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Instructions for installation and use

REMOTE CONTROL WIRELESS
SHOTMAX
for MAX70 HF/DC
with MASTER CONTROL R5 series

HIGH FREQUENCY DENTAL X-RAY DIAGNOSTIC SYSTEM

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WIRELESS REMOTE CONTROL
"SHOTMAX"
for MAX 70HF/DC

Definitions

REMOTE CONTROL: system constituted by a TRANSMITTER and a RECEIVER, fit to effect an emission; the two devices transmit among themselves without cables;

TRANSMITTER: part of remote control with which is possible to supply the emission consent to the X-Ray system;

RECEIVER: part of remote control which receives the consent for the emission from the transmitter and activates as a consequence the X-Ray system.

Introduction

CSN Industrie would like to thank you for having chosen an X-Ray system MAX70 HF/DC: it is a high technology product that generates high quality x-rays whether using common films or radiography sensor RX2, RX2 Mega PX or RX2HP (also produced by CSN Industrie) or phosphorous plates.

The following instructions refer to the connection and the installation of the above mentioned parts.

It is not possible to control, connect, modify or change MAX 70 HF/DC system with timers or parts made by other manufacturers not properly engineered for this unit, penalty is the decay of warranty and CE certification.

IMPORTANT: the procedure described in the following paragraphs should be respected and have to be performed by authorized technicians, using the specified materials; any variation could cause malfunctions and/or possible dangerous situations for the operator.

CSN Industrie disclaims liability for damages to people or things in case of wrong installation.

For any additional explanation, please contact the technical service:

CSN Industrie - Via Aquileja, 43/B - 20092 Cinisello Balsamo MI - Italy
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PART I

SYMBOLS

SN	**UNIT REGISTER NUMBER** To be used when contacting the manufacturer and/or the Technical Service.
	**NOT ATTUNED BAND** The symbol indicates the device is working on a frequency band not attuned
CE	**COMPLIANCE TO THE EUROPEAN COMMUNITY REGULATIONS** The symbol is followed by a number identifying the notified body which certifies and controls this compliance.
	**WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) – EUROPEAN DIRECTIVE 2002/96/EC** The symbol on the product, or on the documents accompanying the product, indicates that this appliance may not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. Disposal must be carried out in accordance with local environmental regulations for waste disposal. For more detailed information about treatment, recovery and recycling of this product, please contact your local city office, your household waste disposal service or the distributor where you purchased the product.
CE 0122 	**REQUIREMENT OF IDENTIFY LABEL** The European Union provides that the devices equipped with the used radio module show these symbols sequence outside

TECHNICAL DATA

SUPPLY VOLTAGE	Receiver: 5VDC, 50mA drawn from CPU board in the X-Ray MAX70; transmitter: 2 batteries of 1,5V
WEIGHT OF TRANSMITTER	50÷100
FREQUENCY BAND	ISM 2.400÷2.4835 GHz
MODULATION	GFSK
DATA CODING	DSSS 64bit/bit
PROTECTION LEVEL AGAINST WATER ENTRY	The apparatus is not waterproof

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TECHNICAL DATA AND DECLARATION OF CONFORMITY OF RADIO MODULE

ATTENTION:
This product contains a radio transmitter with USB Wireless Technology, tested and judged certified to the applicable rules to the radio transmitter in the frequency band included between 2.400 GHz and 2.4835 GHz.

The radio module has been explicitly approved of in the following Countries:

USA	Canada	Belgium	Denmark
France	Finland	Germany	Italy
Nederland	Spain	Sweden	Great Britain

The manufacturer of radio module guarantees features and conformity of the same module. Here following it is reported the furnished documentation.

Technical Data:

ITEM	DESCRIPTION	SPECIFICATION
1	PCB Material	FR-4
2	PCB Layers	2
3	Connector type	Straight thru-hole or header, mirrored through hole or header, bare.
4	PCB Number	1
5	Flammability Rating	UL94 V-0
6	UGWR2US Dimensions	1.29" x 1.30" x 0.54" (32.76 mm x 33.02mm x 13.72mm)

Certifications:

Agency	Test Performed	Type	Limit	Result	Margin
EU	Radiated Spurious Emissions	30-12,750MHz Transmit Mode	EN 300 328	PASS	-4.6dB @ 4804MHz
		30-12,750MHz Transmit Mode	EN 300 328	PASS	-4.9 @ 177.01MHz
FCC 15.247	Radiated Emissions	30 25,000 Spurious Emission	FCC Part 15.209/15.247 (c)	PASS	Result on file
		6dB Bandwidth	15.247 (a)	PASS	960kHz
		99% Bandwidth	IC RSS-210	PASS	1.175MHz
		Output Power	15.247 (b)	PASS	7.2dBm
		Power Spectral Density (PSD)	15.247 (d)	PASS	3.06dBm
		Bandedge	FCC Part 15.209/15.247 (c)	PASS	Results on file
		Out of band	15.247 (c)	PASS	Results on file

EU	Radio Performance Test	Output Power, Power spectral density at normal conditions	EN 300 328-1	PASS	Results on file
		Frequency Range at normal conditions	EN 300 328-1	PASS	Results on file
		Output Range over extreme conditions	EN 300 328-1	TBT	
		Frequency range over extreme conditions	EN 300 328-1	TBT	
		Conduced spurious emissions, 30MHz - 12.750MHz, transmit mode	EN 300 328-1	PASS	Results on file
		Conduced spurious emissions, 30MHz - 12.750MHz, receive/stand-by mode	EN 300 328-1	PASS	Results on file
	Radiated Spurious Emissions	30-12,750MHz Spurious Emissions Transmit Mode	EN 300 328 V1.2.1	PASS	Results on file
		30-12,750MHz Spurious Emissions Receive Mode	EN 300 328 V1.2.1	PASS	Results on file

Declaration of conformity:

EUROPEAN UNION "DECLARATION OF CONFORMITY"

DECLARATION OF CONFORMITY

Unigen Corporation
45388 Warm Springs Blvd.
Fremont, CA 94538
USA

declare under our sole responsibility that the product(s)

WirelessUSB™ - UGWR2US

to which this declaration relate(s) is in conformance with the following standards:

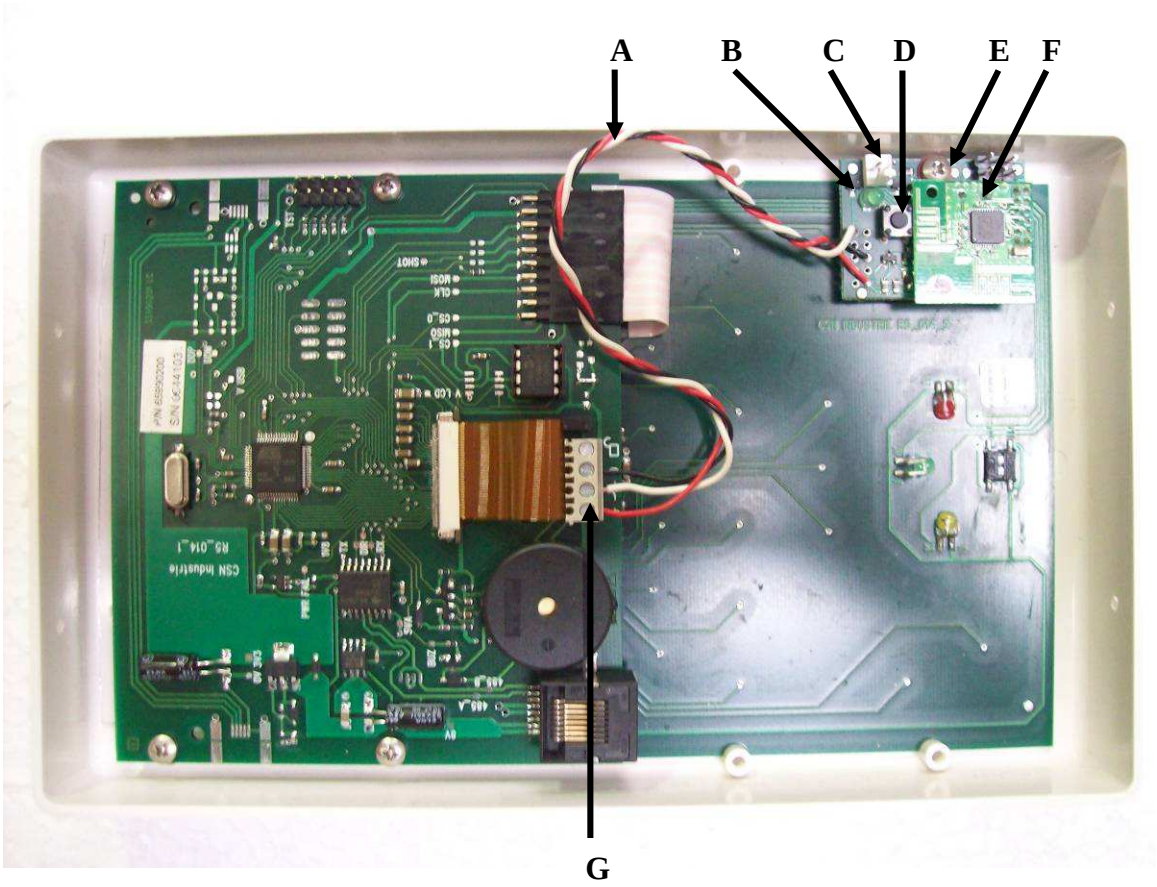
EN 300-328 v1.3.1
EN 301 489-17
EN 55022 limits B

following the provisions of the 73/23/EEC and 89/336/EEC Directives.

Unigen Corporation, Fremont CA - Mark Morrissey, Director of Business Development

GRAPHIC LEGEND TRANSMITTER/RECEIVER FOR MAX70 HF/DC

RECEIVER



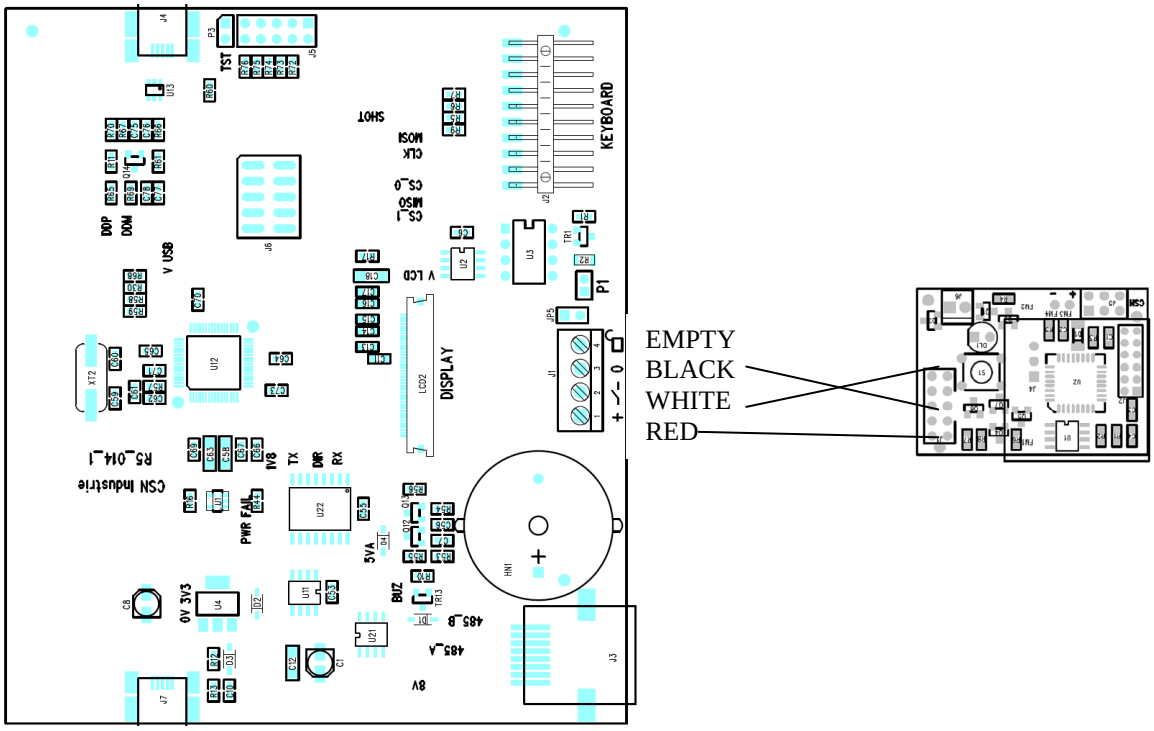
Picture 1

TRANSMITTER

Picture 2

A	Three wires cable
B	Receiver module LED
C	Aux connector
D	Programming button
E	Insulated or plastic screw
F	Receiver module
G	J1 terminal block
H	Transmitter LED
I	Emission button

CONNECTION DIAGRAM



Picture 3

PART II

INSTALLATION OF THE RECEIVER MODULE: INSTRUCTIONS

In some MAX70 systems the receiver module (pic. 1), is installed before the selling.
In this case you can find it in the position indicated in pic.1 **(F)**.
If you have received the receiver module separately it is necessary to install it before using.

1. Turn off MAX70
2. Take out the carter from user interface
3. Identify 4 poles terminal block **J1 (G)** on CPU board (picture 1)
4. Connect three wires like indicated in picture 3
5. Fix the receiver module on the spacer using the plastic screw included in the packaging or with a screw with a plastic washer (ref. E in picture 1)
6. Close again the carter

REGISTRATION PROCEDURE : INSTRUCTIONS

Purpose of this procedure is to let the transmitter module (picture 1) and the receiver module (picture 2) communicate between themselves.
To guarantee the safety of patients and operators the receiver module will recognize only one transmitter on 65.536 possible combinations, in order to prevent that MAX70 be activated from other transmitters or that you can activate other X-Ray systems with your remote control.
First of all it is necessary that the modules acknowledge each other.

If you have received the transmitter and the receiver modules in a single packaging, the modules are already registered and it is not necessary to make the following procedure.

If you have received the transmitter and the receiver modules separately, it is necessary to perform the following operations; otherwise, transmitter and receiver will not be able to acknowledge and the system can't run.

ATTENTION!
The procedure is made with MAX70 turn on and without carter; the operations should be performed only from qualified personnel! CSN Industrie disclaims all responsibility for damage in case the following instructions are performed by not qualified personnel or without the due protections and cautions.

If the receiver module is not installed, provide for the installation following the instructions described in the previous chapter "Installation of the receiver module".

1. Having installed the receiver module, turn on the MAX70 X-Ray system;
2. Verify that the transmitter is turned off (green led (H) off); otherwise, wait until it switches off, that must occur in 30'' approx. (picture 2);
3. Press and keep pressed the remote control button (I); after about 10" the green led (H) on the transmitter will turn on, then release the button and the led will start blinking (picture 2);
4. Press briefly the button (C) on the receiver module; led (B) on the same module will turn on; the receiver is now ready to make the registration (picture 1);
5. Press briefly the remote control button (I); registration will start (picture 2);
6. After few instants the (B) led on the receiver module will turn off: the receiver has completed the registration (picture 1);
7. The (H) led on the transmitter makes some more flashes and then it will be switched on for 30"; the transmitter has completed the registration (picture 2);
8. Switch off and restart the MAX70 system; the two modules recharge the parameters and perform first acknowledgement
9. Close MAX70 carter;
10. Now it is possible to start working.

PART III

INSTRUCTIONS FOR USE

The remote control device repeats the function of the remote emission button.
To turn on the remote control device press briefly the confirmation/exposure button **(I)** on the transmitter; in about a second the green led **(H)** will light up (picture 2), thus indicating that the transmitter is ready to transmit.

***to make an exposure**:*

1. Turn on the transmitter; to turn the transmitter on press briefly the confirmation/exposure button **(I)** on the transmitter; in about a second the green led **(H)** will light up (picture 2), thus indicating that the transmitter is ready to transmit;
2. By pressing again the confirmation/exposure button on the transmitter you will start the emission.

WARNING:

- To guarantee the system safety, the exposure will start with a short retard with respect to the button pressing;
- The button should be kept pressed until the exposure end; otherwise the exposure will be immediately interrupted and the master control will report an error condition: “dead man” type;
- To guarantee the safety and to increase the battery duration, the remote control automatically switches off after 30’’ or at exposure end; in order to perform another exposure it is necessary to apply again a short pressure on the transmitter to turn on;
- The green led **(H)** on the transmitter (picture 2) remains lighting when the remote control is switched on and during the pressure on the button.

BATTERY REPLACEMENT

With a normal use of the remote control and using good quality batteries, the normal duration is estimable in about one year.
A frequent use or bad ambient condition (particularly high temperature) can reduce the batteries duration.
Integrated safety system of MAX70 prevents that the X-Ray system may become dangerous because of partially low batteries.

Anyway **we recommend** the use of good quality batteries.
When the transmitter doesn’t switch on or go out after a few instants, it means that **the batteries are exhausted and you have to replace them.**
Anyway it is possible to make exposures by using the palm control of MAX70.
Batteries used for the transmitter are two 1.5V microlight (AAA) type,
The **proper batteries** kind MUST be identified at least with the following marks:

- AAA 1,5V
- 24A (NEDA/ANSI)
- LR03 (IEC)

To replace the batteries:

1)	Using a cross screwdriver, remove the screw in the lower side of transmitter;
2)	Open the transmitter by lifting up the narrow part (compass movement); pay attention not to damage the cable that connects the lower part with the upper one;
3)	Take off the batteries from the transmitter;
4)	Insert new batteries, respecting the polarity; "+" symbol stamped on the bottom of the transmitter identifies the way to insert the batteries; the two batteries **ARE NOT** turned to the same direction;
5)	Close again the transmitter; pay attention not to damage the cable that connects the lower part with the upper one;
6)	Place again and tighten the screw on the lower side of the transmitter.

Now it is possible to use the remote control again.

ATTENTION!
If the remote control is not used for long time, or the batteries are low, they must be removed from their seat. Possible loss of acids can definitively damage the transmitter and can constitute a danger for the operator! In case of contact or ingestion of substances leaked from the transmitter, immediately contact a doctor or a Poison Center.

ATTENTION!
Take care of the regulations in your Country for discarding of exhausted batteries.

ATTENTION!
Rechargeable batteries don't guarantee functioning of the transmitter.

ATTENTION!
CSN Industrie is engaged to equip the transmitter with batteries of good quality, but their duration is strongly depending from the operating conditions. Batteries are excluded from the guarantee.

TROUBLE SHOOTING

FAULT	CAUSE	SOLUTION
Transmitter doesn't switch on	Batteries lacking, dead or not correctly positioned	Check and/or replace batteries
Transmitter turns on but the exposure doesn't start	Receiver module is not correctly installed	Check the installation
	Three wires cable is disconnected	Check cable connection to the terminal block **J1** (look at instructions "Installation of the receiver module")
Pressing (**I)** button the led (**H)** starts blinking ; after 10 blinks the led turns off	The two modules are not registered	Perform the registration procedure
	MAX70 is turned off	Turn MAX70 on
	Batteries are dead	Replace batteries
Pressing (**I)** button the led (**H)** starts blinking ; after 10 blinks the led **remains** on	Batteries are low and the emission could be not completed	Replace batteries

In case of unsuccessful operation try to make an exposure by acting on palm control of MAX70; in this way you may exclude bad working caused by reasons unrelated to the remote control.
If technical assistance of CSN Industrie becomes necessary, please take note of the serial numbers of the X-Ray system parts; you will save time because our technicians will immediately know the configuration of your MAX70.