

USER MANUAL



Scorpius 2S

EN

DE

NL

FR

ES

Handheld remote /
Receiver sticker

Set sticker

English

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Deutsch

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Français

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1. Introduction

2. Safety



Caution: danger of injury or property damage!

To avoid dangerous situations, always observe the following rules:

In case of deviation, ambiguity or doubt about the rules below, always contact Tyro Remotes.

Check before use	Always check before use that all keys and (emergency) stop button* function properly (*if present).
Line of sight	The operator must have a view of the hazard area at all times. Use the remote control only when there is line-of-sight connection to the application.
Care	Never leave the handheld transmitter unattended.
Simulate	After installation of the systems, it should be tested without turning on the main power of the application to prevent damage.
ESD	Always follow ESD guidelines if one may come into contact with internal parts to prevent damage.
Instruction	The end user should always be instructed (by the person in charge of the unit to be operated) on how to use the handheld remote safely in conjunction with the unit to be operated.
Operation	It is not recommended to operate the system with (thick) gloves that do not allow a good feel of the keys.
Lifespan*	*In the case of an ISO 13849-1 PL certified system, regardless of their condition, they must be replaced for safety reasons after 10 years (the expiration date).
Out of range	As an operator with an active system, always stay within range (situation dependent) to avoid risky situations.
Damage	In case of (visible) damage, always send the product to the manufacturer or distributor for repair to avoid risky situations. In case of (visible) damage, always send the product for repair to avoid risky situations.
Installation	Always have the system installed by a licensed electrician.
Annual inspection	The system should be checked annually, see section: Maintenance.
Documentation	Documentation should always be made available to the (end) user, instruction should be given if necessary.
Risk of shutdown	If multiple radio handheld transmitter devices within the range are operating on the same frequency, there is a chance that the system may inadvertently shut down.



Warning: danger of property damage or personal injury!

After a safety shutdown of the system, it should not be put back into operation until the user has ascertained the safety of the operating and operating conditions.

3. Receiver dimensions & weight

Scorpius 2S IP68



Weight:

1500 gram / 3.30 lbs

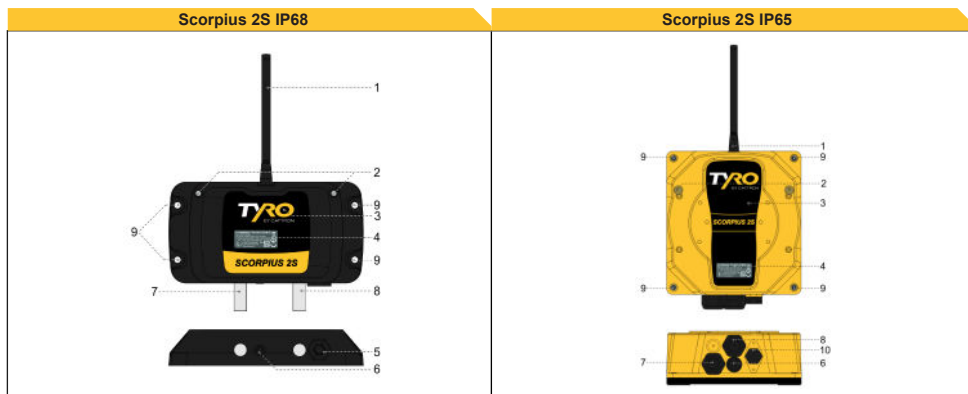
Scorpius 2S IP65



Weight:

550 gram / 1.21 lbs

4. Receiver description



*Actual receiver may differ

Physical characteristics:

- | | |
|--|--|
| 1. Antenna | 6. Pairing button |
| 2. Function-LEDs | 7. IP68: Connection cable / IP65: Cable gland |
| 3. Status-LEDs | 8. IP68: Optional cable / IP65: Cable gland |
| 4. Identification sticker | 9. Mounting holes |
| 5. Fuse holder (only for IP68 housing) | 10. Gland membrane (only for for IP65 housing) |

5. Receiver specifications

Scorpius 2S - Technical specifications

Frequency (+hopping protocol / channels)	434 MHz (LBT+AFA / 8 channels)		915 MHz (FHSS / 50 channels)		
Frequency range	433.150 - 434.375 MHz		902.500 - 927.000 MHz FCC 915.375 - 927.625 MHz AUS		
Antenna	RP-SMA				
Communication mode	Duplex				
Transmission power	10.0 dBm at 434 MHz, 915 MHz				
Reaction time	Approx. 0.1 second (800 msec. on wake-up)				
Transmitters per receiver	434 MHz, 915 MHz: Max. 10 transmitters				
Certification	CE, RED, ECM, LVD, ECE-R10				
Degree of protection	IP68 (solid cast housing) or IP65 (ABS housing)				
Temperature range	-40°C / +80°C -40°F / +176°F				
	Default (8 outputs)	+ 6 digital outputs / + 4 digital inputs	+ 2 digital outputs / + 2 analog outputs	+ RS232	+ CANopen / J1939
Max. Current load	4A per output, total max 10A				
Max. Switching voltage	8 - 36 VDC				
Power supply	8 - 36 VDC				
Digital outputs	8	14 (8+6)	10 (8+2)	8	8
Digital inputs	2	6 (2+4)	2	2	2
Analog outputs	-	-	2	-	-
Analog inputs	-	-	-	-	-
Bus networks	-	-	-	RS232	CANopen or J1939
Safety outputs	2	2	2	2	2
Cable connection (std. 1.5 mtr / 59.06")	15-core	15 + 10-core	15 + 6-core	15 + 4-core	15 + 2x2-core

6. Receiver features

Antenna

The Scorpius 2S is equipped with an RP-SMA antenna. The colour ring on the antenna indicates the frequency.

- Red: 434 MHz
- Yellow: 915 MHz

Function-LEDs

- Two function LEDs, both of which illuminate simultaneously.
- The function LED usage is customer specific configurable.
- The LEDs cannot be configured separately.
- If configured, the LED operation is explained in the customer-specific manual.

Status-LED

The Status LED on the Scorpius 2S is a duo LED which can light up **red** or **yellow** for various indications.

Status-LED functionality	
LED is OFF	Safe mode. For example, if the device has been turned off, not yet turned on after startup, or if a stop command has been given.
Pairing	
LED flashes red / yellow (5x per sec.)	The receiver is in pairing mode.
Sent indicator	
LED continuously yellow	The receiver is not yet configured.
LED flashing yellow	The receiver is operational and the safety outputs are activated.
SAFE mode	
LED flashing red	The receiver has gone into safe mode. The flashing pattern indicates the reason for this.
Blinks 1x followed by a long pause	Out of range
Blinks 2x followed by a long pause	1 or both safety inputs are inactive
Blinks 3x followed by a long pause	Internal voltage error
Blinks 4x followed by a long pause	Safety output 1 error
Blinks 5x followed by a long pause	Safety output 2 error
Blinks 7x followed by a long pause	Microcontroller error

Identification sticker

- The system can be identified using the identification sticker. The sticker includes the serial number, type and kind of system.
- For an explanation of the identification sticker, see the section: 'System Identification'.

Fuse holder

- The IP68 (solid-casted) version has a removable cap, which can be opened with a flat screwdriver, Allen 8 or socket wrench 19.
- The IP65 (ABS housing) has the fuse inside the housing. This requires the housing to be unscrewed. The fuse is located in a black holder which can be opened with a flat screwdriver.

Pairing button

- Button for pairing transmitter(s) and receiver.
- See the section "Pairing the transmitter to the receiver."

Connection cable

- This cable is used to connect the receiver.
- The IP68 variant has a 15-core cable with a standard length of 1.5 meters (59.06").
- The IP65 variant has a gland for a 15-core cable Ø11.7mm.

Optional cable

An additional cable can be optionally fitted to control additional options:

Optional version	Type of cable	Standard cable length
+ 6 digital outputs / + 4 digital inputs	12-core	1,5 meter (59.06")
+ 2 digital outputs / + 2 analog outputs	6-core	1,5 meter (59.06")
+ RS232	4-core	1,5 meter (59.06")
+ CANopen / J1939	2x2-core	1,5 meter (59.06")

Mounting holes

- Through the mounting holes, the receiver can be easily mounted in the desired location.
- Optional magnets can be mounted on the mounting holes.

Gland membrane (for IP65 housing)

- This membrane is used to eliminate pressure differences and condensation in the housing

7. Receiver functions

Default versions

The Scorpion 2S is available and configurable in multiple default versions:

- Default model
- Default model + 6 digital outputs / + 4 digital inputs
- Default model + 2 digital outputs / + 2 analog outputs
- Default model + RS232
- Default model + CANopen / J1939

Default functions explanation

Tilt sensor

Optionally, the receiver can be equipped with a tilt sensor. This sensor measures the tilt or inclination angle of the receiver. This sensor can be programmed to affect disabling the entire system or certain functions.

- For example, a tilt sensor is used in forestry applications to measure the tilt angles of a tractor with a winch.
- When it exceeds the defined values, certain functions are shut down and an alarm is raised.
- The operation of the sensor can be completely freely programmed.
- If the system is equipped with a tilt sensor, the operation is described in the customer-specific manual.

Additional digital and analog inputs and outputs

The receiver is optionally equipped with additional inputs and outputs, either analog or digital. This serves to expand to more functions than are standard on the receiver.

Busnetworks (RS232 / CANopen / J1939)

The receiver can be optionally equipped to communicate with various bus networks:

- RS232
- CANopen
- J1939

If the receiver is equipped with this module, its operation is listed in the customer-specific manual.

Primary / Secondary instruction

Several Tyro Remotes handheld transmitters and receivers can be combined with each other in the sense that with 1 handheld transmitter several receivers can be operated or with several handheld transmitters 1 receiver. A so-called 1:n or n:1 configuration. In this type of configuration we speak of primary and secondary devices. A configuration has a maximum of one Primary with several Secondary devices. Two Primary devices cannot work with each other and two Secondary devices cannot work with each other either.



Note: Standard configuration

Factory default configuration is 1 transmitter (Primary) with 1 or more receivers (Secondary).



The combination multiple transmitters on multiple receivers is not possible.



Note: Expanding a configuration

Should the configuration need to be expanded, the Primary and Secondary setting of the devices already in the configuration must be swapped in some cases.



Changing and expanding the Primary / Secondary settings

For changing settings, contact the Tyro Remotes sales/service department to discuss configuration options.

8. Safety features

This system can be equipped with different safety types. These consist of different safety configurations of transmitters and receivers, within a radio communication system.

Review this section carefully to understand how systems react in signal loss and/or stop situations.

Overview Safety Types

	STANDARD	STOP
Safety level	No safety level	No safety level
Emergency stop button on handheld remote	NONE	YELLOW STOP button required
Out-of-range protection	Disabled by default, optionally enabled	Permanently disabled
Out-of-range behavior	The system is not disabled by default. The system is immediately operable again when the handheld transmitter enters range. Optionally, out-of-range protection can be enabled.	The system is not switched off. The system is operable again when the handheld transmitter is activated within range. Out-of-range protection cannot be enabled.
Safety (line) outputs activated by	ON state from sender	ON state from sender
Safety (line) outputs	OPTIONAL (default NONE) The line outputs are disabled when the out-of-range function is active and the system is detected out of range. (see extra notes for Scorpius 2S)	OPTIONAL (default ONE) The line output turns OFF when the EMERGENCY status is received from the handheld transmitter. (see extra notes for Scorpius 2S)
Outputs control	By default all outputs stay ON when out of range is detected (except pulse outputs) . Optionally, the outputs can be configured to switch OFF when out of range is detected.	Outputs stay ON when out of range detected (except pulse outputs) .
Notes:	- All outputs are switched OFF when OFF state received from sender - Inverted outputs will also be switched OFF if line outputs are switched OFF - Outputs controlled via serial or CAN are also be switched OFF if line outputs are switched OFF	

Receiver specific notes

These notes apply specifically to the Scorpius 2S receiver:

	STANDARD	STOP
	Safety outputs are always switched OFF when out of range	Safety outputs are always switched OFF when out of range

ISO 13849-1 PLd certified systems

For additional safety the Scorpius 2S is also available as safety type: SAFE. To make it in accordance with ISO 13849-1 PLd. This is a different specification product which cannot be configured on this product.

- Contact TYRO for more information about ISO 13849-1 PL certified systems.

Explanation optional safety features

STOP button

The optional (yellow) stop button at the top or side of the handheld transmitter is designed to interrupt an action as quickly as possible. Pressing the stop button causes all outputs on the receiver to switch-OFF.



Note: check that the handheld transmitter is equipped with the correct stop button

Only the red emergency stop button is ISO 13849-1 PL certified and is part of the additional SAFE safety-type.

Out-of-range protection

If the handheld transmitter is out of range of the receiver, the receiver can no longer respond to commands from the handheld transmitter. To prevent dangerous situations, an out-of-range protection can be set so that the receiver automatically turns off when:

- The handheld transmitter becomes out of range of the receiver.
- The battery of the handheld transmitter is empty, the receiver also switches off automatically.
- The status LED on the receiver flashes red as long as the handheld transmitter is out of range.

See paragraph: 'Overview Safety Types' about the default, mandatory or optional out-of-range behaviour per safety type.

Safety (line) outputs

The receiver is standard equipped with safety (line) outputs. These are the safety outputs that ensure that the system is immediately Shut-down in the event of an emergency stop or a problem.

- The safety (line) outputs become permanently active at the ON-state of the handheld transmitter.
- This can be used, for example, to turn on the main power of a machine.
- 0, 1 or 2 line outputs can be set.
- The default number of line outputs enabled (0, 1 or 2) , depends on the receiver and safety-type.
- For the default configuration, see the section: 'Overview Safety Type'.

Shutdown time (PST time)

The Process Safety Time (PST) time defines the delay time of the system at which the SAFE situation should be reached.

- The shutdown time (PST) of the system is 0.5 seconds by default. This value is adjustable between 0.5 and 5 seconds ex-factory by agreement with the customer.
- The PST time cannot be changed afterwards by the customer himself.
- To change the PST time, the Tyro Remotes sales/service department should be contacted.

Reactivation after a safety related issue

In case the system gets interrupted by any of the above mentioned safety-related stops the system can be reactivated by checking en performing the following steps:

- The unsafe situation needs to be checked and cleared.
- The handheld transmitter needs to be in range of the receiver.
- The (emergency)stop button needs to be pushed and pulled-out again in order to reactive the system.

9. System identification

Identification via sticker

The system can be identified by an identification sticker on the receiver. The actual position of the sticker varies by product type. The figure below explains the contents of the handheld transmitter identification sticker.

Set sticker

When the system is part of a complete set, consisting of a handheld transmitter and a receiver, a set sticker is also generated. The set sticker can be found on the box and optionally in the front of the manual.

Receiver sticker	Set sticker
1 --- YYWWXXXX TRX-3033 XXXMHZ 2 --- Receiver model name - Rating 3 --- This device contains radio - Exp: XX-20XX 4 --- FCC ID: SQL-YYXXXX 5 --- IC: 30985-YYXXXX 6 --- HVIN: MODEL 7 --- 10R-XX XXXX 8 --- E4 marking 9 --- © 2024 Tyro Remotes 10 --- QR code 11 --- CE marking 12 --- RCM marking 13 --- WEEE marking 14 --- Expiration date 15 --- Frequency 16 --- Type number 17 --- PCB marking	1 --- YYWWXXXX TRX-3033 XXXMHZ 2 --- Transmitter model name - Rating 8 --- www.tyroremotes.com 11 --- QR code 1 --- YYWWXXXX TRX-3033 XXXMHZ 2 --- Receiver model name - Rating 11 --- QR code 16 --- CE marking 15 --- RCM marking 2 --- WEEE marking

*Picture for illustration purposes. Actual identification sticker may differ.

Identification sticker explanation			
1.	Serial number, format (P)YYWW###(P). P = Prototype	10.	Copyright & Manufacturer
2.	Product name, specification of type / safe + rating	11.	RCM marking
3.	This product contains radio marking	12.	QR code with serial number
4.	FCC marking and ID number, based on product name and frequency or radio module	13.	CE certification
5.	IC marking and ID number, based on product name and frequency or radio module	14.	WEEE marking
6.	HVIN: hardware identification number, based on the product name	15.	Expiration date (ISO 13849-1)
7.	ECE-R10 / E4 certification number	16.	Frequency in MHz or GHz (434, 915 or 2.4)
8.	E4 marking	17.	Type number of the PCB (TX-, RX-, TRX + print nr.)
9.	For more information, refer to the user manual		

10. Pairing a handheld transmitter to the receiver



Please note that all systems are already paired at the factory!

This part can be skipped unless an additional or replacement handheld transmitter needs to be paired on to the receiver!



Note: check primary/secondary setting!

Check that the system is correctly configured with the correct Primary / Secondary settings. It may need to be adjusted. See section: Handheld Transmitter/Receiver Description: Primary / Secondary.

To pair a handheld transmitter (new, or additional) to the receiver, proceed as follows:

Put the handheld transmitter in "pairing mode"

Musca 2S	Put the handheld transmitter in 'pairing mode':
	1. Turn off the handheld transmitter by using the OFF-key. 2. Press and hold function keys 1 and 2 simultaneously while the handheld transmitter is turned on with the ON-key. 3. The status LEDs on the handheld transmitter flash red and green rapid alternately. 4. The handheld transmitter is now in "pairing mode," the keys can now be released.
Pyxis 2S	Put the handheld transmitter in 'pairing mode':
	1. Turn off the handheld transmitter by using the OFF-key. 2. Press and hold function keys 1 and 2 simultaneously while the handheld transmitter is turned on with the ON-key. 3. The function LEDs indicate that "pairing mode" is active. (These light up from left to right) 4. The handheld transmitter is now in "pairing mode," the keys can now be released.
Cetus 2S	Put the handheld transmitter in 'pairing mode':
	1. Turn off the handheld transmitter by using the ON/OFF-key. 2. Press and hold function keys 1 and 2 simultaneously while the handheld transmitter is turned on with the ON/OFF-key. 3. The status-LEDs indicate that "pairing mode" is active. (These light up from left to right) 4. The handheld transmitter is now in "pairing mode," the keys can now be released.

Put the receiver in "pairing mode"

Scorpius 2S IP68	Put the receiver in 'pairing mode':	
	1. Locate the black pairing button on the bottom of the receiver. 2. Press and hold the pairing button for 1 second. (See chapter: receiver description) 3. The status-LED will flash red and yellow. 4. The handheld transmitter is now in "pairing mode," the button can now be released.	
Scorpius 2S IP65	Put the receiver in 'pairing mode':	
	1. Locate the black pairing button on the bottom of the receiver. 2. Press and hold the pairing button for 1 second. (See chapter: receiver description) 3. The status-LED will flash red and yellow. 4. The handheld transmitter is now in "pairing mode," the button can now be released.	

11. Changing functions

The functions of a Scorpius 2S receiver are configurable ex-factory. A user is not able to change functions himself. To change functions, contact the Tyro Remotes sales/service department to discuss configuration options.

12. System assembly (standard system)



Note: For customer-specific products, the cable connection and assembly may differ
Always read the customer-specific manual, if applicable.



Note: The receiver must always be connected after a main fuse (10A) from the power source!



Note: When the receiver can be connected to a Busnetwork (RS232, CANbus, J1929) you can find information in the additional customer-specific manual.

The location of the receiver is very important for the range, so please consider the points described in section 'Range Optimization'. See also <http://www.tyroremotes.com/tyropedia> for more range information. After connecting and mounting, test the operation of the system before turning on the main power. The receiver should always have that connected to the power source after a main fuse.

Standard cable connection					
	Standard	Optional version (always in combination with the standard-model)			
Version	8 digital outputs / 2 digital inputs	+ 6 digital outputs / + 4 digital inputs	+ 2 digital outputs / + 2 analog outputs	+ RS232	+ CANopen / J1939
Wire number	Cable 1 15-core	Cable 2 12-core	Cable 2 6-core	Cable 2 4-core with plug	Cable 2 2x2-core with plug
Mass	Mass V-	Mass V-	Mass V-		
1	Supply V+ 8-36 VDC	Supply V+ 8-36 VDC	Not connected		
2	Digital output 1	Digital output 9	Digital output 9		
3	Digital output 2	Digital output 10	Digital output 10		
4	Digital output 3	Digital output 11	Analog output 1		
5	Digital output 4	Digital output 12	Analog output 2		
6	Digital output 5	Digital output 13			
7	Digital output 6	Digital output 14			
8	Digital output 7	Digital input 3			
9	Digital output 8	Digital input 4			
10	Safety (line)output 1	Digital input 5			
11	Safety (line)output 2	Digital input 6			
12	Digital input 1				
13	Digital input 2				
14	Not connected				

It is essential to make good and robust power connections (V+ and ground V-) so that the system functions correctly safety functions at all times.

Safety outputs

- The safety outputs (Safety 1 and Safety 2) of the receiver are redundant with respect to each other and must be in the machine's safety devices.
- The safety outputs must be connected to an existing emergency stop system that already contains a wired emergency stop and system reset.

13. Range optimization

The location of the receiver is very important for the range, therefore take into account the points below to optimize the range of your system:

- Place multiple receivers at least 50 cm apart.
- Never place the receiver or antenna directly against or on a metal object, at least 50cm away from it.
- Mount the receiver or antenna a maximum of 3 to 4 meters above the working level; above or below the working level reduces the range.
- Place the receiver at least 50 cm away from motors or other equipment that can generate a force field.
- Never place the receiver with antenna in a control cabinet, cabin or similar (metal) enclosure.
- If the receiver must be placed in an unfavorable location, the antenna can be mounted in a different location using an antenna extension cable.
- If possible, ensure that there is a line-of-sight connection to the receiver during operation.
- In applications where work is done at the same height, such as winches or axle steering, it is better to mount the receiver and antenna vertically.
- In applications with large height differences such as elevator technology, it is better to mount the receiver with antenna horizontally.

Range

The maximum indicated range is always an indication based on a measurement with line-of-sight connection without interference. The range cannot be guaranteed because it is always subject to variable environmental factors. In particular, shielding, reflections and shadows can limit the range.

Objects present between the transmitter and receiver, especially metal and reinforced concrete or absorbing objects such as trees, water or snow, have an unpredictable effect on the range. In general, range is optimal with a line-of-sight connection between the transmitter and receiver. See also <http://www.tyroremotes.nl/tyropedia> for more information on range.

Frequencies

- Check that no wireless equipment is operating on the same frequency in the vicinity of the receiver; this may adversely affect system operation and range.

Antenna mounting

- Put the antenna on the SMA connector, and tighten it. Check that the antenna is correctly and securely mounted.

14. Resolving problems

If the system is not working properly check the following points:

The receiver does not respond to a command on the handheld transmitter

The receiver has no power supply.

Check that the receiver is properly connected and that the fuse is intact. *Please note that not every receiver has a removable fuse.

The handheld transmitter is out of range of the receiver.

Make sure that the handheld transmitter is within range of the receiver and that there are no large (metal) objects between the handheld transmitter and the receiver, or the receiver's antenna.
If necessary, an SMA antenna extension cable can be used to mount the receiver antenna in a different location.

The handheld transmitter is not paired to the receiver.

Follow the steps in the section, "Pairing a handheld transmitter to the receiver," to pair the handheld transmitter to the receiver.

Key lock is active.

Multiple keys may be pressed at the same time. This may prevent certain functions from being activated or blocked.

Key protection is active.

Check whether the hand transmitter is equipped with active key protection. The operation is listed in the handheld transmitter manual in chapter: Handheld transmitter functions.

The handheld transmitter does not function

The handheld transmitter does not turn on when the ON-key is pressed.

The battery may be dead, recharge or replace the battery.

Make sure no other buttons are pressed other than the ON button.

For a handheld transmitter with an (emergency) stop button, the (emergency) stop button may be pressed, pull out the (emergency) stop button.

The handheld transmitter is out of range of the receiver.

Make sure the handheld transmitter is within range of the receiver and that there are no large (metal) objects between the handheld transmitter and the receiver, or the receiver's antenna.

The handheld transmitter does not switch on when the (emergency) stop button is pulled out

If this is not the case, the handheld transmitter is defective and the system should be submitted for repair.
(*Only if the handheld transmitter is equipped with an (emergency) stop button).

The range is limited

The range is too limited.

If necessary, an SMA antenna can be installed at another location using an antenna extension cable to the receiver.

The receiver is not properly positioned.

Check that the receiver is not shielded by metal objects or sheet metal. The receiver should be positioned as high as possible. Refer to the guidelines in section "Range Optimization" in the receiver manual. Check that the antenna is tightly twisted onto the receiver's SMA connector.

Range

The maximum range is always an indication based on a line-of-sight measurement without interference. Range cannot be guaranteed because it is always subject to variable environmental factors. In particular, shielding, reflections and shadows can limit the range.

Objects present between the handheld transmitter and the receiver, especially metal and reinforced concrete or absorbing objects such as trees, water or snow, have an unpredictable influence on the range. In general, range is optimal when there is a line-of-sight connection between the handheld transmitter and the receiver.

For more information on range and reach, see <http://www.tyroremotes.com/tyropedia>

Frequencies

Check that no wireless equipment is operating on the same frequency in the vicinity of the receiver; this may adversely affect system operation and range.

15. Maintenance

16. Service

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Manufacturer details

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18. Declaration of Conformity

Declaration of conformity (applies to STANDARD and STOP-models)

Declaration of Conformity

TX-models:	TX-4042 Musca 2S	RX-models:	RX-4042 Aquarius 2S
	TX-3033 Pyxis 2S		RX-3033 Auriga 2S
	TRX-3033 Cetus 2S		RX-4044 Scorpius 2S
	TX-3033 Pollux 2S		



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Tyro Remotes declares that a radio remote control system consisting of a transmitting unit listed from **TX-models** and a receiving unit listed from **RX-models** is in compliance with:

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- Radio Equipment Directive 2014/53/EG

The following harmonized standards and, where appropriate, technical standards, guidelines and specifications are used:

- | | |
|---------------------------------|---|
| • EN 301 489-1/3:2019/2017/2023 | Electro Magnetic Compatibility (EMC) |
| • EN 300 220-1/2:2017/18 | Radiospectrum Matters (ERM) |
| • EN 62368-1:2014 | IT Equipment, Safety Part 1: General Demands |
| • UN Agreement R10 | Vehicle type approval regarding electromagnetic compatibility |
| • ANSI C95.1-2019 | Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. |
| • FCC CFR 47 | Parts 1.1.1310, 2.2.1093, 15C |

The radio remote control system shall not be put into service until the system in which it is installed has been tested with the essential health and safety requirements. Compliance with the applicable guidelines apply only if installed and maintained as shown in the manual that comes with each new product.

Almelo, January 23 2025

GJA Nijkrake, Engineering & Certificeringen



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BIC/SWIFT: RABONL2U

Commerzbank, Deutschland
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BIC/SWIFT: COBADE33

CIC Banque, France
IBAN: FR76 3002 7175 3300 0200 2800 144
BIC/SWIFT: CMCIFRPP
Code Banque: 30027, Code Guichet: 17533, Cde: 44

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Modular Approval Information:

Depending on the radio module used, this product contains a split modular transmitter approved under FCC ID:

- 915 MHz: SQL-LP915.
- 2.4 GHz: SQL-FS2400.

The following conditions must be met to ensure compliance:

- The antenna(s) must be installed to maintain a minimum separation distance of 10 cm from all persons.
- The transmitter module may not be co-located with any other transmitter or antenna.
- The module is tested within the host configuration, and additional standalone testing is not required.
- Tyro Products BV is both the manufacturer and the integrator of this device, assuming full responsibility for compliance with all applicable FCC regulations.

Labeling Requirements:

Depending on the radio module used, the host device is labeled with the following information:

- 915 MHz: "Contains FCC ID: SQL-FP915.
- 2.4 GHz: "Contains FCC ID: SQL-FS2400.

Antenna and Installation Instructions (only applicable to portable devices):

Install the antenna(s) to maintain the required 10 cm separation distance from all persons. Improper installation could result in non-compliance with FCC regulations.

RF Exposure Considerations:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. Follow the operating instructions to ensure compliance.

Additional Testing and Documentation:

The final host product is tested for compliance with Part 15 Subpart B with the modular transmitter installed. This ensures adherence to all applicable FCC rules.

ISED Compliance Statement



This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Manufacturer and Integrator Information

The manufacturer of this device, Tyro Products B.V., is also the integrator of the split modular transmitter within the host device. No third-party integrators are involved in the assembly or integration of the module. As such, Tyro Products B.V. assumes full responsibility for ensuring that the final product complies with all applicable FCC and ISSED regulations, including proper installation and labeling requirements.

Labeling Requirement

Depending on the radio module used, the host device is labeled with the following information:

- 915 MHz: "Contains FCC ID: SQL-LP915" and "Contains IC: 30985-LP915".
- 2.4 GHz: "Contains FCC ID: SQL-FS2400" and "Contains IC: 30985-FS2400"

Antenna and Installation Instructions (only applicable to portable devices)

Install the antenna(s) to maintain the required 10 cm separation distance from all persons. Improper installation could result in non-compliance with FCC and ISSED regulations.

RF Exposure Considerations

This equipment complies with FCC and ISSED radiation exposure limits set forth for an uncontrolled environment. Follow the operating instructions to ensure compliance.

Additional Testing and Documentation

The final host product is tested for compliance with Part 15 Subpart B of the FCC Rules and ISSED RSS standards with the modular transmitter installed. This ensures adherence to all applicable FCC and ISSED rules.



Cet appareil contient des émetteurs/récepteurs exemptés de licence conformes aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage.
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Informations sur les fabricants et les intégrateurs

Le fabricant de cet appareil, Tyro Products B.V., est également l'intégrateur du module émetteur fractionné dans le dispositif hôte. Aucun intégrateur tiers n'est impliqué dans l'assemblage ou l'intégration du module. En tant que tel, Tyro Products B.V. assume l'entière responsabilité de garantir que le produit final est conforme à toutes les réglementations FCC et ISSED applicables, y compris les exigences d'installation et d'étiquetage appropriées.

Exigences en matière d'étiquetage

Selon le module radio utilisé, l'appareil hôte est étiqueté avec les informations suivantes :

- 915 MHz: "Contient le FCC ID: SQL-LP915" et "Contient le IC: 30985-LP915".
- 2.4 GHz: "Contient le FCC ID: SQL-FS2400" et "Contient le IC: 30985-FS2400".

Antenne et instructions d'installation (applicable uniquement aux appareils portables)

Installez l'antenne (les antennes) de manière à maintenir une distance de séparation de 10 cm par rapport à toute personne. Une installation incorrecte pourrait entraîner une non-conformité aux réglementations FCC et ISSED.

Considérations relatives à l'exposition aux radiofréquences

Cet équipement est conforme aux limites d'exposition aux radiations FCC et ISSED établies pour un environnement non contrôlé. Suivez les instructions d'utilisation pour assurer la conformité.

Essais et documentation supplémentaires

Le produit hôte final doit être testé pour vérifier sa conformité avec la sous-partie B de la partie 15 des règles FCC et les normes RSS d'ISED avec le module émetteur installé. Cela garantit le respect de toutes les règles applicables de la FCC et d'ISED.



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