User's guide for DT-C004

Locking Assemblies

EXXOTEST® EDUCATION

Document No. 00308600-v1

1. RESOURCES FILE

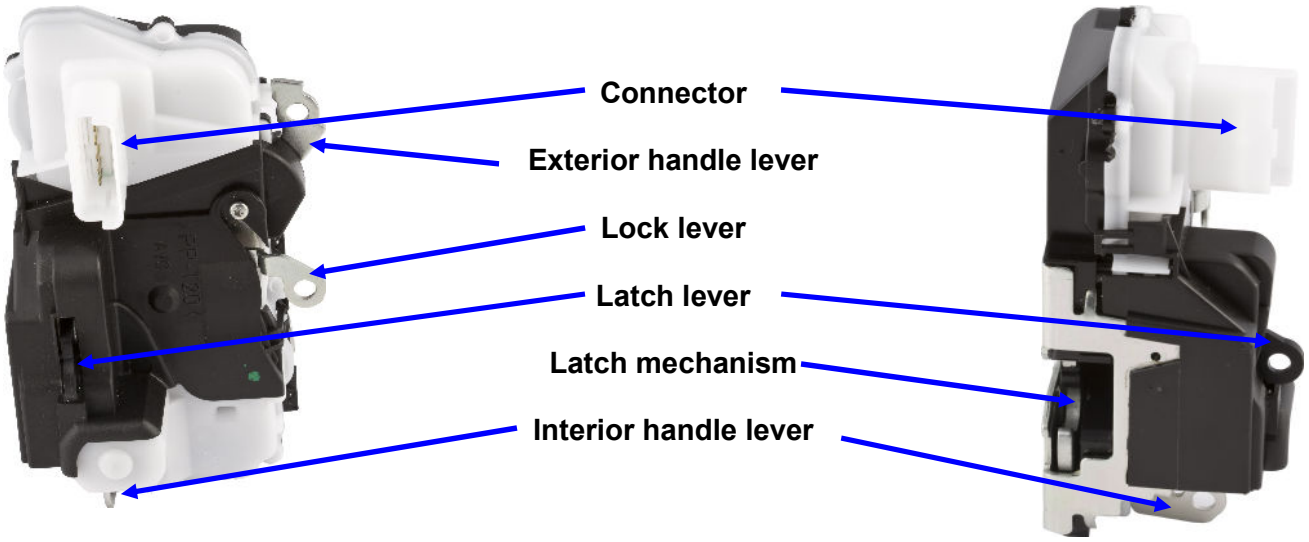
1.1 DOOR LOCK

1.1.2 Purpose

Central door locking lets the vehicle owner lock his or her vehicle using either the ignition key or the remote control on the key fob. This system simultaneously locks all the vehicle's doors when a locking action is performed on any one of the door locks, when the remote control is pressed or by pressing a button inside the passenger cell.

1.1.3 Description

The central door locking feature operates electrically to lock and unlock all the vehicle's openable features. All the other operations of the assemblies are mechanical.



1.1.4 Operation

The elements involved in locking are:
- the lock lever
- the latch lever
- the locking actuator

The elements involved in unlocking are:
- the lock lever
- the latch lever
- the locking actuator
- the interior handle lever

The elements which release the latch mechanism (when it is not locked):
- the exterior handle lever
- the interior handle lever

1.1.5 Electrical features

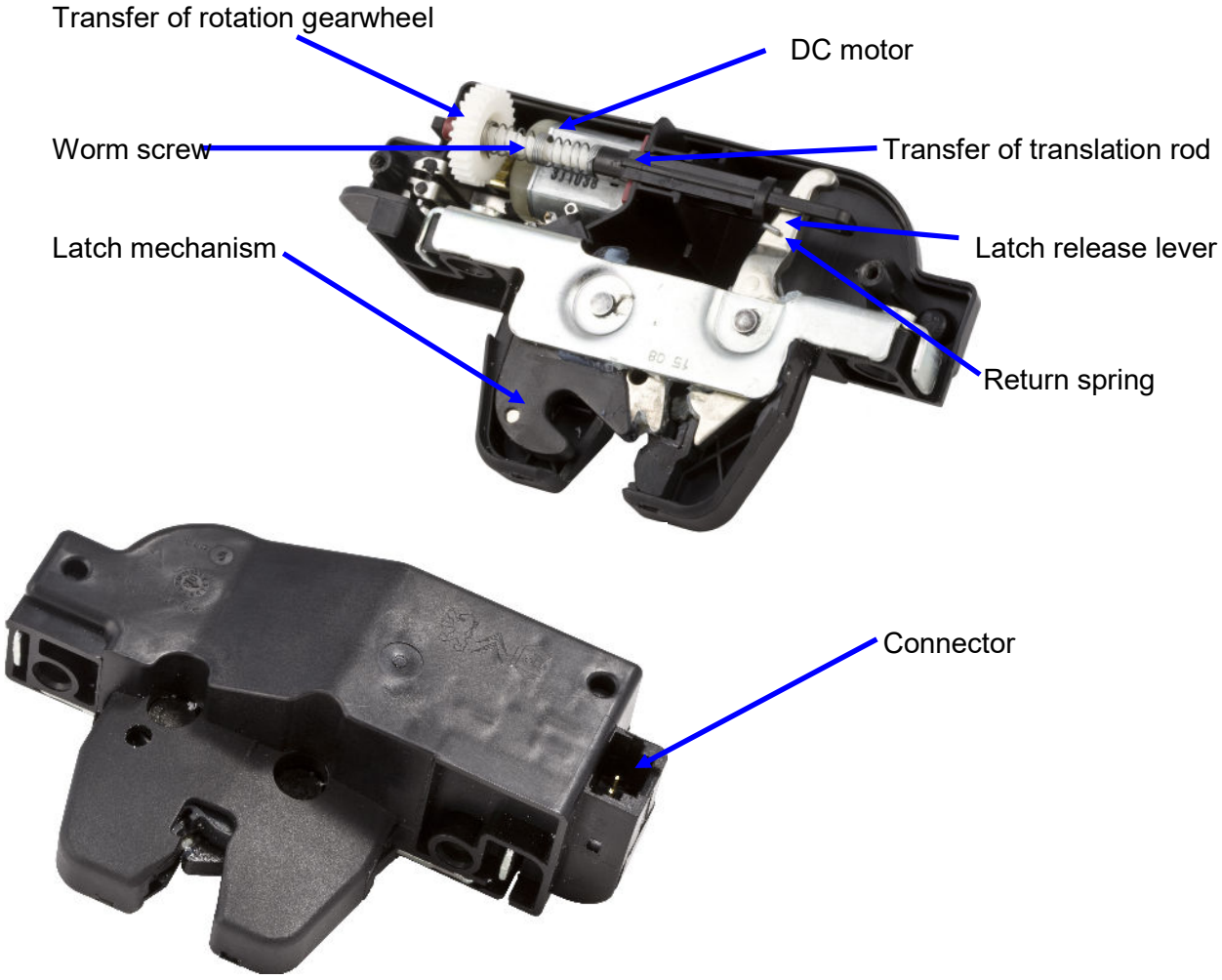
Allocation of the connector's channels

Channel number	Signal
1	Latch Status Info
2	ground
3	12 V/ground
4	Request info
5	12 V/ground

1.2 LUGGAGE COMPARTMENT LOCK

1.2.1 Description

The only function of this electric lock is to open the luggage compartment when the "open" switch is actuated.
When the vehicle is locked, the control is isolated, which prevents the luggage compartment from being opened.



1.2.2 Operation

When the “open luggage compartment” contactor is pressed, the electric motor is energised.
This rotates the transfer of rotation gearwheel, which turns a worm screw inside the transfer of translation rod. Since this rod is prevented from rotating, it is drawn towards the motor and pulls on the latch release lever, thus releasing the luggage compartment.
When the contactor is released, the return springs return the system to its original position and it is once against possible to close and lock the boot.

1.2.3 Features

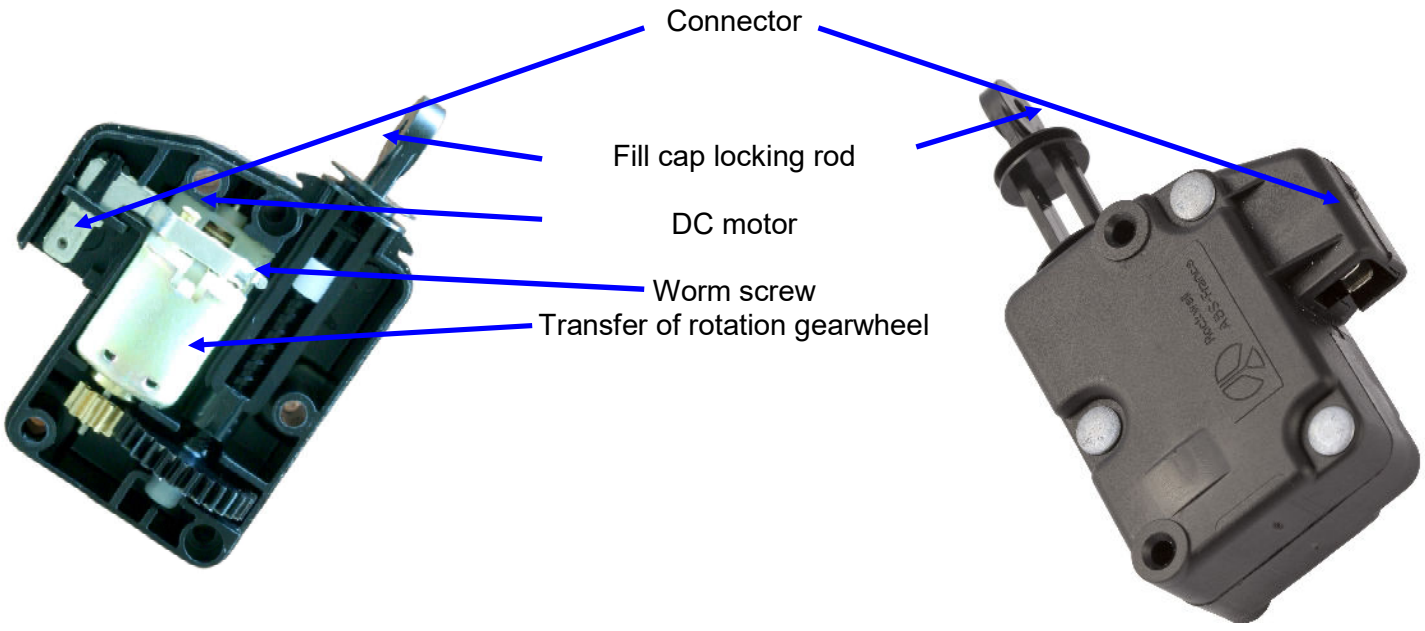
Allocation of the connector’s channels

Channel number	Signal
1	+12 V
2	ground
3	Latch status info

1.3 FUEL FILLER CAP LOCK

1.3.1 Description

The central door locking feature operates electrically to lock and unlock the vehicle’s openable features. All the other operations of the assemblies are mechanical.



1.3.2 Operation

In its unlocked position, the locking rod is pulled back fully.
When a “lock filler cap” request is made, the electric motor is energised.
This rotates the transfer of rotation gearwheel, which turns a worm screw inside the locking rod. Since this rod is prevented from rotating, it pushes out of the unit, thus locking the filler cap.
To unlock the cap, the motor is energised with the polarity reversed to pull the locking rod into the unit.

1.3.3 Features

Allocation of the connector’s channels

Channel number	Signal
1	+12 V
2	ground

2. USER FILE

2.1 Installing and starting up benchtop learning module DT-C004

Use the 12 V, 1 A power supply provided. Connect up the 230 V mains supply (check the position of the power supply’s switch on the rear of the power supply).
Connect the ground and the +ve from the power supply to module DT-C004 using the two, 1-metre cables provided (the connection is made using the bus sockets, see the following page).
Switch on the power supply. Then wire up the module.
The moving components are the actuators of the vehicle’s two central locking motors.
Comment: a protective device fitted with a buzzer lets the user know if the power supply voltage is greater than 12 V, or if the +ve and –ve connections have been inversed.

2.2 Environment

Module DT-C004 is designed for benchtop use.
It must be installed in a dry place away from dust, steam and combustion fumes.
The module requires approximately 400–500 lux of light
The module may be placed in a practical exercise room. Its operating noise level does not exceed 70 decibels.
The module is protected against potential user error.

2.3 Calibrating and maintaining module DT-C004

Calibrating: set in the factory.
Maintenance frequency: none.
Cleaning: use a clean and very soft cloth and a window-cleaning product.

2.4 Number of work stations and position of user

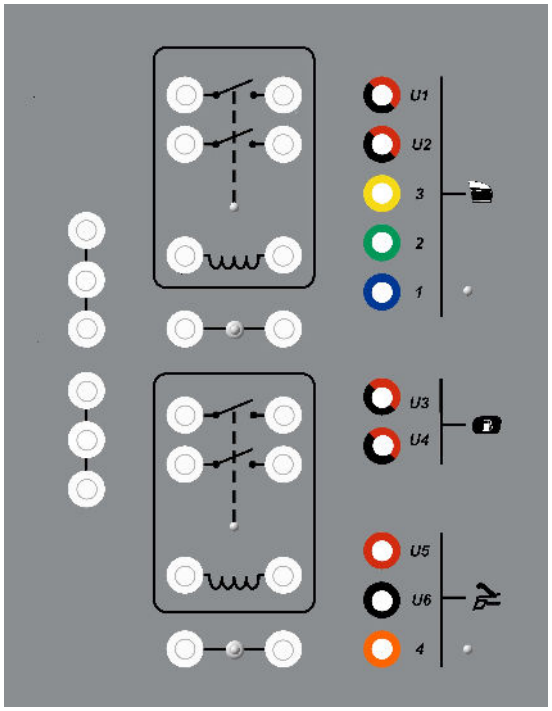
Module DT-C004 is considered to be a single work station.
The module user will remain seated throughout the practical exercise.

2.5 Lockout/Tagout procedure

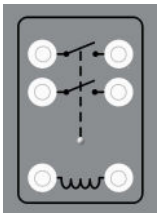
Switch off the fixed power supply by setting the switch to 0.
Unplug the mains 230 V connector.
Remove all the banana plug cables from the module.
Store module DT-C004 in a secure room while out of use.

The module should only be opened by certified and authorised persons

2.6 Details of the front face

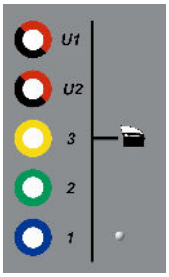


Power supply/ground bus sockets: the module's power supply and ground are connected to these two sets of sockets.
Each set of 3 sockets is interconnected, which improves the quality of the wiring.

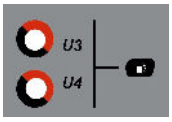


Double relay: used to control 2 switches simultaneously. An LED lights up to provide information about the status of the relay.

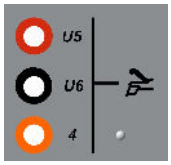
Push-button



Door locking connection block:
- U1 and U2 are the power supply terminals for the actuator.
- 3 is the terminal for the status of the request.
- 2 is the ground terminal for the door's contactor
- 1 is the status terminal for the door's contactor; the LED indicates whether or not the door is closed.



Connection block for the fuel filler cap lock:
- U3 and U4 are the power supply terminals for the actuator.



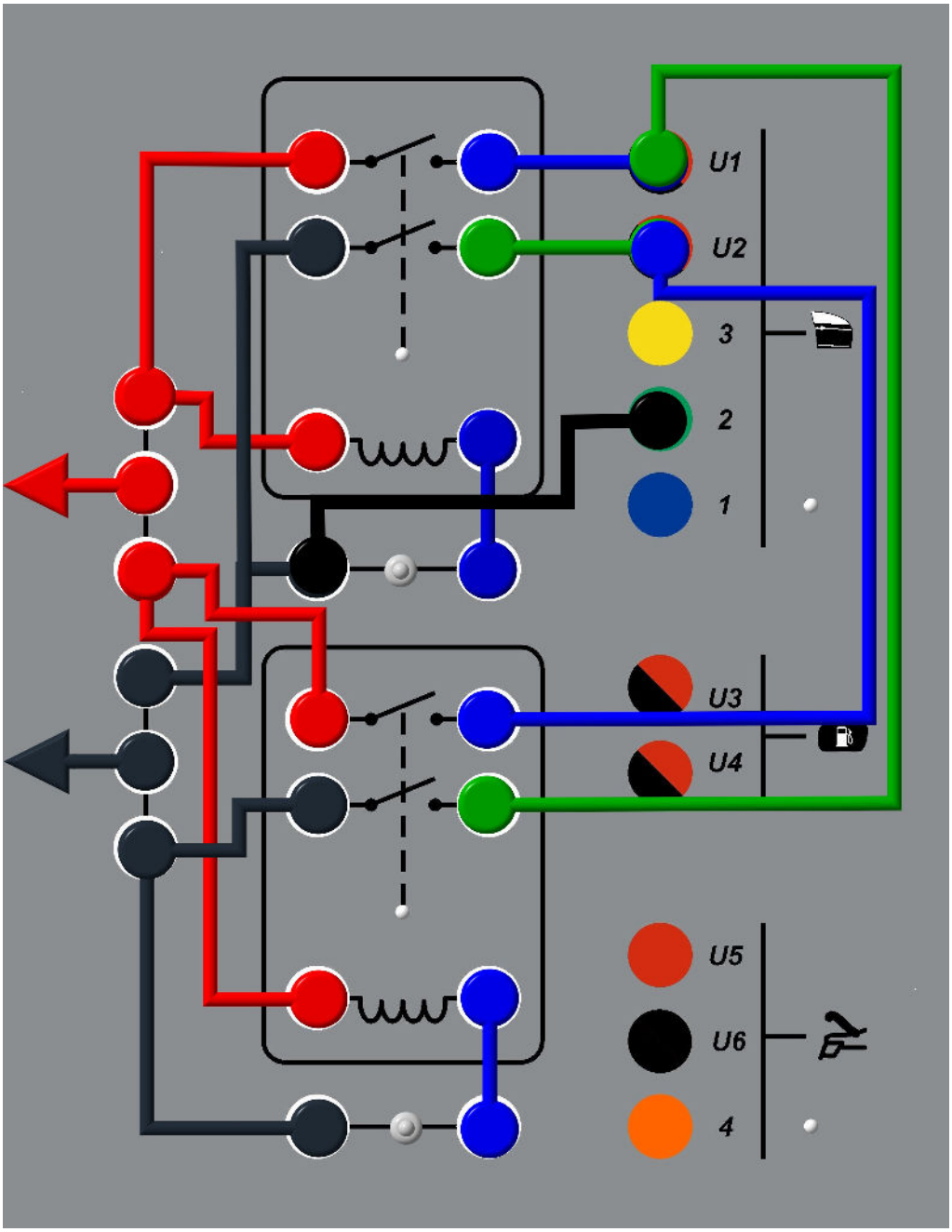
Luggage compartment lock connection block:
- U5 is the positive terminal for the actuator.
- U6 is the negative terminal for the actuator.
- 4 is the status terminal for the luggage compartment contactor; the LED indicates whether or not the luggage compartment is closed.

2.7 Correspondence between the connector wiring and the connection blocks

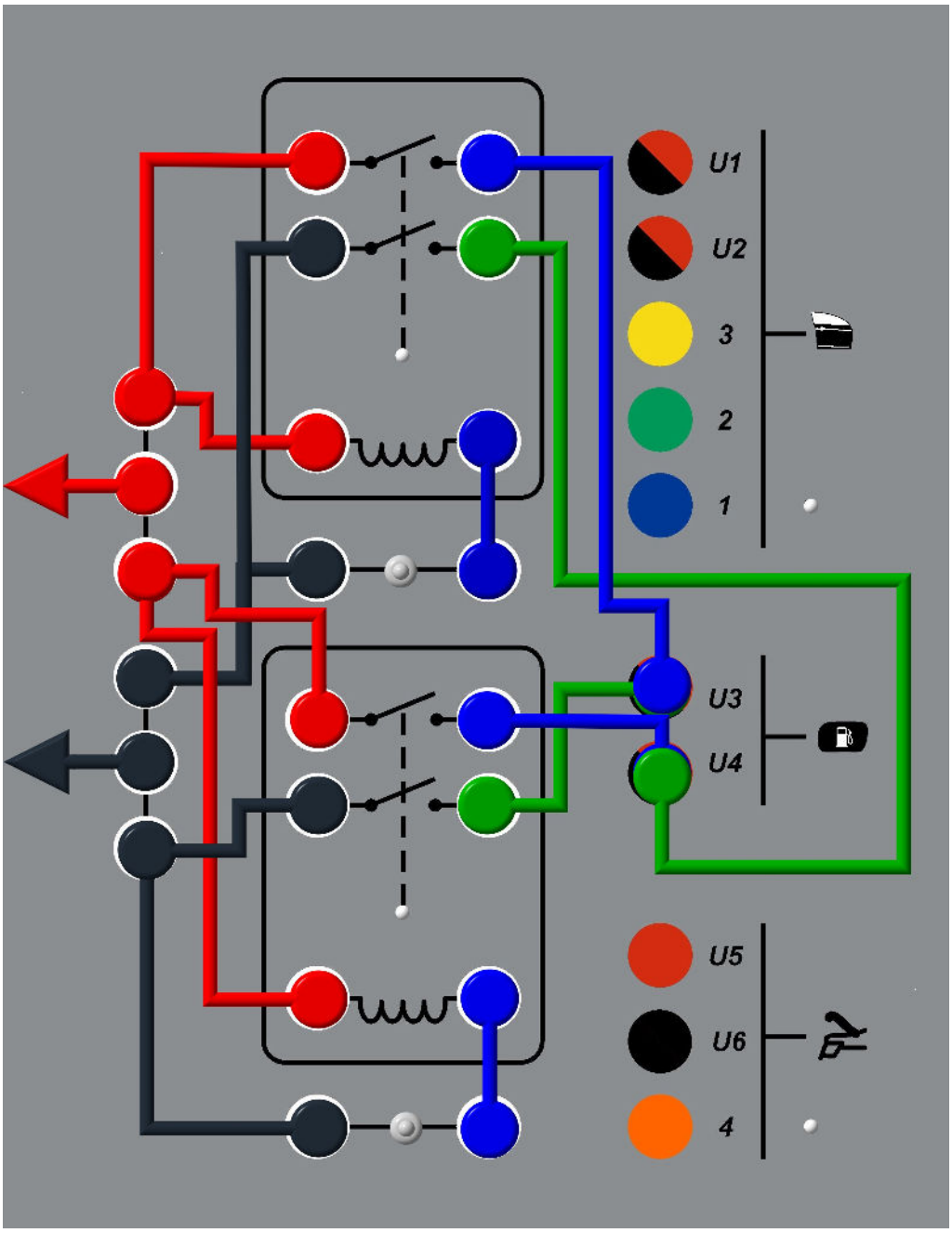
Number on connector	Number on connection block	Signal
6 V door lock, brown		
1	1	Latch Status Info
2	2	ground
3	U1	12 V/ground
4	3	Request info
5	U2	12 V/ground
2 V fuel filler cap lock, black		
1	U3	12 V/ground
2	U4	12 V/ground
3 V luggage compartment lock, black		
1	U5	+12 V
2	U6	ground
3	4	Latch status info

3. WIRING EXAMPLES

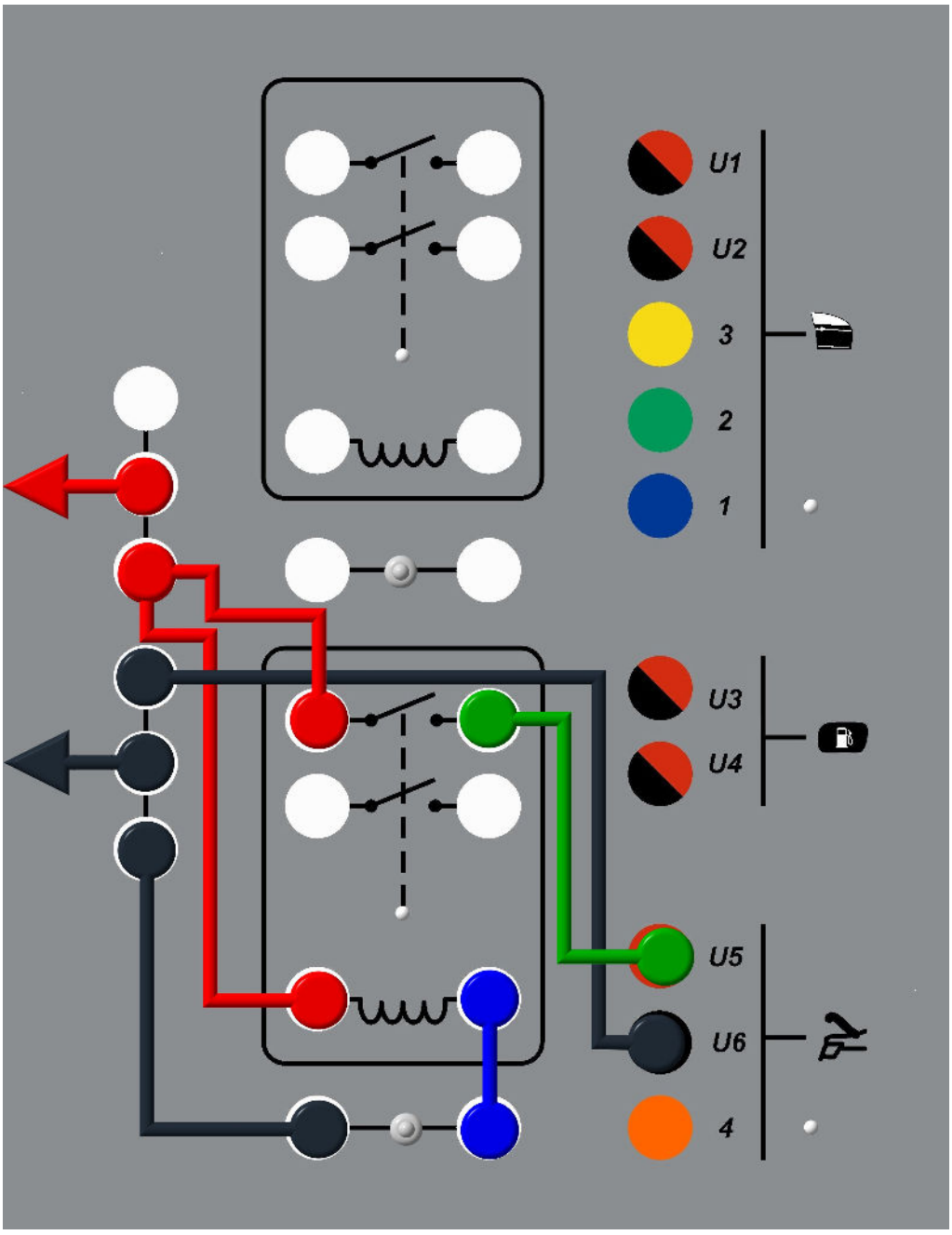
3.1 Wiring of the door lock



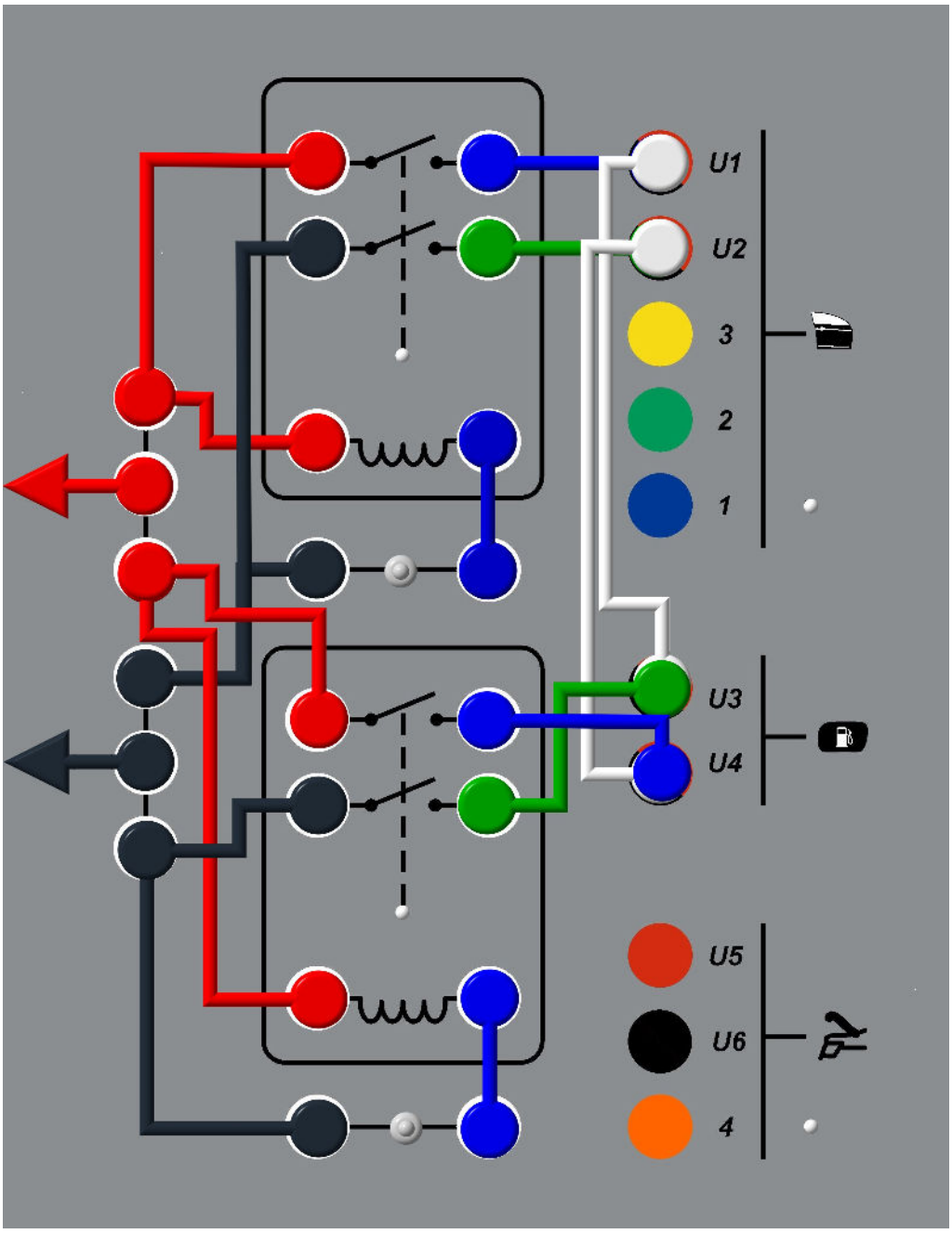
3.2 Wiring of the fuel filler cap lock



3.3 Wiring of the luggage compartment lock



3.4 Wiring of the door and fuel filler cap locks



CE DECLARATION OF CONFORMITY

Via this declaration of conformity with the requirements stated in directive 2004/108/EC relating to electromagnetic compatibility, the company:

S.A.S. ANNECY ELECTRONIQUE
Parc Altaïs – 1, rue Callisto
F-74650 CHAVANOD

Declares that the product indicated below:

Make	Model	Product name
EXXOTEST	**DT-C004**	**BENCHTOP LEARNING MODULE: Controlling locking assemblies**

I - has been manufactured in accordance with the requirements of European directives:

- Low Voltage Directive 2006/95/EC of 12 December 2006
- Machinery Directive 98/37/EC of 22 June 1998
- Electromagnetic Compatibility directive 2004/108/EC of 15 December 2004

and meets the requirements of the following standard:

- NF EN 61326-1 of 07/1997 +A1 of 10/1998 +A2 of 09/2001
  Electrical equipment for measurement, control and laboratory use. EMC requirements.

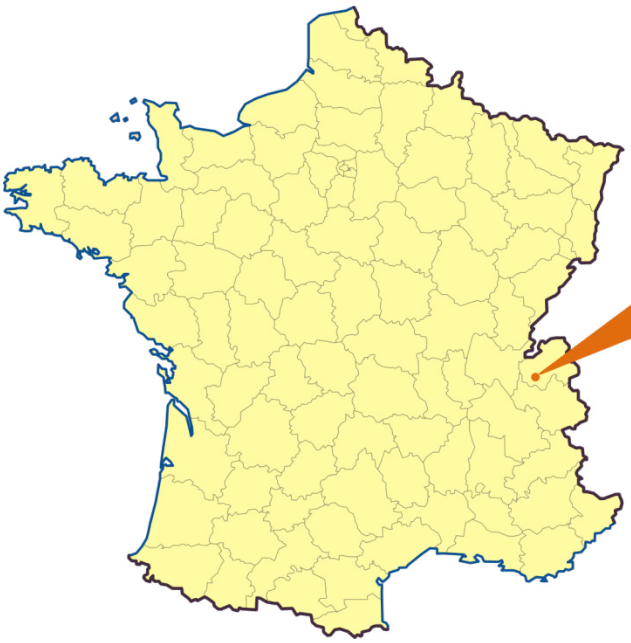
II – has been manufactured in compliance with the requirements of European directives relating to the design of Electrical & Electronic Equipment (EEE) and the management of Waste Electrical & Electronic Equipment (WEEE) in the EU:

- Directive 2002/96/EC of 27 January 2003 on waste electrical & electronic equipment
- Directive 2011/65/EC of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS).

Signed in Chavanod, France, on 30 June 2009

Stéphane Sorlin, Chairman

Latitude : 45° 53’ 49” / Longitude : 6° 4’ 57”



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