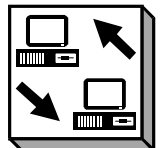
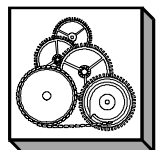
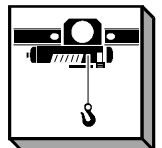
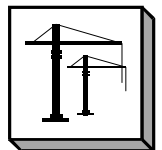
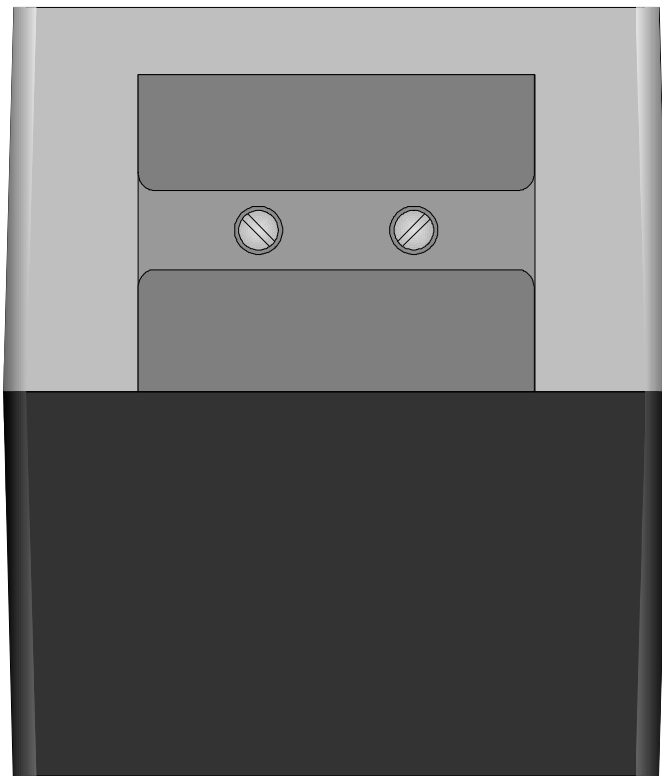


HBC – Radio Controls

Radio Transmitter patrol

Industrial Version



Before proceeding with the installation, operation or maintenance of the radio control equipment it is important that the installation, operating, and maintenance personnel read this bulletin carefully in order to ensure the safe and efficient use of the machine.

Also, it is strongly recommended that the personnel responsible for the operation, inspection, and servicing of the machinery on which this radio control is installed, read this manual carefully.

If any instructions are unclear, contact the manufacturer or distributor of the radio control before attempting to install or use the radio controller on a machine.

**Note :**

Electrical wiring diagrams have been packed with the receiver manual to ensure installations without any problems.

If these items are missing, contact the manufacturer or distributor before attempting to install or use the radio control system to a machine.

Manufacturer : HBC-radiomatic GmbH
Haller Straße 49 - 53
D-74564 Crailsheim
Tel. +49 (0) 79 51 – 3 93 - 0
Fax +49 (0) 79 51 – 3 93 - 50

Printing errors, omissions and mistakes excepted ! – All details are subject to change without notice.

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1 Helpful Hints

Following symbols are used in the operating instructions at hand:

Warnings



This symbol will show situations that could be dangerous for people or machines.

Pay particular attention in reading the parts of this manual.
Be careful and try to avoid these situations.

Notes



This symbol will show important operating hints to guarantee a long working life to the apparatus.

Do not forget to observe these notes. The radio control could become unreliable.



This symbol will show general information.

Others



This symbol will show regulations, e.g. notes on local, regional and federal regulations on labor safety and accident prevention when operating a radio controlled system.



This symbol will identify the "Operation" section .



This symbol will give you helpful maintenance notes in the corresponding section.



This symbol will identify the trouble-shooting section.

2 Safety Regulations



- Strictly observe and always adhere to the respective regulations on labor safety and accident prevention when operating a radio controlled system !
- Retrofitting of a radio control to a machine is considered to be a major modification. The machine must therefore be subject to an approval inspection. The user of the machine is responsible for a proper entry of this inspection in the machine's inspection record.
- The commissioning of the radio equipment is only possible if you dispose of a special authorization from the postal authorities.
- Before using the radio control, it is necessary to be familiarized with this system ! Therefore, only authorized and sufficiently instructed personnel who are familiar with the instructions should be allowed to use the radio control.
- In case of a defect, an emergency situation and whenever a malfunction occurs in the working area of the radio system, it is required that it be switched OFF immediately until the cause of the defect has been located and repaired !
 - Switch OFF the transmitter via the EMERGENCY-STOP pushbutton.
 - Disconnect the connecting cable from the receiver.
- Have defective radio systems repaired only by an expert. Use only original replacement parts of the manufacturer for any repair.

2.1 Warning Notes



- The crane operator is required to control the machine in such a way that no danger may possibly occur, even if the radio transmission is interrupted.
- The remote control transmitter may be switched ON only as long as a visual contact exists with the crane.
- The minimum duration of the command and the response time are slightly increased by the radio control (cf. specifications of the radio control system).
- The radio control transmitter may only be connected to machines suitable for the installation of a radio control system via the appropriate cable connections.

2.2 Safety Notes Regarding Operation

- Before using the radio control system for the first time, read these operating instructions completely and carefully.
- In case of a defect, an emergency situation and whenever a malfunction occurs in the working area of the radio system, it is required to de-energize the radio equipment immediately until the cause of the fault has been located and repaired !
 - Switch OFF the transmitter via the EMERGENCY-STOP pushbutton.
 - Disconnect the connecting cable from the receiver.
- During breaks and at the end of work, disconnect the transmitter by means of the "ON / OFF" toggle switch.
- Usage of radio remote control systems outside of manufacturer's guidelines (section 3) may result in invalidity of the guarantee.

2.3 Safety Notes when Operating the Transmitter

- Before you start working, always verify the operation of the EMERGENCY-STOP pushbutton.
- It is not allowed to leave a connected transmitter and not supervise it.
- In case of an emergency and in case of all sorts of problems in the working range of the machinery or in case of a technical failure of the radio control, you must stop the crane or machine by pressing the EMERGENCY-STOP pushbutton !
- During breaks and at the end of work, disconnect the transmitter by means of the "ON / OFF" toggle switch.
- The operation of the transmitter is permissible only with the carrying set included with the transmitter (possibility of mixing up the controls) !

2.3.1 Safety Notes Regarding Battery and Battery Charger

- Operate the battery charger at about room temperature and protect it against overheating (e.g. direct sun radiation).
- Quick charging of NiCd batteries only in a temperature range between +10 °C and +40 °C (50 °F and 104 °F).
- Protect the battery contacts against accidental shortening, i.e. do not store the batteries in a tool box or carry them loosely in your pockets. A bunch of keys is enough to shorten the battery. Use the protective caps delivered with the batteries.
- Pay attention to correct polarity ! – After inserting the battery into the battery compartment of the battery charger, the nameplate must be visible. Operation of the transmitter will not be possible otherwise !
- The NiCd batteries are charged in the factory. Due to longer storage times, however, the batteries may reach you partially charged or discharged. Therefore, they should be charged before the first use. To charge the battery, remove it from the transmitter and put it into the battery compartment of the battery charger.

2.4 Safety Notes Regarding Maintenance

- Pay attention to smaller deficiencies. They are often the symptoms of a major defect and may result in severe malfunctions of the radio system.
- Have defective radio systems repaired only by an expert. Use only original replacement parts of the manufacturer for any repair.

2.5 Certificates, Certifications

This system made by HBC-radiomatic GmbH corresponds to the CE standards and has an approval of the Federal Office for Homologations in the field of Telecommunications (Federal Republic of Germany).

2.5.1 Nameplate

The nameplate indicates all important data of the radio equipment. Besides the service voltage, radio frequency and the address of the system, this plate also indicates the production number which is necessary in case of possible further inquiries or spare part orders. It also contains the European control number for Homologation in the Telecommunication.



Note :

Please make sure that the nameplate is always clearly visible to allow for a verification by the authorities.

3 Description of the System and Application

The system consists of a transmitter housing with max. five toggle switches and two pushbuttons (DJet), an EMERGENCY-STOP pushbutton, a battery charger with two rechargeable NiCd batteries and a receiver with an antenna, a connecting cable and a mating connector.

The industrial radio transmitter *patrol* enables – in combination with a corresponding receiver – control of industrial working machines.

The transmitter housing is made of impact resistant plastic with a built-in antenna.

The system is equipped to control receivers with 6 to 12 operating commands and works within a 70 cm frequency band (420 ... 470 MHz).

State of the art radio technology complying with the latest guidelines of the regulations on labor safety and the use of highly developed microprocessor technology guarantees optimal operating safety, availability and longevity.

Following radio receivers can be controlled by this transmitter type :

FSE 505

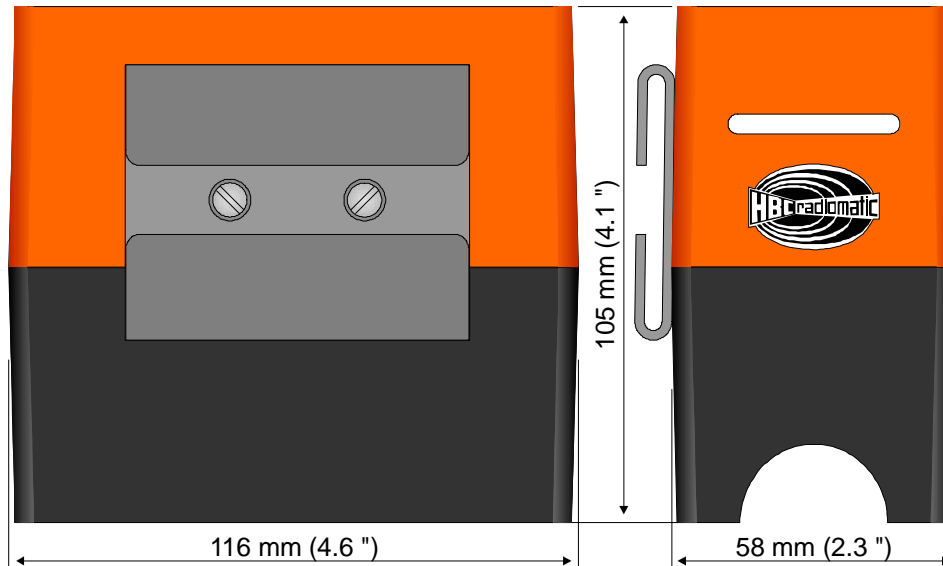
FSE 707

FSE 808 (industrial version)

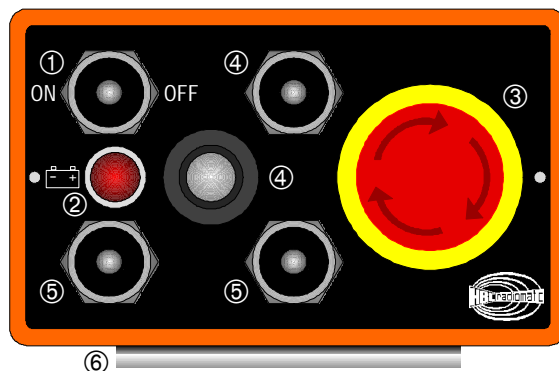
3.1 Specification

General Technical Data					
<i>System</i>	patrol				
<i>Number of control commands</i>	max. 12				
<i>Unique system address</i>	over 65,000 possibilities				
Transmitter-specific Technical Data					
<i>Transmitting power (FuS 671/3)</i>	< 10 mW (synthesizer)				
<i>Transmitting antenna</i>	integrated in the belt side piece				
<i>Battery type</i>	FuB 05 AA (orange)				
<i>Voltage supply via NiCd battery</i>	6 V DC / 600 mAh				
<i>Duration of operation</i>	max. 8 h per battery charge				
<i>Operating temperature range</i>	-25 °C ... +75 °C (-13 °F ... +167 °F)				
<i>Hosing material</i>	impact resistant plastic				
<i>Housing color</i>	orange / black				
<i>Dimensions</i>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right; padding-right: 20px;"><i>short version</i></td> <td>116 x 58 x 105 mm (L x B x H) 4.6 x 2.3 x 4.1 " (L x W x D)</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;"><i>long Version</i></td> <td>117 x 72 x 135 mm (L x B x H) 4.6 x 2.8 x 5.3 " (L x W x D)</td> </tr> </table>	<i>short version</i>	116 x 58 x 105 mm (L x B x H) 4.6 x 2.3 x 4.1 " (L x W x D)	<i>long Version</i>	117 x 72 x 135 mm (L x B x H) 4.6 x 2.8 x 5.3 " (L x W x D)
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<i>long Version</i>	117 x 72 x 135 mm (L x B x H) 4.6 x 2.8 x 5.3 " (L x W x D)				
<i>Weight (approx.)</i>	750 g (12.3 oz)				
<i>Protection class</i>	IP 55				

3.1.1 Dimensions and Operating Elements of patrol – Short Version

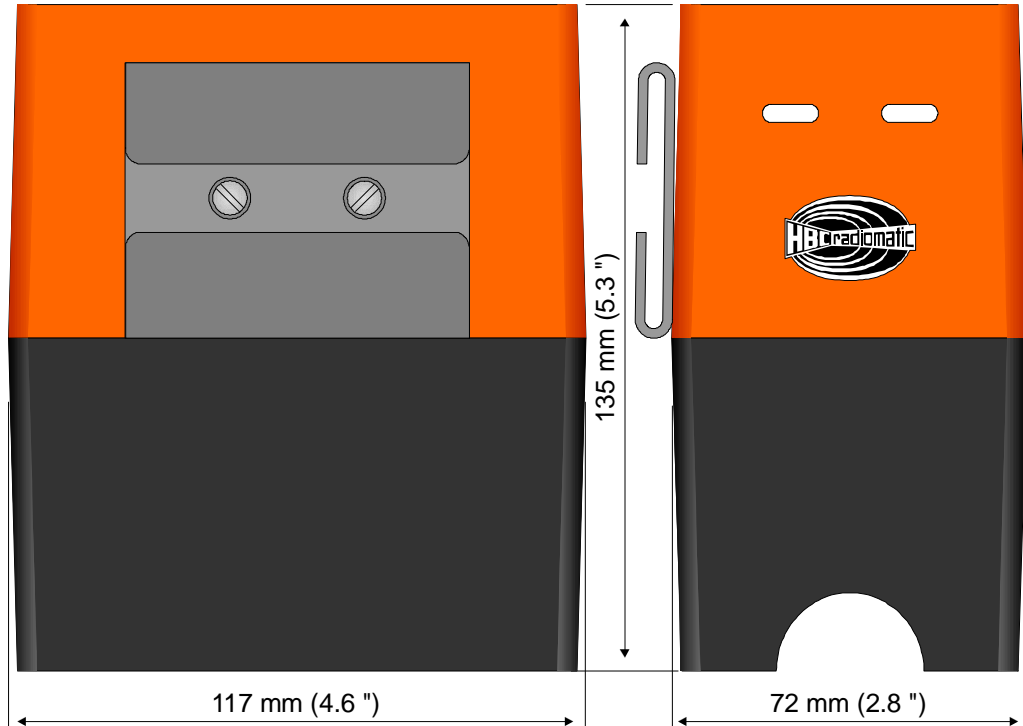


File: PATROL-I_K.CDR [CorelDraw 6.0] 04-20-2000 FL

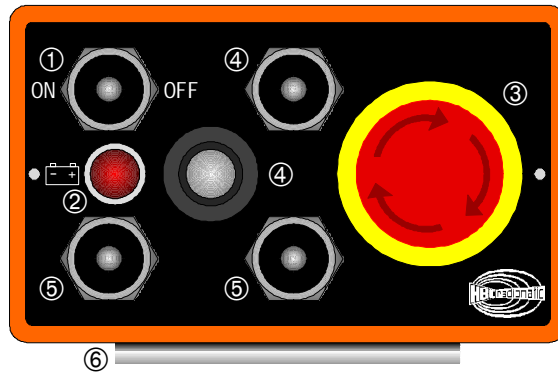


- ① Toggle switch Transmitter "ON / OFF"
- ② red LED "Charge battery"
- ③ EMERGENCY-STOP pushbutton
- ④ Toggle switch or DJET key
- ⑤ Toggle switch
- ⑥ Belt side piece with integrated transmitter antenna

3.1.2 Dimensions and Operating Elements of *patrol* – Long Version



File: PATROL-I_L.CDR [CorelDraw 6.0] 20.04.2000 FL



- ① Toggle switch Transmitter "ON / OFF"
- ② red LED "Charge battery"
- ③ EMERGENCY-STOP pushbutton
- ④ Toggle switch or DJET key
- ⑤ Toggle switch
- ⑥ Belt side piece with integrated transmitter antenna

4 Operation

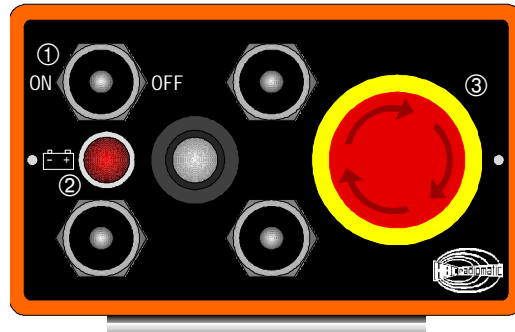


1. Prior to the first initial start-up or before you start working, a charged FuB 05 AA battery must be inserted into the battery compartment on the underside of the transmitter. The battery supplies the voltage required for the operation of the transmitter (6 V DC).



Note :

After inserting the battery, the nameplate must be visible. Operation of the transmitter will not be possible otherwise !



2. Unlock the EMERGENCY-STOP pushbutton (item ③) by turning it.
3. Switch ON the transmitter via the "ON / OFF" toggle switch (item ① ; pay attention to marking !).
Operating voltage is now present at the transmitter.

A radio connection to the receiver is established when the red LED "NO RECEPTION" on the receiver will be extinguished and the green LED "SYSTEM" is illuminated (ref. radio status panel of the receiver), i.e. the radio system is ready to operate. Control commands may now be input via the transmitter.

If the red LED on the transmitter (item ②) flashes, this indicates that the battery is almost fully discharged. Now, you must replace the discharged battery by a charged one and recharge the discharged battery (cf. "Battery Charger").



Note :

If the discharged battery is not replaced by a charged one, the transmitter will automatically be switched OFF after a few minutes.

4.1 Battery Charger

Fig. left shows battery charger type **FLG 105** that is suitable for one each of the battery types FuB 05 AA or FuB 3A (with adapter).

Charge Battery

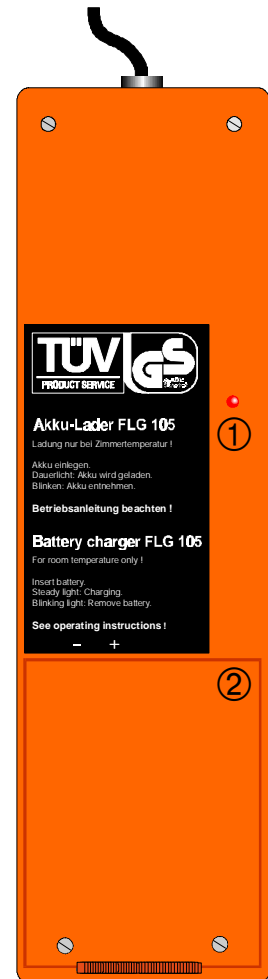
1. Connect the net cable of the battery charger to the mains (cf. nameplate of the battery charger).
2. Insert the battery into the battery compartment (item ②) (the nameplate of the battery must be visible from outside).
=> The red LED (item ①) is illuminated.

Display of the state of charge (red LED)

LED illuminated : The battery is being charged.
LED off or flashing : The battery is charged,
i.e. ready for operation.
LED flashes when
inserting the battery : The Battery is exhausted
or defective.

Remarks :

- A discharged FuB 05 AA battery is fully charged after about 4 or 5 hours. Overcharging of the battery is prevented by the integrated electronic that will limit the charging process to a maximum of 5 hours.
- Quick charging of NiCd batteries only in a temperature range between +10 C and +40 C (50 °F and 104 °F).
- Protect the battery contacts against accidental shortening, i.e. do not store the batteries in a tool box or carry them loosely in your pockets. A bunch of keys is enough to shorten the battery. Use the protective caps delivered with the batteries.
- Operate the charging unit at about room temperature and protect it against overheating (e.g. direct sun radiation).



5 Maintenance



The radio system is largely maintenance-free. The following items should nevertheless be taken into account :

- Make sure that the EMERGENCY-STOP pushbutton as well as all other keys and switches move easily.
Dirt of any kind may interfere with the operation of the pushbuttons or switches or even render it impossible.
- The batteries of the transmitter should be completely discharged and charged again on a regular basis.
- Never "clean" the transmitter with a pressure or with a steam cleaner.
If necessary, clean it with a fine brush or soft cloth, please



Note :

Should any problems occur with the radio system contact your local dealer or the manufacturer.

5.1 In Case of a Defect



Caution :

It is not permissible to use a defective radio system !

- Never try to carry out any repair on the electronic components of the radio system. This would result in a rejection of possible warranty claims.
 - It is recommended to have the unit sent to the manufacturer as fast as possible. The unit will then be in the hands of an expert, an expert who is familiar with the system and who has the required special replacement parts at his disposal.
 - Always send in the transmitter **and** receiver together and enclose a detailed description of the defect.
 - Do not forget to state your phone number in addition to your address. This will allow us to contact you directly, should we have any inquiries.
- In order to prevent any transport damages from occurring, please use the specifically molded two-way packaging in which the unit was shipped to you from the factory or pack the unit in a way so that it is protected against shocks. Please send the unit to the following address, freight prepaid :

HBC-radiomatic GmbH
Haller Straße 49 - 53 • D-74564 Crailsheim
- Should you decide to personally return a defective radio system to the factory or to your local dealer, then please make an appointment first.



6 Trouble-Shooting



Note :

Check the transmitter functions with the cabin or the cable control unit first !

Trouble	Possible Cause	Remedy
No reaction whenever the transmitter is switched ON.	<ul style="list-style-type: none"> - There is no operating voltage present. - The transmitter is not switched ON. - The EMERGENCY-STOP pushbutton is locked. 	<ul style="list-style-type: none"> - Charge the battery or insert a fully charged battery into the transmitter. - Check the battery contacts for damage or contamination. - Switch the transmitter ON. - Unlock the EMERGENCY-STOP pushbutton.
Low battery voltage warning output already after a short period of operation, i.e. the red transmitter LED flashes.	<ul style="list-style-type: none"> - The battery is not charged. - The battery is defective. 	<ul style="list-style-type: none"> - Charge the battery fully. - Check if the charging process is executed properly. - Check the battery contacts. - Verify the operation with a functional battery.