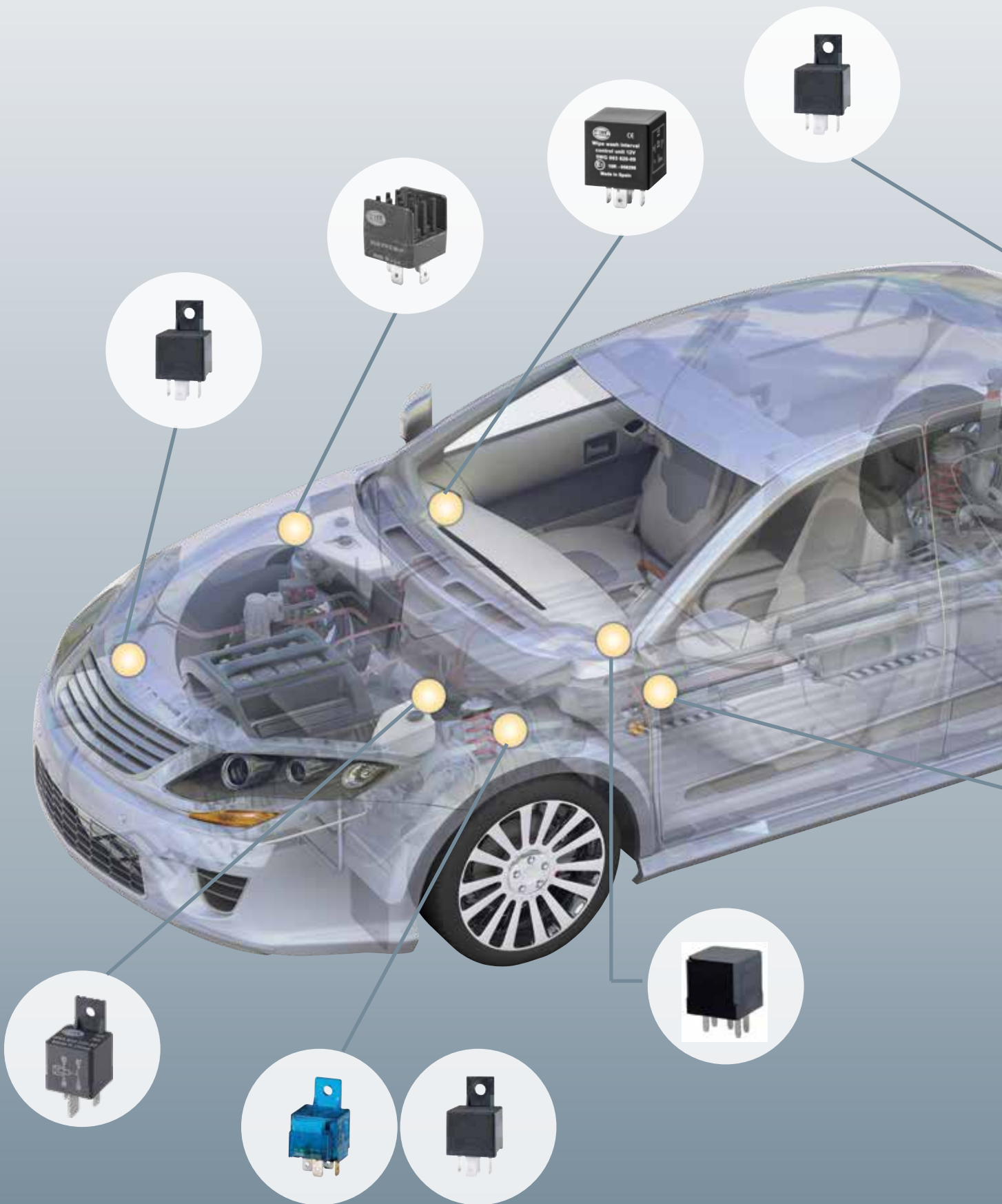




RELAYS AND FLASHERS PRODUCT RANGE



HELLA'S LITTLE HEROES





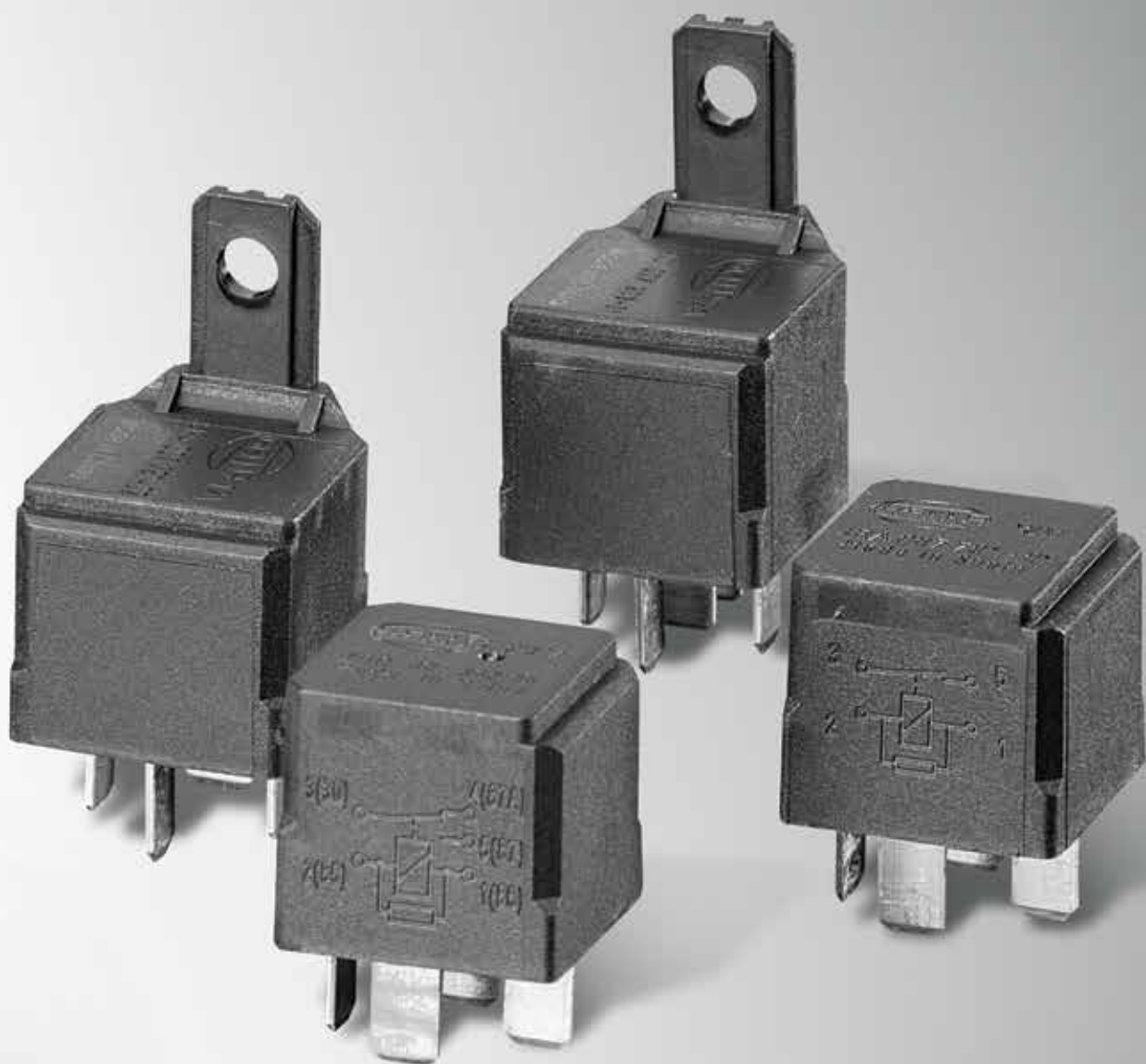
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Our catalog offers you an overview and detailed overview of the complete product range.

For more details and other applications, please see our website.

www.myhellalights.com



HELLA RELAYS

Relays have been used to remotely control circuits for over 180 years. The technology has proven its reliability millions of times and is today still the first choice for many applications, such as in automotive engineering.

HELLA produces more than 100 million units a year in its own facilities - thanks to optimized production at an attractive price and with one of the lowest failure rates in the entire industry.

Large volumes are produced in a fully automated process, with small volumes semi-automated. This means that we are able to quickly switch to semi-automatic production. HELLA is able to respond quickly to customer needs and create new variants in addition to its existing product range at short notice.

HELLA develops and produces relays for AGCO, Claas, Daimler AG, Ford, VW, GM, JCB, Opel/Vauxhall, Nissan, John Deere, Chrysler, Jaguar/Land Rover, BMW, Audi, Volvo, Renault, PSA and others. Many of our customer relationships have existed for decades.

HELLA Automotive Electronics are HELLA's world-class relay manufacturing plants, located in Xiamen (China), Berlin (Germany) and Flora, Illinois (USA); . Opened in 2003 and 100% owned by HELLA since January 2009, HELLA Automotive Electronics is HELLA's central resource worldwide, for the design and production of electromechanical relays, including some of our most popular products.

NOTE:

All information in this catalog is provided for reference use only and is subject to change without notice. HELLA is not responsible for the end use of the products, and care must be taken to ensure that the products are suitable for the application.

Key components of an electromechanical relay



Components

- 1 Contact plates CuZn (brass)
- 2 Armature
- 3 Pins for coil wire
- 4 Switch contacts
- 5 Coil made of Cu wire (copper)
- 6 Iron core (in the coil)
- 7 Blade terminal (load) made of E-Cu (electrolytic copper) with tin-plated surface
- 8 Blade terminal (coil) made of CuZn (brass) with tin-plated surface
- 9 Base plate
- 10 Coil body
- 11 Yoke



Functional principle

Relays are basically electrically operated switches which use an electromagnet to move a switching mechanism by switching one or more contacts. They are used where one or more load circuits need to be switched on or off by means of a control signal. Characteristic of the electromechanical relay is the complete (galvanic) isolation between the control and controlled circuits.

Make relays

Make relays are used to close an electric circuit between a power source and one or more electrical loads, i.e. the loads are switched on. Relays are operated by means of switches, pulse generators or control devices. Typical vehicle applications are headlights, auxiliary lights and fog lights, horns, heaters, air conditioner systems, etc.

How make relays work

Fig.1) The control circuit (86/85) is inactive and the return spring keeps the armature open. The make contacts are open and the load circuit (30/87) is interrupted.

Fig. 2) The control circuit (86/85) is active and the copper coil induces a magnetic field which pulls the armature down onto the magnetic core. The make contacts are closed and the load circuit (30/87) is therefore also closed.

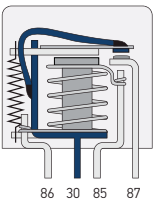


Fig. 1

Change-over relays

Change-over relays switch the load circuit over from one electrical load to another. These relays can be operated by a dashboard switch, for example. Change-over relays are used for switch applications with two stages/speeds such as heated rear windows or fan motors etc.

How change-over relays work

A change-over relay operates on the same principle as a make relay. The only difference is that the armature is connected to a second (alternative) output (87a) when released. As soon as the control circuit is active, the armature is pulled in, opens the break contact (87a) and switches over to the make contact (87). A changeover relay can be used as either a make or a break relay. By design, the switching current of the make contact is always higher than that of the break contact.

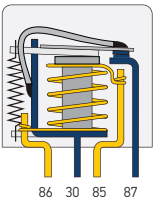


Fig. 2

Rated Voltage

- 12 V: for passenger cars, agricultural and construction machinery etc.
- 24 V: for commercial vehicles, buses, municipal vehicles etc.



Contacts and connector configurations

- 30 Load current +, terminal 15 (input)
- 85 Relay coil - (input)
- 86 Relay coil + (input)
- 87 Load current, make contact (output)
- 87a Load current, break contact (output)

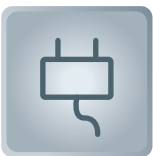


Fig. 3

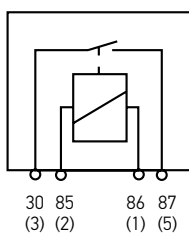
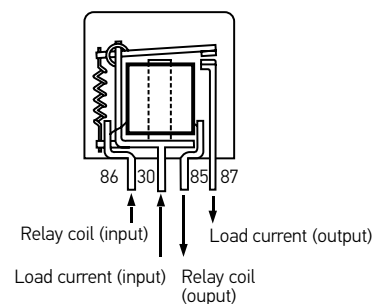
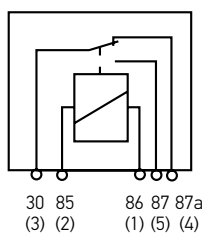


Fig. 4



Why use a relay?

Copper is one of the best conductors of electricity, which is why it is used to make electrical cables. However, it is not a perfect conductor, because it also opposes the flow of current.

The electrical resistance of a copper cable depends on its length and cross-sectional area. The longer and thinner the wire, the more resistance it will have.

A cable with higher electrical resistance will cause a voltage drop at the end of it, reducing the performance of the consuming element (light bulbs, electric locks, horn, etc.) that it is feeding.

Example: If the energy consuming element is a light bulb, a little less voltage will mean less light intensity.

The use of a relay in electrical circuits ensures that there are no significant voltage drops, optimizing the operation of the accessory or electrical consumer.



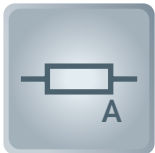
Coil circuit

In order to prevent voltage spikes caused by mutual inductance when switching off the coil current, our relays are in part equipped with resistors or diodes parallel to the coil.

Elimination of voltage spikes

When the relay is deactivated it can momentarily generate voltage spikes of 300V to 500V, these can damage or cause a malfunction in sensitive electronic equipment. The suppression of these voltage spikes is achieved with a relay with resistance or with a diode considering the following:

- A resistor suppression relay reduces these voltage spikes to less than 100V.
- A relay with diode suppression eliminates them completely (the polarity of the diode is marked on the side of the relay).

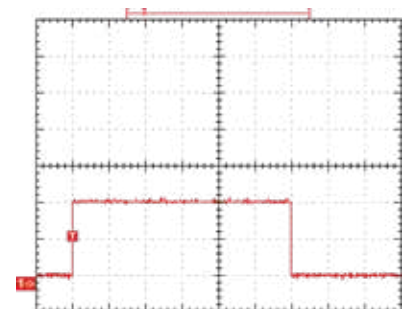


Rated load

(depending on load type)

→ Resistive load:

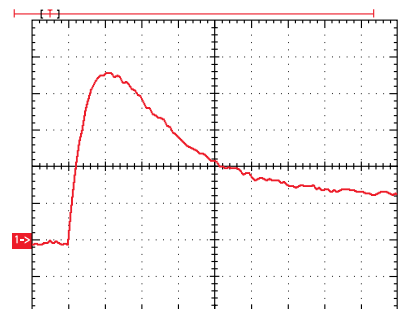
The current remains around the same from switch-on to switch-off (e.g. rear window heater).



Example load curve, resistive load

→ Inductive load:

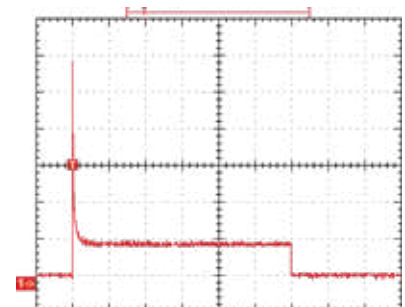
The inrush current increases to the rated current with a specific delay time due to the build-up of the inductor's magnetic field and then levels off (e.g. switching on a solenoid switch). During switch-off, a voltage of up to several thousand volts is (theoretically) induced, resulting in an electric arc between the relay contacts just opened.



Example load curve, inductive load

→ Capacitive/bulb load:

The inrush current of a capacitive load or a lamp can rise to ten times the rated current before leveling off to the rated current.



Example load curve, capacitive/bulb load

Relay types



Mini relays

Mini relays according to ISO 7588-1, blade terminals according to ISO 8092-1.

Contact arrangements: make contact, change-over contact, max. 40 A switching power (make contact), rated voltage: 12 V, 24 V

Areas of application include: headlights, starters, fuel pumps, fan motors, horns and fanfares.



Micro relay

Micro relays according to ISO 7588-3 (1988), blade terminals according to ISO 8092-1.

Contact arrangements: make contact, change-over contact, max. 20 A switching power (make contact), rated voltage: 12 V, 24 V

Areas of application include: fuel pumps, air conditioning systems, windshield washer systems, wiper motors.



High-power relay

Mini relay version with larger dimensions, blade terminals according to ISO 8092-1.

Contact arrangement: make contact, change-over contact, max. 60 A switching power, rated voltage: 12 V, 24 V

Areas of application include: battery disconnect relays, starter motors, glow plugs, ignitions, windshield heating.



Solid state relay

Mini semiconductor relays according to ISO 7588-1, blade terminals according to ISO 8092-1.

Contact arrangement: make contact, max. 22 A switching power (make contact), rated voltage: 12 V

Areas of application include: vacuum pumps for brake booster support, daytime running lights.



Battery disconnect relay

Bi-stable electromechanical relay with one or two coils.

Contact arrangement: make contact, max. 180 A switching power, rated voltage: 12 V

Areas of application include: disconnecting the vehicle electric system from the battery in the event of accidents or for maintenance, retain battery charge by switching off quiescent current

Typical Applications

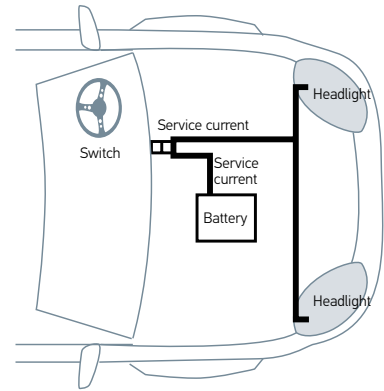
HEADLIGHTS

Wrong connection (no relay):

The feed current should travel from the battery to the headlights, via the switch on the dashboard using heavy gauge wire.

Results:

- Voltage drop causing reduced headlight performance (less light).
- Possible switch overload.
- Installation heating.



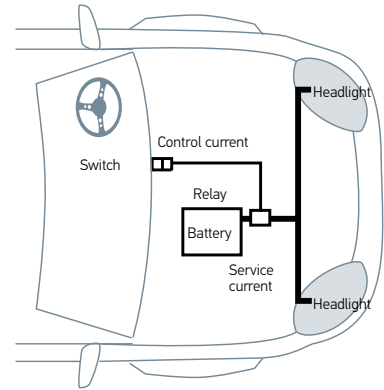
Correct connection (with relay):

The supply current is directed by the shortest path between the battery and the headlights through the relay.

From the switch on the board to the relay, a (control) cable of only 0.75 mm² is sufficient (the current consumption of this cable is less than 150 mA).

Results:

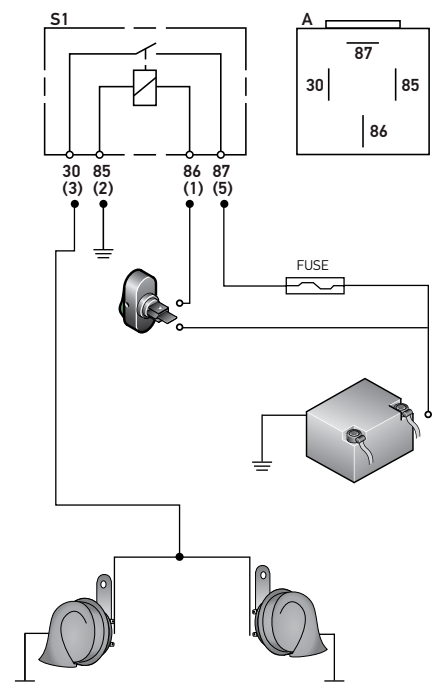
- Virtually the entire power supply reaches the consumer.



HORNS

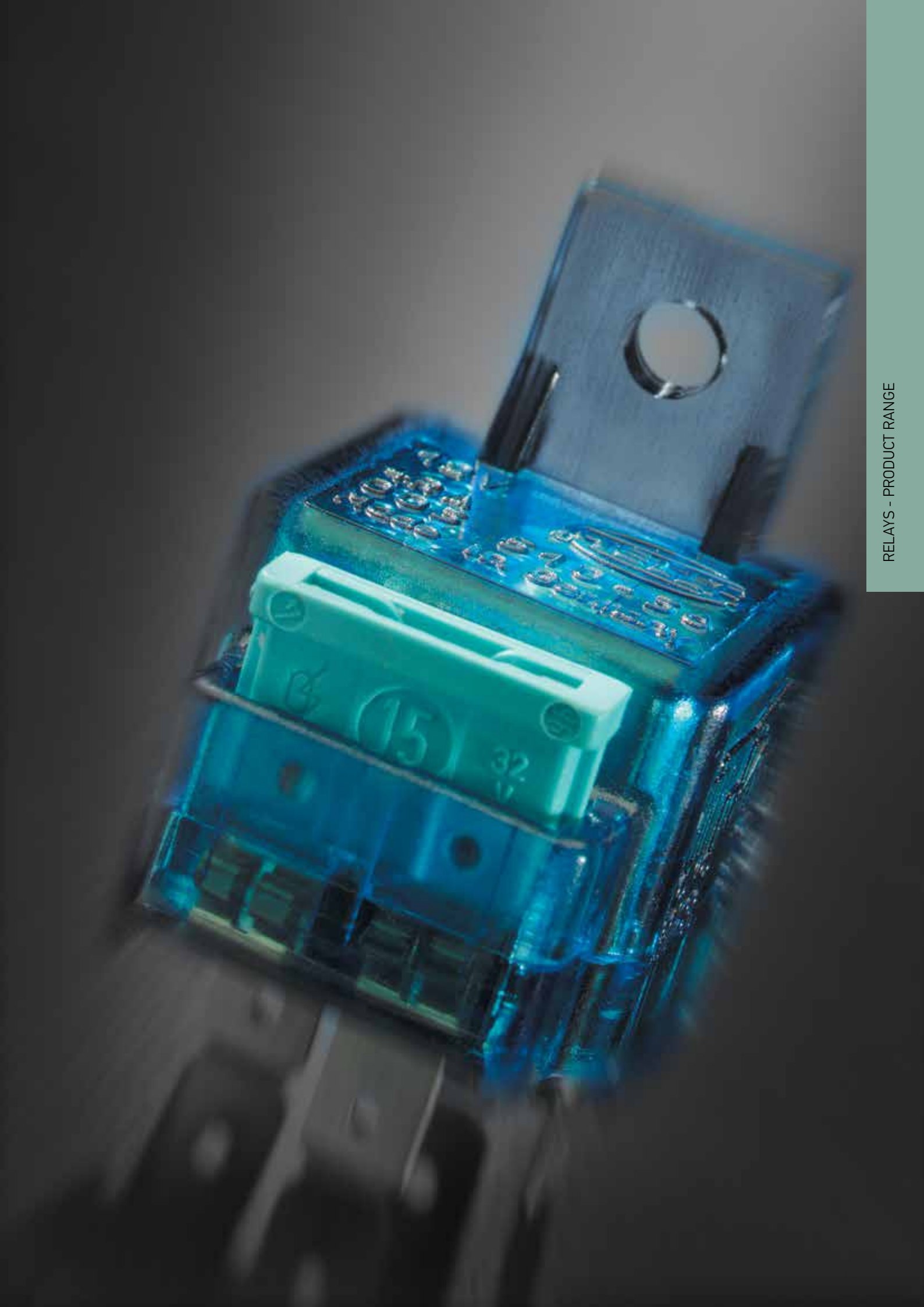
The most common automotive relay is the 4 PIN normally open relay. In the illustrated example (see diagram), the relay serves to open and close the circuit that connects the speakers to the battery. In the normal (inactive) setting, the solid state relay breaks the circuit. As soon as the push button switch is pressed (usually the wires are connected to the horn push button) the coil in the relay builds up a magnetic induction and the armature closes the load circuit. The horns remain energized until the switch is released and the return spring moves away from the armature which opens the make contacts.

Diagram indicating wiring / current flow of HELLA TE16 (Horn Set) or B7424 (Horn Set).



HELLA 4-Pin Relay (N/A) (12V) | (24V)

- Terminal Configuration
- 30) Exit
 - 85) Relay coil - (input)
 - 86) Relay coil + (input)
 - 87) Battery (+)



THE ULTIMATE IN THE ART OF RELAYS




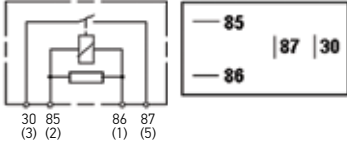

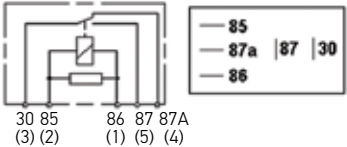

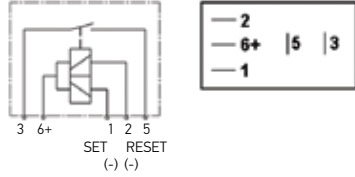

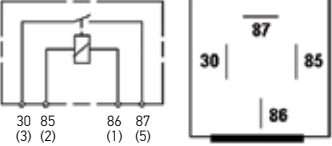

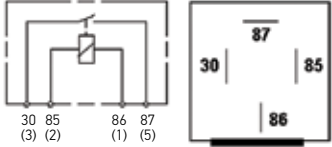
MICROSITE: Consult vehicle specific application in our website for detailed information:

www.partcat.com/hella



ELECTRICS


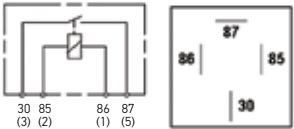

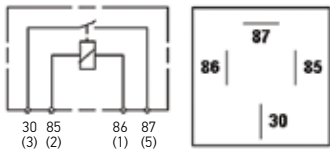

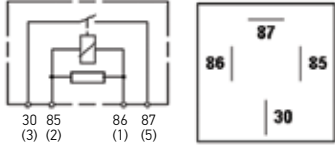

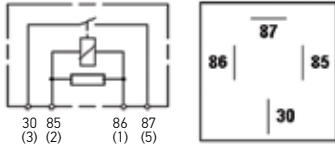

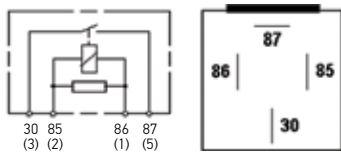
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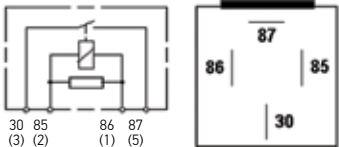

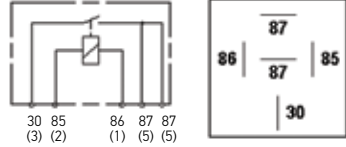

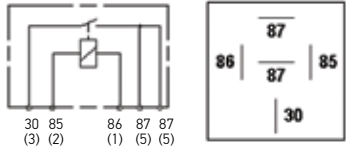

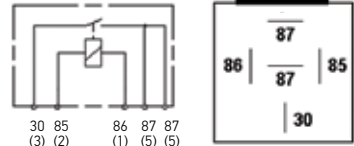

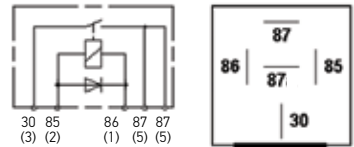
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RELAYS - PRODUCT RANGE

ELECTRICS


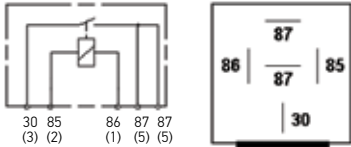

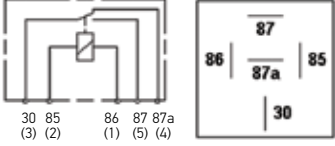

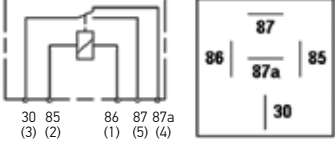

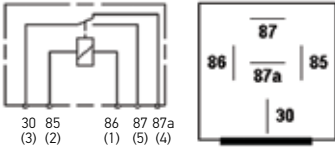

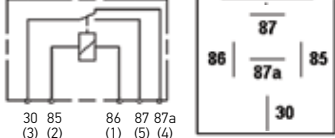
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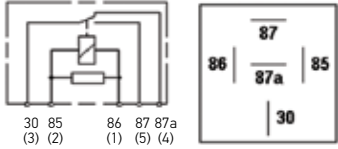

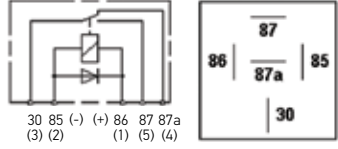

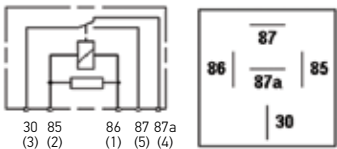

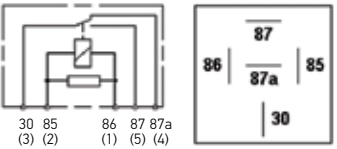

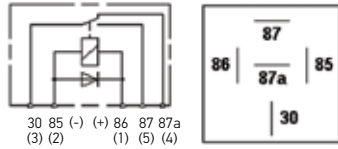
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Product image / Dimensions	Features	Part Number	Technical Specifications						
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Voltaje Nominal	24 V								
Rated Current	20A at 85°C								
Contact form	1 Form A / SPST N/O								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Dust Cover • 40 Amp • Dual Output (2x Terminal 87) 	<p>933791161</p> <p>933791167</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 40</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>40A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O (2 x Terminal 87)</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	40A at 85°C	Contact form	1 Form A / SPST N/O (2 x Terminal 87)
Voltaje Nominal	12 V								
Rated Current	40A at 85°C								
Contact form	1 Form A / SPST N/O (2 x Terminal 87)								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 24 V • SPST / Form A • Dust Cover • 20 Amp • Dual Output (2x Terminal 87) 	<p>933791141</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O (2x Terminal 87)</td> </tr> </table>	Voltaje Nominal	24 V	Rated Current	20A at 85°C	Contact form	1 Form A / SPST N/O (2x Terminal 87)
Voltaje Nominal	24 V								
Rated Current	20A at 85°C								
Contact form	1 Form A / SPST N/O (2x Terminal 87)								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Mounting Bracket • 40 Amp • Dual Output (2x Terminal 87) 	<p>933791121</p> <p>933791127</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 40</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>40A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O (2 x Terminal 87)</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	40A at 85°C	Contact form	1 Form A / SPST N/O (2 x Terminal 87)
Voltaje Nominal	12 V								
Rated Current	40A at 85°C								
Contact form	1 Form A / SPST N/O (2 x Terminal 87)								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Mounting Bracket • 40 Amp • Dual Output (2x Terminal 87) • Diode Coil Suppression 	<p>933791151</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>40A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O (2x Terminal 87)</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	40A at 85°C	Contact form	1 Form A / SPST N/O (2x Terminal 87)
Voltaje Nominal	12 V								
Rated Current	40A at 85°C								
Contact form	1 Form A / SPST N/O (2x Terminal 87)								

ELECTRICS


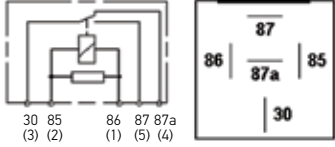

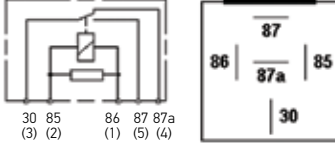

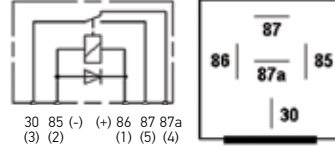

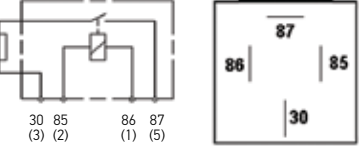

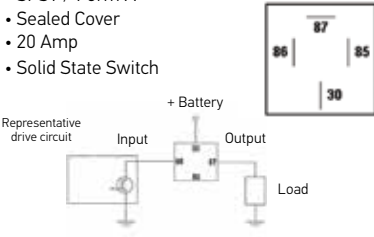
RELAYS


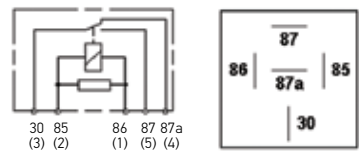

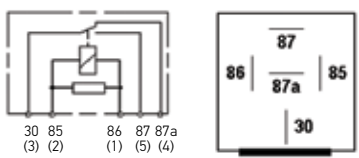

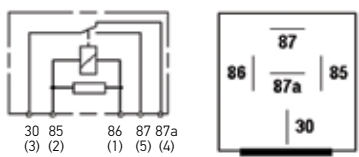

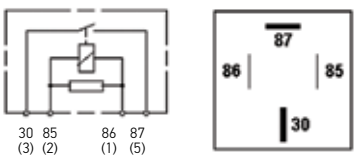

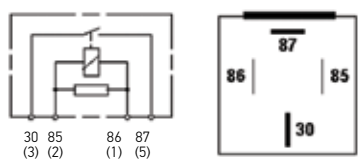
Product image / Dimensions	Features	Part Number	Technical Specifications				
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPST / Form A • Mounting Bracket • 20 Amp • Dual output (2 x Terminal 87) 	933791131	Minimum Order Quantity: 1				
		Technical Data	<table border="1"> <tr> <td>Voltage Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O (2 x Terminal 87)</td> </tr> </table>	Voltage Nominal	24 V	Rated Current	20A at 85°C
Voltage Nominal	24 V						
Rated Current	20A at 85°C						
Contact form	1 Form A / SPST N/O (2 x Terminal 87)						
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • 40 Amp • Dust cover 	933332401	Minimum Order Quantity: 1				
		933332407	Pack - Minimum Order Quantity: 40				
Technical Data	<table border="1"> <tr> <td>Voltage Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 40A N/C 20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltage Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C	Contact form	1 Form C / SPDT
Voltage Nominal	12 V						
Rated Current	N/O 40A N/C 20A at 85°C						
Contact form	1 Form C / SPDT						
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • 20 Amp • Dust cover 	933332421	Minimum Order Quantity: 1				
		933332427	Minimum Order Quantity: 40				
Technical Data	<table border="1"> <tr> <td>Voltage Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 20A N/C 10A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltage Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C	Contact form	1 Form C / SPDT
Voltage Nominal	24 V						
Rated Current	N/O 20A N/C 10A at 85°C						
Contact form	1 Form C / SPDT						
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • 40 Amp • Mounting Bracket 	933332361	Minimum Order Quantity: 1				
		Technical Data	<table border="1"> <tr> <td>Voltage Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 40A N/C 20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltage Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C
Voltage Nominal	12 V						
Rated Current	N/O 40A N/C 20A at 85°C						
Contact form	1 Form C / SPDT						
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • 20 Amp • Mounting Bracket 	933332411	Minimum Order Quantity: 1				
		933332417	Pack - Minimum Order Quantity: 40				
Technical Data	<table border="1"> <tr> <td>Voltage Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 20A N/C 10A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltage Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C	Contact form	1 Form C / SPDT
Voltage Nominal	24 V						
Rated Current	N/O 20A N/C 10A at 85°C						
Contact form	1 Form C / SPDT						

Product image / Dimensions	Features	Part Number	Technical Specifications					
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Dust cover • 40 Amp • Resistor Coil Suppression 	93332641	Minimum Order Quantity: 1					
		Technical Data	<table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 40A N/C 20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>		Voltaje Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C
Voltaje Nominal	12 V							
Rated Current	N/O 40A N/C 20A at 85°C							
Contact form	1 Form C / SPDT							
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Dust cover • 40 Amp • Diode Coil Suppression • Dust Cover 	007794041	Minimum Order Quantity: 1					
		007794047	Pack - Minimum Order Quantity: 200					
Technical Data	<table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 40A N/C 20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>		Voltaje Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	12 V							
Rated Current	N/O 40A N/C 20A at 85°C							
Contact form	1 Form C / SPDT							
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Sealed cover • 40 Amp • Resistor Coil Suppression 	931680901	Minimum Order Quantity: 1					
		931680017	Pack - Minimum Order Quantity: 360					
Technical Data	<table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 40A N/C 20A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>		Voltaje Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	12 V							
Rated Current	N/O 40A N/C 20A at 85°C							
Contact form	1 Form C / SPDT							
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • Dust cover • 20 Amp • Resistor Coil Suppression 	93332611	Minimum Order Quantity: 1					
		Technical Data	<table border="1"> <tr> <td>Voltaje Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 20A N/C 10A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>		Voltaje Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C
Voltaje Nominal	24 V							
Rated Current	N/O 20A N/C 10A at 85°C							
Contact form	1 Form C / SPDT							
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • Dust cover • 20 Amp • Diode Coil Suppression 	93332441	Minimum Order Quantity: 1					
		93332447	Minimum Order Quantity: 40					
Technical Data	<table border="1"> <tr> <td>Voltaje Nominal</td> <td>24 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 20A N/C 10A at 85°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>		Voltaje Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	24 V							
Rated Current	N/O 20A N/C 10A at 85°C							
Contact form	1 Form C / SPDT							

ELECTRICS


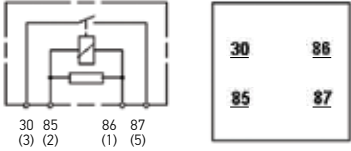

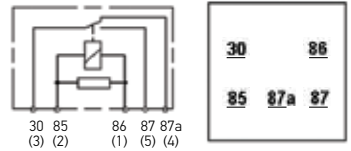

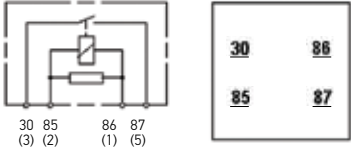

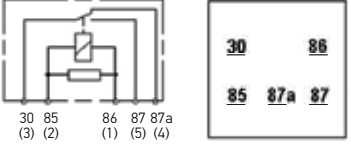
RELAYS


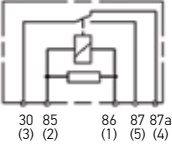
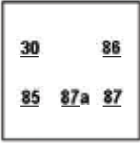

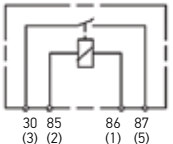
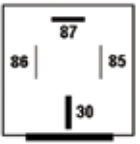

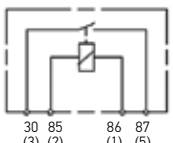
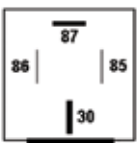
Product image / Dimensions	Features	Part Number	Technical Specifications						
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Mounting Bracket • 40 Amp • Resistor Coil Suppression 	<p>93332661</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr><td>Voltaje Nominal</td><td>12 V</td></tr> <tr><td>Rated Current</td><td>N/O 40A N/C 20A at 85°C</td></tr> <tr><td>Contact form</td><td>1 Form C / SPDT</td></tr> </table>	Voltaje Nominal	12 V	Rated Current	N/O 40A N/C 20A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	12 V								
Rated Current	N/O 40A N/C 20A at 85°C								
Contact form	1 Form C / SPDT								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • Mounting Bracket • 20 Amp • Resistor Coil Suppression 	<p>93332701</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr><td>Voltaje Nominal</td><td>24 V</td></tr> <tr><td>Rated Current</td><td>N/O 20A N/C 10A at 85°C</td></tr> <tr><td>Contact form</td><td>1 Form C / SPDT</td></tr> </table>	Voltaje Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	24 V								
Rated Current	N/O 20A N/C 10A at 85°C								
Contact form	1 Form C / SPDT								
<p>Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • Mounting Bracket • 20 Amp • Diode Coil Suppression 	<p>93332681</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr><td>Voltaje Nominal</td><td>24 V</td></tr> <tr><td>Rated Current</td><td>N/O 20A N/C 10A at 85°C</td></tr> <tr><td>Contact form</td><td>1 Form C / SPDT</td></tr> </table>	Voltaje Nominal	24 V	Rated Current	N/O 20A N/C 10A at 85°C	Contact form	1 Form C / SPDT
Voltaje Nominal	24 V								
Rated Current	N/O 20A N/C 10A at 85°C								
Contact form	1 Form C / SPDT								
<p>Mini Relay ISO with built-in 25A fuse</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Mounting Bracket • 30 Amp • With Built-in 25Amp Fuse 	<p>93332801</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <table border="1"> <tr><td>Voltaje Nominal</td><td>12 V</td></tr> <tr><td>Rated Current</td><td>30A at 23°C</td></tr> <tr><td>Contact form</td><td>1 Form A / SPST N/O</td></tr> </table>	Voltaje Nominal	12 V	Rated Current	30A at 23°C	Contact form	1 Form A / SPST N/O
Voltaje Nominal	12 V								
Rated Current	30A at 23°C								
Contact form	1 Form A / SPST N/O								
<p>Solid State Mini Relay ISO</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Sealed Cover • 20 Amp • Solid State Switch 	<p>931774031</p> <p>931774037</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 189</p> <table border="1"> <tr><td>Voltaje Nominal</td><td>12 V</td></tr> <tr><td>Rated Current</td><td>20A at 85°C</td></tr> <tr><td>Contact form</td><td>1 Form A / SPST N/O</td></tr> </table>	Voltaje Nominal	12 V	Rated Current	20A at 85°C	Contact form	1 Form A / SPST N/O
Voltaje Nominal	12 V								
Rated Current	20A at 85°C								
Contact form	1 Form A / SPST N/O								

Product image / Dimensions	Features	Part Number	Technical Specifications
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • 40 Amp • Resistor Coil Suppression • Weatherproof Cover 	007794931	Minimum Order Quantity: 1
		007794327	Pack - Minimum Order Quantity: 150
		Technical Data	
		Voltage Nominal	12 V
		Rated Current	N/O 40A N/C 20A at 85°C
		Contact form	1 Form C / SPDT
		Relay universal mounting bracket universal	
		H84975001	Quantity: 10 pieces
		960975001	Quantity: 100 pieces
Mini Relay ISO 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Mounting Bracket • 40 Amp • Resistor Coil Suppression • Weatherproof Cover 	007794911 (007794301)	Minimum Order Quantity: 1
		007794307	Pack - Minimum Order Quantity: 150
		Technical Data	
		Voltage Nominal	12 V
		Rated Current	N/O 40A N/C 20A at 85°C
		Contact form	1 Form C / SPDT
Mini Relay ISO 	<ul style="list-style-type: none"> • 24 V • SPDT / Form C • Mounting Bracket • 20 Amp • Resistor Coil Suppression • Weatherproof Cover 	933332201	Minimum Order Quantity: 1
		933332207	Pack - Minimum Order Quantity: 80
		Technical Data	
		Voltage Nominal	24 V
		Rated Current	N/O 20A N/C 10A at 85°C
		Contact form	1 Form C / SPDT
Mini ISO Power Relay 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Dust cover • 50 Amp • Resistor Coil Suppression 	933332531	Minimum Order Quantity: 1
		Voltage Nominal	12 V
		Rated Current	50A at 85°C
		Contact form	1 Form A / SPST N/O
Mini ISO Power Relay 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • Mounting Bracket • 50 Amp • Resistor Coil Suppression 	933332521	Minimum Order Quantity: 1
		Voltage Nominal	12 V
		Rated Current	50A at 85°C
		Contact form	1 Form A / SPST N/O

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RELAYS

Product image / Dimensions	Features	Part Number	Technical Specifications						
<p>Micro Relay 280</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • 30 Amp • Resistor Coil Suppression • Dust Cover 	<p>933332571</p> <p>Technical Data</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>30A at 125°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	30A at 125°C	Contact form	1 Form A / SPST N/O	<p>Minimum Order Quantity: 1</p>
Voltaje Nominal	12 V								
Rated Current	30A at 125°C								
Contact form	1 Form A / SPST N/O								
<p>Micro Relay 280</p> 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • 30 Amp • Resistor Coil Suppression • Dust Cover 	<p>933332581</p> <p>Technical Data</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 30A N/C 20A at 125°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	N/O 30A N/C 20A at 125°C	Contact form	1 Form C / SPDT	<p>Minimum Order Quantity: 1</p>
Voltaje Nominal	12 V								
Rated Current	N/O 30A N/C 20A at 125°C								
Contact form	1 Form C / SPDT								
<p>Micro Relay 280</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • 35 Amp • Resistor Coil Suppression • Dust Cover 	<p>933332591</p> <p>Technical Data</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>35A at 125°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form A / SPST N/O</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	35A at 125°C	Contact form	1 Form A / SPST N/O	<p>Minimum Order Quantity: 1</p>
Voltaje Nominal	12 V								
Rated Current	35A at 125°C								
Contact form	1 Form A / SPST N/O								
<p>Micro Relay 280</p> 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • 35 Amp • Resistor Coil Suppression • Dust Cover 	<p>933332601</p> <p>Technical Data</p> <table border="1"> <tr> <td>Voltaje Nominal</td> <td>12 V</td> </tr> <tr> <td>Rated Current</td> <td>N/O 35A N/C 20A at 125°C</td> </tr> <tr> <td>Contact form</td> <td>1 Form C / SPDT</td> </tr> </table>	Voltaje Nominal	12 V	Rated Current	N/O 35A N/C 20A at 125°C	Contact form	1 Form C / SPDT	<p>Minimum Order Quantity: 1</p>
Voltaje Nominal	12 V								
Rated Current	N/O 35A N/C 20A at 125°C								
Contact form	1 Form C / SPDT								

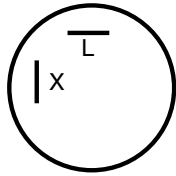
Product image / Dimensions	Features	Part Number	Technical Specifications
<p>Mini Relay 280</p> 	<ul style="list-style-type: none"> • 12 V • SPDT / Form C • Mounting Bracket • 35 Amp • Weatherproof Cover • Resistor Coil Suppression  	<p>With mounting bracket</p> <p>931410082 (H41410081)</p> <p>931410087</p> <p>Without mounting bracket</p> <p>931410901 (H41410051)</p> <p>931410057</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 80</p> <p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 80</p> <p>Voltaje Nominal: 12 V</p> <p>Rated Current: N/O 35A N/C 20A at 85°C</p> <p>Contact form: 1 Form C / SPDT</p> <p>Relay universal mounting bracket universal</p> <p>358112031 Quantity: 10 pieces</p> <p>931489901 Quantity: 100 pieces</p>
<p>Mini Relay ISO Heavy Duty</p> 	<ul style="list-style-type: none"> • 12 V • SPST / Form A • 60 Amp • Mounting Bracket  	<p>003437081</p> <p>003437087</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 120</p> <p>Voltaje Nominal: 12 V</p> <p>Rated Current: 60A at 85°C</p> <p>Contact form: 1 Form A / SPST N/O</p>
<p>Mini Relay ISO Heavy Duty</p> 	<ul style="list-style-type: none"> • 24 V • SPST / Form A • 60 Amp • Mounting Bracket  	<p>003437092 (H41437091)</p> <p>003437097</p> <p>Technical Data</p>	<p>Minimum Order Quantity: 1</p> <p>Pack - Minimum Order Quantity: 120</p> <p>Voltaje Nominal: 24 V</p> <p>Rated Current: 60A at 85°C</p> <p>Contact form: 1 Form A / SPST N/O</p>

ELECTRICS

FLASHERS

Product image / Dimensions	Features	Part Number	Technical Specifications
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Flasher 2 Terminals



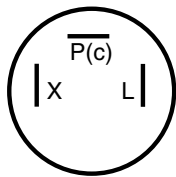
Common Pin Designations

Terminal	Description
49/X	Flashing input (+)
49a/L	Flasher output (+) to lamps or indicator switch
30b	Flasher input (+) from hazard switch
31	Ground (-)
C/C1/CP/P	Vehicle pilot lamp output (+)
C2	1st trailer pilot lamp output (+)
C3	2nd trailer pilot lamp output (+)

Part No.	Description
961553151	2 Pin Flasher Unit - 12 V (Single)
961553157	2 Pin Flasher Unit - 12 V (Bulk 50 Pieces)

High capacity flasher with 6 bulb maximum.
 Suitable for hazard warning applications.
 Max Load: 12 lamps / 25 Amps (Hazard)
 Bracket: H84677001

Flasher 3 Terminals



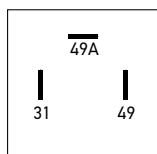
Part No.	Description
961553161	3 Pin Flasher Unit - 12 V (Single)
961553167	3 Pin Flasher Unit - 12 V (Bulk 50 Pieces)

High capacity flasher with 6 bulb maximum.
 Suitable for hazard warning applications.
 Max Load: 12 lamps / 25 Amps (Hazard)
 Bracket: H84677001

961553171	3 Pin Flasher Unit - 24 V (Single)
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High capacity flasher with 5 bulb maximum.
 Suitable for hazard warning applications.
 Max Load: 10 lamps SAE # 1683 (Hazard)
 Bracket: H84677001

Flasher 3 Terminals


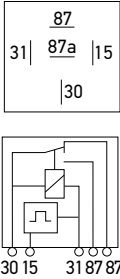

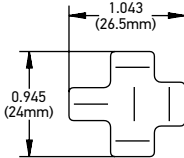

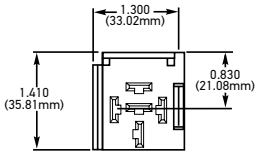

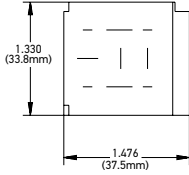

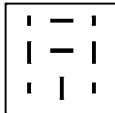


931675911 (H42675031)	3 Pin Flasher Unit - 12 V (Individual)
931675037	3 Pin Flasher Unit - 12 V (Bulk 210 pieces)

High capacity flasher with 8 bulb maximum
 Suitable for hazard warning applications
 Max. Load: 16 Bulbs (Hazard)

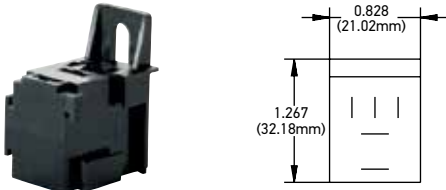
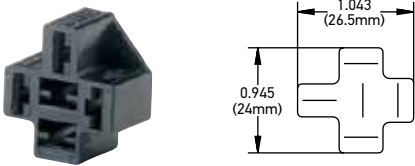
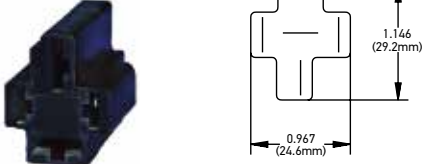

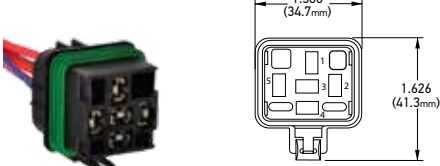
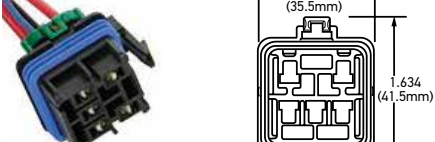
ELECTRICS

RELAYS

Product image / Dimensions	Features															
<p>Ajustable Control Time Delay Unit</p>   <p>Terminal diagram labels: 87, 31, 87a, 15, 30, 30, 15, 31, 87, 87a</p>	<p>996152131 Ajustable Control Time Delay Unit - Delay on Release - 12 V</p> <p>996152141 Ajustable Control Time Delay Unit - Delay on Release - 24 V</p> <p>996152151 Ajustable Control Time Delay Unit - Delay on Operate - 12 V</p> <p>996152161 Ajustable Control Time Delay Unit - Delay on Operate - 24 V</p> <p>Designed for a wide range of applications requiring a time delayed switch on or off.</p> <p>Time Delay Range: 0 to 900 seconds</p> <table border="1" data-bbox="639 613 1481 768"> <thead> <tr> <th>S1</th> <th>S2</th> <th>T(s)</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Off</td> <td>100...900</td> </tr> <tr> <td>On</td> <td>On</td> <td>14...110</td> </tr> <tr> <td>On</td> <td>Off</td> <td>2.5...14</td> </tr> <tr> <td>Off</td> <td>On</td> <td>0...2.5</td> </tr> </tbody> </table>	S1	S2	T(s)	Off	Off	100...900	On	On	14...110	On	Off	2.5...14	Off	On	0...2.5
S1	S2	T(s)														
Off	Off	100...900														
On	On	14...110														
On	Off	2.5...14														
Off	On	0...2.5														
<p>Relay Socket - Mini ISO</p>   <p>Dimensions: 1.043 (26.5mm), 0.945 (24mm)</p>	<p>5 terminals, printed circuit board</p> <table border="1" data-bbox="639 860 1481 972"> <tbody> <tr> <td>358112171 (H84989031)</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358112111 (H84989037)</td> <td>Quantity: 50 pieces</td> </tr> <tr> <td>358112321 (U84989037)</td> <td>Quantity: 2500 pieces</td> </tr> </tbody> </table>	358112171 (H84989031)	Quantity: 1 piece	358112111 (H84989037)	Quantity: 50 pieces	358112321 (U84989037)	Quantity: 2500 pieces									
358112171 (H84989031)	Quantity: 1 piece															
358112111 (H84989037)	Quantity: 50 pieces															
358112321 (U84989037)	Quantity: 2500 pieces															
<p>Relay Socket - Mini ISO</p>   <p>Dimensions: 1.300 (33.02mm), 1.410 (35.81mm), 0.830 (21.08mm)</p>	<p>Bracket mount, connector block</p> <table border="1" data-bbox="639 1167 1481 1279"> <tbody> <tr> <td>358112141 (H84989011)</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358112131 (H84989017)</td> <td>Quantity: 50 pieces</td> </tr> <tr> <td>358112301 (U84989017)</td> <td>Quantity: 1000 pieces</td> </tr> </tbody> </table>	358112141 (H84989011)	Quantity: 1 piece	358112131 (H84989017)	Quantity: 50 pieces	358112301 (U84989017)	Quantity: 1000 pieces									
358112141 (H84989011)	Quantity: 1 piece															
358112131 (H84989017)	Quantity: 50 pieces															
358112301 (U84989017)	Quantity: 1000 pieces															
<p>Relay Socket - Mini ISO</p>   <p>Dimensions: 1.330 (33.8mm), 1.476 (37.5mm)</p>	<p>5 or 9 terminals, bracket mount, connector block</p> <table border="1" data-bbox="639 1464 1481 1541"> <tbody> <tr> <td>003526001</td> <td>Quantity: 5 pieces</td> </tr> <tr> <td>003526002</td> <td>Quantity: 50 pieces</td> </tr> </tbody> </table>	003526001	Quantity: 5 pieces	003526002	Quantity: 50 pieces											
003526001	Quantity: 5 pieces															
003526002	Quantity: 50 pieces															
<p>Relay Socket - 9 pins</p>  	<p>SAE relay socket, 9 pins</p> <p>Suitable for 2 flat plugs of 6.3 mm, 2 of 9.5 mm and 4 of 2.8 mm.</p> <table border="1" data-bbox="639 1839 1481 1872"> <tbody> <tr> <td>183161002</td> <td>Quantity: 5 pieces</td> </tr> </tbody> </table>	183161002	Quantity: 5 pieces													
183161002	Quantity: 5 pieces															

ELECTRICS

RELAYS ACCESSORIES

Product image / Dimensions	Part Number	Description						
<p>Relay Socket - Micro ISO</p> 	<p>5 or 9 terminals, bracket mount</p> <table border="1" data-bbox="614 344 1452 461"> <tr> <td>358112161 (H84702001)</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358112091 (H84702007)</td> <td>Quantity: 50 pieces</td> </tr> <tr> <td>358112241 (U84702007)</td> <td>Quantity: 2250 pieces</td> </tr> </table>	358112161 (H84702001)	Quantity: 1 piece	358112091 (H84702007)	Quantity: 50 pieces	358112241 (U84702007)	Quantity: 2250 pieces	
358112161 (H84702001)	Quantity: 1 piece							
358112091 (H84702007)	Quantity: 50 pieces							
358112241 (U84702007)	Quantity: 2250 pieces							
<p>Relay socket - Mini ISO</p> 	<p>Wire harness connector</p> <table border="1" data-bbox="614 629 1452 745"> <tr> <td>358112181 (H84989021)</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358112121 (H84989027)</td> <td>Quantity: 50 pieces</td> </tr> <tr> <td>358112311 (U84989027)</td> <td>Quantity: 1000 pieces</td> </tr> </table>	358112181 (H84989021)	Quantity: 1 piece	358112121 (H84989027)	Quantity: 50 pieces	358112311 (U84989027)	Quantity: 1000 pieces	
358112181 (H84989021)	Quantity: 1 piece							
358112121 (H84989027)	Quantity: 50 pieces							
358112311 (U84989027)	Quantity: 1000 pieces							
<p>Relay socket - Mini ISO</p> 	<p>High current (50A), wire harness connector</p> <table border="1" data-bbox="614 875 1452 992"> <tr> <td>358112191 (H84703001)</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358112151 (H84703007)</td> <td>Quantity: 50 pieces</td> </tr> <tr> <td>358112251 (U84703007)</td> <td>Quantity: 700 pieces</td> </tr> </table>	358112191 (H84703001)	Quantity: 1 piece	358112151 (H84703007)	Quantity: 50 pieces	358112251 (U84703007)	Quantity: 700 pieces	
358112191 (H84703001)	Quantity: 1 piece							
358112151 (H84703007)	Quantity: 50 pieces							
358112251 (U84703007)	Quantity: 700 pieces							
<p>Relay Socket - Mini ISO</p> 	<p>Weatherproof relay connector kit</p> <table border="1" data-bbox="614 1115 1452 1149"> <tr> <td>358112101 (H84709011)</td> <td>Quantity: 1 piece</td> </tr> </table>	358112101 (H84709011)	Quantity: 1 piece					
358112101 (H84709011)	Quantity: 1 piece							
<p>Relay Socket - Mini ISO</p> 	<p>Weatherproof relay connector with 12" leads</p> <table border="1" data-bbox="614 1384 1452 1417"> <tr> <td>358114921 (H84709001)</td> <td>Quantity: 1 pieces</td> </tr> </table>	358114921 (H84709001)	Quantity: 1 pieces					
358114921 (H84709001)	Quantity: 1 pieces							
<p>Relay Socket - Mini 280</p> 	<p>Weatherproof relay connector with 12" leads</p> <table border="1" data-bbox="614 1653 1452 1686"> <tr> <td>358114931 (H84708001)</td> <td>Quantity: 1 pieces</td> </tr> </table>	358114931 (H84708001)	Quantity: 1 pieces					
358114931 (H84708001)	Quantity: 1 pieces							

Product image / Dimensions	Part Number	Description
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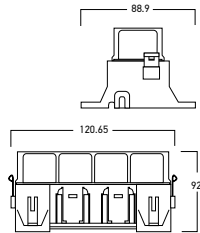
Female Terminals



Female Terminals with Catch

Part No.	AWG wire	Blade size	Package Quantity
172616902 (H84991151)	10 - 12	.375" (9.5mm)	50
172615007	10 - 12	.375" (9.5mm)	2,000
172615902 (H84991141)	6 - 10	.375" (9.5mm)	50
172616007	6 - 10	.375" (9.5mm)	1,800
701235033	14 - 16	.250" (6.3mm)	100
701235034	14 - 16	.250" (6.3mm)	1,500
733815003	18	.188" (4.8mm)	100
744817003	14 - 20	.110" (2.8mm)	100

Relay Box - Mini ISO

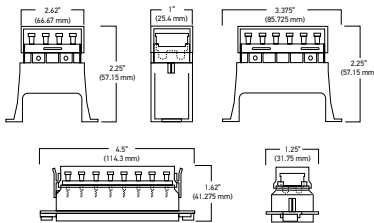


4-Gang Mini ISO Relay Box (Single)

Splashproof relay boxed
 Snap-fit clear plastic cover
 O-Ring sealed, holds four plug-in type relays
 Removable mounting feet
 Multiple boxedes can be snapped together

358112221 (H84988001)	Relay Box Mini ISO, 4-gang
358112211 (H84988011)	Relay Box Mini ISO, 7-gang

Fuse Box

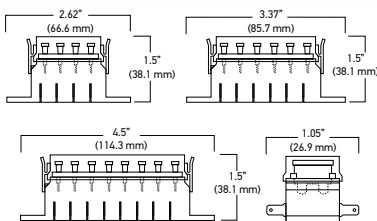


Bottom tap connections

Splashproof fuse boxed
 Snap-fit clear plastic cover
 O-Ring sealed
 Max load: 20a per circuit
 Fuses not included

358115881 (H84960061)	Fuse boxed - 4 terminals
358115901 (H84960081)	Fuse boxed - 6 terminals
358115801 (H84960101)	Fuse boxed - 8 terminals

Fuse Box



Side connections





Splashproof Fuse Box
 Snap-Fit Clear Plastic Cover
 O-ring Sealed
 Max Load: 20A per circuit
 Fuses not included

358115891 (H84960071)	Fuse boxed - 4 terminals, lateral connection
358115781 (H84960091)	Fuse boxed - 6 terminals, lateral connection
358115791 (H84960111)	Fuse boxed - 8 terminals, lateral connection

ELECTRICS





FUSES

Product image / Dimensions	Part Number	Description						
<p>Fuse boxed</p> 	<p>16 Gang fuse boxed - Bottom tab connections</p> <p>Splashproof Fuse Box Snap-Fit Clear Plastic Cover O-ring Sealed Removable Mounting Feet Boxes Can Be Snapped Together for 32,48 Fuses etc. Max Load: 20A per circuit Fuses not included</p>	<table border="1"> <tr> <td>358115871 (H84960051)</td> <td>Fuse Box - 16 terminals, lateral connection</td> </tr> </table>	358115871 (H84960051)	Fuse Box - 16 terminals, lateral connection				
358115871 (H84960051)	Fuse Box - 16 terminals, lateral connection							
<p>Fuse holder MAXI</p>  <p>Fuse not included</p>	<p>Splash proof For MAXI fuses 8 AWG wire 32 cm in length</p>	<table border="1"> <tr> <td>358129911</td> <td>MAXI Fuse holder</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358129902</td> <td>MAXI Fuse holder</td> <td>Quantity: 5 pieces</td> </tr> </table>	358129911	MAXI Fuse holder	Quantity: 1 piece	358129902	MAXI Fuse holder	Quantity: 5 pieces
358129911	MAXI Fuse holder	Quantity: 1 piece						
358129902	MAXI Fuse holder	Quantity: 5 pieces						
<p>Fuse holder STANDARD</p> 	<p>Splash proof For STANDARD fuses 12 AWG wire 32 cm in length</p>	<table border="1"> <tr> <td>358129931</td> <td>STANDARD Fuse holder</td> <td>Quantity: 1 piece</td> </tr> <tr> <td>358129921</td> <td>STANDARD Fuse holder</td> <td>Quantity: 10 pieces</td> </tr> </table>	358129931	STANDARD Fuse holder	Quantity: 1 piece	358129921	STANDARD Fuse holder	Quantity: 10 pieces
358129931	STANDARD Fuse holder	Quantity: 1 piece						
358129921	STANDARD Fuse holder	Quantity: 10 pieces						
<p>MINI Fuse assortment</p> 	<p>Assortment of fast acting fuses. It contains: 20 pieces of each of the following fuses: 5A, 7.5A, 10A, 15A, 20A, 25A, 30A</p> <p>Technical Data</p> <p>Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J2077 / JASO D612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr> <td>358129961</td> <td>MINI Fuse assortment</td> <td>Quantity: 140 pieces</td> </tr> </table>	358129961	MINI Fuse assortment	Quantity: 140 pieces			
358129961	MINI Fuse assortment	Quantity: 140 pieces						
<p>STANDARD Fuse assortment</p> 	<p>Assortment of fast acting fuses. It contains: 10 pieces of each of the following fuses: 5A, 7.5A, 25A, 30A 20 pieces of each of the following fuses: 10A, 15A, 20A</p> <p>Technical Data</p> <p>Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J1284 / JASOD612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr> <td>358129991</td> <td>STANDARD fuse assortment</td> <td>Quantity: 100 pieces</td> </tr> </table>	358129991	STANDARD fuse assortment	Quantity: 100 pieces			
358129991	STANDARD fuse assortment	Quantity: 100 pieces						
<p>MAXI Fuse assortment</p> 	<p>Assortment of slow-blow fuses. It contains: 5 pieces of each of the following fuses: 70A, 80A 10 pieces of each of the following fuses: 20A, 30A, 40A, 50A, 60A</p> <p>Technical Data</p> <p>Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J1888 / JASO D612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr> <td>358129971</td> <td>MAXI fuse assortment</td> <td>Quantity: 60 pieces</td> </tr> </table>	358129971	MAXI fuse assortment	Quantity: 60 pieces			
358129971	MAXI fuse assortment	Quantity: 60 pieces						

Product image / Dimensions	Part Number	Description																																							
<p>MINI LP fuses (low profile)</p>  <p>Fast Acting</p>	<p>Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: JASO D612 / ISO 8820-9 / ROHS</p>	<table border="1"> <tr><td>358129003</td><td>MINI LP fuse, boxed, 2A: gray</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129013</td><td>MINI LP fuse, boxed, 3A: violet</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129023</td><td>MINI LP fuse, boxed, 4A: pink</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129033</td><td>MINI LP fuse, boxed, 5A: beige</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129043</td><td>MINI LP fuse, boxed, 7.5A: brown</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129053</td><td>MINI LP fuse, boxed, 10A: red</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129063</td><td>MINI LP fuse, boxed, 15A: blue</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129073</td><td>MINI LP fuse, boxed, 20A: yellow</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129083</td><td>MINI LP fuse, boxed, 25A: white</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129093</td><td>MINI LP fuse, boxed, 30A: green</td><td>Quantity: 200 pieces</td></tr> </table>	358129003	MINI LP fuse, boxed, 2A: gray	Quantity: 200 pieces	358129013	MINI LP fuse, boxed, 3A: violet	Quantity: 200 pieces	358129023	MINI LP fuse, boxed, 4A: pink	Quantity: 200 pieces	358129033	MINI LP fuse, boxed, 5A: beige	Quantity: 200 pieces	358129043	MINI LP fuse, boxed, 7.5A: brown	Quantity: 200 pieces	358129053	MINI LP fuse, boxed, 10A: red	Quantity: 200 pieces	358129063	MINI LP fuse, boxed, 15A: blue	Quantity: 200 pieces	358129073	MINI LP fuse, boxed, 20A: yellow	Quantity: 200 pieces	358129083	MINI LP fuse, boxed, 25A: white	Quantity: 200 pieces	358129093	MINI LP fuse, boxed, 30A: green	Quantity: 200 pieces									
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<p>MINI fuses</p>  <p>Fast Acting</p>	<p>Technical data: Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J2077 / JASO D612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr><td>358129103</td><td>MINI fuse, boxed, 2A: gray</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129113</td><td>MINI fuse, boxed, 3A: violet</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129123</td><td>MINI fuse, boxed, 4A: pink</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129133</td><td>MINI fuse, boxed, 5A: beige</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129143</td><td>MINI fuse, boxed, 7.5A: brown</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129153</td><td>MINI fuse, boxed, 10A: red</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129163</td><td>MINI fuse, boxed, 15A: blue</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129173</td><td>MINI fuse, boxed, 20A: yellow</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129183</td><td>MINI fuse, boxed, 25A: white</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129193</td><td>MINI fuse, boxed, 30A: green</td><td>Quantity: 200 pieces</td></tr> <tr><td>358129203</td><td>MINI fuse, boxed, 35A: dark green</td><td>Quantity: 200 pieces</td></tr> </table>	358129103	MINI fuse, boxed, 2A: gray	Quantity: 200 pieces	358129113	MINI fuse, boxed, 3A: violet	Quantity: 200 pieces	358129123	MINI fuse, boxed, 4A: pink	Quantity: 200 pieces	358129133	MINI fuse, boxed, 5A: beige	Quantity: 200 pieces	358129143	MINI fuse, boxed, 7.5A: brown	Quantity: 200 pieces	358129153	MINI fuse, boxed, 10A: red	Quantity: 200 pieces	358129163	MINI fuse, boxed, 15A: blue	Quantity: 200 pieces	358129173	MINI fuse, boxed, 20A: yellow	Quantity: 200 pieces	358129183	MINI fuse, boxed, 25A: white	Quantity: 200 pieces	358129193	MINI fuse, boxed, 30A: green	Quantity: 200 pieces	358129203	MINI fuse, boxed, 35A: dark green	Quantity: 200 pieces						
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<p>STANDARD fuses</p>  <p>Fast Acting</p>	<p>Technical data: Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J1284 / JASOD612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr><td>358129213</td><td>STANDARD fuse, boxed, 1A: black</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129223</td><td>STANDARD fuse, boxed, 2A: gray</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129233</td><td>STANDARD fuse, boxed, 3A: violet</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129243</td><td>STANDARD fuse, boxed, 4A: pink</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129253</td><td>STANDARD fuse, boxed, 5A: beige</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129263</td><td>STANDARD fuse, boxed, 7.5A: brown</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129273</td><td>STANDARD fuse, boxed, 10A: red</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129283</td><td>STANDARD fuse, boxed, 15A: blue</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129293</td><td>STANDARD fuse, boxed, 20A: yellow</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129303</td><td>STANDARD fuse, boxed, 25A: white</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129313</td><td>STANDARD fuse, boxed, 30A: green</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129323</td><td>STANDARD fuse, boxed, 35A: dark green</td><td>Quantity: 100 pieces</td></tr> <tr><td>358129333</td><td>STANDARD fuse, boxed, 40A: orange</td><td>Quantity: 100 pieces</td></tr> </table>	358129213	STANDARD fuse, boxed, 1A: black	Quantity: 100 pieces	358129223	STANDARD fuse, boxed, 2A: gray	Quantity: 100 pieces	358129233	STANDARD fuse, boxed, 3A: violet	Quantity: 100 pieces	358129243	STANDARD fuse, boxed, 4A: pink	Quantity: 100 pieces	358129253	STANDARD fuse, boxed, 5A: beige	Quantity: 100 pieces	358129263	STANDARD fuse, boxed, 7.5A: brown	Quantity: 100 pieces	358129273	STANDARD fuse, boxed, 10A: red	Quantity: 100 pieces	358129283	STANDARD fuse, boxed, 15A: blue	Quantity: 100 pieces	358129293	STANDARD fuse, boxed, 20A: yellow	Quantity: 100 pieces	358129303	STANDARD fuse, boxed, 25A: white	Quantity: 100 pieces	358129313	STANDARD fuse, boxed, 30A: green	Quantity: 100 pieces	358129323	STANDARD fuse, boxed, 35A: dark green	Quantity: 100 pieces	358129333	STANDARD fuse, boxed, 40A: orange	Quantity: 100 pieces
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<p>MAXI fuses</p>  <p>Slow-blow</p>	<p>Technical data: Voltage Rating: 58 VCD or less Interrupting Rating: 1000A @ 58 VCD Operating Temperature Range: -40° C a + 125° C Complies: SAE J1888 / JASO D612 / ISO 8820-3 / ROHS</p>	<table border="1"> <tr><td>358129343</td><td>MAXI fuse, boxed, 20A: yellow</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129353</td><td>MAXI fuse, boxed, 30A: green</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129363</td><td>MAXI fuse, boxed, 40A: orange</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129373</td><td>MAXI fuse, boxed, 50A: red</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129383</td><td>MAXI fuse, boxed, 60A: blue</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129393</td><td>MAXI fuse, boxed, 70A: brown</td><td>Quantity: 20 pieces</td></tr> <tr><td>358129403</td><td>MAXI fuse, boxed, 80A: white</td><td>Quantity: 20 pieces</td></tr> </table>	358129343	MAXI fuse, boxed, 20A: yellow	Quantity: 20 pieces	358129353	MAXI fuse, boxed, 30A: green	Quantity: 20 pieces	358129363	MAXI fuse, boxed, 40A: orange	Quantity: 20 pieces	358129373	MAXI fuse, boxed, 50A: red	Quantity: 20 pieces	358129383	MAXI fuse, boxed, 60A: blue	Quantity: 20 pieces	358129393	MAXI fuse, boxed, 70A: brown	Quantity: 20 pieces	358129403	MAXI fuse, boxed, 80A: white	Quantity: 20 pieces																		
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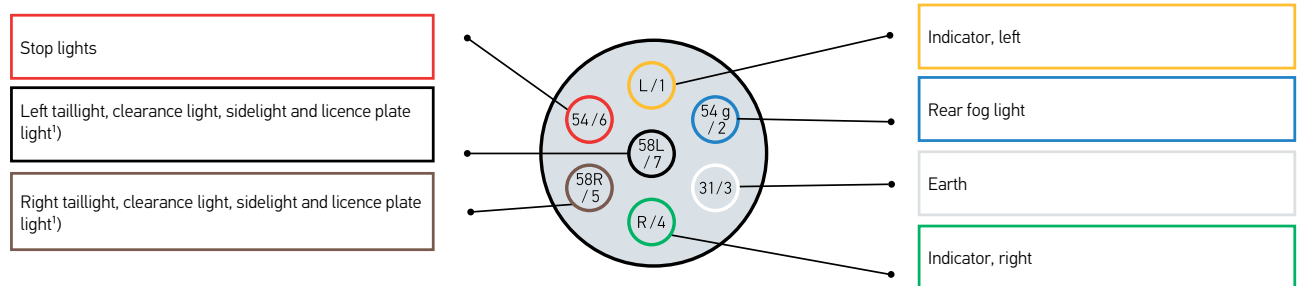
ELECTRICS

FUSES

Product image / Dimensions	Part Number	Description
MINI LP FUSES Low profile 	358129002	MINI LP fuse, boxed, 2A: gray Quantity: 10 pieces
	358129012	MINI LP fuse, boxed, 3A: violet Quantity: 10 pieces
	358129022	MINI LP fuse, boxed, 4A: pink Quantity: 10 pieces
	358129032	MINI LP fuse, boxed, 5A: beige Quantity: 10 pieces
	358129042	MINI LP fuse, boxed, 7.5A: brown Quantity: 10 pieces
	358129052	MINI LP fuse, boxed, 10A: red Quantity: 10 pieces
	358129062	MINI LP fuse, boxed, 15A: blue Quantity: 10 pieces
	358129072	MINI LP fuse, boxed, 20A: yellow Quantity: 10 pieces
	358129082	MINI LP fuse, boxed, 25A: white Quantity: 10 pieces
	358129092	MINI LP fuse, boxed, 30A: green Quantity: 10 pieces
358129941	Assortment of fuses, includes: 1 piece of each fuse: 5A, 7.5A, 25A, 30A 2 pieces of each fuse: 10A, 15A, 20A Quantity: 10 pieces	
MINI FUSES 	358129102	MINI fuse, boxed, 2A: gray Quantity: 10 pieces
	358129112	MINI fuse, boxed, 3A: violet Quantity: 10 pieces
	358129122	MINI fuse, boxed, 4A: pink Quantity: 10 pieces
	358129132	MINI fuse, boxed, 5A: beige Quantity: 10 pieces
	358129142	MINI fuse, boxed, 7.5A: brown Quantity: 10 pieces
	358129152	MINI fuse, boxed, 10A: red Quantity: 10 pieces
	358129162	MINI fuse, boxed, 15A: blue Quantity: 10 pieces
	358129172	MINI fuse, boxed, 20A: yellow Quantity: 10 pieces
	358129182	MINI fuse, boxed, 25A: white Quantity: 10 pieces
	358129192	MINI fuse, boxed, 30A: green Quantity: 10 pieces
358129202	MINI fuse, boxed, 35A: dark green Quantity: 10 pieces	
358129951	Assortment of fuses, includes: 1 piece of each fuse: 5A, 7.5A, 25A, 30A 2 pieces of each fuse: 10A, 15A, 20A Quantity: 10 pieces	
STANDARD FUSES 	358129212	STANDARD fuse, boxed, 1A: black Quantity: 10 pieces
	358129222	STANDARD fuse, boxed, 2A: gray Quantity: 10 pieces
	358129232	STANDARD fuse, boxed, 3A: violet Quantity: 10 pieces
	358129242	STANDARD fuse, boxed, 4A: pink Quantity: 10 pieces
	358129252	STANDARD fuse, boxed, 5A: beige Quantity: 10 pieces
	358129262	STANDARD fuse, boxed, 7.5A: brown Quantity: 10 pieces
	358129272	STANDARD fuse, boxed, 10A: red Quantity: 10 pieces
	358129282	STANDARD fuse, boxed, 15A: blue Quantity: 10 pieces
	358129292	STANDARD fuse, boxed, 20A: yellow Quantity: 10 pieces
	358129302	STANDARD fuse, boxed, 25A: white Quantity: 10 pieces
358129312	STANDARD fuse, boxed, 30A: green Quantity: 10 pieces	
358129322	STANDARD fuse, boxed, 35A: dark green Quantity: 10 pieces	
358129332	STANDARD fuse, boxed, 40A: orange Quantity: 10 pieces	
358129981	Assortment of fuses, includes: 1 piece of each fuse: 5A, 7.5A, 25A, 30A 2 pieces of each fuse: 10A, 15A, 20A Quantity: 10 pieces	
MAXI FUSES 	358129341	MAXI fuse, boxed 20A: yellow Quantity: 1 piece
	358129351	MAXI fuse, boxed 30A: green Quantity: 1 piece
	358129361	MAXI fuse, boxed 40A: orange Quantity: 1 piece
	358129371	MAXI fuse, boxed 50A: red Quantity: 1 piece
	358129381	MAXI fuse, boxed 60A: blue Quantity: 1 piece
	358129391	MAXI fuse, boxed 70A: brown Quantity: 1 piece
358129401	MAXI fuse, boxed 80A: white Quantity: 1 piece	

Product image / Dimensions	Part Number	Description
<p>Pole Plug - Metal</p>	001918002	<p>With strain relief and grommet.</p> <p>7-pin plug with screw connections Quantity: 25 pieces</p>
<p>Pole Plug - Plastic</p>	001930003	<p>With strain relief and grommet.</p> <p>7-pin plug with screw connections Quantity: 25 pieces</p>
<p>Pole Socket - Metal</p>	001941002	<p>Metal socket with lid Removable contact set. Thermal stability: -25 °C a +70 °C.</p> <p>7-pole plug socket with screw connections Quantity: 25 pieces</p>
<p>Pole Socket - Plastic</p>	001943003	<p>Plastic socket with lid Removable contact set. Thermal stability: -25 °C a +70 °C.</p> <p>7-pole plug socket with screw connections Quantity: 25 pieces</p>

**7-pole plug system / 12 V (compliant with ISO 1724)
Pin-out – trailer plug fitting 12 V / 7-pole N type ISO 1724**



Contact assignment for normal plug-type connectors compliant with ISO 1724, 12 V, 7-pole N

Contact no.	Function	Cable cross-section	Colour of wire insulation
1 / L	Indicator, left	1.5 mm ²	Yellow
2 / 54g	Rear fog light	1.5 mm ²	Blue
3 / 31	Earth	2.5 mm ²	White
4 / R	Indicator, right	1.5 mm ²	Green
5 / 58R	Right taillight, clearance light, sidelight and licence plate lights ¹⁾	1.5 mm ²	Brown
6 / 54	Stop lights	1.5 mm ²	Red
7 / 58L	Left taillight, clearance light, sidelight and licence plate lights ¹⁾	1.5 mm ²	Black

¹⁾ The licence plate lights must be connected in such a way that none of the lamps is connected to both contacts 5 and 7.

DIGITAL SERVICES

This section is devoted to helping visitors navigate to the correct sites according to the individual needs of original equipment, distributors, dealers and professional workshops.

PORTALS

Web site + PDF's www.hellausa.com

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Auxiliary Lights, signal lighting, bulbs, horns, wiper blades, light bars and accessories www.myhellalights.com

Work lights, relays, warning lights, etc. www.hellahd.com

90 mm Headlights configurator www.hella.com/90mm-modules

Agriculture www.hella.com/agro

Buses www.hella.com/bus

Shapeline configurator www.hella.com/shapeline

ONLINE CATALOGS

Universal parts catalog www.hella.com/upc

Vehicles specific parts www.partcat.com/hella

Brake Systems www.brakeguide.com

TECHNICAL INFORMATION

HELLA TECH WORLD www.hella.com/techworld

APPS FOR SMARTPHONES AND TABLETS

www.hella.com/apps



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Auxiliary Lighting



Work lights



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SOCIAL MEDIA

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YouTube	www.youtube.com/myhellalights

APPLICATION DATA

Mapping of information

ACES 3.1

(Aftermarket Catalog Exchange Standard)

PIES

(Product Information Exchange Standard)

Digital Assets

(Images)

Name of Product Line	OPTI CAT	EPICORE	WHI	DCI	SDC
	Code	Code	Code	Code	Code - Under HELLA, Inc.
HELLA Light Bulbs	HELLA BULBS	HES	HLA	Only bulbs and wiper blades	HELLA
HELLA Lighting for Specific Vehicles	HELLA ALL NO BULBS	HES	HLA		HELLA
HELLA Fuel Pumps	HELLA ALL NO BULBS	HEV	HLA		HELLA
HELLA Windshield Wipers	HELLA ALL NO BULBS	HEM	HLA		HELLA
HELLA Electronics	HELLA ALL NO BULBS	HEP	HLA		HELLA
Pierburg	HELLA PIERBURG	PGP	PIG		Pierburg
Behr Thermot-tronik	HELLA BTT	BTT	BEH		BTT
Optilux	HELLA OPTILUX	OPL	HLA	Optilux Lighting	Optilux

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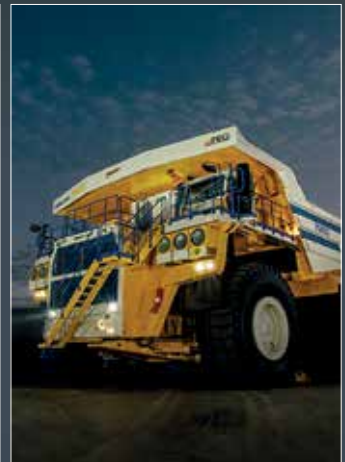
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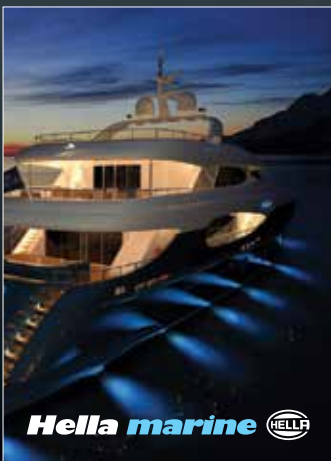
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