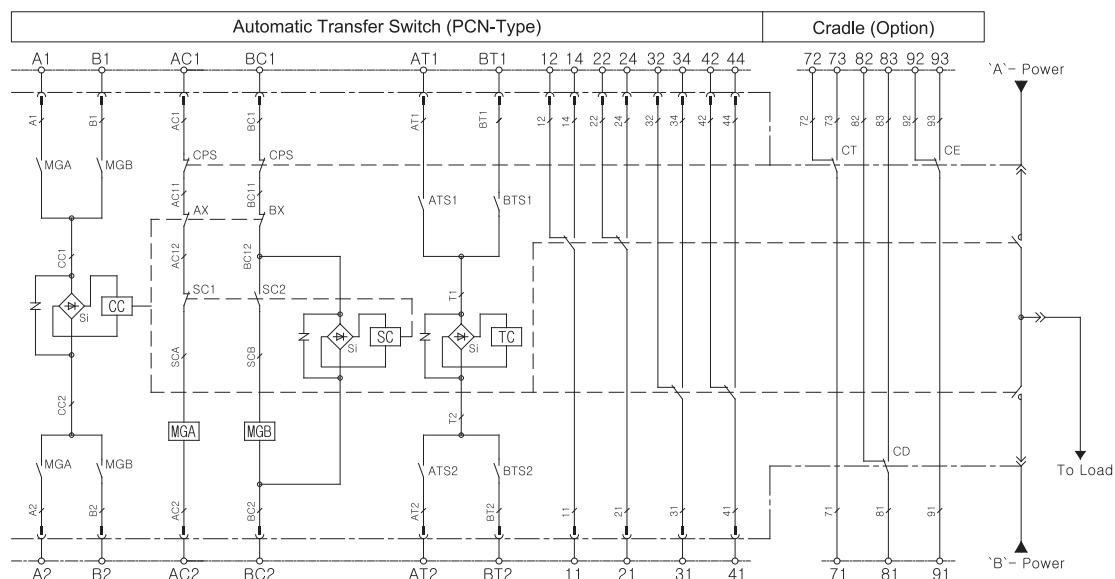
# OSS - PCN Type

ATS(800~6300A)

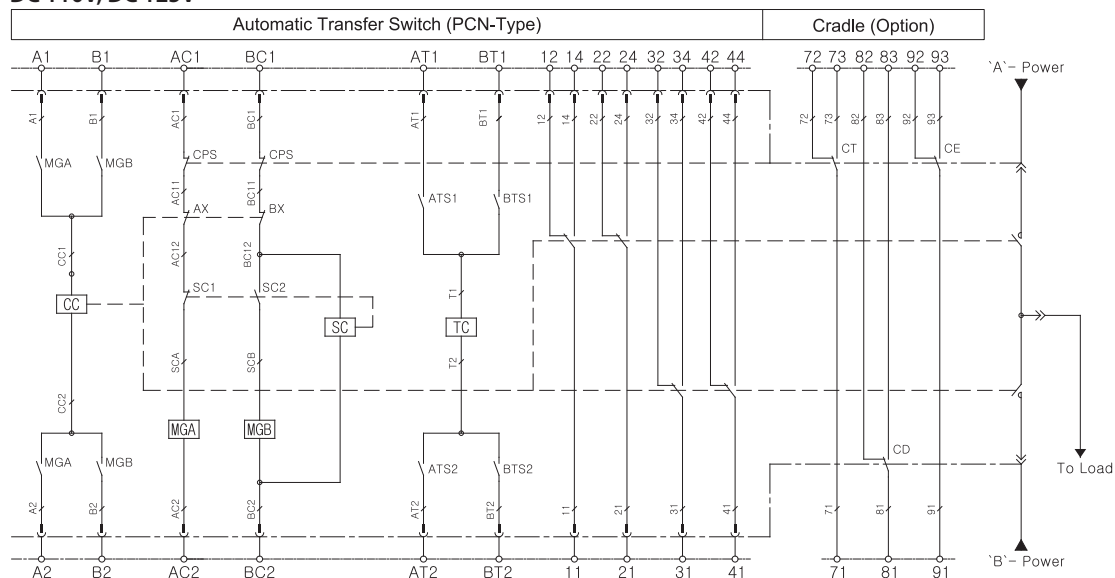


## Circuit Diagram (회로도) 800A~1600A Draw Out

AC 110V, AC 220V



DC 110V, DC 125V



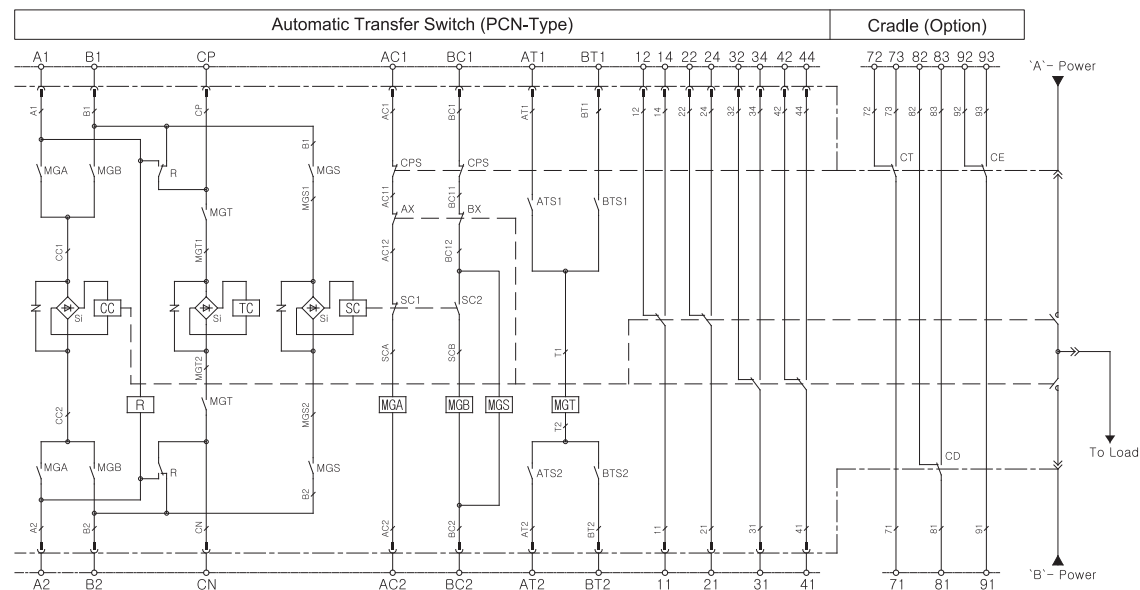
|          |                               |            |                                   |
|----------|-------------------------------|------------|-----------------------------------|
| A1, A2   | A-Power Terminal              | AX, BX     | Controller Switch                 |
| B1, B2   | B-Power 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    |



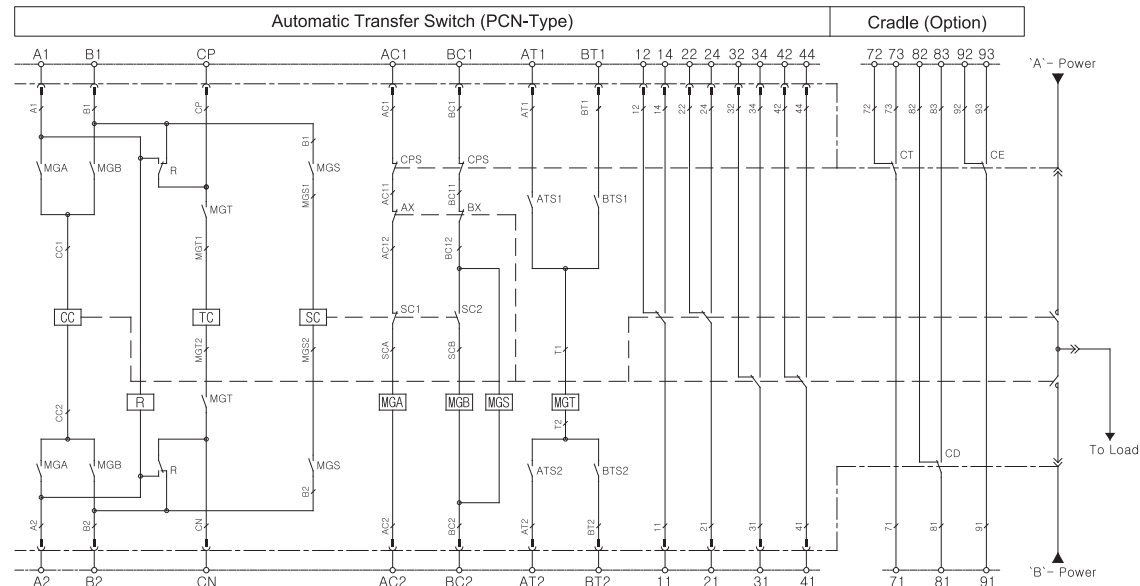
## ATS(800~6300A)

### 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    |

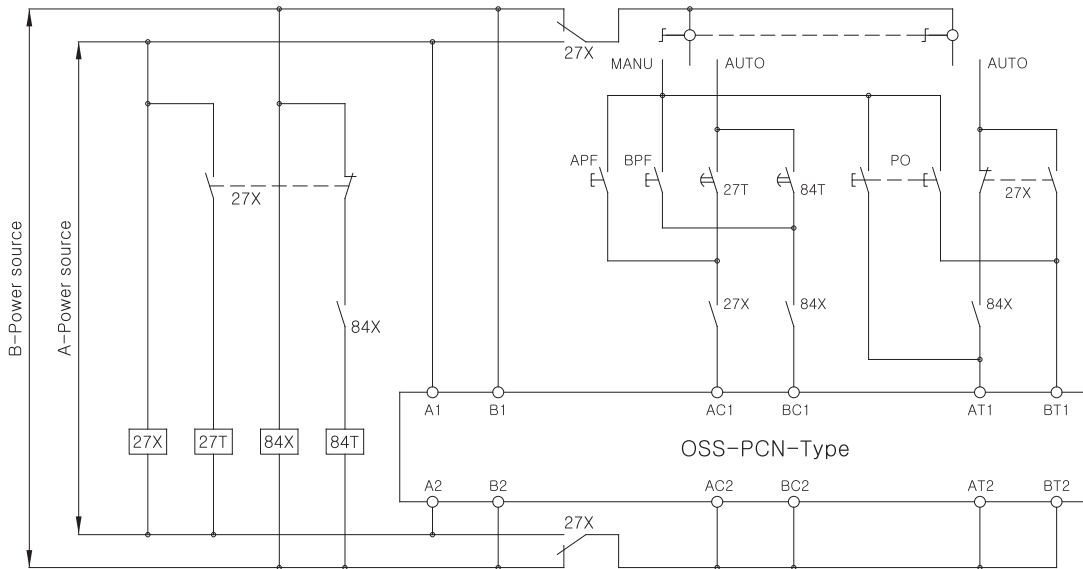
# OSS - PCN Type

ATS(800~6300A)

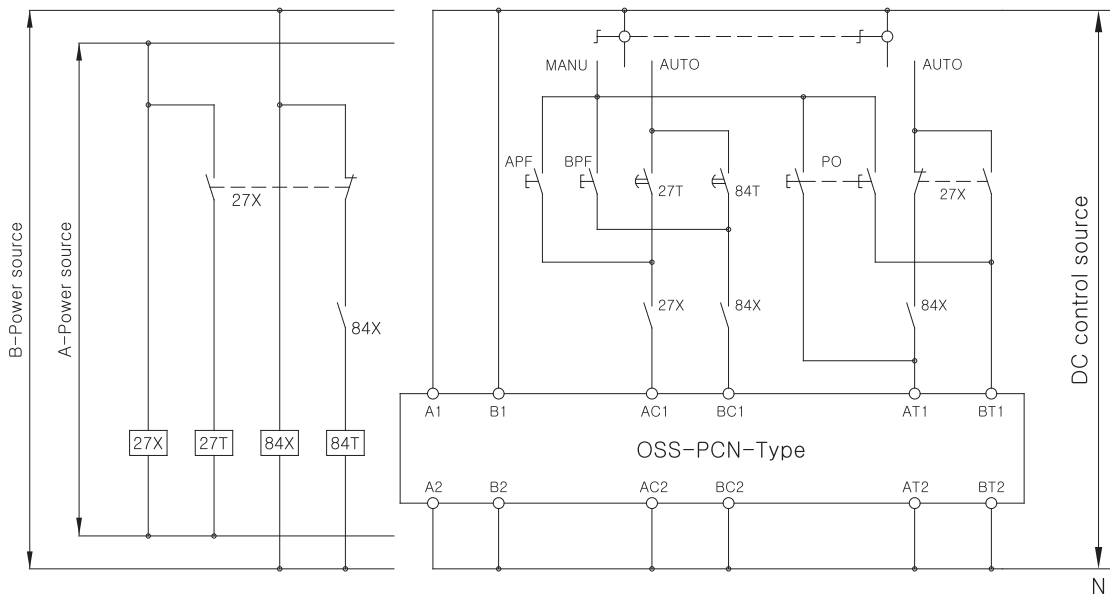


## Wiring Diagram (결선도) 800A~1600A

AC 110V, AC 220V



DC 110V, DC 125V



|     |                          |            |                             |
|-----|--------------------------|------------|-----------------------------|
| 27X | Source-A Operating Relay | AUT1, 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 |

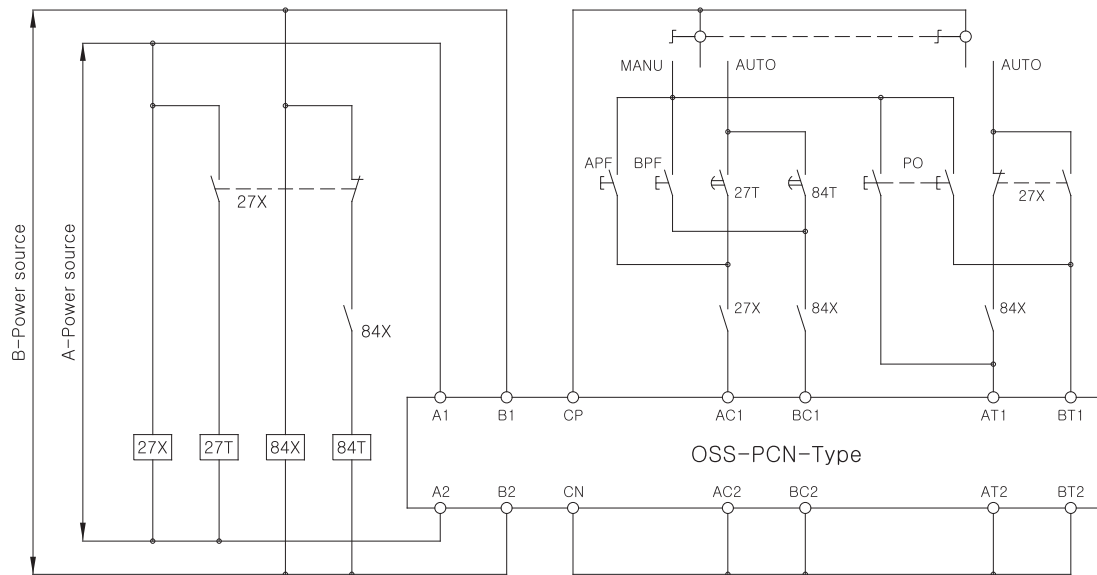
※ Caution : More than 2.5 mm<sup>2</sup> Power Cable used for 1600A ATS or Less.  
ATS 1600A 이하 사용 시 전선의 굵기는 2.5 mm<sup>2</sup> 이상 사용합니다.



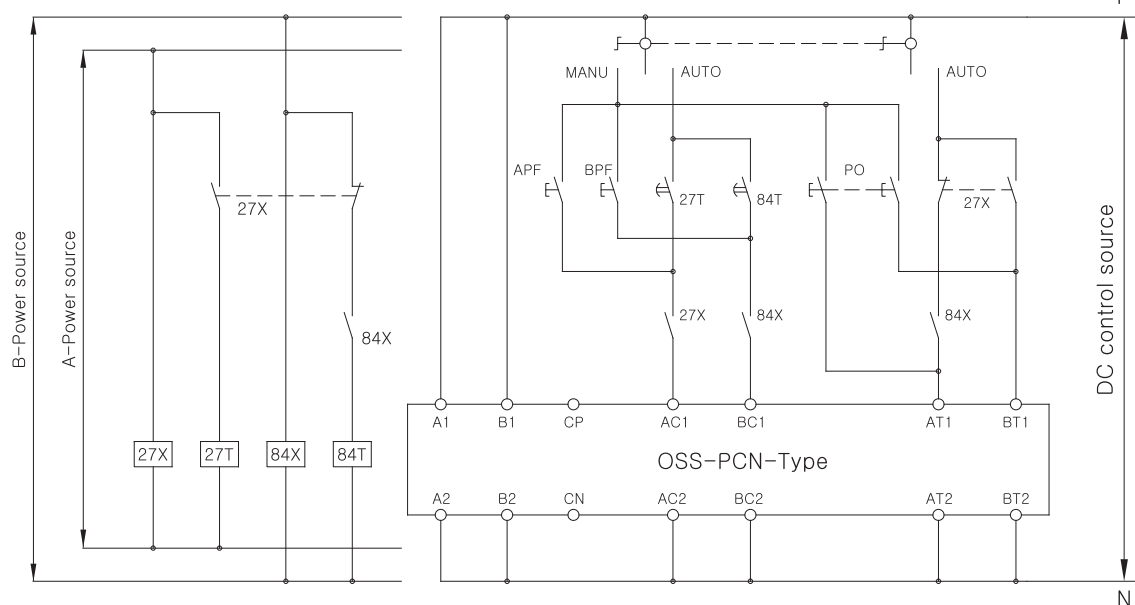
## ATS(800~6300A)

### 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 mm<sup>2</sup> power cable used for 2000A ATS or Over.  
ATS 2000A 이상 사용 시 전선을 굽기는 선의 굵기는 4.0 mm<sup>2</sup> 이상 사용합니다.

More than 6.0 mm<sup>2</sup> power cable used for 4000A ATS or Over.  
ATS 4000A 이상 사용 시 전선을 굽기는 선의 굵기는 6.0 mm<sup>2</sup> 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

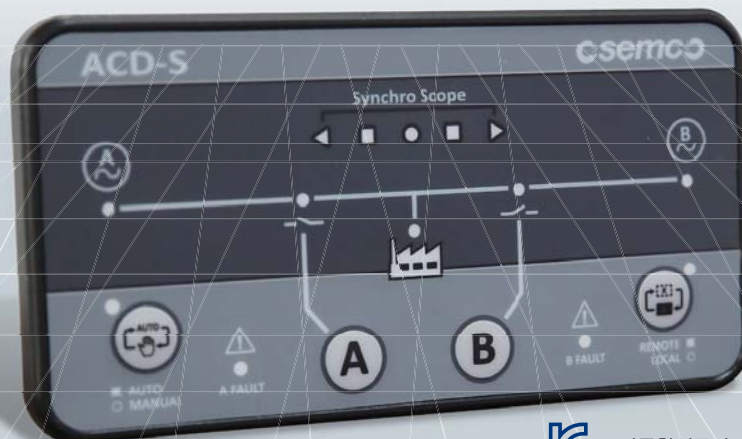
- **C** : RS 485
- **B** : By-pass ATS
- **CB** : RS 485 + By-pass ATS
- **-** : None (무표시)

### III Wiring Cable 배선용

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

## ◆ Basic Function\_ 기본기능

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





# ATS Controller

Automatic Transfer Switches 48 | 49

## ACD

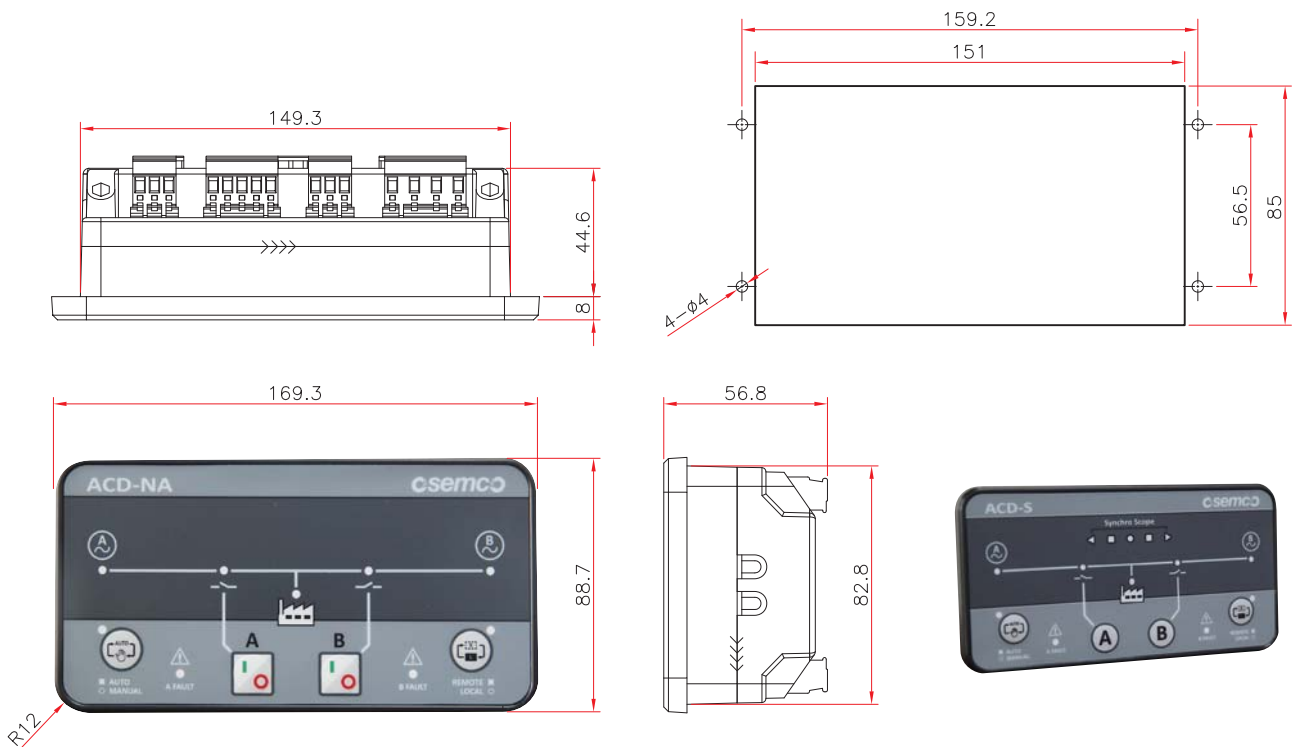
### ◆ Comparative Summary\_ 제품별 기능 및 적용

| Classification (구분)          |                                              | ACD-A            | ACD-S            | ACD-III          | ACD-III-D            | ACD-NA           | ACD-NS           |
|------------------------------|----------------------------------------------|------------------|------------------|------------------|----------------------|------------------|------------------|
| Function<br>기능               | Transition Method<br>절제 방법                   | A ↔ B            | A ↔ B            | A ↔ B            | A ↔ B<br>A ↔ OFF ↔ B | A ↔ OFF ↔ B      | A ↔ OFF ↔ B      |
|                              | Synchronized Transition<br>동기 절제             | X                | O                | X                | X                    | X                | O                |
|                              | Remote Control (Communication)<br>원격 제어 (통신) | △ (Optional)     | O                | △ (Optional)     | O                    | △ (Optional)     | O                |
|                              | By-pass ATS Interface<br>바이패스 인터페이스          | △ (Optional)     | O                | X                | O                    | △ (Optional)     | O                |
|                              | Automatic Control Fault Alarm<br>자동운전 고장경보   | O                | O                | O                | O                    | O                | O                |
|                              | Priority Selection<br>우선권 선택                 | O                | O                | O                | O                    | O                | O                |
|                              | Voltage Setting<br>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<br>주파수 설정 (50/60)          | O                | O                | O                | O                    | O                | O                |
|                              | Over-voltage Sensing<br>과전압 감지               | O                | O                | O                | O                    | O                | O                |
|                              | Under-voltage Sensing<br>저전압 감지              | O                | O                | O                | O                    | O                | O                |
|                              | Low-frequency Sensing<br>저주파수 감지             | O                | O                | O                | O                    | O                | O                |
|                              | High-frequency Sensing<br>과주파수 감지            | O                | O                | O                | O                    | O                | O                |
|                              | Time Setting Range<br>시간 설정 범위               | 0~99sec          | 0~99sec          | 0~99sec          | 0~90min              | 0~99sec          | 0~99sec          |
|                              | Sensing three phases of A-Power<br>A측 3상 감지  | X                | X                | O                | O                    | X                | X                |
| Applicable<br>Models<br>적용제품 | Generator Starting Contact<br>발전기동 접점        | X                | X                | O                | O                    | X                | X                |
|                              | 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 consultation.

### ◆ Outline Dimension\_ 외형도

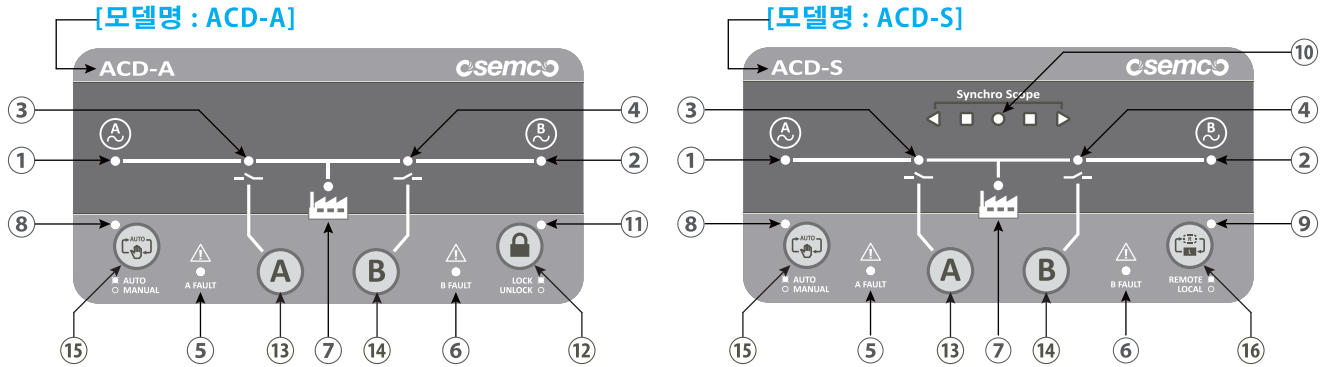


# ATS Controller

## ACD-A / ACD-S



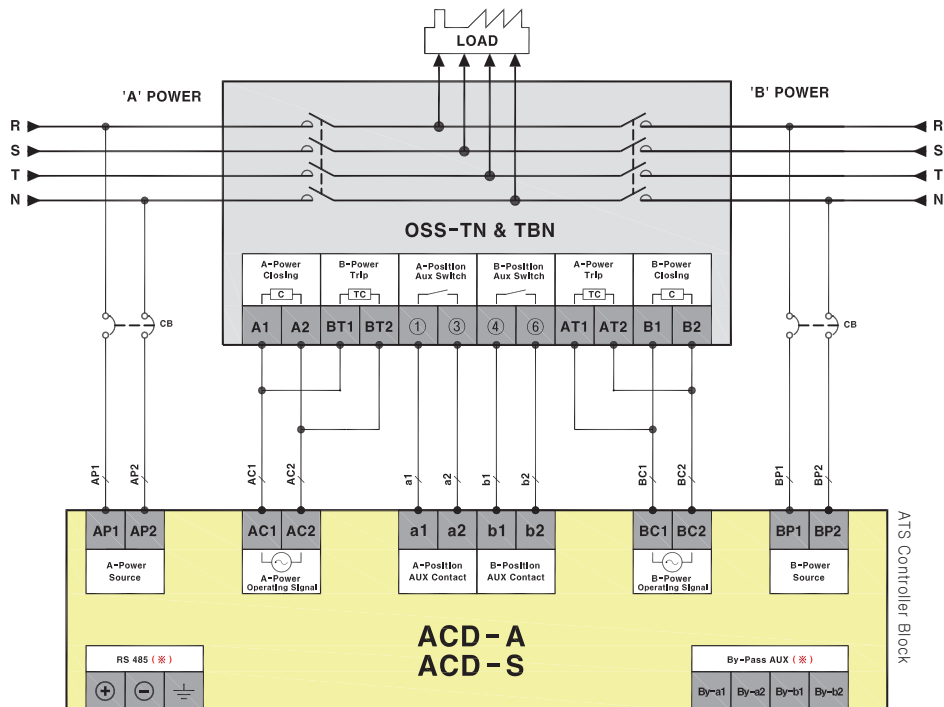
### ◆ External View\_ 외관명칭



|                             |                           |                                |                                 |
|-----------------------------|---------------------------|--------------------------------|---------------------------------|
| 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



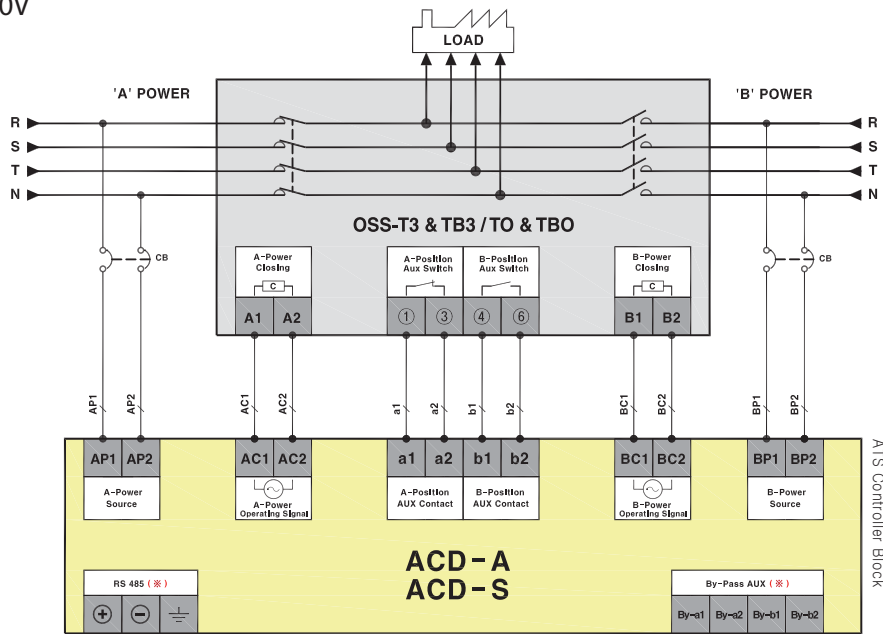
※ ACD-A모델의 RS485통신 및 By-pass AUX 단자는 옵션사양입니다. ※ RS 485 and By-pass AUX Terminals on the ACD-A is optional.



## ACD-A / ACD-S

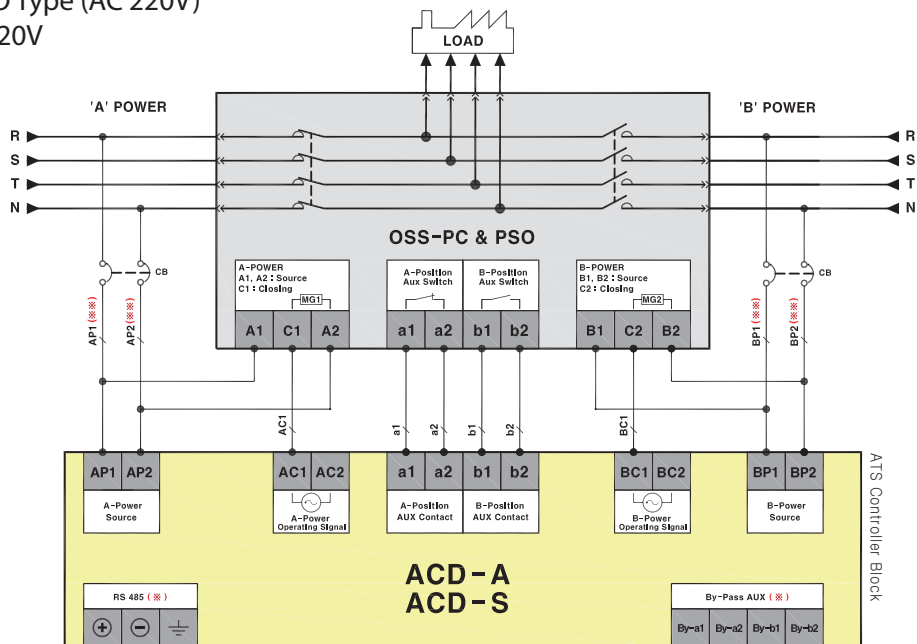
### Wiring Diagram (결선도)

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 2.5mm<sup>2</sup> 이상 사용합니다.  
ATS 2000A 이상 사용 시 전선의 굵기는 4.0mm<sup>2</sup> 이상 사용합니다.  
ATS 4000A 이상 사용 시 전선의 굵기는 6.0mm<sup>2</sup> 이상 사용합니다.

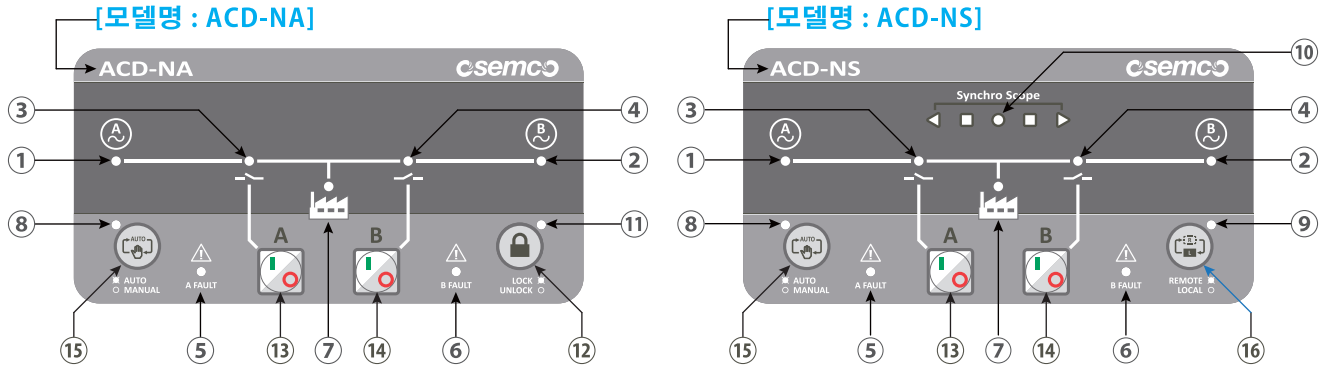
※ More than 2.5mm<sup>2</sup> power cable used for 1600A ATS or less.  
More than 4.0mm<sup>2</sup> power cable used for 2000A ATS or over.  
More than 6.0mm<sup>2</sup> power cable used for 4000A ATS or over.

# ATS Controller

## ACD-NA / ACD-NS



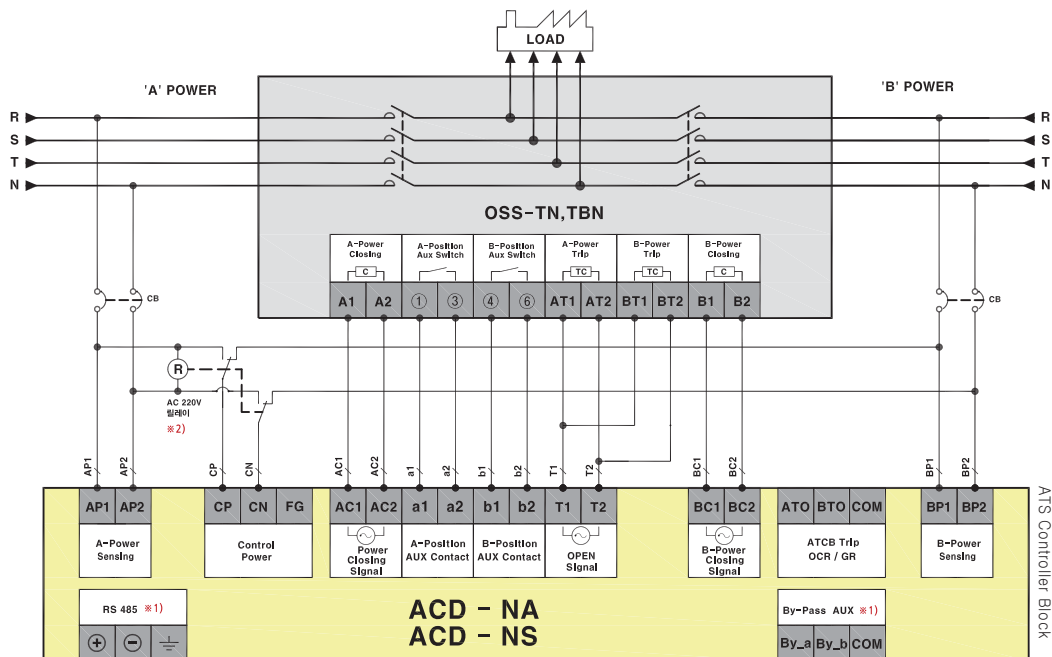
### ◆ External View\_ 외관명칭



|                             |                           |                                |                                 |
|-----------------------------|---------------------------|--------------------------------|---------------------------------|
| 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 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



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.

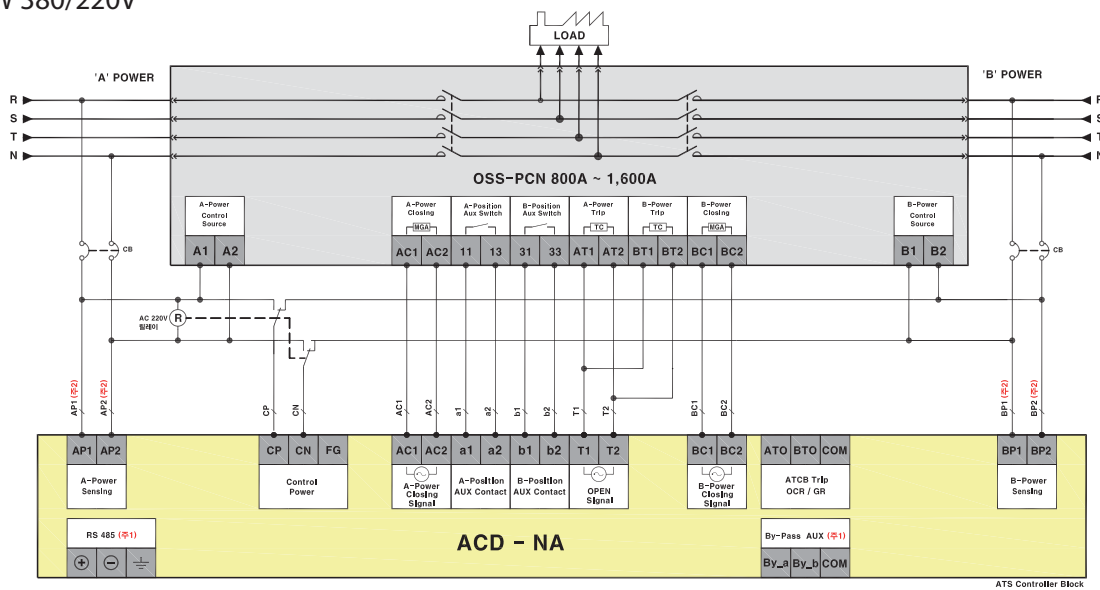
Relay or Magnet Contacts have to be used more than AC 220V 10A.

## ACD-NA



### Wiring Diagram (결선도)

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



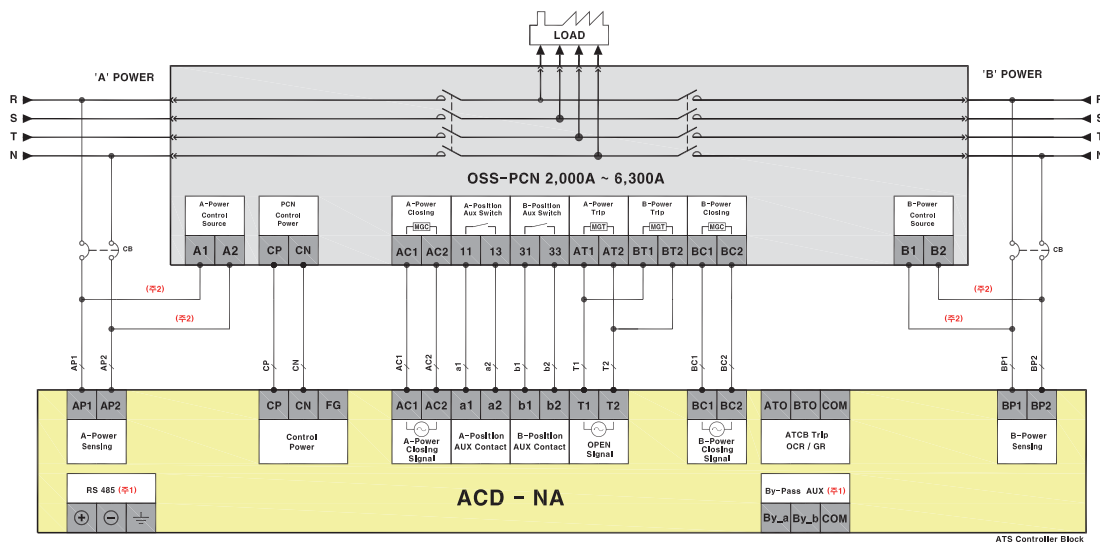
FG(Frame Ground) : 접지단자입니다.

- ※ 1) ACD-NA 모델의 RS485 통신 및 By-pass AUX 단자는 옵션 사양입니다.
- ※ 2) 전선의 굵기는 2.5mm<sup>2</sup> 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 2.5mm<sup>2</sup> 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-NA 모델의 RS485 통신 및 By-pass AUX 단자는 옵션 사양입니다.
- ※ 2) ATS 3200A 이상 사용 시 전선의 굵기는 4.0mm<sup>2</sup> 이상 사용합니다.  
ATS 4000A 이상 사용 시 전선의 굵기는 6.0mm<sup>2</sup> 이상 사용합니다

FG(Framd Ground) : The ground terminal.

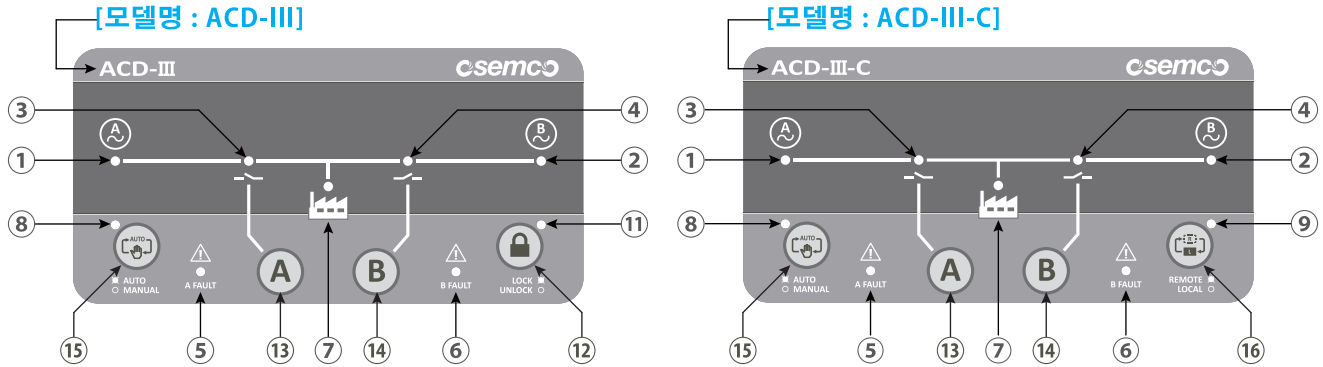
- ※ 1) RS 485 and By-pass AUX Terminals on the ACD-NA is optional.
- ※ 2) More than 4.0mm<sup>2</sup> power cable used for 3200A ATS or over.  
More than 6.0mm<sup>2</sup> power cable used for 4000A ATS or over.

# ATS Controller

## ACD-III



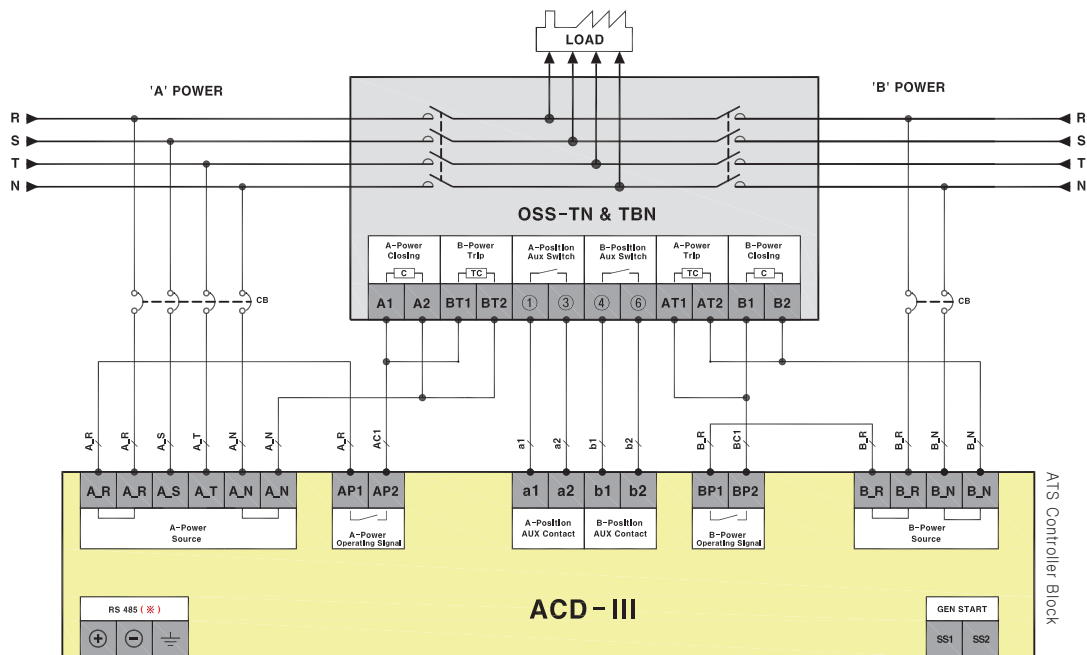
### ◆ External View\_ 외관명칭



|                             |                           |                                |                                 |
|-----------------------------|---------------------------|--------------------------------|---------------------------------|
| 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 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



※ RS485 통신 단자는 ACD-III-C 사양입니다.

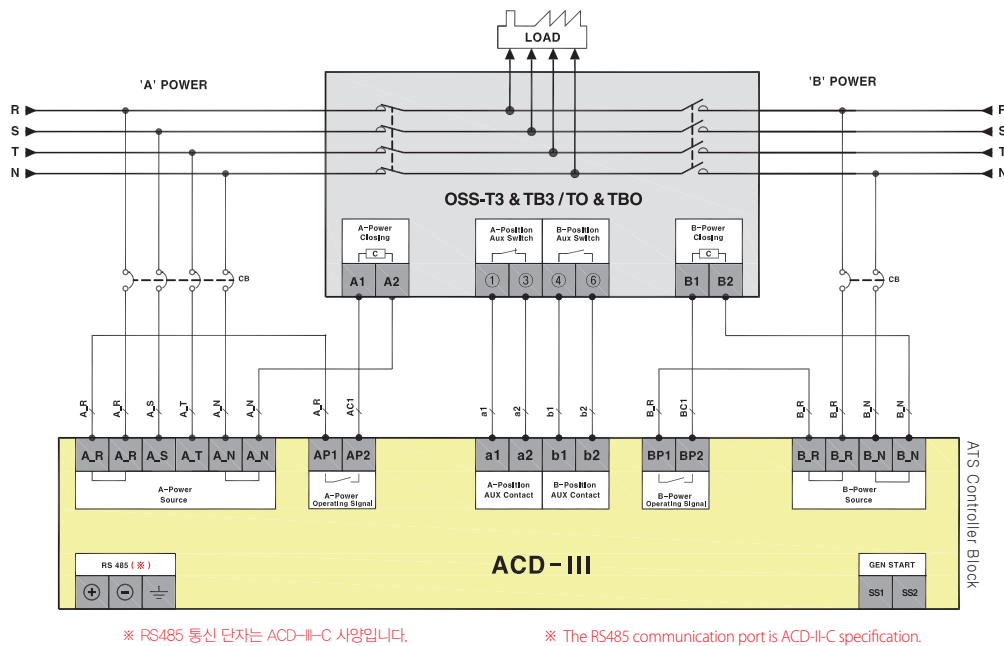
※ The RS485 communication port is ACD-III-C specification.



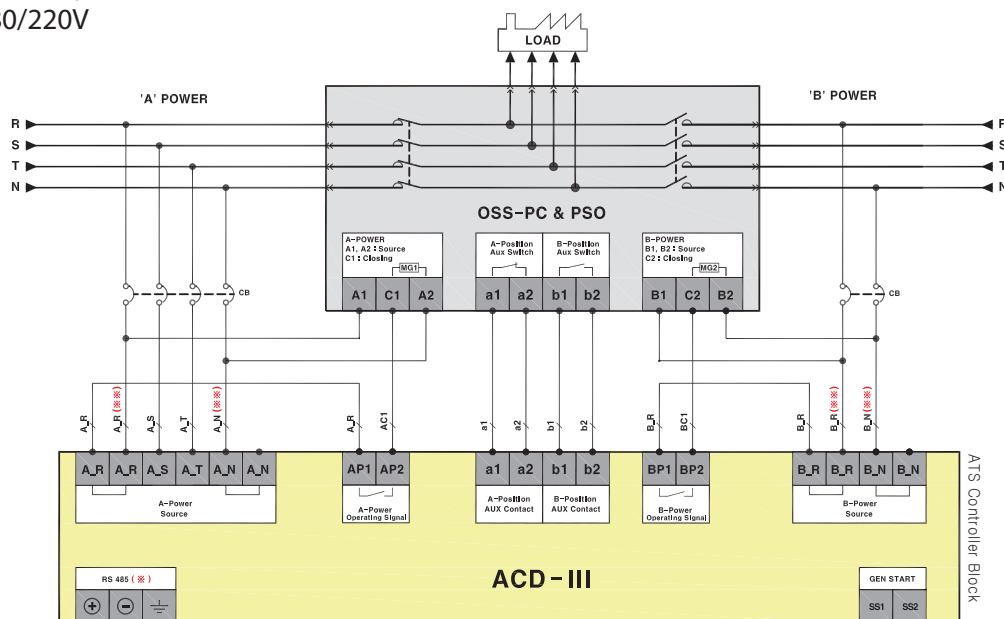
## ACD-III

### Wiring Diagram (결선도)

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



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



※ ATS 1600A 이하 사용 시 전선의 굵기는 2.5mm<sup>2</sup> 이상 사용합니다.  
ATS 2000A 이상 사용 시 전선의 굵기는 4.0mm<sup>2</sup> 이상 사용합니다.  
ATS 4000A 이상 사용 시 전선의 굵기는 6.0mm<sup>2</sup> 이상 사용합니다.

※ More than 2.5mm<sup>2</sup> power cable used for 1600A ATS or less.  
More than 4.0mm<sup>2</sup> power cable used for 2000A ATS or over.  
More than 6.0mm<sup>2</sup> 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<br>버튼 모양 | Button Name<br>버튼 이름                                                    | Function of Button<br>버튼 동작 설명                                                                                                                                                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | ATS "A"(Normal)<br>Manual Control Button<br>ATS "A"(상용)측<br>수동제어 버튼     | Manual input or manual open ATS to "A"(Normal) on manual condition ( Operate after pressing about 0.5 seconds )<br><b>* ON(input) function can be used according to ATS model or Operation set-up.</b><br>수동모드에서 ATS를 "A"(상용)측으로 수동 투입 또는 수동 오픈 시킴 ( 약 0.5초간 누를 경우 동작 )<br><b>* ATS 모델 및 조작 설정에 따라 ON(투입) 기능만 사용 될 수 있습니다.</b>   |
|                       | ATS "B"(Generating)<br>Manual Control Button<br>ATS "B"(발전)측<br>수동제어 버튼 | Manual input or manual open ATS to "B"(Generating) on manual condition ( Operate after pressing about 0.5 seconds )<br><b>* ON(input) function can be used according to ATS model or Operation set-up.</b><br>수동모드에서ATS를 "B"(발전)측으로 수동 투입 또는 수동 오픈 시킴 ( 약 0.5초간 누를 경우 동작 )<br><b>* ATS 모델 및 조작 설정에 따라 ON(투입) 기능만 사용 될 수 있습니다</b> |
|                       | Test<br>테스트                                                             | Use or cancel the automatic test to "B"(Generating) on automatic mode ( Operate after pressing about 0.5 seconds )<br>자동모드에서 "B"(발전)측으로 자동 테스트 사용 또는 해지<br>( 약 0.5초간 누를 경우 동작 )                                                                                                                                                  |
|                       | Override<br>즉시실행                                                        | Use it when you ignore the set-up time to operate immediately on automatic mode.<br>자동모드에서 지연 대기 중인 설정 시간을 무시하고 즉시 진행할 경우 사용.                                                                                                                                                                                                    |

### ◆ Set-up Button\_ 설정버튼

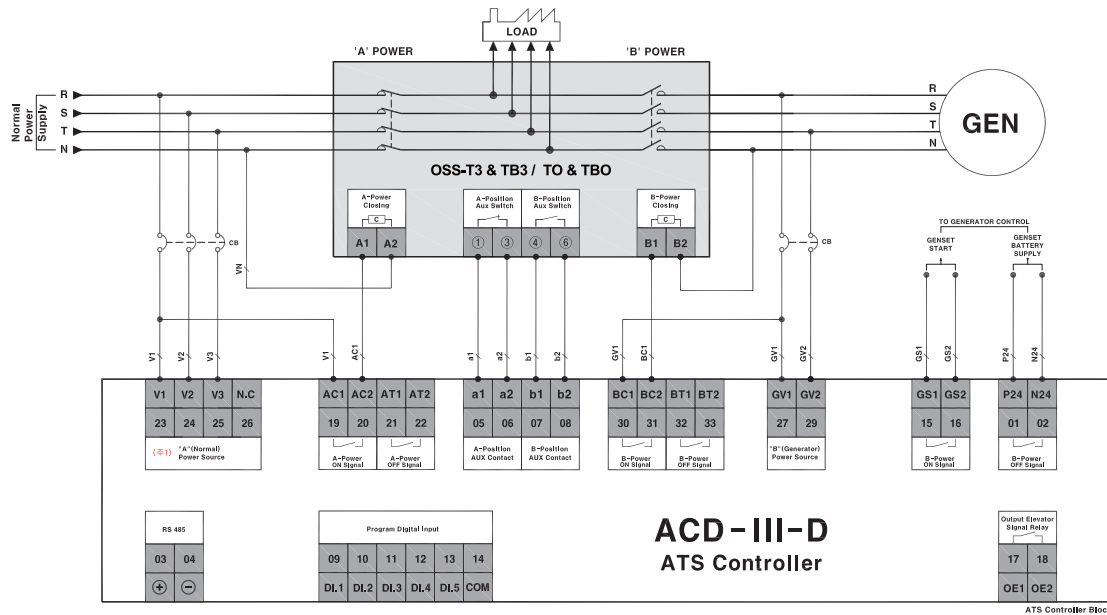
| Button Shape<br>버튼 모양 | Button Name<br>버튼 이름     | Function of Button<br>버튼 동작 설명                                                                                                                                                                                                                         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



## ACD-III-D

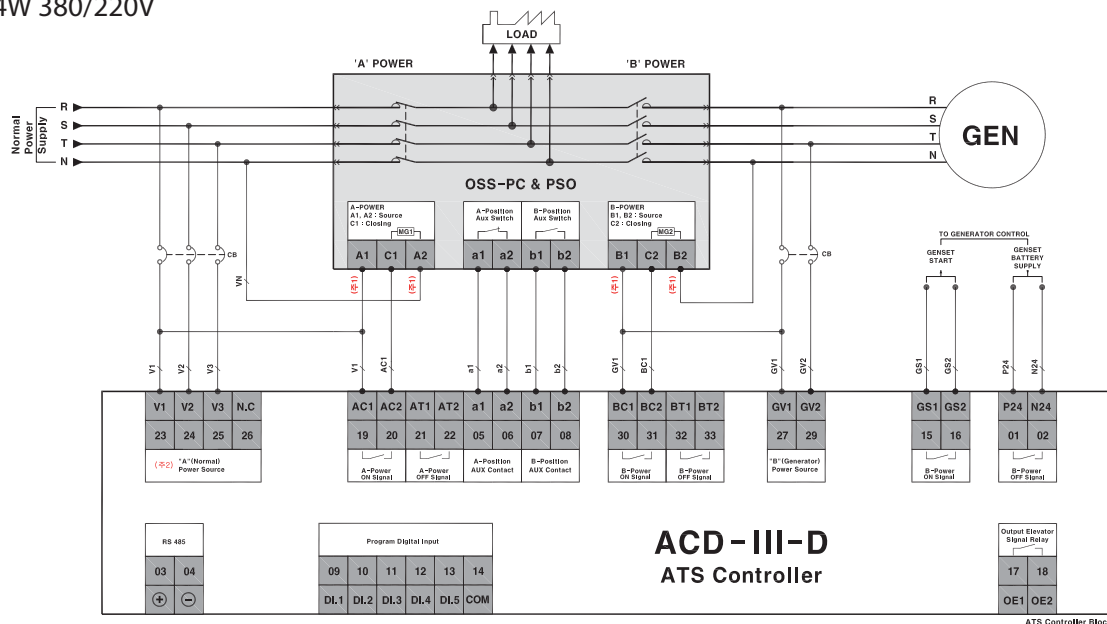
### Wiring Diagram (결선도)

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 2.5mm<sup>2</sup> 이상 사용합니다.  
ATS 2000A 이상 사용 시 전선의 굵기는 4.0mm<sup>2</sup> 이상 사용합니다.  
ATS 4000A 이상 사용 시 전선의 굵기는 6.0mm<sup>2</sup> 이상 사용합니다.

※ More than 2.5mm<sup>2</sup> power cable used for 1600A ATS or less.  
More than 4.0mm<sup>2</sup> power cable used for 2000A ATS or over.  
More than 6.0mm<sup>2</sup> power cable used for 4000A ATS or over.

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

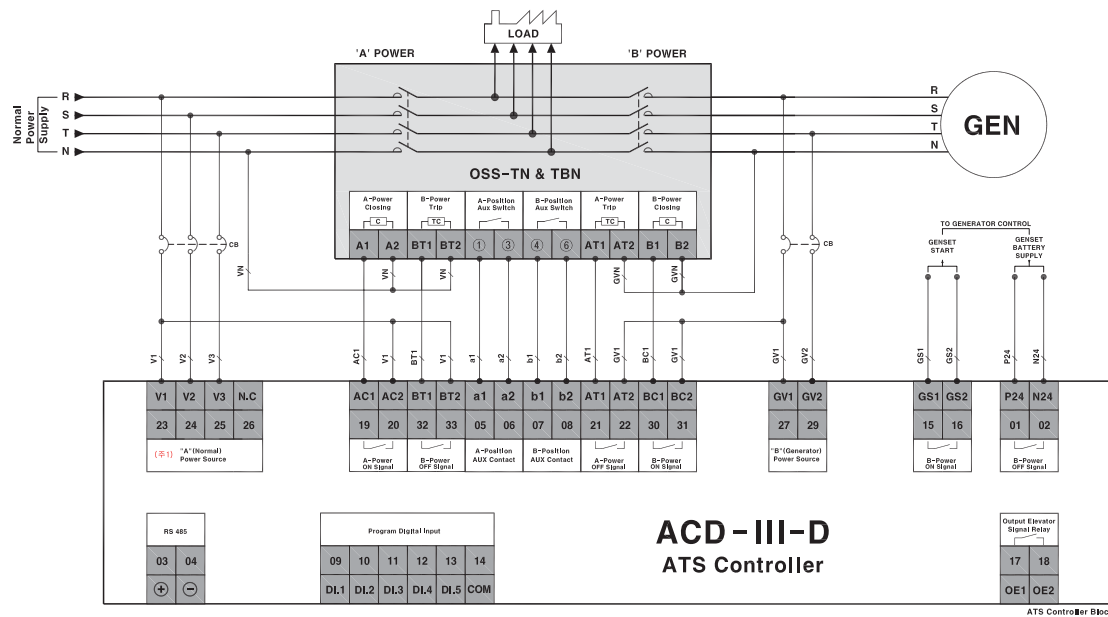
# ATS Controller

## ACD-III-D



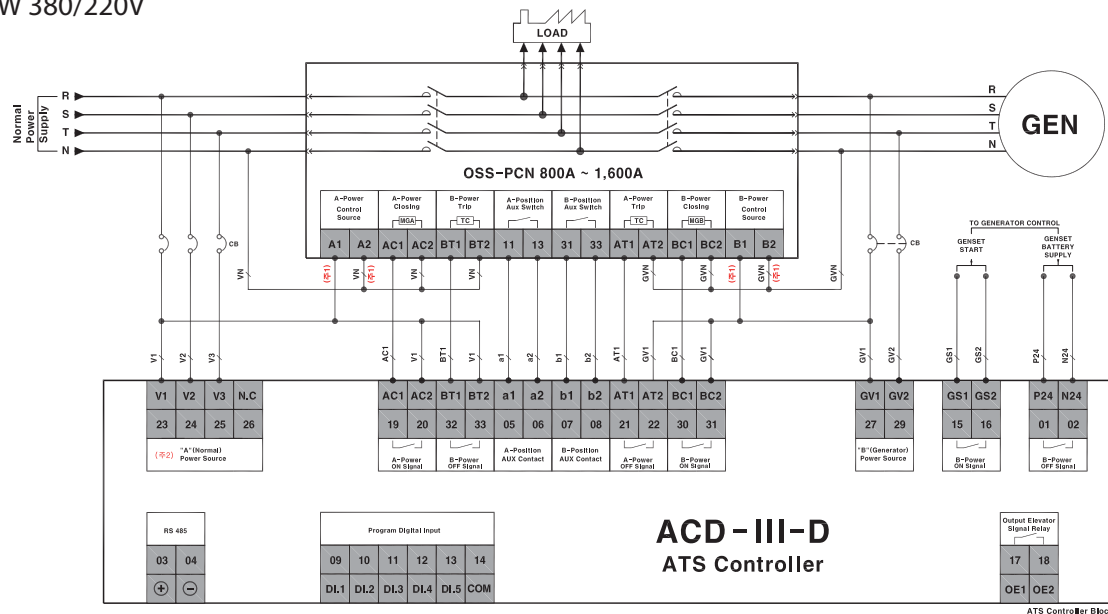
### Wiring Diagram (결선도)

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 2.5mm<sup>2</sup> 이상 사용합니다.

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

※ More than 2.5mm<sup>2</sup> power cable used for 1600A ATS or less.



## ▶ 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 +35°C 이하)
- 표고 2000m 이하
- 환경조건
- 최대온도 +40°C에서 상대습도 85%이하, 20°C에서는 90%이하
- 유화, 암모니아 및 부식성가스 범위에서는 사용 또는 보관 불가  $H_2S \leq 0.01ppm$ ,  $SO_2 \leq 0.01ppm$ ,  $NH_3 \leq a \text{ few ppm}$
- 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 토크\_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  $220 \times 4 \times 0.5 = 440VA$ , TR capacity of more than 440 VA is recommended.

## ▶ 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  $220 \times 4 \times 0.5 = 440VA$   
440VA 이상의 TR을 사용하여 주십시오.

## ▶ 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.

## ▶ 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 전압확인 Relay를 사용하여 주십시오.



## 기술자료 | ATS 선정 시 고려사항

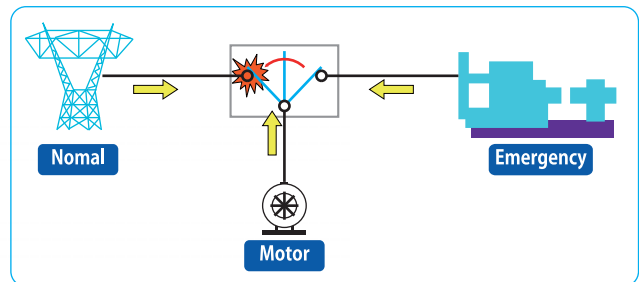
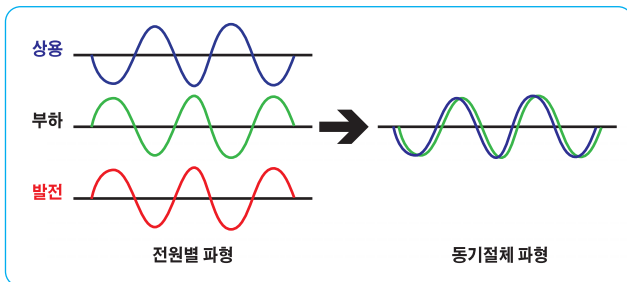
### 동기절체 기능을 갖는 ATS (ATS + 동기 컨트롤러)

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)

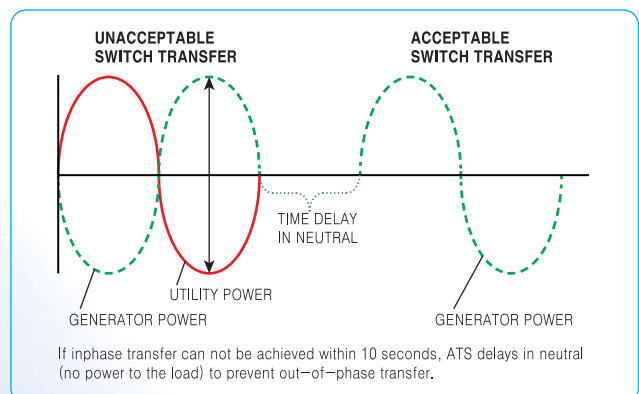
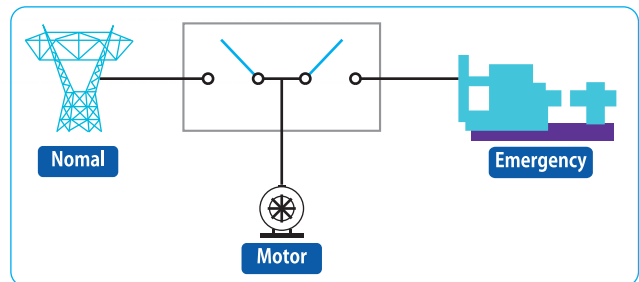


### 중간정지형 ATS (적용모델 : TN, TBN, PCN, ATCB 등)

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

이때, 전동기는 발전기로 동작하게 되며 모션 측으로 역기전력(BEMF)이 유기되므로 ATS를 중립위치에 위치하여 모션 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 발생할 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 발생할 수 있는 급박한 상황

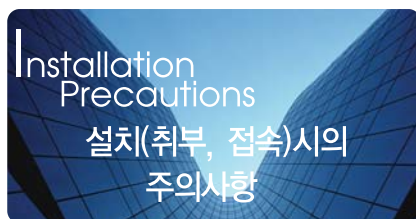
These safety notices are devised as "Danger" and "Caution" according to the hazard level.

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 unusual conditions.  
**Installation in such areas could cause a fire or malfunction.**
- Be careful to prevent foreign material of debris, concrete powder, iron powder, etc and rainwater from entering into the ATS.  
**These materials inside the ATS could cause a fire or malfunction.**
- For 4 pole ATS, connect the neutral wire of 3-phase, 4-wire cable to N-phase (on the right side).
- 설치는 유자격자 (전기공사기사, 전기공사기능사)가 행하십시오.
- 설치에 앞서 모든 전원을 차단하기 위해 앞단의 차단기나 또는 그러한 종류의 제품을 반드시 Open 시키십시오.  
**감전의 위험이 있습니다.**
- 단자 Bolt는 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 발생할 수 있습니다.**
- 먼지, 콘크리트가루, 철분 등의 이물질 및 빗물 등이 ATS내부에 들어가지 않도록 시공하십시오.  
**화재 및 오동작이 발생할 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 조작하십시오.



### 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 주십시오.  
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.  
전류 열에 의해 화상의 위험이 있습니다.
- 절체중 소호실 아크가스 배출구에 신체를 근접하지 마십시오.  
전류차단시 고온가스가 배출되어 화상의 위험이 있습니다.



O-Sung Electric Machinery Co., Ltd.  
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