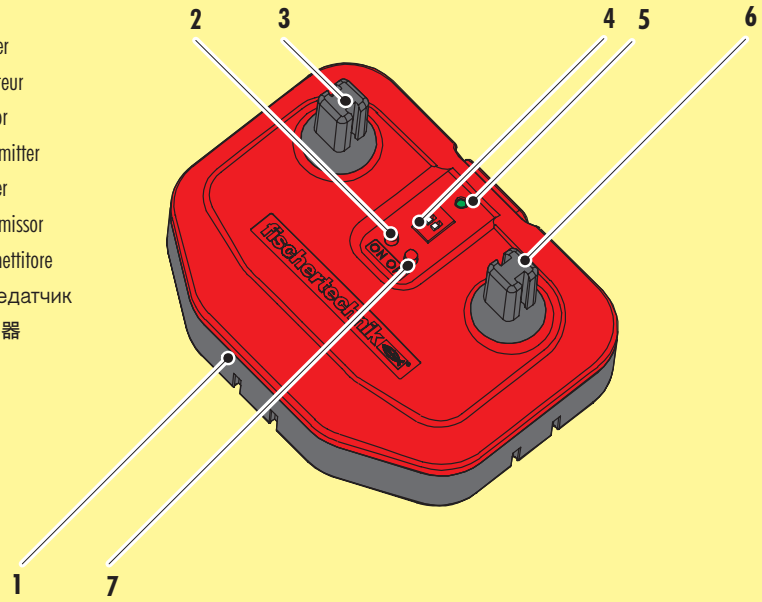
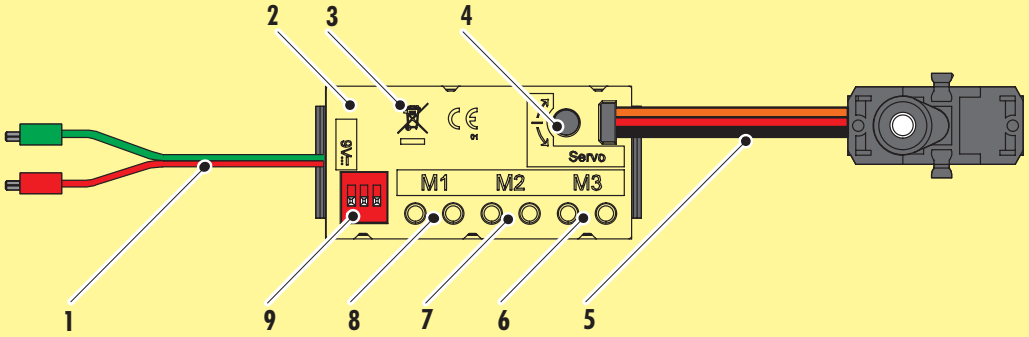
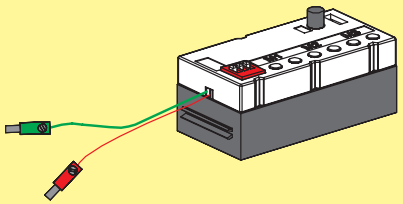
- Abb. 1 Sender
- Fig. 1 Émetteur
- Fig. 1 Emisor
- Fig. 1 Transmitter
- Afb. 1 Zender
- Fig. 1 Transmissor
- Fig. 1 Trasmettitore
- Рис. 1 передатчик
- 图1 发射器

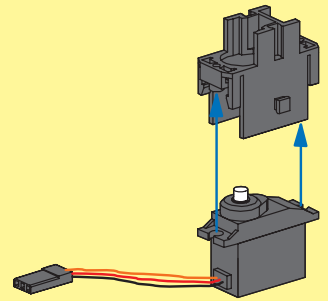


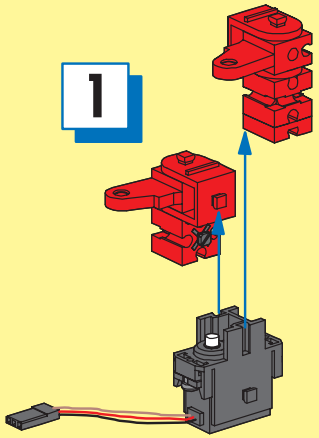


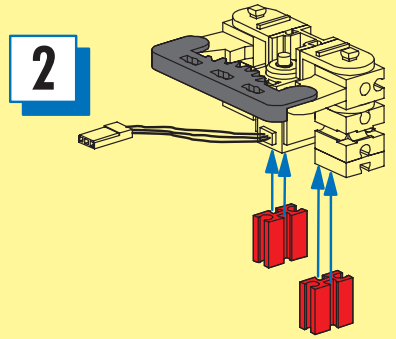
- Abb. 2 Empfänger
- Fig. 2 Récepteur
- Fig. 2 Receptor
- Fig 2 Receiver
- Afb. 2 Ontvanger
- Fig. 2 Receptor
- Fig. 2 Ricevitore
- Рис. 2 приемник
- 图2 接收器

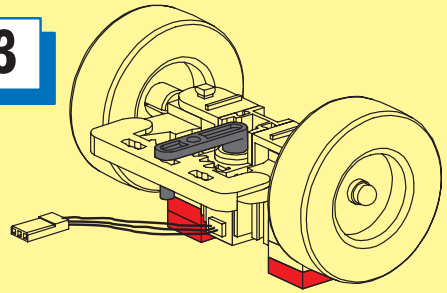


- Abb. 3 Servomontage
- Fig. 3 Montage de la servocommande
- Fig. 3 Montaje servo
- Fig. 3 Servo assembly
- Afb. 3 Bekrachtingsfunctie
- Fig. 3 Montagem do servo
- Fig. 3 Montaggio del servomotore
- Рис. 3 монтаж сервопривода
- 图3 伺服执行机构安装









- Abb. 4 Aufbau einer Lenkung mit Servo
- Fig. 4 Structure d'une direction avec servocommande
- Fig. 4 Montaje de una dirección con servo
- Fig. 4 Structure of a steering with servo
- Afb. 4 Opbouw van een stuurinrichting met servo
- Fig. 4 Construção de uma direção com um servo
- Fig. 4 Costruzione di uno sterzo con servomotore
- Рис. 4 Конструкция рулевого управления с сервоприводом
- 图4 采用伺服执行机构组装一个模型转向装

1 The Control Set

With this fischertechnik infrared (IR) remote control, the versatile functions of fishertechnik models are now even easier to control.

The control set consists of a high-performance transmitter, a microprocessor-controlled receiver, and a servo. The receiver must be installed directly into the model and can then be connected to the servo and up to three motors or lamps. The speed of the motors and the servo pulse are infinitely adjustable.

The range of the transmitter in closed areas is above 10 meters.

Parts Included in Purchase

- 1 Transmitter
- 1 Receiver
- 1 Servo

2 The Transmitter

Power Supply

A 9V battery is required for the operation of the transmitter (6F22, not included in this package). No other types of power supply may be used.

View Transmitter (Fig. 1, Pg. 1)

- **Left Joystick (3)**

The left joystick controls outputs M1 and M2 of the receiver. If you move the joystick forward, motor M1 spins in one direction; if you move the joystick backward, the motor spins in the opposite direction. The motor's rotational speed changes depending on how far forward or backward the joystick is moved. The same applies for the left and right movement of the joystick for motor M2.

- **Right Joystick (6)**

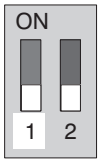
The right joystick controls output M3 and the servo output of the receiver. To control output M3, move the right joystick forward and backward. If you move the joystick left or right, then the servo moves in the respective direction. This can be used to build an excellent steering mechanism for a vehicle.

An example of such an assembly can be found on pg. 2 (Figs. 3 and 4).

- **LED (5)**

The operation display LED is lit, if the transmitter is turned on, and it flashes, if the transmitter is sending data.

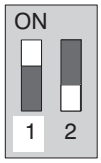
- **DIP Switch (4)**



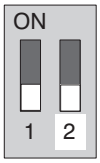
DIP Switch 1

DIP switch 1 is used to change the frequency. Two separate remote controlled devices can thereby be operated in one room, without any problems of interference.

In this position, frequency 1 is selected.

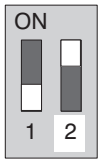


In this position, frequency 2 is selected.



DIP Switch 2

DIP switch 2 is used to change between receivers 1 and 2. Two different receivers can thereby be operated by one transmitter using the same frequency. In this position, receiver 1 is selected. Receiver 2 does not react to the signal.



In this position, receiver 2 is selected. Receiver 1 does not react to the signal.

The receiver also has DIP switches. The positions of DIP switches 1 and 2 on the receiver and on the transmitter must match, in order for any signal to be transmitted to the receiver.

- **ON Button (2)**

By pushing this button, the transmitter will be turned on. The LED (1) will light green.

If you do not move the joystick of the transmitter for a long period of time, the transmitter will automatically shut off to conserve energy. You can then simply push the ON button again to turn on the transmitter.

- **OFF Button (7)**

By pushing this button for approximately 2 seconds, the transmitter will be turned off.

- **Battery compartment (1)**

The battery is located in this compartment on the reverse side of the transmitter. To insert or replace a battery, simply loosen the screws and then take off the cover by pushing on the snap-in pin (arrow). The battery is attached to the connector with a type of snap-fastener. Please be aware, that the connector can only be connected to the battery in a single position. After installing the battery, replace the cover and tighten the screws.

3 The Receiver

View Receiver (Fig. 2, Pg. 1)

Power Supply (1)

Cable for the 9V power supply. Attach the red connector to the red cable (+) and attach the green connector to the green cable (-). You can use the ACCU set (not included in this package). Only the aforementioned power supplies may be used.

- **LED (2)**

The operation display LED is lit, if the power supply is connected. It flashes, if data is being received.

- **Infrared Receiver Diode (3)**

The IR receiver diode receives the transmitter's signal. The receiver should be installed in your model, so that the receiver diode faces upwards. The receiver can thereby receive the signal from the transmitter unobstructed.

- **Servo Connection (5)**

Connection for the fischertechnik servo (article nr. 132292)

- **Servo Trimmer (4)**

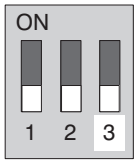
The trimmer is used for calibrating the neutral position of the servo. By adjusting the trimmer you can, for example, calibrate the steering of your model, so that it moves exactly straight forward when the steering joystick is in the neutral position.

- **Motor Connectors M1 - M3 (6, 7, 8)**

Motors M1 - M3 can be attached here to the connectors. If you want to change the rotational direction, you can simply interchange the connectors of a motor.

- **DIP Switch (9)**

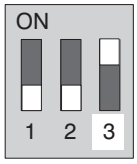
The positions of DIP switches 1 and 2 on the receiver and on the transmitter must match, in order for any signal to be transmitted to the receiver (see page 4). The positions of DIP switches 1 and 2 on the receiver and on the transmitter must match, in order for any signal to be transmitted to the receiver.



DIP Switch 3

With this switch, caterpillar functions (for tracked vehicles) can be switched on. For a description of caterpillar functions, see Chapter 5.

In this position, the caterpillar function is not selected.



In this position, the caterpillar function is selected.

4 Servo

View Servo (Fig. 3, Pg. 2)

The fischertechnik servo (article nr. 132292) should be connected to the servo connection of the receiver (see Fig. 2 (5)).

Please Note: The servo connector must be attached exactly as it is displayed in Fig. 2. If it is falsely inserted, the servo will not function.

The servo is controlled by the right joystick of the transmitter and changes its oscillation based on the position of the joystick. The servo is primarily used for the steering of vehicles. For an example of steering with the servo, see Fig. 4.

5 Controlling Tracked Vehicles

Tracked vehicles (with caterpillar function) are normally driven by two motors. One motor powers the left side and one motor powers the right side. If both motors are turning at the same speed and in the same direction, the model will move straight forward. If the motors are turning at different speeds, the model will move forward in a curve. If the motors are turning in different directions, the model will turn in place.

You can steer such models in two different ways:

1. Individual Control of the Motors

Individual control of the motors involves separate steering of both motors, each through one joystick: the left motor with M1 (left joystick) and the right motor with M3 (right joystick). Each motor will individually be controlled through a joystick. One disadvantage to this method of steering is that in order to steer the model straight forward, both joysticks must be identically moved forward - a somewhat difficult task.

2. Intelligent Caterpillar Steering

If the caterpillar function is activated on the receiver through the third DIP switch (DIP3 up to ON), a caterpillar vehicle, whose motors are connected to M1 and M2, can be very comfortably and easily steered by the left joystick of the transmitter. Both motors can be simultaneously steered according to the position of the joystick, so that the model moves in the desired direction.
Please see the chapter on DIP switches on page 12 for further details.

Joystick Position	Driving Direction
	 Straight ahead
	 Curve to the Right
	 Turning in Place

6 Cruise Control Function

There is a "cruise control" function, for those who want a motor to consistently spin at the same rotational speed. This function may be engaged for both the left and right joysticks, independent of each other. With this function you can, for example, permanently activate the motor of a Ferris wheel or turn on the lighting of a model vehicle.

- **Cruise Control for the Left Joystick**

- **Switching on the Cruise Control Function**

Move the joystick of the respective motor, until the motor is spinning at the desired rotational speed. Press the ON button (Fig. 1 (2)). The motor will now spin at the same rotational speed, even when you let go of the joystick.

- **Cruise Control for the Right Joystick**

- **Switching On the Cruise Control Function**

Move the joystick of the respective motor, until the motor is spinning at the desired rotational speed. Then briefly press the OFF button (Fig. 1 (7)). The motor will now spin at the same rotational speed, even when you let go of the joystick. In the same manner, you can permanently set the speed of the servo through the cruise control function.

- **Switching Off the Cruise Control Function**

Push the joystick of the respective motor to its most forward position, and the cruise control function will be disabled.

7 Technical Data

Control Set for the Steering of 3 Motors and 1 Servo	
Frequencies	2 Frequencies
Data Transmission	Infrared
Range	10 Meters
Power Supply of Transmitter	9V Battery
Number of Possible Receivers per Frequency	2
Power Supply of Receiver	9 V ⎓ Accu Set
Current Load of Receiver Outputs	250 mA per Output, max. total 1 A

8 Troubleshooting

Each green LED on the transmitter and on the receiver emits various code signals, which identifies the respective operating status.

LED on the Transmitter	Description
LED is constantly lit.	The battery voltage is OK. The transmitter is operational.
LED flashes once per second.	Data is being sent to the receiver.
LED flashes twice quickly, pauses, flashes twice quickly.	The battery is almost empty and must be replaced. The full transmission range cannot be guaranteed.
LED does not light after switching on.	The battery is empty or the battery connection was incorrectly attached. The transmitter is defective (please contact fischertechnik service team).

LED on the Receiver	Description
LED is constantly lit.	The battery voltage is OK. The receiver is operational.
LED flashes once per second.	Data is being received from the transmitter.
LED flashes twice per second.	The battery is nearly empty or the power supply is too low.
LED flashes four times quickly, pauses, then flashes four times quickly.	Short circuit in the wiring or a motor is overloaded or blocked. The motor outputs are automatically switched off.
The receiver receives no data.	Transmitter and receiver are possibly not set to the same frequency. DIP switches 1 and 2 on the transmitter and receiver must correspond.
LED does not light after switching on.	Power supply is out of order, or the power supply was incorrectly attached (backwards poles). The receiver is defective (please contact fischertechnik service team).

The servo does not work.	Servo connection was incorrectly attached to the connector on the receiver. See Fig. 2 on Pg. 1.

9 Important Information

Instructions for Environmental Protection

Do not put the electrical and electronic components of this construction kit in the household waste. At the end of their service life, take them to a collection point for the recycling of electrical and electronic devices. The symbol on the product, packaging or the instructions shows this.

Safety Information

- Regularly inspect battery charger for damage.
- If the battery charger has been damaged, it should not be used further until fully repaired.
- Do not insert the wires into an outlet!
- Non-rechargeable batteries may not be recharged!
- Remove rechargeable batteries from the toy before recharging!
- Only recharge such batteries under adult supervision!
- Install batteries with the correct polarity (+ and -)!
- Remove depleted batteries from the toy!
- Connectors may not be short circuited!
- The receiver may only be operated with the fischertechnik battery pack, article nr. 35537.
- When connecting the battery pack, always connect the red plug with the positive terminal (+) and the green plug with the negative terminal (-)

Electromagnetic Interference

Should the control set be disturbed by external electromagnetic influences, it can still be normally used after the end of the interference. Eventually, the power supply will have to be briefly interrupted and the control set restarted.

Guarantee

fischertechnik GmbH guarantees the freedom from defects of this control set according to modern technical standards. Changes in the construction or design, which impact neither the functioning capabilities nor the value of the device, are reserved rights and do not entitle any guarantee claims.

Visible defects must be identified in writing within 14 days after the delivery, otherwise no guarantee claims because of visible defects may be made.

No guarantee claims may be made due to small and negligible defects of the control set. In all other cases, the customer can only demand supplementary performance, i.e. repair of the device or replacement delivery. The customer is authorized, at his own choice, to withdraw from the contract or to demand the abatement of the purchase price, if the supplementary performance fails, if it is impossible, if it is not accomplished by us within an appropriate time period, if it is refused by us, or if it is culpably delayed by us. The warranty period is 24 months after the delivery. We are not responsible for the consequences the improper changes or manipulations, undertaken without our compliance by the customer or a third party or for any defects of quality of the control set, which arose through improper use, routine wear, or faulty or careless handling. The guarantee is made in accordance with German law.

Intended Use

The control set may only be used for the operation and controlling of fischertechnik models.

Liability

fischertechnik GmbH cannot be held liable for any damages that may result, should the control set be used in a manner not in accordance with its intended use.