

# Connection and installation manual

## Self-learning radio system BT 40

1-channel receiver board BT40-ST, BT40-TT6

1-channel receiver BT40-cable (with connection cable), BT40-SO (with connection socket)



**tousek**<sup>®</sup>  
G A T E   A U T O M A T I O N





## General warning and safety notes



- **Installation, adjustment and maintenance may only be carried out by trained personnel!**
  - **Carrying out works at the receiver is only admissible after the power supply has been turned off!**
  - Only turn on the power supply again after another check!
  - Never feed 230V power supply to low voltage input - This will destroy your unit, no guarantee.
  - Please consider polarity for DC use !
  - A proper operation is only given, when these installation instructions are strictly followed.
  - Protect the transmitters against heat and wetness and don't expose them to direct solar radiation for a longer period of time.
- Used batteries may not be disposed of in the usual household waste, but have to be brought to a collecting point..

### Safety

- Store transmitters and batteries out of children's reach (risk of suffocation through small parts, risk of injury through unintended operation of the gate facility).
- If the battery is swallowed by a child, please call a doctor immediately.
- Don't use the transmitter in explosion hazardous areas and also in areas, where the usage of radio systems (e.g. mobile phones,...) is forbidden.
- The Tousek transmitters may only be used for devices and facilities, where no danger for persons or things arises from a malfunction of transmitter or receiver, or where this risk is covered by other safety devices.
- The remote controlling of devices and plants with an increased accident risk (e.g. crane facilities) is forbidden!
- For safe operation the local valid safety regulations for the plant have to be kept!
- The owner/user has to be informed that facilities with an increased accident risk may only be operated at direct intervisibility.

### Mounting

#### Pluggable receiver boards (BT40-TT6, BT40-ST):

- Installation in dry rooms only!
- For a differing installation, an according protective housing (e.g. IP65) has to be foreseen.

#### Receiver in housing (BT40-SO24V, BT40-SO230V and BT40-cable):

- When using the radio receiver in extreme weather conditions, we recommend using a protective enclosure IP65.

## 1. General

## Self-learning radio system BT 40

### General features

- The radio receiver of the series BT are performed in self-learning technology, i.e. the coding of the hand transmitter is taught into the receiver. For the use of transmitters **BT40-xB** or of **Mini-transmitter MT40-A1** the jumper **J1 for 2-stage operation code switch on the receiver must be set !**
- Up to 64 different codes of the transmitter BT 40-xB can be taught in. Furthermore there is the possibility to erase taught encodings or the complete memory.
- In combination with antenna FK 4/2 the range can be increased to approx. 100m
- Enclosed antenna (1,8m length)



### Technical data

### Radio system BT 40

#### Technical data Receiver

|                                |                 |
|--------------------------------|-----------------|
| Receiver frequency :           | 40,685 MHz      |
| Internal oscillator frequency: | 40,230 MHz      |
| Sensitivity:                   | 1 µV            |
| Intermediate frequency:        | 455 kHz         |
| Impedance antenna input:       | 50 W            |
| Operating temperature:         | -20 up to +55°C |
| Delay 2-stage system:          | 300 ms          |
| Delay 3-stage system:          | 80 ms           |
| Switch-off 2-stage system      | 600 ms          |
| Switch-off 3-stage system:     | 300 ms          |

#### Technical data transmitter

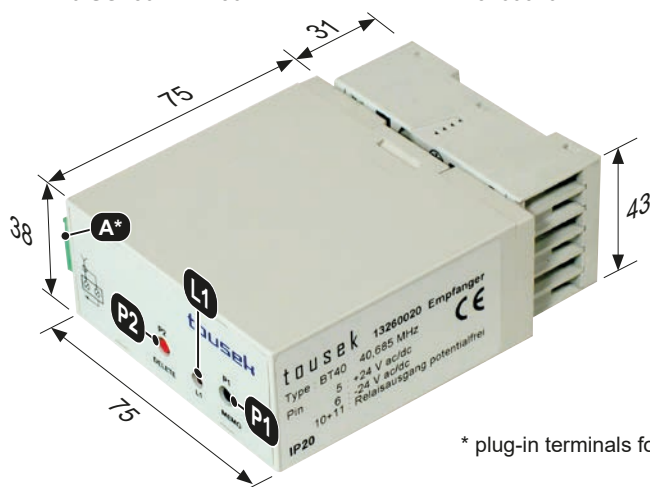
|                                   |                           |
|-----------------------------------|---------------------------|
| Frequency:                        | 40,685 MHz                |
| Tolerance range:                  | 30 ppm of -10°C bis +55°C |
| Radiated power:                   | 200 µW                    |
| Modulation:                       | AM/ASK                    |
| Average Power Consumption:        | 40 mA                     |
| Operating temperature:            | -10°C up to +55°C         |
| Number of combinations (2-stage): | 1024                      |
| Available channels:               | 1, 2 or 4                 |

## 1-channel Receiver in housing

## Receiver BT 40

**1** 1-channel receiver with 11-pole plug socket

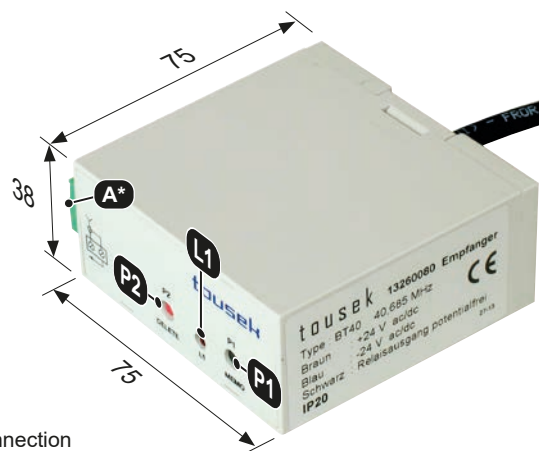
**BT40-SO24V** 24V a.c./d.c. Art.No. 13260020  
**BT40-SO230V** 230V a.c. Art.No. 13260010



\* plug-in terminals for antenna connection

**2** 1-channel receiver with 4-pole connection cable

**BT40-cable** 24V a.c./d.c. Art.No. 13260080

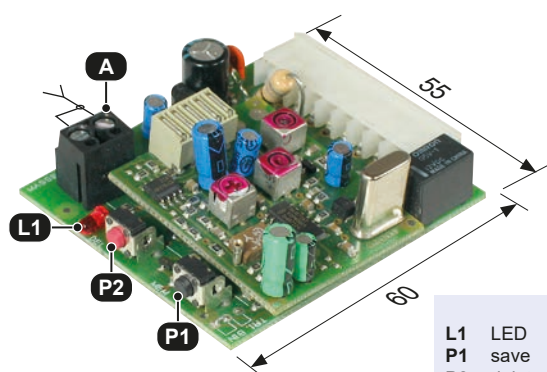


## 1-channel receiver boards

## Receiver BT 40

**3** 1-channel receiver board with connector strip

pluggable into garage door operator TT60/120 K3  
**BT40-TT6** Art.No. 13260040

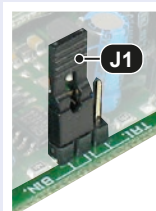
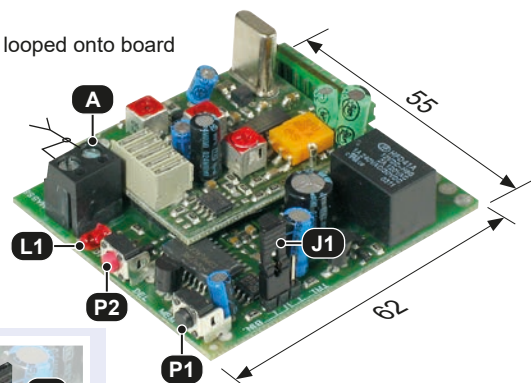


L1 LED  
P1 save  
P2 delete  
A Antenna connection  
J1 place Jumper onto  
2-stage  
code switch  
(„BIN.“)!

**4** 1-channel receiver board with connector strip

pluggable into control boards ST3 and PULL X/1  
**BT40-ST** Art.No. 13260030

Antenna looped onto board



## 3. Transmitter models BT 40

## Self-learning radio system BT 40

for more detailed information see the corresponding manual

## • Transmitter BT40

12V, 40MHz, grey keypad, compatible with previous wireless system HS40)

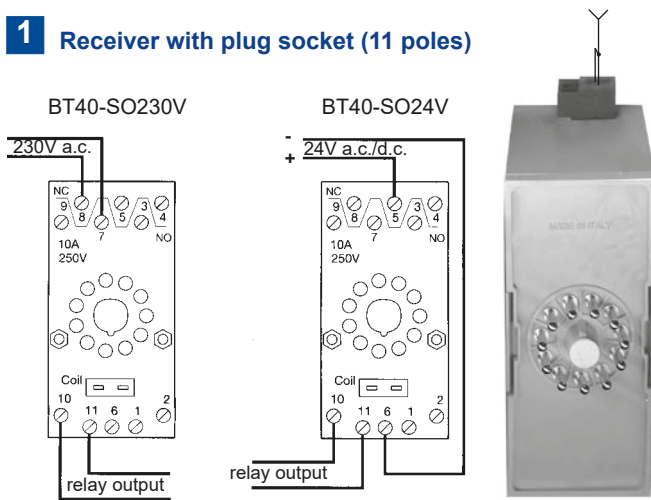
**BT40-1B** 1-channel Art.No. 13150010  
**BT40-2B** 2-channels Art.No. 13150020  
**BT40-4B** 4-channels Art.No. 13150030





**When using the radio receiver in extreme weather conditions, we recommend using a protective enclosure IP65.**

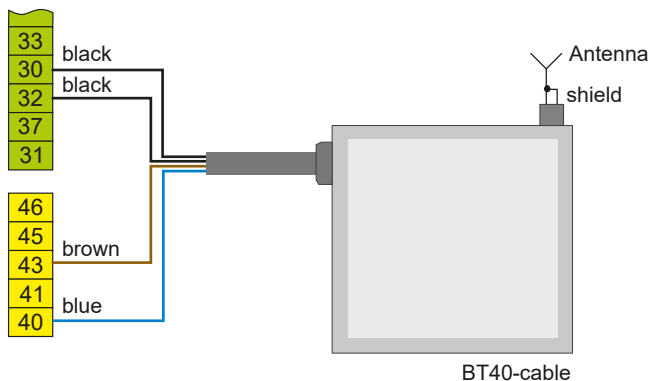
## 1 Receiver with plug socket (11 poles)



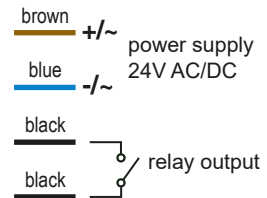
## 2 Receiver with cable connection

Connection example BT40-cable

terminal block  
PULL T5, -8, -10



Legend:

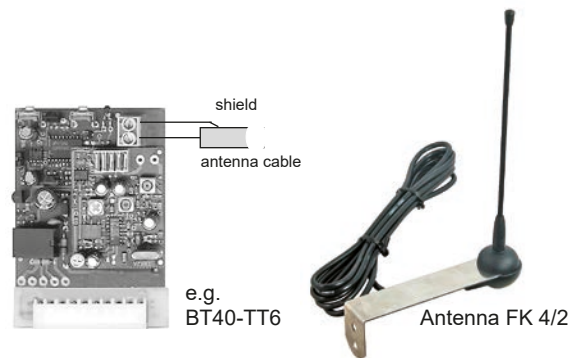


## Antenna connection

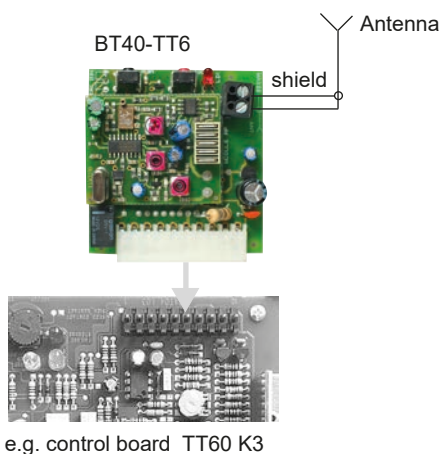
For optimum function an antenna necessarily needs to be connected.

Normally the enclosed wire antenna is sufficient (wire from 1.8 m length), this one must be cross-clamped in full-length and connected onto the receiver antenna input. Longest range results in a installation away by a large distance to metal parts (heating pipes, concrete ceilings, cables, etc.). The ideal location has to be determined by doing tests.

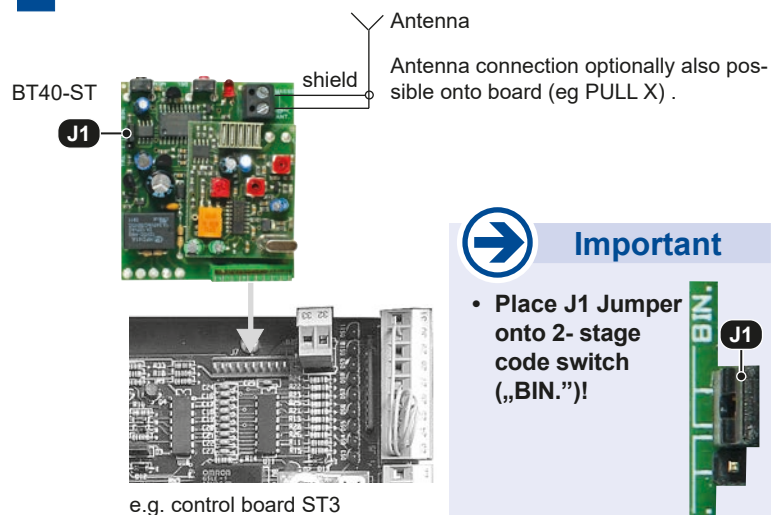
Under certain circumstances, and to increase the range and a coordinated rod antenna can be used (model FK 4/2). **It is important that the shield is connected as indicated.**



## 3 Connection examples receiver boards (pluggable)



## 4



## Important

- Place J1 Jumper onto 2- stage code switch („BIN.”)!



The transmitters BT40-1B, BT40-2B and BT40-4B (with gray keypad) feature a 2-step code switch for assigning the code or the channel (ie each switch can be either "ON" or "OFF").

For settings on the code switch you need to open the transmitter (remote control).

To do this, place the cover between thumb and forefinger and push the lid of the remote control firmly together and upwards.



## Important

- For the use of the transmitters BT40-xB or Mini-transmitter MT40-A1 the Jumper J1 for 2-stage code operation has to be set on the receiver !
- The position of all DIP switches to „OFF“ or „ON“ switch to the code of the transmitter is not permitted!

### • 1- and 2-channel transmitters

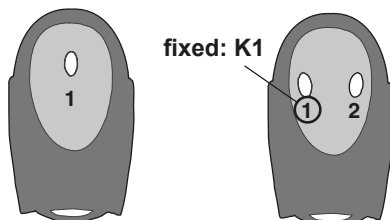
have a **12 digit** code switch:

Switch 1–10: code adjustment

Switch 11–12: channel assignment (K1–K4):

With 1-channel transmitters the transmitter button 1 can be assigned to any of the channels (K1–K4).

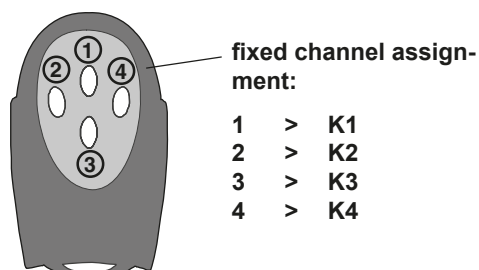
With 2-channel transmitters the transmitter key 1 has a fixed assignment to K1. The button 2 can be assigned via DIP 11 and 12 to one of the channels K2–K4.



### • 4-channel transmitters

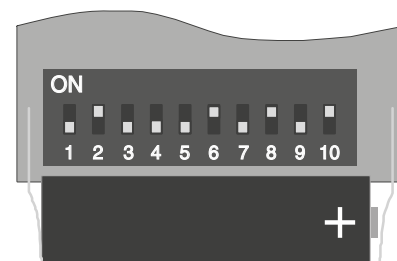
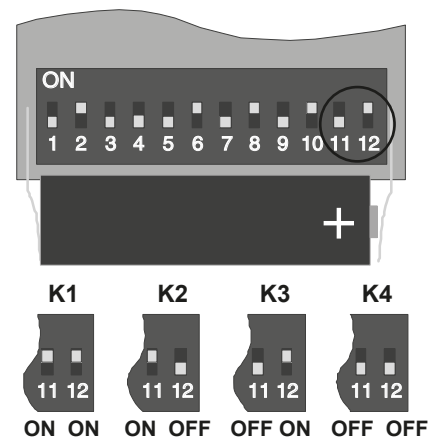
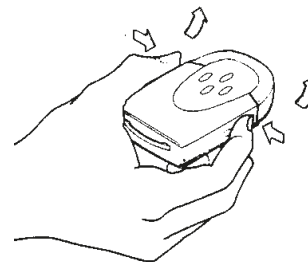
have a **10 digit** code switch:

Switch 1–10: code adjustment



### • Coding of mini-transmitter MT40-A1

see corresponding additional user manual





- 1) After having performed the connection, turn on the power supply.
- 2) **Before you program the transmitters, delete the entire memory contents of the receiver for safety reasons. (see delete the complete memory contents)**

### Programming new transmitters

In the memory of the receiver up to 64 different codes can be taught in. It is therefore possible to open a certain door/gate with transmitters in different encodings. Before starting the learning process, set a personal code in the transmitter.



**Attention:** The switch positions “all ON” or “all OFF” are not permitted.

Now press the receiver **button P1** and hold it. After about 0.8 sec. the red LED will glow on.

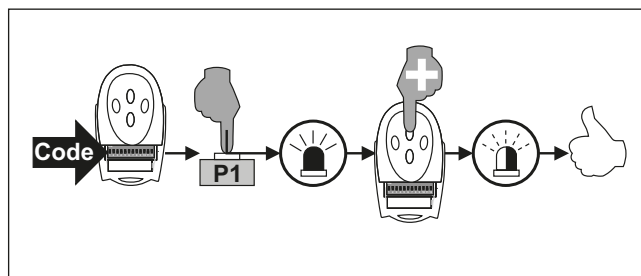
**In addition to P1 Press and release the button on the transmitter to be learned.** The red LED begins to flash. The remote control code is therefore stored. If additional transmitters are taught, the complete procedure must be repeated.



### Attention

If the code can not be memorised into receiver then this is due to different reasons:

- The code is already in the memory
- The memory is full (max. 64 different codes are possible)
- The DIP Switches in transmitter are all set to ON or OFF.
- Assignment 2-stage, 3-stage coding not applicable.



Legend:

**Meaning of drawings for programming/deleting of transmitters:**



= press and hold corresponding button



= transmitter channel button has been **programmed**

= transmitter channel button has **not been programmed**



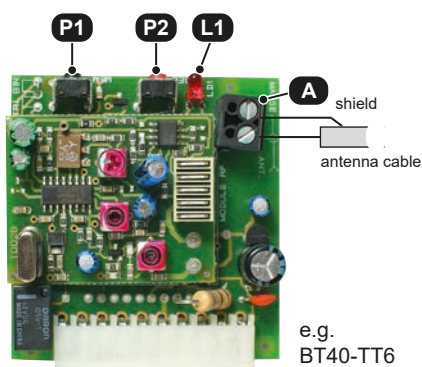
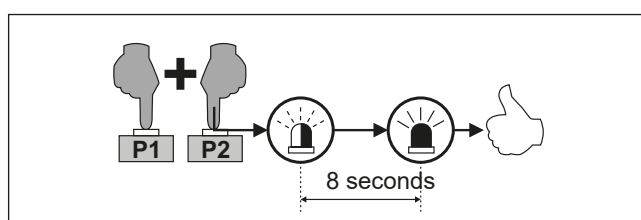
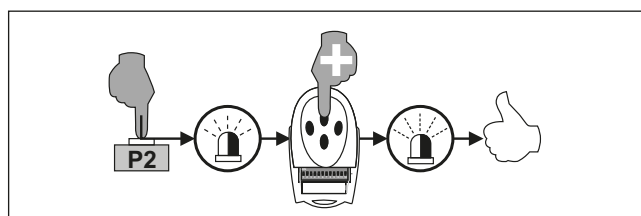
= LED on receiver blinks / blinks fast / illuminates

### Delete a single transmitter code from the memory.

Press the **receiver button P2** and keep it pressed. After about 0.8 sec. the red LED on the receiver begins blinking slowly. Press and release **the individual button on the transmitter to be deleted**. Once it is deleted, the LED blinks quickly.

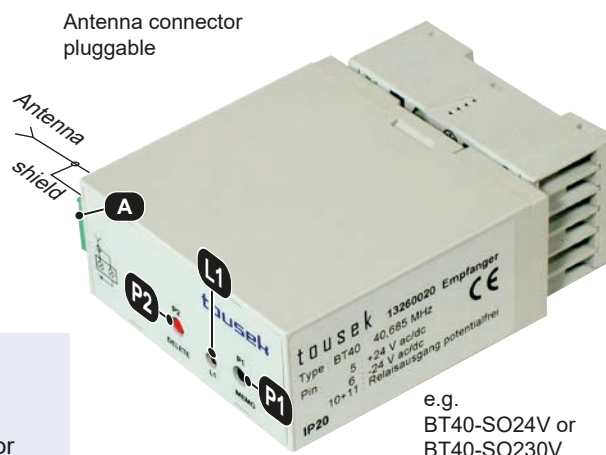
### Delete of complete memory

Press the **receiver buttons P1 and P2 at the same time** and keep them pressed. The red LED on the receiver starts blinking. After 8 seconds (approx. 15 blink cycles) the LED illuminates permanently. Now the memory content is deleted and you can release the buttons.



e.g.  
BT40-TT6

L1 LED  
P1 memory button  
P2 delete button  
A Antenna connector



e.g.  
BT40-SO24V or  
BT40-SO230V

| Error  | Possible reason  | Check  |
|--|--|--|
| Relay of receiver does not switch during transmission signal | no power supply  | Is the radio receiver supplied by the correct voltage? |
|  |  | receiver board correctly plugged to connector strip ?  |
|  | transmitter not memorized                                    | see <i>Delete and programm new transmitters</i>        |
|  | transmitter defective  | check battery, resp. let transmitter be controlled     |
| Transmitters only have a small range of transmission         | battery in transmitter empty                                 | check batteries  |
|  | Poor Antenna Relocation.<br>Antenna not or wrongly connected | see <i>antenna connection</i>                          |

## 7. Overview of Radio system BT 40

|                            | Power supply   | Protection class | Number of channels | max. contact load            | DIP-Switches for adjustments | ST3, PULL-X/1<br>TT60-K3, TT120-K3 | with 4-pole connection cable<br>with 11-pole connection socket | Article-No. |
|----------------------------|--|------------------|--------------------|------------------------------|------------------------------|------------------------------------|--|-------------|
| <b>RADIO RECEIVER</b>      |  |                  |                    |                              |                              |                                    |  |             |
| BT 40-ST                   | 12V d.c.   | IP00             | 1                  | -                            | /                            | •                                  |  | 13260030    |
| BT 40-TT6                  | 12V d.c.   | IP00             | 1                  | -                            | /                            | •                                  |  | 13260040    |
| BT 40-Kabel                | 24V a.c./d.c.  | IP20             | 1                  | 230V/60W                     | /                            |                                    | •  | 13260080    |
| BT 40-SO24V                | 24V a.c./d.c.  | IP20             | 1                  | 230V/60W                     | /                            |                                    | •  | 13260020    |
| BT 40-SO230V               | 230V a.c. +6%, -10%<br>50 Hz ± 0,5%                  | IP20             | 1                  | 230V/60W                     | /                            |                                    | •  | 13260010    |
| <b>TRANSMITTERS</b>        |  |                  |                    |                              |                              |                                    |  |             |
|                            |  |                  | channels           | power supply                 |                              |                                    | key colour   |             |
| transmitter BT 40-1B       |  |                  | 1                  | 12V alkaline battery (L1028) |                              |                                    | gray   | 13150010    |
| transmitter BT 40-2B       |  |                  | 2                  | 12V alkaline battery (L1028) |                              |                                    | gray   | 13150020    |
| transmitter BT 40-4B       |  |                  | 4                  | 12V alkaline battery (L1028) |                              |                                    | gray   | 13150030    |
| <b>Optional equipment:</b> |  |                  |                    |                              |                              |                                    |  |             |
| Battery                    | for transmitter BT 40, 12V alkaline, L1028           |                  |                    |                              |                              |                                    |  | 13140010    |
| Antenna FK4/2              | for 40MHz, with 2m coaxial cable for increased range |                  |                    |                              |                              |                                    | 13250100   |             |
| Wall bracket               | incl. clip, for transmitter BT 40 / RS 433 (black)   |                  |                    |                              |                              |                                    |  | 13150070    |
| Plastic housing            | für Funkempfänger, IP 65, HxWxD: 200 x 155 x 80mm    |                  |                    |                              |                              |                                    |  | 12140190    |

## **tousek PRODUCTS**

- sliding gate operators
- cantilever systems
- swing gate operators
- garage door operators
- folding door operators
- traffic barriers
- electronic controls
- radio remote controls
- key operated switches
- access control
- safety devices
- accessories

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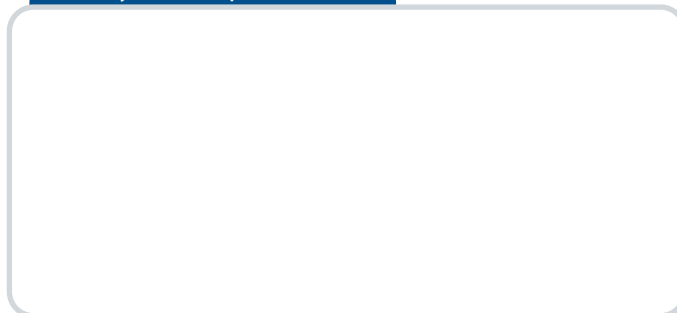
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