# Manual





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Wolfgang Haring e.U. Firmenbuchnummer: FN 312421 v (Landesgericht Wr. Neustadt) Kammanngasse 7-9A/8 A-2700 Wiener Neustadt Telefon +49 30 6098490 431

www.kraftwerk.shop

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# 2. Safety Instructions

Lesen Sie diese Anleitung sorgfältig und beachten Sie vor allem rot markierte Bereiche.

- Führen Sie Änderungen in der Verkabelung nur im ausgeschalteten Zustand durch.
- Sorgen Sie dafür, dass unerwartete Aktionen während der Inbetriebnahme und/oder Konfiguration keine Schäden anrichten können (Antriebsräder weg vom Boden)
- Platzieren Sie Elektronik immer in geschützten Bereichen (vor allem vor Feuchtigkeit und Öl)
- Verlegen Sie datenführende Leitungen (Antennen-, Buskabel) nicht in der Nähe von stromführenden Leitungen (Motor, Akku, Digitalservos)
- Achten Sie auf eine ausreichende Stromversorgung der Elektronik. Billige BEC oder Fahrtenregler mit "BEC 5V/1A" Angaben liefern oft nicht die notwendige Spannungsqualität.
- Tauschen Sie offensichtlich beschädigte Komponenten und Kabel
- Betreiben Sie die Komponenten nur innerhalb der technischen Spezifikationen
- Trennen Sie nach der Fahrt den Akku, dies ist insbesondere bei LiPo/LiFe Akkus wichtig.
- Vermeiden Sie Kurzschlüsse und Verpolung
- Schließen Sie das Pad nicht an einen Hall-Steuergeber an!
- Durch das Öffnen des Fernsteuersenders, kann die Garantie erlöschen. Nehmen Sie geg. Kontakt zum Hersteller auf!



# 3. Technische Daten

Spannungsversorgung	über den Kanal im Fernsteuersender
Max. Stromverbrauch	20mA
Anzahl Tasten	12 (Ausschlag von 28 – 100% in 14.5% Schritten)
Anzahl der steuerbaren	45
Funktionen	
Fahrtenregler unterstützt	ALLE
Soundmodule unterstützt	Servonaut, Beier
Fernsteueranlagen unterstützt	ALLE (Einlernmodus notwendig)
Lange Betätigung ab	~0.5 Sekunden
Abmessungen	78x33m

# 4. Product Description

The pad not only offers the control of all light functions, as well as the all-round light and the fifth wheel as a short touch function (orange symbols), but also the control of the trailer supports, a trough, a ramp, the manual transmission, two servos, headlight flasher, horn, all on/ off, as well as engine start/stop (white symbols) with a long press. In addition, up to 22 additional functions (eleven each with a short and long press) can be controlled via a level switch (top left button).

The light and sound control pad is compatible with all remote control transmitters and only occupies one channel. A free extension channel is preferably used. However, since there are often no longer any extension channels, especially with modern remote control transmitters, a channel occupied by a control transmitter can also be used, but this can then no longer be used for other applications. The signals are evaluated in the central control units KLM 4/0, KLM 4/12 – 500 or KLM 4/16. Even older KLM light assistants are compatible with the control pad after an update with the latest ControlPanel and can be used without restrictions.

The control pad is started up in five steps, which are explained in detail below.

Since remote control transmitters from different manufacturers are built quite differently internally, it is necessary to adjust the level of the pad (how big is the deflection) in order to avoid signals that are too small, but also to avoid overdriving the channel.

- 1. Installation in the remote control transmitter
- 2. Configuration of the KLM
- 3. Setting the modulation
- 4. Programming the channels
- 5. Optional: fine adjustment

Steps 3 and 4 may have to be carried out more often until the correct modulation is found.

# 5. Functional range

The keys can either be pressed briefly (orange symbols), long (white symbols) or, after switching to the additional level, briefly or long.

#### Upper row

Short touch	Long touch	
Pad level	Motor start/stop	
Blinker links	Servo 1	
Warnblinker	Partymode	
Blinker rechts	Servo 2	
Shift up	Flash lights	
Shift down	Horn	

#### Lower row

Short touch	Long touch	
Parklight	Support legs up	
Low beam	Support legs down	
High beam	Kipper up	
Fog lights	Kipper down	
All-round lamp	Ramp up	
5th wheel	Ramp down	

#### Pad level

If you switch to the additional function level with the top left button, up to 22 additional functions (each eleven short/long - gray symbols) can be switched counterclockwise, starting from the bottom left.

#### **ControlPanel - LiveDaten**

The live data view in the control panel helps you get to know the control pad and the controls, as all functions are clearly displayed.

Englemet Werte K1=0,0% Lenk=0,0% Lenk=0,0% Zashfurktoren Audog 1   Gas=0,0% K2=0,0% Facilitation Ruddahdt Packton 1krz Zashfurktoren Audog 2   Standakt Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Standakt Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Standakt Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Uthhue Statkton 1krz Packton 1krz Packton 1krz Packton 1krz Packton 1krz   Bieler refts Mak Packton 1krz Packton 1krz Packton 1krz Packton 1krz   1000 1000 1000 1000 Packton 1krz Packton 1krz   Bieler refts Mak Packton 1krz Packton 1krz Packton 1krz Packton 1krz   1500 1500 3.4% <
¢ m F

# 6. Commissioning

## 6.1. Installation in a Carson transmitter

The control pad must be connected to an analog channel, switching channels cannot be used. If the pad is connected as shown below, the right stick is assigned to the control signals of the pad vertically and cannot be used for other purposes. Please put the trimmer in a full deflection and leave it there. If the deflection is later too small in one direction, the trimmer can be brought to the other end deflection and the pad can be taught in again.



Since the Carson remote control systems unfortunately do not have a linear control curve, the pad deflections must be set asymmetrically (siehe Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.)

#### The following settings must be made:

Press button 7 and then button 10. After this press button 6 and then button 2.



This optimally sets the control range. Then teach the channels accordingly. Since the Carson remote control systems vary quite a bit, it may be that other settings have to be made in some cases.



# 6.2. Installation in a Graupner MC20

Soldering on the circuit board is better than the variant shown above, since there are no movements here.



## 6.3. Installation in general

#### Determining the pinout theory

In most cases, the position of the control transmitter of your remote control transmitter is determined using commercially available potentiometers, which work as classic voltage dividers. The principle is very simple: Between the poles A and B there is a layer of carbon on which a gripper - the so-called root - is moved. The measured voltage at the root is therefore a part of the voltage applied to poles A and B.



Example: If there is 5V between A and B and the stick is in the middle, a multimeter can be used to measure 2.5V between A and W and also 2.5V between W and B. If the stick is moved, for example, 2V between A and W and 3V between W and B could be measured.

It is now necessary to find out where the total voltage is and which pin is the "root". Tip: the middle pin is often the root.

Do not under any circumstances trust the cable colors in the transmitter, but measure the assignment conscientiously.

#### Determining the pinout practice

Take a multimeter and switch on the remote control transmitter. Guide the test probes cleanly and avoid short circuits and touching other contacts, as this can damage the remote control transmitter.

If the strips of your measuring device are pluggable, check whether they are correctly connected (black is usually labeled with COM and red with "V"). If you are not sure whether the multimeter's strips are correctly connected, take a battery Help and use it to check the polarity.

Carry out the following measurements and note the respective voltage values (if you measure a negative value, change the test probes and start over).

- First pin against the second pin (e.g.: 1.3V)
- First pin against the third pin (e.g.: 3.05V)
- Second pin against the third pin (e.g.: 1.75V)

The supply voltage is applied to the pins with the highest voltage values (3V, 3.3V and 5V are

usual). The two smaller values added together must result in the larger value.

The brown and red cables are connected to the pins with the greatest voltage (brown to the negative pole, red to the positive pole). The orange cable is connected to the remaining third pole.

If you now press the upper left button, a servo connected to the corresponding receiver output must deflect. If the deflection is very small, the level can be adjusted later.

If it is a 3-pin connection with a 2.54mm pitch, the connector housing supplied can be used. In all other cases, the socket cable supplied can be soldered and the pad plugged in.

#### 6.4. Adjust range settings

Since the pad can be used universally for all remote control transmitters, the control range, i.e. the maximum deflection of the pad, must be set once. (Some transmitters only generate +/-20% internally at the control transmitter, while others require full deflection.)

The control range should be as large as possible, otherwise not all functions may switch or interference may be amplified too much.

If you are teaching the pad for the first time and do not know what level is required for your remote control, set the range to maximum by first pressing the setup button and S4, both at the same time, but setup first.



Start the Kraftwerk - ControlPanel and open the live data.

If the channels have not yet been taught or the corresponding channel has not yet been taught to the pad, a deflection greater than 70% should be visible when you press the level button. The level button produces the maximum deflection of the pad in one direction and the minus button produces the maximum deflection.

Please check whether the level button (largest deflection) and the parking light button (second largest deflection) show different percentage values (difference greater than 5%). The same applies to the minus button and the fifth wheel. If this is not the case, the pad is clipping the channel and the dynamic range has to be reduced.



If this is the case, simply click on the teach button, confirm the middle position by clicking again, press the level button, click, then press the minus button, click save, done. (The text in the button changes with each click)

Summarized:

- 1. 1. Level button and minus button should generate values greater than 70% (plus or minus doesn't matter at this point)
- 2. The difference between level button and parking light or minus button and fifth wheel coupling should be at least 5%
- 3. 3. Optional: High beam and fog lights (the smallest deflections) should still produce visible deflections (greater than 10%)
- 4. Channel calibrating: click the teach-in button, confirm the center position by clicking again, press the level button, click the button, press the minus button, click save, done.

## 6.5. Configuration of the KLM

The pad can be used on either K1 or K2. Connect the model via USB, switch on the remote control and the model and start the ControlPanel.

The system settings can be opened via the gear symbol or the "System" menu item. Make sure that the KLM is selected in the drop-down list above.

Change Mapping K1 or Mapping K2 to Pad Light And Sound.

Change Mapping K1 or Mapping K2 to Pad Light And Sound.

**Tipp**: If the level control is selected for K1, the assignment for K2 is grayed out, as this is required for switching the levels. If the pad is to be used on K2, a different entry - e.g. "User-defined" - must be selected for "Assignment K1".

After clicking the save icon, the KLM is configured to use the control pad.

**Tipp**: If you are not sure which channel the pad is connected to, the live data view of the control panel can help (see next page).

## 6.6. Configuration of the RS1

If the corresponding jumper is set on RS1, the pad must be connected to channel 3. Alternatively, the pad can be a K1 - K3 and configured via the system settings of the KLM using the ControlPanel. Everything else is analogous to the KLM.

Systemeinstellungen		x
Gerät	KLM 4/16 Lichtassistent	
Name	KLM 4/16 Lichtassistent	*
Infrarot [ein]		
Kanäle eingelernt		
Blinker Ein	500 🔺 ms	
Blinker Aus	500 ms	E
Empfängertyp	Normal 4xPWM	
Modus Gas	Einfach 💌	
Warnblinker beim Rückwärtsfahren		
Bremslicht Sensitivität	50 🔺 %	
Bremslicht Nachleuchten	30 × %	
Modus Lenkung	Normal	
Blinker Schwellwert	75 🔦 %	
Kurvenlichttyp	Immer aktiv	
Belegung K1	Keine 👻	
Belegung K2	Pad Light And Sound 🗸	
Belegung K3	Keine	
Belegung K4	Keine	

## 6.7. Einlernen des Pads am KLM

There are several variants here.

The easiest way is probably the teach-in via the ControlPanel live data:



If you click on the teach button, the text changes to "middle position". Simply click again to confirm the middle position, after which the text changes to "top / left". Now hold down the layer key and click again. The text changes to "Bottom / Right". Now hold down the minus key and click the button again, "Save" will appear in bold letters. After clicking again, the values are saved.

Another variant is the "Teach-in channels" assistant in the ControlPanel, which guides you through the teaching-in of all channels. If the K1/K2/K3 assignment is set correctly in the system settings, the pad is also taken into account.

The standard variant without ControlPanel is also possible. For details, please refer to the manual for the EasyBus lighting systems or RS1. When it's the pad's turn, first press the level button and then the minus button.

## 6.8. Check the range settings

To do this, please open the LiveData Assistant. When you press the parking light button, the percentage value should be around 86% (+/- 4%). If you press the fifth wheel coupling button, the percentage value should deflect to -86% (+/- 4%).



If one of the two values is over 90%, please reduce the modulation (Setup button and S3 or S2 or S1) and start learning the channels again.



## 6.9. 6.9. Checking and fine-tuning

If the modulation is set correctly and the channels are learned, the pad should already work. Press one key at a time and check the live data to see if the appropriate ticks are set.

**Tip**: Use the live data view and ignore the lights/functions on the model for the time being to avoid confusion caused by any programming errors.

Since the channels are not controlled 100% proportionally, especially with cheap remote control transmitters, it may be necessary to fine-tune the evaluation of the pad signals.

To do this, press the high beam and then the fog light button and enter the percentage values (see screenshot above, red circle) in the system settings (gear icon) of the KLM and save them.

	-		
Pad Alles Bin/Aus	Alle Rundumlicht/Warnblinker/ 💌		
Pad Light8Sound Fernlicht	28 🔔 %		
Pad Light&Sound Nebelscheinwerfer	-28 🚔 %	8	
Kanäle eingelernt	V		-

## 6.10. Troubleshooting

#### The pad switches functions, but not reliably or the wrong ones.

1. 1. First of all, please check whether the KLM is configured correctly. To do this, open the system settings and check the entry "Assignment K1" K2 or K3.

2. If you press the keys in the order shown below, the values should each decrease by 14.5%, starting at the top left with 100,85.5,71,56.5,42,27.5% and at the top right with -100,-85.5,-71,-56.5,-42,-27.5%.



If one of the second values (85.5%, -85.5%) is greater than 90%/-90%, the modulation is too high.

If one of the second values (30%/ -30%) is less than 15%, please follow section **Fehler! Verweisquelle konnte nicht gefunden werden.** 

Please enter the percentage values for high beam and fog lights in the system settings of the KLM, see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** 

#### The pad is connected, but none of the percentage values are moving in the live data.

Please check that the pad is connected correctly and that the correct receiver output has been used. A directly connected servo must deflect when a button is pressed.

## 6.11. Calibrating channels for asymmetrical deflections

This section is only relevant if you have carried out all the previous sections conscientiously and the high beam or fog lights show too small a deflection or no deflection at all. Possible causes are:

- Modified middle position (trimmer, subtrim)
- Channel electronically limited
- Cheap remote control transmitter

If possible, reset all settings for the channel used and start the normal teach-in process. If this is not possible, the modulation for both deflections must be set separately. To do this, open the LiveData Assistant and focus on the value marked below (if K2 is used, otherwise the value to the left of it). This value changes when a key is pressed and is intended to be as close as possible to the following values:

Middle position: 1500 Level button: 1000 \*) Parklight: 1070 \*\*) Minus-Button: 2000 \*) Sattelkupplung: 1930 \*\*) The higher the level, the further away the values from 1500 are when a key is pressed. The deflection of the level button should be as far away as possible, but the



deflection for the parking light must be different, if this is not the case, the level control must be reduced. The same applies to the minus button and the fifth wheel coupling.

\*) Depending on the remote control transmitter, these values may be reversed: level button 2000 and minus button 1000, the same applies to \*\*) parking light 1930 and fifth wheel coupling 1070. Now set the modulation for both deflections separately:

Press Setup+ and S4 to set the maximum level for the positive deflection. Check the values for the pad button and the parking light. If both show the same or a similar value (e.g. 1930 and 1925), reduce the level (Setup+ and S3) and check the values again. The difference should be at least 50.

Repeat the process for the negative deflection using the Setup and S buttons and check the values for the minus button and the fifth wheel.

