Target Retrieval Systems

Basic Motor Manual

Rev 9.5

Note: Check our website for the latest version of this manual

Super Target Systems

www.supertargetsystems.com

Overview

Our new target retrieval motor is designed specifically to operate a Target Retrieval System, with high speed and high power both intelligently controlled. It is equipped with an intelligent electronic itinerary with self-debugging settings, overload protection and soft start-stop functions that help maintain a long life for the motor and for the rest of the track components. The slow start and slow stop design reduces the shocks in the belt and gear system. The motor can be operated in dual modes: wireless and wired. It features conventional wireless receiver function built-in, compatible with the full range of STS wireless remote controllers. It can also be operated via a wired remote control via the dry contact port using standard RJ9 phone cable and 4P4C connectors.

Motor Smart Features: Overload Protection, Soft Start- Stop, Dual Limit Settings, Dual Mid-Range Stops, Self-Learning Range Limits, Touch Control, Wireless (16 channels) and Wired Control
Specifications: Power: 24VDC (AC adapter included), Torque: 1.2Nm, Speed: ~0.5m/s (self-adjusting depending on load)

Important:

1．The motor is designed for indoor use. If intended to be used in an outdoor range, adequate rain and temperature protection must be implemented.
3．Periodic use of a general-purpose lubricant is recommended, depending on the frequency of motor usage.

Motor Installation

1. Ensure the motor locking knob is to the left
2. Insert the motor into the driver box
3. Push to the right the locking knob and lock the motor in place

Motor removal

1．Pull down the clock flake with finger, then pull toward to the left side.
2．Take out the motor.

Basic operations

1. The motor will make relevant actions when you press [**GO**], [**BACK**], [**STOP**] button on a basic wired controller or wireless controller.
2. The motor will stop automatically at each end of the rail thanks to its overload protection feature. However, electronic limits (stops) can be set only via wireless remote controller, at each end of the rail for smoother operation and less mechanical vibration which happens when the target holder hits the end of the rail.
3. The Target Holder can be stopped at any point by pressing the [**STOP**] button
4. **Attention**: Pulling the Target Holder freely by hand while motor is powered will automatically start the motor in that respective direction.

Typical Wired Controller Wall Mounted

Initial operation:

At first, the motor will run slowly, back and forth, in order to record the length of the track/rail system. During the second run, the motor will start slowly, then ramp up the speed until reaching the other end.

Note 1: If the motor has been used or tested before in different systems with different lengths, it might have previous limits set in the memory, so it is recommended to clear the memory of those previous limits.

Note 2: Some of the smart motor functionality such as the setting of the rail limits or setting of intermediate points etc. can only be accessed or enabled via a wireless control unit so it is highly recommended to have access to one of our wireless control devices. All our wireless controls listed on our website are compatible with all STS motors.
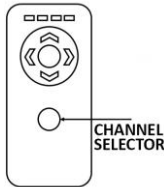
Wireless control settings
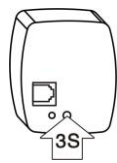
The functions of a typical STS wireless control device
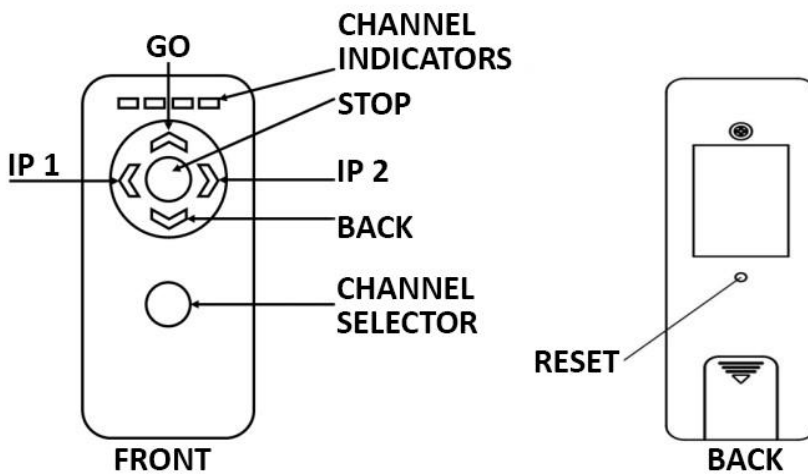
Note:

Before using the wireless control functions, the controller must be paired with the motor.
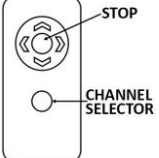Each motor can be paired to multiple wireless controllers (max.16)

Pairing process

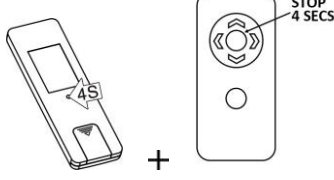|			
1. Press the motor [**RESET**] button for 3 seconds till the red light is ON.	2. If the remote has multiple channels select the desired one by pressing the [**CHANNEL SELECTOR**] button.	3. Press the [**RESET**] button on the back of transmitter. The motor RED light indicator will flash.	4. Press the motor [**RESET**] button again to confirm the operation. The RED light will go OFF.

Un-pair process

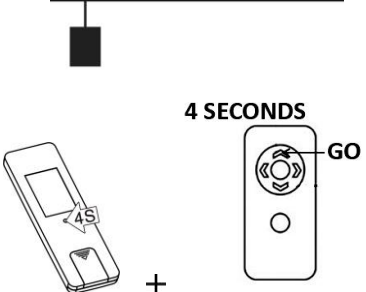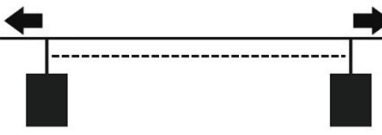|	
1. Press the motor [**RESET**] button for 3 seconds till the RED light is ON.	2. Press the motor [**RESET**] button for 7 seconds till the RED light is OFF.

Change motor RUN direction

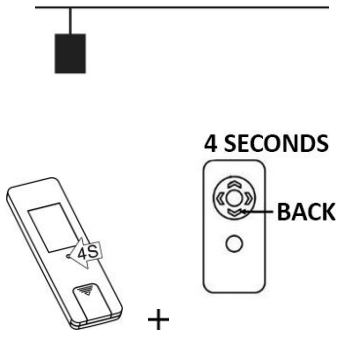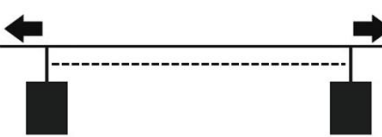|		
1. Press the motor [**RESET**] button for 3 seconds till the RED light is ON.	2. Press [**CHANNEL SELECTOR**], then [**STOP**] button.	3. Press the motor [**RESET**] button again to confirm the operation.

Resetting Range Limits

1. Press the remote [**RESET**] + [**STOP**] button for 4 seconds. The motor will vibrate and move shortly back a forth to indicate it cleared the limits information from its memory.

Set the Range Limit 1

1. Press the [**RESET**] on the back of transmitter + [**GO**] button for 4 seconds. The motor shaft will rotate back and forth shortly to indicate that it is in adjusting mode for **Limit 1**.	2. Move the target holder into the suitable place for **Limit 1.**	3. Press [**RESET**] on the motor, the motor will vibrate for a moment and the process will be finished.

Set the Range Limit 2

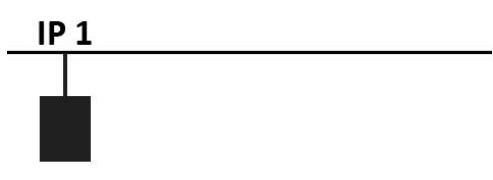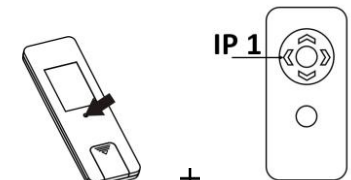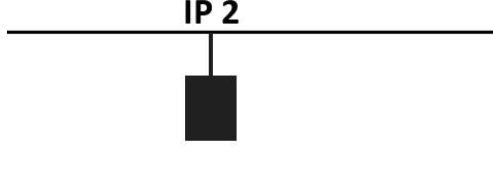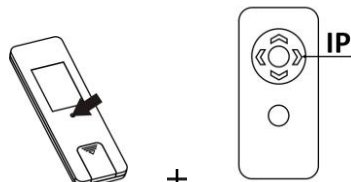|		
1. Press the [**RESET**] on the back of transmitter + [**BACK**] button for 4 seconds. The motor shaft will rotate back and forth shortly to indicate that it is in adjusting mode for **Limit 2**.	2. Move the target holder into the suitable place for **Limit 2.**	3. Press [**RESET**] on the motor, the motor will vibrate for a moment and the process will be finished.

Intermediate Stop function

The motor can be programmed to make 2 intermediate stops as **IP1** and **IP2**. For the position **IP1** and **IP2**, you have 4 options as setting, operation, cancellation, and adjustment.
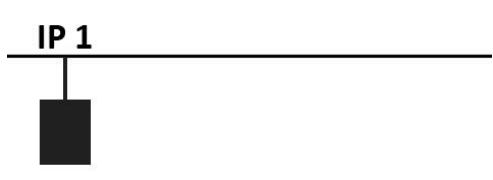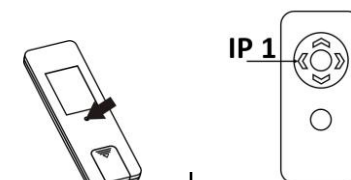
Set Intermediate stop function

IP 1	IP 1
1. Let the Target Holder stop at any place as **IP1.**	2. Press [**RESET**]+[**IP1**] to set **IP1**.
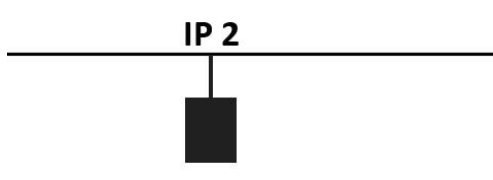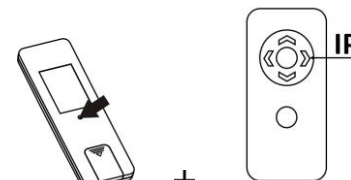
IP 2	IP 2
1. Let the Target Holder stop at any place as **IP2.**	2. Press [**RESET**]+[**IP2**] to set **IP2**.

Operate Intermediate Stop function
Press IP1 or IP2 button to move the target holder at the desired point.
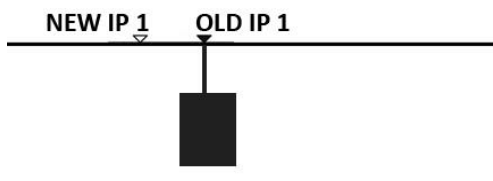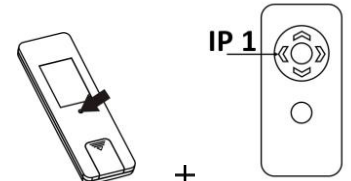
Cancel Intermediate Stop point

IP 1	IP 1
1. Press [**IP1**]. Target Holder will move to **IP1** automatically.	2. Press [**RESET**]+[**IP1**] button to cancel the stop point **IP1**.

IP 2	IP 2
1. Press [**IP2**]. Target Holder will move to **IP2** automatically.	2. Press [**RESET**]+[**IP2**] button to cancel the stop point **IP2**.

Change the Intermediate Stop point

NEW IP 1 OLD IP 1	IP 1
1. Let the Target Holder move to the new position of **IP1**.	2. Press [**RESET**]+[**IP1**] to set new position of **IP1**.

| 1. Let the Target Holder move to new position of **IP2**. | 2. Press[**RESET**]+[**IP2**] to set new position of **IP2**. |

Touch Control function

By default, when powered, the motor will start to run when pulling the Target Holder by hand, in the direction of the pull.

Enabling touch control function

| 1. Press [**STOP**]and[**GO**]for 4 seconds. The motor RED light is ON. The motor will vibrate for a few times. | 2. Press the [**RESET**] button on the back of transmitter for 3 seconds. The function will be enabled. |

Cancel Touch Control function

| 1. Press [**STOP**]and [**BACK**]button for 4 seconds till the light on. The motor will quiver for a few times. | 2. Press the [**RESET**] button on the back of the transmitter for 3 seconds. The function will be cancelled. |

Troubleshooting

Issues	Possible Reasons	Solutions
Motor not moving	Power supply failure, Dead battery for remote control	Check power supply, power supply LED and the motor red LED. They all must be lit up briefly when power is applied
Target Holder can't move when retrieve	Operation directions are reversed	Change direction settings via remote control
	Limit error	Cut off the power then reset limit after 15 seconds.
Wired Controller-no action	Phone cable failure	Test operation using a wireless controller, Replace cable
Wireless Controller- no action	Low battery	Change the battery
Remote control invalidation	Wrong channel setting	Reset (remote control) channel
	Low Battery	Change the battery
	Too distant range	Do not use the transmitter beyond the control range
Motor stops midway	Track obstruction	Check track
	Limit error	Reset motor limits and operate again, the new limits will be self-memorized or new ones can be set
	Target Holder blocked	Check if the track or the belt is blocked
Other motor issues	Cut off the motor power for one minute	
Other malfunctions	Please contact STS for support	

All STS motors carry a one-year warranty from the date of purchase. Obvious damage and dismantling will void the warranty.

Specifications

Technical Specification

• **Speed:** 0.5m/s

• **Voltage:** 24 VDC, 1.3A

• **RPM:** 112

• **Load capacity:** 40LB at 25FT, 20LB at 50FT

Features

• **Light touch- start function**
Motor will start automatically when sensing a pull on the carrier, also will self-adjust speed and slow down before reaching the end of the track

• **Wired or Wireless Activation**
Wired or Wireless activation via a wall mounted remote control that will be able to execute FORWARD, BACK and STOP operation

• **Silent design**
With sound insulation and noise reduction function, noise is below 35dB

• **Long lifetime**
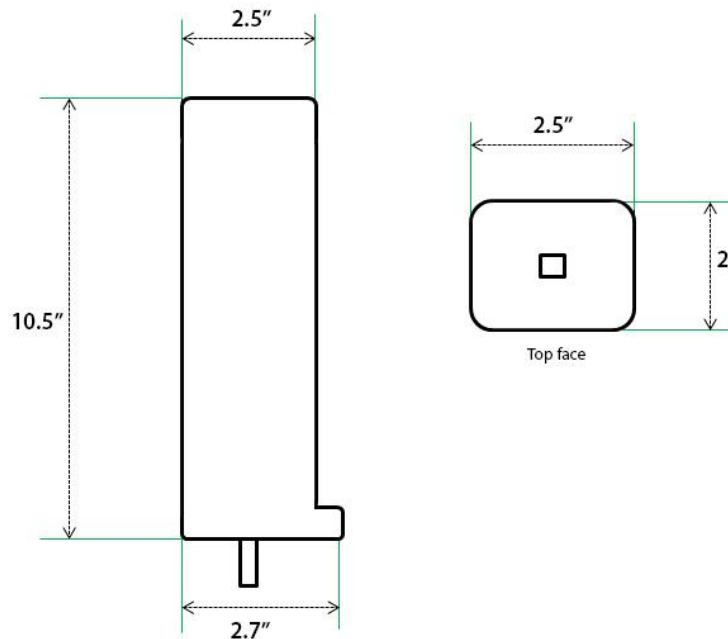
• **Overload Protection**

• **Soft Start-Soft Stop**

• **Limits Settings**

• **Mid-range Stops**

• **Self-Learning Stop**   **Points**

Top face

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