

1. F-Type Operating Handle Operating handle of breaker mount type to be installed to circuit breaker body

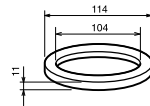
● Appearance (Color: Munsell N1.5)



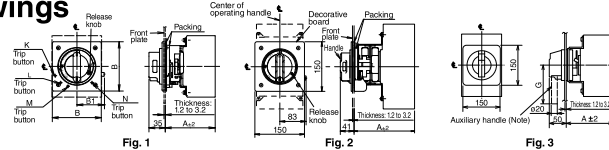
- The handle provides an isolating function in combination with the circuit breaker body (except F10SW and above).
- It has a safety device which prevents the circuit breaker turning on while the door is open.
- It can be locked in the OFF position. (Up to 3 commercially available padlocks (35mm and 40mm) can be fitted. A type which can be locked in the ON or OFF position can be manufactured. Specify the type if required.) On circuit breakers with a frame size of 1000A or above, the handle can be locked in the ON or OFF position. (If it is necessary to lock the handle only in the OFF position, specify so.)
- It is in protection class IP54 (IEC 60529). (For circuit breakers with a frame size of 1000A or above, the protection class (IEC 60529) is IP3X (IP5X when dust-proof packing is provided).)

Dust-proof packing (optional)

| Type name | Operating handle type name | Delivery category |
|-----------|----------------------------|-------------------|
| PFL | F10SW-F120UR | ● |

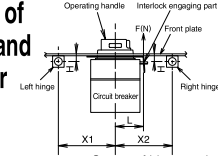


● Outline drawings



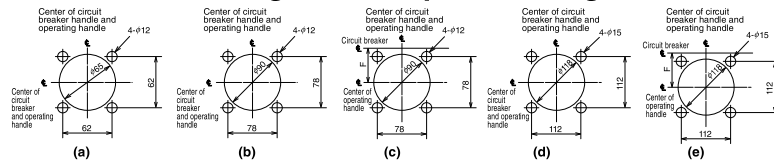
Note Auxiliary handles are provided with F10SW, F10SW4P and F120UR as standard. Auxiliary handles (F-HT) are provided for F-4S ~ F-6SUL as option.

● Center of hinge and breaker

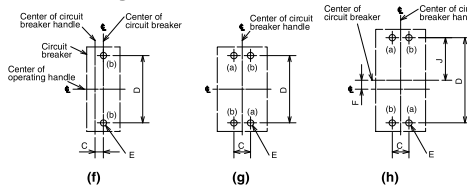


- The left drawing shows the relationship between the hinges and circuit breaker viewed from the load side of the circuit breaker.

● Dimensional drawings of front plate drilling



● Dimensional drawings of circuit breaker mounting holes



| | Center of hinge and circuit breaker (mm) | |
|--------------------------|------------------------------------------|----------------------------------------------------|
| | Hinge on left side | Hinge on right side |
| | H X1 | H X2 |
| For 30 to 250A frames | 0 or more (5H+85) or more | Less than 10 170 or more (5H+120) or more |
| For 400 to 800A frames | 0 or more (5H+85) or more | 0 or more (4H+120) or more |
| For 1000 to 1600A frames | 0 or more (8H+150) or more | 0 or more (4H+120) or more |

- Remarks: 1. The handle is opened and closed in the projection area of the handle and does not run over the projection area of the circuit breaker (except when the auxiliary handle is provided).
2. When the operating handle is fitted to NV, the test button cannot be pressed easily. If necessary use a circuit breaker with TBL or TBM. When using an Earth Leakage Alarm Breaker, use the externally resetting type (ECA-SLT RST) or automatically resetting type (ARS).

● Door lock withstand load

| | F(N) | L(mm) |
|----------|------|-------|
| F-05-F-2 | 500 | 50 |
| F-4-F-8 | 500 | 68 |

Table 6-21 Table of variable dimensions

| Type name | Door opening position | | Applicable model | | | | Reference drawing | Dimensions (mm) | | | | | | | | | | | Trip button position (*4) | Mounting screw | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-----------------------|----------------|---------------------------------|-----------------|---------------------------------|-----------------|-------------------|---------------------|---------------|--------|----|-----|-----|---|---|---|---|---|---------------------------|----------------|---|----|-----|-----|---|---|---|---|---|-----|-----|---|----|----|-----|---|---|---|---|---|-----|-----|---|----|----|-----|---|---|---|---|---|---|-----|----|----|----|------|---|---|---|---|---|-----|-----|---|---|----|-----|---|---|---|---|---|---|-----|----|----|-----|-----|---|---|---|---|---|-----|-----|-----|----|----|-----|---|---|---|---|---|---|---|-----|---|---|-----|-----|---|---|---|---|---|---|---|-----|---|---|----|-----|---|---|---|---|---|---|---|---|---|
| | OFF position | Reset position | MCCB | Number of poles | ELCB | Number of poles | | Dimensional drawing | Drilling plan | A (*1) | B | B1 | C | D | E | F | G | J | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SV2 | - | ○ | NF32-SV | 2P | - | - | Fig. 1 | f | 105 | - | - | 13 | - | - | - | - | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SVE2 | - | ○ | NF63-CV, NF63-SV, NF63-HV | 2P | - | - | | | | | | | | | | | | g | 105 | - | - | 25 | 111 | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SV | - | ○ | NF32-SV | 3P • 4P | NV32-SV | 2P • 3P | | | | | | | | | | | | | | | | | | | | | | | g | 105 | - | - | 15 | - | - | - | - | - | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SVE (*2) | - | ○ | NF63-CV, NF63-SV, NF63-HV | 3P • 4P | NV63-CV, NV63-SV, NV63-HV | 2P • 3P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | g | 105 | - | - | 30 | - | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-1SV2, F-1SVE2 | - | ○ | NF125-CV, NF125-SV | 2P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | c | h | - | - | - | - | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-1SV | - | ○ | NF125-CV, NF125-SV | 3P • 4P | NV125-CV, NV125-SV, NV125-HV | 3P • 4P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | c | h | - | - | - | - | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-1SVE | - | ○ | NF125-HV | 2P • 3P • 4P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | c | h | - | - | - | - | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-1UV, F-1UVE | - | ○ | NF125-UV | 2P • 3P • 4P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | b | f | 107 | 104 | 58 | 35 | 126 | - | - | - | - | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-2SV | - | ○ | NF125-SEV, NF125-HEV, NF125-RV | 2P • 3P • 4P | NV125-SEV, NV125-HEV | 3P • 4P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | c | h | 105 | - | - | 201 | - | - | - | - | - | K | | | | | | | | | | | | | | | | |
| F-2SVE | - | ○ | NF125-SGV, NF125-LGV, NF125-HGV | 2P • 3P • 4P | NV250-CV, NV250-SV, NV250-HV | 3P • 4P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | c | h | 105 | - | - | 30 | 123 | - | - | - | - | K | | | | |
| F-2UV, V-2UVE | - | ○ | NF250-UV | 2P • 3P • 4P | - | - | g | 107 | - | - | 35 | 126 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | K | | | |
| F-1SVUL | - | ○ | NF125-SVU, NF125-HVU | 3P | NV125-SVU, NV125-HVU | 3P | | | | | | | | | | | | g | 107 | - | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | K | | |
| F-2SVUL | - | ○ | NF250-CVU, NF250-SVU, NF250-HVU | 3P | NV250-CVU, NV250-SVU, NV250-HVU | 3P | | | | | | | | | | | | | | | | | | | | | | | b | f | 110 | - | - | 0 | 92 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | |
| F-05SRUL2 | - | ○ | NF100-SRU | 2P | NV100-SRU | 2P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | g | 110 | - | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - |
| F-05SRUL | - | ○ | NF100-HRU | 3P | NV100-HRU | 3P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | a | f | 105 | 80 | 50 | 9 | 82.5 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-03SVUL2 | - | ○ | NF50-SVFU | 2P | NV50-SVFU | 2P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | g | 105 | - | - | - | 18 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-03SVUL | - | ○ | NF100-CVFU | 3P | NV100-CVFU | 3P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | b | g | 104 | 58 | 13 | 111 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SVUL2 | - | ○ | NF100-SVFU | 2P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | g | 105 | - | - | - | - | - | - | - | - | - | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-05SVUL | - | ○ | NF100-CVFU | 3P | NV100-CVFU | 3P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 183 | - | - | 194 | - | - | - | - | - | - | | | | | | | | | | | | | | | | |
| F-4S | - | ○ | NF400-CW, SW, SEW, HEW, REW | 2P, 3P, 4P | NV400-CW, SW, SEW, HEW | 3P, 4P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | e | h | 280 | - | - | 44 | 234 | - | - | - | - | - | | | | |
| F-4SE | - | ○ | NF400-UEW | 3P | - | - | d | g | 183 | - | - | 70 | 243 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | |
| F-4U | - | ○ | NF800-CEW, SDW, SEW | 2P, 3P, 4P | NV800-SEW, HEW | 3P | | | | | | | | | | | | e | h | 280 | - | - | 70 | 290 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | |
| F-4UE | - | ○ | NF800-HEW, REW | 3P, 4P | - | - | | | | | | | | | | | | | | | | | | | | | | | d | g | 183 | - | - | 44 | 194 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | |
| F-8S | - | ○ | NF400-SWU/HWU | 3P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 183 | - | - | 70 | 243 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - |
| F-8SE | - | ○ | NF630-SWU/HWU | 3P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 183 | - | - | 70 | 243 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-8U | - | ○ | NF1000-SEW | 2P, 3P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-8UE | - | ○ | NF1250-SEW/SDW | 3P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-4SUL | - | ○ | NF1600-SEW/SDW | 4P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-6SUL | - | ○ | NF1600-SEW/SDW | 4P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | - | | | | | | | | | | | | | | | | |
| F10SW (*3) | - | ○ | NF1000-SEW | 2P, 3P | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | - | | | | |
| F10SW4P (*3) | - | ○ | NF1250-SEW/SDW | 3P | - | - | d | g | 221 | - | - | 70 | 375 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | |
| | | | NF1600-SEW/SDW | 4P | - | - | | | | | | | | | | | | d | g | 221 | - | - | 70 | 375 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | |

- Notes *1 The dimensions for the front connection type are shown. On some models of the rear connection type and plug-in type, the reference surface for mounting the circuit breaker may change.
*2 For the 4-pole plug-in type, a special handle is required. Consult us for details.
*3 If a handle which can be locked only in the OFF position is required, specify so.
*4 The circuit breaker can be tripped by operating the trip button while the door is open.
*5 Do not remove the sponge packing used to secure the protection class IP51. Fit the supplied packing without fail.
*6 The handle cannot be used when the circuit breaker is installed on IEC 35mm rails.

- Remarks: 1. The handles with E in their model names are designed for emergency stop devices.
2. The standard handles are Reset Open Type which can open the doors only when they are reset to open. OFF Open type handles which can open the doors when they are in the OFF position can be manufactured to order.
3. A handle which can be operated and can indicate the ON and OFF positions in the same manner as the standard models even if the circuit breaker is installed horizontally can be manufactured to order.
4. F10SW and higher models do not conform to the isolation function.
5. Handles which are opened and closed in the OFF position can be opened also in the reset position.

Installation procedure For details, please refer to Operating Handle Installation Manual supplied with the product.

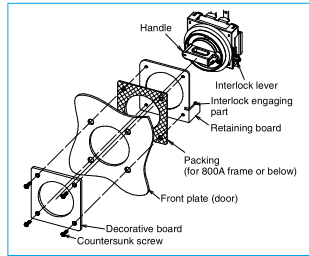
1 Installation to a breaker Install the operating handle to the circuit breaker in accordance with the following procedure.

| | 250A frame and below | 400 to 1600A frames |
|------------------------|----------------------|---------------------|
| Installation procedure | | |

Note *1 In the case of F-05SRUL2, the center of the operating handle is the same as the center of the circuit breaker.

2 Installation of decorative board and retaining board

Drill holes in the door according to the drilling size shown on the previous page, and tighten the decorative board and retaining board with the supplied countersunk screws. In the case of 800A frame or below, fit the supplied packing to the position shown right.



Door locking mechanism

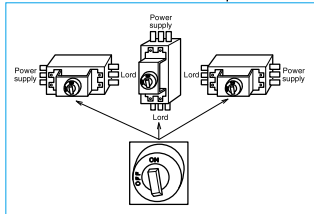
The panel door can be opened only when the operating handle is operated to open (reset). (On F-4S to F10SW, the door lock is held in the released state even if the handle is returned to OFF.) The door can be opened when the handle is in the ON position if the release knob is operated with a tool.

Operation locking mechanism

Circuit breakers with a frame size of 800A or below can be locked by setting the handle in the OFF position. (Operating handles which can lock circuit breakers in the ON or OFF position can be manufactured.) Operate the locking part, and lock the handle with padlocks. Up to three padlocks can be fitted. Lockout hasps (scissors locks) can be used. If the circuit breaker trips even when the operating handle is locked in the ON position, also the operating handle indicates that it has tripped. [F-2SUL or below: Only when one 35mm padlock (weighing 70g or less) is used] [F-4S or above: Only when one 40mm padlock (weighing 100g or less) is used] To 800A frame or below, padlocks with dimension B of 3mm to 8mm can be applied. For 1000A or above, padlocks with dimension of 3mm to 6mm can be applied. (When using padlocks of 3mm or less, please consult us.)

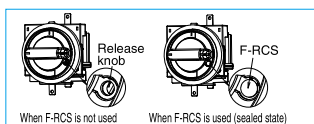
Circuit breaker installation direction (except UL 489 listed circuit breakers)

We can supply circuit breakers on which the handles and their ON and OFF positions are in the same directions as on vertically installed circuit breakers even when they are installed horizontally. The door drilling size is identical. If you intend to install an operating handle on a horizontally installed circuit breaker, specify "Y" (horizontal installation with power supply on the left) or "Z" (horizontal installation with power supply on the right) at the end of the model name. (Ex.: F-4SY)



Sealing of release knob

The use of an optional part, Release Protection "F-RCS", can prevent the panel door being opened by operating the release knob. (800A frame or below)



Operation Lock Devices

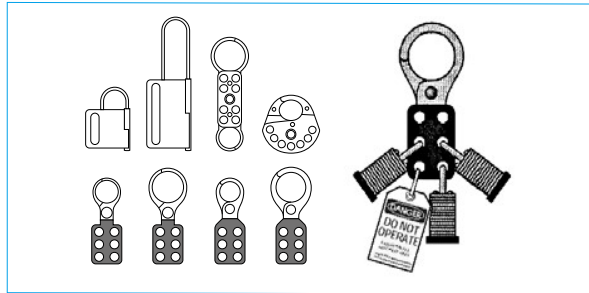
(1) Padlock

Padlock Dimensions
Use commercially available padlocks. (mm)

| Applicable model | A (Nominal size) | B |
|------------------|------------------|-------------|
| All models | 35 | 5 |
| | 40 | 6.5 or less |

Dimension B: Maximum 8mm.

(2) Lockout Devices (Scissors Lock)



How to order

For 800A frame or below, specify the following specification symbols together with the model name.

- Operation lock: LF..... Lock in OFF position
- Operation lock: LN Lock in ON or OFF position
- Door opening: DR Reset to open
- Operation lock: DF Open in OFF position
- Installation direction: Blank ... Power supply upward
- Installation direction: Y Power supply on left
- Operation lock: Z..... Power supply on right

For a standard product with a frame size of 1000A or above, specify the model name. When it is required to enable the operation lock only in the OFF position, specify the model name and "only lock in OFF position."

If you intend to seal the release knob, place an order for the release protection. (Lot: 10 pcs.)

Interpretation of model name

(1) For 800A frame or below

F - 1 SV UL E 2

1) 2) 3) 4) 5) 6)

1) F: Operating handle type name
 2) 1: Circuit breaker group (0.5, 1, 2, 4, 6 or 8)
 3) SV: Classification of circuit breaker (S, SV, H, U, UV, SR or SG)
 4) UL: Blank...General product UL...UL 489 listed product
 5) E: Blank...Standard E...For emergency stop
 6) 2: Blank...3P or 4P 2...2P

(2) For 1000A frame or above

F 10 SW 4P

1) 2) 3) 4)

1) F: Operating handle type name
 2) 4: Circuit breaker A frame (10 or 120)
 3) SW: Series name
 4) 4P: Number of poles (4P) * Not indicated for 3P