



# CONTROL SET

FOR DAWBARN SHEETING SYSTEM

## **MANUAL**

THIS MANUAL CONTAINS IMPORTANT AND SAFETY-RELATED INFORMATION FOR SETTING UP AND OPERATING THE PRODUCT. READ THROUGH THE MANUAL CAREFULLY AND ENSURE THAT YOU HAVE FULLY UNDERSTOOD THE CONTENTS, BEFORE YOU INSTALL, SET UP AND / OR OPERATE THE PRODUCT FOR THE FIRST TIME.

## GENERAL INFORMATION

This manual contains important safety-related information for setting up and operating the „**Control Set for Dawbarn sheeting systems**“ (called „**the control set**“ in the following), including the ICARUS blue R420 receiver (called „**the receiver**“ in the following), the ICARUS blue TM600 (called „**the transmitter**“ in the following) and Dawbarn toggle switch with its connection cable (called „**the toggle switch**“ in the following). All products of the control set are B2B products and is thus solely intended for professional / commercial / industrial applications.

When purchasing the control set, the customer, owner and / or user also agrees to request the latest documentation from the manufacturer or to download it from their website. To ensure safety at all times, you must have read and completely understood these instructions before setting up or operating the control set. If, after reading the manual, you have any questions or uncertainties, please contact your supplier before setting up or operating the control set!

This user manual must always be enclosed – including if the control set is used by third parties.

## SAFETY REGULATIONS

- The control set may only be installed, maintained, repaired and started up by trained skilled personnel.
- To prevent misuse or danger, never leave the control set unattended.
- Never open / modify / dismantle the products of the control set. This could lead to electrical shocks, malfunctions or fire.
- Do not subject the products of the control set to mechanical pressure. This could lead to electrical shocks, malfunctions or fire.
- Do not operate / use the control set in environments where there are flammable gases, fumes or solvents. This increases the risk of fire or explosion.
- Do not use the control set if any of its products is damaged. This could lead to damage to objects or injuries.
- Do not use the control set if a malfunction occurs or if it does not function. This could lead to damage to objects or injuries.
- Do not use the control set if smoke develops, there is a smell of burning or any of the control set products becomes discoloured. This could lead to damage to objects or injuries.
- Do not cover the products of the control set with a cloth (or similar). This could lead to fire or injuries caused by overheating.
- Do not leave the packaging materials lying around. This can be dangerous material for children.
- Do not try to force open the products of the control set and do not work on them with pointed objects! This causes damage to the products and can result in injuries (risk of explosion!).
- Protect the products of the control set from direct sunlight and other heat sources.

## SAFETY INSTRUCTIONS FOR USE

- Loss and damage incurred due to non-observance of the safety requirements are not covered by the warranty. The manufacturer is not liable for subsequent damage.
- The control set may not be used to operate systems / applications in which the user is not protected by inherent safety functions.
- The manufacturer is not liable for damage or injuries caused by improper operation or noncompliance with safety regulations / provisions. In such cases, the warranty also expires.
- The control set is not a toy and is not suitable for children.
- Contact an expert if you have any questions about the operation, safety or setting up of the control set (see section 1).
- Follow the safety regulations, the relevant laws and warnings of the respective application / machine manufacturers (dealer, supplier), with which the control set is used.
- When installing / mounting the control set, ensure that the connection cables are not crushed, kinked or otherwise damaged (e.g. by sharp edges).
- Ensure that the receiver is not overloaded, neither mechanically nor electrically. This can damage the receiver and cause a fire or electric shock.
- Only use the receiver within the voltage range from 9 to 36 volt (DC). The total load may not exceed a maximum total current of 10 amps. Ensure additional fusing of the power supply!
- Button 1 of the receiver (signing on / pairing process) may only be used in ambient temperatures  $> -10^{\circ}\text{C}$ .
- If the products of the control set are visibly iced over, never remove the ice forcibly!

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## PACKAGE CONTENTS

- ICARUS blue R420 (receiver)
  - 5-wire-connection cable (1.0 m)
  - transparent cover with cable gland (preassembled)
- ICARUS blue TM600 (transmitter)
  - USB-C to USB-A charging cable (1.0 m)
  - Cover plate including screws for back of transmitter (see „Replacing belt clip with a cover plate“ section)
- Toggle switch with 3-wire connection cable (4.0 m)
- Manual



Caution, danger!



Do not dispose of the unit in the household waste after the end of its service life.



The product was produced in compliance with the EU guidelines.



Read the manual before using.

## **1. MANUFACTURER'S AND SUPPORT INFORMATION**

ICARUS blue® and the Dawbarn toggle switch are products of the ICP Group, produced and licensed by ICP Systems b.v., Handelsweg 48, 7451 PJ Holten, The Netherlands. The ICARUS blue® word mark is a registered brand of the company ICP Intelligent Creative Products GmbH, Manderscheidstraße 8b, 45141 Essen, Germany. The Bluetooth® word mark and logos are registered brands of the company Bluetooth SIG, Inc. and any such use of these brands by ICP Systems b.v. is under license.

For any questions regarding the installation, setup and use of the control set, as well as in case of problems, contact:



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## **2. CONTROL SET DESCRIPTION AND OVERVIEW DRAWING**

The „Control Set for Dawbarn sheeting systems“ is a Bluetooth® remote control system, pre programmed to enable the remote control of an automated sheeting system. The system comprises an ICARUS blue R420 receiver module, a ICARUS blue TM600 handheld transmitter and a manual override toggle switch.

Detailed information on the specifications and installation instructions for the individual products of the control set can be found in section 3 (and following).



### 3. ICARUS BLUE R420 (RECEIVER)

#### 3.1 SHORT DESCRIPTION

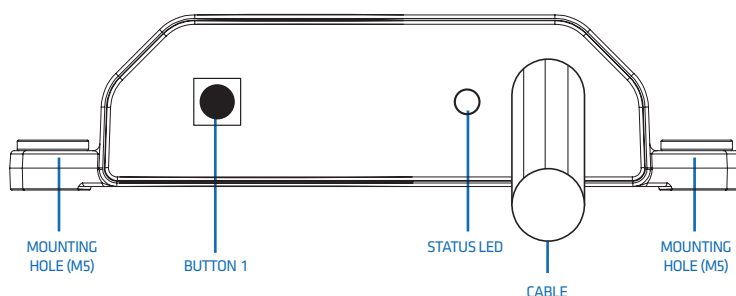
ICARUS blue R820 is a Bluetooth radio remote control receiver with four digital outputs and two digital inputs. The outputs can be used to switch on / off electrical loads and the inputs can be used to read in / process signals. It is controlled by a transmitter of the ICARUS blue series or alternatively by a smartphone app.

#### 3.2 TECHNICAL DATA AND REQUIREMENTS

Frequency	2.4 GHz (Bluetooth 5.0)
Antenna	internal
Transmission power	+8dBm
Working range (control by TM600)	approx. 100m, depending on the environment
Working range (control by app)	approx. 30m, depending on the environment and device
Supply voltage	9 – 36 Vdc
Power consumption	< 8mA (standby)
Outputs	8 digital outputs (R820) 4 digital outputs (R420)
Current load per output	nominal 2.5A; max. 3.5A <sup>1</sup>
Maximum total current	10A
Inputs	2 digital inputs (9 – 36 Vdc)
Dimensions / weight	80mm x 102mm x 24mm (L x W x H) / 380g including cable
Enclosure	potted ABS enclosure IP69k if the receiver protective cover is used properly; otherwise IP67)
Temperature range	-40°C to +60°C
Working altitude	2000m asl
Optical feedback	two-coloured LED (red / green)

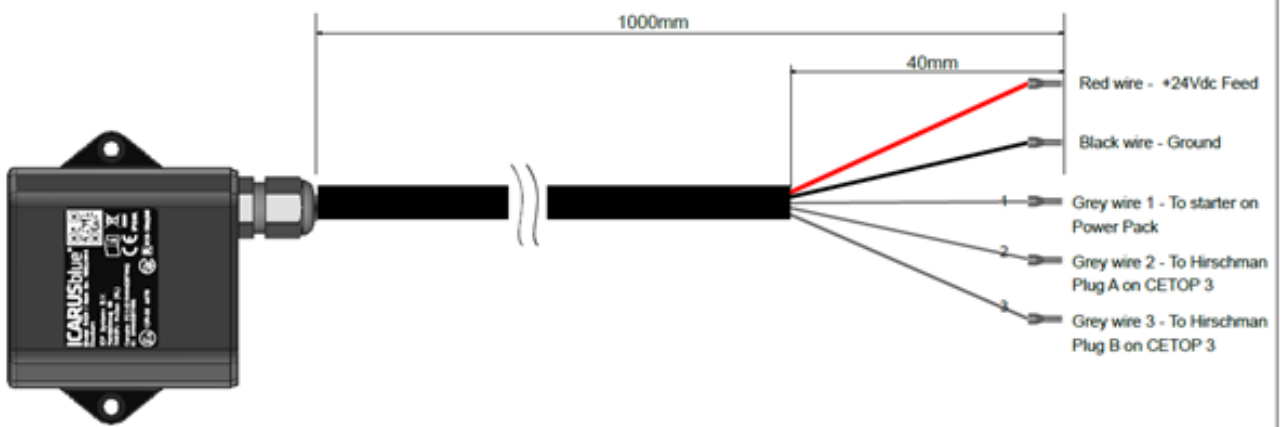
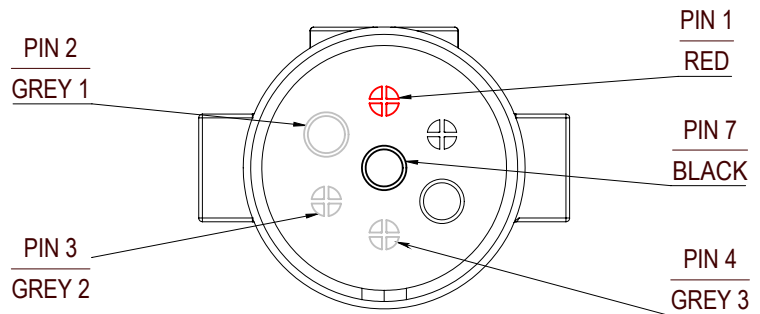
<sup>1</sup>dependent on the temperature and load duration; switching off at software end at internal temperature  $\geq 85^{\circ}\text{C}$  and / or loads  $\geq 3.6\text{A}$  for a period of  $\geq 1$  second.

#### 3.3 RECEIVER VIEW (WITHOUT PROTECTIVE COVER)



### 3.4 CABLE WIRE ASSIGNMENT

Wire colour	Function	Pin on 7-pole plug
Black	0 Vdc	Pin 1
Red	9 - 36 Vdc	Pin 7
Gray 1	Output 1	Pin 2
Gray 2	Output 2	Pin 3
Gray 3	Output 3	Pin 4



### 3.5 STATUS LED



Explanation = LED on = LED off

Off	No power supply / receiver switched off
Slow flashing (green)	Receiver switched on and ready for connection to an already paired transmitter / smartphone
Continuously on (green)	Receiver switched on and connected to the transmitter / smartphone
Normal flashing (alternating red/green)	Receiver switched on and ready for pairing (pairing mode)
Flashing sequence (red)	Error (see „Error codes and remedy“ section)

### 3.6 INSTALLATION REQUIREMENTS



#### WARNING

**Installation, mounting, setting up and operation of the receiver when tired or under the influence of drugs or medicines is strictly prohibited. Follow the safety instructions!**

- The receiver may only be installed, mounted, set up and operated by qualified skilled personnel.
- Improper installation, mounting, setting up or operation can endanger the user, bystanders or others (depending on the application) and can cause injuries or damage to personal property and the receiver itself.
- When installing and mounting the receiver, ensure that the work / mounting environment is clean, tidy and dry.
- The receiver must be disconnected from the power supply before it is installed and mounted.
- If possible, install the receiver within sight of the user.
- Do not install the receiver in the immediate vicinity of motors, relays or mains cables.
- Do not install the receiver on the inside of a metal housing and always ensure sufficient distance from objects, which could impair the transmission / reception strength.
- Always observe the supplied wiring diagrams.
- Always use adequately thick, correctly insulated cables that are suitable for the application area.
- Always connect wires with appropriate and suitable cable connectors.
- The receiver must be fixed with two screws (M5).
- Always observe the relevant safety instructions.

	<b>CAUTION</b>
	Before connecting the cable, switch off the power supply to avoid an electric shock, a malfunction or a fire.

	<b>NOTE</b>
	Read the manual of the devices you connect to the receiver and follow the safety instructions in them.



#### WARNING!

Ensure that the power supply is connected to the receiver correctly. Mixing up the wires (red / black) inevitably leads to all outputs of the receiver being live as soon as the power supply is switched on! This can lead to uncontrolled and dangerous states! Only use the receiver within the voltage range from 9 to 36 volt (DC). The total load may not exceed a maximum total current of 10 amps.

**Ensure additional fusing of the power supply!**

### 3.7 PAIRING A TRANSMITTER

1. Ensure that the receiver is connected to the power supply and is switched on. The status LED flashes green slowly.
2. Press button 1 on the receiver 3 x quickly.
3. The status LED starts to flash alternately red and green.
4. Activate the pairing mode of the ICARUS blue transmitter you want to pair. Please read the corresponding manual.

### 3.8 PAIRING A SMARTPHONE

1. Ensure that the receiver is connected to the power supply and is switched on. The status LED flashes green slowly.
2. Press button 1 on the receiver 3 x quickly.
3. The status LED starts to flash alternately red and green.
4. Visit <http://rseries.icarus-blue.com> (or scan the QR code on the last page of this manual) and download the corresponding (free) app from the respective app store and then follow the step-by-step instructions in the app.

	<b>NOTE</b>
	Button 1 may only be used in ambient temperatures > -10°C. Also, the receiver must not be iced over (see also "Safety instructions for use").

	<b>NOTE</b>
	Note that only one device can be connected to the receiver at the same time.



### 3.9 DELETING / REMOVING A PAIRED DEVICE

To delete all paired devices (transmitters and smartphones) from the memory of the receiver, the following button combination must be pressed within a period of max. 4 seconds:

1. Ensure that the receiver is connected to the power supply and is switched on.
2. Press button 1 on the receiver 7 x quickly.
3. The status LED flashes 7 x quickly and thus confirms that all paired transmitters have been deleted from the receiver's memory.

## 4. ICARUS BLUE TM600 (TRANSMITTER)

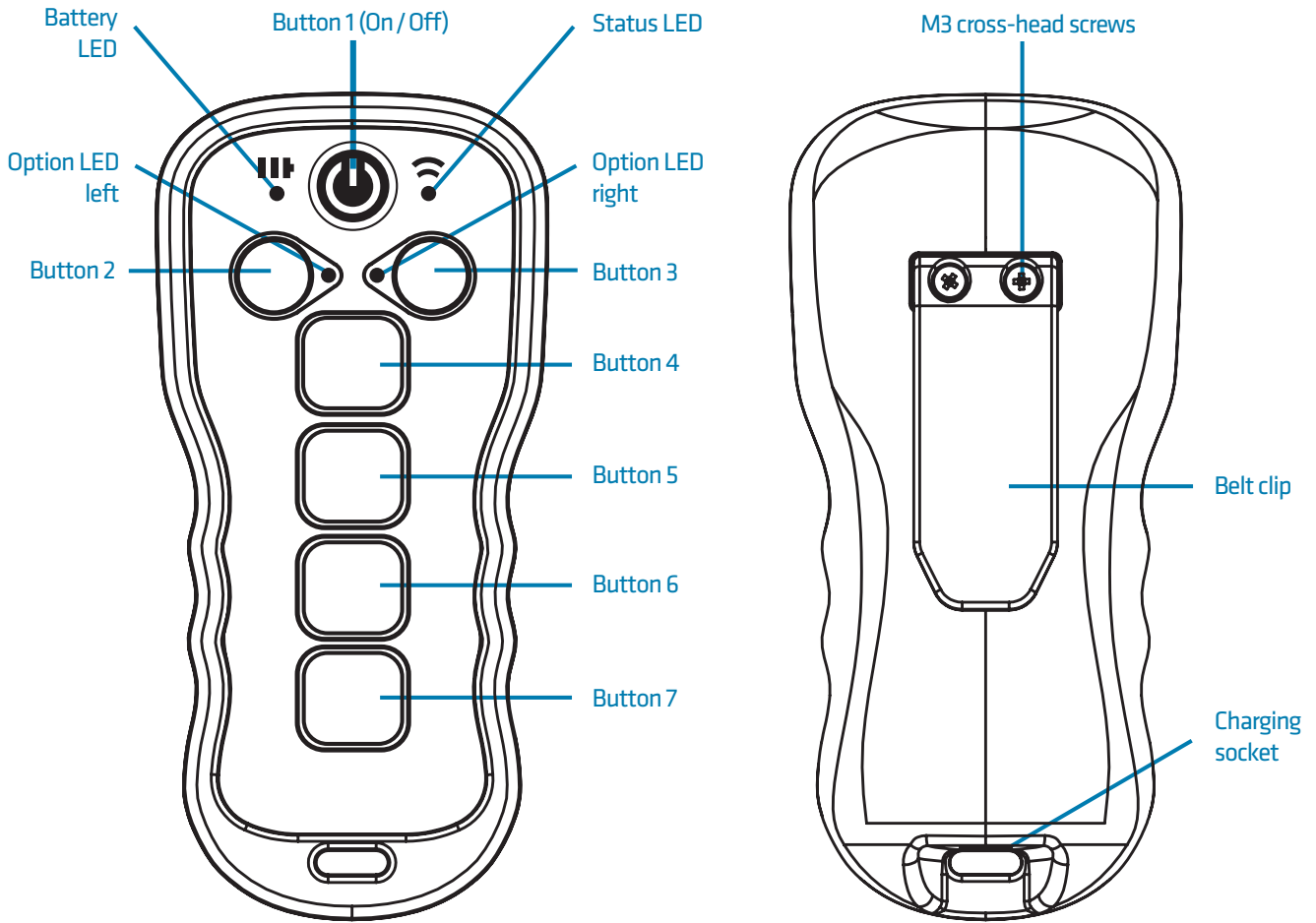
### 4.1 SHORT DESCRIPTION

ICARUS blue TM600 is a Bluetooth radio remote control transmitter with two selection buttons and four control buttons. This transmitter can be used to control the corresponding Bluetooth 5.0 receiver of the ICARUS blue series and thus to switch on and / or off electric loads and to read in / process digital signals.

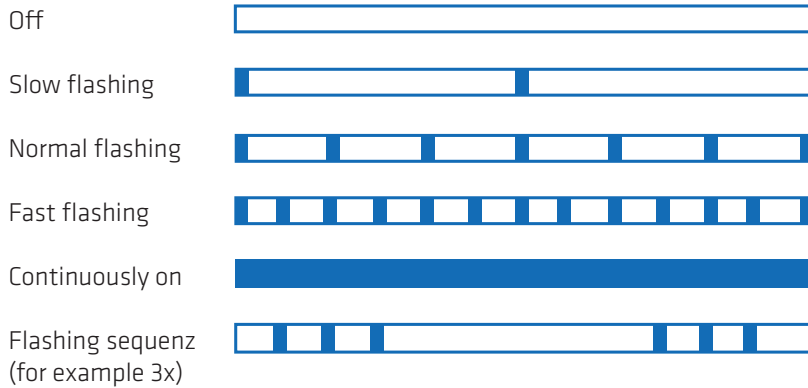
### 4.2 TECHNICAL DATA AND REQUIREMENTS

Operation	Membrane keypad
Optical feedback	4 x RGB LEDs
Frequency	2.4 GHz (Bluetooth 5.0)
Reaction time	approx. 50ms
Antenna	internal
Transmission power	+8dBm
Working range	approx. 100m (depending on environment)
Power consumption	approx. 60mA when switched on
Supply voltage	nominal 3.7 Vdc (internal rechargeable battery)
Battery type	Lithium ion polymer rechargeable battery
Battery capacity	1350 mAh (>= 80% after 300 charge cycles; >= 60% after 500 charge cycles)
Charger connection	USB-C
Dimensions / weight (incl. belt clip)	137mm x 65mm x 35mm (L x W x H) / 113g
Enclosure material	ABS
Working altitude	2000m asl
Temperature range	-20°C to +50°C

### 4.3 TRANSMITTER VIEW



### 4.4 GENERAL DESCRIPTION OF LED SIGNALING



Explanation = LED on = LED off  
 In addition, the colour - in which the LED lights up - is also listed.

### 4.5 BATTERY LED (WHEN USING THE TM600)

Off	Transmitter is switched off..
Continuously on (green)	Transmitter switched on, battery charge between 40% and 100%
Continuously on (orange)	Transmitter switched on, battery charge between 20% and 40%
Continuously on (red)	Transmitter switched on, battery charge between 10% and 20%
Normal flashing (red)	Transmitter switched on, battery charge between 1% and 10%

#### 4.6 BATTERY LED (WHEN CHARGING THE TM600)

Normal flashing (purple) Transmitter switched off, battery is charging

Continuously on (purple) Transmitter switched on, charging finished (100%)

**Operation of the transmitter is not possible while charging!**

#### 4.7 STATUS LED

Off Transmitter is switched off.

Normal flashing (green / red) Pairing mode is active. Transmitter ready for pairing with receiver.

Slow flashing (orange) Not connected to receiver.

Continuously on (orange) Connected to receiver. Connection active but no operation possible.

Continuously on (green) Connected to receiver. Connection active. Operation possible.

Fast flashing (green) Button pressed (active control).

Flashing sequence (red) Error (see „Error codes and remedy“ section)

#### 4.8 GENERAL NOTES ON SETTING UP AND OPERATION



#### WARNING!

Setting up and operation of the transmitter when tired or under the influence of medicines is strictly prohibited. Follow the safety instructions!

- The transmitter may only be set up and operated by qualified skilled personnel.
- Improper setting up or operation can endanger the user, by-standers or others (depending on the application) and can cause injuries or damage to personal property and the transmitter itself.
- When setting up and operating the transmitter, ensure that the work environment is as clean, tidy and dry as possible.
- When setting up and operating the transmitter, always ensure sufficient distance from objects that could impair the transmission / reception strength.
- Always observe the relevant safety instructions.
- Ensure that the battery is sufficiently charged before setting up and operating the transmitter.

#### 4.9 CHARGING THE TRANSMITTER BATTERY



#### WARNING!

Only charge the transmitter battery in ambient temperatures  $> 5^{\circ}\text{C}$  and  $< 35^{\circ}\text{C}$ . Charging outside the named temperature range leads to damage to the transmitter and can cause injuries.

- Incorrect connection of the charging cable / power supply can cause serious damage to the transmitter. Damage due to im-proper use is not covered by the warranty.
- Only use the USB cable supplied with the transmitter.
- Ensure that the charging cable is not kinked or other wise dam-aged / has other defects.
- Do not charge the transmitter battery for longer than necessary, as overcharging can have a negative effect on the life of the battery.
- To protect against corrosion and damage, carefully clean and dry the contacts of the charging socket and the surrounding area before connecting the charging cable.
- **The rechargeable battery is permanently installed and cannot be replaced!**



Fig. 1

1. Connect the USB-A connector (see Fig. 1) of the charging cable supplied to a suitable USB mains adapter (with charging connection to USB specification).
2. Connect the USB-C connector (see Fig. 1) of the charging cable supplied to the charging socket provided on the underside of the transmitter (see “Product view” section).
3. Plug the USB mains adapter into a suitable mains socket.
4. Disconnect the charging cable from the transmitter as soon as the battery is fully charged (see also “LED status” section). Then remove the USB mains adapter from the main socket.

**Proceed as follows if the transmitter overheats during charging:**

- Disconnect the charging cable from the transmitter. Wait until the transmitter has cooled down, and then continue charging.
- If the bottom part of the transmitter overheats, this could be because the connected USB cable is damaged. Replace the damaged USB cable with a new USB cable approved by the ICP Group.

**4.10 PAIRING THE TRANSMITTER WITH A RECEIVER**


Activate pairing mode at the ICARUS blue receiver. Please read the corresponding manual.


To activate the transmitter’s pairing mode, the following button sequence must be pressed within a period of max. 5 seconds:

1. With the transmitter switched off, press button 1 (On / Off) and keep it pressed (< 3 seconds) until the status LED lights up. Immediately after this, release button 1 (On / Off) and press it again twice, quickly in succession.
2. The status LED now starts to flash alternately red and green.
3. If a receiver in pairing mode is found, the transmitter connects to it automatically.
4. As soon as the pairing process was successful and the transmitter has connected to the receiver, the status LED lights up continuously in blue.
5. Press button 1 to switch off the transmitter and to exit pairing mode.

**4.11 SWITCHING ON AND OFF**

1. Ensure that the battery is sufficiently charged before setting up and operating the transmitter.
2. Press button 1 for 2 seconds to switch on the transmitter.
3. After switching on the transmitter successfully, the battery LED indicates the charge status of the battery (see “LED status” section).
4. If the transmitter has already been coupled with a receiver, the transmitter connects to it automatically and the status LED of the transmitter lights up continuously in green.
5. Press button 1 again to switch off the transmitter. If the battery LED goes out, this signals that the transmitter is now switched off.


	NOTE
<p>Note that this does not switch off the receiver and that it remains ready to receive, as it has its own power supply. Any active outputs of the receiver are deactivated by switching off the transmitter (safety function).</p>	


	NOTE
<p>If no button on the transmitter is pressed for a longer period of time (&gt; 15 minutes), the transmitter switches off automatically to save power. To turn the transmitter back on, keep button 1 pressed for a period of 2 seconds.</p>	

#### 4.12 CONTROL / OPERATION

The default functions of the transmitter are described in the following. The functions of the buttons can differ from this, depending on the delivered configuration (note any supplementary sheets)!

Button 1	Switching on / off the transmitter
Button 2	No function in Dawbarn standard configuration.
Button 3	No function in Dawbarn standard configuration.
Button 4	When button 4 is pressed the signal is sent to the starter solenoid and directional solenoid A to enable the sheeting system to close. The button is programmed to operate as a momentary function so requires the operator to keep the button depressed until the function is completed.
Button 5	When button 5 is pressed the signal is sent to the starter solenoid and directional solenoid B to enable the sheeting system to open. The button is programmed to operate as a momentary function so requires the operator to keep the button depressed until the function is completed.
Button 6	No function in Dawbarn standard configuration.
Button 7	No function in Dawbarn standard configuration.

	<b>NOTE</b>
	If the connection is interrupted, the status LED starts to flash orange. Any active outputs are deactivated.

	<b>NOTE</b>
	In case you have lost or damaged your transmitter TM600, you can download the free ICARUS blue R-Series app and operate the receiver with you mobile phone (see section 3.7).

#### 4.13 DELETING / REMOVING PAIRED RECEIVERS

To delete all coupled receivers from the memory of the transmitter, the following button combination must be pressed within a period of max. 9 seconds:

1. With the transmitter switched off, press button 1 (On / Off) and keep it pressed (< 3 seconds) until the status LED lights up. Immediately after this, release button 1 (On / Off) and press it again six times, quickly in succession.
2. The status LED now starts to flash alternately red and blue and thus signals that all coupled receivers have been deleted from the memory of the transmitter.
3. Press button 1 to switch off the transmitter.

#### 4.14 REPLACING THE BELT CLIP WITH A COVER PLATE

The transmitter is delivered with a preassembled belt clip. If necessary, you can replace the belt clip with the cover plate (also supplied with the transmitter), in order to create a flat back of the transmitter. Proceed as follows:

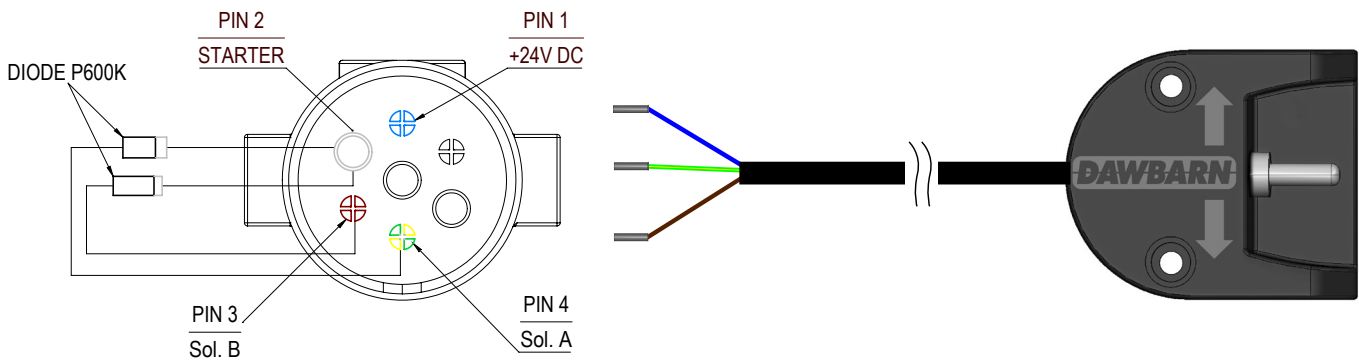
1. Use a suitable cross-head screwdriver to carefully undo the two screws, with which the belt clip is fixed on the back of the transmitter.
2. Remove the belt clip.
3. Place the cover plate in the recess provided on the back of the transmitter. Ensure that the countersunk holes in the cover plate are facing you.
4. Use the countersunk screws supplied to fix the cover plate. Ensure that you do not overtwist or overtighten the screws (maximum 0.6Nm), as this can lead to internal damage of the enclosure and thus to loss of the IP67 protection.

## 5. DAWBARN TOGGLE SWITCH

### 5.1 SHORT DESCRIPTION

The toggle switch is a stand alone back up that can be used if the transmitter fails and the operator has no access to a smartphone device. The toggle switch is wired into a 7-pin plug the same as the receiver so that the receiver can be unplugged and replaced by the toggle switch which can then control the opening and closing of the sheeting system.

### 5.2 TOGGLE SWITCH VIEW AND CABLE WIRE ASSIGNMENT



**NOTE: It is very important to connect the diodes in the correct direction!**

## 6. ERROR CODES AND REMEDY

In the event of faults or malfunctions of the control set, the error that has occurred is indicated by a flashing sequence of the receiver's and transmitter's status LED in red. The corresponding error can be diagnosed using the following list and (where possible) remedied.

Flashing sequence	Error	Solution
2 x short	Receiver undervoltage (< 6.5V for > 1500ms)	Check and if necessary, increase the power supply of the receiver.
3 x short	Receiver overvoltage (> 36V for > 60ms)	Check and if necessary, reduce the power supply of the receiver.
4 x short	Receiver temperature exceeded (> 85°C)	Disconnect the receiver's power supply and leave the receiver to cool.
1 x long, 1 x short	Receiver output 1 (> 3.5A for > 1000ms)	Check and reduce the current consumption of the connected component.
1 x long, 2 x short	Receiver output 2 (> 3.5A for > 1000ms)	Check and reduce the current consumption of the connected component.
1 x long, 3 x short	Receiver output 3 (> 3.5A for > 1000ms)	Check and reduce the current consumption of the connected component.
1 x long, 4 x short	Receiver output 4 (> 3.5A for > 1000ms)	Check and reduce the current consumption of the connected component.
3 x long	Permissible total current of receiver exceeded (> 10A for > 1000ms)	Check and reduce the total current consumption.
4 x long	Critical receiver error	Disconnect and reconnect the receiver's power supply. If the error persists, contact your supplier.
Continuously short	Critical transmitter error	Switch off transmitter and switch back on. If the error persists, contact your supplier.
2 x long, 1 - 6 x short	Internal receiver error	Disconnect and reconnect the receiver's power supply. If the error persists, contact your supplier.

## **7. MAINTENANCE AND CLEANING**

The receiver and the transmitter are maintenance-free for the user. Maintenance and repairs must be carried out by a competent person. The products may only be cleaned with a damp cloth and without chemicals. Otherwise they can become damaged. It is advisable to clean the transmitter weekly. If the transmitter is used in a very dirty, e.g. dusty environment, daily cleaning is recommended to prevent possible consequential damage.

## **8. DISPOSAL**

Electronic equipment is recyclable waste and does not belong in household waste. If the receiver no longer works, dispose of it in accordance with the relevant, country-specific legal provisions. If you follow the above recommendation, you fulfil your statutory duties and help to protect the environment.

## **9. WARRANTY**

The receiver has been tested in a controlled environment and, under certain conditions, proved to be resistant to moisture and dust, and meets the requirements of the IP69k classification (if the corresponding receiver protective cover is used properly; otherwise IP67) in accordance with the international standard IEC 60529.

The transmitter has been tested in a controlled environment and has proven resistant to moisture and dust under certain conditions (corresponds to the requirements of IP67 classification in accordance with the international standard IEC 60529).

The supplier / manufacturer is not able to ensure that the content of this manual and the use of the receiver are understood and observed by the user. Improper and / or faulty mounting and / or assembly as well as improper / faulty operation can lead to injuries and damage to the materials.

The manufacturer does not accept any liability for injuries and damage to the material and / or personal property or any other costs incurred due to improper and / or faulty assembly, improper use and / or faulty application, for which the products were not designed and produced, or failure to carry out maintenance or incorrect maintenance and / or anything else associated with this. The manufacturer is relieved of any responsibility in case of unauthorized dismantling and / or modification. All necessary parts must be approved by the manufacturer, so that the products maintain guaranteed safety and operation during their entire life.

## **10. SIMPLIFIED DECLARATION OF CONFORMITY**

ICP Systems B.V. (Handelsweg 48, 7451 PJ Holten, The Netherlands) herewith declares that the radio system types ICARUS blue R420 and TM600 comply with Directive 2014/53/EU.

The complete text of the EU Declaration of Conformity is available at <https://www.icarus-blue.com>

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