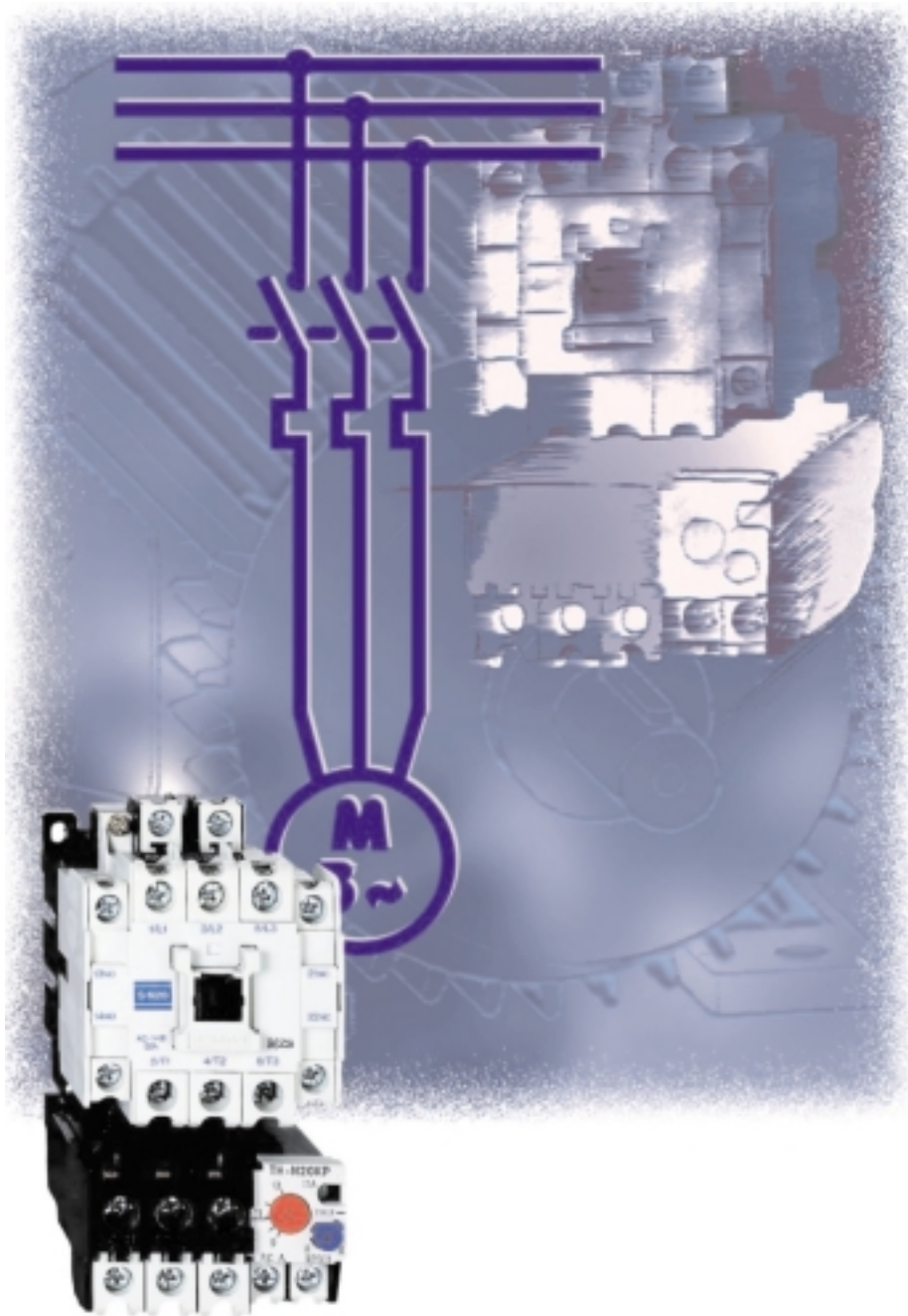


Low Voltage  
Switchgear  
Magnetic  
Contactors  
Thermal  
Overload Relays  
Contactor Relays



**MS-N**

---

**Switching, Protecting, Controlling**



**Compact, modular extensions and an energy-saving design – these are the main requirements set by user of contactors and auxiliary contactors.**

**Requirements that the MS-N series from Mitsubishi Electric fulfils.**

**Designed with ease of use in mind**

**DIN-rail mounting with unified terminal distances**



### Even more powerful

With our MS-N series we are offering components for low-voltage switchgear in the areas of

**switches, protectors and controls.**

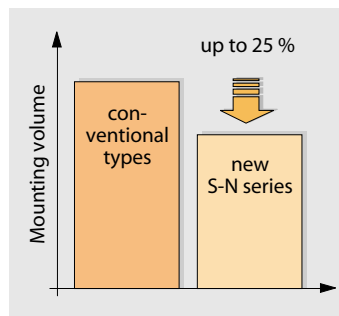
These components cover the increasing requirements that are made on the world market.

The MS-N series replaces the proven MS-K series with :

- **Magnetic contactors**  
- S-N, SD-N series
- **Thermal overload relays**  
- TH-N series
- **Contactors relays**  
- SR-N, SRD-N series

### Reduced size and low coil consumption

The dimensions of the power contactors, their space occupied in assemblies and their coil consumption are up to 25 % lower than with similar types.



### Simple to inspect

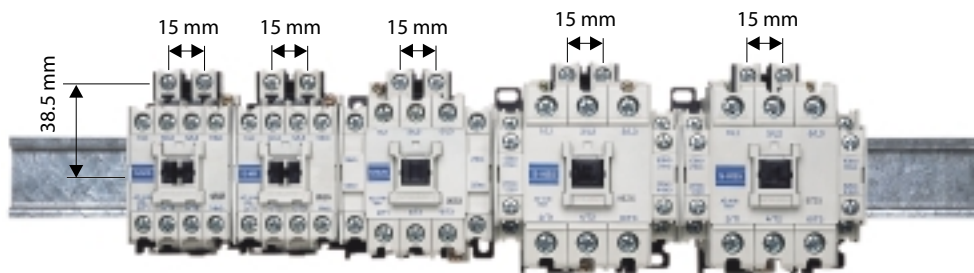
A visual check of the circuit contacts, all can be done by removing the front cover. You can check the installation after assembly.

The new contacts have led to a considerable improvement of the life and reliability of the auxiliary contacts.

### Improvement of electromagnet

Using a spiral kick-out spring improves the motional balance of moving parts, reduce bouncing, lengthen core life and generally stabilize core movement.

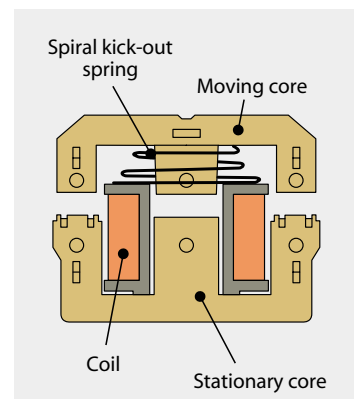
Efficient electromagnet has been achieved by modern engineering of electromagnetic analysis with a computer. The contactor capable of withstanding voltage drops of up to 35 % (at closing of contact).



### Easy mounting and wiring

MS-N new series contactors, starters and relays can all be mounted on DIN rail (35 mm width). For easy wiring coil terminals of those are arranged on upper side of contactors, moreover distance between center of the rail and the coil terminals are unified to 38.5 mm.

With this new wiring technology, we have designed wiring that is simple and safe for your fingers. Even a line with ring cable sockets can now be assembled fast and without any problems. The clamping screws cannot get lost.





Here are some examples of the accessory that is available for the MS-N series:

- Auxiliary contact blocks for front assembly
- Auxiliary contact blocks for side assembly
- Surge absorbers for coils
- Mechanical interlocks
- Pneumatic timers
- DC interface modules
- Single units for overload relays
- Connecting wire kit for reversing

### International standards

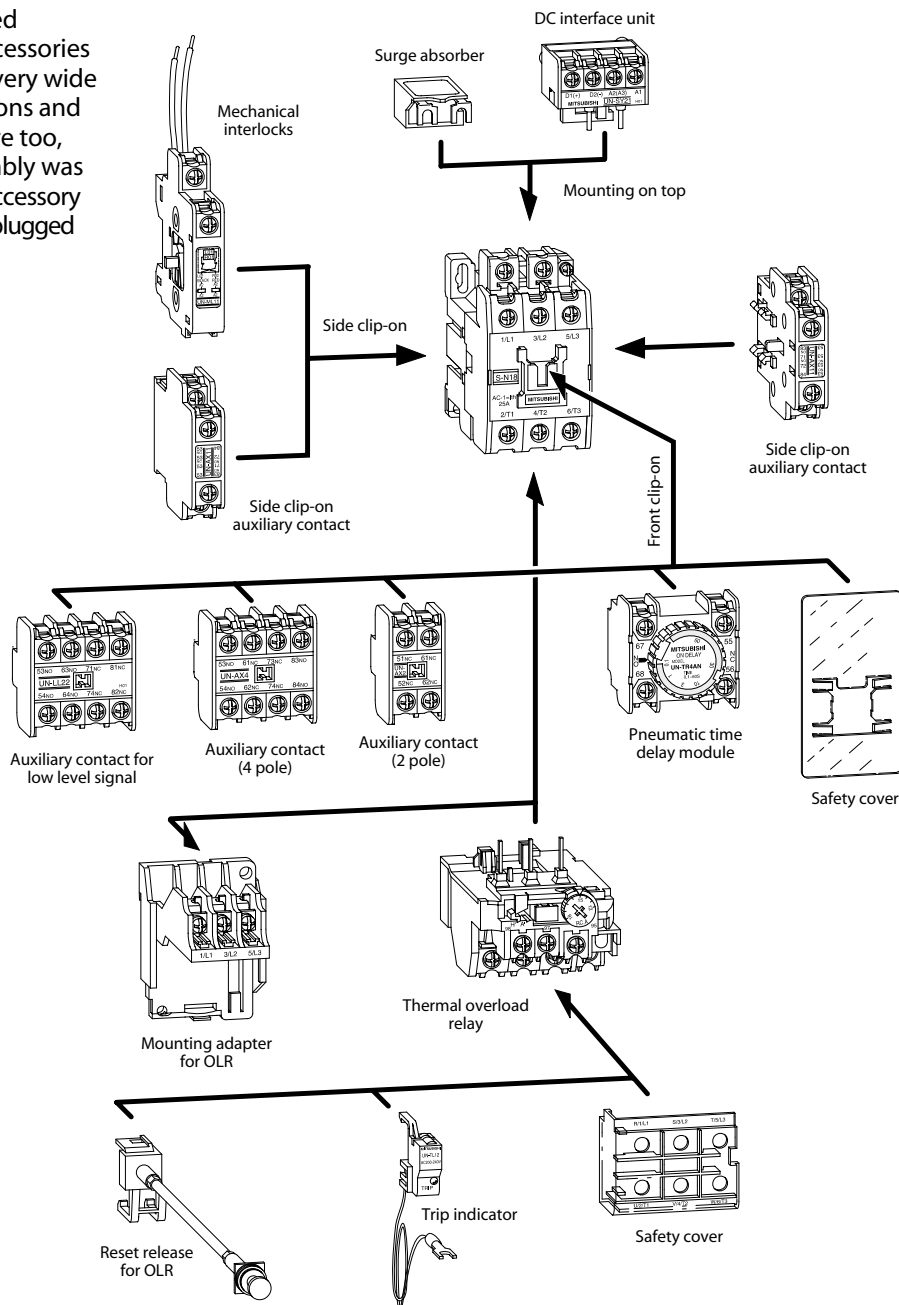
For a technological firm with international operations, it is a matter of course that all contactors and accessories comply with all important standards.

See page 7 for further details.

**Power contactors with carefully thought out accessories**

### The accessories

A cleverly compiled programme of accessories ensures use for a very wide range of applications and requirements. Here too, very simple assembly was a key aspect: the accessory is not screwed but plugged in or snapped on.

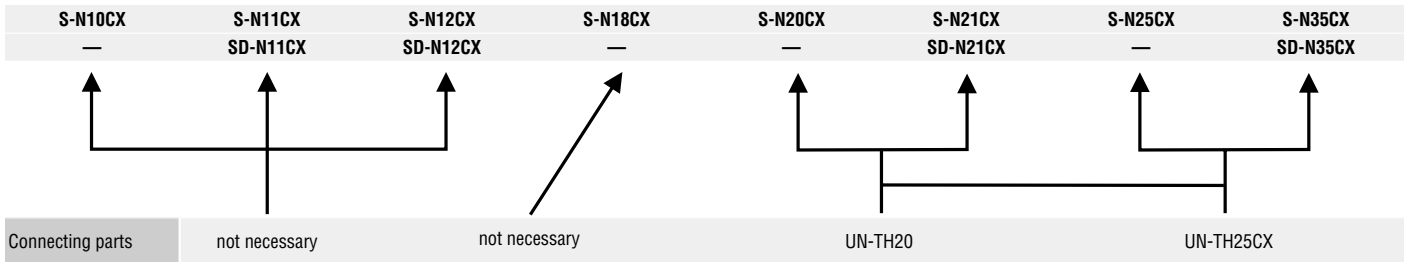


**Overview on all accessories**

## Overview and selection guide

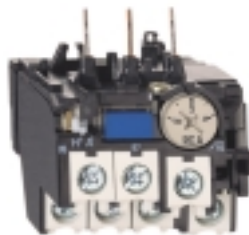
### Three-phase motor ratings IEC category AC3 for Contactors

| Contactor                         | AC-operated | S-N10CX      | S-N11CX      | S-N12CX     | S-N18CX | S-N20CX     | S-N21CX     | S-N25CX     | S-N35CX     |
|-----------------------------------|-------------|--------------|--------------|-------------|---------|-------------|-------------|-------------|-------------|
|                                   | DC-operated | —            | SD-N11CX     | SD-N12CX    | —       | —           | SD-N21CX    | —           | SD-N35CX    |
| AC 380–440 V                      | kW          | 4            | 5.5          | 5.5         | 7.5     | 11          | 11          | 15          | 18.5        |
| Rated continuous current $I_{th}$ | A           | 20           | 20           | 20          | 25      | 32          | 32          | 50          | 60          |
| Auxiliary contacts (integrated)   |             | 1 NO or 1 NC | 1 NO or 1 NC | 1 NO + 1 NC | —       | 1 NO + 1 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC |



### Thermal Overload Relays

| Type          | TH-N12KPCX | TH-N18KPCX | TH-N20KPCX | TH-N20TAKPCX |
|---------------|------------|------------|------------|--------------|
| Setting range | 0.1 – 13 A | 1 – 18 A   | 0.2 – 22 A | 18 – 40 A    |



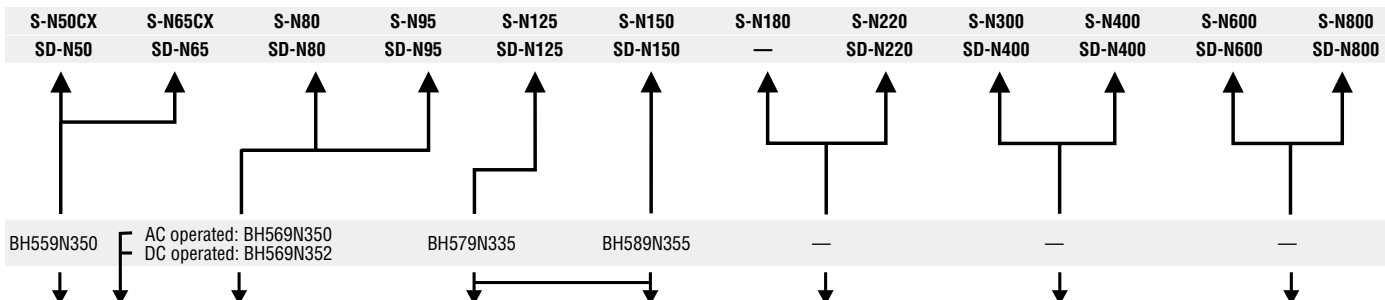
### Contactor Relays

| AC-operated type   | SR-N4CX 4A | SR-N4CX 3A1B | SR-N4CX 2A2B |
|--------------------|------------|--------------|--------------|
| Auxiliary contacts | 4 NO       | 3 NO, 1 NC   | 2 NO, 2 NC   |



**Three-phase motor ratings IEC category AC-3**

|             |             |             |             |             |             |             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| S-N50CX     | S-N65CX     | S-N80       | S-N95       | S-N125      | S-N150      | S-N180      | S-N220      | S-N300      | S-N400      | S-N600      | S-N800      |
| SD-N50      | SD-N65      | SD-N80      | SD-N95      | SD-N125     | SD-N150     | —           | SD-N220     | SD-N300     | SD-N400     | SD-N600     | SD-N800     |
| 22          | 30          | 45          | 55          | 60          | 75          | 90          | 132         | 160         | 220         | 330         | 440         |
| 80          | 100         | 135         | 150         | 150         | 200         | 260         | 260         | 350         | 450         | 800         | 1000        |
| 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC | 2 NO + 2 NC |



**Thermal Overload Relays**

|            |            |            |             |             |             |             |
|------------|------------|------------|-------------|-------------|-------------|-------------|
| TH-N60KPCX | TH-N60TAKP | TH-N120KP  | TH-N120TAKP | TH-N220RHKP | TH-N400RHKP | TH-N600KP   |
| 12 – 65 A  | 54 – 105 A | 34 – 100 A | 85 – 150 A  | 65 – 250 A  | 85 – 400 A  | 200 – 800 A |



**Contactors Relays**

|                    |                    |                      |                      |
|--------------------|--------------------|----------------------|----------------------|
| AC operated type   | <b>SRD-N4CX 4A</b> | <b>SRD-N4CX 3A1B</b> | <b>SRD-N4CX 2A2B</b> |
| Auxiliary contacts | 4 NO               | 3 NO, 1 NC           | 2 NO, 2 NC           |



A selection of relays for optimum motor protection characteristics

TH-N series thermal overload relays will make convenient and safe systems

## Thermal overload relays

The thermal relay range includes phase failure protection models (three-element relays).

This array of protection characteristics allows you to choose the units suited to your motor protection needs.



### Benefits:

- An operation indicator makes maintenance and inspection easy.
- 1 NO and 1 NC contact
- Rated current can be set easily
- Finger protection up to TH-N60KPCX
- Trip-free reset bar
- Convenient reset release (optional)

## Contactor relays

The Mitsubishi Electric series SR-N contactor relays are specially designed for use in low voltage control circuit applications.



### Benefits:

- High reliability: By adopting bifurcated moving contacts and by improving the shape of the contacts, contact performance has been made more reliable than ever.
- Different types as: Standard, high capacity or overlap contact

- Various contact arrangements
- Long life
- Mountable on 35 mm DIN rails
- Dust-proof construction
- Easily visible coil ratings
- Easy wiring (self-rising terminal screws)
- Various accessories common with the series S-N contactors (front and side clip-on type additional auxiliary contact blocks, surge absorbers)
- Finger protected types are available (DIN 57106/VDE 0106 Part 100) (Suffix "CX")

## Wide range of coil ratings for all contactors

All Mitsubishi contactors are available in a wide range of different coil ratings for AC or DC use.

### AC rated voltage

| Rating   | Range 50 Hz | Range 60 Hz | Standard |
|----------|-------------|-------------|----------|
| AC 24 V  | 24          | 24          | ●        |
| AC 48 V  | 48-50       | 48-50       | ●        |
| AC 100 V | 100         | 100-110     |          |
| AC 120 V | 110-120     | 115-120     | ●        |
| AC 127 V | 125-127     | 127         |          |
| AC 200 V | 200         | 200-220     |          |
| AC 220 V | 208-220     | 220         |          |
| AC 230 V | 220-240     | 230-240     | ●        |
| AC 260 V | 240-260     | 260-280     |          |
| AC 380 V | 346-380     | 380         |          |
| AC 400 V | 380-415     | 400-440     | ●        |
| AC 440 V | 415-440     | 460-480     |          |
| AC 500 V | 500         | 500-550     |          |

For detailed description please refer to the Technical Catalogue.

### DC rated voltage



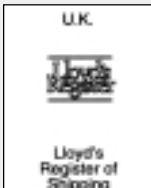


| Rating   | Range   | Standard |
|----------|---------|----------|
| DC 12 V  | 12      |          |
| DC 24 V  | 24      | ●        |
| DC 48 V  | 48      |          |
| DC 100 V | 100     |          |
| DC 110 V | 110     |          |
| DC 125 V | 120-125 |          |
| DC 200 V | 200     |          |
| DC 220 V | 220     |          |

## International Standards

MITSUBISHI magnetic contactors are designed to conform to the relevant IEC recommendations and standards.

Conformity to the following:

- International: IEC947-4-1
- Europe: EN60947-4-1
- Germany: VDE0660
- U.S.A.: NEMA-ICS

| Standards |   |   |   |  |   |
|-----------|---|---|---|--|---|
| Symbol    | USA / Canada  |   | Marinal approvals   |  |   |
|           |  |  |  |  |  |

### Contactors ★

|         | UL | RA | U.K. | France | Korea | Japan |
|---------|----|----|------|--------|-------|-------|
| S-N10CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N11CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N12CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N18CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N20CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N21CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N25CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N35CX | ●  | ●  | ●    | ●      | ●     | ●     |
| S-N50CX | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N65CX | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N80   | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N95   | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N125  | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N150  | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N180  | ○  | ●  | ①    | ●      | —     | ●     |
| S-N220  | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N300  | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N400  | ○  | ●  | ①    | ●      | ●     | ●     |
| S-N600  | ○  | ●  | ①    | ●      | —     | ●     |
| S-N800  | ○  | ○  | ①    | ●      | —     | ●     |

### Thermal overload relays

|              | UL | RA | U.K. | France | Korea | Japan |
|--------------|----|----|------|--------|-------|-------|
| TH-N12KPCX   | ○  | ●  | ●    | ●      | —     | —     |
| TH-N18KPCX   | ○  | ●  | ●    | ●      | —     | —     |
| TH-N20KPCX   | ○  | ●  | ●    | ●      | —     | —     |
| TH-N20TAKPCX | ○  | ●  | ●    | ●      | —     | —     |
| TH-N60KPCX   | ○  | ●  | ①    | ●      | —     | —     |
| TH-N60TAKP   | ○  | ●  | ①    | ●      | —     | —     |
| TH-N120KP    | ○  | ●  | ①    | ●      | —     | —     |
| TH-N120TAKP  | ○  | ●  | ①    | ●      | —     | —     |
| TH-N220RHKP  | ○  | ●  | ①    | ●      | —     | —     |
| TH-N400RHKP  | ○  | ●  | ①    | ●      | —     | —     |
| TH-N600KP    | —  | —  | —    | —      | —     | —     |

### Contactors relays

|          | UL | RA | U.K. | France | Korea | Japan |
|----------|----|----|------|--------|-------|-------|
| SR-N4CX  | ●  | —  | ●    | ●      | —     | —     |
| SRD-N4CX | ●  | —  | ●    | ●      | —     | —     |

● Standard model is certified

○ Certified models are available

— Certification not yet applied

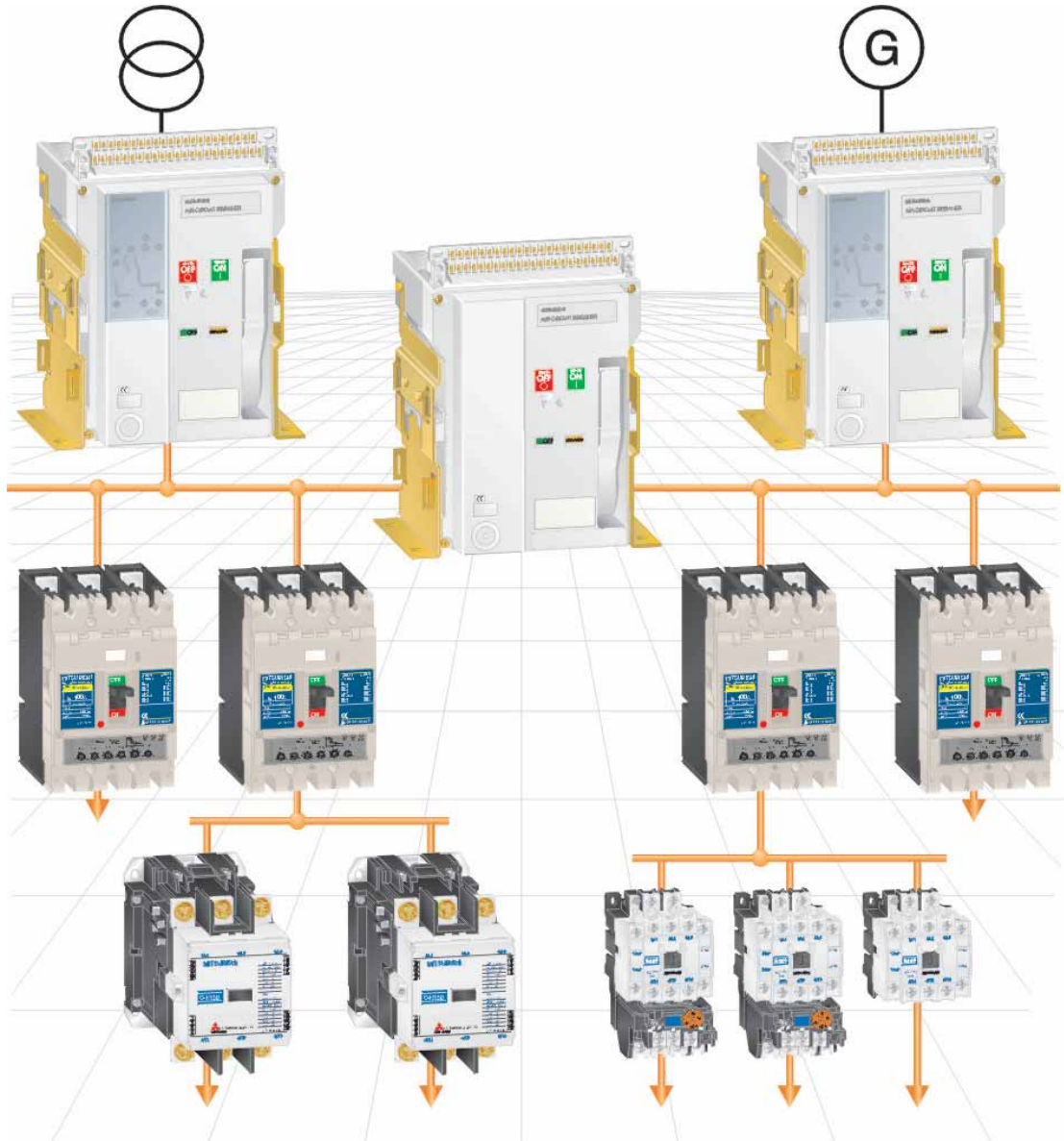
① Under application

★ DC contactors on request

# Complete Solution for Line and Load Side

Mitsubishi offers the whole line from Air Circuit Breakers over Low Voltage Switch-gears to Magnetic Contactors and Thermal Overload Relays.

The complete solution for all needs.



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