DURAKOOL
A WT/AEC Brand

DG46 Series
seat belt controller automotive relay

- Prevents driver from fastening seat belt first before sitting and then being able to start vehicle
- Stops engine when belt is unfastened
- Standard Mini-ISO terminations (fits industry standard automotive sockets)

ROHS Compliant ✓

Function

The DG46 Driver Seat Presence & Belt Controller is designed to prevent the vehicle engine being started if the driver's seat is empty and/or the seat belt is not fastened. The DG46 incorporates inter-locking to prevent attempts to circumvent the action of the Controller. For example, by fastening the seat belt around the back of the seat before sitting and attempting to start the engine.

An engine start signal will only be sent if the driver first sits down and then fastens the belt. If the driver unfastens the belt and gets off the seat, the engine run signal is disconnected. The DG46 incorporates a 3 second filter to allow for momentary disconnection of the seat switch caused by driver bounce (as might occur over rough ground). There is also a filter for the belt switch to allow for vibration. This time range is customizable to special order.

If the correct sequence is followed, there will be a +12V (or +24V) output available on Terminal 87 which could drive an external relay or go direct to the ECU.

The DG46 uses no power when not active.

General Data

Operating range	DC	12V (6~14.4V), 24V (20~28V)
Rated power consumption		1.0W (approx.) when activated.
Output	DC	12V or 24V (depends on version), 10A max.
Contact material		$AgSnO_2$

Life

Electrical life at full rated load	ops.	>1 x 10^5
Mechanical life (no load)	ops.	>1 x 10^6

Insulation

Insulation resistance		>100 MΩ at 500VDC, 50%RH, 25°C
Dielectric strength	coil to contact	750Vrms, 1 min
	contact to contact	500Vrms, 1min

Environmental

Ambient temperature	operating	-30 to +85°C
	storage	-40 to +125°C
Shock resistance	functional	20g, 11ms (200m/s²)
	destructive	100g
Vibration resistance		5g (49m/s²), 10Hz-500Hz
		DA 0.5mm 100-500Hz: 10g
Dimensions	L x W x H	30 x 30 x 39mm (excluding terminals & bracket)
Weight	approx.	34g (approx.)

Ordering Code

D G 4 6 - 3 0 2 1 - 7 6 - 1 0 1 2 - M 1

Series

Contact material
30: $AgSnO_2$

Contact arrangement
21: SPST-NO

Environmental protection
3: In cover, sealed - IP67
7: In cover, dust cover - IP54

Connection mode
6: 6.35mm Flat blades

Coil code:
See table 1

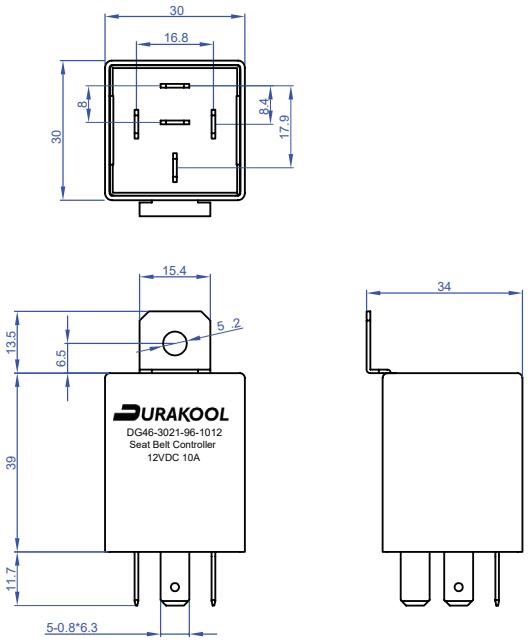
Mounting
Blank: Mounting bracket supplied loose in box.
M1: Metal mounting bracket supplied fitted

* 12VDC or 24VDC (depending on version) +Ve output active when correct operating sequence is followed. Not volt free.

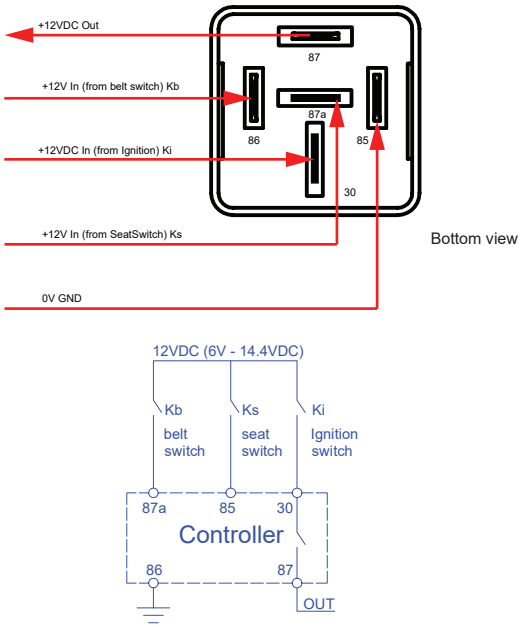
Activating (operating) voltage data — Table 1

Coil code	Nominal voltage (VDC)	Operating voltage range (VDC)	Must operate voltage max. (VDC @ 20°C)	Output voltage (VDC) (same as applied operating voltage)
1012	12	6.0 ~ 14.4	9.0	9.0 ~ 15
1024	24	20.0 ~ 28.0	20.0	20.0 ~ 28.0

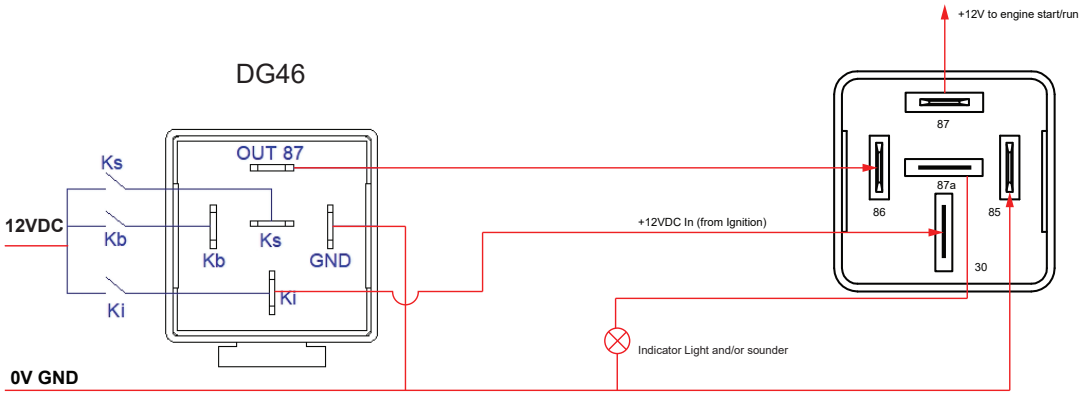
Dimensions mm — Fig. 1



Connections — Fig. 2



Application example — Fig. 3



Application example: Adding a seat belt warning light (not supplied).

It is possible to add a simple indicator light to warn the driver that they must fasten the seat belt. The indicator lamp will stay illuminated until the correct sequence is followed and the engine can be started. A relay is used to switch the indicator lamp. The diagram shows a Mini-ISO style relay, but any small changeover (SPDT) relay with suitably rated contacts could be used. The indicator lamp is connected to the normally closed contact (87a). and 12VDC is supplied to the common terminal (30) from an ignition controlled source. As soon as the 12VDC is applied, the indicator lamp will illuminate. When the correct sequence is followed, the output of the DG46 will turn on , 12VDC will be applied to the coil of the relay and the relay will energise, turning off the indicator lamp. The normally open contact of the relay will close and can now be used to send a start or run signal to the engine, ECU or drive controller.