

## Main Feature

1. European and American footprints available offer different market selections.
2. Washable type, flux-protected type, unclosed type available for different customer's requirement.
3. FE130 material applied to strengthen the contact in order to carry the high current load.
4. Comply with RoHS, REACH and ELV regulations

## Contact Rating

Load Type	CAR (DM)	CAR (DB)	CAR (D)
Rated Load (Resistive)	40A 12VDC	40A 12VDC	NO: 40A 12VDC NC: 30A 12VDC
Rated Carrying Current	NO: 40A	NC: 40A	NO: 40A NC: 30A
Max. Allowable Voltage	DC 60V	DC 60V	DC 60V
Max. Allowable Current	40A	40A	NO: 40A NC: 30A
Max. Allowable Power Force	480W	480W	NO: 480W NC: 360W
Contact Material	Ag Alloy	Ag Alloy	Ag Alloy
Contact Form	SPST	SPST	SPDT

Load Type	CAR (LM)	CAR (LB)	CAR (L)
Rated Load (Resistive)	30A 12VDC	30A 12VDC	30A 12VDC
Rated Carrying Current	30A	30A	30A
Max. Allowable Voltage	DC 60V	DC 60V	DC 60V
Max. Allowable Current	30A	30A	30A
Max. Allowable Power Force	360W	360W	360W
Contact Material	Ag Alloy	Ag Alloy	Ag Alloy
Contact Form	SPST	SPST	SPDT

## Application

Seat Adjustment, Audio System, Air Conditioning Control, Fuel Pump Control, Lighting Control, Central Door Lock Control, Power Window Control, Sunroof Control

## Performance (at Initial Value)

- Contact Resistance ..... 100mΩ Max. @1A,6VDC
- Operate Time..... 10 mSec. Max.
- Release Time ..... 10 mSec. Max.
- Insulation Resistance ..... 100 MegaΩ Min. at 500VDC
- Dielectric Strength:
  - Between Coil & Contact.....1,200VAC at 50 Hz for one minute
  - Between Contacts ..... 750VAC at 50 Hz for one minute
- Max. On/Off Switching:
  - Electrical..... 20 Ops per Minute
  - Mechanical ..... 300 Ops per Minute

- Humidity Range ..... 95% at 20°C
  - Temperature Range..... -40~+85°C
  - Vibration:
    - Endurance ..... 10 to 55 Hz dual amplitude width 1.5mm
    - Error Operation..... 10 to 55 Hz dual amplitude width 1.5mm
  - Shock:
    - Endurance ..... 1,000 m/S<sup>2</sup>
    - Error Operation..... 100 m/S<sup>2</sup>
  - Life Expectancy:
    - Mechanical ..... 10<sup>7</sup> Operations at No Load condition
    - Electrical..... 10<sup>5</sup> Operations at Rated Resistive Load
  - Contact Material ..... Ag Alloy
  - Weight..... About 20.2g
- Safety Standard & File Number
- NIL

## Coil Specification (at 20 °C)

Coil Sensitivity	Nominal Voltage (VDC)	Nominal Current (mA)	Coil Resistance ( $\Omega \pm 10\%$ )	Power Consumption (W)	Pull-In Voltage (VDC)	Drop-Out Voltage (VDC)	Maximum Allowable Voltage (VDC)
CAR-D/DM/DB (Europe)	6	315.7	19	Abt.1.89	70% Maximum	5% Minimum	160%
	12	133.3	90	Abt.1.59			
	24	66.2	362				
	36	44	816				
	48	33	1450				
CAR-L/LM/LB (Europe)	6	100	60	Abt.0.6	75% Maximum	10% Minimum	160%
	12	50	240				
	24	25	960				
	36	16.7	2160				
	48	12.5	3840				
CAR-D/DM/DB (U.S.A.)	6	315.7	19	Abt.1.89	70% Maximum	5% Minimum	160%
	12	133.3	90	Abt.1.59			
	24	66.2	362				
	36	44	816				
	48	33	1450				
CAR-L/LM/LB (U.S.A.)	6	100	60	Abt.0.6	75% Maximum	10% Minimum	160%
	12	50	240				
	24	25	960				
	36	16.7	2160				
	48	12.5	3840				

### Further coils for motor vehicle applications on request.

The operating voltage limits  $U_{min}$  and  $U_{max}$  depend on temperature in accordance with the following formula:

$$U_{min tu} = K_i \times U_{min 20^\circ C} \quad \text{and} \quad U_{max tu} = K_u \times U_{max 20^\circ C}$$

$t_u$  = ambient temperature

$U_{min tu}$  = minimum voltage at ambient temperature  $t_u$

$U_{max tu}$  = maximum voltage at ambient temperature  $t_u$

$K_i$  and  $K_u$  = factors

$t_u$	-40°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C	85°C
$K_i$	0.764	0.804	0.843	0.882	0.921	0.961	1.000	1.039	1.079	1.118	1.157	1.197	1.236	1.255
$K_u$	1.081	1.069	1.056	1.043	1.029	1.014	1.000	0.985	0.969	0.953	0.935	0.917	0.897	0.887

## Ordering Information

CAR - SS - 1 12 D M E

Terminal Size:

E: Europe Version

U: U.S.A. Version

Contact Form:

Nil: One Form C

M: One Form A

B: One Form B

Coil Sensitivity:

D: Standard DC

L: High DC

Coil Voltage:

06: 6V, 12: 12V, 24: 24V, 36: 36V, 48: 48V

Number of Pole:

1: One Pole

Type of Sealing:

Nil: RT 0 Unclosed

SS: RT II Flux Proofed

SH: RT III Wash Tight

Type:

CAR

## Classification

Model	CAR		
Terminal Size	Europe Version		
Coil Sensitivity	Standard DC		
Contact Form	1C	1A	1B
Unclosed	CAR-1□□DE	CAR-1□□DME	CAR-1□□DBE
Flux Proofed	CAR-SS-1□□DE	CAR-SS-1□□DME	CAR-SS-1□□DBE
Wash Tight	CAR-SH-1□□DE	CAR-SH-1□□DME	CAR-SH-1□□DBE

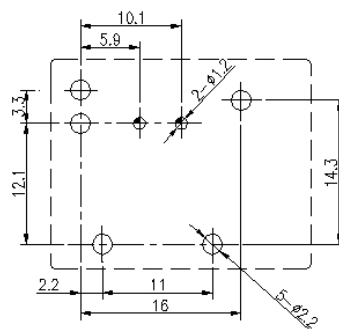
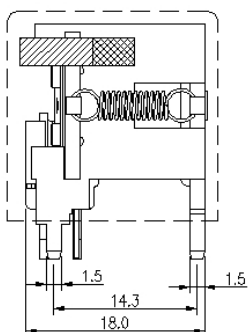
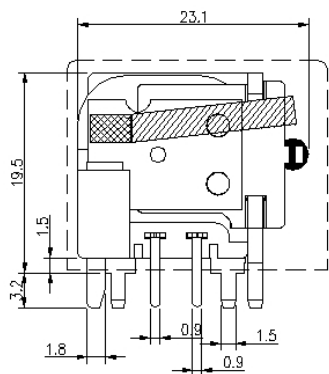
Model	CAR		
Terminal Size	Europe Version		
Coil Sensitivity	High DC		
Contact Form	1C	1A	1B
Unclosed	CAR-1□□LE	CAR-1□□LME	CAR-1□□LBE
Flux Proofed	CAR-SS-1□□LE	CAR-SS-1□□LME	CAR-SS-1□□LBE
Wash Tight	CAR-SH-1□□LE	CAR-SH-1□□LME	CAR-SH-1□□LBE

Model	CAR		
Terminal Size	U.S.A. Version		
Coil Sensitivity	Standard DC		
Contact Form	1C	1A	1B
Unclosed	CAR-1□□DU	CAR-1□□DMU	CAR-1□□DBU
Flux Proofed	CAR-SS-1□□DU	CAR-SS-1□□DMU	CAR-SS-1□□DBU
Wash Tight	CAR-SH-1□□DU	CAR-SH-1□□DMU	CAR-SH-1□□DBU

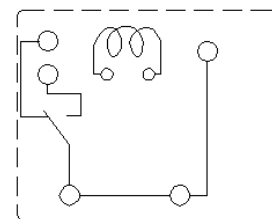
Model	CAR		
Terminal Size	U.S.A. Version		
Coil Sensitivity	High DC		
Contact Form	1C	1A	1B
Unclosed	CAR-1□□LU	CAR-1□□LMU	CAR-1□□LBU
Flux Proofed	CAR-SS-1□□LU	CAR-SS-1□□LMU	CAR-SS-1□□LBU
Wash Tight	CAR-SH-1□□LU	CAR-SH-1□□LMU	CAR-SH-1□□LBU

## Dimension

### EUROPE

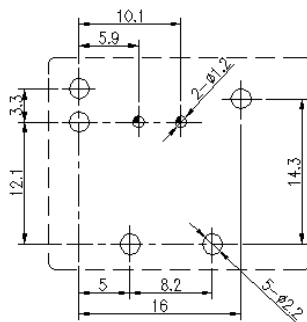
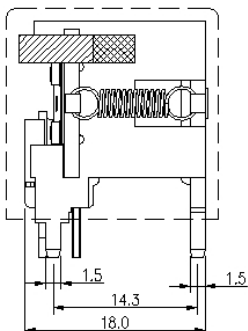
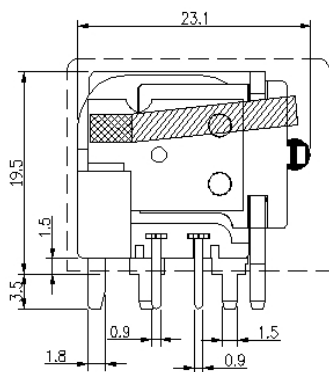


P.C.B. Layout

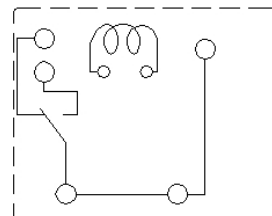


Bottom View

### U.S.A



P.C.B. Layout



Bottom View