

Heavy Duty Straight Line Wipers Atla Control System

USER MANUAL

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Straight line wipers

1 Introduction

1.1 Purpose of manual

The purpose of this manual is to provide guidance for installation and operation of Decca Straight Line Wipers controlled with the Atla Control system, as supplied by Exalto Decca Wiper Systems AS.

The manual is intended to give technical information to understand the functions and features of the Exalto Decca Wiper Systems and to be able to operate the system, together with installation, commissioning and maintenance information.

The manual shall also be used as a textbook for training of crew, and should be read and understood before operation of the wiper system.

1.2 Marking of Equipment

The wiper unit is identified with a label positioned on the back side of the wiper casing. An additional, similar label is positioned in a more protected location behind the wiper motor cover.

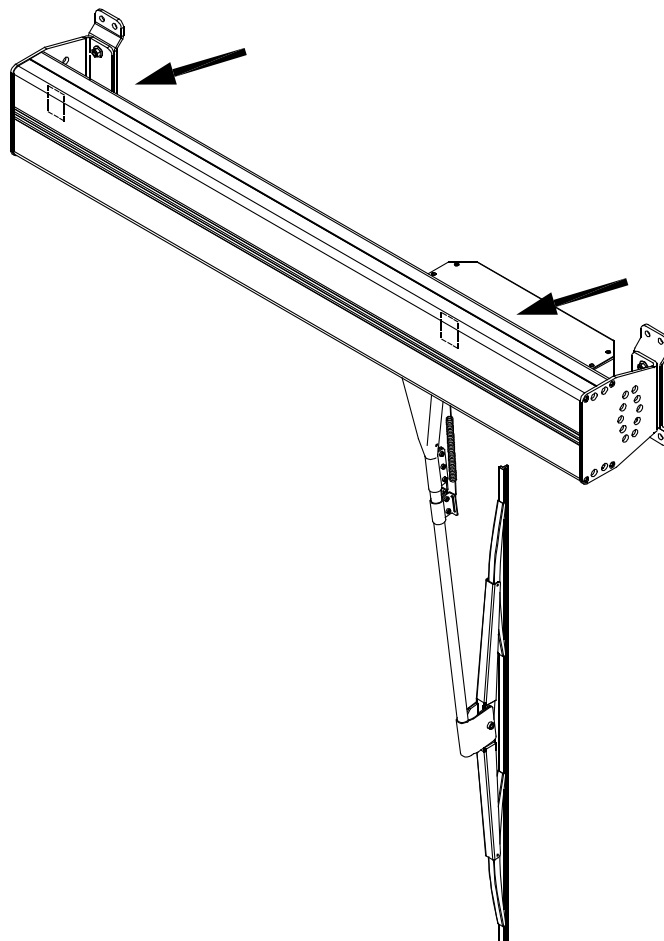


Figure 1 - Label Locations on wiper unit

The product label contains a serial number and technical information about the wiper unit. For service and spare part orders, always refer to the information listed on the product label.

1.3 Symbols



The **NOTE** symbol gives clarifying information or special instructions which are crucial for the equipment or to the operation performed.



The **WARNING** symbol gives clarifying information or special instructions where personal injuries or damage to the equipment can occur.

1.4 Common abbreviations

<i>Abbreviation</i>		<i>Explanation</i>
mm	-	millimetres
"	-	inches
kg	-	kilogram
ECU	-	Electronic Control Unit

2 Main data

2.1 Dimensions

The wiper units are delivered in 50mm (1,96") increment stroke lengths ranging from 450mm (16,69") to 3000mm (118,11"). The wiper blades range from 450mm (19,68") to 1000mm (39,37"), and the wiper arm length can be adjusted to fit the window on site.

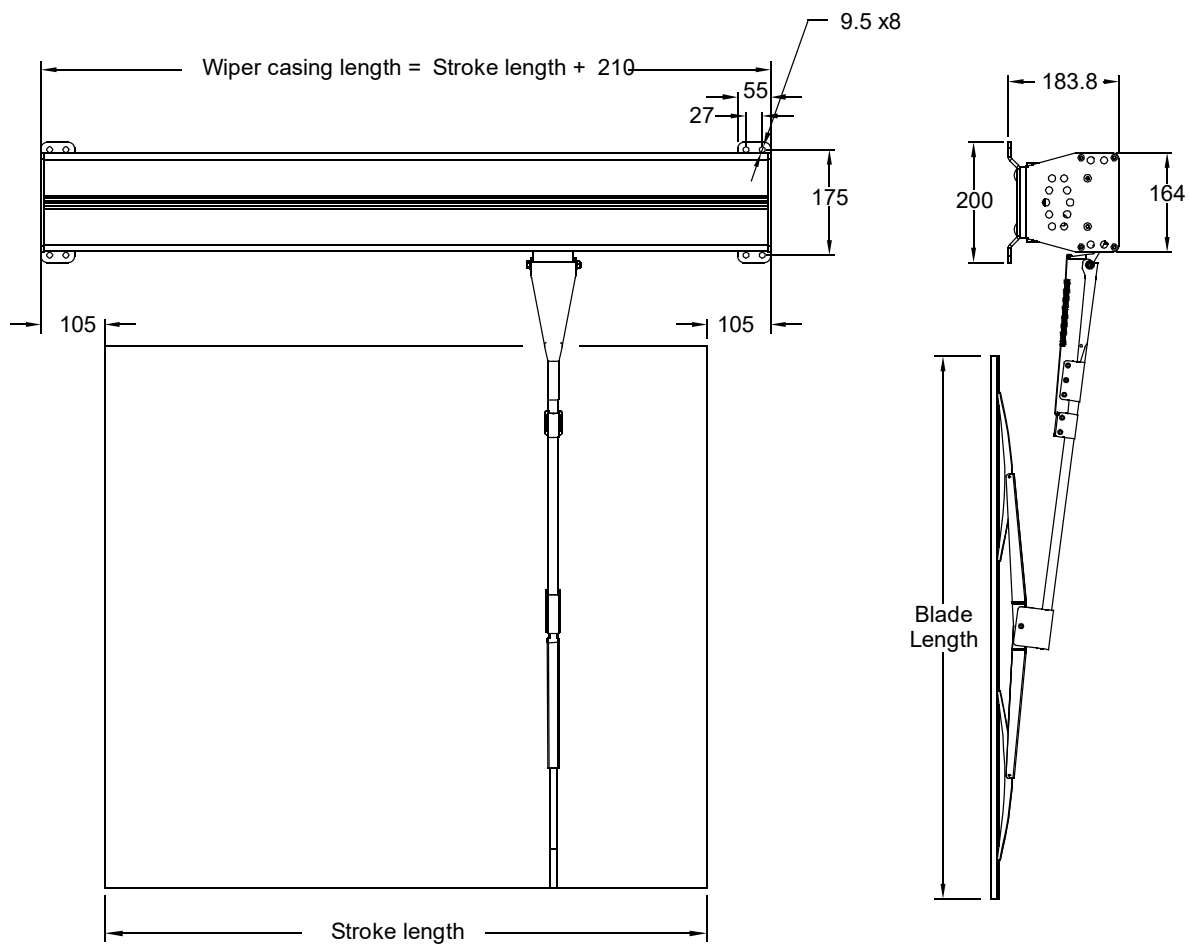


Figure 2 - Wiper Unit Dimensions (all measurements in mm)

3 Technical description

3.1 Functional description

3.1.1 Wiper Unit

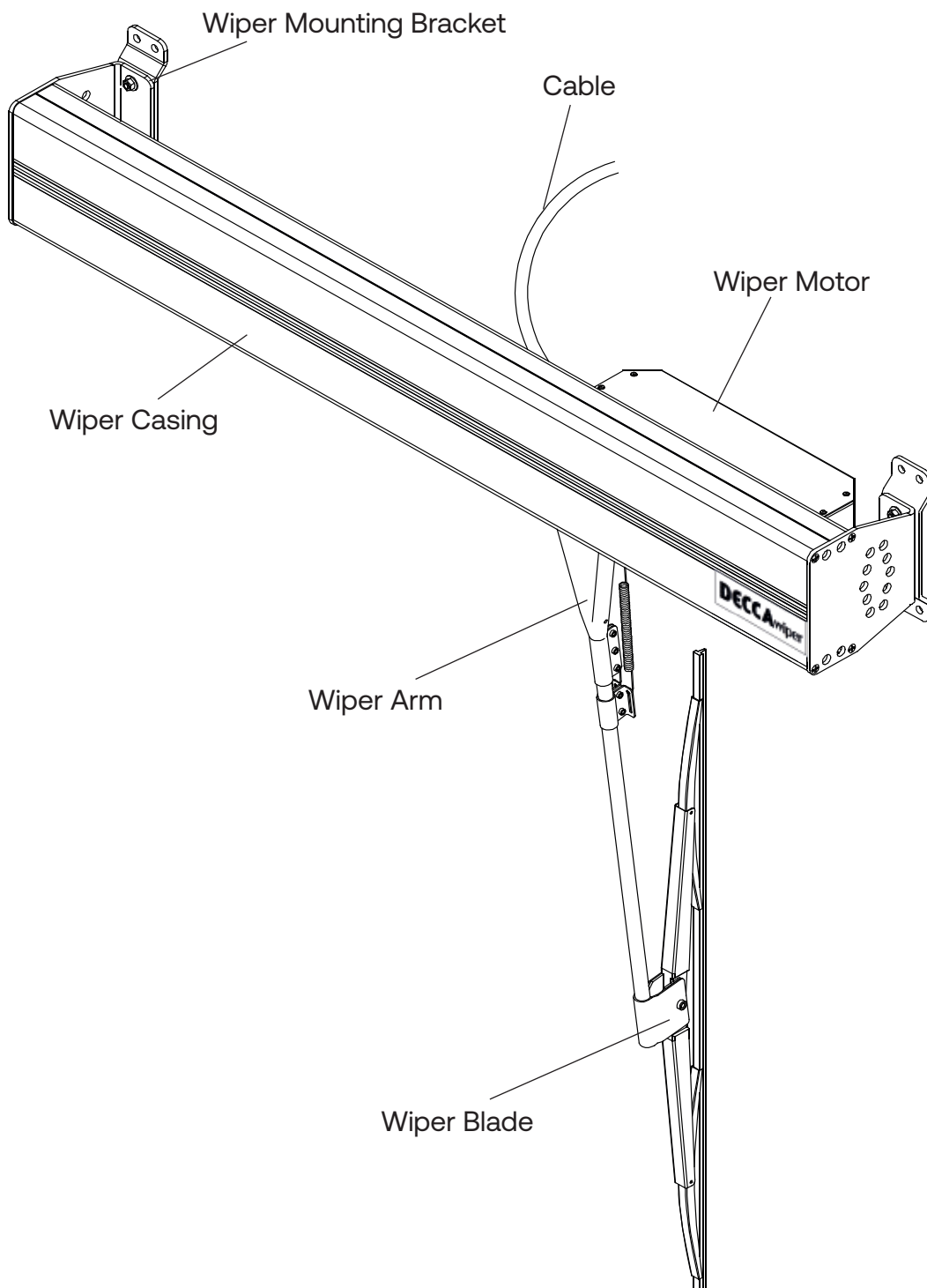


Figure 3 - Wiper Unit

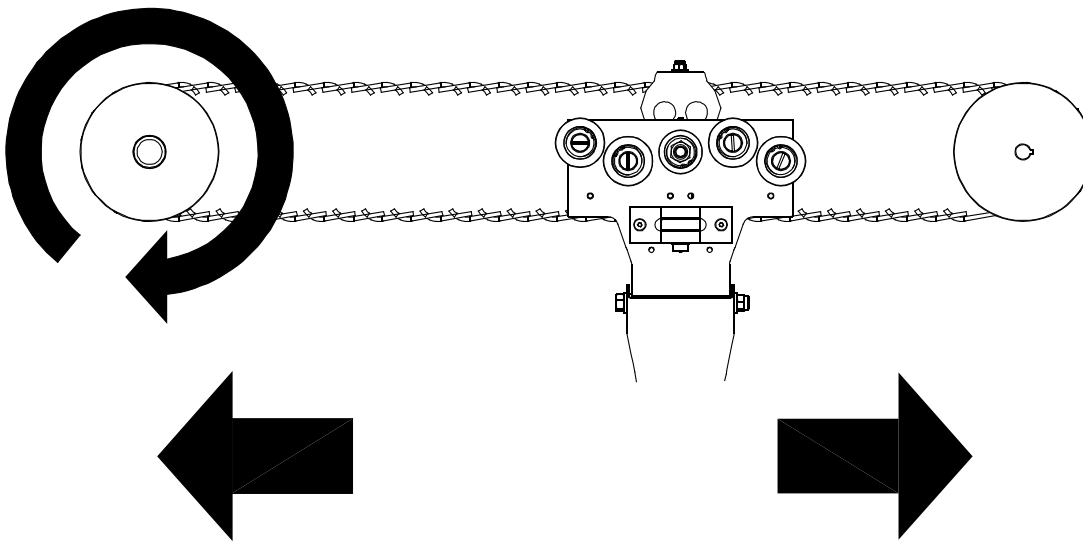


Figure 4 - Wiper Function - as viewed from front of wiper unit

3.1.2 Wiper Arms

The arm is supplied in full length, and is cut to appropriate length on site. The three M4 DIN912 bolts on the upper part of the arm assy secure the arm in correct position. This mechanism allows +/- 30mm fine adjustment of the arm length.

The wiper arm features step less spring tension adjustment by means of two springs and a spring tension clamp that is secured by two M4 DIN912 bolts.

The spring tension clamp should be positioned so that the wiper blade is pressed against the window with a force of approximately 2 kg (4 lb). See figure 9 for practical advice on spring tension adjustment.

Tension Springs

Spring Tension Clamp

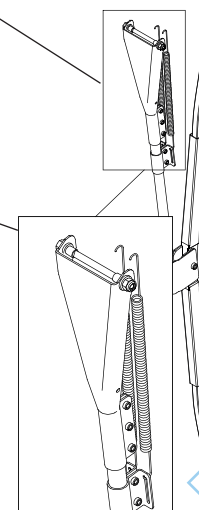
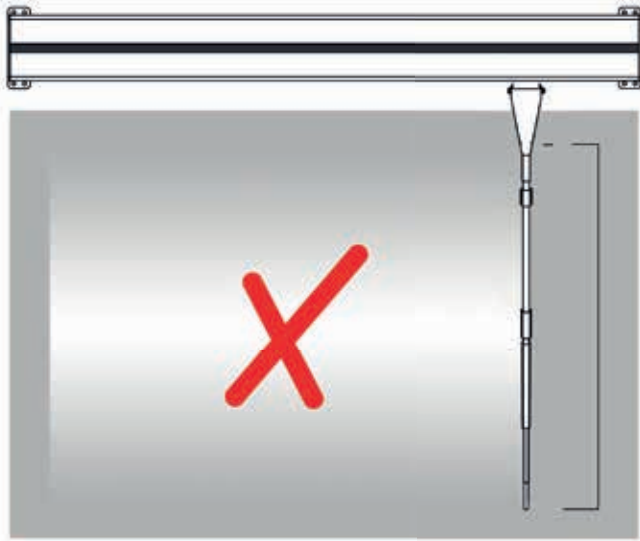
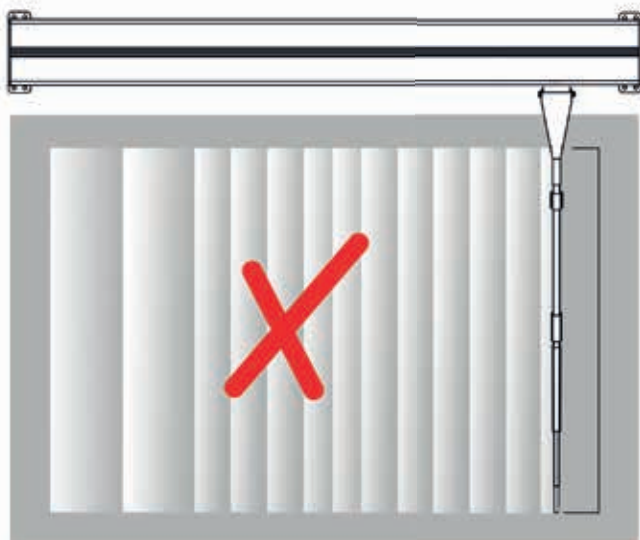


Figure 5 - Wiper Arm



Tension too low



Tension too high



Tension correctly adjusted

Figure 6 - Wiper Tension Adjustment

4. General

4.1 General description

Atla is an electronic wiper control system for up to five motors. Atla is composed by one control panel and two relay boxes. The control panel and the relay boxes are connected by an CAT5 cable (CAN Bus cable).

As standard the systems are supplied for 2 to 5 wiper motor operation. We can also offer the system for larger numbers of wipers with grouped operation. These systems are project specific and can be configured to your operational requirement.

- Voltage supply: 24V
- Activates/deactivates each wiper one by one
- 2 continuous speeds (Slow/Fast)
- Three intermittent settings
- Self parking due to park position sensor
- Wipe/wash program
- Single wipe function
- Heater activation
- Selection of backlighting color and dimming facility
- Fault and error signaling

4.2 Standard supply

- 1 x Control panel
- 2 x Relay boxes
- 1 x 5 meter cable or CAN Bus connection
- 1 x 4-poles female connector for Relay box to motors connection (1 for each motor)
- 1 x female 6,3mm fast-on terminal for washing pump connection
- 2 x (or 4 if more than 3 wipers) female 9,5mm fast-on terminal for power supply connection

4.3 Power supply

This wiper control is available to operate under a power supply of 24V DC. Check the power supply of the unit supplied, before connecting it to the ship's electric system.

4.4 Typical installations

A standard wiper installation features a single arm wiper unit that is mounted above or below the window frame. See examples in figure 7.

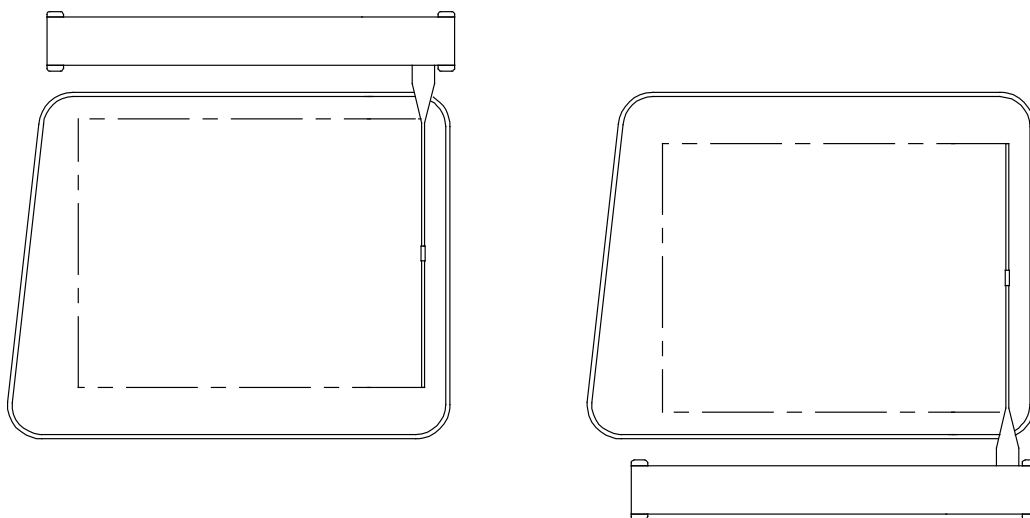


Figure 7 - Single Wiper Installation Layouts

Taller windows require two wipers to ensure maximum visibility, where one wiper unit covers the upper part and the other covers the lower part of the window. See example in figure 8, left side. Optionally, the wiper unit can be supplied with two wiper arms. The dual arm wiper unit can either be configured to cover one large window, or two smaller adjacent windows. See examples in figure 8, right side.

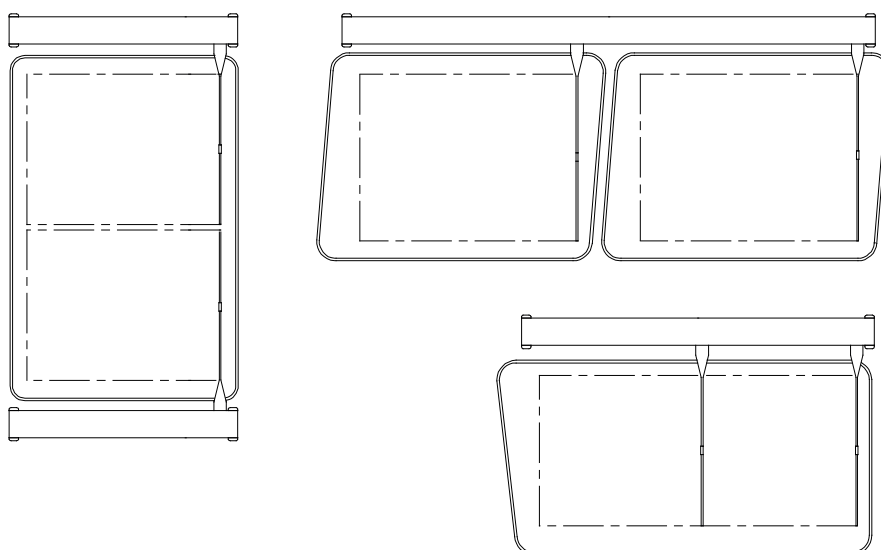


Figure 8 - Dual Wiper Installation Layouts

4.5 Technical information

ATLA CONTROL SYSTEM

Voltage supply	24V to 30V DC		
Internal fuses	12A self-resetting fuse for each motor		
Stand-by current	Less than 40 mA at 30V		
Protections	Polarity inversion		
Motors- output currents	Single or double speed – each motor 12 Amps max.		
Inputs	From 2 to 5 parking switches (open in park position)		
Outputs	From 2 to 5 wipers SLOW speed I _{max} = 12A From 2 to 5 wipers HIGH speed (if using two speed motors) I _{max} = 12A 1 wash pump (positive pole) SLOW I _{max} = 1A		
Functions	3 or 4 intermittent settings 1 or 2 continuous speeds (slow and high speed) Wash / wipe program		
	Relay box SRM2/3P	Relay box SRM4/5P	Control panel CP4PX
Connections	<ul style="list-style-type: none"> • 2 or 3 connectors with 4 poles • no. 2 - male 9,5 mm fast-on • no. 1 – male 6,3 mm fast-on • no. 2 connector (jack) with 8 poles (CAN BUS network) 	<ul style="list-style-type: none"> • 4 or 5 connectors with 4 poles • no. 4 - male 9,5 mm fast-on • no. 1 – male 6,3 mm fast-on • no. 2 connector (jack) with 8 poles (CAN BUS network) 	<ul style="list-style-type: none"> • 1 connector with 8 poles (CAN BUS network)
Case	Grey ABS		Plastic case Frontal panel Protection IP65
Dimensions (mm)	L: 191 - H: 40 - D: 109		L:100 - H:105 - D: 72
Working temperature	-25 °C / +50 °C		Storage temperature -30 °C / +80 °C

4.6 Declaration Of Conformity

This wiper control is in conformity at requisition of electromagnetic compatibility and of security with directives, 2014/30/EU 9EMC) and 2011/65/EC (RoHS). Harmonize norms apply:

- EN 60945 ed 2003 + IEC 2018-04: MARITIME NAVIGATION EQUIPMENT AND SYSTEMS
- EN 50581 ed 2012: RoHS.

Supplementary information:

- The European directive 2014/35/EU (Low Voltage) is not applicable to this product as this device is powered by voltage values below 50Vac or 75Vdc.
- The cabling systems that will be installed on the product, should be conform their own safety requirements. The system complied with the requirements of IMO A.813 Decision about protection against interference on maritime radio communications.

4.7 Water Spray System (option)

Decca wipers can be equipped with an optional water spray system that consists of 12mm OD piping and nozzles, all in stainless steel (316L). The water spray system can be installed onto the wiper mounting brackets, or directly onto the bulkhead.

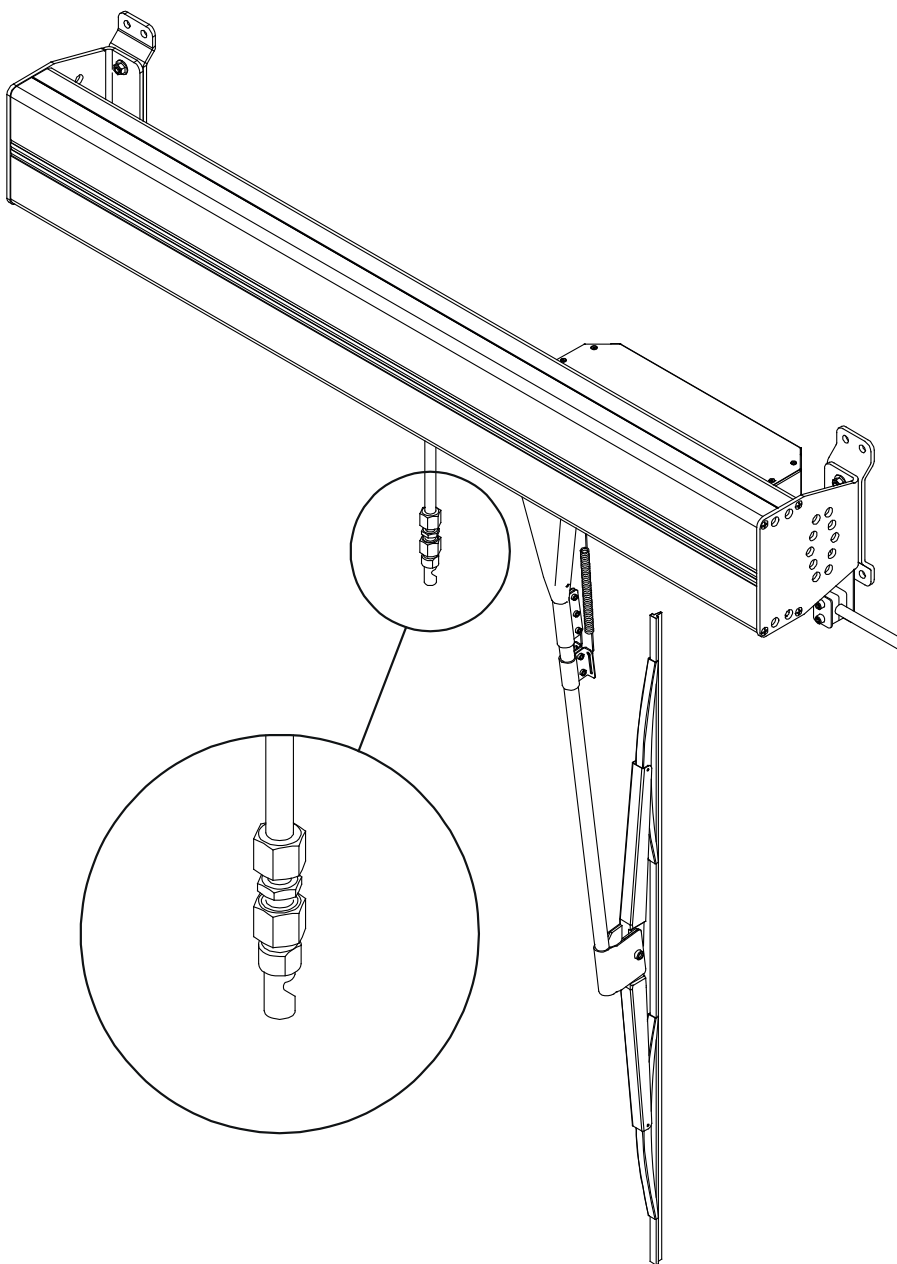


Figure 9 - Water Spray System

4.8 Bulkhead penetration

It is important to minimize the tension on the cable and the connector. In order to obtain an optimal location of the bulkhead penetration the hole should be drilled according to the dimension given in figure 10. The cable has an OD of 13mm. The cable gland for bulkhead penetration is not supplied, and must therefore be sourced by installer.



Avoid sharp bends or edges, the minimum cable bending radius is 75mm.
Protect the connectors from water during installation.

4.9 Wiper Casing

The wiper unit is mounted to the brackets after installation of cable. The wiper unit is bolted to the brackets using carriage bolts for easy fitting and removal, secured with washers and self locking nuts.

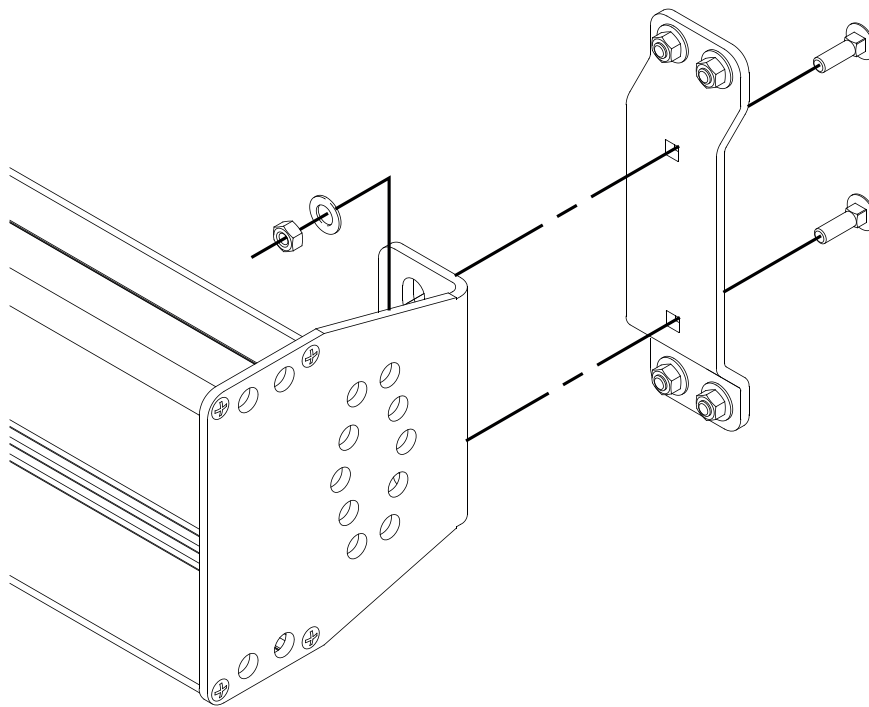


Figure 10 - Wiper Casing Mounting

4.10 Cable connections

4.10.1 Wiper Unit Cable Connector

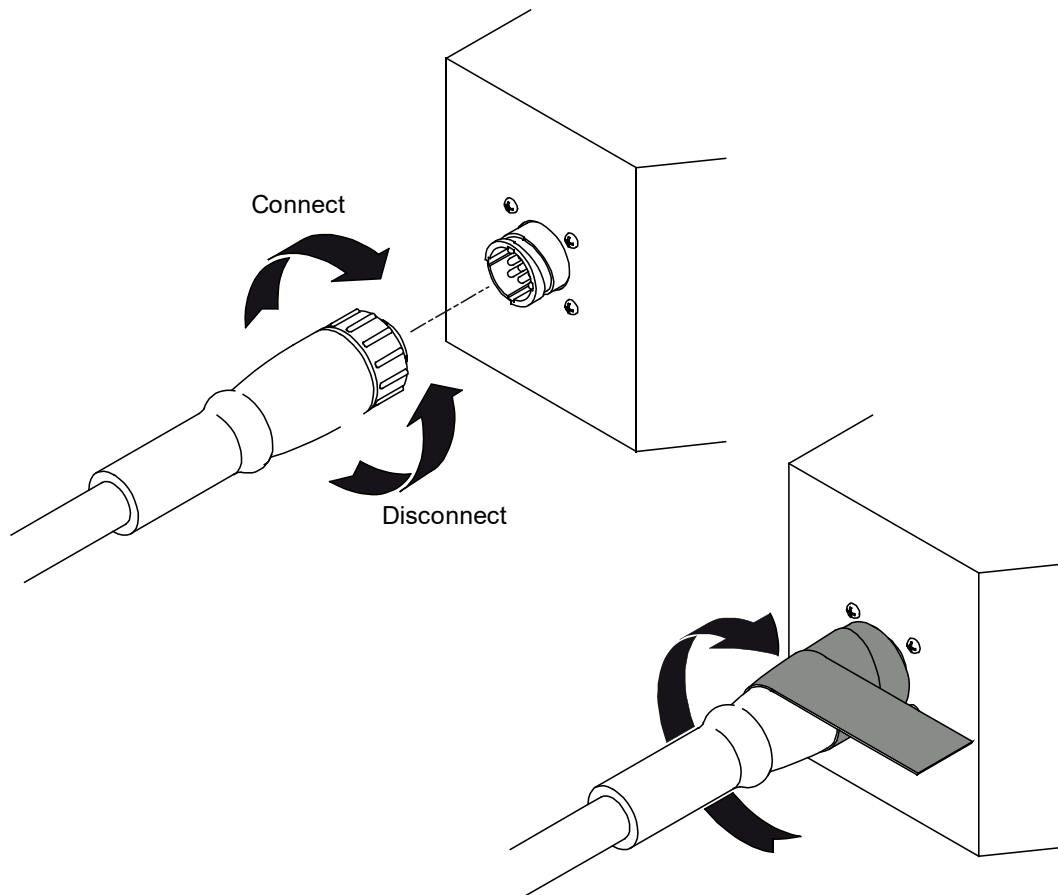


Figure 11 - Cable Connection

Rotate the cable connector to enter the guides in the mating connector. Secure by twisting the outer lock ring clockwise until it clicks into locked position. To form a waterproof connection, tape the connection with self-healing tape: Scotch® Professional Grade Silicone Rubber Tape #70, or similar.



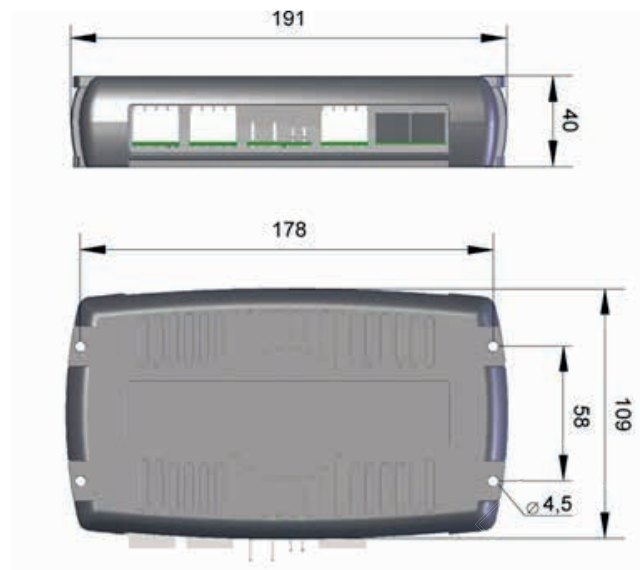
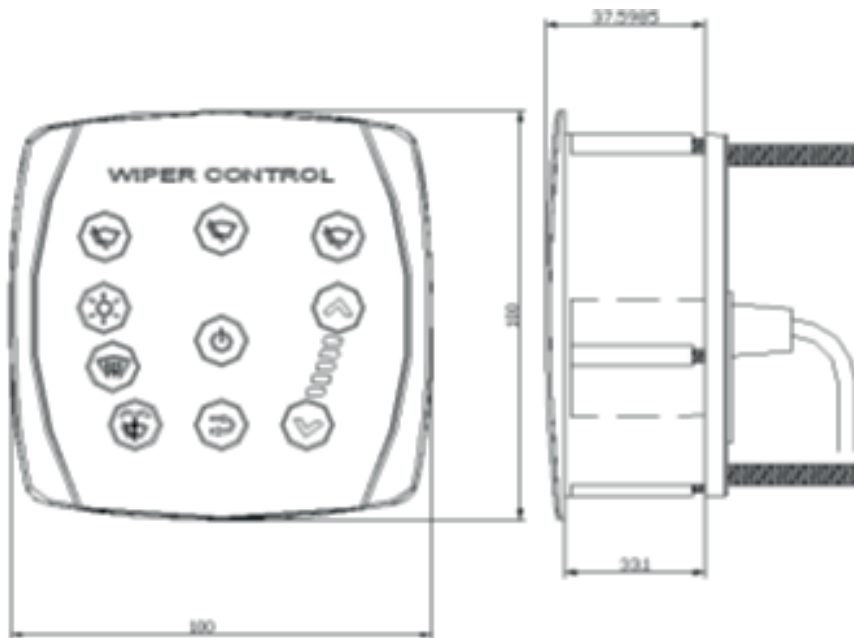
Always make sure that power is switched off before doing any kind of maintenance to the electric circuits



The cable connector should only be twisted by hand. Use of tools and excessive force will damage the connector

5. Installation

5.1 Dimensions

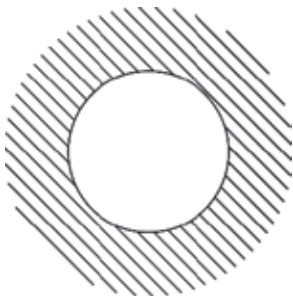


5.2 Installation

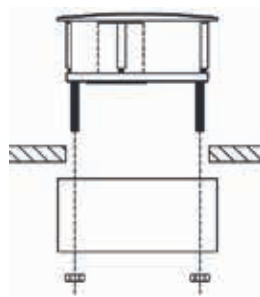
The control panel is to be fitted at a location that is within reach to allow ease of operation. Make sure that sufficient room is available for the cables and the connectors. The required mounting hole for the control panel is 90mm dia. There should be at least 100 mm space available below the front of the control panel for easy connection of CAT5 cable to panel

IMPORTANT: protect the power supply line(s) by a thermal/magnetic circuit breaker. Thermal/magnetic circuit breaker and cables diameter must be sized according to the motor consumption and the regulations.

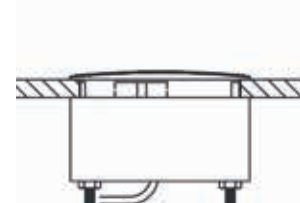
Please make sure you insert the connector (linked to the wiper motors) before connecting the power supply!



1



2



3

1. Drill the support with a 90mm diameter circular hole;
2. Set the panel above the hole and insert the threaded bar on the hole of the cap fits on the back of the support;
3. Fix the panel to the support by the supplied bolts and connect it to the relay box by the 8-pole cable.

6. Electrical connections

To make the connection between the control panel and control box a 5 mtr CAT5 cable as part of the supply as standard.

6.1 Wiring coding

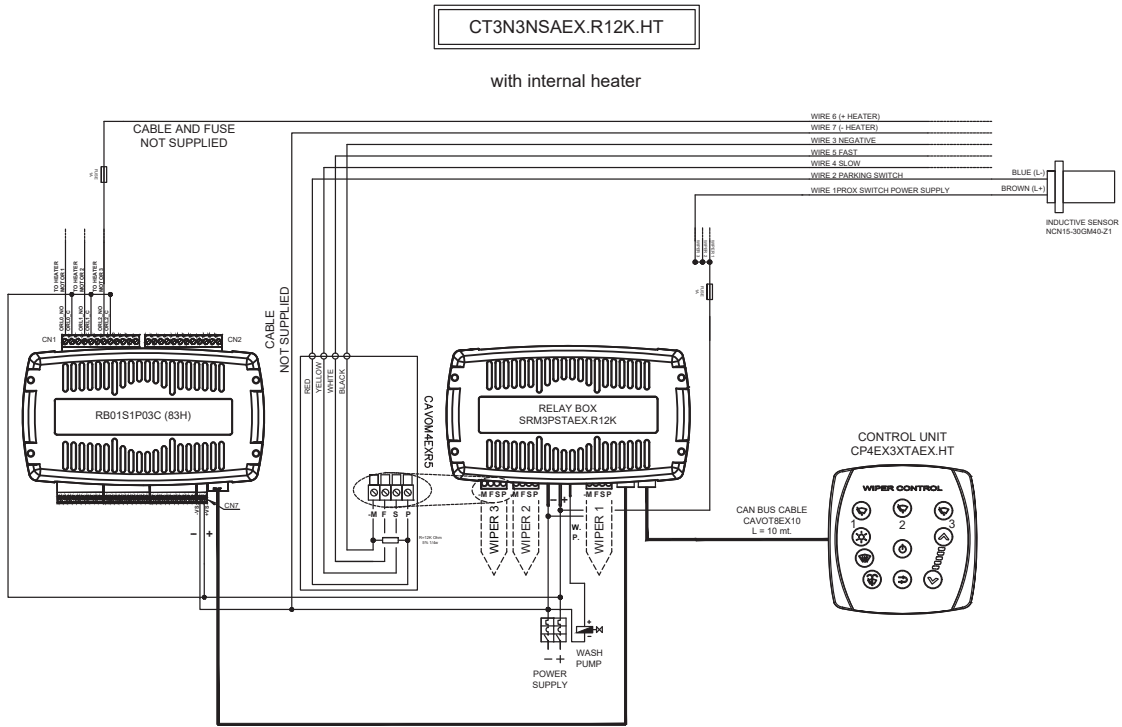
Wire no.	Function
#1	Power
#2	Parking
#3	Negative
#4	Slow
#5	Fast
#6	Heater (+)
#7	Heater (-)

6.2 Wiring diagram

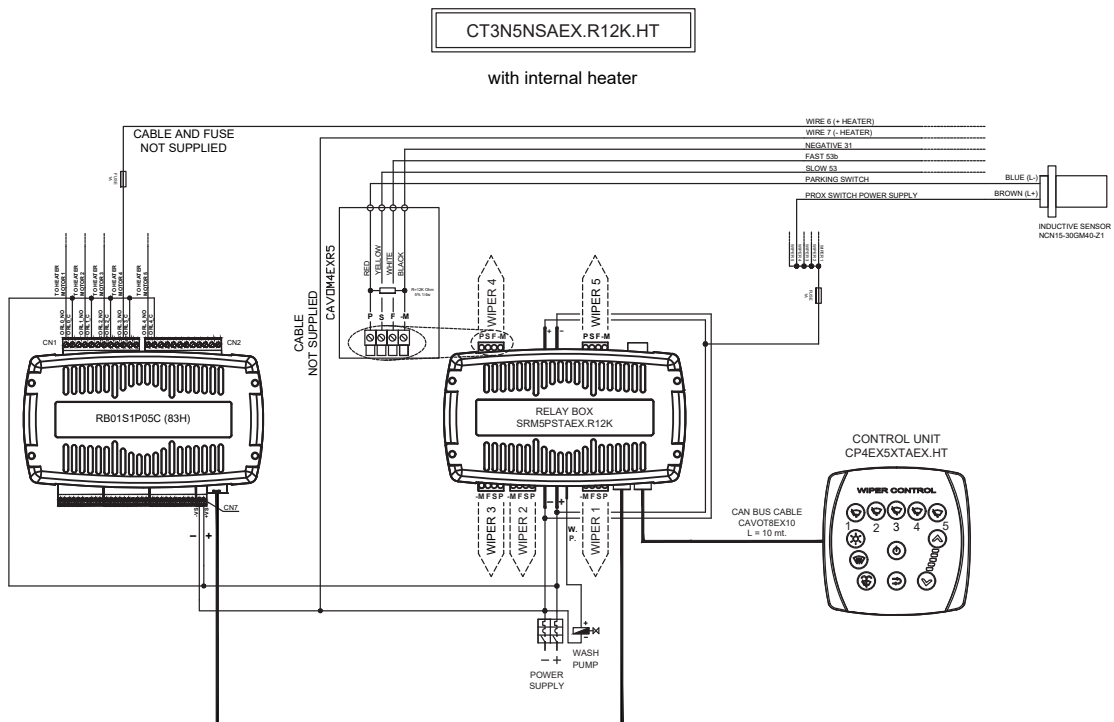
Always refer to the User Manual as supplied with the Decca Wiper before connecting the Decca wiper to the wiper control.

The schemes detail the connections from 2 to 5 wiper motors.

Example of a diagram for 3 wipers



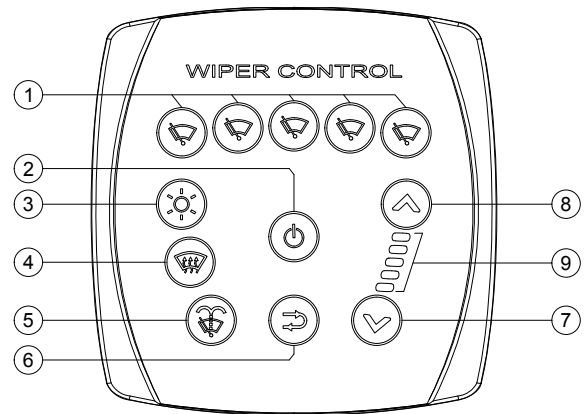
Example of a diagram for 5 wipers



7. Operation

7.1 Functions and push buttons

1. Single wiper ON/OFF button
2. General ON/OFF button
3. Backlighting color and brightness button
4. Heaters button
5. Wash /Wipe button
6. Single wipe button all wipers
7. Decrease speed
8. Increase speed
9. Selected mode led bar



7.2 ON/OFF Switching

Switching on:

By selecting button 2 all wiper will be activated in slow speed. By selecting anyone of the related button 1's for individual motors, this will activate that selected motor only.

Switching off:

By selecting button 2 all wipers active will return to park position and stop. By pressing the selected button 1 the respective wiper motor will return to park position and stop.

7.3 Increase/decrease speed and intermittent mod selection

Buttons 7/8/9: the motors will always start in slow speed. By pressing button 7 this will **decrease** the speed mode. By pressing button 8 this will **increase** the speed mode.

Speed bar	Waiting time	Mode
All Leds OFF	-	Stand-by
1 x Led ON	8 seconds	Intermittent
2 x Led ON	4 seconds	Intermittent
3 x Led ON	2 seconds	Intermittent
4 x Led ON	-	Continuous (slow)
5 x Led ON	-	Continuous (fast)

7.4 Wash/wipe program

By selecting button 5 this will operate the wash wipe function. The solenoid or pump will be powered and spray the window for 3 seconds. Then spray and wipe mode will continue for 3 seconds. Then spray mode will stop and wipe mode will continue for 4 seconds. After the wash cycle finished, the motors will return to the previous mode.

| 3 sec. | 3 sec. | 4 sec. |
|=== Spray === Spray ===|
|===== Wipe ===== Wipe ===|

7.5 Single wipe function

The single wipe function is allowed only when all the wipers are off. Push the button 6 to perform the single wipe. Keep pushed to perform more than one wipe.

7.6 Heating function

As a standard, the control panel has the mode to activate/deactivate the heaters in the wiper casing. The button 4 activates the heaters when pushed. To deactivate, push the button again. When the heaters are active, the button is illuminated. In custom applications, this button can control other equipment, such as window heaters or power sun blinds. Please refer to the supplemental wiring schematic for your project-specific application, where applicable.

7.7 Backlight brightness and colour function

The button 3 performs the brightness adjustment and the color selection. Pushing it momentarily the brightness level will change. Four brightness levels are available. Keeping it pushed the backlighting color will change. The available colours are Red, Green, Blue. In non operational mode the panel is always illuminated.

8. Power supply

The Decca wiper control will operate correctly if powered at 24V. Insert the motor connectors before applying power source. When powered the control will execute a lamp test and then will go into standby mode.

NB: it is important that all wiper motors are connected to the control before power.

9. Troubleshooting

9.1 Reset function

With any failure we recommend first that you perform a reset process to the control system:

- turn power off at distribution panel
- remove the positive and negative feed to the relay box
- make sure all motors are connected correctly to the relay box
- please leave for 30 seconds
- reconnect positive and negative feeds to relay box
- turn power on at distribution panel
- the system will execute a lamp test

If problems continues check notes on section 9.2 or 9.3.

9.2 Motor fault

The flashing of a wiper button indicates that Atla detects an error on a wiper.

This may happen if:

- the parking switch is unconnected or damaged
- the motor doesn't run (internal self-resetting fuse in protection, motor unconnected or damaged)
- the motor doesn't run in FAST or in SLOW speed
- the motor can't be synchronized
- the motor connectors have been inserted after supplying power.

9.3 Communication error

A shifting effect of the mode bar led indicates that control panel can't communicate with the relay box; this may happen if the flat cable is damaged or improperly connected or if there is a problem with the CAN Bus terminations.

10. Available models

Art. code	Control panel
12140020	Atla control panel for 2 groups
12140030	Atla control panel for 3 groups
12140040	Atla control panel for 4 groups
12140050	Atla control panel for 5 groups
12140099	Atla control panel - custome version

NB. If user need two stations, wire up the adding panel (optional) via CAN BUS to the relay box.

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