

ELECTRICAL CONTACTS

Sliding contact type — ECS series

Magnetic snap-action contact type — ECM series

APPLICATIONS

The electrical contacts are fitted into the case of pressure gauges or thermometers and intended to make or break an electric control circuit to the position of the pointer on the instruments.

DISCRIPTIONS

Sliding contact provides for accurate switching with almost no hysteresis and very little force required. This type of contacts is very sensitive to vibration. Therefore, it requires vibration-free installation and cannot be used with liquid filled gauges. Used in the areas of explosion risk not suitable.

Magnetic snap-action contact is the universal type and used in practically all service conditions. The magnetically assisted contact features a small magnet attached to the setting hand. The magnet provides for a snap-action characteristic which considerably improves contact rating and service life, and also makes this type less sensitive to vibration and with hysteresis. The value of this hysteresis is from 2% to 5% depending on scale range and instrument. This type of contacts can be used with liquid filled instruments. Used in the areas of explosion risk not suitable.

SPECIFICATIONS

| | |
|-----------------------------------|---|
| Instruments | Pressure gauges with dial Ø2.5" (bottom connection type only), Ø4" and Ø6" (111 series pressure gauge is the commonest application) Stainless steel differential pressure gauges Thermometers with dial Ø3" ~ Ø6" (visual type contact only) |
| Position of contact block | Visual type — the contact block is mounted onto the dial Hiding type — the contact block is mounted behind the dial (Hiding type only available for 111 series pressure gauges Ø4" & Ø6") |
| Number of contacts | Single contact — normally open ; normally closed Double contacts — normally open and closed ; normally open x 2 ; normally closed x 2 |
| Lens | Visual type — Acrylic lens Hiding type — Safety glass lens, with adjustment knob |
| Wiring styles | by Junction box by cable by terminals (only available for thermometers) |
| Material of contact points | Silver-nickel alloy standard Platinum-iridium alloy available by special customization |
| Filling (option) | Insulation oil (only available for 111 series pressure gauges) |
| Max. voltage | AC 250 V & DC 220 V standard, AC 380 V available |
| Max. load | Sliding contact — 10W or 18VA Magnetic snap-action contact — 30W or 50VA (dry gauge) Liquid filled type — 20W or 20VA |

INSTALLATIONS OF CONTACTS

Pressure gauge
Hiding type contact
Wiring by junction box



Pressure gauge
Visual type contact
Wiring by cable



Pressure gauge
Visual type contact
Wiring by junction box



Pressure gauge
Visual type contact
Wiring by junction box



Thermometer
Visual type contact
Wiring by terminals



TABLES OF CONTACT RATINGS

| Voltage AD/DC V | Sliding contact (ECS series) | | | Magnetic snap-action contact (ECM series) | | | | | |
|---------------------------|------------------------------|------------------|--|---|------------------|--|----------------------|------------------|--|
| | Dry gauges | | | Dry gauges | | | Liquid filled gauges | | |
| | ohmic load DC | ohmic load AC | Inductive load $\cos \phi > 0.7$ | ohmic load DC | ohmic load AC | Inductive load $\cos \phi > 0.7$ | ohmic load DC | ohmic load AC | Inductive load $\cos \phi > 0.7$ |
| 220/230 | 40mA | 45mA | 25mA | 100mA | 120mA | 65mA | 65mA | 90mA | 40mA |
| 110/110 | 80mA | 90mA | 45mA | 200mA | 240mA | 130mA | 130mA | 180mA | 85mA |
| 48/48 | 120mA | 170mA | 70mA | 300mA | 450mA | 200mA | 190mA | 330mA | 130mA |
| 24/24 | 200mA | 350mA | 100mA | 400mA | 600mA | 250mA | 250mA | 450mA | 150mA |

| Continuous load | Sliding contact (ECS series) | | Magnetic snap-action contact (ECM series) | | |
|-----------------|------------------------------|--|---|--|----------------------|
| | Dry gauges | | Dry gauges | | Liquid filled gauges |
| Make rating | 0.7 A | | 1.0 A | | 1.0 A |
| Break rating | 0.7 A | | 1.0 A | | 1.0 A |
| Continuous load | 0.6 A | | 0.6 A | | 0.6 A |

MINIMUM RANGES OF PRESSURE GAUGE

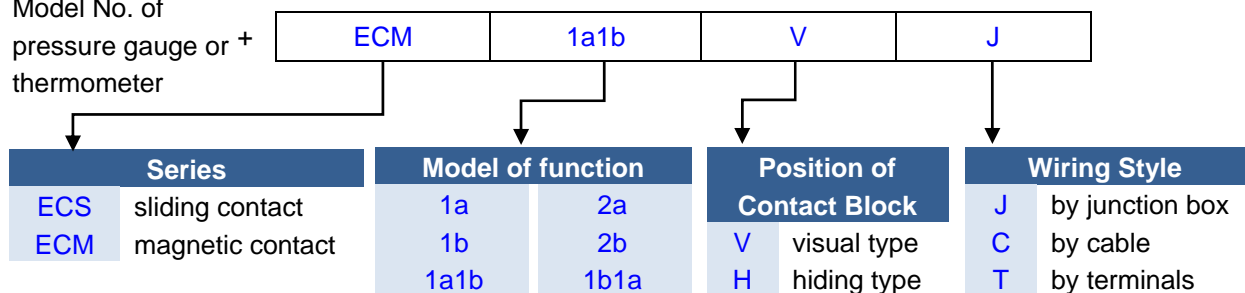
| Sliding contact (ECS series) | | Magnetic snap-action contact (ECM series) | |
|------------------------------------|----------------|---|------------------|
| 1 contact | 2 contacts | 1 contact | 2 contacts |
| 1600 mmH ₂ O / 0.16 bar | 1 bar / 15 psi | 1 bar / 15 psi | 1.6 bar / 23 psi |

THE FUNCTIONS OF CONTACTS

| Wiring Scheme | Description | Model |
|------------------------|---|-------|
| Single Contact | | |
| | Contact makes when the instruments' pointer reaches the set point (NO – normally open) | 1a |
| | Contact breaks when the instruments' pointer reaches the set point (NC – normally closed) | 1b |
| Double Contacts | | |
| | 1 st contact breaks 2 nd contact makes when the instruments' pointer reaches the set points (NC + NO– normally closed and open) | 1a1b |
| | 1 st contact makes 2 nd contact breaks when the instruments' pointer reaches the set points (NO + NC– normally open and closed) | 1b1a |
| | 1 st and 2 nd contacts make when the instruments' pointer reaches the set point (NO – normally open x 2) | 2a |
| | 1 st and 2 nd contacts break when the instruments' pointer reaches the set point (NC – normally closed x 2) | 2b |

HOW TO ORDER

Model No. of pressure gauge or + thermometer



ref. the above scheme