

GENERATION & NETWORKS

Instantaneous auxiliary relays

RAG1020
RAG2040
RAG3080
RAG4160



The RAG auxiliary relays are the CEE family of control and signalling instantaneous relays.

They are used as auxiliary relays linked with protection relays when a large number of control contacts is required, in particular in control-command and automatic switching schemes.

These relays can be fitted with 2 (RAG1020), 4 (RAG2040), 8 (RAG3080) or 16 (RAG4160) change-over contacts.

Main advantages

- Operation guaranteed within a wide range of temperatures.
- Possibility of continuous operation.
- Contacts alignment ensuring simultaneous operation.
- Manufactured using self extinguishing materials with limited absorption of humidity and good thermal stability. All mechanical parts are treated in order to avoid oxidation and ageing.
- Relays may be supplied with diode in parallel with their coil to avoid voltage surges. This version may be required in automation circuits including sensitive electronic components.

Description

This series of instantaneous auxiliary relays [3] [74] is manufactured with draw-out relay and base mounting arrangement*. The relays are protected from humidity and hazardous contacts by a dark cover.

* see documentation reference A495

CHARACTERISTICS RAG1020 / 2040 / 3080 / 4160

Characteristics

- Rated voltages (Un): 24, 48, 110, 125, 220 Vdc or Vac 50 or 60 Hz
(RAG xxxxDI with Diode // coil: Vdc only)
- Voltage range and burdens:

	Voltage range	Permanent Burdens
RAG1020	+10%,-20% Un	2,6 W: 3,3 VA
RAG1020DI	+10%,-20% Un	2,6 W: 3,3 VA
RAG2040	+10%,-20% Un	3,9 W: 6,6 VA
RAG2040DI	+10%,-20% Un	3,9 W: 6,6 VA
RAG3080	+10%,-20% Un	6 W: 11 VA
RAG3080DI	+10%,-20% Un	6 W: 11 VA
RAG4160	+10%,-20% Un	10 W: 12 VA
RAG4160DI	+10%,-20% Un	10 W: 12 VA

- Pick-up time: <20 ms (RAG1020, RAG1020DI, RAG2040, RAG2040DI, RAG3080, RAG3080DI)
<25 ms (RAG4160, RAG4160DI)
- Drop-out time: <15 ms / Vdc, <50 ms / Vac (RAG1020, RAG1020DI, RAG2040, RAG2040DI, RAG3080, RAG3080DI)
<10 ms / Vdc, <45ms / DI Vdc, <80 ms / Vac (RAG4160, RAG4160DI)
- Contact capacity:
 - Permanent current: 10 A
 - Instantaneous current: 80 A/200 ms ; 150 A / 10 ms
 - Making capacity: 40 A/0,5 s/110 Vdc
 - Breaking capacity: see curves
 - U_{max}, opened contact: 250 Vdc, 400 Vac
- Mechanical life: 10⁷ operations
- Operating temperature: -10°C +55°C
- Storage temperature: -30°C +70°C
- Maximum operating humidity: 93 % / 40°C

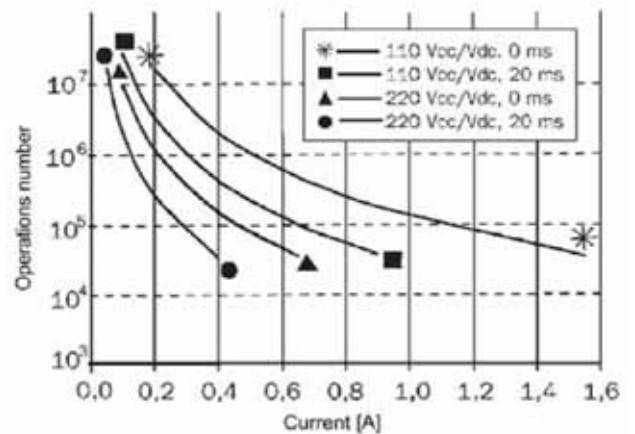
Standards of construction

- Electrical security tests:
 - Dielectric tests: 2 kV / 50 Hz/1 min
 - Surge withstand: 5 kV / 1,2 / 50 μs
 - Insulation resistance: > 2000 MΩ / 500 Vdc
- Flammability tests of plastic materials: **UL94: V0**
- Cover protection degree: **IEC / EN 60529: IP40**
- Climatic tests: **IEC / EN 60068-2**
- Thermal choc: -25°C +70°C

EMC tests

- 1 MHz burst immunity tests: **IEC / EN 60255-22-1/EM**
Common mode: 2,5 kV - Differential mode: 1 kV
- Electrostatic discharges: Décharges **IEC / EN 61000-4-2**
Contact: ±15 kV
Air: ±15 kV
- Radiated electromagnetic field **IEC / EN 61000-4-3**
Test: 80-1000 MHz, 10 V / m, 80 % AM (1 kHz)
- Digital telephones radiated electromagnetic field: **IEC / EN 61000-4-3**
900 ±5 MHz, 10 V / m, 50% (200 Hz)
1,89 Ghz ±10 MHz, 10 V / m, 50% (200 Hz)
- Electrical fast transient burst: **IEC / EN 61000-4-4**
4 kV, 2,5 kHz, 1 min - 2 kV, 5 kHz, 1 min
- Shock wave (surge): **IEC / EN 61000-4-5**
1,2 / 50 μs. (Voltage) - 8 / 20 μs. (Current)
Common mode: 2 kV - Differential mode: 1 kV
- Conducted disturbances induced by radio frequency field: **IEC / EN 61000-4-6**
0,15-80 MHz, 10 V, 80 % AM (1 kHz)

Curves of making capacity



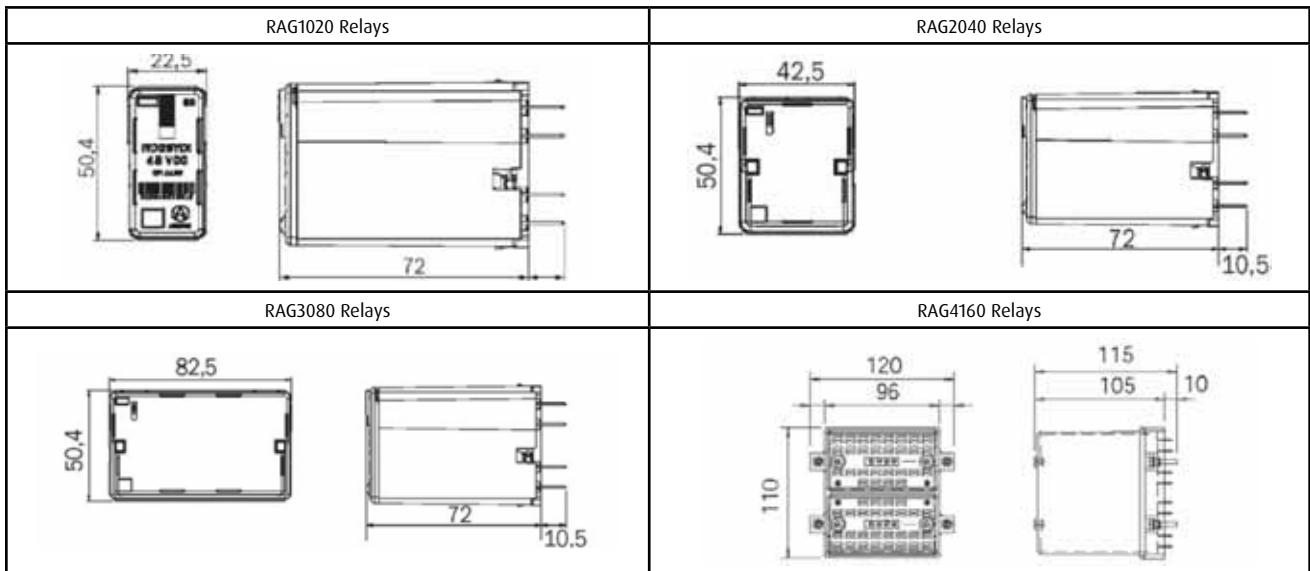
CHARACTERISTICS RAG1020 / 2040 / 3080 / 4160

- Magnetic field at industrial frequency:
 - IEC / EN 61000-4-8**
 - 100 A / m 1 min
 - 1000 A / m 1 min
- Radioelectric disturbances:
 - IEC / EN 55011 Class A**
 - 30-230 MHz, 40 dB ($\mu\text{V} / \text{m}$) (approx. Peak) - 10 m
 - 230-1000 MHz, 47 dB ($\mu\text{V} / \text{m}$) (approx. Peak) - 10 m
 - 0,15-0,5 MHz, 40 dB (μV) (Peak) / 66 dB med.value
 - 0,5-5 MHz, 73 dB (μV) (Peak) / 60 dB med.value
 - 5-30 MHz, 73 dB (μV) (Peak) / 60 dB med.value

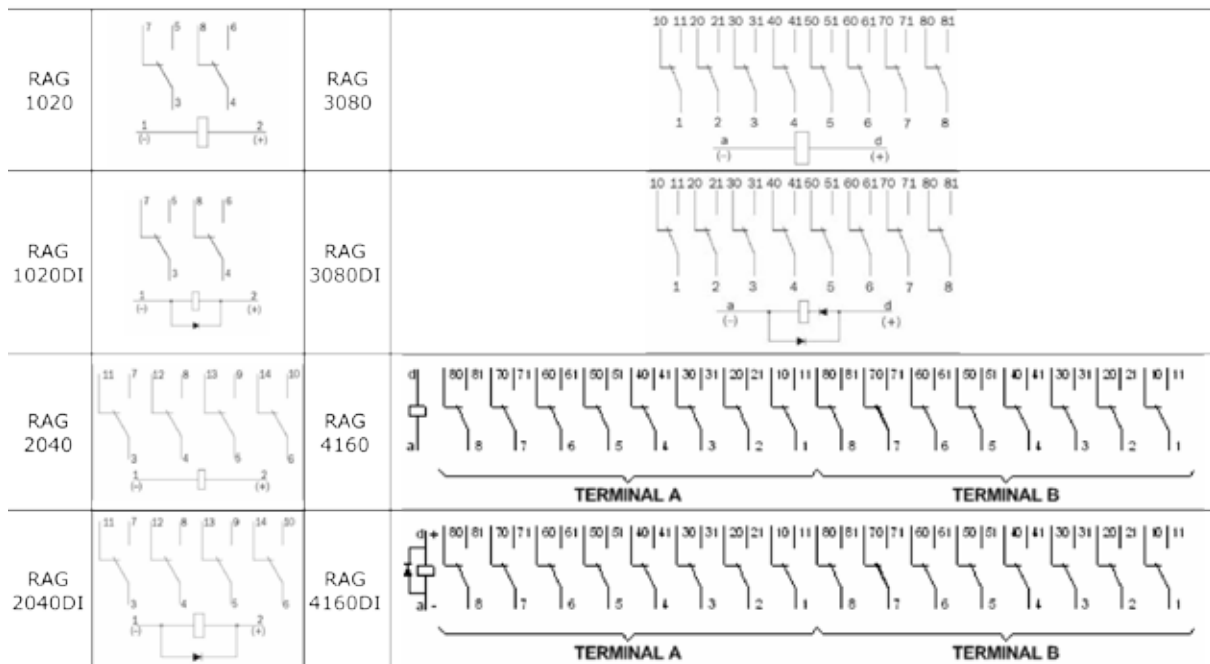
Weight (without embase)

Relays	Weight
RAG1020 / RAG1020DI	125 g
RAG2040 / RAG2040DI	250 g
RAG3080 / RAG3080DI	500 g
RAG4160 / RAG4160DI	1250 g

Dimensions





Diagrams



CHARACTERISTICS RAG1020 / 2040 / 3080 / 4160

Equivalence table

New Relay Model 	Base type (see documentation ref: A495)	Old Relay Model 	Compatibility base / relay (old and new model)
RAG1020 RAG1020DI	PAV1 - PAVC1 - PAR1 - PARC1	RAG1020 RAG1020 with Diode	No mechanically compatible
RAG2040 RAG2040DI	PAV2 - PAVC2 - PAR2 - PARC2	RAG2040 RAG2040 with Diode	Compatible
RAG3080 RAG3080DI	PAV3 - PAVC3 - PAR3 - PARC3	RAG3080 RAG4160 with Diode	Compatible
RAG4160 RAG4160DI	PAV4 - PAR4 - PARC4	RAG4160 RAG4160 with Diode	Compatible

Ordering information

Relays*	
RAG1020 – 2 change-over contacts	
RAG2040 – 4 change-over contacts	
RAG3080 – 8 change-over contacts	
RAG4160 – 16 change-over contacts	
Type (For all other request, consult us)	
Standard	
Diode in parallel with the coil (Vdc only)	DI
Operating voltage	
24 Vdc	
48 Vdc	
110 Vdc	
125 Vdc	
220 Vdc	
24 Vac*	
48 Vac*	
110 Vac*	
125 Vac*	
220 Vac*	
Base type (see documentation ref.: A495)	
Front connection - connection by screw M3 - PAV	
Front connection - connection by clip (faston) 6.35 mm - PAVC**	
Rear connection - connection by screw M3 - PAR	
Rear connection - connection by clip (faston) 6.35 mm - PARC	
Retaining clips (see documentation ref.: A495)	
With (except RAG4160 and RAG4160DI provided with retaining screws)	
Without	

* Choice prohibited for relay with Diode in parallel (DI)

** Except RAG4160 and RAG4160DI

Example: RAG2040 - Standard - 125 Vdc - PAV - Without retaining clips

The specifications and drawings given are subject to change and are not binding unless confirmed by our specialists.