

HR-AMR

40A 1 Changeover power relay for automotive applications

Features

- Switching current 40A capability
- Designed for high in-rush load
- American and european foot print
- Sealed type available

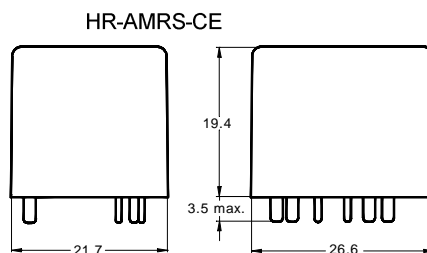
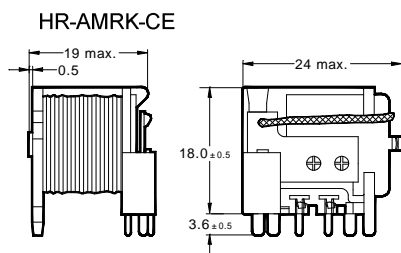
Applications

- Cars, Buses, Coin machines and control systems



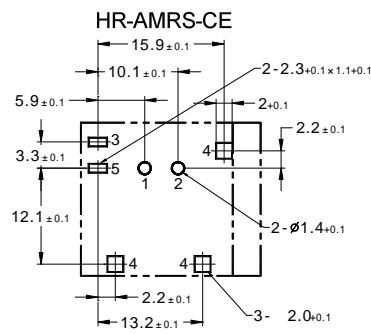
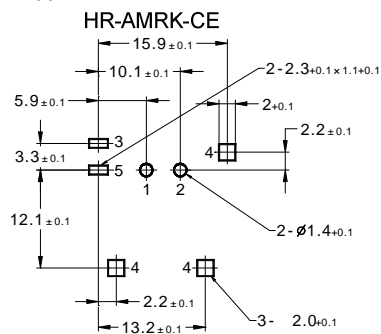
Dimensions (mm)

To convert into inches, multiply by 0.03937



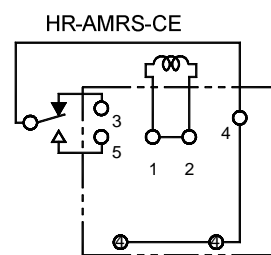
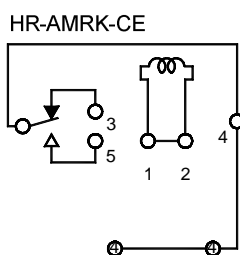
PC Board Layout

Copper-side view



Schematic

Copper-side view

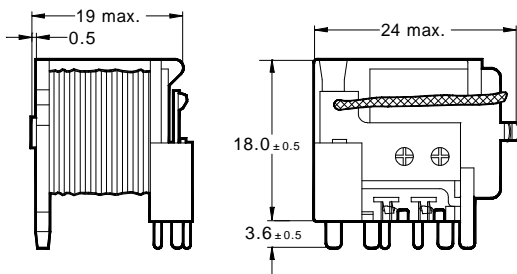


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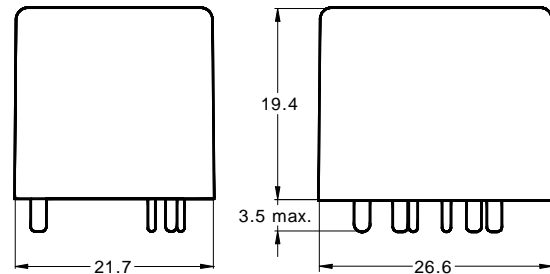
Dimensions (mm)

To convert into inches, multiply by 0.03937

HR-AMRK-CA



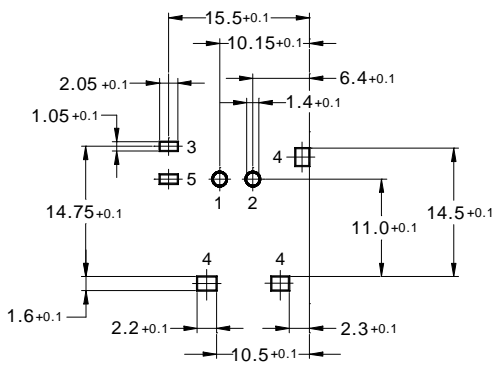
HR-AMRS-CA



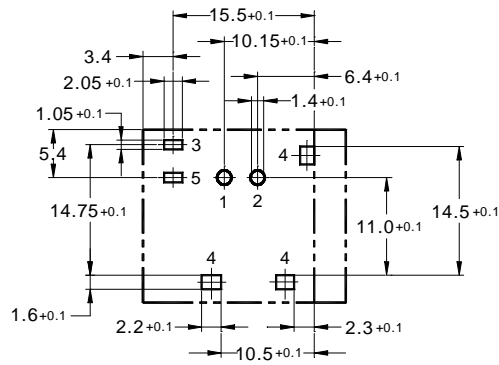
PC Board Layout

Copper-side view

HR-AMRK-CA



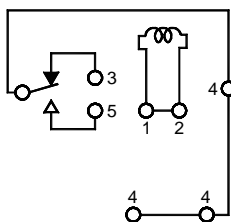
HR-AMRS-CA



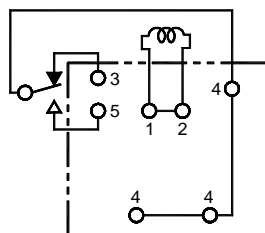
Schematic

Copper-side view

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HR-AMR

Contact data

| | | | |
|---|------------------------------------|----------|------------------------------|
| Arrangement | 1 Form A (SPST) to 1 Form C (SPDT) | | |
| Contact material | Ag Alloy | | |
| Initial contact resistance | 100m Ω | | |
| Rated load, resistive | 1 Form A | 1 Form B | 1 Form C |
| | 40A | 30A | NO: 40A NC: 30A |
| Maximum carry current | 60A | | |
| Maximum switching capacity | with DC voltage: | 560W | 420W NO: 560W NC: 420W |
| Maximum switching voltage ¹⁾ | 150VDC | | |
| Minimum switching rating ²⁾ | 100mA 5VDC | | |

¹⁾ If switching voltage is greater than 30VDC, special precautions must be taken. Please contact HR

²⁾ Min. Switching Load mentioned above are reference values. Therefore it is recommended to perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

Coil data

| | | |
|---|-----------------------|------------------------|
| Nominal voltage | 6V to 24V | |
| Nominal power consumption ³⁾ | 1.0W to 1.9W | |
| Operate voltage ⁴⁾ | Standard coil: | 70% of nominal voltage |
| | High sensitive coil: | 75% of nominal voltage |
| Release voltage ⁵⁾ | 5% of nominal voltage | |

^{3), 4), 5)}The values depend on coil voltage, see Part selection chart

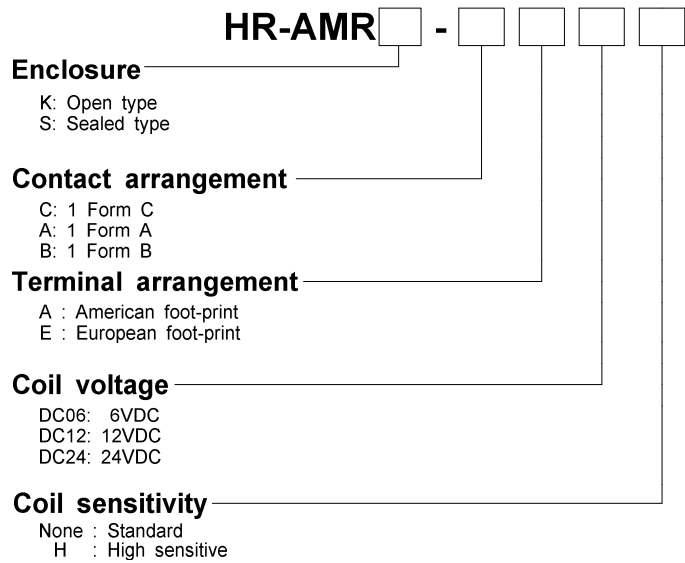
General data

| | | |
|-------------------------------|------------------------------|--|
| Operate time | 5ms max. at nominal voltage | |
| Release time | 3ms max. at nominal voltage | |
| Initial insulation resistance | 100 M Ω min. (500VDC) | |
| Dielectric strength | Between open contacts: | 500VAC _{rms} for 1 minute |
| | Between contacts and coil: | 500VAC _{rms} for 1 minute |
| Expected life | Mechanical: | More than 5,000,000 operations |
| | Electrical: | More than 100,000 operations at rated load |
| Vibration resistance | Functional: | 10~55Hz dual amplitude: 1.5mm |
| | Destructive: | 10~55Hz dual amplitude: 1.5mm |
| Shock resistance | Functional: | 10G min. |
| | Destructive: | 100G min. |
| Ambient temperature | -40°C to +85°C | |
| Humidity | 45% to 85% RH | |
| Weight | open type: | 17g approx. |
| | sealed type: | 21g approx. |

Note: The above figures are initial values

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Part number description



Part number description is provided for reference, part number can not be arbitrarily composed. Refer to the part numbers shown in the table below. Special designs to customer specifications are possible; please contact HR.

Part selection

| Part number | Nominal voltage (VDC) | Coil resistance ($\Omega \pm 10\%$) | Nominal current (mA) | Must operate voltage (VDC) | Must release voltage (VDC) | Max voltage (VDC) | Nominal power (W) |
|---|-----------------------|---------------------------------------|----------------------|----------------------------|----------------------------|-------------------|-------------------|
| Standard coil | | | | | | | |
| HR-AMR <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> DC06 | 6 | 19 | 316 | 4.2 | 0.3 | 7.8 | 1.9 |
| HR-AMR <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> DC12 | 12 | 90 | 133.3 | 8.4 | 0.6 | 15.6 | 1.6 |
| HR-AMR <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> DC24 | 24 | 360 | 66.3 | 16.8 | 1.2 | 31.2 | 1.6 |
| High sensitive coil | | | | | | | |
| HR-AMR <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> DC12H | 12 | 140 | 85.7 | 9.0 | 0.6 | 15.6 | 1.00 |
| HR-AMR <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> DC24H | 24 | 500 | 48.0 | 18.0 | 1.2 | 31.2 | 1.15 |

Note: All values in the chart are measured at 23°C