

Operating Manual Mounting instruction H129 V2

for the radio control system of the company



Serial number:

--	--	--	--	--	--	--	--

(Please fill in the serial numbers here:)

Table of contents;

Chapter	content
0	Extent of supply
1	Safety instructions
2	General information
3	Safety features in the Hatox system
4	Functioning recheck
5	Optical check
6	Initial operation
7	Indication LEDs
8	Maintenance
9	Warranty
10	Safety
11	Source of danger
12	Safety measures in working area
13	Protective devices
14	Behavior in case of danger
15	Trouble shooting
16	Mounting instruction
17	Maintenance
18	Disposal
19	Technical data
20	Interface H 129V2
A	CAN protocol example

0. Extent of supply

- 1 X H129V2 with Antenna socket and antenna

1. Safety instructions:

Even if you have worked with radio remote controls before, please read this operating manual before initial operation carefully! Only this one contains the latest information for your Hatox system and how to use it!

Please note in any case the respective working safety and protective precaution instructions! Only instructed and authorized personnel may operate the Hatox system! The safety features integrated in the Hatox system have to be checked on a regular basis.

In case of any failures the Hatox module has to be turned off at once. The modul has to be deactivated via stop button (has to be connected directly to supply) . The connecting cable has be disconnected from the stationary transceiver of the unit to be controlled.

Never operate a defective Hatox system!

Contact you distributor or Hatox directly!

Always stay in range of sight with the unit to be controlled!

Never trust the LCD display. The shown information may be wrong.

By neglecting this advice you jeopardize yourself or other persons! Hatox declines any warranty or liability in this case! The radio system is only suitable for the control of construction machinery and industrial equipment. Only there the applied safety measures (STOP, zero position) are fully effective. A different use is not allowed and absolves Hatox from any responsibility!

2. General information

The power supply of the radio control is provided in most of the case via the connecting cable.

For machines that have never been operated with a radio control before, generally a ground wire (neutral) has to be added. Otherwise the power supply to the Hatox electronics cannot be set up!

Please mind that the operating voltage of the radio systems complies with the connecting values of the unit to be controlled. The valid operating voltage is written down in the enclosure.

Never expose the Hatox components to the harsh water jet of a high pressure cleaner! The same applies for the transmitter!

The module may only be installed in an upright position to the outer wall of the switching cabinet (the antenna shall always overlap the wall). It is important that the antenna is not shielded by metal parts, neither partly nor totally.

The module shall always be installed in that manner that the antenna remains visible with every position change of the transmitter.

When operating never disconnect the antenna from the stationary transceiver. This worsens the quality of reception.

In case of service and maintenance work please disconnect the Hatox control completely from the machine (including possibly an external antenna).

3. Safety features in the Hatox system

In the portable H153V2:

stop button

In the stationary H129V2:

stop output

In order to grant a fault-free operation please adhere exactly to the following rules for operation: The machine can only be turned on (provided that the transmitter is ready for operation) if no buttons and joysticks are operated.

4. Functioning recheck:

For keeping up the operating safety a regular functioning recheck of the Hatox radio control is necessary. For daily one-shift operation we recommend this check at least once per day or after every change of shifts. The check can be done by help of the LEDs on the stationary unit/units. For that the transmitter has to be put in a ready-to-operate status.

5. OPTical check:

Before starting to operate please check if the transmitter shows any damages!

Please check if all protective devices are provided and in working order!

Never work with a unit that shows damages like that!

Have those defects fixed immediately!

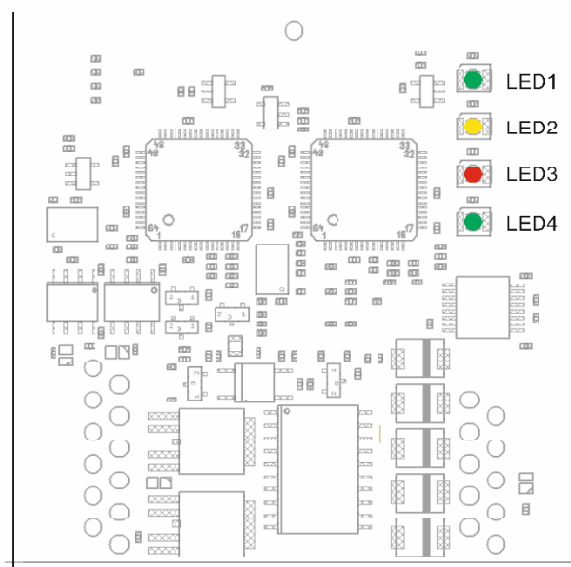
6. Initial operation:

STOP-control: Press the stop push button connected with the module. Afterwards please check if the machine is in stop status, i.e. if it is turned off. (Switch-off time depending on application. Please check the time in the operating manual of the machine).

Additionally, please effect the testing procedures which are described in the manual of the machine!

7. Indication LEDs

Function of the LEDs at the H129V2:



LED1:	POWER ON. Operating voltage
LED2:	CAN activity between controller and stationary transceiver. Permanent alluminating when the system is turned on.
LED3:	Error
LED 4:	Radio: Irregular flashing shows that the connection is not best.

8. Maintenance:

- When doing electric welding at the machine to be controlled, the receiver has to be disconnected from the power supply! Otherwise the receiver electronics is endangered to be damaged!

9. Warranty:

We grant a warranty of 6 months on all Hatox radio remote controls (transmitter, receiver,

battery charger) from the date of sale on. In case of despatch to the manufacturer of the machine please negotiate the warranty with the seller of the complete system. Special conditions may exist.

Labor and material expenses are included in the warranty. Freight has to be taken over by the buyer. Excluded from warranty are: Wear and tear parts, relays and batteries. The warranty of functioning is not valid by damage, accident damage, neglect, incorrect use, disobeying the operating instructions, not-adhering to the operating-, test- and service advices as well as repairs or device changes not authorized by Hatox.

Hatox is not liable for indirect damages and reserves the right to decide for repair or exchange.

10. Safety of this system:

This system is equipped with electronical safety features.

Interferences by other radio remote controls are excluded by an individual code for each system.

WE THINK OF YOUR SAFETY !

Beware of incorrect operation or abuse. This can have consequences for your life, for the machine or other material values.

The following persons may operate the Hatox control:

They have to be qualified and instructed acc. to the rules and regulations.

They have to obey this manual and also the manual of the machine to be controlled.

(SEE MANUAL OF THE MACHINE TO BE CONTROLLED)

The operator has to see to it that no unauthorized personnel gets hold of the radio control once he has put it down (for a break etc.), e.g.:

- by locking away the transmitter
- by taking out the batteries
- by taking out the stop key cap (if it exists)

The operator has to take care that

- the user of the radio control has access to the operating manual
- that the user has read and understood it

11. Source of danger

This system enables the wireless operation of machines. The transmission of control commands is effected, however also outside the range of vision and through or around obstacles.

THEREFORE YOU SHOULD:

Put the transmitter always at a safe and dry (locked) place which is not accessible to other persons.

Always turn off the transmitter when it is not in use.

Before installation, repair or maintenance power supply has to be disconnected.

When welding please be sure that both the power supply and every antenna connection (e.g. to a separate antenna) is disconnected.

12. Safety measures in working area

- Ensure a stable position
- Make sure that nobody stands in the slewing or working area during (initial) operation
- Always use the waist belt / hand strap of the transmitter as far as it is provided

13. Protective Devices

The radio control turns in idle position

- by pressing the red stop button in the control panel of the transmitter
- when leaving the range
- by an error of the transmitter or the stationary receiving or controlling unit
- by taking out the batteries
- when the capacity of the batteries is too low

These protective devices are provided for the safety of persons and material assets and must in no way be removed or bypassed !!!

Additional protective devices are depending on design.

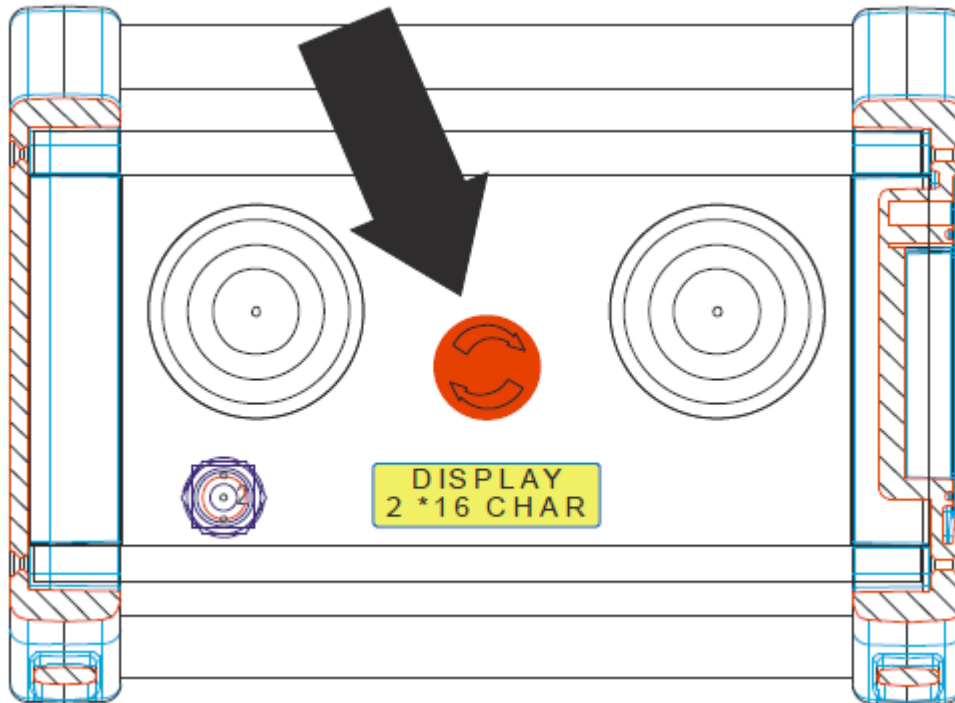
Hatox recommends:

- protective collar / safety bar
- lower positioned control elements

These devices protect the control elements from unwanted operation and therefore from unintended commands.

14. Behavior in case of danger

Hatox recommends strongly to use an e-stop-switch. In case of an emergency immediately press the red stop button in the control panel of the transmitter. For the further procedure adhere to the operating manual of the machine to be controlled.



15. Trouble shooting:

Appearing Error	Possible causes	Trouble shooting
System cannot be put into operation	System is not locked in yet (is shown by „SCAN“ on the display)	After turning on wait up to 5 sec., until „STOP“ is shown on the display. Then activate On/Horn. As soon as „RUN“ is shown in the display, the system is activated.
System cannot be put into operation, no display indication	batteries empty	Insert new or recharged batteries
	Battery or battery shaft is defect, e.g. ● contact corrosion ● battery leaked	Check if the same effect happens with a different pair of batteries. If not, dispose the batteries in a proper manner and replace them by new ones. In case that the contacts are corroded, have them cleaned by a person skilled in this.
Period of operating is too short.	Wrong or discharged batteries were inserted.	Check if the power supply of the battery charger was disconnected or if the connection was not properly made.
The transmission of control commands to the machine is disturbed.	No radio connection	Check the function of the LEDs at the stationary transceiver (see above).
	Check the installation of the stationary transceiver. There should be intervisibility to the antenna.	Install the stationary transceiver as described above!
	Stationary transceiver resp. the antenna of the transceiver is built in a metal cabinet, a vehicle or in the machine to be controlled.	Install the stationary transceiver as described above!
Individual functions cannot be controlled.	Interruption of the control cable resp. individual cables between the machine to be controlled and the stationary transceiver or the stationary controller.	Check the plug for tight connection, good contact etc. Check the wiring in the switch cabinet, connector, etc.

16. Mounting instruction

Connecting instructions and initial operation.

The connection to the machine may only be done by an authorized expert who is familiar with the machine!

There are following additional installation instructions:

For any work at the machine and at the Hatox system the stationary unit/s have to be switched off the power.

The VDE-specifications as well as the local EVU-regulations and the accident prevention guidelines (UVV) strictly have to be observed.

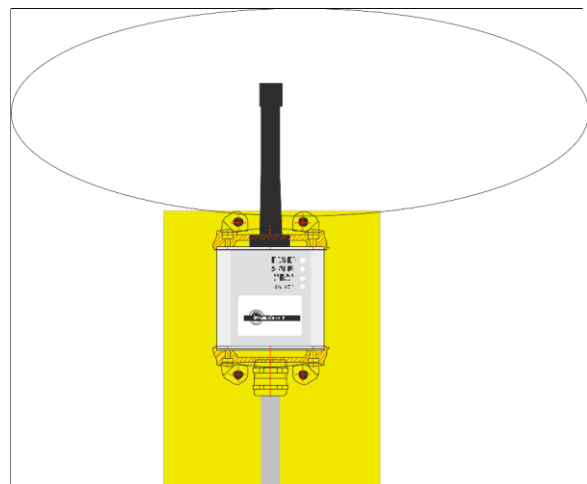
Hatox does not takes over any responsibility, liability and warranty for any possible personal injury, damage to property and consequential loss which result from improper or reckless use of this system or which contravene the regulations, which this operating instruction, the operating instruction and the general regulations of the machine to be controlled are base on.

It has to be seen to it that the stationary transceiver unit is installed at a well accessible position and not in the object to be controlled.

Generally switch the machine to be controlled off the power before you connect the Hatox system.

Installation of the transceiver:

Only install the stationary transceiver vertically on a outer wall of the object to be controlled (The antenna should always rise up over the wall). It has to be ensured that the antenna is not shielded by metal parts, neither partly nor totally.



17. Maintenance:

The operator has to take care that the devices of the wireless control are checked on a regular basis – at least however once per year by an authorized person (specialist).

A specialist is a person who has sufficient knowledge in wireless controls and machine controls in general as well as in the area of the individual machine to be controlled due to his special education and experience. He has to be familiar with the relevant governmental labor protection laws, accident prevention regulations, regulations and general accepted rules of technics (such as DIN-standards, VDE-regulations, regulations of the mutual indemnity society, EU-standards, technical regulations of other member countries of the European Union or other states of the agreement of the European Economic Area).

He has to be familiar with the work-safe state of the devices for the wireless transmission of control commands.

18. Disposal

Avoid pollution.

Electronic pieces and parts of it are hazardous waste!

This applies especially for rechargeable batteries.

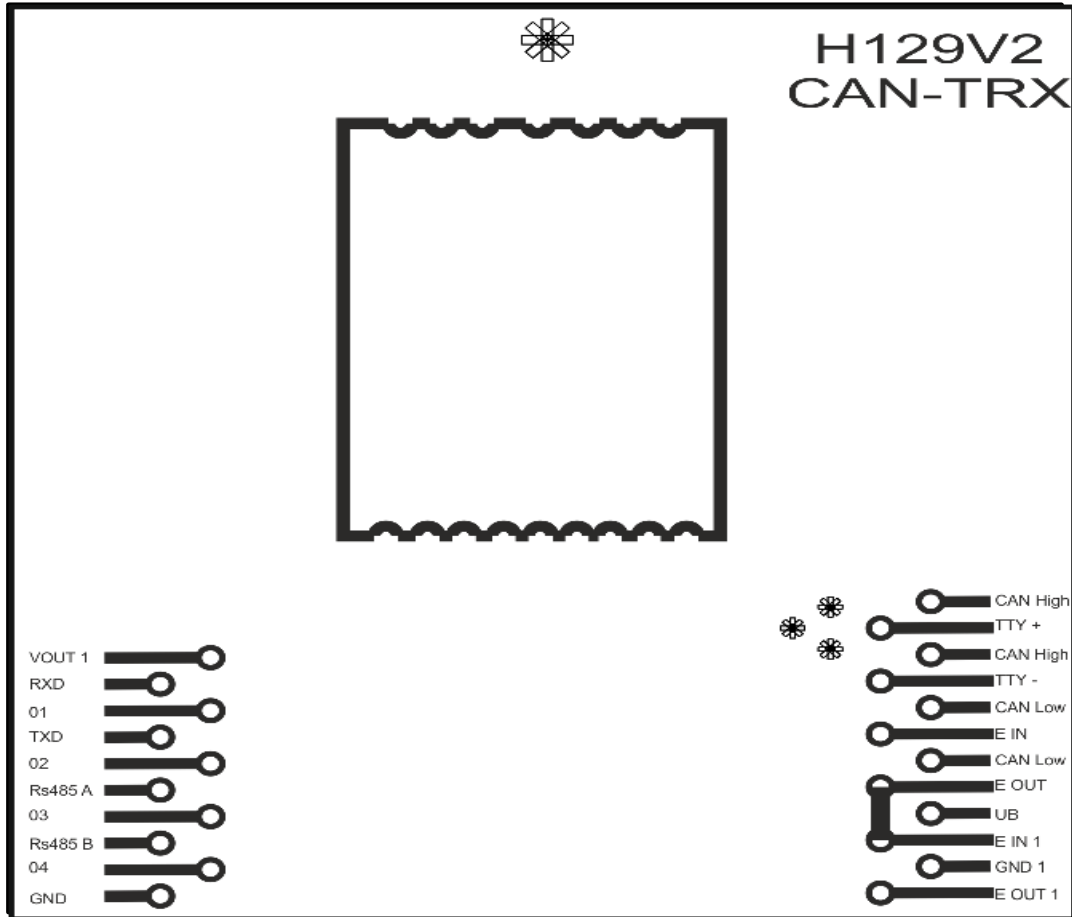
Instruct a specialist with the material processing and disposal.

Save the environment! Use rechargeable batteries only. Avoid the use of standard batteries (non-rechargeable) !

19. Technical data:

Storage temperature:	-40° C to + 80° C
Operating temperature:	-20° C + 70° C
Protection class (not valid for battery charger):	Depending on assembling
Frequency range	902-928 MHz
Baud rate:	4800 baud (bits per sec.)
Range:	50 up to 500 meters (depending on installation and environment)
Power supply of the portable unit:	2 * 1,2 V NiMh- battery (AA)
Power supply of the stationary unit:	6 – 36 V DC
Outputs stop:	Max. 36 V DC / 1,2 A

20. INTERFACE H129V2



			CAN High 1	CAN High 1
			TTY +	Serial Interface
VOUT1	Supply for Outputs 6- 36 V DC		CAN High 2	CAN High 2
RXD	RS232 serial Interface RECEIVE		TTY-	TTY -
1	Output 1		CAN Low 1	CAN Low 1
TXD	RS232 serial Interface TRANSMIT		EIN	Stop-Input / 6-36 V DC
2	Output 2		CAN Low 2	CAN Low 2
RS485A	RS485 serial Interface -A		EOUT	Stop-Output
3	Output 3		UB	Supply 6- 36V DC
RS485B	RS485 serial Interface -B		EIN 1	Stop-Input 1 / 6-36 V DC
4	Output 4		GND	Ground
GND	Ground		EOUT 1	Stop-Output 1

Enclosure A

EXAMPLE FOR CAN PROTOCOL

Generally:

Baudrate: 125kBaud
Node-No.: 0x64 (100dez)
Mode: Can-Open-Slave

PDO's:

Msg:	Id:	Data:	Function:
TPDO1	0x1E4	Dat0 Dat1 Dat2 Dat3 Dat4 Dat5 Dat6 Dat7	Analog
TPDO2	0x2E4	Dat0 Dat1 Dat2 Dat3 0x00 0x00 0x00 Dat7	Digital
RPDO2	0x364	Dat0 Dat1 Dat2 Dat3 Dat4 Dat5 Dat6 Dat7	Display Text

Transmit PDO1 (Analog):

Dat0 = ANA1 – (0x00 – 0x7F – 0xFF) - Joystick right up/down (up=0xFF down=0x00)
Dat1 = ANA2 – (0x00 – 0x7F – 0xFF) - Joystick middle up/down (up=0xFF, down=0x00)
Dat2 = ANA3 – (0x00 – 0x7F – 0xFF) - Joystick left up/down (up=0xFF, down=0x00)
Dat3 = ANA4 – (0x00 – 0x7F – 0xFF) - not used (0x7F)
Dat4 = ANA5 – (0x00 – 0x7F – 0xFF) - not used (0x7F)
Dat5 = ANA6 – (0x00 – 0x7F – 0xFF) - not used (0x7F)
Dat6 = ANA7 – (0x00 – 0x7F – 0xFF) - not used (0x7F)
Dat7 = ANA8 – (0x00 – 0x7F – 0xFF) - not used (0x7F)

Transmit PDO2 (Digital):

Dat0 => Bit0: Emergency stop
Bit1: Enable
Bit2: Zero position
Bit3: MRC
Bit4: Winch
Bit5: ODS
Bit6: DS
Bit7: Support Ramp

Dat1 => Bit0: Headrest Ramp
Bit1: ---
Bit2: ---
Bit3: ---
Bit4: ---
Bit5: ---
Bit6: ---
Bit7: ---

Dat2 => Bit0: Teachmode
 Bit1: ---
 Bit2: ---
 Bit3: ---
 Bit4: ---
 Bit5: ---
 Bit6: ---
 Bit7: ---

Dat3 => Bit0: ---
 Bit1: ---
 Bit2: ---
 Bit3: ---
 Bit4: ---
 Bit5: ---
 Bit6: ---
 Bit7: Emergency Stop

Dat4 0x00
 Dat5 0x00
 Dat6 0x00

Dat7 => Bit0: Emergency Stop
 Bit1: no data receiving
 Bit3-2: „00“ receive quality 0%
 „01“ receive quality <20%
 „11“ receive quality 20 – 60%
 „10“ receive quality 60 – 100%
 Bit7-4 “0000” no joystick error
 “0001” joystick error ANA1
 “0010” joystick error ANA2
 “0011” joystick error ANA3
 “0100” joystick error ANA4
 “0101” joystick error ANA5
 “0110” joystick error ANA6
 “0111” joystick error ANA7
 “1000” joystick error ANA8
 “1111” different errors available

Receive PDO2 (Text Display):

Dat0 xx – Line
 Dat1 yy – Column
 Dat2-7 6 chars in ascii code

1 line with 16 chars

Example:

ID:	Data:	Description:
0x364	0x01 0x01 0x48 0x41 0x54 0x4F 0x58 0x20	„HATOX“

Information to the user

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Integration of Module

The Grantee is required to ensure equipment authorisation of the end product, which includes the module, under all operating conditions and modes.

Label

End products shall bear a permanent label on which module certification numbers is displayed. The certification number shall be preceded by the text: "Contains:", so it appears as follows:

Contains FCC ID: FCC ID of the module

or

Contains IC: IC certification number of the module

Users Manual

The users manual of the end product needs to include the following information:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure

According to the low output power of the device, the module is allowed to be used in portable application.

Approved Antennas:

Frequency	915 MHz
Typ	Peitsche Lambda/4
Connector	R-SMA
Gain	0 dBi

