



AIRPAX® | SAR/SAS Series

Hydraulic Magnetic Circuit Protectors

INTRODUCTION

The Airpax™ SAR and SAS circuit protectors provide protection from over-current conditions in an ultra-compact package. The SAR and SAS are the standard products, the SUR and SUS have both RŪ and CSA approvals, and the SER and SES carry RŪ, CSA and TÜV approvals.

Typical applications include tight spaces in radio signal amplifiers for base transceiver stations, uninterruptible power supplies, thin-type power supplies, office equipment, and entertainment equipment.

FEATURES

- Ultra-compact and ultralight circuit protectors with reinforced insulation and an electromagnetic safety system
- Smallest hydraulic 20A rating circuit protector (SAR) and 15A rating circuit protector (SAS) in the world
- Trip-free function, smooth handle action
- Conforms to IEC950

SPECIFICATIONS

| | |
|--|---|
| Maximum Rated Current / Voltage | 20A (125 VAC), 15A (250VAC, 32VDC), 30A (50VDC) |
| Number of Poles | SAR(M), SUR(M), SER(M) = 1 to 2 poles SAS(M), SUS(M), SES(M) = 1 pole |
| Operating Temperature | -25°C to 65°C |
| Operating Humidity | up to 85% |
| Breaking Capacity | 500 amps (in accordance with UL 1077 & EN60934) |
| Insulation Resistance | At least 100M with 500VDC megger |
| Dielectric Strength | VAC 50/60 Hz 1500VAC for 1 minute (RŪ/CSA/general products), VAC 50/60 Hz 3000VAC for 1 minute (TÜV products) leakage current 1mA or less. Auxiliary switch: VAC 50/60 Hz 500VAC for 1 minute |
| Vibration Resistance | Approximately 98m/s ² (10G) (Mil-STD-202 Method 201A @ I _n) |
| Shock Resistance | 490m/s ² (50G) (Mil-STD-202 Method 213 test condition A @ I _n) |
| Operational Life | At least 10,000 times (6 times per minute, ON-OFF 6,000 times @ I _n , 4,000 times under no-load condition) |
| Approvals | |

*Agency approvals: Pending

RATINGS

| Circuit Breaker | Maximum Rated Current / Voltage | | | | Breaking Capacity |
|------------------|---------------------------------|-------------------|---------|---------|-------------------|
| | 32VDC | 50VDC | 125VAC | 250VAC | |
| SAR, SUR, SER | 20 amps | — | 20 amps | 15 amps | 500 amps |
| SARM, SURM, SERM | 15 amps, 30 amps* | 15 amps, 30 amps* | — | — | 300 amps |
| SAS, SUS, SES | 15 amps | — | 15 amps | 15 amps | 500 amps |
| SASM, SUSM, SESM | 15 amps | 15 amps | — | — | 300 amps |

SAS

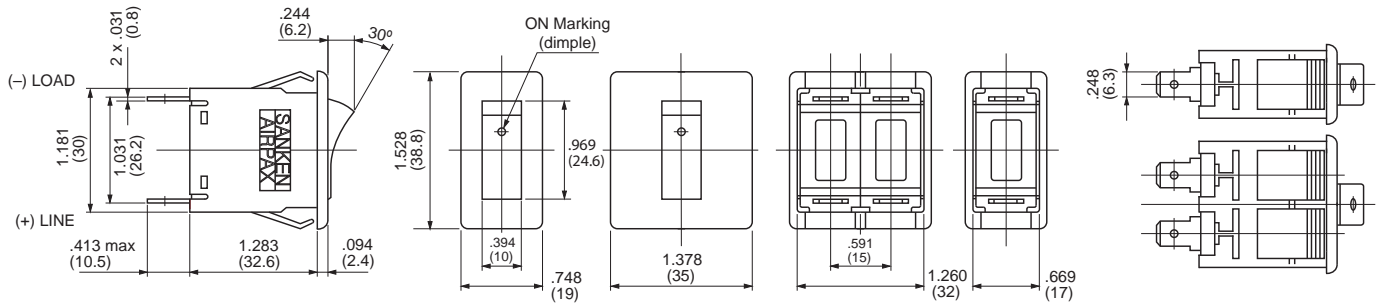


SAR

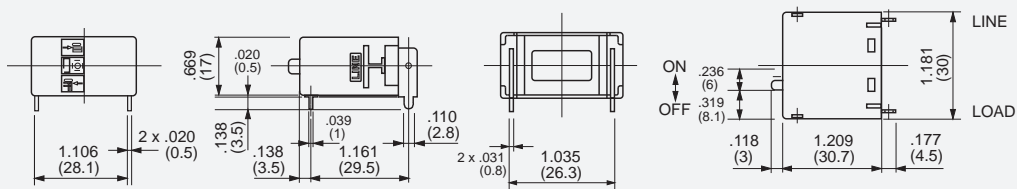


DIMENSIONAL DRAWINGS

SAR, SUR, SER, SARM, SURM, SERM *Outline drawings show quick connect specifications. Dimensions = in (mm)



SAS, SUS, SES, SASM, SUSM, SESM *Outline drawings show PCB mount. Dimensions = in (mm)



DECISION TABLES

SAR - F - 1RE 1 - 51 - 10A - 52F - 5A - BWT - AC

(handle side, left)
Pole 1
(handle side, right)
Optional Pole 2 (*2)
(handle side, left)
Pole 1
(handle side, right)
Optional Pole 2 (*2, *3)

| 1 First Decision | |
|--|-------------------------------------|
| Model | |
| Code | Description |
| SAR | General Product |
| SUR | RU / CSA approved |
| SER | RU / CSA / TÜV approved |
| SARM | General Product with magnet |
| SURM | cRUus approved with magnet |
| SERM | cRUus / TÜV approved with magnet |
| SARM, SURM, SERM: note terminals have porlarity, LINE connect to (+) | |
| SAS | General Product |
| SUS | RU / CSA approved |
| SES | RU / CSA / TÜV approved |
| SASM | General Product with magnet |
| SUSM | RU / CSA approved with magnet |
| SESM | RU / CSA / TÜV approved with magnet |
| SASM, SUSM, SESM: note terminals have porlarity, LINE connect to (+) | |

| 3 Third Decision | |
|---|--|
| Circuit type | |
| Code | Select 2 options**** |
| 0 | Switch type |
| 0RE | Switch type with auxiliary switch |
| 1 | Series type |
| 1RE | Series type with auxiliary switch |
| 1RS | Series type with alarm switch |
| 3 | Parallel type (SAR, SUR, SER, SARM, SURM, SERM only) |
| 4 | Relay type (SAR, SUR, SARM, SURM, only) |
| When the auxiliary switch or alarm switch is a gold contact, "G" is added to the symbol. For example "1REG" | |

| 4 Fourth Decision | |
|--|--|
| Trip Delay | |
| Code | Description |
| 51 | VDC medium speed |
| 52 | VDC low speed |
| 61 | VAC medium speed |
| 62 | VAC low speed |
| SP | Relay type for voltage trip (SAR, SUR, SARM, SURM, only) |
| If an inertial wheel is required, add "F" to the end of the code. Example: 62F | |
| If any switch type was selected in the 3rd decision, do not choose a trip delay (4th decision) | |

| 5 Fifth Decision | |
|------------------|--|
| Rated current* | |
| Code | |
| 0.1A | |
| 0.5A | |
| 1.0A | |
| 2.0A | |
| 3.0A | |
| 5.0A | |
| 7.5A | |
| 10.0A | |
| 15.0A | |
| 20.0A | |
| 25.0A | |
| 30.0A | |

| 7 Seventh Decision | |
|--------------------|--|
| Remarks | |
| Code | Description |
| AC | Switch type - service circuit AC |
| DC | Switch type - service circuit DC |
| A, B, D | PCB type Chose A, B, or D (SAR, SUR, SER, SARM, SURM, SERM only) |

| 6 Sixth Decision | | |
|---|------------------|---|
| Handle marking (*1) | | |
| Code | Description | |
| | No mark standard | |
| Use the options below for: SAR, SUR, SER, SARM, SURM, SERM only | | |
| BWT | Black handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| RWT | Red handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| BWY | Black handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| RWY | Red handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| BWO | Black handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| WBO | White handle | <input type="checkbox"/> On <input type="checkbox"/> Off |
| GUARD | Handle Guard | |

| 2 Second Decision | |
|-------------------|--|
| Terminal type | |
| Code | Description |
| F | 0.25" quick connect terminals (SAR, SUR, SER, SARM, SURM, SERM only) |
| P | PCB - PC board terminals |

| SAR, SUR, SER, SARM, SURM, SERM | | | | |
|--|-----------------------------------|-------------------------------|---------------|------------|
| *Rated current depends on the circuit type & circuit voltage | | | | |
| Circuit Voltage | Switch type with auxiliary switch | Series type with alarm switch | Parallel type | Relay type |
| 125VAC | Main = 20A max | 0.1 to 20A | 0.1 to 20A | 0.1 to 1A |
| 250VAC | Main = 15A max | 0.1 to 15A | 0.1 to 15A | 0.1 to 1A |
| 32VDC | Main = 15A max | 0.1 to 15A | 0.1 to 15A | 0.1 to 1A |
| 50VDC | Main = 30A max (*4) | 0.1 to 30A (*4) | ---- | ---- |
| SAS, SUS, SES, SASM, SUSM, SESM | | | | |
| 0.1 to 15A | | | | |

*1.) This decision only applies to: SAR, SUR, SER, SARM, SURM, SERM
Disregard sixth decision for: SAS, SUS, SES, SASM, SUSM, SESM

*2.) 2-pole options are only available for: SAR, SUR, SER, SARM, SURM, SERM
Disregard the pole 2 option for: SAS, SUS, SES, SASM, SUSM, SESM

*3.) If the same specifications are required in the 4th and 5th decision for each pole in a 2-pole device (example, both poles require 51-10A), do not enter a Optional Pole 2 entry into the 4th and 5th decision.

*4.) SARM - 50VDC, 30A max
SURM/SERM - 50VDC, 15A max

Example: SAR-F-1RE 1 - 51 - 10A both poles need 51-10A